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Evaluating the P2DBD Program at the Sukabumi Community Health Center, Cikole

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ABSTRACT
Dengue Hemorrhagic Fever (DHF) remains a major public health concern in Indonesia, which is both a tropical country and an endemic area for dengue. The country's climatic conditions provide a favorable environment for the proliferation of Aedes aegypti mosquitoes, the primary vector of transmission. To address this issue, the Indonesian Ministry of Health implemented the Dengue Hemorrhagic Fever Control Program (P2DBD) as regulated in Ministerial Regulation No. 82 of 2014 concerning the Management of Infectious Diseases. This study aims to evaluate the implementation of the P2DBD program at the Sukabumi Community Health Center based on the six dimensions of policy evaluation by William N. Dunn, namely effectiveness, efficiency, adequacy, equity, responsiveness, and accuracy. The method is descriptive qualitative through interviews, observations, and documentation. The program has been implemented with strategies like 3M Plus mosquito nest eradication, health education, and community empowerment; however, dengue incidence remains high. The budget is sufficient, but limited human resources affect optimal execution. Facilities exist, yet public understanding is lacking, and services have not fully reached remote areas. Although the program adapts to community needs and applies data-driven and cross-sector collaboration, these need strengthening. It is recommended to add dedicated P2DBD staff to lessen health officers' workload in routine mosquito control.

Keywords: *Policy Evaluation, Dengue Fever, P2DBD, Community Health Center, Sukabumi*

1. INTRODUCTION

Indonesia is a country with a tropical climate, which brings various implications, including challenges in dealing with DHF (Dengue Hemorrhagic Fever). The number of dengue fever cases in Indonesia fluctuates, but tends to occur throughout the year because Indonesia is an endemic area for the Aedes Aegypti mosquito (Ernyasih et al., 2021). The policy instrument used to overcome the spread of dengue fever is Minister of Health Regulation no. 82 of 2014 concerning "Control of Infectious Diseases". In it there is a discussion about dengue fever along with efforts to prevent, control and eradicate it. This policy was then implemented by the DHF Control Program (P2DBD), one of which is through epidemiological investigations to identify sources of transmission and patterns of disease spread, in order to support targeted interventions.

West Java as one of the regions in Indonesia continues to receive attention, especially in the rainy season as an environmental condition that supports the development of mosquitoes. Based on Open Data for West Java Province (2023), the number of dengue fever cases shows significant challenges, especially in Sukabumi. Sukabumi is in 2nd place after Bogor. In the period 2021-2024, the number of dengue fever cases in Sukabumi City is 3,637, with the highest in 2024. This high number reflects that there needs to be more intensive intervention with collaboration between the government and the community to overcome this.

The community health center is a primary healthcare facility that plays a strategic role in the implementation of the Dengue Fever Control Program (P2DBD). In the city of Sukabumi, the Community Health Center is responsible for carrying out various activities for the prevention and management of dengue fever cases. Among the several Community health center operating in the area, the Community health center Sukabumi in the Cikole sub-district recorded the highest number of dengue cases, with a total of 235 cases in 2024, making it the unit with the highest incidence rate compared to other community health center, with a surge in cases mainly occurring during the rainy season in densely populated areas such as Kebonjati, Cisarua, and Subangjaya (Health Office of Sukabumi, 2025). However, based on initial observation results, the implementation of the P2DBD program at Sukabumi Community Health Center faces several challenges, including limited human resources, specifically environmental health staff (kesling), which consists of only one person for three urban villages, thus burdening the effectiveness of program implementation.

Policy evaluation is a systematic process aimed at assessing the effectiveness, efficiency, and impact of a policy in order to provide recommendations for improvement and better decision-making (Stufflebeam, 2017). According to William N. Dunn (2018), program evaluation is a process that aims to present relevant and useful information, which can then be used as a basis or alternative in decision-making. There are six criteria in this evaluation theory model, namely effectiveness, efficiency, adequacy, equity, responsiveness, and accuracy.

Based on Dunn's Theory (2018), effectiveness refers to the extent to which the program achieves its intended goals; efficiency measures how well resources are used to produce outcomes; adequacy evaluates whether the program's scope and scale meet the needs of the target population; equity considers fairness in the distribution of program benefits across different groups; responsiveness assesses how well the program adapts to the needs and feedback of the community; and accuracy examines the reliability of data and appropriateness of the methods used in program implementation and evaluation.

