Methodological Evaluation of Public Health Surveillance Systems in South Africa: Quasi-Experimental Design for Risk Reduction Measurement

Sipho Motshega[1], **Mkhulu Ngubane**[2]**, Naledi Khumalo**[2,3]**, Khanyiswe Nkosi**[4]

[1] University of Cape Town

[2] Council for Scientific and Industrial Research (CSIR)

[3] Department of Epidemiology, Graduate School of Business, UCT

[4] Department of Clinical Research, University of Cape Town

Author notes

Sipho Motshega is affiliated with University of Cape Town and focuses on Medicine research in Africa.
Mkhulu Ngubane is affiliated with Council for Scientific and Industrial Research (CSIR) and focuses on Medicine research in Africa.
Naledi Khumalo is affiliated with Council for Scientific and Industrial Research (CSIR) and focuses on Medicine research in Africa.
Khanyiswe Nkosi is affiliated with Department of Clinical Research, University of Cape Town and focuses on Medicine research in Africa.

Abstract

Public health surveillance systems play a crucial role in monitoring infectious diseases and other public health threats across South Africa. A mixed-methods approach was employed, combining quantitative data analysis with qualitative interviews to assess system performance and identify areas for improvement. The preliminary results suggest that current surveillance systems are effective in detecting outbreaks within the expected 72-hour timeframe (mean detection time: 68 hours), although there is room for optimization regarding timeliness and accuracy. While the existing public health surveillance systems demonstrate adequate performance, further refinements are needed to enhance their efficiency and effectiveness. Immediate improvements should include enhancing data interoperability, increasing training for healthcare workers, and implementing real-time communication protocols between surveillance centers. Treatment effect was estimated with $text\{logit\}(\pi) = beta\,0 + \beta^{-}\,p\,X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, Quasi-Experimental, Surveillance, Epidemiology, PublicHealth, Evaluation, GeographicMapping*

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