



Methodological Evaluation of Public Health Surveillance Systems in Uganda Using Time-Series Forecasting Models

Owino David Magoma^{1,2}, Gendo Nkowane^{3,4}, Nakatoza Musoke^{1,5}, Abdi Isaac Mutumba^{1,6}

¹ Gulu University

² Department of Public Health, Kyambogo University, Kampala

³ Department of Clinical Research, Kyambogo University, Kampala

⁴ Uganda National Council for Science and Technology (UNCST)

⁵ Busitema University

⁶ Department of Epidemiology, Uganda National Council for Science and Technology (UNCST)

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Correspondence: omagoma@yahoo.com

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Author notes

Owino David Magoma is affiliated with Gulu University and focuses on Medicine research in Africa.

Gendo Nkowane is affiliated with Department of Clinical Research, Kyambogo University, Kampala and focuses on Medicine research in Africa.

Nakatoza Musoke is affiliated with Busitema University and focuses on Medicine research in Africa.

Abdi Isaac Mutumba is affiliated with Department of Epidemiology, Uganda National Council for Science and Technology (UNCST) and focuses on Medicine research in Africa.

Abstract

Public health surveillance systems are crucial for monitoring disease prevalence and guiding public health interventions in Uganda. However, their effectiveness can vary significantly across different regions. The study employed a meta-analysis approach, synthesizing data from existing surveillance system reports. Time-series forecasting models were applied to predict and analyse trends in disease incidence data. The analysis revealed a moderate positive correlation ($r = 0.52$) between the number of reported cases and subsequent yield improvement over a five-year period ($p < 0.01$). The findings suggest that improvements in surveillance system effectiveness are correlated with higher yields, indicating potential for targeted interventions. Investment in robust public health surveillance systems is recommended to enhance disease monitoring and intervention strategies in Uganda.

Keywords: *Sub-Saharan, surveillance, methodology, forecasting, econometrics, time-series, health metrics*

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