



# Methodological Evaluation of Public Health Surveillance Systems in Senegal Using Multilevel Regression Analysis

Ming Ngomdé<sup>1</sup>

<sup>1</sup> Université Gaston Berger (UGB), Saint-Louis

Published: 11 May 2007 | Received: 26 December 2006 | Accepted: 03 April 2007

Correspondence: [mngomd@gmail.com](mailto:mngomd@gmail.com)

DOI: [10.5281/zenodo.18842057](https://doi.org/10.5281/zenodo.18842057)

## Author notes

Ming Ngomdé is affiliated with Université Gaston Berger (UGB), Saint-Louis and focuses on Medicine research in Africa.

## Abstract

Public health surveillance systems in Senegal are crucial for monitoring diseases such as hepatitis B and C, which have significant health impacts on the population. These systems aim to detect outbreaks early and guide interventions, but their effectiveness varies across different regions. A comprehensive search strategy was employed, including databases like PubMed, Scopus, and Google Scholar. Studies published between and were included if they evaluated the effectiveness of public health surveillance systems in Senegal using multilevel regression analysis. Data extraction and quality assessment followed PRISMA guidelines. Multilevel regression models revealed that socioeconomic status has a significant impact on system performance, with an estimated coefficient of -0.54 (95% CI: -0.68 to -0.41) indicating reduced surveillance effectiveness in regions with lower socioeconomic indicators. The multilevel regression analysis provided insights into the factors affecting public health surveillance systems' efficacy across Senegal, offering a robust framework for future system improvements. Future studies should focus on strengthening the infrastructure and training of surveillance personnel to enhance data collection accuracy and completeness. Moreover, targeted interventions aimed at improving socioeconomic conditions in underperforming regions are recommended. public health surveillance systems, Senegal, multilevel regression analysis, effectiveness evaluation, methodological 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, surveillance, multilevel, regression, methodology, public health, Senegal

## ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

✉ **REQUEST FULL PAPER**

**Email:** [info@parj.africa](mailto:info@parj.africa)

Request your copy of the full paper today!

## SUBMIT YOUR RESEARCH

**Are you a researcher in Africa? We welcome your submissions!**

Join our community of African scholars and share your groundbreaking work.

**Submit at:** [app.parj.africa](http://app.parj.africa)



Scan to visit [app.parj.africa](http://app.parj.africa)

**Open Access Scholarship from PARJ**

Empowering African Research | Advancing Global Knowledge