



# Bayesian Hierarchical Model for Evaluating Adoption Rates in Public Health Surveillance Systems in Uganda,

Mpimbuzi Mugenyi<sup>1</sup>, Kizza Muhanguzira<sup>2</sup>

<sup>1</sup> Gulu University

<sup>2</sup> Makerere University Business School (MUBS)

**Published:** 16 July 2006 | **Received:** 22 February 2006 | **Accepted:** 05 June 2006

**Correspondence:** [mmugenyi@outlook.com](mailto:mmugenyi@outlook.com)

**DOI:** [10.5281/zenodo.18840489](https://doi.org/10.5281/zenodo.18840489)

## Author notes

*Mpimbuzi Mugenyi is affiliated with Gulu University and focuses on Medicine research in Africa.*

*Kizza Muhanguzira is affiliated with Makerere University Business School (MUBS) and focuses on Medicine research in Africa.*

## Abstract

Public health surveillance systems in Uganda have been established to monitor diseases and provide early warnings for disease outbreaks. A Bayesian hierarchical model was applied to analyse data on system adoption rates from multiple sites in Uganda, incorporating uncertainty through robust standard errors. The analysis revealed that the adoption rate varied significantly across different regions of Uganda, with some areas having an adoption rate as high as 85% among healthcare workers. The Bayesian hierarchical model provided a nuanced understanding of system adoption rates and highlighted regional disparities in its implementation. Future studies should consider factors influencing the adoption rates to improve public health surveillance systems' effectiveness. Bayesian Hierarchical Model, Public Health Surveillance Systems, Adoption Rates, Uganda Treatment effect was estimated with  $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta^{-1} p X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** *African geography, Bayesian statistics, Hierarchical modelling, Public health surveillance, Quantitative analysis, Geographic information systems, Spatial data 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](mailto: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](http://app.parj.africa)



Scan to visit [app.parj.africa](http://app.parj.africa)

**Open Access Scholarship from PARJ**

Empowering African Research | Advancing Global Knowledge