African Agroforestry Research (Forestry/Agriculture)

Time-Series Forecasting Model for Evaluating Clinical Outcomes in Emergency Care Units in Senegal: A Methodological Assessment

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Abstract

Emergency care units (ECUs) in Senegal face challenges related to clinical outcomes due to varying resource availability and patient flow. A time-series forecasting model was developed using historical data from Senegalese ECUs. The model incorporates seasonal adjustments to forecast future trends in patient outcomes with an $ARIMA(1,1,0)$ structure and robust standard errors providing uncertainty estimates. The model demonstrated a significant improvement ($p < 0.05$) in forecasting accuracy compared to baseline methods, particularly for mortality rates over the next six months. This study validates the applicability of time-series models for enhancing ECU performance and patient care outcomes in resource-limited settings. Implementing this model can guide policy decisions aimed at optimising ECU operations to better serve Senegalese patients. Emergency Care Units, Clinical Outcomes Forecasting, Time-Series Model, ARIMA(1,1,0), Robust Standard Errors

Keywords: *Sub-Saharan, ECU, forecasting, econometric, intervention, resource allocation, outcome assessment*

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