

THE POLICY DIRECTION OF DENGUE HAEMORRHAGIC FEVER DISEASE MANAGEMENT IN PALEMBANG CITY

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*Corresponding Author, Received: Oct11, 2021. Revised: Nop 21, 2021. Accepted: Dec 4, 2021

ABSTRACT: The aim of this study was to find out the spread of dengue hemorrhagic fever in the city of Palembang and then to create a policy direction for the prevention of dengue hemorrhagic fever in the city of Palembang. This study was undertaken in all areas of Palembang City. This study was descriptive with a quantitative approach. The sample of this study was dengue hemorrhagic fever patients who were found in each health center and community registered at the Palembang City Health Office using purposive sampling technique. Data collection consisted of observation data, the health office, interviews, documentation. Data analysis techniques used consisting geographic information system analysis and Analytical Hierarchy Process. The results indicated that the distribution of dengue hemorrhagic fever was of three levels, namely, high, medium, and low spread in 18 sub-districts in the city of Palembang. Furthermore, the policy directions given were: suppressing the rate of population growth, socializing about dengue hemorrhagic fever, improving drainage channels, eradicating mosquito nests, routine larvae inspection. on providing policy directions for dengue outbreaks starting from a basic understanding of the habitat structure of the aedes aegypti mosquito which will provide information related to the influence of the mosquito landscape in knowing the zoning of vulnerability to dengue outbreak transmission.

Keywords: Dengue Fever, Health Geography, Policy Mitigation Model, Palembang City.



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1. INTRODUCTION

Dengue hemorrhagic fever is an infectious disease caused by the dengue virus and is transmitted through the bite of the Aedes aegypti mosquito. Dengue hemorrhagic fever can attack everyone and can cause death, especially in children, and often causes extraordinary events or outbreaks [1]. Dengue hemorrhagic fever is one of the public health problems in Indonesia. The disease is usually accompanied by headaches, muscle, joint and bone pain, the decrease of white blood cell count and rashes [2].

In 2015, the dengue hemorrhagic fever in Indonesia has spread to 34 provinces and 436 (85%) districts/cities. The number of cases of dengue hemorrhagic fever has increased from 100,347 patients in 2014 to 126,675 patients in 2015. The national Incidence Rate (IR) in 2014 was 39.76 per 100,000 population increased to 49.5 per 100,000 population in 2015, the target nationally set at <51 per 100,000 population. The death rate due to dengue hemorrhagic fever in 2014 had reached 0.90%, but this figure increased slightly in 2015 to 0.97%. Patients with dengue hemorrhagic fever are not only in children but have attacked the adult age group. In addition to this, dengue hemorrhagic fever, which previously

only occurred in urban areas, has now spread to rural areas [3].

Dengue hemorrhagic fever has become endemic in big cities in Indonesia [4]. Based on Faridah's opinion [5] that the increase of the total of dengue fever in various cities in Indonesia is caused by the difficulty of controlling diseases transmitted by the Aedes aegypti mosquito. Indonesia is one of the endemic countries for Dengue Fever (DD) which every year always occurs Extraordinary Events (KLB) in various cities and every 5 years there is a major outbreak. [6] also has revealed that Indonesia is an endemic area of dengue hemorrhagic fever and experiences an epidemic once in 4-5 years. Many factors cause an increase in cases of dengue hemorrhagic fever, including mosquitoes as vectors, environmental factors such as the larva-free rate (ABJ), population density, and climate elements [7].

Palembang city ranks second with the highest number of cases of dengue hemorrhagic fever in South Sumatra. Palembang city is the capital city of South Sumatra Province. The city with an area of 400.61 km was inhabited by more than 1.8 million people in 2018. The city of Palembang currently has 18 sub-districts with a population distribution of approximately 4250 inhabitants / km. The average height of Palembang City is 8

meters above sea level so that Palembang City has a relatively flat and low land topography.

