

# **Cancer cases in Kenya; forecasting incidents using box & Jenkins Arima Model**

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## **Abstract:**

The aim of the study was to fit appropriate time series models in assessing the accuracy of the Box Jenkins and ARIMA model in forecasting of Cancer case admissions for all people of any age from different health facilities across the country. Box-Jenkins was selected for evaluation because it has the potential of producing a point forecast within a given population, it provides a forecast interval, and is based upon a proven model. Forecast results and their associated forecast intervals may help Health facilities and health practitioners make informed decisions about whether the number of observed cancer reports in a given timeframe represents a potential incidence or is a function of random variation. Data management and analysis were done in SPSS Software. The data was segmented into two sets: Training Set (from 2000 to 2015) and the Test Set (from 2016 to 2018). The hold out set (test) provides the gold standard for measuring the model's true prediction error which refers to how well the model forecasts for new data. To note, the test data were only be used after a definitive model has been selected. This was to ensure unbiased estimates of the true forecast error. The results were presented in form of tables, graphs and context. In this study, the developed model for cancer case incidents in Kenya was found to be an ARIMA (2,1,0). From the forecast available by using the developed model, it can be seen that forecasted incidents for the year 2015-16 is higher than 2014-15 and in later years the incidents increases. The model can be used by researchers for forecasting of cancer incidents in Kenya.