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The Effectiveness of Handling and Controlling Malaria Cases in Riau Islands Province

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A B S T R A C T

The Riau Islands are one of the provinces contributing to malaria cases in Indonesia, with a cumulative total of 245 malaria cases in 2024 spread across districts/cities. Through Minister of Health Regulation No. 22 of 2022 concerning Malaria Control, the Riau Islands have a benchmark for creating malaria treatment and control programs. This study aims to examine the effectiveness of local government policies in managing and controlling malaria cases in the Riau Islands Province. This study uses a descriptive qualitative approach with data collection using primary and secondary data, which is then analyzed narratively. This study uses the policy effectiveness theory proposed by Nugroho as an analytical tool through five indicators, namely appropriate policy, appropriate implementation, appropriate target, appropriate environment, and appropriate process. The results of the study show that the Riau Islands provincial government still faces many obstacles in managing malaria cases, so that policy implementation is still ineffective. This also has an impact on the slow process of achieving malaria elimination in the Riau Islands.

Key word: *Elimination Malaria; Effectiveness; Handling and Controlling; Health Policy; Local Policy*

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1. INTRODUCTION

Malaria is one of the most dangerous tropical diseases with a high mortality rate. The cause of malaria is a parasite called Plasmodium, which is transmitted through the bite of female Anopheles mosquitoes that have been exposed to the parasite (Theresia & Helda, 2024). In the breeding process, mosquitoes lay their eggs in damp places, in stagnant water such as containers or puddles in certain locations such as rivers, swamps, and so on. The egg-laying process by female mosquitoes will then go through a cycle of larvae, pupae, and finally adult mosquitoes. It is through these adult mosquitoes that the Plasmodium parasite, which is the source of malaria, is transmitted and infects humans through mosquito bites.

Indonesia, known as a tropical region, accounts for at least 2% of the number of countries suffering from malaria (Ramdhani, 2024). Although Indonesia has managed to reduce the number of cases by around 25,000 in the past year (Wisnubroto, 2024), malaria cases are spread across almost every province in Indonesia, one of which is the Riau Islands Province. Riau Islands is one of the provinces in Indonesia that has a heterogeneous climate and the potential for regional and global climate change (Utami et al., 2022). The geographical location of Riau Islands, which is 96% surrounded by water, is a major factor in the risk of malaria. The following is data on the development of malaria cases in Indonesia in the 2021-2024 period:

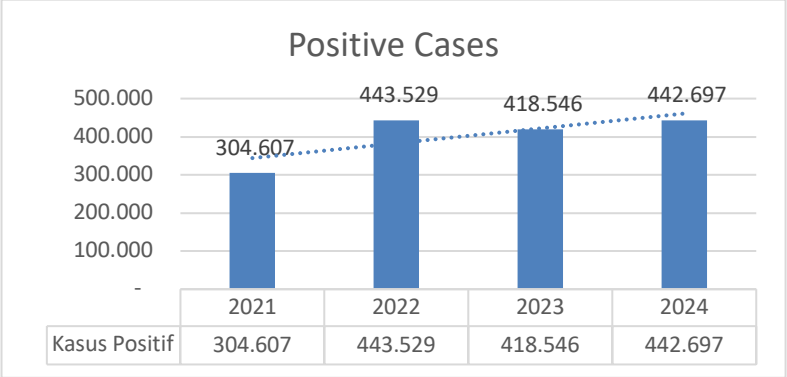

Figure 1 Figure Graph of Malaria Cases in Indonesia
Source: Kemenkes RI

Based on the graph above, it can be seen that malaria cases in Indonesia increased in 2024 compared to 2023, with a total of 24,151 cases. In 2021, there were three hundred positive cases in Indonesia, but as time went on, malaria cases increased in 2022. Indonesia's vast territory with many islands poses a challenge for the government in controlling malaria cases. The residences of malaria patients are difficult to access because they are located in remote and isolated areas, making it difficult and slow for officials to treat them. The Riau Islands are one of the regions that contribute to the number of malaria cases in Indonesia.

