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COMPARISON OF THE WATER APPEARANCE POTENTIAL CONTROL OF MOSQUITO SCREENING Aedes sp.WITH PREVENTION OF TRANSMISSION RISK DENGUE HEMORRHAGIC FEVER IN PADANG CITY IN 2018

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ABSTRACT

The density of the Aedes sp was a risk factor dengue transmission, the higher density of mosquitoes; it is for people to the higher infect. Container potential of Large Dimension sizes could breed that can transmit Dengue Hemorrhagic Fever (DHF). The purpose of this study was to compare the control of Aedes sp. With the Risk Prevention of Dengue Hemorrhagic Fever Transmission This type of research is descriptive, describing the facilities and control functions in Kubu Dalam, Gunung Sarik and Kurao Pagang Sub District in June to December 2018. The population was the entire Water Container used to. 300 houses, to regulate the Breteau based Density Index The results dimensions of the water container of Mosquito breeding, Gunung Sarik 160 containers, the most Large dimension Bak mandi the potential 30.375%, 131 Large-size Container is Bak mandi have larvae Ae. Aegypti is 30.54% in Kubu Dalam and 182 positive containers there are larvae of Ae. aegypti is 35.71% with Potential Breeding was based on Frequency of Control 27%, Kubu Dalam 29% and 32% in Kurao Pagang. The advantage of potential breeding with the most drag control technique in coal containers is 41.82% Breteau Index amounting to 16.875, the highest number in Bak mandi is 50.00% Breteau Index of 22.14 and the most Kurao Pagang in buckets / jars of 43, 07% Potential rate of larvae density of the Breteau Index of 17.58. It is hoped that the community will engage in more activities related to eradicating mosquito nests to reduce the breeding of Aedes sp mosquitoes, maintaining environmental cleanliness such as draining the bath once a week, in order to break the chain of transmission of dengue.

Keywords: **Containers Larva, Frequency of Control, Potential Breeding Place**

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INTRODUCTION

One of the infectious diseases that is still a concern and a public health problem in Indonesia today is dengue hemorrhagic fever and Chikungunya fever as a mosquito-borne disease (vector) which is increasingly widespread. And the Zika Virus is transmitted through mosquito bites. Aedes mosquitoes can be found in Aedes aegypti species in the tropics, Aedes africanus in Africa, and also Aedes albopictus in several other regions. Aedes mosquito is a type of mosquito that is active during the day, and can live indoors or outdoors (Luz *et al*. 2011; de Melo *et al*. 2012;).

Vector infectious diseases are very very good for stimulating climates including the physical environment (Hermon, 2010; Hermon, 2012; Hermon, 2016). Climate change will affect the transmission of disease media, because vectors will multiply optimally according to temperature, rainfall, wind speed and humidity that are available in optimal amounts for their lives (Baewono *et al*. 2012; Hermon, 2014; Hermon, 2015; Hermon, 2017). Mosquito-borne diseases by vectors Aedes aegypti and Aedes albopictus are still a public health problem that has social and economic impacts. Social losses that occur include because they contain panic in the family to the death of family members and reduced life expectancy. Increase the costs used to find out what medical costs are, while the indirect is loss of time, school time and other costs incurred for care such as care and care of patients (Rizal *et al*. 2013).

It was found in 1968 in Surabaya and Jakarta, the number of dengue cases or the extent of their spread increased along with population mobility and density. In 2005 the Ministry of Health of the Republic of Indonesia announced 21 provinces in Indonesia which had increased the number of dengue cases and one of them was West Sumatra and the City of Padang in particular. DHF became known in 1779. DHF first appeared in Southeast Asia in 1953 right in the Philippines. Out in 1968 the number of cases increased and spread widely (Baewono *et al*. 2012; Luz *et al*. 2011).

This situation is related to the increasing mobility of the population with the increasing extent of the relationship and the widespread spread of dengue virus and transmitting mosquitoes in various parts of Indonesia. In Jakarta, the first DHF case identity was in 1969. A large Extraordinary event occurred in 1998, with an incidence rate of 35.19 per 100,000 population = 100,000 people found 35 people infected with

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DHF and a mortality rate of 2 % meaning of 35 sufferers, 1 person dies (Ruhlen *et al*. 2003).