Responding to the description of the increase in the number of cases in several years, it is considered that the implementation of the dengue hemorrhagic fever control program has not been undertaken optimally. This is affected by the management of the implementation of the program, related to the provision and utilization of resources and the types of activities carried out. The strategy for eradicating Dengue Hemorrhagic Fever is more emphasized on preventive efforts, namely carrying out mass spraying before the disease transmission season in endemic areas of Dengue Hemorrhagic Fever. In addition, PSN (Mosquito Nest Eradication) activities and outreach to the public through various media are also encouraged. In fact, eradicating Dengue Hemorrhagic Fever is not easy because there are various obstacles in its implementation, overshadowed by extraordinary events (KLB) Dengue Hemorrhagic Fever [8].

This study was focused on the prevention of Dengue Hemorrhagic Fever, which was undertaken by the Palembang City Government. The purpose of this study was to find out the distribution of dengue hemorrhagic fever in the city of Palembang and to know the direction of the policy for the prevention of dengue hemorrhagic fever in the city of Palembang.

2. METHODS

This study was a descriptive study using a quantitative approach. The population in this study was taken from all incidents of dengue hemorrhagic fever recorded at the Palembang City Health Office in 2018. The sample of this study

was dengue hemorrhagic fever sufferers found in each health center recorded at the Palembang City Health Office using purposive sampling technique. Data collection techniques include observation data, the health office, interviews, documentation. Data analysis techniques used was Analytical Hierarchy Process analysis and geographic information systems. The selection related to the data analysis technique was chosen based on the consideration of the researcher whose use is relatively easy so that it can be used freely with related criteria [9].

2.1 Analytical Hierarchy Process

Analytical Hierarchy Process describes as a method that provides an alternative decision in choosing the best one from the selection of various criteria [10]. The process of determining policy directions is obtained based on the opinions of experts or experts from the government, stakeholders, to the local society [11]. The implementation of a hierarchical structure was used to find out the policy model of the model to be developed [12][13].

The steps taken in the Analytical Hierarchy Process were used to find out the criteria that became the focus of achievement, determine the weight of each criterion according to experts, calculate the weights of various criteria through the application of the comparison method, and select policy priorities in accordance with the largest Consistency ratio value [14].

Table 1 The Case of Dengue Hemorrhagic Fever in 2018

No	Sub District	Incident	Persentase (%)
1	Sub District Alang Alang Lebar	24	0,023
2	Sub District Bukit Kecil	37	0,035
3	Sub District Gandus	147	0,138
4	Sub District Ilir Barat 1	19	0,018
5	Sub District Ilir Barat 2	50	0,047
6	Sub District Ilir Timur 1	158	0,149
7	Sub District Ilir Timur 2	35	0,033
8	Sub District Ilir Timur 3	49	0,046
9	Sub District Jakabaring	40	0,038
10	Sub District Kalidoni	20	0,019
11	Sub District Kemuning	55	0,052
12	Sub District Kertapati	32	0,030
13	Sub District Plaju	147	0,138
14	Sub District Sako	20	0,019
15	Sub District Seberang Ulu 1	30	0,028
16	Sub District Seberang Ulu 2	50	0,047
17	Sub District Sematang Borang	100	0,094
18	Sub District Sukarami	49	0,046
	Total	1062	100

Source: Results of data analysis, 2021.

3. RESULTS AND DISCUSSION

3.1 The spread of dengue hemorrhagic fever

Geographic information system is one of the tools to convey information about the distribution

of problems in an area [15]. The existence of a geographic information system is expected to be able to provide an overview of the distribution of dengue hemorrhagic fever in the city of Palembang. Geographic information system is one

of the tools that can be used to help analyze the condition of an area against disease to determine the actions that must be taken to deal with the disease [16]. Mapping through geographic information systems for cases of dengue hemorrhagic fever is very helpful for the distribution of dengue hemorrhagic fever in each region, an accurate map, can predict quickly the

spread of the disease that will occur in the area, in addition to determining interventions that can be conducted to prevent as well as tackling diseases that will occur in an area [17]. The following is a presentation of a map of the distribution of dengue hemorrhagic fever cases based on the distribution of patient case points in the city of Palembang (Fig 1.)