In 2024, malaria cases in the Riau Islands experienced a significant increase, with the largest contributing district/city being Tanjungpinang City. In addition to climatic factors, the high number of malaria cases in the Riau Islands was also influenced by factors such as population migration, living environment, local community habits, and so on (Gasong et al., 2024).

In addition, of the seven districts/cities in the Riau Islands, only Bintan District is an endemic area for malaria. Although there have been no cases in the last two years, Bintan is still under surveillance for malaria cases by the Riau Islands government until 2025. Based on this, malaria is one of the infectious diseases that receives special attention from the government in its control efforts. The

seriousness of the danger of malaria, which can be fatal to sufferers, has prompted the government to make strenuous efforts to control this disease in order to realize a malaria-free Indonesia. The following is data on the development of malaria cases in the Riau Islands in the period 2021-2024:

Table 1 Data of malaria cases in Riau Islands

Year	Positive Cases	Percentage
2021	39	11,27%
2022	46	13,29%
2023	16	4,62%
2024	245	70,81%

Source: Riau Islands Provincial Health Office

Through Regulation of the Minister of Health of the Republic of Indonesia No. 22 of 2022 concerning Malaria Control, it is stated that malaria is still a health problem that has an impact on the decline in the quality of human resources, which can cause various social and economic problems, thus requiring integrated and sustainable control efforts (Kementerian Kesehatan RI, 2022).

To date, several efforts have been made by the government, including (Badan Keahlian Setjen DPR RI, 2023): (a) Empowering communities and health cadres to support early detection of malaria cases; (b) Controlling malaria vectors by distributing mosquito nets to communities; (c) Preventing and combating malaria. These efforts will be most effective if the programs implemented are well-targeted, easily evaluated, and highly successful (Asnah et al., 2025).

Although the Riau Islands government has not yet been able to eliminate malaria in the Riau Islands Province, malaria control and prevention activities continue to be carried out given the high number of cases in several districts/cities in the Riau Islands. Malaria control and prevention activities are still based on central government programs, such as conducting mass blood surveys (MBS) and PE 125 when there are reports of cases in the local area, vector control at Anopheles mosquito breeding sites, blood tests using RDT/microscopes to determine the type and number of parasites in the patient's body, provision of logistics such as medicines and medical supplies related to the treatment of malaria cases, and so on, which are still general programs with reference to Minister of Health Regulation No. 22 of 2022. The Riau Islands Government is working hard to eradicate malaria and achieve zero malaria by 2030, with the target of making the Riau Islands Province malaria-free by 2025.

Based on the phenomenon and data on the development of malaria cases in the Riau Islands region, an appropriate policy is needed so that malaria can be treated quickly and effectively. A policy can be considered effective if all parties are involved in achieving maximum results. The effectiveness of the program initiated by the government can be seen from the Malaria Village Program and several provinces such as Bali, Java, and several areas in Sumatra that have been declared malaria-free.

This study aims to examine the extent of the effectiveness of malaria case management and control carried out by the Riau Islands Provincial Government. This study was conducted at the Riau Islands Provincial Health Office with several cities/districts that have malaria cases as a comparison. This study uses Nugroho's Policy Effectiveness theory, which has five indicators, namely (1) Right Policy; (2) Right Implementation; (3) Right Target; (4) Right Community or Environment; (5) Right Process.

2. METHOD

This study uses a descriptive qualitative approach. Qualitative research methods are research methods that aim to understand the phenomena experienced by research subjects (Moleong, 2013). Researchers obtained primary data through interviews with informants based on interview guidelines developed in accordance with policy effectiveness theory indicators. The interviews were conducted in person (offline) and remotely (online) with several parties, namely GF Junior Malaria of the Riau Islands Provincial Health Office, the Rapid Response Team for Malaria in the regencies/cities of the Riau Islands (Batam, Tanjungpinang, Natuna, and Bintan), and malaria patients, with a total of eight informants. In addition, researchers also collected secondary data as supporting data for the research analysis, which was then analyzed narratively based on the results of the data collection.

