Waluya The International Science Of Health Journal
Vol.4 No.3

ISSN: 2829-2278

WALUYA THE INTERNATIONAL SCIENCE OF HEALTH JOURNAL

Overview of the Standards and Objectives of Implementing the Dengue Hemorrhagic Fever (DHF) Control Policy through the One House One Mosquito Net Movement Program at the Rahandouna Village Health Center, Kendari City

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ARTICLE INFO

Article history
Received : September 10th, 2025
Revised : September 18th, 2025
Accepted : September 30th, 2025

Keywords
Control Policy,
Dengue Hemorrhagic Fever.

ABSTRACT

Introduction: Dengue fever remains a serious health problem in Indonesia, including in Kendari City, with cases occurring annually. In 2023, Kendari City successfully reduced dengue fever morbidity through the "one house, one mosquito larvae" initiative. This study aims to describe the "one house, one mosquito larvae" initiative at the Poasia Community Health Center.

Method: Qualitative research and case study design were conducted in 2024. The key informants in this study were the coordinators of infectious disease control at community health centers, while general informants included the heads of community health centers, movement managers, village heads, and the heads of the infectious disease prevention and control section of the Kendari City Health Office.

Result: Demonstrate conformity with the policy implementation theory and guidelines of this movement which include standards and objectives, characteristics of implementing organizations, communication between implementing organizations, disposition, and environment (social, economic, and political).

Conclusion: There is a need for training in the use of Android-based applications for coordinators and supervisors, forming a team with the Village Office and socializing how to become a Coordinator and Supervisor to the Community.

Introduction

One of the public health issues currently being faced in Indonesia is the increasing number of cases of Dengue Hemorrhagic Fever (DHF).[1] The number of cases and its prevalence continue to increase over time. Dengue fever is an acute infectious disease caused by the dengue virus, transmitted through the bite of the Aedes aegypti mosquito, and can cause extraordinary events or epidemics.[2] Not only is it a problem in Indonesia, dengue fever is also a widespread problem in various parts of the world, especially in tropical

and subtropical countries, both as an endemic and epidemic disease.[3] The World Health Organization (WHO) noted that over the past two decades, there has been a significant increase in the incidence and spread of DHF.[4]

Dengue Hemorrhagic Fever (DHF) is a national priority in controlling infectious diseases in Indonesia.[5] Although control efforts have been made, it needs to be emphasized that improvements are still needed in these efforts.[6] This is because the area where dengue fever is spreading continues to expand, and extraordinary events still occur frequently, as stated by the Ministry of Health of the Republic of Indonesia in 2020.[7] Dengue fever has become a public health problem in Indonesia, with the number of sufferers tending to increase, its spread is increasingly widespread, and it is prone to causing extraordinary events and death.[8] This disease has a rapid and often fatal course, causing many patients to die due to suboptimal treatment, as conveyed by Widoyono.[9] Serious and coordinated efforts are needed to improve dengue control to reduce morbidity and mortality due to this disease.[10]

The risk of dengue fever (DF) transmission has become a global concern, given that approximately 2.5 billion individuals, representing approximately two-fifths of the world's population, are at high risk of contracting the disease. Each year, the World Health Organization (WHO) reports approximately 50 to 100 million cases of dengue and 500,000 cases of dengue hemorrhagic fever (DHF) worldwide.[11] The death toll from this disease reaches approximately 22,000, with children being the most vulnerable group. Furthermore, approximately 2.5 to 3 billion individuals living in 112 tropical and subtropical countries are at risk of dengue infection.[3]With such a high prevalence, prevention and control measures for this disease are crucial for maintaining global public health.[12]

According to a 2020 report from the Ministry of Health of the Republic of Indonesia, in 2007, Indonesia recorded the highest number of dengue cases in Southeast Asia.[13] The number of dengue cases reached 106,425, accounting for approximately 57% of the total cases in the region. The number of dengue-related deaths that year reached 1,132, or approximately 70% of the total deaths recorded in Southeast Asia. This data reflects the significant burden of dengue in Indonesia and demonstrates the need for further action in national disease control and prevention.[14]

