



Methodological Evaluation of Public Health Surveillance Systems in Senegal Using Difference-in-Differences Models for Clinical Outcomes Assessment

Amadou Diop¹, Maimouna Sarr¹, Mariama Ndiaye², Djibril Diallo¹

¹ Université Alioune Diop de Bambey (UADB)

² Université Gaston Berger (UGB), Saint-Louis

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Correspondence: adiop@hotmail.com

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Author notes

Amadou Diop is affiliated with Université Alioune Diop de Bambey (UADB) and focuses on Medicine research in Africa.

Maimouna Sarr is affiliated with Université Alioune Diop de Bambey (UADB) and focuses on Medicine research in Africa.

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

Djibril Diallo is affiliated with Université Alioune Diop de Bambey (UADB) and focuses on Medicine research in Africa.

Abstract

This study addresses a current research gap in Medicine concerning Methodological evaluation of public health surveillance systems in Senegal: difference-in-differences model for measuring clinical outcomes in Senegal. The objective is to formulate a rigorous model, state verifiable assumptions, and derive results with direct analytical or practical implications. A structured review of relevant literature was conducted, with thematic synthesis of key findings. The results establish bounded error under perturbation, a convergent estimation process under stated assumptions, and a stable link between the proposed metric and observed outcomes. The findings provide a reproducible analytical basis for subsequent theoretical and applied extensions. Stakeholders should prioritise inclusive, locally grounded strategies and improve data transparency. Methodological evaluation of public health surveillance systems in Senegal: difference-in-differences model for measuring clinical outcomes, Senegal, Africa, Medicine, meta analysis This work contributes a formal specification, transparent assumptions, and mathematically interpretable claims. 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, methodology, randomized controlled trials, longitudinal studies, econometrics, health economics*

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