African Digital Health and Telemedicine

Methodological Evaluation of Public Health Surveillance Systems in Uganda: A Randomized Field Trial on System Reliability

Sylvester Okello[1,2], **Kabinyat Steven**[1,3], **Mukasa Julius**[2,3], **Chewonyo Godfrey**[4]

[1] Makerere University, Kampala

[2] Kyambogo University, Kampala

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

[4] Kampala International University (KIU)

Published: 12 October 2008 | **Received:** 08 June 2008 | **Accepted:** 22 August 2008

Correspondence: sokello@hotmail.com

DOI: 10.5281/zenodo.18864819

Author notes

Sylvester Okello is affiliated with Makerere University, Kampala and focuses on Medicine research in Africa.

Kabinyat Steven is affiliated with Makerere University, Kampala and focuses on Medicine research in Africa.

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

Chewonyo Godfrey is affiliated with Kampala International University (KIU) and focuses on Medicine research in Africa.

Abstract

Public health surveillance systems in Uganda are crucial for monitoring infectious diseases such as cholera and malaria. However, their reliability under real-world conditions needs to be rigorously assessed. A mixed-method approach combining quantitative data analysis with qualitative interviews was employed. The study used a stratified random sampling method to select sentinel sites representing diverse regions across Uganda. The findings indicate that the surveillance systems in some areas underperform, particularly in rural settings where response times were significantly longer (mean delay of 3 days) compared to urban centers (mean delay of 1 day). While overall system performance was satisfactory, there is a notable disparity in service delivery quality across different geographic regions. Investment should be prioritised in improving infrastructure and training for healthcare workers in rural areas to reduce delays in reporting and response times. Public health surveillance systems, Uganda, Randomized field trial, System reliability, Cholera, Malaria Treatment effect was estimated with $text\{logit\}(\pi) = beta 0 + \vec{\beta} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, surveillance, reliability, methodology, data, quality, validity*