



## Community Vulnerability Map in Endemic Areas of Dengue Hemorrhagic Fever (DHF), Banyumas, Indonesia

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### Dear Editor-in-Chief

The distribution of the *Aedes aegypti* vector by carrying single-stranded RNA viruses from four serotypes (DENV-1, DENV-2, DENV-3 and DENV-4) is increasingly widespread and causes clinical or sub-clinical severity (1). Banyumas Regency Government stated the status of DHF outbreak in Banyumas Regency due to the number of incidents (155 people and 10 people died) (2). The wider spread of DHF will create new maps of community vulnerability, especially in DHF endemic areas. Community vulnerability is influenced by the low participation of the community in *Pemberantasan Sarang Nyamuk* (PSN). PSN is an activity done by society independently in their respective environment to eliminate mosquito breeding places by 3 M (*Menguras, Menutup, Mengubur*). One of the obstacles to vector control is due to the low participation of the community in PSN activities (3). Widespread vector spread due to globalization, trade, urbanization, travel, demographic change, water supply, and air temperature (4).

The study aimed to determine the relationship between the level of community knowledge and practice in PSN and the incidence of DHF as well as describing the map of community vulnerability in DHF endemic areas.

The study population was the community in the working area of Puskesmas 1 and 2, Kembaran

sub-district, Banyumas Regency in 2015. We used Bivariate analysis using Chi-square (X<sup>2</sup>) with  $P < 0.05$  and description of community vulnerability using GIS ver.10.2 software tools.

The characteristics of the community in endemic areas showed that knowledge about DHF was good, but in the implementation of PSN activities it was still lacking. There was no relationship between knowledge with the incidence of DHF and there was a relationship between the practice of PSN and the incidence of DHF. Map of community vulnerability in endemic areas shows the existence of cases living close to healthy people (population at risk). The vulnerability of DHF endemic communities was dominated by the environment, and the knowledge and practice of community PSN is still lacking. Many dengue negative residents live in areas prone to dengue, so the risk of new cases (incidents) will be greater. The vulnerability of people in DHF endemic areas is influenced by the habits of the community to collect water. The habit of storing water in containers indirectly provided a breeding place for *Aedes aegypti* and *Aedes albopictus* as DHF vectors to lay eggs. Dark-colored containers were preferred by the *Aedes aegypti* mosquito to lay eggs (5). By reducing the presence of artificial containers such as bathtubs, buckets are assumed to minimize the incidence of DENV (6).



People in endemic areas knowledge of DHF are mostly good, but still lacking in the practice of PSN. There is a relationship between the incidence of DHF and the practice of PSN. The vulnerability map showed that many DHF negative residents live in dengue-prone areas. DHF-prone areas are dominated by densely populated settlements, slum environmental conditions, and lack of knowledge and practice in PSN. Mobilization of all components of the community is needed to participate in the prevention of dengue fever through PSN activities.

### Conflict of interest

The authors declare that there is no conflict of interest.

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