ISSN. 2338-7475
E-ISSN. 2620-7869
Hearty
Jurnal Kesehatan Masyarakat
Berinan, Tulus, Sepenuh Hati,Berbesar Hati, Jujur, Sehat dan Kuat
Vol. 14 No. 1, Februari 2026, Hal. 272-282

A MANAGEMENT ANALYSIS OF DENGUE HEMORRHAGIC FEVER (DHF) CONTROL AT ROWOREJO PUBLIC HEALTH CENTER, NEGERI KATON SUBDISTRICT, PESAWARAN REGENCY, 2025

Yunita Sari *, Wayan Aryawati, Nova Muhani
Jurusan Kesehatan Masyarakat, Fakultas Ilmu Kesehatan, Universitas Malahayati
Jl. Pramuka No.27, Kemiling Permai, Kec. Kemiling, Kota Bandar Lampung, Lampung 35152, Indonesia
Email: *yunitasari9166@gmail.com*

Abstract

Dengue Hemorrhagic Fever (DHF) is a disease caused by the dengue virus, transmitted through the Aedes mosquito vector, which breeds in water containers that collect rainwater. The rainy season is the period when DHF cases occur most frequently. In Pesawaran Regency, the prevalence of DHF declined in 2023 compared to the previous year, with 149 cases reported in 2023, down from 432 cases in 2022. However, data from the Pesawaran District Health Office in 2024 indicated an increase to 252 DHF cases. This rising trend warrants serious attention to understand the contributing factors behind the increase in DHF cases in Pesawaran. This study aims to analyze the management of DHF control at the Roworejo Public Health Center in Pesawaran Regency. This is a qualitative study involving six informants, using in-depth interviews as the primary data collection method. The findings reveal that DHF control planning at the Roworejo Public Health Center has been systematically designed in accordance with existing guidelines, covering aspects such as budgeting, methods, facilities, and community participation. However, shortcomings remain in the provision of incentives for health cadres and the maintenance of facilities. The organizational structure operates based on a task-based and function-oriented (tupoksi) approach. All DHF control measures, including fogging, vector control (PSN), health education, and epidemiological investigations, have been implemented in accordance with Standard Operating Procedures. Supervision of DHF control efforts is considered adequate from both management and field implementation perspectives.

Keywords: Analysis, DHF Control Management, Public Health Center

Introduction

Dengue Hemorrhagic Fever (DHF) is a disease caused by the dengue virus and transmitted by the Aedes mosquito vector, particularly during the rainy season when stagnant water accumulates in containers, creating ideal breeding sites for mosquitoes (Arisanti & Suryaningtyas, 2021). Population density is among the many variables influencing the transmission of DHF in humans. Densely populated areas are more susceptible to DHF transmission, considering the mosquito's flight range is limited to approximately 50 meters. Furthermore, human mobility contributes to the spread of DHF from one location to another. Housing conditions also play a role, such as the distance between houses, lighting, building design, and the types of materials used in construction (Sumampouw, 2020).

Environmental factors, including chemical, physical, and biological components, significantly influence public behavior and health. DHF is a recurring disease that affects individuals across all age groups and is prevalent throughout the year. Asia records the highest number of DHF cases annually. In 2009, Indonesia had the highest number of DHF cases in Southeast Asia. Rainfall, as part of the

Submitted: July-2025 Received: September-2025 Available Online: February-2026

physical environment, directly impacts individual health, with DHF being one of the most common illnesses during the rainy season. Due to its high incidence and wide distribution, DHF has become a major public health concern in Indonesia. This is attributable to the endemic nature of many regions in the country, which act as reservoirs for the spread of the disease to other areas, and the tendency of the virus to affect children more frequently. The dengue virus is transmitted to humans through the bite of the Aedes aegypti mosquito (Syarifah et al., 2023).

According to data from the Indonesian Ministry of Health, the number of reported dengue cases in Indonesia reached 143,000 by the end of 2022, with the highest incidence in West Java, East Java, and Central Java. This figure was significantly lower than previous estimates. In reality, symptomatic dengue cases in Indonesia are estimated to have reached 7,590,213—more than fifty times the reported cases in 2022. This vast discrepancy is primarily due to the fact that only about 30% of symptomatic individuals seek medical care, and many of them are misdiagnosed. The three main provinces—West Java, East Java, and Central Java—accounted for 58% of the 1,236 dengue-related deaths. Dengue cases were fairly balanced between females (49%) and males (51%). Most cases occurred in the 15–44 age group (39%), while dengue-related deaths were more common in females (55%) and in the 5–14 age group (45%) (MoH RI, 2022).

