ABSTRACT

The Prediction of Dengue Haemorragic Fever (DHF) in Cimahi Using Hybrid Genetic Algorithm and Fuzzy Logic

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Incidence of Dengue Haemorrhagic Fever (DHF) is a national health problem in Indonesia. Every year dengue morbidity is still high. Particularly in Cimahi, one of the city in West Java province where the morbidity rate (Incidence Rate) in 2005 to 2010 in above the national standard.

Many factors affect the incidence of dengue, such as, climate and living behavior. Therefore, the development of DHF Prediction System which is associated with a climate is expected to help in providing information to Health Department of Cimahi about dengue risk prediction for the coming year. Hence, the Health Departement of Cimahi can take preventive action to reduce morbidity of DHF.

Prediction System that was built with a hybrid algorithm which Genetic Algorithms and Fuzzy Logic is able to obtain 100% testing accuracy in predicting the condition of dengue in the first 6 months in 2009 and 2010 in the district of Northern Cimahi and Central Cimahi. In Southern Cimahi, the prediction results obtained for the first 6 months of 2009 amounted to 100% and with a decrease in accuracy in 2010, the accuracy only 66.67%.

For the relationship between IR and living behavior data, the living behavior data only available yearly while the weather and IR data in monthly. Hence, the data is not adequate to view the relationship between the IR and living behavior and the decreasing or increasing of living behavior is not significantly so that for the data, the living behavior did not influenced IR.

Keywords: Dengue Haemorragic Fever, Incidence Rate, Genetic Algorithm, Fuzzy Logic, Living Behavior