Based on data from the Ministry of Health of the Republic of Indonesia in 2010 Data Book Year 2010 the total number of cases of dengue disease 44,711 people with the highest number in the area of North Maluku Province (78.41). Whereas in the Province of West Sumatra cases of dengue disease in 2010 with 1,686 people with an incidence rate of 30.66 (Honrio *et al*. 2009; RI 2004). Human factors contribute to increasing the population in major cities in Indonesia, has developed rapidly with various implications, such as the growth of slums due to urbanization, its limitations are clean, imperfect city management, unprofessional environmental management. This is supported also by the growth of high-rise buildings and tightly closed and the growth of housing with high fences. Balcony, Ae mosquito. Aegypti and Ae. Albopictus is growing rapidly in line with human growth. (Sumarmo 1987; Fent *et al*. 2006; Darwin *et al*. 2013).

The larva survey conducted by the Padang City Health Service (DKK) only found larva free numbers (ABJ) with a target of 100 houses with 88% yield with targets above 90%, complex bio-fauna data in Indonesia based on bio-country conditions (meeting of Oriental and Australian regions) has not been renewed well; Research data related to vectors and reservoirs of disease have not been represented nationally; Local data collection is not complete.

The results of previous studies in 2013 and 2015 and 2016 found the following picture: Houses as nests of Aedes aegypti in the village of Kurao Pagang = 37%, Potential Landfill Tub / Tub in house water. Most larvae density of apprenticeship = 30% with an average larva index of 24%. The highest density of Pao Kurao with House Index (HI) is 37%, Container Index (CI) = 30% and Breteau Index (BI) of 148 TPA per 100 houses, with HI average = 28%, CI = 24% and BI = 111 TPA per 100 houses.

The use of water reservoirs (TPA) in residential areas for daily needs often creates problems for vector breeding sites. This problem often arises because residents hold water at a place (TPA) for their daily needs, because they are worried that one day water will not be available. For this reason, mosquito breeding sites tend to be large, the water that is stored in these containers is not properly maintained, the people leave the

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containers open. (Aceh *et al*. 2015; Baewono *et al*. 2012). Based on this, it can be seen that Comparison of Control of Aedes sp. Mosquito Potential Potential Shelter. With Risk Prevention Dengue Hemorrhagic Fever Transmission in the City of Padang can be a solution to build a system of alertness for dengue transmission.

METHOD

Research design with ecological analytic types through observation and survey of larvae to obtain the distribution of Aedes sp. in Endemic Areas and the Risk of Dengue Hemorrhagic Fever Transmission in Padang City from 2018 to September. The study population was all houses selected in endemic sub-districts, Kuranji, and Nanggalo with the purposive sampling technique and to fulfill the Bretaeau Index criteria of 100 houses in the RW area in the kelurahan based on a trend of cases in 10 months during 2018. The population in this study was all potential houses for the nest of Aedes sp. In the Kelurahan area and in order to meet the needs of larval solidification analysis using the Breateau Index, the samples taken each of 100 houses in each kelurahan were probabilistic based on the tendency of the Mosquito Nest Potential Container. The output of this study is in the form of an ecological data baseline for mosquito breeding sites in the form of Ovitrap in potential water reservoirs for mosquito nesting for periodic larvae monitoring, especially endemic areas and an increased risk of transmission of mosquito borne diseases in PSN eradication. use the larva survey form with house inspection and landfill positive for mosquito larvae and take out the larvae found in landfill and take notes on the survey form. Continued to check the form contents whether the answers in the form are complete, clear, relevant, and consistent, converting letter-shaped data into data in the form of numbers / numbers with trend analysis and cross variables with variable tabulation Water storage and control frequency.