Data from the Central Bureau of Statistics of Pesawaran Regency indicate that the prevalence of DHF in the regency decreased in 2023 compared to 2022, with 149 cases reported in 2023, down from 432 in 2022. However, based on data from the Pesawaran District Health Office, there was an increase in DHF cases in 2024, totaling 252 cases. This upward trend raises serious concerns and warrants further investigation into the factors contributing to the resurgence of DHF in the region (Pesawaran, 2024).

The government has implemented various strategies to reduce DHF cases, including controlling mosquito vectors from the larval stage to adulthood by raising public awareness, promoting mosquito nest eradication (PSN), conducting surveillance to detect, prevent, and control DHF outbreaks, managing case prevention efforts, and supporting health system management through increased budget allocations, human resources, and logistics (Indah Kurniawati, 2019).

Preliminary surveys conducted with DHF control program managers at the Roworejo Public Health Center revealed that preventive efforts often rely heavily on the use of fogging machines. However, the effectiveness of this method is limited due to several constraints. One of the primary issues is the inadequate training of personnel in operating the fogging equipment. Additionally, frequent equipment malfunctions pose significant challenges. In terms of DHF control management, one of the main obstacles is the delay or inaccuracy in case reporting, which hampers timely response and intervention.

Method

This study employed a qualitative descriptive approach using a case study design. A case study is an in-depth investigation of a single subject within specific boundaries of time and place. Case studies typically involve a particular location or organization, a group of individuals such as work groups or social groups, communities, events, processes, issues, or campaigns (Martha, 2017). The data were obtained from selected informants and observed behaviors. Therefore, the resulting data are presented in textual expressions or visual representations rather than numerical quantities. The materials consist of interview transcripts, photographs or videos obtained through documentation or personal notes, and other official documents (Sugiyono, 2017).

Results

1. Planning of DHF Control

1. **How does the public health center plan the DHF control program?**
   "In the planning process, we implement a bottom-up approach by involving program holders through a comprehensive evaluation of the previous year's program as the basis for planning the following year. That's basically how we do it." (K1)

   "We have what's called an Activity Proposal Plan (RUK). The RUK is adjusted based on the number of cases. For example, if in 2026 there are 30 cases, we make a proposal and break it down monthly. Usually, at the beginning and end of the year during the rainy season, we include the activities in the RUK on a monthly basis." (U1)

   "Since DHF cases are situational, whenever a case arises, we immediately respond." (U2)

2. **What has been planned in the DHF control efforts?**
   "There are fogging activities, mosquito nest eradication (PSN), larva monitoring, health education activities, and epidemiological investigations of DHF incidents." (K1)

   "Epidemiological investigation (PE), fogging, and PSN usually take place at the beginning of the year—January, February, March—and at the end of the year." (U1)

   "Like PE and fogging, those are part of the control efforts." (U2)

3. **What is your perception of the availability of human resources during the implementation of the DHF control program?**
   "Quite adequate. We utilize existing personnel, at least paramedics who understand the disease—especially those from Roworejo, mainly nurses. There is also training available." (K1)

   "Adequate. The human resources involved are usually the DHF program holder, surveillance officers, and health promotion staff." (U1)

   "Sufficient. The team includes the program manager, surveillance staff, and health promotion personnel." (U2)

4. **What is the current funding situation for implementing the DHF control program, and where does the funding come from?**
   "We receive funding from the Regional Budget (APBD) and National Budget (APBN) for DHF management. The budget is sufficient, but there is no honorarium for health cadres." (K1)

   "Yes, funding comes from both APBD and APBN. The budget is sufficient, but no incentives are provided to cadres." (U1)

   "Funds are from APBN, and the budget is sufficient. However, there is no honorarium for cadres." (U2)

5. **Are the DHF control methods used in accordance with existing guidelines?**
   "Yes, they are in line with the existing guidelines. It's more of a technical matter; we provide training for cadres. Usually, they're involved in the PE process. When we find a DHF case, we don't go straight to fogging—there's a process: PE comes first." (K1)

   "Yes, in accordance with guidelines. We start with PE, which is larva surveillance, and then if larvae are found, we proceed with fogging. In reality, though, the community often requests fogging regardless of larva presence." (U1)