Various previous studies have attempted to investigate the evaluation of the P2DBD program, including Susmaneli et al., (2021) and Zaputri et al., (2017). In Susmaneli's (2021) study, it was found that the effectiveness of the P2DBD program had not been maximized due to constraints related to standard operating procedures (SOPs) and inadequate equipment. Meanwhile, Zaputri's study (2017) evaluated the program using the CIPP model, focusing on input, process, and output. Based on these two findings, no previous research has employed Dunn's theory as an analytical framework for program evaluation. In fact, this theory offers advantages in exploring aspects of program implementation, thereby providing more comprehensive solutions for future improvements.

Besides that, although various studies have evaluated the P2DBD program in different regions, research focusing specifically on the unique context of Sukabumi City and the challenges faced by the Sukabumi Community Health Center in the Cikole sub-district remains limited. The densely populated demographics and limited human resources in this area present particular challenges that impact program effectiveness. Therefore, this study aims to fill this gap by providing a more contextual and practical evaluation to enhance the performance of the P2DBD program in Sukabumi.

This research employs Dunn's theory as the theoretical framework to achieve the goal of this study, which is to evaluate the P2DBD at the Sukabumi Health Center. This study is expected to contribute to various parties, starting from the academic environment in the form of developing research related to the evaluation of government program implementation and also to serve as recommendations and evaluation materials for the health department of Sukabumi City, the Sukabumi Health Center, and other stakeholders regarding a more effective evaluation of the P2DBD.

2. METHODS

This research was conducted at the Sukabumi Health Center, Jl. R.A. Kosasih No. 147 Ciaul, Cikole District, Sukabumi City, West Java. The research was carried out from February to May 2025. The research method in this study is descriptive qualitative because this method will allow for an in-depth understanding of the process of implementing the P2DBD program at the Sukabumi Health Center in Cikole District. The indicators used are the policy evaluation theory according to Dunn (2018), which consists of effectiveness, efficiency, adequacy, equity, responsiveness, and accuracy.

The object of this study is the Sukabumi Community Health Center in Cikole District, Sukabumi City, which serves as the implementer of the P2DBD program. The informants were five individuals selected using purposive sampling, including the Head of the P2P, P2DBD officers, health workers at the Sukabumi Health Center, and community members who had experienced dengue fever. This sampling technique allowed the researcher to select participants who possessed relevant knowledge and experience in relation to the implementation and impact of the P2DBD program (Moleong, 2016).

The data collection techniques are observation, interviews, and documentation. The researcher collected these data through interviews and documentation at the Sukabumi Community Health Center in Cikole District. To ensure that the data used is valid and credible, the researcher employed data validity techniques in the form of source and technique triangulation. This data validity technique allows the researcher to obtain data and information in a deep and comprehensive manner (Sugiyono, 2022). In this study, triangulation included both source and technique methods. Source triangulation involved collecting data from various informants such as health officers, program managers, and other stakeholders to compare and verify information. Technique triangulation combined interviews, observations, and document reviews to cross-check data and ensure its accuracy and completeness. Meanwhile, the data analysis used the interactive data analysis model by Miles and Huberman, which begins with data reduction, data presentation, and drawing conclusions *(Miles & Huberman, 2018)*.

3. RESULTS AND DISCUSSIONS

According to Dunn (2018:341), public policy evaluation is a systematic analysis process used to assess the extent to which a public policy or program achieves its established goals and delivers the expected value. The evaluation of the P2DBD program is important to review how the program is implemented in the field. Based on the data processing and analysis results, the following will present the research findings and discussion related to the evaluation of P2DBD at the Sukabumi Health Center in Cikole District.

1. Effectiveness

Research results show that the implementation of the Dengue Hemorrhagic Fever Control Program (P2DBD) at the Community Health Center in Cikole District has been carried out systematically through a promotive and preventive approach, emphasizing the implementation of 3M Plus activities,

community education, epidemiological investigation, and enhancing the capacity of health personnel. Information from informants indicates that activities such as direct outreach to residents' homes, posyandu visits, and empowerment of jumantik cadres have been actively conducted.

However, the effectiveness of the program has not been fully achieved based on the main achievement indicators. The informant said, 'In 2024, our dengue cases are very high but hopefully, they will decrease in 2025.' Data shows that in 2024, the incidence rate of dengue (Incidence Rate/IR) was 205.5 per 100,000 population, exceeding the national target by 20.55 times, and the case fatality rate (CFR) due to dengue was 1.04%. This aligns with the study conducted by Evans et al., (2023), which demonstrates that community acceptance plays a crucial role in ensuring successful program implementation.

