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Qualitative Study: Leverage and Barrier Factors of Mass Drug Administration for Lymphatic Filariasis Elimination Program in Tangerang and Subang Regency

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Abstract*—Tangerang and Subang Regency had implemented a national effort to eliminate lymphatic filariasis by five rounds of Mass Drug Administration (MDA) using diethylcarbamazine (DEC) and albendazole (ALB), pre-Transmission Assessment Survey, TAS-1 (Subang Regency); and TAS-2 (Tangerang Regency). The aim of this study is to analyze leverage and barrier factors of MDA lymphatic filariasis elimination program. The research was conducted by using qualitative approach through an in-depth interview from 84 informants to obtained information about the implementation of MDA for lymphatic filariasis elimination policy, resources and community empowerment in three-level health leading sector (Province, Regency, and District), and cross-sector collaboration. The sampling was done purposively and analyzed with thematic analysis. The leverage factors of implementation MDA for LF programs were local government's commitment and the existence of health volunteer as community empowerment. Barriers found in its implementation included motivation of health volunteer through incentives and training, inadequate information about MDA LF and a limited number of drug distributors to monitor adverse effects. Mass drug administration for lymphatic filariasis elimination programs should hold promotion strategies and surveillance model in Post MDA based on specific contextual factors to improve implementation outcomes.

Keywords: leverage, implementation, lymphatic filariasis, mass drug administration, Indonesia

I. INTRODUCTION

Lymphatic filariasis (LF) is a vector-borne tropical disease of humans caused by *Brugia malayi*, *Brugia timori* and *Wuchereria bancrofti*, and transmitted by Culex, Anopheles, and Aedes [1]. This disease is chronic and, if not treated properly, can cause long-term disability in the form of enlargement of legs, arms and genitals in both women and men that have a psychological impact on infected people and their families. The impacts for infected people are that they cannot work optimally and their lives may depend on others so that it becomes a burden on the family, society and the country [2].

Globally, 120 million people are infected with filariasis and 40 million suffer from chronic disabilities [3]. The Global Program to Eliminate Lymphatic Filariasis (GPELF) by World Health Organization (WHO) , which was established in 2000, aims to eliminate filariasis in 2020. Two strategies for filariasis elimination are rolled out, the first is Mass Drug Administration (MDA) and the second is morbidity management and disability prevention by providing access to health care facility to every infected person in endemic areas [4,5].

The success of lymphatic filariasis elimination program depends on the ability to achieve and maintain drug adherence levels with the MDA program. High participation is needed to reach the target according to the guidelines of WHO with at least 65% of the population (epidemiology coverage) takes medication every year for five years [6].

The situation of lymphatic filariasis elimination program until 2015 was recorded from 514 regencies in Indonesia. There were 239 filariasis endemic regencies, but only 132 regencies implemented MDA-LF, while there were 58 endemic regencies that had not implemented MDA due to various reasons, such as a lack of funding and local government commitment. There were 48 regencies that

had completed the MDA-LF for 5 consecutive years, but only 26 regencies passed the evaluation stage called Transmission Assessment Survey (TAS) while 22 regencies failed the evaluation phase, thus they needed to implement additional MDA for two consecutive years for further evaluation [2].

Tangerang Regency passed TAS-2 in 2016 while Subang passed TAS-1 in 2017. Indonesia has carried out MDA for LF program since 2002; thus, it has been carried out for more than fifteen years. Since it was announced until now, it is necessary to evaluate leverage and barrier factors as a basis for making decisions for the success of lymphatic filariasis elimination.