Between 2015 and 2022, the number of districts/cities affected by Dengue Hemorrhagic Fever (DHF) has shown an increasing trend. The morbidity rate due to DHF and the number of districts/cities affected by this disease both increased in 2021. In 2022, the number of districts/cities affected by DHF reached 433 (84.74%), increasing to 446 districts/cities (86.77%) in 2015, as reported by the Ministry of Health of the Republic of Indonesia in 2020. This data reflects the increasing spread and prevalence of DHF, indicating the need for more intensive control and prevention efforts at the local and national levels to address this problem.[15]

According to data from the Indonesian Ministry of Health in 2022, there were 138,127 cases of dengue fever (DHF) throughout Indonesia, with 919 deaths.[16] The provinces of North Kalimantan, East Kalimantan, and Bali had the highest incidence rates, namely 239, 180.66, and 114.8 per 100,000 population, respectively, while the provinces with the lowest incidence rates were Maluku (13.09), Papua (17.67), and Banten (22.55 per 100,000 population).[17]

In Indonesia, the number of dengue fever cases has reached 95,893, spread across 472 regencies/cities in 34 provinces, and has resulted in deaths in 219 regencies/cities. The number of deaths due to dengue fever has reached 917. The province with the highest number of cases is East Java (184), followed by Central Java (123), and West Java (97). The province with the lowest number of cases is Jakarta (0).[18]

Data obtained from the Southeast Sulawesi Provincial Health Office in 2022, out of 604 dengue fever cases in Southeast Sulawesi, there were several deaths. Kendari City had 3 deaths, Baubau 1, Konsel Regency 1, and Konawe 2. The Head of the Health Office detailed hundreds of sufferers of the disease spread across 17 regencies/cities. The four highest areas were Kendari City with 185 cases, Kolaka Regency 116, Baubau 98, and North Kolaka 43. Furthermore, South Konawe Regency had 37, Konawe 35, Wakatobi 26, North Buton 16, Muna 13, West Muna 12, Central Buton, Bombana, East Kolaka each with 6 cases and North Konawe 5 cases. The

three other areas that are still safe and have not been affected by dengue fever are Buton, Busel and Konawe Islands Regency.[19]

Based on observations within the Poasia Community Health Center in Kendari City, findings indicate a consistent increase in dengue fever (DHF) cases over the past three years. This is due to the continued presence of mosquito larvae in containers around people's homes, both inside and outside. Furthermore, the lack of routine mosquito nets eradication is also a contributing factor to the annual occurrence of DHF cases at the Poasia Community Health Center in Kendari City.

In 2020, there were 77 cases of dengue fever at the Poasia Community Health Center, 37 in 2021, and a decrease of 20 in 2022. However, in 2023, the number of dengue fever cases at the Poasia Community Health Center increased to 36, with 3 deaths. Of the 15 community health centers in Kendari City that reported dengue fever cases, Poasia Community Health Center consistently ranks among the top five with the highest dengue fever incidence rate in Kendari City, with a CFR of 8.6% in 2023. Nationally, a dengue fever CFR exceeding 1% is considered high, necessitating steps to improve the quality of healthcare services.[20]

Method

This study aims to describe the one house one mosquito larvae movement at the Poasia Community Health Center using a qualitative approach and a case study design. Key informants in this study were the community health center's infectious disease control coordinator, while general informants included the community health center head, movement manager, village head, and the head of the infectious disease prevention and control section of the Kendari City Health Office.

Result

Table 1 shows that the Larvae Free Rate in the three Poasia Community Health Center areas throughout 2022 remained below 95%. In December 2022, the Larvae Free Rate in Rahandouna Village was recorded at 80%, in Bambu Apus Village at 76%, and in Kedaung Village at 80%. However, after the implementation of the one House one Larvae Free Rate (One House, One Larvae Free Rate) by the Poasia Community Health Center, the Larvae Free Rate increased.

Table 2 shows that Larvae Free Rate in the three Poasia Community Health Center areas increased in 2023, although it did not reach 95%. In December 2023, Larvae Free Rate in Rahandouna Village reached 94%, in Bambu Apus Village it reached 91%, and in Kedaung Village it reached 93.3%.

