African Critical Care Nursing

Methodological Evaluation of Public Health Surveillance Systems in Senegal Using Panel Data for Reliability Assessment

Mamadou Thiam[1,2], **Sékou Sow**[2]

[1] Department of Clinical Research, African Institute for Mathematical Sciences (AIMS) Senegal

[2] Université Gaston Berger (UGB), Saint-Louis

Published: 02 March 2012 | **Received:** 24 October 2011 | **Accepted:** 11 February 2012

Correspondence: mthiam@gmail.com

DOI: 10.5281/zenodo.18947096

Author notes

Mamadou Thiam is affiliated with Department of Clinical Research, African Institute for Mathematical Sciences (AIMS) Senegal and focuses on Medicine research in Africa.

Sékou Sow 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 Senegal. These systems aim to provide timely and accurate data on disease incidence, which is essential for effective public health interventions. A mixed-method approach was employed, combining quantitative panel-data regression models with qualitative interviews and observations. Panel Data Estimation Techniques (PDET) were used to evaluate the reliability of public health surveillance data over time. The analysis revealed a significant positive relationship between timely reporting by healthcare facilities and accurate disease incidence estimates, indicating that enhanced reporting systems could improve system reliability. This study provides insights into the effectiveness of current public health surveillance practices in Senegal and offers recommendations for improving data collection and accuracy. The findings suggest that strengthening training programmes for healthcare workers and implementing robust data management protocols are necessary to enhance the reliability of public health surveillance systems. Treatment effect was estimated with $text\{logit\}(\pi)=beta0+\beta^{\rightarrow} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, infectious diseases, panel data, reliability assessment, econometrics, surveillance systems, geographic information systems*