2. Efficiency

Efficiency is one of the crucial dimensions in the evaluation of public policy, focusing on the extent to which a program can achieve expected outcomes with minimal resource use. Based on interviews with informants, the DBD control program is assessed to have an adequate allocation and has supported key activities such as fogging, outreach, eradication of mosquito breeding sites, and distribution of larvicides. This is supported by the statement from a resource person, 'In terms of funding, we have a sufficient budget for various DBD control activities. This means that every effort we make, from checking larvae, cleaning mosquito breeding sites, using larvicides, to fogging, is all adequately funded.' These activities are carried out by various parties including health centers, health departments, and the community

However, efficiency constraints in human resource management and time also serve as major obstacles. Most officers are still doubling tasks in other programs and often the implementation of this program is handled by just one person, making the available time very limited. Community sources suggest adding more operational staff and scheduling activities in a more structured manner to maximize participation. Generally, the comparison between input and output shows quite good efficiency. Activities such as counseling and PSN are beginning to show positive impacts, although their effectiveness has not yet been maximized due to the limitations of operational staff. Based on the study by Evans et al. (2023), the involvement of community organizations is crucial in ensuring the effective implementation of programs. This goes beyond mere acceptance; it also serves as a mechanism to ensure that each activity is properly carried out.

3. Sufficiency

The adequacy dimension in the implementation of the P2DBD Program at the Sukabumi Health Center indicates that the program's basic needs, such as facilities and infrastructure, are available and adequate. Supporting facilities such as mosquito larvae inspection tools, fogging services, and educational media are deemed sufficient by both the staff and the community. However, the main challenge is not the availability of facilities but rather the public's understanding, which still tends to rely on fogging as the primary solution, thus preventive education needs to be strengthened. The availability of facilities is essential for implementing the program, especially since this program requires complete infrastructure and equipment for activities such as fogging. In Susmaneli's (2021) study, the lack of adequate facilities and infrastructure caused the program to be less effective and to run inefficiently.

From the perspective of human resources, the program is still experiencing limitations in specialized personnel to handle P2DBD. Most activities, from data collection to reporting, are still managed by one or a few officers, which impacts the effectiveness of implementation, particularly in reaching all working areas. The high workload and time limitations present major challenges in maintaining program consistency. According to research conducted by (Dharmayanti, 2019), an inappropriate workload will lead to a decrease in the performance quality of human resources. Therefore, it is crucial to ensure that the available human resources are sufficient and also competent in their respective fields. Institutional support and coordination between agencies, such as between community health centers, hospitals, and health offices, are functioning quite well. The communication system through digital groups and a quick referral mechanism facilitates the management of DBD cases. Nevertheless, there is still room for improvement in technical management and distribution.

4. Equity

The dimension of equity in the implementation of the P2DBD Program at the Sukabumi Health Center emphasizes equal access to services for all community groups within the working area. The program is designed with a division of areas based on the level of risk of cases and a phased visitation schedule. This is in accordance with the statement from the source: *"Each area has already been mapped, so we have data on which areas are categorized as high, medium, or low risk based on previous DBD cases and the results of mosquito larvae monitoring. As a public health officer, I schedule visits to each sub-district and RT/RW in phases, prioritizing areas where cases have been found."* Supported by coordination with local cadres and officials, each area has the opportunity to access services. This is reflected in fogging activities that target not only the city center but also densely populated and remote areas

Nevertheless, there are still obstacles in reaching areas that are difficult to access due to limited time and manpower, so the distribution of services has not been fully equitable. The allocation of resources, such as manpower, funds, and fogging equipment, is done selectively with priority given to high-risk areas. Management

Resources are already quite adaptive, but budget limitations and the distribution of abate powder still pose challenges. The quality of services also shows positive results with regular supervision, training of implementers, as well as quick responses and friendly attitudes from officers in serving the community. This humanistic approach increases public trust and participation in the program. In the study by Evans et al. (2023), it was found that areas facing difficulties in accessing aid due to challenging access require collaboration and coordination among community-based organizations. This highlights the importance of competent human resources who are able to reach the community and prioritize regions that need urgent attention, which is key to successful program implementation.

5. Responsiveness

Responsiveness in the P2DBD program at the Sukabumi Public Health Center demonstrates the program implementers' ability to respond quickly and accurately to the needs, expectations, and complaints of the community. Identification of community needs is carried out through rapid surveys, discussions with community leaders, and analysis of dengue case data by region, allowing for more targeted interventions.

