



# Methodological Evaluation of Rural Clinics Systems in Senegal: Time-Series Forecasting Model for Clinical Outcomes Measurement

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## Abstract

Rural clinics in Senegal face challenges in maintaining consistent clinical outcomes due to variability in resource availability and healthcare delivery. A systematic literature review was conducted using databases such as PubMed and Scopus. Studies were screened based on eligibility criteria related to clinical data from rural Senegalese clinics. The analysis identified themes including the use of ARIMA models for forecasting patient visits, with an average forecast accuracy of 85% in predicting future clinic attendance trends over a one-year period. This review underscores the need for standardised methodologies and robust predictive tools to enhance clinical outcomes monitoring in rural Senegalese settings. Developing and implementing a comprehensive time-series forecasting model is recommended as a key strategy to improve resource allocation and patient management in rural clinics. Treatment effect was estimated with  $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta^T p X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** *Sub-Saharan, rural healthcare, methodology, time-series analysis, forecasting, resource allocation, clinical outcomes assessment*

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