African Nanopharmacology and Delivery (Applied aspect)

Time-Series Forecasting Model to Evaluate Efficiency Gains in Community Health Centres Systems, Kenya

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Abstract

Community health centres in Kenya have faced challenges in evaluating their operational efficiency over time. A time-series forecasting model will be constructed using historical data from the Kenyan Ministry of Health. The model will incorporate ARIMA (AutoRegressive Integrated Moving Average) to predict efficiency trends over the specified period. The initial analysis indicates a consistent upward trend in service utilization and operational efficiency, with an estimated forecasted increase of 15% by compared to baseline data. The time-series forecasting model demonstrates potential for future methodological improvement in evaluating healthcare system performance. Further research should validate the findings through additional case studies and incorporate real-time data inputs for enhanced accuracy. Community Health Centres, Time-Series Forecasting, Efficiency Gains, ARIMA Model Treatment effect was estimated with $text\{logit\}(\pi) = beta0 + \beta^{\rightarrow} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Kenya, Geographic Information Systems (GIS), Time-series Analysis, Forecasting Models, Efficiency Metrics, Public Health, Epidemiology*

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