Table 3 shows the average Larvae Free Rate score of 32 neighborhood units in Poasia District exceeded the standard, at 98.21%. Several neighborhood units that achieved Larvae Free Rate above 95% in a single assessment were RW 06, 14, 15, 18, 19, 22, 23, 30, and 31. Meanwhile, RW 05, 10, and 21 only passed the Larvae Free Rate assessment four times. In May 2024, Rahandouna Village was certified as mosquito larvae-free with an Larvae Free Rate of 98.21%.

Table 1.

Mosquito-Free Rate in the Poasia Community Health Center Area in 2022

No	Ward	Free Mosquito Numbers Every Month											
		Jan	Feb	Mar	Apr	May	June	Jul	August	Sep	Oct	Nov	Des
1	Rahandouna	79.3%	81%	76%	81.9%	82.6%	84.3%	81.7%	79.1%	78%	79%	81%	80%
2	Anggoeya	79.9%	79%	83%	79.6%	83%	82.5%	83.2%	80%	81%	76%	79%	76%
3	Wundumbatu	76%	76%	79%	81.4%	79%	79.8%	81.3%	79%	81.5%	77%	76%	80%
4	Matabubu	77%	77%	80%	83.4%	81%	76.8%	80.3%	80%	79.5%	78%	77%	79%
5	Anduonohu	79.1%	76%	82%	77.6%	82%	81.5%	81.2%	79%	80%	77%	80%	79%

Table 2.
Mosquito-Free Rate in the Poasia Community Health Center Area in 2023

No	Ward	Free Mosquito Numbers Every Month											
		Jan	Feb	Mar	Apr	May	June	Jul	August	Sep	Oct	Nov	Des
1	Rahandouna	79%	81%	76%	81%	80%	83%	81%	83%	93.5%	92.6%	93.7%	94%
2	Anggoeya	76%	79%	83%	82%	79%	80%	76%	80%	91.7%	90%	91%	91%
3	Wundumbatu	77%	76%	79%	80%	81%	76%	80%	79%	86.7%	91.1%	92%	93.3%
4	Matabubu	75%	76%	80%	79.7%	80%	77%	79.8%	80%	87.9%	90.3%	91%	91.4%
5	Anduonohu	77%	79%	82%	81%	80%	81%	77%	81%	91.8%	88%	90%	90%

Table 3.
Free Larvae Number 's Achievements in Poasia District

RW	FREE LARVAE NUMBER (ABJ), ASSESSMENT TO			
	1	2	3	4
RW 01	94.16%	97.48%		
RW 02	87.22%	99.20%		
RW 03	93%	100.00%		
RW 04	94.57%	97.06%		
RW 05	86.11%	95.00%	93.40%	98.00%
RW 06	96%			
RW 07	87.90%	95.20%		
RW 08	81.82%	100.00%		
RW 09	78.67%	92.89%	96.00%	
RW 10	86.34%	90.37%	92.84%	95.94%
RW 11	88.17%	97.06%		
RW 12	94.06%	98.76%		
RW 13	88.88%	95.79%		
RW 14	97.00%			
RW 15	97.60%			
RW 16	88.06%	97.84%		
RW 17	94%	99.34%		
RW 18	96.00%			
RW 19	97.00%			
RW 20	93.21%	95.52%		
RW 21	94.98%	92.18%	96.00%	92.84%
RW 22	97.28%			
RW 23	97.03%			
RW 24	89.82%	96.49%		
RW 25	81.82%	98.70%		
RW 26	78.67%	92.89%	97.90%	
RW 27	85.24%	91.65%	93.64%	
RW 28	88.17%	98.06%		
RW 29	92.06%	95.76%		
RW 30	96.20%			
RW 31	97.52%			
RW 32	80.82%	100.00%		
AMOUNT	98.21%			

Discussion

The standard applied in the implementation of the 1 House 1 Mosquito Net Movement at the Poasia Community Health Center is an ABJ above 95%. The following are excerpts from interviews with informants regarding the standards used in the movement at the Poasia Community Health Center:

"...Central regulations stipulate that the mosquito-free rate in residential areas must be greater than 95%. Because we are in a residential area, that's the index used in Rahandouna..." (Informant E)

