

The east coast districts are the possible epicenter of severe dengue in Sabah

ABSTRACT

Background: Malaysia recorded the highest number of dengue cases between 2014 and 2017. There are 13 states and three federal territories in Malaysia, and each area varies in their prevalence of dengue. Sabah is one of the states situated in Borneo, Malaysia. Although dengue has been increasing for the last several years, no study was being done to understand the burden and serotype distribution of the dengue virus (DENV) in Sabah. Therefore, the present study was carried out to understand the epidemiology of the dengue infection and the factors responsible for severe dengue in Sabah. Methods: Data on dengue infection were extracted from the dengue database of the state of Sabah from 2013 through 2018. DENV NS-1-positive serum samples from multiple sites throughout Sabah were sent to the state public health laboratory, Kota Kinabalu Public Health Laboratory, for serotype determination. The analysis of factors associated with severe dengue was determined from the data of 2018 only. Results: In 2013, there were 724 dengue cases; however, from 2014, dengue cases increased exponentially and resulted in 3423 cases in 2018. Increasing dengue cases also led to increased dengue mortality. The number of dengue deaths in 2013 was only five which then gradually increased, and in 2018, 29 patients died. This is an increase of 580% from 2013 to 2018. Deaths were considerably more in the districts of the east coast of Sabah compared with districts in the west coast. During the study period, all DENV serotypes could be identified as serotypes circulating in Sabah. In 2018, the predominant serotype was DENV-3. The monthly peak of dengue infection varied in different years. In the logistic regression analysis, it was identified that children were 6.5 times, patients infected with mixed serotype of DENV were 13 times, and cases from the districts of the east coast were 5.2 times more likely to develop severe dengue. Conclusions: An increasing trend of dengue infection has been observed in Sabah. The burden of dengue, severe dengue, and mortality was noted especially in the districts of the east coast of Sabah. Severe dengue was most likely developed in children, cases from the east coast, and patients infected with mixed serotype of DENV.