3. FINDINGS AND DISCUSSION

The Riau Islands Provincial Health Office, as the agency responsible for handling malaria cases in all districts/cities, coordinates with other district/city health offices in the handling and control of malaria cases. Programs implemented by local governments continue to refer to Minister of Health Regulation No. 22 of 2022.

Table 2 Malaria Cases in Riau Islands Province

	2021	2022	2023	2024
Karimun	0	0	0	0
Natuna	0	0	1	7
Batam	0	0	6	4
Tanjungpinang	0	0	9	234
Lingga	1	0	0	0
Anambas	18	0	0	0
Bintan	20	46	0	0
Total	**39**	**46**	**16**	**245**

Source: Riau Islands Provincial Health Office

From the table above, it can be seen that in 2024, malaria cases in the Riau Islands Province increased significantly, reaching 245 cases. Tanjungpinang City is one of the areas with the highest number of malaria cases in 2024, resulting in an Extraordinary Event (KLB), followed by Natuna Regency with 7 cases and Batam City with 4 cases. Bintan Regency, which has no cases, remains a major concern for the government, as the area is still an endemic malaria area in Riau Islands Province.

Right Policy

The Riau Islands Province continues to follow the policy directives from the central government, namely Minister of Health Regulation No. 22 of 2022, in implementing malaria case management and control in the Riau Islands. In principle, the Minister of Health Regulation provides explanations and appropriate steps to be implemented by each region. However, given the characteristics of the Riau Islands, where 96% of the area is water and there are distances between islands in each district/city, derivative regulations are needed to provide technical and specific guidance tailored to the characteristics of the Riau Islands in order to achieve effective implementation of the malaria case policy program. This is reinforced by an interview with GF Junior Malaria of the Riau Islands Provincial Health Office, *"There is no legal formal or direct policy from the province itself yet; the specific policy is only in the form of a letter from the Provincial Health Office to the City Health Office"* (interview results). Legal formalization is crucial not only for accelerating malaria elimination

but also as a form of local-specific regulations, including geographical location, human resources, budget allocation, and other factors.

Ministry of Health Regulation No. 22 of 2022, Article 3 paragraph 1(D) regarding case management, requires further reinforcement and clarification in its implementation, given the vast geographical location of the Riau Islands and the difficulty of reaching them. This was mentioned in an interview with GF Junior Malaria from the Riau Islands Provincial Health Office, *"Given that malaria is a rapidly spreading disease in hard-to-reach locations, we also face difficulties, especially in terms of medicine logistics, which have to wait quite a long time from the center"* (interview results). The process of delivering medicines, which takes a considerable amount of time, especially when cases are found and logistics stocks are inadequate, is a major concern, particularly for the Riau Islands Province, in order to be more responsive to more remote areas.

Article 4, which refers to Minister of Health Regulation No. 22 of 2022, has been implemented well, with no malaria deaths and several preventive measures such as surveillance and monitoring as initial forms of community protection against transmission. The status of high-priority individuals also needs to be considered in relation to malaria transmission, namely people who come and work from areas with high malaria endemicity; those who live in areas prone to flooding and slums; pregnant women and toddlers; and so on. This statement was confirmed by an interview with the Malaria Rapid Response Team in Tanjungpinang City, which stated, *"The extraordinary occurrence of malaria cases in Tanjungpinang City, especially in the Bugis Village area, is caused by people who come here from areas with high malaria cases, who do manual labor and also live in vulnerable areas"* (interview results). This statement can be linked to multidimensional aspects, not only health, but also economic factors; demand for manual labor; poor housing provision and lack of adequate health facilities; and so on.