II. METHOD

The study analysed a subset of the data from multicenter research in 2017 [7]. The study used qualitative approach with explorative design. The study was conducted in August to October 2017 in two regencies, i. e. Tangerang (TAS-2 stage) and Subang (TAS-1 stage). The data was obtained through in-depth interview techniques using interview guidelines. In-depth interviews were conducted with stakeholders from the provincial, regency and sub-district levels. Cross-sector collaboration was also one of the factors that is closely related to the health programs implementation, for which in-depth interviews were also conducted on cross-sector partners ranging from provincial, regency, sub-district to village levels. The questions in the interview guidelines were designed related to the implementation of the filariasis MDA-LF program, resources (human, budget, facilities, and infrastructure) and cross-sector collaboration. The informants were selected by using a purposive sampling technique for stakeholders, chronic patients, community leaders and cross-sector partners. There were 84 informants selected that were based on the selection of the informants themselves and the complexity or diversity of the phenomena studied. To ensure the validity, the data from informants was triangulated by cross-checking to several informants (source triangulation). Qualitative data analysis was carried by using thematic analysis approach, where coding was determined at the beginning to build themes from the basic data. The consistency of results was maintained with the researchers and research assistants who worked independently in coding each message in the form of a matrix [8].

III. RESULTS

Problems with insufficient funding and human resources were cited as reasons for barriers in this study. On the contrary, local government commitment to implement national program, cross sector collaboration and adequate infrastructure and facilities were found as the leverage. The results of the thematic analysis are as follows:

A. Policy Implementation

Regional Government has implemented policies from the central ministry in accordance with the regulations set out in the Regulation of the Minister of Health of the Republic of Indonesia. The local government followed up by involving all regional work units and sending letter of statement to cross-sector partners so that coordination was established. Disharmony of simultaneous central government regulations was declared not to occur and the regional government followed what was rolled out by the Indonesian Ministry of Health. The following informant representative narrative supports this idea:

> "...*Praise to God*, in Tangerang Regency we can assure that our filariasis mass treatment has been going well from 2009 to 2013 and to this date until the second evaluation, i. e. TAS which was carried out by Tangerang Regency. The latter was stated as passed by the Ministry of Health from the filariasis sub-division in 2014 until 2016, because of the two-year interval. There are two strategies which are carried out for filariasis elimination in Tangerang Regency, especially the first one, which is the mass treatment for 5 consecutive years. Therefore, every year, the people of Tangerang Regency take medicine for filariasis prevention. Then the second one is aimed to limit the disability by proper management of various cases in Tangerang Regency of patients that have been infected by mild cases of filariasis ..."
>
> (RG, Filariasis Program Manager)

LF program elimination policy in Subang Regency has been implemented since 2010. Similar to Tangerang Regency, there are no policy translation problems from the central government that has been implemented during this time in Subang Regency. It can be seen that the policy is being supported and well implemented, for example, the elimination guidelines used are considered good and detailed. There is no disharmony between the regulations from the central government and regional government regulations which hinder filariasis elimination implementation. In fact, the regional government strongly supports the implementation of filariasis elimination. Regional government plays an important role as a reinforcer in the implementation of filariasis elimination in Subang Regency.

> "... because we basically follow the regulation so that all of our work arrangements are also in accordance with it... the contents of the operational guidelines of Ministry of Health itself, Sir, are according to the regional government, including Subang Regency, which has carried out filariasis MDA. Now, we do the surveillance."
> (SR, Subang Regency Filariasis Program Manager)

B. Human Resources

Speaking of human resources in Tangerang and Subang Regencies, it was stated by a number of informants that the human resources were still lacking. In addition, there were also those who stated that the human resources were lacking in carrying out activities effectively which had not been conducted all the time. The solution to the issue was to involve cross sectors by being coordinated directly by the Regent of Tangerang Regency. The involvement of

community organizations, namely Saka Bhakti Husada, Women Empowerment Community Organization and cadres as health volunteers in the field as well as village officials, are a supporting element for the success of MDA-LF program. The problem of human resources in Subang Regency is almost similar to that Tangerang Regency. According to several informants, the number of staff in the health office was considered sufficient, but it was not the case in the community health center. Not all community health center had a big number of health workers. Thus, many of them worked in multiple programs. Therefore, when the MDA was implemented, the community health center usually had no one in charge because all health workers were mobilized to help, and the activities were conducted in the afternoon, thus it did not hamper the activities of community health center.

