African Hematology and Oncology

Methodological Evaluation of Public Health Surveillance Systems in Senegal: Quasi-Experimental Design for Risk Reduction Analysis

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Published: 17 July 2005 | **Received:** 15 February 2005 | **Accepted:** 30 May 2005

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DOI: 10.5281/zenodo.18806811

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Abstract

Public health surveillance systems in Senegal are crucial for monitoring infectious diseases such as malaria and tuberculosis. However, their effectiveness can vary depending on implementation details. A mixed-method approach combining quantitative data analysis with qualitative interviews was employed. The study used a difference-in-differences (DID) regression model for causal inference. There is a significant decrease in reported malaria cases post-intervention, though the exact proportion needs further investigation. The quasi-experimental design demonstrated promise in identifying potential risk reduction effects but requires more robust data collection and analysis. Enhanced surveillance systems should be regularly evaluated for their impact on disease control. public health, surveillance systems, malaria, tuberculosis, difference-in-differences (DID) Treatment effect was estimated with $text\{logit\}(\pi) = beta 0 + \beta^{\rightarrow} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, African, Quasi-experimental, Health surveillance, Systems evaluation, Quantitative methods, Data validation*

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