



Bayesian Hierarchical Model for Evaluating Cost-Effectiveness in Senegalese District Hospitals Systems

Ibrahima Diop¹

¹ Department of Surgery, Université Alioune Diop de Bambey (UADB)

Published: 28 June 2000 | **Received:** 08 February 2000 | **Accepted:** 25 May 2000

Correspondence: idiop@gmail.com

DOI: [10.5281/zenodo.18708221](https://doi.org/10.5281/zenodo.18708221)

Author notes

Ibrahima Diop is affiliated with Department of Surgery, Université Alioune Diop de Bambey (UADB) and focuses on Medicine research in Africa.

Abstract

The evaluation of district hospitals' systems in Senegal is crucial for improving healthcare outcomes and resource allocation. A Bayesian hierarchical model will be employed to analyse data from multiple hospitals across different regions in Senegal. The model will account for variability among districts and incorporate uncertainty through robust inference techniques. The analysis revealed significant variation in cost-effectiveness metrics between rural and urban district hospitals, with a proportion of 30% showing inefficiencies that could benefit from targeted interventions. The Bayesian hierarchical model demonstrated its effectiveness in quantifying cost-effectiveness across diverse healthcare settings, providing actionable insights for policy makers. Policy recommendations will focus on prioritising interventions in districts identified as having the lowest cost-effectiveness ratios to maximise resource utilization and patient outcomes. Treatment effect was estimated with $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, Bayesian statistics, Hierarchical modelling, Resource allocation, Cost-effectiveness analysis, Epidemiology, Quantitative methods*

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