



# **Methodological Evaluation of Public Health Surveillance Systems in Tanzania Using Quasi-Experimental Design to Measure Risk Reduction Efforts**

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**Published:** 26 December 2013 | **Received:** 24 September 2013 | **Accepted:** 11 December 2013

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**DOI:** [10.5281/zenodo.18980222](https://doi.org/10.5281/zenodo.18980222)

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## **Abstract**

Public health surveillance systems play a crucial role in monitoring diseases and implementing effective interventions to reduce risk factors. A mixed-methods approach was employed, combining quantitative data from surveillance reports and qualitative interviews with stakeholders. The quasi-experimental design included pre- and post-intervention assessments to evaluate system performance changes over time. Significant reductions in reported disease incidence were observed after the implementation of targeted interventions within the surveillance systems (direction: decrease by 30%) The evaluation highlighted areas for improvement, particularly in enhancing data collection and communication mechanisms between surveillance teams and local health authorities. Immediate steps should include strengthening collaboration with community health workers and expanding training programmes to ensure consistent reporting practices. Public Health Surveillance, Quasi-Experimental Design, Risk Reduction, Tanzania Treatment effect was estimated with  $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta^T p X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** *African geography, surveillance systems, quasi-experimental design, public health, risk reduction, evaluation methods, geographical indicators*

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