African Gene Therapy

Methodological Evaluation of Public Health Surveillance Systems in Senegal Using Difference-in-Differences Models

Mama Diop[1], **Diallo Konaté**[1,2], **Samba Ndiaye**[2], **Yassine Ba**[3,4]

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

[2] Institut Pasteur de Dakar

[3] Department of Pediatrics, Institut Pasteur de Dakar

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

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Correspondence: mdiop@outlook.com

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Author notes

Mama Diop is affiliated with Cheikh Anta Diop University (UCAD), Dakar and focuses on Medicine research in Africa.
Diallo Konaté is affiliated with Cheikh Anta Diop University (UCAD), Dakar and focuses on Medicine research in Africa.
Samba Ndiaye is affiliated with Institut Pasteur de Dakar and focuses on Medicine research in Africa.
Yassine Ba is affiliated with Department of Pediatrics, Institut Pasteur de Dakar and focuses on Medicine research in Africa.

Abstract

Public health surveillance systems in developing countries often face challenges in data collection and analysis, which can hinder effective disease prevention and control strategies. A difference-in-differences (DiD) regression model was employed to analyse changes in disease reporting rates before and after the introduction of new surveillance protocols. Data were collected from the Ministry of Health's health information system, with a focus on infectious diseases. The DiD analysis revealed an average increase of 15% in reported cases post-intervention, suggesting improvements in data accuracy and completeness. This study demonstrates the effectiveness of the DiD model for evaluating public health surveillance systems and highlights the need for continuous system optimization to enhance disease reporting efficiency. Public health authorities should prioritise regular system audits and training programmes to maintain high-quality surveillance data. Senegal, Public Health Surveillance, Difference-in-Differences (DiD), Efficiency Gains Treatment effect was estimated with $text\{logit\}(\pi) = beta0 + \vec{\beta}\ p\ X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, surveillance, econometric, intervention, evaluation, randomized, framework*

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