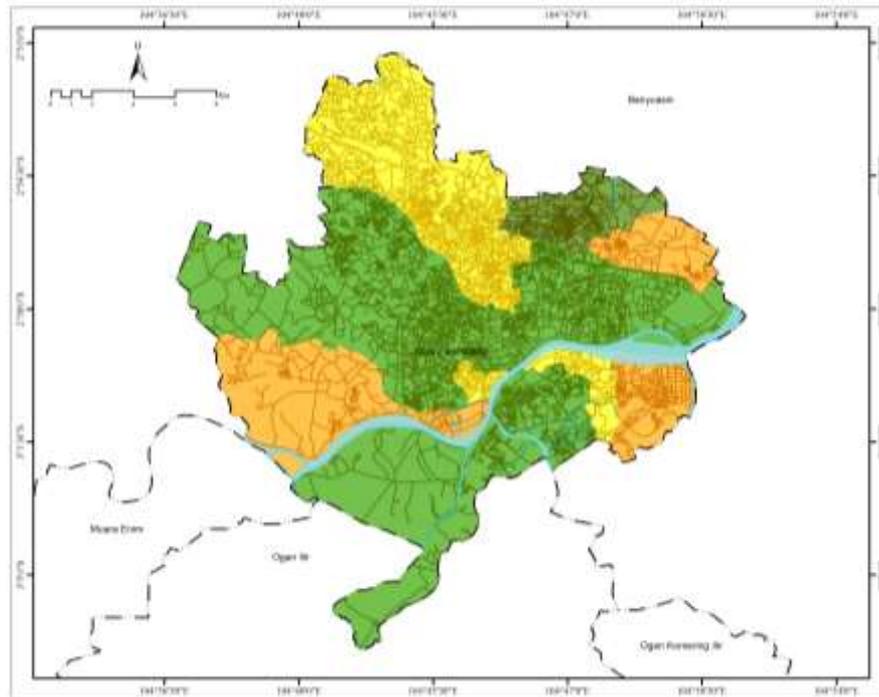


Fig.1 Map of the distribution of dengue hemorrhagic fever in Palembang City

The distribution of cases of Dengue Hemorrhagic Fever in Figure 1 explains that the highest cases of dengue hemorrhagic fever in Palembang City are in two areas, namely in Sematang Borang District and Gandus District. Then the dengue hemorrhagic fever cases are in the areas of Kemuning, Ilir Timur III, Seberang Ulu I, Jakabaring, Plaju, Seberang Ulu II, Ilir Barat II. Finally, cases of low dengue hemorrhagic fever were in the districts of Kertapati, Ilir Barat I, Alang-alang Lebar, Sukarami, Sako, Kalidoni, Ilir Timur II, Ilir Timur I. Referring to these results, we can see that the distribution of dengue hemorrhagic fever in the city Palembang is still relatively high in several sub-districts, and this needs more serious attention from the Palembang city government.

Furthermore, for moderate areas often this incident of dengue fever, therefore it is still necessary to deal with serious dengue hemorrhagic fever from the government and the community itself. Then for areas where cases of dengue hemorrhagic fever are low, anticipation is also needed so that in this region there is no increase on

cases of dengue hemorrhagic fever. Utilization of mapping as a first step of prevention [18].

3.2 Policy model of mitigation of dengue hemorrhagic fever

. In this study, the determination of the policy direction used was the Analytical Hierarchy Process. Hierarchical process analysis had a multi-objective and multi-criteria decision-making approach to consider on a preference scale among a set of alternatives [19]. Multi-criteria analysis based on GIS can be considered as a process that combines and transforms the spatial data into the resulting decisions [20]. This method is a scientific approach to avoid mistakes in decision making and spatial development [21].

Directions for the management of dengue hemorrhagic fever in Palembang City were obtained from the results of discussions with relevant agencies in handling cases of dengue hemorrhagic fever in Palembang City. In the discussion, the experts determined several implementation strategies and implications of the policy priorities that had been obtained using the

previous Analytical Hierarchy Process. In the discussion, the researcher has compiled several policy plans carried out by the local government. The researcher took the output of the policy hierarchy, namely, people, environment, population density. Based on these criteria, alternative policies were developed which were then obtained directions for the prevention of dengue hemorrhagic fever in Palembang City.

