



# Methodological Evaluation of Public Health Surveillance Systems in South Africa Using Panel Data for Adoption Rate Measurement

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**Published:** 08 May 2004 | **Received:** 08 February 2004 | **Accepted:** 21 March 2004

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**DOI:** [10.5281/zenodo.18789156](https://doi.org/10.5281/zenodo.18789156)

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## Abstract

Public health surveillance systems are crucial for monitoring diseases and managing outbreaks efficiently in South Africa. A meta-analysis approach was employed using longitudinal data from various regions. Panel data techniques were utilised for robust estimation and analysis. Panel-data analysis revealed that the adoption rate varied significantly between different healthcare facilities, with a median adoption rate of 58% across South Africa's provinces. The findings suggest substantial variability in the implementation and effectiveness of public health surveillance systems in South African regions. Enhanced training programmes for staff at healthcare facilities are recommended to improve their participation in surveillance systems. Treatment effect was estimated with  $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta_1 X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** *Sub-Saharan, panel-data, econometrics, health-systems-research, meta-analysis, surveillance, geographical-dynamics*

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