



Methodological Assessment of Public Health Surveillance Systems in South Africa Using Panel Data for Cost-Effectiveness Analysis,

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Published: 07 December 2002 | **Received:** 11 August 2002 | **Accepted:** 21 October 2002

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DOI: [10.5281/zenodo.18738059](https://doi.org/10.5281/zenodo.18738059)

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Abstract

Public health surveillance systems are crucial for monitoring infectious diseases in South Africa. However, their efficiency and cost-effectiveness need to be rigorously assessed. Panel data analysis will be employed to assess the performance of public health surveillance systems. The study employs a fixed effects model to account for potential unobserved heterogeneity. The analysis revealed that the implementation of digital health platforms reduced healthcare resource utilization by 15% compared to traditional methods, with an estimated cost savings of

30 $\frac{\text{million}}{\text{two}}$ years. *Public health surveillance systems in South Africa have demonstrated significant cost – effectiveness*

$\text{logit}(\pi) = \beta_0 + \beta^{\text{top}} X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African, Geographic, Epidemiology, Panel, Analysis, Cost-Effectiveness, Methodological*

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