Given that there are still areas endemic to malaria in one of the regions in the Riau Islands Province, namely Bintan Regency. The Riau Islands Province has not been able to fully meet the criteria for obtaining a malaria certificate, with the requirement that all cities/regencies in the province must become malaria-free areas. This can be linked to Article 21 paragraph 1 and interviews with the rapid response team from Bintan: *"The Bintan area is a priority area for malaria monitoring, even though no cases have been found in the last two years, not only because it is still endemic but also because there are many areas that are prone to mosquito breeding, which can cause indigenous cases"* (interview results). Indigenous cases, which can also be referred to as pure transmission from the region, are a major factor in malaria cases. Environmental aspects play a very important role, so in addition to the climate, which cannot be controlled, an environment with good sanitation and cleanliness is one of the most important factors in eliminating malaria cases, as well as support and cooperation between the government and the community.

Natuna Regency, which is a border and outermost region in the Riau Islands Province, and whose people often have direct contact with TNI personnel on duty, has prompted the government to monitor malaria cases there more closely. TNI personnel, who are also migrants, pose a high risk of transmitting malaria to the local community if they are not examined first. Article 18 paragraph 1 stipulates that all health facilities providing malaria treatment, including those belonging to the TNI, police, and other private institutions, are required to keep records. This is reinforced by interviews conducted by the rapid response team for malaria in Natuna: *"In the government sector, there is a reference to Minister of Health Regulation No. 22 of 2022, and within the TNI itself, malaria management is regulated by Defense Ministry Regulation No. 1 of 2020, which serves as our reference for implementation. Additionally, TNI personnel stationed there come from various regions, particularly endemic areas, prompting us to maintain constant coordination to prevent transmission to the local community"* (interview results).

Right Implementation

Policy implementation is considered effective if all sectors can work together well. The implementers consist of three sectors, namely the government, the private sector, and the community (Irmansyah et al., 2021). In eliminating malaria in the Riau Islands province, the government, especially the provincial health office, has not collaborated with other institutions or the private sector. In efforts to eliminate malaria in the Riau Islands Province, the government, particularly the Provincial Health Office, has not yet collaborated with other institutions or the private sector. Interview with GF Junior Malaria Riau Islands Province*: "Within the province itself, there has been no cooperation with the private sector or other institutions, but meetings such as Focus Group Discussions (FGD) have been held, only the tagging of the cooperation has not yet been done"* (interview results). Considering that malaria is not only a health issue, but also a multidimensional issue involving the environment, economy, society, and so on.

However, malaria control in several cities/districts in the Riau Islands Province has established partnerships, such as in Bintan District and Natuna District. The Bintan Regency Health Office has collaborated with other agencies, namely the Public Works Office, as stated in an interview with the Bintan Regency malaria rapid response team: *"We have just established a partnership with the Public Works Office in the Bintan Regency government, which will focus on the waterways around the swamp area to prevent waterlogging"* (interview results). The cooperation is still focused on development, given that the Bintan region is surrounded by swamps where brackish water and salt water meet. This cooperation is a strategic step, considering that most of the community lives around the swamps, to prevent local transmission cases.

Bintan Regency, which is a strategic area, especially in the tourism sector, also collaborates with the private sector. In this case, private tourism managers are involved in malaria prevention, such as screening, vector inspection, monitoring, and so on. This is because tourism activities constantly interact with tourists. This is done to facilitate the government's efforts in accelerating the handling and detection of malaria cases. This statement was also mentioned in an interview with the Bintan Regency malaria rapid response team: *"We also collaborate with the private sector, especially in the tourism sector, to implement malaria prevention, because we know that they often receive tourists, both at tourist sites and hotels. So they can conduct simple screening independently for every tourist who comes to them"* (interview results). Research by (Jones et al., 2020) shows that the private sector can play an important role in creating and reducing problems related to malaria risk, as well as the government in forming health policies that can be implemented by other partners.

