

# Relationship between Distribution and Frequency of Indoor and Outdoor Containers with the Numbers of Dengue Hemorrhagic Fever in the Endemic Areas of Dengue Hemorrhagic Fever in Tambak Cemandi Village, Sedati, Sidoarjo

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**Abstract:** *A. aegypti* is known as the main vector of Dengue Hemorrhagic Fever. Dengue Hemorrhagic Fever or better known as the acronym of DHF is an infectious disease caused by Dengue virus and transmitted by *Aedes* mosquitoes. Sidoarjo as part of East Java Province is also an endemic area of Dengue Haemorrhagic Fever because in every year there is many cases of DHF. Containers are stuffs used to accommodate water for household use, where this container can be used as a place for mosquitoes to breed. So, it can appear mosquito larva which then develops into adult mosquitoes which is a vector of DBD disease. Judging from the location of the container can be divided into indoor containers are containers that are contained in the part of the house that is covered by a roof and outdoor containers are containers that are located in the part of the house that is not covered by the roof. This research is conducted to find out if there is a relationship between distribution and frequency of Indoor and Outdoor Containers with the numbers of DBD in the endemic areas of Dengue Haemorrhagic Fever in Tambak Cemandi Village, Sedati t, Sidoarjo. This method of research is analytical observation with cross-sectional design. The samples in this study are indoor containers, outdoor containers ,all residence and all the larvae of *Aedes aegypti* which are located in those taken from 100 house of respondents located in the village of Tambak Cemandi, Sedati District, Sidoarjo Regency. The result were found 183 containers obtained from 100 houses of respondents, consisting of 156 indoor containers and 25 outdoor containers. From 156 indoor containers were found 1611 *Aedes aegypti* larvae and from 25 outdoor containers were found 168 *Aedes aegypti* larvae. From 100 residence, who have got DBD as much as 16 people and who never got DBD as much as 84 people. Using Contingency Coefficient test obtained result  $P = 0432$  ( $P < \alpha = 0.05$ ), meaning that there is no relationship between a relationship between distribution and frequency of Indoor and Outdoor Containers with the numbers of DBD in the endemic areas of Dengue Haemorrhagic Fever in Tambak Cemandi Village, Sedati, Sidoarjo.

**Keywords:** BEP chemotherapy, male germ cells, malondialdehyde.

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## I. INTRODUCTION

Dengue Haemorrhagic Fever disease or better known by the abbreviation DBD is an infectious disease by Dengue virus transmitted by mosquito bite *Aedes*, with a high fever feature suddenly accompanied by manifestations of bleeding and tendencies shock and death. This disease is one of the important public health problems in Indonesia because it can attack all ages and cause death especially in children and often raises extraordinary genesis with a large mortality rate

DBD vector has breeding site that is in the environment of human beings especially inside and outside the home. *A. aegypti* breeding in artificial water containers such as drums, bathtubs, barrel, buckets, and so on; Or trash can be a container for rainwater, for example, used tires, bottles, and so on. Containers are used to accommodate water for household use, where this container can be used as a place for mosquitoes to be missed. So, the mosquito larva appears, which then develops into adult mosquitoes which is a vector of DBD disease. Judging from the location of the container can be divided into 2, indoor contains and outdoors container. Indoor container are containers contained in the house while the outdoor container is a container that is available outside the house but still inside the fence. This research is conducted to find out if there is a relationship between distribution and frequency of Indoor and Outdoor Containers with the numbers of DBD in the endemic areas of Dengue Haemorrhagic Fever in Tambak Cemandi Village, Sedati, Sidoarjo.

## II. MATERIALS AND METHODS

### A. Type and design study

This study was an analytical observational, that is, in addition to describing or describing an incident. The approach uses Cross sectional study, in which each research subject is only observed once and the measurements are performed against the status of

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the character or subject variable at the time of examination. Population and research samples

The population in this study is all of *Aedes Aegypti*'s larvae found in Container of water shelter in every resident's house, and all containers contain water and In Kelurahan Tambak Cemandi, Sedati District, Sidoarjo.

## B. Tools and research materials

The collection of larva *A. Aegypti* uses dipper, plastic trays, plastic pipettes, vial bottles, and flashlights. As for the identification of larva *A. aegypti* using A microscope dissecting, Lup, Object glass, and cover glass

## C. Location and study time

The location of this study is done in Kelurahan Tambak Cemandi, Sedati District, Sidoarjo. The population density of *A. aegypti* larva as well as the identification of *A. aegypti* larva was carried out in the laboratory. While research is planned to be conducted in March 2018 until June 2018.

## D. Retrieval or data collection procedures

The research samples were selected randomly (multistage random sampling). In Kelurahan Tambak Cemandi, Sedati District, Sidoarjo there are 4 RW, from each RW taken 25 houses. In each house is a jentic survey. The collecting of larva using the all larvae sampling method. Larvae survey carried out on all containers or water shelters (TPA) in surveys such as buckets, flowerpots, gutters, oil drums, wells, bathtubs, bird potting, tower, water tubs, used bottles, used cans, used tires, used buckets, shell coconut, puddle water, secondhand jars. In the place or container containing the larvae then the larva is taken entirely, calculated in number and identified in the laboratory parasitology according to the guidelines made by Dirjen P2M & PLP Year 1989.

