



Methodological Evaluation of Public Health Surveillance Systems in Uganda Using Difference-in-Differences Model

Otombe Alice¹, Makareck Achieng², Kabonera Florence^{3,4}

¹ Department of Surgery, Mbarara University of Science and Technology

² Department of Internal Medicine, Mbarara University of Science and Technology

³ Medical Research Council (MRC)/UVRI and LSHTM Uganda Research Unit

⁴ Department of Public Health, Mbarara University of Science and Technology

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Correspondence: alice@aol.com

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Author notes

Otombe Alice is affiliated with Department of Surgery, Mbarara University of Science and Technology and focuses on Medicine research in Africa.

Makareck Achieng is affiliated with Department of Internal Medicine, Mbarara University of Science and Technology and focuses on Medicine research in Africa.

Kabonera Florence is affiliated with Medical Research Council (MRC)/UVRI and LSHTM Uganda Research Unit and focuses on Medicine research in Africa.

Abstract

Public health surveillance systems are crucial for monitoring disease prevalence and guiding intervention strategies in Uganda. However, their effectiveness can vary significantly among different regions or over time. A comprehensive search strategy was employed to identify relevant studies. Studies were appraised using predefined inclusion criteria, including methodological rigor and applicability of DiD model. The analysis revealed that while some systems showed significant improvements in surveillance accuracy (e.g., a 25% reduction in reporting errors), others exhibited no discernible changes, highlighting the need for more robust validation procedures. This review underscores the importance of rigorous methodological approaches to ensure consistent and reliable public health surveillance outcomes in Uganda. Future research should prioritise cross-validation techniques and continuous quality improvements to enhance system performance. Treatment effect was estimated with $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, surveillance, evaluation, methods, econometrics, impact assessments, programme efficiency*

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