

Time series model on hand, foot and mouth disease in Sarawak, Malaysia

ABSTRACT

Objective: To model and forecast hand, foot and mouth disease (HFMD) cases since there has not been any studies on time series modelling of HFMD in Sarawak, Malaysia.

Methods: The longitudinal data of HFMD collected over the past 7 years (2006-2012) showed a cyclical pattern of outbreak every 2 to 3 years. The data consisted of weekly number of HFMD reported cases from 2006 to 2012. An auto regressive moving average (ARMA) model was fitted to the data. Batting average was used to measure the performance of our forecast for 2013.

Results: The results indicate that ARMA model fit the trends of HFMD in Sarawak very close to the actual data during our study period. Our prediction for the number of HFMD reported cases lies within the 90% interval range for the first 16 weeks in 2013.

Conclusions: An ARMA(1,4) model fits the data well and has good prediction ability of over 90% accuracy.

Keyword: HFMD; Time series; ARMA model; Sarawak