Natuna Regency, which has become a malaria-free area, strives to maintain its status free from malaria transmission. Because Natuna Regency is the outermost region of Riau Islands Province and also a border area, the local government has agreed to cooperate with the Indonesian Army (TNI-AD) by signing a memorandum of understanding (MoU). Interview with the malaria rapid response team in Natuna Regency: *"The soldiers who come to serve here come from various regions. To prevent transmission, we conduct screening before they can actively serve, as well as surveillance for 6 checks to detect imported malaria transmission in groups of people, whether they are migrants or TNI personnel from outside the region, so that they do not infect the local community"* (interview results). This activity is carried out as a rapid response in malaria control. Additionally, this surveillance plays a crucial role in maintaining the malaria elimination status in a region.

For policy implementation among the community, the province provides malaria prevention banners to districts/cities to be displayed in public places as a form of health promotion. These banners are provided not only in endemic areas, but also in malaria-free areas as a form of prevention, especially in areas experiencing a malaria outbreak (KLB). This can be linked to an interview with GF Junior Malaria of the Riau Islands Provincial Health Office *"In health promotion, we also provide banners*

to be distributed to districts/cities to be installed in crowded places regarding malaria prevention so that the general public is aware, as well as appeals to use lotions containing repellents such as Autan, Soffel, or other mosquito repellent products as a form of self-protection" (interview results). The distribution of mosquito nets, wall spraying (fogging), community efforts to clean areas prone to mosquito breeding, and other activities related to breaking the chain of malaria transmission were well-received and participated in by the community.

Prevention of malaria cases does not only consider factors such as inter-agency or community cooperation, but more importantly, environmental factors. The government's own mosquito vector control measures for the environment include an activity called receptive mapping. This receptive area mapping is carried out to identify areas with the highest potential for Anopheles mosquito breeding (Saleh et al., 2024). This activity is carried out twice a year to detect Anopheles mosquito larvae in accordance with the receptive area mapping that has been mapped. This is reinforced by an interview with GF Junior Malaria of the Riau Islands Provincial Health Office: *"The target of receptive mapping is to map and identify areas with the highest potential for Anopheles mosquito breeding, namely areas that have eliminated malaria as a form of maintenance, which is carried out twice a year"* (interview results).

Right Target

The Riau Islands Province continues to work to address malaria cases that still occur in every district/city. These efforts are also part of achieving the target of eliminating malaria in the Riau Islands by 2030. Throughout 2024, the highest number of malaria cases was experienced by the city of Tanjungpinang in first place, followed by Natuna district in second place and Batam city in third place. Meanwhile, four other districts/cities, namely the Anambas Islands district, Bintan district, Lingga district and Karimun district, detected zero cases.

To achieve the malaria elimination target, the Riau Islands government is implementing a strategy for handling, controlling, and combating malaria in accordance with the stages and levels of endemicity in each region towards malaria elimination. This strategy includes phasing malaria cases in each region, whether it is a region with high, medium, low, or no malaria endemicity.

Tabel 3. Malaria Elimination Communication Strategy

Strategic Aspects	Target	Goal
Accelaration	High Endemicity Level	Rapidly reduce malaria cases
Intensification	Moderate Endemicity Level	Reduce the number of malaria transmissions
Elimination	Low Endemicity Level	Stop the transmission of malaria
Maintenance	Malaria-Free Areas	Prevent the transmission of malaria

Source: Regulation of the Minister of Health of the Republic of Indonesia.

To stop the spread of malaria, the Provincial Health Office conducts PE 125 activities. PE 125 is a 5-day epidemiological examination, consisting of notification on the first day, contact surveys on the second to fourth days, and mass blood surveys (MBS) on the fifth day. The targets are not only the patients themselves, but also residents whose homes are within a 200-meter radius of the patient's home, neighbors, and residents living in the same house as the patient. Their blood is also collected for

testing to prevent transmission. On average, the targets are cooperative and willing to participate in the blood collection process.

