Journal of Mathematics and Computer Applications Research (JMCAR)
ISSN(P): 2250-2408; ISSN(E): Applied
Vol. 2, Issue 2, Dec 2015, 1-16
TJPRC Pvt.

MODELING THE TRANSMISSION DYNAMICS OF MALARIA INCIDENCE IN NIGERIA

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ABSTRACT

Malaria is one of the leading causes of death from infectious diseases in the whole realm. It is a preventable but treatable disease which is caused by parasites called plasmodium and transmitted by Anopheles mosquito bites. Owning to the serious health implication of malaria infection, there is every need to develop forecasting techniques which will serve as early warning signals with timely case detection in regions of dynamic malaria transmission, so that preventive and control measures can effectively be implemented. This study is an attempt to model and forecast the incidence of malaria infection in Nigeria using Autoregressive Integrated Moving Average model. The study uses annual data for malaria infection cases for the period 1985 to 2014 in Nigeria. The graphical, unit root and stationarity properties of the data indicates that the series is integrated of order one, I(1). The OLS estimate of the stationary series shows that ARIMA (2,1,2) model is the best candidate to model the incidence of malaria infection in Nigeria. The modeled ARIMA (2,1,2) which is dynamically stable is used to forecast future incidences of malaria in Nigeria from 2015 to 2018. The post forecast values shows a linear growth in the series which indicate higher rates of infection over the predicted period. The study recommends that government of Nigeria at all levels; international agencies and policy makers should embark on strong preventive, curative and control measures in order to reduce the menace of future incidences of malaria in Nigeria.

KEYWORDS: Malaria, Infection, Anopheles mosquito, ARIMA Model, Forecasting, Nigeria

Received: Nov 02, 2015; **Accepted:** Nov 18, 2015; **Published:** Nov 28, 2015; **Paper Id.:** JMCARDEC20151

Original Article