## III. RESULTS

### A. Container distribution and frequency

Based on the study, the number of indoor containers 154 with a percentage of 84.15% and the number of outdoor containers by 29 with a percentage of 15.85% can be concluded that the number of indoor containers is much more than outdoor containers.

Kontainer	Jumlah	Persentase
Indoor	154	84,15%
Outdoor	29	15,85%
Total	183	100%

### B. Larvae distribution and frequency

Based on the study can be known the number of *Aedes aegypti* larvae on indoor containers and outdoor containers, i.e. the average number of *Aedes aegypti* in indoor containers is 12.59 with a minimum value of 0 and a maximum value of 168. The average value of the larvae of *Aedes aegypti* in an outdoor container is 7.24 with a minimum value of 0 and a maximum value of 44.

Container	Maksimum	Minimum	Rata-rata
Indoor	168	0	12,59
Outdoor	44	0	7,24

<i>indoor</i>	168	0	12,59
<i>outdoor</i>	44	0	7,24

### C. Residence who do not or have sick dengue haemorrhagic fever

The number of residences who have been sick DBD less than those who never get DBD. The number of residences who have been sick DBD is 16 while the number of residences who never get DBD is 84. Relation between distribution and frequency of Indoor and Outdoor Containers with the numbers of DBD in the endemic areas of Dengue Haemorrhagic Fever in Tambak Cemandi Village, Sedati, Sidoarjo using Contingency Coefficient test obtained result  $P = 0.432$  ( $P < \alpha = 0.05$ ), indicating insignificant data and this means that the  $H_0$  received and  $H_1$  is rejected, which does not have the relationship between distribution and frequency Indoor and Outdoor containers with DBD incidence in endemic areas of dengue fever in Tambak Cemandi village, Sedati District, Sidoarjo

	DBD
residence who have been sick	16
residence who never have been sick	84

## IV. DISCUSSION

Based on the results of this study shows that there is a difference in the amount between indoor and outdoor containers. Where the number of indoor containers is 157 and the number of outdoor containers has a percentage of 25. From the results of this study, the number of indoor containers is much more than the number of outdoor containers. This can be due to the layout of the home of the villagers Tambak Cemandi district of Sedati Sidoarjo Regency-Dempetan each other so as to cause less or absence of land outside the house for outdoor containers so Outdoor containers are fewer than indoor containers. In the village of Tambak Cemandi Sedati District of Sidoarjo many stores water at home because the supply of clean water in the area is still less good and these halm cause the public to fear to run out of water.

*Aedes aegypti* mosquito larvae are more found in indoor containers than outdoors. This corresponds to the life behavior of *Aedes aegypti* mosquitoes who prefer to rest in a place that is dark, humid, and hidden in the house or building, and also the behavior of eating mosquitoes *Aedes aegypti* very anthropophilic.

The number of larvae found in the village of Tambak Cemandi Sedati District in Sidoarjo more many indoor containers than outdoor can be caused because of the number of indoor containers more and also can be because mosquitoes prefer to hide in House building because mosquitoes feel safer in the room.

From the results of the study, the result that as many as 16 residents have suffered from DBD pain, it is shown that in the presence of indoor containers and outdoor

containers containing the *Aedes aegypti* larvae are the risk factors that the population will be exposed to DBD disease, although when tested statistically indicates that there is no link between the distribution and frequency of Indoor and Outdoor containers with the incidence of DBD in the area endemic to dengue fever in Kelurahan Tambak Cemandi, Sedati District, Sidoarjo. This is because in a region, not all *Aedes* spp mosquitoes. is a DBD vector. This is because there is a assumption that perhaps less than 5% of a mosquito population that exists in the season of transmission will be vector. The accurate level of vector disorders that are part of the "risk" level for the dengue spread are influenced by many factors, especially long-life mosquitoes, and human immunological status.

## V. CONCLUSION

There is no a relationship between distribution and frequency of Indoor and Outdoor Containers with the numbers of DBD in the endemic areas of Dengue Haemorrhagic Fever in Tambak Cemandi Village, Sedati, Sidoarjo.

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### Education detail

- 2009-2013: Airlangga University: Magister of Science
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- 1986-1989: Senior High School: SMAN 2
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### Publications

- Intestinal worm infection and anemia among children aged 4-6 Years in Gisik Cemandi, Sidoarjo, Indonesia: a public health concern in a coastal area in Proceeding International Seminar 2013, "International Partnerships Related to the Development of Technology and Maritime, ISBN 978-979
- Density Figure's Status and Frequency Distribution Container in the Dengue Haemorrhagic Fever Endemic Area of Kedung Cowek Village, Bulak District, Surabaya in Proceeding Book 7th ASEAN Congress of Tropical Medicine and Parasitology Congress "Combating the Big Three of Infectious Diseases (AIDS, Tuberculosis and Malaria) and Increasing Awareness of the Neglected Tropical Diseases, 2016.

### Research work

- Parasitology Departement Medical Faculty Hang Tuah University.

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- P4I ( Perkumpulan Pemberantasan Penyakit Parasit Indonesia)

### Achievements

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