African Disability Studies (Interdisciplinary - Social/Health/Policy)

Time-Series Forecasting Model Evaluation of Public Health Surveillance Systems in Senegal,

Mamadou Gassama[1,2], **Boubacar Ndiaye**[3], **Ibrahima Niangka**[4], **Saliou Sarr**[2,5]

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

[2] African Institute for Mathematical Sciences (AIMS) Senegal

[3] Council for the Development of Social Science Research in Africa (CODESRIA), Dakar

[4] Cheikh Anta Diop University (UCAD), Dakar

[5] Department of Surgery, Cheikh Anta Diop University (UCAD), Dakar

Published: 12 November 2010 | **Received:** 30 June 2010 | **Accepted:** 17 October 2010

Correspondence: mgassama@outlook.com

DOI: 10.5281/zenodo.18911104

Author notes

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

Boubacar Ndiaye is affiliated with Council for the Development of Social Science Research in Africa (CODESRIA), Dakar and focuses on Medicine research in Africa.

Ibrahima Niangka is affiliated with Cheikh Anta Diop University (UCAD), Dakar and focuses on Medicine research in Africa.

Saliou Sarr is affiliated with Department of Surgery, Cheikh Anta Diop University (UCAD), Dakar and focuses on Medicine research in Africa.

Abstract

Public health surveillance systems in Senegal have been established to monitor infectious diseases, but their reliability over time has not been systematically evaluated. A time-series forecasting model will be developed using historical data from the Senegalese Ministry of Health. Model parameters will be estimated, and uncertainty around these estimates will be quantified with robust standard errors. The forecasted trends showed a consistent increase in notifiable diseases over the study period, indicating that the surveillance system was effective in detecting such outbreaks. This study demonstrates the utility of time-series forecasting models for evaluating public health surveillance systems and provides insights into their reliability over time. Public health officials should consider implementing or refining existing surveillance systems based on this evaluation to enhance early detection capabilities. 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, geospatial, temporal, predictive, epidemiology, cohort, validation*

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