

ABSTRACT

Ideal drug stock availability is crucial for effective healthcare services at the Bandung Private Health Foundation, but it is often hindered by supply mismatches and challenges in distribution regulations. This study aims to forecast drug availability for asthma using the Prophet algorithm, leveraging historical data from January 2021 to December 2024. The Knowledge Discovery in Database (KDD) methodology was employed, focusing on the top 20 drug brands.

The evaluation revealed that the overall accuracy of the model was very high, with MAPE values ranging from 10.54% to 30.47%, and RMSE values between 0.26 units and 0.71 units. These consistent forecasts, aligned with current trends, strongly support strategic inventory planning for pharmaceuticals. However, visualizations reveal challenges in capturing extreme fluctuations and sudden spikes or drops in actual data, which could impact operational efficiency. This model has proven highly beneficial for strategic planning and is recommended for further development through the integration of external features and research into methods for handling data with sharp fluctuations to achieve more consistent accuracy.

Keywords: Forecasting, Drug Availability, Knowledge Discovery in Database, Asthma, Prophet, Time Series