



Time-Series Forecasting Model Evaluation in Emergency Care Units: A Methodological Approach to Assess Clinical Outcomes in Kenya

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Abstract

Emergency care units (ECUs) in Kenya face challenges in managing clinical outcomes due to variability in patient load and resource availability. A time-series forecasting model was developed using historical data from multiple ECU settings. The model's performance was assessed through cross-validation techniques. The forecasted trends showed an 8% reduction in patient wait times compared to actual outcomes, with a confidence interval of $\pm 3\%$. The time-series forecasting model demonstrated potential for improving clinical efficiency and resource allocation in ECUs. Implementing the model could lead to more equitable distribution of resources among ECU settings in Kenya. Emergency Care Units, Time-Series Forecasting, Clinical Outcomes, Resource Allocation Treatment effect was estimated with $\text{text}\{logit\}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: Kenya, Geographic Medicine, Emergency Care, Time-Series Analysis, Forecasting Models, Clinical Outcomes, Systems Evaluation

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