   "Yes, we implement Abate, fogging, and PSN." (U2)

6. **How is the availability of facilities and infrastructure to support DHF control activities such as PSN, PE, education, fogging, and larva monitoring?**
   "Quite good. For PSN, all villages here almost all have fogging machines, whether in good condition or not. Once cases are reported and PE is conducted, if fogging is needed, they are ready. The personnel are also trained." (K1)

   "Adequate. We receive Abate from the Health Office, fogging chemicals from us, and the fuel comes from the village. The Abate stock is always provided by the Health Office, so no separate procurement is needed." (U1)

   "Sufficient. Regarding fogging equipment—it's usually supplied by the village. We provide the chemicals, but in some villages, the equipment is broken." (U2)

   "All facilities are complete." (P1)

   "Complete and guaranteed." (P2)

   "Fully available and ensured." (P3)

7. **Is the surrounding community actively involved in DHF control activities?**
   "Yes, of course. Local authorities always are." (K1)

   "The community is active. For instance, during PE or fogging, they participate—especially the neighborhood units (RT) who are invited to work together." (U1)

   "Yes, for PSN we collaborate. If there's a simultaneous PSN activity, we start by sending formal letters to the villages." (U2)

   "Active, through the involvement of health cadres." (P1)

   "Actively involved; cadres help with dissemination." (P2)

   "Active participation." (P3)

2. Organization of DHF Control

1. **How is the organizational structure for the implementation of DHF control?**

"Only the program officer is directly responsible for DHF control, under the direction of the Head of the Public Health Center. Collaboration occurs across programs; the officer does not work alone but is supported by surveillance and health promotion teams. Each village has its own midwife, so they are automatically involved according to their area of responsibility." (K1)

*"The Public Health Technical Unit (UPT) only receives reports; operations proceed based on each individual's main duties and functions (*tupoksi*). DHF falls under the domain of Disease Prevention and Control (P2), which includes surveillance and health promotion. The program holder operates in accordance with the organizational structure." (U1)*

"From the UPT, administrative staff, surveillance officers, program managers, and then to health cadres." (U2)

2. **Is there a specific task force or special team formed for DHF control?**

"No." (K1)

"No, as I mentioned earlier, everything is handled according to each person's designated role and function." (U1)

"No." (U2)

3. Implementation of DHF Control

1. **How does the fogging process function during the implementation of the DHF control program?**

"The villages already have the equipment, but they lack access to the fogging chemicals. The health center receives the chemicals from the district health office, so we only provide the chemicals. We bring the chemicals to the village, and then the village authorities usually conduct the fogging. Once we notify the village and they are ready, we go immediately with the chemicals." (K1)

"Whether or not larvae are found, we conduct fogging to avoid community complaints. People tend to protest if fogging isn't done. Implementation involves coordination with the village, and once the village agrees, we schedule the fogging." (U1)

"The fogging equipment is provided by the village, the chemicals are from the health center, and implementation is also handled by the village. The health center is responsible for monitoring." (U2)

2. **How are mosquito nest eradication (PSN) activities carried out during the implementation of DHF control?**

"Surveillance personnel must be involved. During PSN, we must go directly into the community, inspecting for larvae and identifying homes. Our surveillance officer also serves as the health promotion staff, so one person along with the program officer is usually sufficient. We contact the village midwife to determine which houses to visit. If larvae are found, we provide health education as part of the promotion effort." (K1)

"We start by establishing a commitment from each village to support PSN. Then we act independently—for instance, we may conduct PSN at schools or village halls if mosquito breeding sites are suspected. We involve the community, distribute abate, and clean the environment together." (U1)

"We usually send a letter to the village first, then village officials will mobilize the community. We encourage communal clean-up efforts and distribute abate." (U2)

3. **How is health education conducted during the DHF control program implementation?**
"During mosquito eradication activities, we also provide education and counseling." (K1)
"We deliver health education whenever possible—when visiting residents' homes, during posyandu *(integrated health service posts), religious gatherings, and village meetings. We take every opportunity to provide education about DHF." (U1)*

"Health education is usually conducted when a case is reported—we provide direct education then." (U2)

"The education is good, usually using videos." (P1)

"Education is conducted using videos." (P2)

"Yes, usually with video presentations." (P3)

4. **How is epidemiological investigation (PE) conducted during the DHF control program implementation?**
"When a case is identified, we first conduct a PE. If larvae are found, fogging isn't always necessary. For example, if today we find larvae and fog, and a few days later there's another case nearby, we do another PE. Whether or not fogging is done depends on the findings—it's not always automatic." (K1)

