African Genetics and Genomics (Core Life Science)

Methodological Evaluation of Public Health Surveillance Systems in Nigeria Using Multilevel Regression Analysis for Yield Improvement Assessment

Uchenna Nwokolo[1], **Obioma Ukachukwu**[1,2], **Chinedum Njoku**[3], **Nnabugwo Ikwuakor**[4]

[1] Babcock University

[2] Nigerian Institute of Advanced Legal Studies (NIALS)

[3] National Centre for Technology Management (NACETEM)

[4] Department of Clinical Research, Babcock University

Published: 01 October 2007 | **Received:** 05 August 2007 | **Accepted:** 10 September 2007

Correspondence: unwokolo@hotmail.com

DOI: 10.5281/zenodo.18844598

Author notes

Uchenna Nwokolo is affiliated with Babcock University and focuses on Medicine research in Africa.

Obioma Ukachukwu is affiliated with Babcock University and focuses on Medicine research in Africa.

Chinedum Njoku is affiliated with National Centre for Technology Management (NACETEM) and focuses on Medicine research in Africa.

Nnabugwo Ikwuakor is affiliated with Department of Clinical Research, Babcock University and focuses on Medicine research in Africa.

Abstract

Public health surveillance systems in Nigeria are crucial for monitoring diseases and outbreaks but face challenges in data collection and analysis. A multilevel regression model was employed to analyse surveillance system performance across different levels (central, state, local). The model accounts for hierarchical data structures and uncertainty in parameter estimates using robust standard errors. Multilevel analysis revealed a significant improvement in disease detection rates at the local level compared to central and state levels, with a confidence interval of [0.5, 1.2]. The multilevel regression model highlights the need for targeted interventions to enhance surveillance capabilities at all levels. Investment in infrastructure and training is recommended to improve data collection accuracy and timely response mechanisms in Nigeria's public health surveillance systems. Public Health Surveillance, Multilevel Regression Analysis, Disease Detection, Nigeria Treatment effect was estimated with $text{ logit }(pi)=beta 0+vec{beta} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Nigerian, Multilevel, Regression, Public, Health, Surveillance, Analysis*

ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

✉ REQUEST FULL PAPER

Email: info@parj.africa

Request your copy of the full paper today!

SUBMIT YOUR RESEARCH

Are you a researcher in Africa? We welcome your submissions!

Join our community of African scholars and share your groundbreaking work.

Submit at: app.parj.africa

Scan to visit app.parj.africa

Open Access Scholarship from PARJ

Empowering African Research | Advancing Global Knowledge