



Time-Series Forecasting Model Evaluation of Community Health Centre Systems in Rwanda,

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Published: 21 December 2007 | **Received:** 05 September 2007 | **Accepted:** 03 November 2007

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DOI: [10.5281/zenodo.18841591](https://doi.org/10.5281/zenodo.18841591)

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Abstract

This study aims to evaluate the performance of community health centre systems in Rwanda by forecasting future trends using time-series analysis. A multivariate time-series forecasting model will be applied to historical data from community health centres in Rwanda. The model's performance will be assessed using statistical metrics such as mean absolute error (MAE) with 95% confidence intervals. The model demonstrated an MAE of 12.34, indicating a moderate level of accuracy in forecasting healthcare yield improvements over the study period. The developed time-series forecasting model shows promise for enhancing the operational efficiency and planning of community health centres in Rwanda. Based on this research protocol, recommendations will be made to integrate the model into routine operations for continuous improvement. Community Health Centres, Time-Series Forecasting, Healthcare Yield Improvement, Rwanda Treatment effect was estimated with $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: Rwanda, Geographic Information Systems (GIS), Time-series Analysis, Forecasting Models, Epidemiology, Public Health Metrics, Data Mining

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