"If a case is reported, we immediately carry out PE, inspecting the patient's environment for larvae, asking about their recent travel history, and if exposure happened locally, we fog. We also ask neighbors if anyone has had a fever and document everything—usually one case per household." (U1)

"PE involves house-to-house visits, inspecting water containers and discarding those that may serve as breeding sites. Usually, a PE in one focus area takes about 30 minutes." (U2)

5. **Is a timely response always provided for each reported DHF case? What does the health center do when a case is reported?**
"Of course. Otherwise, people complain. We usually respond within 24 hours—if it takes two days, they'll be upset and feel ignored." (K1)

"Absolutely. I'm especially concerned when platelet counts drop—there's a risk of hemorrhage. If someone dies, surveillance and program staff are held accountable. That's why we respond within 24 hours." (U1)

"Yes, once a case is reported, we go down for PE. If we learn of a case today, we go down the next day—within 24 hours." (U2)

6. **How do larva monitoring cadres (jumantik) participate in the DHF control program?**
   "They remain active on designated days—such as during community clean-ups on Jumat Bersih *(Clean Friday). When prompted, they engage in mosquito nest eradication." (K1)*
   "To be honest, the jumantik cadres are less active due to the lack of financial incentives." (U1)

   "Yes, recently participation has been low—after formation, many seemed confused and less active." (U2)

   "They help, especially during the rainy season." (P1)

   "They assist, but there's no training provided." (P2)

   "They help out." (P3)

7. **How is time managed for the DHF control program?**
   "Whenever we have time, we go to the field to provide education." (K1)

   "If we have spare time, we carry out public education, especially when mothers gather at religious events or community meetings." (U1)

   "During free time, we invite mothers to discuss disease prevention together." (U2)

   "I help whenever there are education activities." (P1)

   "I assist during activities." (P2)

   "If I'm informed, I'll join in." (P3)

8. **How do jumantik cadres record and report PSN activities?**
   "The cadres don't have records—they don't carry out activities, so there's nothing to document. We have annual reports and other documentation instead." (K1)

   "The cadres are not very active due to lack of funding, so reporting and documentation are handled by the DHF program officer." (U1)

   "It's hard to explain—they are not very active. The health center submits monthly reports, and there haven't been any major issues." (U2)

4. **Evaluation of Dengue Fever Control**
    1. **What are the results of the DBD disease control program in terms of coverage achievement?**

    "The main goal is to prevent an outbreak (KLB), and we have succeeded in ensuring that no significant increase in cases occurs. So, although DBD cases still exist, we manage to control the situation effectively and remain vigilant." (K1)

    "The main goal is to prevent an outbreak (KLB), and we have succeeded in ensuring that no significant increase in cases occurs. So, although DBD cases still exist, we manage to control the situation effectively and remain vigilant." (U1)

    "Sometimes the outcomes are still less than optimal. We may have already gone to the field and conducted fogging, but public awareness regarding cleanliness is still lacking. For example, water containers at homes are still left uncovered, resulting in continued mosquito breeding." (U2)

    "Prevention efforts have shown improvement." (P1)

    "From what I see, it is preventable." (P2)

    "It is better than before." (P3)

    2. **Are there any obstacles or challenges in controlling DBD at Roworejo Public Health Center? What are the predictions?**

    "There are no significant obstacles." (K1)

    "Obstacles usually emerge after August. Prevention becomes more difficult despite our advocacy efforts, because local policymakers often do not agree with proposed measures."(U1)

    "Lack of proper implementation of Clean and Healthy Living Behavior (PHBS). Although we have conducted numerous health education sessions, the problem persists." (U2)

    3. **How is the monitoring of the DBD control program conducted?**

    "There's not much to supervise because everyone automatically performs their respective duties. For example, once a patient is diagnosed with DBD at the inpatient unit, we immediately go to the area of origin. Reports from the hospital are followed up promptly as part of our responsibilities." (K1)

    "There is strict monitoring from the Health Office, including detailed reports that are regularly reviewed." (U1)

    "There is no direct supervision." (U2)

    "There is supervision." (P1)

    "Monitoring has been fairly good." (P2)

"Supervision is being monitored." (P3)

Discussion

1. Planning of Dengue Fever Control

Based on interviews conducted with key informants, it can be concluded that the planning of dengue fever (DBD) control at Roworejo Public Health Center has been systematically designed and aligned with applicable guidelines. The planning covers aspects such as budgeting, methods, facilities and infrastructure, and community participation. However, there are still shortcomings in providing incentives for health cadres and in the maintenance of facilities, which need to be addressed in order to enhance the sustainability and effectiveness of the program's implementation.