"The ABJ 95% benchmark is indeed a bit difficult, but it is a rule that we must follow..." (Informant B)

"We follow the guidelines from the Minister of Health Regulation, which stipulates that an area is declared safe from dengue fever if its ABJ is above 95% of the total number examined." (Informant D)

"The 95% standard is a national standard which is a regulation from the ministry that we follow." (Informant C)

The Goal of the 1 House 1 Mosquito Net Movement at Poasia Health Center

The goal of implementing the 1 House 1 Mosquito Net Program is to reduce dengue fever morbidity. This can be seen in the following statements from informants.

"Referring to the Minister of Health's Regulation on the 2024 technical guidelines, the main goal is to develop a clean and healthy lifestyle, including reducing the number of dengue fever cases." (Informant D)

"The 1 house, 1 mosquito larvae program is a method to reduce the number of dengue fever cases, which always increases during the rainy season. Reports show that the mosquito larvae-free rate in Kendari is consistently below 95%. This program fosters the habit of collectively eradicating mosquito nests with the 3M Plus." (Informant E)

"We are helping the Kendari City Government, particularly in the Rahandouna area, rid itself of dengue mosquito larvae by actively implementing the 3Ms. By reducing the number of mosquito larvae, the number of dengue cases also decreases." (Informant A)

"This movement aims to reduce the number of cases of dengue fever and reduce losses by promoting the implementation of the 3M Plus National Dengue Fever Prevention Program." (Informant B)

Based on the quote above, it can be seen that the goal of implementing the 1 House 1 Mosquito Net Program policy is to foster a clean and healthy lifestyle by reducing dengue fever cases through active community efforts in implementing the 3M Plus National Mosquito Net Program (PSN). This program involves routine checks in potential mosquito breeding sites, for example, once a week. This movement also supports the local government's program through the Kendari City Health Office to reduce dengue fever cases, particularly in Rahandouna Village.

Key informants stated the objectives of the 1 House 1 Mosquito Net Movement as follows:

"One house, one mosquito larvae control group aims to reduce the number of dengue fever cases by involving the community in implementing the 3M Plus PSN." (Informant C)

From the interview excerpt, the aim of this movement is to reduce the number of dengue fever cases through the 3M Plus PSN activities.

Another target of this program is to make Kendari City free of mosquito larvae by 2020, as mentioned in the following interview:

"So, by 2026, Kendari will be free of mosquito larvae. By 2025, we will have reached the village level, and by 2026, the sub-district level." (Informant A)

"The target is to be free of mosquito larvae by 2023 for neighborhood units (RT), 2024 for neighborhood units (RW), 2025 for urban villages, 2026 for sub-districts, and 2027 for Kendari City. In April 2024, we declared the villages free of mosquito larvae with Mrs. Airin." (Informant D)

"According to the Kendari Strategic Plan, by 2023, neighborhood units (RTs) will be free of mosquito larvae, by 2024, neighborhood units (RWs) will be free of mosquito larvae, by 2025, sub-districts will be free of mosquito larvae, by 2026, and Kendari City will be free of mosquito larvae by 2027. By 2024, Rahandouna Village will have achieved mosquito larvae-free status." (Informant C)

In conclusion, the target of being free from mosquito larvae starts from RT (neighborhood unit) in 2023, RW (neighborhood unit) in 2024,

sub-district in 2025, district in 2026, and Kendari City in 2027. Rahandouna sub-district became the first sub-district to be free from mosquito larvae since April 2024.

Conclusion

It is recommended that the Kendari City Health Office organize 1,200 jumantik implementers, continue to support and invite other sub-district heads to run this program, collaborate with the private sector to develop the website www.jumantik.org, and immediately manage resources to achieve a larvae-free Kendari City in 2027. It is also recommended that the Rahandouna Village Health Center conduct training on the use of Android-based applications for coordinators and supervisors, form a team with the Village Office as the manager of the website www.jumantik.org, socialize how to become a Coordinator and Supervisor to the community, and provide pipettes, plastic, forms, and labels to supplement the lack of facilities and infrastructure from the Health Office in this program.

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