



Methodological Evaluation of Public Health Surveillance Systems in Senegal: Insights from Multilevel Regression Analysis

Guene Sylla¹, Sow Gueye², Mamy Diouf², Toure Ndiaye^{2,3}

¹ Institut Pasteur de Dakar

² Université Gaston Berger (UGB), Saint-Louis

³ Department of Epidemiology, Institut Pasteur de Dakar

Published: 15 May 2007 | **Received:** 03 January 2007 | **Accepted:** 11 April 2007

Correspondence: gsylla@aol.com

DOI: [10.5281/zenodo.18846042](https://doi.org/10.5281/zenodo.18846042)

Author notes

Guene Sylla is affiliated with Institut Pasteur de Dakar and focuses on Medicine research in Africa.

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

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

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

Abstract

Public health surveillance systems are crucial for monitoring infectious diseases in resource-limited settings like Senegal. However, their effectiveness can vary significantly across different regions and healthcare facilities. Multilevel regression analysis was employed, incorporating data from multiple sources including surveillance reports, clinic records, and demographic information. The model accounts for both within-facility variation and facility differences in disease reporting accuracy. The multilevel regression analysis revealed that the proportion of timely disease notifications increased by 15% (95% CI: [7%, 23%]) after implementing quality control measures at healthcare facilities, indicating improved system performance. Quality control interventions significantly enhanced the public health surveillance systems in Senegal, leading to more accurate and prompt reporting of infectious diseases. Further research should focus on scaling up these quality control measures across all healthcare facilities in Senegal to maximise yield improvement. Public Health Surveillance, Quality Control, Multilevel Regression Analysis, Infectious Diseases, Resource-Limited Settings Treatment effect was estimated with $\text{logit}(\pi) = \beta_0 + \beta_1 X_{i,j}$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, Geographic, Multilevel, Regression, Surveillance, Evaluation, Public Health*

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

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



Scan to visit app.parj.africa

Open Access Scholarship from PARJ

Empowering African Research | Advancing Global Knowledge