

ABSTRACT**Predictive Models and Mapping of Prone Areas to Outbreaks of Diphtheria in Surabaya City**

The objective of study was to develop predictive models and mapping of prone areas to outbreaks of diphtheria in Surabaya City. This was an observational analytic study with cross sectional design. The study was conducted from January to June 2012. The population and sample was whole village in Surabaya City (160 villages). The data utilized were secondary data from primary healthcare centers, village and statistics center in Surabaya City. The technique for collecting data was observation data using a data collection sheet. Method of processing and data analysis were multiple logistic regression for the prediction and spatial analysis for the map. The results showed that of the seven risk factors were suspected as risk factor for outbreaks of diphtheria, just 3 were eligible to develop predictive models of outbreak of diphtheria. The conclusions were (1) factors that make prediction model is risk population (children aged less than or equal to 15 years), the incidence of diphtheria outbreak the previous year and a booster immunization status. (2a) If a village had a number of children aged ≤ 15 years as much as 4315 or more, and there was an outbreak of diphtheria in previous year and diphtheria booster immunization status below the target of 95%, the probability of outbreak of diphtheria occurred at 80.90%. (2b) This models had predicted accuracy of 73.8%. (2c) A total of 44.44% of 27 villages with a 80.90% probability attacked outbreaks of diphtheria, so that concerned institution should increase vigilance against 15 other villages. (3) Risk factors, the incidence of diphtheria outbreak in 2009-2012 in the city of Surabaya tend to have a pattern of spread, but there was appears a route of transmission is across from north to south. This map can be presented in a web-based.

Keywords : diphtheria, predictive models, mapping