Through the PE 1-2-5 approach, it was found that malaria cases in the Riau Islands in 2024 remained high cumulatively. This can be seen in the report from the Riau Islands Provincial Health Office based on the following PE 1-2-5 positive case data:

Tabel 4. Positive cases in PE 1-2-5

No.	District/Cities Health Facilities Registrar	Number Of Positive Cases	Total Of Positive Cases In PE 1-2-5	% Percentage Of Positive Cases At PE 1-2-5
1.	Karimun	0	0	-
2.	Bintan	0	0	-
3.	Natuna	7	7	100%
4.	Lingga	0	0	-
5.	Anambas	0	0	-
6.	Batam	4	4	100%
7.	Tanjungpinang	234	234	100%
Total of Kepri		**245**	**245**	**100%**

Source: Riau Islands Provincial Health Office

Based on the implementation of strategies and data on the development of cases, it can be seen that the targets for malaria treatment and control in the Riau Islands have not been fully achieved. The biggest obstacle faced in the implementation of malaria prevention is that there are still patients who are not aware of the need to take medication regularly as recommended and undergo routine check-ups, which makes it difficult to detect recovery or the development of malaria. This statement is reinforced by the results of an interview with the PJ. Malaria Program Kampung Bugis Tanjungpinang. The malaria program manager (PJ) is the person responsible for the entire process of prevention, control, and reporting of cases in his/her working area, which originates from the nearest health unit in that working area.

"For the target itself, at the beginning of the treatment there were some obstacles that caused the number of cases to increase to this extent. Starting from non-compliance in taking medication and undergoing examinations, because on average the people who live here are migrants, so after being given explanations and directions, they understood and followed the procedures in place for malaria treatment."

In addition to patient factors, the low level of malaria case management and control is also due to the weakness of the Drug Monitoring Officer (PMO). Patients are required to take medication for 14 days, but on the third and fourth days, when they feel better, they stop taking the medication. This causes malaria to recur or early malaria symptoms to reappear in patients. In addition, the weak achievement of targets is supported by undetected cases or the loss of follow-up by health workers, resulting in unrecorded and undocumented cases among the population. The availability of medicines and health supplies related to malaria control needs to be improved not only in endemic areas but also in elimination areas.

The city of Tanjungpinang can serve as a lesson for all regions in the Riau Islands Province, because even though it is a malaria elimination area, there are still significant malaria outbreaks, making it difficult for health workers to find drugs due to limited stocks and a lack of awareness of the importance

of malaria elimination areas. If the above obstacles are not addressed and resolved immediately by the government, it will be difficult for the Riau Islands to achieve its malaria elimination target.

Right Community or Environment

To achieve optimal acceleration in implementation and control, the government must involve parties considered capable of helping to accelerate malaria eradication, both the private sector and the community. A responsive community environment can overcome the decline in malaria cases (Syukur & Winarti, 2024). Cooperation here means that these parties must be able to participate in supporting and following the programs implemented for malaria prevention and control.

The Riau Islands Provincial Health Office, through GF Junior Malaria, revealed that during the examination and treatment stages, the community responded positively and participated in various early detection activities for malaria cases.

"From the beginning to the end of the examination and treatment process for the community, many people were compliant and willing to cooperate in having their blood taken to detect whether there were malaria parasites in their bodies" (interview results).

In terms of the inter-agency environment as policy makers, the Riau Islands government has not yet implemented cross-sectoral or inter-agency cooperation at the provincial level. Inter-agency cooperation is planned to begin in 2025 after ELMA (Elimination of Malaria) in Bintan Regency is completed, and will continue for ELMA at the provincial level. The environmental aspects of the programs implemented are functioning well within the Riau Islands Provincial Health Office. This can be seen in the external environment, where the community is very supportive and complies with the rules set by policy implementers.

However, in the inter-agency policy-making environment, collaboration has not yet been established and various regulations are still in the process of being issued to the governor and regents/mayors, with the hope that collaboration can be established in 2025. The cooperation carried out is not only limited to existing cases, but also requires preventive measures to treat and control malaria cases so that they do not increase, as well as support from the local community to participate in activities launched by the government. The lack of good cooperation has resulted in the failure to effectively implement and control malaria.

