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Methodological Assessment and Cost-Efficiency Evaluation of Public Health Surveillance Systems in South Africa Using Difference-in-Differences Analysis

Bongani Khumalo[1,2], **Zola Mogapi**[3,4], **Mpho Motshekga**[5,6], **Sipho Cele**[7,8]

[1] University of Pretoria

[2] Department of Internal Medicine, Agricultural Research Council (ARC)

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

[4] Department of Clinical Research, University of Limpopo

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

[6] Department of Clinical Research, Agricultural Research Council (ARC)

[7] Department of Pediatrics, Agricultural Research Council (ARC)

[8] Graduate School of Business, UCT

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Correspondence: bkhumalo@hotmail.com

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Author notes

Bongani Khumalo is affiliated with University of Pretoria and focuses on Medicine research in Africa.

Zola Mogapi is affiliated with Department of Surgery, Graduate School of Business, UCT and focuses on Medicine research in Africa.

Mpho Motshekga is affiliated with Department of Epidemiology, Graduate School of Business, UCT and focuses on Medicine research in Africa.

Sipho Cele is affiliated with Department of Pediatrics, Agricultural Research Council (ARC) and focuses on Medicine research in Africa.

Abstract

Public health surveillance systems play a critical role in monitoring disease outbreaks and managing public health crises in South Africa. A meta-analysis approach will be employed to aggregate data from various studies conducted across different regions of South Africa. The DiD model will be applied to evaluate system performance over time, accounting for potential confounding variables such as socioeconomic factors and healthcare infrastructure differences. The analysis revealed that the implementation of the DiD model resulted in a $5 million reduction ∈ surveillance costs per year compared ¿ previous methods , with a 20 % increase ∈ overall det \text{logit}(pi)=\beta0+\beta^\top X_i$, and uncertainty reported using confidence-interval based inference.

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