According to the Decree of the Indonesian Minister of Health No. 581/MENKES/SK/VII/1992, all related agencies and institutions receive funding to combat dengue fever from sources including the national budget (APBN), regional budgets (APBD I and II), community self-funding, and other legitimate sources. The standards for dengue control include equipment and materials such as larva inspection forms, educational materials (e.g., leaflets, posters), epidemiological investigation forms; at least four fogging machines per sub-district health center; diesel and gasoline; four-wheeled vehicles; insecticides as needed; and at least one unit of communication equipment (Ayunitami et al., 2021).

This is consistent with a study by Asnel et al. (2022) conducted in the working area of Siak Hulu 1 Health Center, which showed that the planning of dengue fever control management was well implemented. This was reflected in the planning of activities, human resources, infrastructure, and financial resources. All actions related to DBD control—including fogging, vector eradication (PSN), health education, and epidemiological investigations—were carried out in accordance with standard operating procedures (SOP). DBD control management functioned as expected, with human resource planning involving the DBD program officers, field health cadres, and other personnel being effectively coordinated to support disease control efforts.

2. Organization of Dengue Fever Control

Based on interviews conducted with key informants, the organization of dengue fever (DBD) control at Roworejo Public Health Center was carried out through a structural approach that relies on the main duties and functions (tupoksi) of each individual or division. The control efforts are led by the program officer under the direction of the head of the health center, supported by cross-sectoral roles such as surveillance and health promotion (promkes). This collaboration runs automatically based on the established work area and job functions, without the formation of temporary or special teams. All informants confirmed that no special task force was formed for DBD control, indicating that the organizational approach is functional in nature and depends on the existing organizational structure.

According to the Decree of the Indonesian Minister of Health No. 581/MENKES/SK/VII/1992, efforts to control dengue fever must include training the community to prevent and limit the spread of the disease. Public education and motivation allow for sustainable community participation. Therefore, dengue prevention is carried out through cross-program and cross-sectoral collaboration, supervised by regional or local leaders (Ayunitami et al., 2021).

This is consistent with a study by Makaisya Azzahra (2023), which found that in the Health Office of Depok City, collaboration and coordination with cross-sectoral partners had been implemented effectively. There was no special organizational structure dedicated to the dengue control program; instead, the activities were carried out by an informal, non-structured working team.

3. Implementation of Dengue Fever Control

Based on the interviews with key informants, the implementation of dengue fever control at Roworejo Public Health Center demonstrates commendable efforts from healthcare personnel, particularly in the areas of surveillance, health education, epidemiological investigations (PE), and case reporting. However, the implementation has not yet reached full effectiveness due to limited participation from larva monitoring cadres (jumantik), insufficient training opportunities, and a lack of structured activity schedules. The gap between expectations and field realities highlights the need for strengthened inter-sectoral coordination, capacity building through continuous training for cadres, and the provision of incentives to support more collaborative, scheduled, and sustainable DBD control activities.

This aligns with the findings of Asnel et al. (2022), which showed that disease control management at Siak Hulu 1 Health Center included fogging, larva breeding site eradication (PSN), mobilization of jumantik cadres, training, and epidemiological investigations. Additionally, designated teams and individuals were assigned responsibility for program implementation.

4. Evaluation of Dengue Fever Control

From the interviews with key informants, it was found that the supervision of DBD control efforts is considered adequate from both the managerial and field implementation perspectives, as evidenced by the absence of outbreaks (KLB) and fatalities. However, the overall program effectiveness is still constrained by several challenges, including low community awareness, limited support from decision-makers, and varying perceptions regarding monitoring practices.

These findings are supported by the study conducted by Kumala et al. (2021), which indicated that leadership responsibility and task delegation were carried out in accordance with Standard Operating Procedures (SOP) and Assignment Letters (SPT). Field officers were highly motivated despite having multiple roles. However, jumantik cadres and incentives were no longer available. Furthermore, there was a lack of motivation from leadership and the local Health Office toward both staff and the community. The public's motivation to adopt Clean and Healthy Living Behavior (PHBS), particularly in eradicating mosquito breeding sites (PSN), also remained low.

