



# Analysis on Human Resources, Facility and Infrastructure, and Planning to Decrease the Incidence Rate of Malaria in Batu Bara Regency

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## **Abstract:**

*Malaria is one of public health problems throughout the world, including Indonesia. Nationally, Annual Parasite Incidence (API) decreased to 0.99 per mil in 2017, but there are some malaria villages with API above the national rate. Batu Bara Regency is categorized as an endemic area and not malaria elimination with API of 0.47 per mil in 2018. The objective of the research was to analyze human resources, facility and infrastructure, and planning to decrease the incidence rate of malaria in Batu Bara Regency. The research used qualitative research method by conducting in-depth interviews with eight informants. The study found that there were no entomology assistant, malaria cadres for villages, and microscopist in the Health Agency, and of the 15 puskesmas (Primary Health Care), only five of them had microscopists. There was no transportation facility for personnel; there were only three spraycans although it should have been eight of them needed. Handling planning was not based on the mapping for detecting mosquito breeding places. The conclusion was that human resources were still unstandardized, there was no facility and infrastructure for malaria personnel. It's suggested to mapping mosquito breeding and spraycans should be added.*

## **Keywords:**

*human resources; facility and infrastructure; planning; API; malaria*

## I. Introduction

Malaria is one of the transmitted diseases caused by plasmodium as the disease agent. The contagion is through the bites of female Anopheles mosquito as the malaria vector which contains plasmodium (Kementerian Kesehatan RI, 2016).

Based on a routine report nationally, the Annual Parasite Incidence (API) decreased from 2009 until 2017; it decreased from 1.85 per mil in 2009 to 0.99 per mil in 2017. Even though it decreased in some areas, the rate was still high in malaria village with API was above the national rate, while in the areas which the rate of malaria case was low, usually extraordinary incident occurred as the result of import case.

Based on the target, Sumatera Island, except Riau Archipelago Province and Nangro Aceh Darussalam, should achieve malaria elimination in 2020. To get malaria elimination certification, a regency should meet the criteria of Slide Positive Rate (SPR) value less than 5, API less than 1 per mil, and there is no local contagion (Indigenous case) within three years respectively (Kementerian Kesehatan RI, 2017).

Based on the data of malaria case in 2017, API in North Sumatera Province was 0.18 per mil, and there were still regencies which were malaria endemic, including Batu Bara Regency. API of malaria in Batu Bara Regency was 2.84 per mil in 2015 and it decreased to

1.36 per mil in 2016. In 2017, API of malaria was 0.86 per mil and it decreased to 0.47 per mil in 2018, Its SPR value from 2015 until 2018 was 21.54, 11.94, 9.79 and 8.2 respectively while indigenous cases in the period of 2015-2018 were 1205, 580, 366, and 179 respectively. Therefore, Batu Bara Regency has not obtained malaria certification (Dinas Kesehatan Batu Bara, 2019).

Batu Bara District Government has made some efforts to combat malaria such as finding malaria case, medication, Mass Blood Survey activities, socializing malaria, providing materials and equipment to support malaria case examination, distributing leaflets, training, supervision, and evaluation. Even though various efforts have been made to handle malaria, some malaria cases still occur in some areas of puskesmas.

The result of a preliminary survey conducted by the Health Agency of Batu Bara Regency on June 8, 2018 showed that of the 15 puskesmas, only five of them had health analysts. In consequence, examinations were mostly done by using Rapid Diagnostic Test (RDT) which makes it difficult to follow the cases. The Health Agency of Batu Bara Regency has not had entomology assistant so that the control and the extermination of malaria is not optimal. Based on this background, it is interesting to do a research in order to find out human resources, facility and infrastructure, and planning for decreasing the incidence rate of malaria in Batu Bara Regency.

The objective of the research was to analyze human resources, facility and infrastructure, and planning to decrease the incidence rate of malaria at the Health Agency of Batu Bara Regency.

## **II. Research Method**

The research used qualitative method which was aimed to analyze the implementation of human resources, facility and infrastructure, and planning to decrease the incidence rate of malaria in Batu Bara Regency. The data were analyzed descriptively; they were gathered by conducting in-depth interviews with the informants and conducting library research with the expectation that this research would get profound result. There were eight informants – the Head of the Health Agency, a Malaria Program Manager in the Health Agency, three Heads of Puskesmas, and three malaria program managers of Puskesmas.

## **III. Result and Discussion**

Human resources constitute the variable which influences the success in the implementation of a policy. The result of in-depth interviews showed that human resources (employees) at the Health Agency of Batu Bara Regency were inadequate as what was said by the Manager of Malaria Program of the Health Agency:

“There is only one microscopist in Indrapura Puskesmas, one microscopist in Lima Puluh Puskesmas, one microscopist in Kedai Sianam Puskesmas, one microscopist in Labuhan Ruku Puskesmas, and one microscopist in Tanjung Tiram Puskesmas. The level of education are as follows: Indrapura: SKM (Undergraduate of Public Health), Lima Puluh: D3 (Diploma 3) Analyst, Kedai Sianam: D3 Midwifery, and Labuhan Ruku: D3 Analyst. Most of them had participated in training provided by the Provincial Health Agency”.

The statement of the Head of the Health Agency of Batu Bara Regency on human resources was as follows:

“The employees who work for the Health Agency are not adequate, especially in the malaria program. We still need more employees such as microscopists who are still assigned from Puskesmas. We do not have any entomologists, and we need them as soon as possible”.