RESULTS AND DISCUSSION

Based on the results of research carried out in 3 sub-districts and 3 sub-districts with a total of 300 houses observed, outlining 160 water reservoirs and 34.375% larvae

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proportion in Gunung Sarik sub-district Kuranji sub-district was found in the bathtub as potential table for mosquito nests. while for the Kurao Pagang sub-district in Nanggalo sub-district is in the Water Tub with a proportion of 35.71%. According to H. Hasyimi and Mardjan Soekirno's research in Tanjung Priok, North Jakarta, the most commonly found Aedes aegypti mosquito larvae are Bak mandi, because includes a large landfill that is difficult to replace with water and the water is long enough to indicate the amount of flick in the bathtub. In line with the Tri 2010 study in Denpasar, the most found TPA was a bathtub.

Whereas for the TPA location according to Anif Budiyanto's research, the most found container location in a house or building, in line with Milana Salim's research which stated that the dark atmosphere in the room caused the larva to become invisible so that it could not be picked up or cleaned. Then for the color conditions in the study Budiyanto (2003) found the darkest conditions that were most found. Arda research in 2012. in high, medium and low endemic sub-districts having different physical environments. For house density shows the number of houses (units) in a particular area. In addition, the condition of house density will affect the presence of containers. This is because each house usually has a container as a container for water storage and potential as a breeding place / nest of mosquitoes.

The container / TPA is intended as a water reservoir used by the community. Most of the water stored in these containers is clean water that is used daily. These characteristics and conditions are the places favored by the Aedes aegypti mosquito as a breeding ground. The container material that is widely used by the community as a water reservoir is a container made of plastic or cement and the tendency of the color of the container to be dark, making it easier for mosquitoes to breed because Aedes prefers dark places, wide open and protected from direct light from the sun.

Another factor that affects mosquito density is the presence of mosquito nets. Mosquito netting is one of the protective devices made of wire and is usually installed in ventilation openings. The presence of land in high and low endemic sub-districts is higher than that of moderate endemic districts. On this basis, it is necessary to watch out because the conditions of the plants that tend to be moist and dark are the places that Aedes likes to rest.

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The type of larva obtained in this study was larvae of Ae. aegypti Whereas Ae. albopictus was not found at all. According to Delyasri Nasda Marsa (2012) in his research in Bandar Buat Village, Lubuk Kilangan Subdistrict, Padang City stated that Ae mosquitoes. aegypti prefers urban areas with few trees while Ae. albopictus prefers rural areas with extensive landscaping and high diversity of flora and natural stretches of nature.

From the results of observations in the field when the data was collected, it was found that the houses were in the form of new housing, namely housing complexes and traditional houses that were not neatly arranged because it was still a semi-urban area that had only developed following the development of the city, but less than 5 meters, thus making breeding of Ae mosquitoes. aegypti is high.

There are also habits of people who hold rainwater in bathtubs, buckets and drums. This is done by the community because the wells are often drought, so when it rains people collect rain water for daily needs except for drinking. This is one of the causes of the high development of larvae because the water is left in the bath, bucket and drum which can reach 2-3 weeks, so it makes mosquitoes comfortable to breed. It is better for water that is stored for a long time filled with larvae-eating fish, to minimize the breeding of Ae larvae aegypti.

The results of the study showed the density of larvae of Ae. aegypti, the community must pay more attention to environmental hygiene by getting used to a clean and healthy life. One way is PSD DBD, which is physically, chemically and biologically can be done by the community starting from the family level by cleaning their own house and mutual cooperation to clean the environment, thus breaking the chain of breeding and transmission of Ae larvae aegypti.

Comparison overview of potential breeding sites Based on the research that has been done, it is known that mosquito containers or breeding sites consist of a water reservoir (TPA) in the form of a bathtub, water bath, bucket or jar and a 27% Reservoir in Gunung Sagar and the highest Kurao Pagang amounting to 32% Potential Water Shelter for Mosquitoes.

