African Gastroenterology

Methodological Evaluation of Public Health Surveillance Systems in Kenya: A Randomized Field Trial to Assess System Reliability

Agnes Wanyonyi[1], **Samson Ochieng**[2], **Ezekiel Kioni**[3], **Wambui Mwangi**[4]

[1] Department of Epidemiology, Egerton University

[2] University of Nairobi

[3] Department of Surgery, Kenyatta University

[4] African Population and Health Research Center (APHRC)

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Correspondence: awanyonyi@yahoo.com

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Author notes

Agnes Wanyonyi is affiliated with Department of Epidemiology, Egerton University and focuses on Medicine research in Africa.

Samson Ochieng is affiliated with University of Nairobi and focuses on Medicine research in Africa.

Ezekiel Kioni is affiliated with Department of Surgery, Kenyatta University and focuses on Medicine research in Africa.

Wambui Mwangi is affiliated with African Population and Health Research Center (APHRC) and focuses on Medicine research in Africa.

Abstract

Public health surveillance systems are crucial for monitoring infectious diseases in Kenya. However, their reliability is often questioned due to potential biases and inefficiencies. A randomized field trial was conducted across three regions in Kenya. A binary logistic regression model with robust standard errors was used to analyse data collected from healthcare facilities. Systematic underreporting of cases was detected in one region, leading to a 15% underestimation of actual case numbers compared to reported figures. The randomized field trial demonstrated that public health surveillance systems can be improved by addressing identified weaknesses. Health authorities should prioritise training and standardization of reporting protocols across all regions to enhance system reliability. Treatment effect was estimated with $text\{logit\}(\pi) = beta 0 + \vec{\beta} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Kenya, Public Health Surveillance, Reliability Assessment, Randomized Controlled Trial, Data Quality, Sampling Methods, Epidemiology Systems*

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