> "...yes, all health workers of the community health center participated. It doesn't matter what their education background is. All of them still participated. The people who were directly involved include the village counsellor, midwife, nurse, yes ... the doctors were involved. *Alhamdulillah*, they all participated... they were our health workers. Of course, from the cadres, we can say that all health volunteers also participated... even though their education level is insufficient (for education required), bluntly speaking, yes, still ... on average, the health volunteers have already ... they have already got high school education... "
> (LA, Filariasis Program Manager)

> "Yes, we are trying to make the service sufficient, because we are also involving the health volunteers. If the people involved are only health workers of the community health center, we won't get the job done. However, *alhamdulillah* the active health volunteers can be empowered."
> (BA, Head of Pamanukan Health Center)

C. Budget

The adequate budget came from the regional revenue and expenditure budget and state revenue and expenditure budget, while the obstacles that were stated by some informants included delay in distributing the budget. Thus, they resorted to utilizing cross-program budgets to cover it. In addition, in Subang Regency, if they only use funds from the regional revenue and expenditure budget, the funds are insufficient. The solution to the problem is with the additional funding from non-government organizations. However, the information mostly stated by informants was related to the lack of transportation for the health volunteers. On the other hand, they were the spearhead of the implementation of MDA-LF activities.

> "... At that time, there were no budget... just regional revenue and expenditure budget. What was budgeted for TAS was the amount of the fund we budgeted first and later for the socialization ..."
> (DHT, P2PM Head of Division)

> "The funds at that time, right after the second or third stages of the health service, were also in it... it was rather complicated, so there was a lack of funds. Finally, the solution at that time was by involving BOK to take the health care insurance as well as taking the operational fund of the community health center. If it is a matter of funding, it is the finance department that knows it best. In the past, that was the problem."
> (BR, Kemiri Health Center)

> "It is the same here, there is also a health operational cost. Before, it was annually budgeted, now it has been budgeted for transportation only."
> (AC, Head of P2P Subang)

D. Facilities and Infrastructure

Facilities and infrastructure are quite adequate. Lymphatic filariasis medicines are obtained directly from the central government. The regional government has never issued a regional regulation for treatment in Subang Regency, this is because the funds for MDA are given by the government. For facilities and infrastructure to support the implementation of lymphatic filariasis elimination in Subang Regency, there still needs to be attention. One of the statements from an informant was related to the room facilities. Not only for filariasis, but also for other programs, the program manager did not have specific rooms for each program.

> "Thank God, it was enough last year. We held training for the banner in many community health centers, and I think it was enough last year and for the next year we will try to guarantee that it is continued. We will continue it, that's why we are trying to include it into the regional midterm government plans. ... our medication is quite a lot. From the Ministry of Health, it has been provided that our medicine won't be insufficient at all..."
>
> (DR, Section Head of P2P Subang Regency)

Facilities and infrastructure were sufficiently adequate, and the medication for lymphatic filariasis was obtained directly from the national government. The regional government had never issued a regional regulation for MDA-LF elimination program in Subang Regency because the funds were given by the national government. Facilities and infrastructure to support the lymphatic filariasis elimination program in Subang Regency need more attention. There is a statement from an informant about the room facilities. It was not only for lymphatic filariasis, but also for other programs.