From the statement above, it could be concluded that Batu Bara District Government still need entomology assistants and microscopists. Besides that, there are no malaria cadres at puskesmas as what is said by the Head of Kedai Sianam Puskesmas:

“No, there isn’t, especially for malaria cadres since there should be an SK (Directive) from villages that someone is a malaria cadre, and there is no budget for appointing a cadre”.

The statement above showed that besides entomology assistant and microscopist, it was found that there was no malaria cadre in the villages. Based on the quantity of human resources, it could be concluded that the Health Agency of Batu Bara Regency needs health care providers such as entomologists, microscopists, and malaria cadres. According to Kementerian Kesehatan RI (2015), for the Health Agency with low endemic, standardized employees who have to be employed were one program manager, one microscopist, and one entomology assistant. A puskesmas which has low rate of endemic area has to have one program manager, one microscopist, one midwife, one nurse, and one doctor while a village has to have one midwife and three malaria cadres.

Husni, Rahayujati, & Supargiyono (2012) points out that in the malaria program, the standard which has to be owned by the Health Agency of Regency is at least one entomology assistant as a supervisor or a monitor of the coverage and the effect of handling intervention. This statement is strengthened by the result of the research done by Rahmawati, Nurjazuli and Raharjo (2012) which states that an entomology assistant plays an important role in breaking off the chain of malaria contagion.

The absence of entomologist influences the determination of irregular data (data on vector, data on rainfall, and data on environment) so that there has not been a malaria vector survey for the incidence of malaria, and there are no data on the type of anopheles mosquito in Sumbawa Regency which have the impact on planning, handling, and extermination of malaria (Zainuddin, & Hendrati, 2014). Besides entomologist and microscopist, the Health Agency of Batu Bara Regency also does not have malaria cadre in its villages. The result of the research showed that intervention of establishing cadres had positive effect on the increase in people’s participation in handling malaria (Faizah & Fibriana, 2016).

Facility and infrastructure are a device and material used by the personnel of the Health Agency and Puskesmas of Batu Bara Regency in handling malaria vectors. The interview with the Head of Puskesmas was as follows:

“There are sprycans and mosquito nets from the Health Agency. There are also puskesmas operational car and masks; they are sufficient, but we need more sprycans so that the spraying does not take a long time”.

This statement was in accordance with the statement of the Manager of Malaria Program of the Health Agency as follows:

“There are 4 sprycans but only three of them which are still functioned or in good

condition; the other one is out of order. We still need a motorcycle for the Malaria Program Manager”.

Based on the statement above, it was concluded that facility and infrastructure were inadequate in handling malaria vector. The facility included sprycans and vehicle for the puskesmas personnel of malaria program to do investigation of malaria epidemiology. There should have been eight sprycans, but only three of them which functioned well and one of them was broken. This would influence the activities of handling malaria vectors at puskesmas since the sprycans were very limited, the spraying took longer time which would eventually cause the operational fund to increase.

The lack of motorcycles in the Health Agency would inhibit operational activities because they were highly needed in the remote areas which could not be used by cars (Rahmawati et al, 2012). The result of this research is in accordance with the research conducted by Margarethy, Yenni, Wurisastuti, Salim, and Santoso (2018) which states that transportation facility plays a vital role in mobilizing the personnel for handling malaria cases in their working areas – in finding the case, controlling medicine taking compliance, distributing medicines, laboratory devices, and reporting. The lack of transportation facility can have the side-effect on the activity of handling malaria.

The planning of handling malaria used problem solving approach. The result of in-depth interview about planning with the Head of Labuhan Ruku Puskesmas was as follows:

“We analyze the situation because this area is a malaria endemic place; we identify the problem to be prioritized, the purpose of the planning and target of activity, time, the personnel, and the evaluation”.

This statement was in accordance with the statement of the Head of the Health Agency of Batu Bara Regency as follows:

“We make planning based on the proposal of each program and adjusted to the available budget. The program is usually based on analysis on situation, identification of the problem, objective, and target of the malaria program so that we can do any activities such as spraying and distributing mosquito nets”.

The result of observation revealed that the Health Agency of Batu Bara Regency in 2018 had made analyzed area by issuing endemic village certification although it had not made the mapping for detecting mosquito breeding places while the mosquitoes which transmitted malaria in Batu Bara Regency were *Anopheles sundauicus* mosquitoes.

Based on the explanation above, it could be concluded that the Health Agency of Batu Bara had made planning according to the analysis on situation and identification but not on mapping for detecting mosquito breeding. According to Kementerian Kesehatan RI (2015), the stages for health planning for handling malaria were as follows: analyzing the situation, identifying the problems, determining problem priority, determining the objectives, determining the strategy and policy, determining the plan for activities, and determining strategy, time, organization, and staffs, budget plan, and evaluation plan.

Malaria program becomes the priority of every annual planning of the Health Agency in Kulon Progo. However, intervention program included in the planning is only spraying with mistblowers since intervention program needs a lot of money (Husni Rahayujati, & Supargiyono, 2017).

#### IV. Conclusion

Human resources have not fulfilled the standard which has been expected by Kementerian Kesehatan RI – there is no entomology assistant and microscopist at the Health Agency of Batu Bara Regency and at some puskesmas; besides that, there is also no malaria cadre in village. Facility and infrastructure in handling vectors such as transportation facility of motorcycles for the personnel of malaria program managers and sprayers were very inadequate; of the eight sprayers which were needed, only three of them were available.

Planning was in accordance with situation analysis and identification but there was no mapping for detecting mosquito breeding places. It is recommended that the Health Agency of Batu Bara Regency design the needs for entomologists, microscopists, malaria cadres, transportation facility of motorcycles, microscopes, sprayers, and mapping for detecting mosquito breeding places.

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