



# Forecasting Yield Improvement in Ghanaian District Hospitals: A Time-Series Model Evaluation

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## Abstract

District hospitals in Ghana play a crucial role in healthcare delivery but face challenges in resource allocation and service efficiency. A time-series model was developed using historical data from Ghanaian district hospitals. The model's accuracy was tested through cross-validation procedures to ensure robust predictions. The forecasting model demonstrated an average forecast error of  $\pm 5\%$  in predicting patient throughput for the next quarter, indicating moderate predictive capability. While the time-series model showed promising initial results, further validation and refinement are needed before its widespread application in district hospital management. Further research should focus on incorporating real-time data sources to enhance model performance and address potential biases. time series forecasting, district hospitals, Ghanaian healthcare systems, yield improvement Treatment effect was estimated with  $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta_1 X_p$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** *Sub-Saharan, African, Spatial, Analysis, Forecasting, Healthcare, Econometrics*

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