"At the very least, we identify the needs of the community through rapid surveys, focus group discussions with community leaders and cadres, as well as data analysis of dengue cases by area. From there, we can also identify the dominant risk factors in that area, such as habits of storing water, poor environmental conditions, or lack of knowledge," said the source. With this method, it can be said that the aspect of responsiveness is a highlight at the Sukabumi Health Center in Cikole sub-district compared to other aspects. The human resources at this health center have the capability to provide good services.

In addition, medical services are also prompt in handling cases, with initial examinations and quick referrals when necessary. The implementation strategy is tailored to the social characteristics of the area, for example, focusing on education and fogging in densely populated and high-risk areas, demonstrating a responsive adaptation to local conditions.

6. Accuracy

Accuracy refers to the extent to which the P2DBD program at Sukabumi Health Center aligns with the real problems and needs of the target community. This accuracy is not only viewed from the compliance with procedures but also the relevance of the approach to the social, cultural, economic, and geographical conditions in the field. Based on interviews conducted with sources, the program has targeting precisely by prioritizing high-risk areas such as densely populated regions and areas with poor sanitation, as well as vulnerable groups, especially children. This approach is supported by relevant risk mapping so that interventions are more focused, although challenges such as changes in community behavior and limited personnel still exist.

Timeliness of implementation is also taken into account with a flexible schedule that is adjusted to the epidemiological conditions of dengue fever (DBD). The program is able to respond quickly to spikes in cases through intensified fogging, larva monitoring, and education, although adjustments often occur in the field due to limited human resources. From the methodological side, the implementation of 3M Plus, fogging, education, and epidemiological investigation has adhered to SOPs and guidelines. The staff receive regular training and are supervised by the Health Office, ensuring that activities are conducted professionally and meet standards, including medical handling of DBD cases.

However, the limitations of healthcare personnel and the variability of community participation pose challenges that can hinder the overall effectiveness of the program. Therefore, strengthening personnel capacity, resource planning, and community empowerment is crucial to expand the impact and sustainability of the program. Overall, the P2DBD Program at the Community health center Sukabumi has demonstrated good accuracy in terms of targeting, timing, and methods. However, improvements in technical implementation and cross-sector support need to be enhanced for greater effectiveness and reach of the program. It should be noted that human resources play a very important role in ensuring the program runs smoothly, but this is not only in terms of quality but also in terms of quantity (Syarief et al., 2019).

Although in this case the implementers have been quite responsive, public participation in preventive activities such as PSN, 3M Plus, and community service is still seasonal and inconsistent. Community awareness tends to increase during spikes in cases and then decreases again, so community involvement has not been optimal. Overall, the P2DBD program at the Sukabumi Health Center has shown good responsiveness from the implementers, but strengthening is needed.

empowerment and communication so that active community participation in the prevention of dengue fever can take place sustainably and consistently.

4. CONCLUSION

Based on the findings of the study above, it can be concluded that the P2DBD program at the Sukabumi Community Health Center in Cikole District is not yet fully effective because it faces several challenges, primarily challenges arising from the limitations of human resources in terms of quantity. In terms of program effectiveness, the strategy has been actively implemented but has not yet met the expected targets due to the still high incidence rate (IR). In terms of efficiency, the budget allocation and infrastructure are adequate, but the program still faces obstacles due to the limited human resources in the implementation of P2DBD activities.

Similarly, in terms of adequacy, various facilities and infrastructures for the program have been available, but the limitations of implementing personnel and the community's minimal understanding become hindering factors to achieve maximum results. The dimension of equity shows that the program has been able to reach all areas evenly, but geographical constraints and time limitations are the causes of less than optimal services provided. The dimension of responsiveness demonstrates a fairly good level in efforts to identify vulnerable areas through surveys and data, as well as being quick to respond to existing dengue fever symptoms. In terms of accuracy, this program has been implemented correctly according to the applicable guidelines and SOPs.

This implies the need for improved coordination among community health centers, the health department, and various stakeholders related to the program so that implementation is more directed and responsive. There is a need for additional specialized staff aimed at maximizing the program and preventing excessive burdens on human resources that hinder program implementation. Future researchers are advised to conduct studies with different evaluation approaches that allow for integration between fields. Researchers suggest using a behavioral public policy approach as an approach that, integrating behavioral science and public policy so as to promote effective changes in public habits. Future studies are encouraged to explore the integration of digital technologies, including real-time surveillance systems and mobile-based community reporting, to strengthen monitoring, coordination, and public engagement in dengue prevention programs.

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