Right Process

The right process is the final aspect in the chain of policy effectiveness. A process is essentially a sequence of actions or related events that initially come together from a plan to become a goal (Mawuntu et al., 2022). In this process, various parties consisting of individuals, groups, organizations, institutions, and communities work together to achieve the planned objectives.

In the first stage, namely Policy Acceptance, the government, as the policy maker, must understand existing policies, such as Minister of Health Regulation No. 22 of 2022 and its derivative programs implemented by the central government to local governments. This is reinforced by an interview with GF Malaria of the Riau Islands Provincial Health Office, *"to go to the field, we must refer to the warrant and what we will do when we are at the location. We have also asked permission from the community, especially the neighborhood association (RT/RW), to conduct examinations of the community and check the location because we are afraid that the community will be afraid of our arrival"* (interview results). Malaria, a disease transmitted by mosquitoes, must be prevented by implementing programs developed by the government. It can be seen that the implementing agency responsible for enforcing the policy of the Riau Islands Provincial Health Office has been consistent in implementing the policies and programs carried out.

As a policy implementer, the Riau Islands Province also strives to carry out various activities programmed by the central government in its surrounding environment. These efforts may include field programs based on issued directives, participating in KIE (Communication, Information, and Education) promotion in the control and handling of malaria cases by providing banners or posters displayed in local cities/districts, conducting inspections in areas where Anopheles mosquitoes breed, visiting the homes of patients, distributing mosquito nets, and providing treatment.

The second stage of Policy Adaptation is the stage where the community must accept the policies that have been made. Acceptance here means that the community must be open to the policies that have been made and accept all the consequences of discomfort that arise. Based on interviews with key informants, *"the community is willing to cooperate and comply, both in examinations and blood sampling, everything runs smoothly in every series"* (interview results). Participation here is in treatment and compliance with PE 125. They also comply with the rules urged by the government to avoid gathering at night, especially for those who live in coastal areas. This is because Anopheles mosquitoes often appear at night (Gabaldón Figueira et al., 2023).

In the final stage, Strategic Readiness, the community is ready to implement and become part of the policies made by the government. In malaria prevention, the community even participates in malaria control efforts, such as providing malaria testing sites, becoming malaria task forces and cadres, and fully supporting the government's malaria control efforts. This is reinforced by interviews with key informants*: "During mass blood collection, there were people who were willing to let their yards be used as testing sites and as rest areas for us health workers when malaria cases were rampant"* (interview results). It can be stated that the government and the community have become part of the implementation of Minister of Health Regulation No. 22 of 2022 concerning malaria control.

4. CONCLUSION

Based on the results of the study, it was found that malaria control by the Riau Islands provincial government is still not fully effective. This is reinforced by the high rate of malaria transmission in several malaria-prone areas and the lack of reduction or decline in malaria cases throughout 2024. On the other hand, efforts to treat malaria patients and prevent malaria are quite good. Although some malaria-prone areas still require responsive and rapid treatment due to the considerable distance between islands, the Riau Islands provincial government, together with the regency/city governments and the malaria acceleration team, have maximized their support for malaria elimination through the distribution of medicines and treatment, socialization, promotion, and so on.

Externally, the community and the private sector have shown active support for malaria control activities. However, internal coordination among stakeholders at the provincial level is still weak and creates obstacles to policy implementation. The program implementation process actually has the opportunity to be accelerated through central government policies, but the lack of commitment and consistency of local governments in implementation has prevented the program from being fully effective.

This study has limitations in terms of data coverage, which only focuses on the provincial level and certain regions, and does not explore in depth the perspectives of all stakeholders in each district/city. Nevertheless, the findings of this study make an important contribution to demonstrating the urgency of developing technical policies that are adaptive to the geographical conditions of the archipelago, improving cross-sectoral coordination, and strengthening human resource capacity. As a result, this study is expected to serve as a basis for improving provincial government strategies in achieving malaria elimination targets more effectively and sustainably in the Riau Islands region.

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