African Veterinary Pharmacology

Time-Series Forecasting Model for Evaluating Emergency Care Units in Senegal,

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Abstract

Emergency care units (ECUs) are critical in managing acute medical emergencies in developing countries like Senegal. The objective is to evaluate their performance and identify areas for improvement. A time-series forecasting model was employed to predict future trends of patient arrivals and treatment outcomes. The model utilised ARIMA (AutoRegressive Integrated Moving Average) methodology with robust standard errors for uncertainty assessment. The forecasted trend showed a steady increase in the number of patients requiring emergency care, suggesting potential overburdening of ECUs if no preventive measures are taken. This study highlights the need for capacity expansion and resource allocation improvements within Senegalese ECUs to ensure adequate patient management. Senegal should consider implementing a triage system to manage patient flow more efficiently, alongside training programmes for healthcare workers in emergency care protocols. Treatment effect was estimated with $text\{logit\}(\pi) = beta0 + \vec{\beta} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, time-series analysis, forecasting models, public health systems, epidemiology, clinical outcomes, resource allocation*