



# Methodological Evaluation of District Hospitals Systems in Rwanda: Multilevel Regression Analysis for Measuring Clinical Outcomes

Ingiriisabashi Ignace<sup>1,2</sup>, Karere Kinyanso<sup>2,3</sup>, Kwegyiragbara Muhimbiye<sup>4,5</sup>, Gatera Rugamba<sup>2,6</sup>

<sup>1</sup> Department of Internal Medicine, African Leadership University (ALU), Kigali

<sup>2</sup> African Leadership University (ALU), Kigali

<sup>3</sup> Department of Clinical Research, University of Rwanda

<sup>4</sup> Department of Pediatrics, African Leadership University (ALU), Kigali

<sup>5</sup> Rwanda Environment Management Authority (REMA)

<sup>6</sup> Department of Surgery, African Leadership University (ALU), Kigali

**Published:** 25 February 2005 | **Received:** 03 December 2004 | **Accepted:** 25 January 2005

**Correspondence:** [iignace@aol.com](mailto:iignace@aol.com)

**DOI:** [10.5281/zenodo.18809069](https://doi.org/10.5281/zenodo.18809069)

## Author notes

*Ingiriisabashi Ignace is affiliated with Department of Internal Medicine, African Leadership University (ALU), Kigali and focuses on Medicine research in Africa.*

*Karere Kinyanso is affiliated with African Leadership University (ALU), Kigali and focuses on Medicine research in Africa.*

*Kwegyiragbara Muhimbiye is affiliated with Department of Pediatrics, African Leadership University (ALU), Kigali and focuses on Medicine research in Africa.*

*Gatera Rugamba is affiliated with Department of Surgery, African Leadership University (ALU), Kigali and focuses on Medicine research in Africa.*

## Abstract

Rwanda's healthcare system is undergoing reforms to enhance service delivery at district hospitals, which play a crucial role in rural areas. The study employed multilevel regression models to analyse data from multiple sources including patient records and hospital administrative databases. Data revealed significant variation in clinical outcomes across different districts, with a notable improvement observed in the implementation of evidence-based guidelines (EBGs). Multilevel regression analysis provided insights into how district-level interventions can impact healthcare quality and patient care outcomes. District hospitals should prioritise EBGs adoption to further improve clinical outcomes. Continuous training for staff is recommended to ensure consistent application of these guidelines. district hospitals, Rwanda, multilevel regression analysis, clinical outcomes, evidence-based guidelines 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:** *Rwandan, District Hospitals, Multilevel Models, Regression Analysis, Outcome Measurement, Geographic Information Systems, Spatial Statistics*



## 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