This happens because many people use and hold water such as bathtubs, buckets and drums. For the positive Ae mosquito larvae. Aegypti is also a lot because it

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is lacking in draining and closing their water storage containers so that many Ae mosquito larvae are found. aegypti. So the place for mosquito breeding is mostly made by humans, which is often called Man Made Breeding Place. The type of landfill found is in the form of a bathtub, a water bath and a WC, bucket, basin, drum, as a landfill and overflow dispenser, fridge overflow, ant traps, used cans, coconut shells, used tires and other containers that are open and contain water. Similar research can be compared as by Dewi 2012. States that the low mosquito density of (75.2%) for female Aedes aegypti mosquitoes in a community settlement environment is influenced by the way of controlling the breeding sites.

Other studies describe the Water Shelter (TPA) examined. Flicking checks in homes are carried out on two types of breeding, namely breeding for TPA and non-landfill breeding. The number of positive larvae breeds is: TPA 6 breeding (28.56%) and non TPA 15 breeding (71.44%). There are two variants of the Aedes spp mosquito found, namely Aedes aegypti larvae (57.14%) and Aedes albopictus larvae (42.85%). Based on the measurements of larvae density, the House Index (HI) is 12.35%, the Container Index (CI) is 5%, the Breatau Index (BI) is 12.35%, and the larva free rate (ABI) is 87, 64%. The Aedes spp larva is more common in non-landfill breeding sites compared to landfill.

From observations of breeding sites, the researchers can explain that Aedes aegypti mosquitoes can be found in almost all landfill sites as containers or breeding containers, especially in urban communities where containers are used to hold water found more larvae than non-landfill containers such as used goods, coconut shells and so on. These results explain the analysis that the potential container / TPA as a nest of mosquitoes in the form of a reservoir of water in the Kuranji Subdistrict area must be intervened specifically; it may be flooded or accommodated when there is rain outside and home yards. Efforts can be carried out routinely to break the chain of transmission of infectious diseases of mosquitoes.

The condition of container containers that are large and difficult to clean or control, such as bathtubs that are not maintained and are rarely periodically drained, as well as the location of containers found outside the house and the condition of dark colored containers, need to be seriously monitored to prevent them mosquito nest.

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According to Ririh Yudhastuti's research in Surabaya that the most found container is TPA for everyday life and also the most positive larvae is TPA for daily needs, namely 82 containers of 252 containers. In line with the study of Anif Budiyanto (2012) that the most found containers were Water Shelter (TPA). According to Anif Budiyanto's research (2012) that many containers inside the house from outside the house were found to be positively flew Ae. aegypti which shows that Ae. aegypti is more like being inside the house. The target of larva-free control shows a number lower than 95% which means that based on the larva-free number target the risk of transmission is not free from risk. This result shows that the control measures with monitoring still provide the risk of dengue disease occurrence and transmission indicated by larva indices in endemic areas . According to Salim's research, the average number of larvae obtained high makes the area sensitive or prone to dengue fever and will increase the chances of dengue virus transmission.

The results of this study are in line with the research which states that the areas affected by dengue fever are generally densely populated cities / kelurahan. Houses that are close together facilitate transmission of disease. The existence of the container itself plays an important role in increasing the density of the Aedes aegypti mosquito vector, because the more containers there are in a region, the more places that are used as breeds of Aedes aegypti mosquitoes. This will make it easier for the Aedes aegypti mosquito to breed, so that the mosquito population will continue to increase. The high population of Aedes aegypti mosquitoes will cause the risk of dengue virus infection more quickly, so that the number of dengue cases also increases in the region.

CONCLUSION

The most common dimensions of the potential shelter for mosquito nests are large dimension bath tubs found in Ae larvae. aegypti and small dimension container jars are as large as pots and jars of potential to become mosquito nests. Comparison of conditions for potential water reservoirs and the presence of mosquitoes with a comparative control technique of Potential Water Shelter based on the frequency of the most control in buckets as much as 41.82% with the lowest potential in the Water Reservoir Tank of 12.38% with a Potential larva density of 16.875% or the Breteau

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Index based index of 16,875 per 100 houses. The community is more concerned about the cleanliness of the home environment and its surroundings, such as draining landfill like a bak mandi and bucket regularly at least 1 x a week, closing landfills such as buckets, drums and tank reservoirs properly, burying used goods that can become breeding sites for Ae aegypti.

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