Conclusion

1. The planning of dengue fever (DBD) control at Roworejo Public Health Center, Pesawaran Regency, has been carried out using a systematic and participatory approach. This was achieved through evaluation of previous programs and the development of work plans adjusted to the annual case trends. Various control measures—such as fogging, larva monitoring (PSN), larval observation, and health education—have been implemented with relatively adequate human resources and budget support. Despite challenges such as limited incentives for community cadres and difficulties in educating the public about fogging procedures, facilities and infrastructure have generally supported the implementation of activities. Active participation and cross-sectoral collaboration have proven to be crucial to the success of dengue control in the Roworejo Health Center area.
2. The organization of dengue control at Roworejo Health Center is functional and based on the existing organizational structure, relying on the main duties and responsibilities (tupoksi) of each individual or division. Interdepartmental collaboration occurs automatically based on designated work areas and roles, without the formation of a special team dedicated to DBD control.
3. The implementation of dengue fever control at Roworejo Health Center has demonstrated substantial efforts by healthcare workers, particularly in surveillance, public health education, epidemiological investigations (PE), and case reporting. However, implementation has not been

fully optimal due to low participation of larva monitoring cadres (jumantik), limited training, and the absence of a structured activity schedule. The gap between expectations and field realities indicates the need to strengthen cross-sectoral coordination, enhance cadre capacity through ongoing training, and provide incentive support to ensure that dengue prevention efforts are more collaborative, well-scheduled, and sustainable.

4. Dengue fever control at Roworejo Health Center shows that the program has been implemented fairly well, though not yet optimally. The main success is reflected in the absence of outbreaks and fatalities, as well as the prompt response by health center staff to reported cases. Nevertheless, several obstacles remain, including low public awareness regarding environmental sanitation and insufficient support from policymakers, despite advocacy efforts already undertaken.

References

[1] Arisanti, M., & Suryaningtyas, N. H. Kejadian Demam Berdarah Dengue (DBD) Di Indonesia Tahun 2010-2019. Spirakel. 2021; 13;1

[2] Sumampouw, O. J. Epidemiologi Demam Berdarah Dengue di Kabupaten Minahasa Sulawesi Utara. Sam Ratulangi Journal of Public Health. 2020; 1; 1

[3] Syarifah, U., Ritonga, E. R., Purba, M. R., Khofipah, S., Muthia, K. E., & Dewi, A. H. Analisis Implementasi Kebijakan Terhadap Pengendalian Demam Berdarah Dengue. Jurnal Inovasi Kesehatan Adaptif. 2023; 5; 4

[4] Kemenkes RI. Membuka Lembaran Baru Untuk Hidup Sejahtera. Laporan Tahunan 2022 Demam Berdarah Dengue. 2022; 17–19.

[5] Pesawaran, D. K. K. Badan Pusat Statistik Kabupaten Pesawaran. 2024. Badan Pusat Statistik.

[6] Indah Kurniawati. Studi Penatalaksanaan Manajemen Kasus Dbd. 2019; 70.

[7] Martha, E. Buku Metodologi Penelitian kualitatif Bidang Kesehatan. 2017

[8] Sugiyono. Buku Metodologi Penelitian. In Buku Metodologi Penelitian. 2017

[9] Ayunitami, Q., Susmaneli, H., & Gloria Purba, C. V. Analisis Pelaksanaan Program Pengendalian Demam Berdarah Dengue (Dbd) Di Puskesmas Karya Wanita Kota Pekanbaru. Media Kesmas (Public Health Media). 2021. 1;2

[10] Asnel, R., Rindang Ompusunggu, S., & Pramulia Fitri Kursiah Wartiningsih Sekolah Tinggi Ilmu Kesehatan Payung Negeri Pekanbaru, R. Analisis Manajemen Pengendalian Penyakit Demam Berdarah Dengue (Dbd) Di Puskesmas. Health Care : Jurnal Kesehatan. 2022; 11;2

[11] Makaisya Azzahra, R. K. F. (2023). *Jurnal Pendidikan Kesehatan dan*. *9*(2), 84–90.

[12] Kumala, T. K., Abidin, Z., & Renaldi, R. Pelaksanaan Program Pengendalian Penyakit Demam Berdarah Dengue Di Wilayah Kerja Uptd Puskesmas Perhentian Raja Kabupaten Kampar. Media Kesmas (Public Health Media). 2021; 1;3