Alternative policies to handle dengue hemorrhagic fever including: implementing a healthy lifestyle, establishing adequate polling stations, zoning the spread of dengue hemorrhagic fever, implementing fogging, tightening building permits, routine larvae inspection, practice of

eradicating mosquito nests, repairing drainage channels, socialization about dengue hemorrhagic fever, and suppress the rate of population growth. Of the ten alternatives, 5 priority policies will be selected based on the calculation of the Consistency ratio provided that the data must be consistent or <0.1 . The results obtained based on the calculation of the consistency ratio is 0.09. This means that the policy hierarchy compiled in this study is consistent and can be used. The value of the Consistency ratio is derived from the weighting obtained from the overall criteria for providing alternative policies [22]. The results of the policy directions obtained are shown (Fig 2).

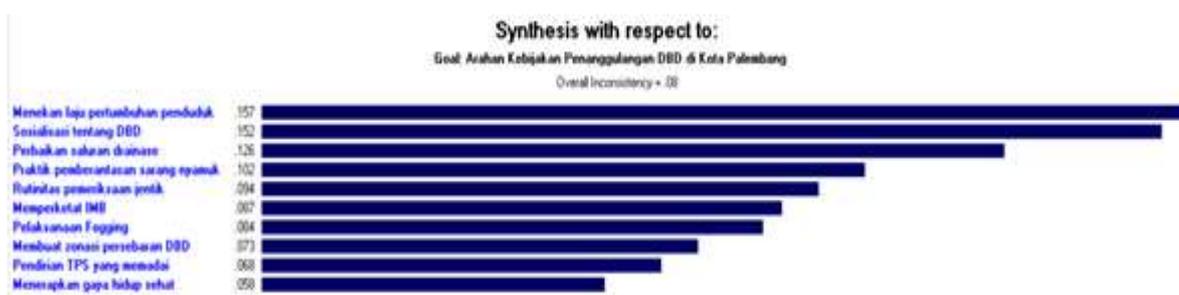


Fig. 2 The Policy Direction for Dengue Hemorrhagic Fever Management in Palembang City

In Figure 2, it can be seen that various alternative policies are then compiled into policy directions for settlement development with decision scores, which are the highest scores. The five highest directive results are: 1) Suppress the rate of population growth; 2) Socialization about dengue hemorrhagic fever; 3) Repair of Drainage Channels; 4) The practice of eradicating mosquito nests; 5) Routine inspection of larvae. The level of concern for the environment needs to be increased as an alternative way of dealing with endemic outbreaks [23][24].

The implementation must be undertaken, it consists of providing the counseling to the community so as not to get married at a predetermined age and carry out family planning programs. Furthermore, the government must increase socialization about dengue hemorrhagic fever to the public. Third, it is necessary to make improvements to drainage channels in every area of Palembang City, especially in areas with high and moderate cases of dengue hemorrhagic fever. Fourth, it is necessary to carry out regular mosquito eradication practices by the local government. Then, the last is the larva inspection routine that needs to be improved. The ability to think spatially is closely related to its implementation in life, what we will do is always use spatial thinking to apply spatial skills [25].

4. CONCLUSION

The level of policy mitigation in handing the dengue hemorrhagic fever indicated that population growth, socialization of dengue hemorrhagic fever, and improvement of drainage as significant policy priorities with the findings of the distribution of dengue hemorrhagic fever which was transmitted by the aedes aegypti mosquito. The issue must be understood about providing policy direction for dengue outbreaks, it could be started from a basic understanding of the habitat structure of the aedes aegypti mosquito which will provide information related to the effect of the mosquito landscape in knowing the zoning of susceptibility to dengue outbreak transmission.

5. ACKNOWLEDGEMENTS

We thank to the study team who involved in the research especially for Universitas Negeri Malang and Universitas Negeri Padang which supports either directly or indirectly, then to Health Department of Palembang City, South Sumatera that has provided the data which were used in this research, and to the reviewers who had given valuable input to this paper.

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