> "Thank God, just last year we had procurement training banner… it was stored at the health

community center office and we think it was enough… The stock from last year will be used for the next one… we will try to apply our proposal related to facilities to regional plan council…. The drug stock is made available by the Ministry of Health, and it will still be sufficient…"

(DR, Head of Section for Disease Control and Eradication of Subang Regency)

E. Community Empowerment

Health Agency and community health center had involved cross-sector partners and programs, and even the community. Health volunteers were active in socializing these activities and programs. In Subang Regency, health promotion to support the elimination of lymphatic filariasis was conducted through radio channels. The radio was owned by local people. Thus, the information was delivered in local languages and the information could be understood easily by the community. Community empowerment in the context of eliminating lymphatic filariasis was carried out quite well. Information dissemination had involved all cross-sector partners of regional work unit. All regional work units, NGOs and even religious leaders, as well as community leaders, were involved. When implementing MDA-LF, the commitment of the regent, regional secretary, as well as chief of regional work unit was very good. Regent, as the highest leader, took part in strengthening MDA program by taking the medicine directly in front of the community and gave instruction to all regional work units. It was aimed to encourage the community and be followed up immediately by all regional work units to deliver the program.

"...*alhamdulillah*, before the implementation of the elephantiasis program, we have been socializing first from the sub-district level and at the village level. At the village level, we continuously conducted socialization at every village... it is with the help of the health volunteers that we could socialize the program. *Alhamdulillah*... from us, we gave an explanation of the effects of lymphatic filariasis and our presence in the endemic areas, they want (to participate)... it can be called willing to take action to eliminate elephantiasis... "
(DD, Section Head of P2PM Tangerang District)

"Yes, that is certain. It is impossible for us to be able to mobilize the community without being there, that was the local government below the sub-district. So yes, cross commitments are needed, such as with the regional government, and the neighbourhood unit. It is committed to the public health of the working area, and hopefully, this is true. I said I was sure this program would be successful."
(IU, Head of P2P Subang)

The role of health volunteers in assisting MDA-LF implementation is very important. However, health volunteers here only had the task of assisting health workers, including in data collection of targets, information provision about MDA-LF, medicines distribution during MDA implementation, home visit to houses that had not received drugs and complaint service when the community had any troubles. For this reason, community health center always carried out refreshing activities for health-volunteers to increase their knowledge. Thus, they could become an extension of the health workers in the community.

"...for MDA lymphatic filariasis, we only saw them drinking on the spot. So, for example, checking was not conducted by health-volunteers. there were health workers, for example, to check blood pressure, or carry out screening, 'oh, this patient has kidney disease', etc. There are indications if it's not wrong. Now that's from health workers, but at least from the health volunteers, even if we forget to ask, the health workers can be helped by the health volunteers. We are afraid that when one is taking medicine, it turns out he is a contraindicated person. So, it might be more about socialization 'Ma'am, this may be suitable for this age, without this disease'. Try to ask, since we never know whether it is forbidden for people with this kind of disease. However, there is no action, we just conduct socialization."
(BA, Pamanukan Health Center)

"Yes, the head of the sub-district was, so far, involved, also the head of the social welfare section, the agency office with the village head. Then, the other figures who are the community leaders, religious leaders also came. Those people made the move, so everyone will want to come. If they did not, it would be hard to make the people want to come."
(YP, Head of Puskesmas Jalancagak)

F. Cross-Sector Collaboration

Cross-program and sector activities were also carried out in the lymphatic filariasis program, for example in Subang Regency with a malaria program through migration surveys, which is to get the data of community mobilization in and out the region activities of the population, including migrants. Cross-sector collaboration involves local government, from the level of village officials to the Regent, as well as involving other regional work units. Inter-sectoral collaboration has been conducted in regards with budgeting and health promotion which focus on socialization. Meanwhile, MDA implementation activities involve collaboration on the community level.

"...first, it was advocated by the Regent, that's what I knew. I didn't participate at that time. From the Regent, the advocation would be done by gathering all of them, and any related issues would be discussed. I

also remember at that time that there had been a speaker from the Ministry of Health who was invited, and all the relevant cross-sector partners were listening to the explanation about elephantiasis. So, at that time, the system was like that. Later, the Regent, who directs everything, gives order that must carried out by each department of the related sector."

(HR, Head of Tangerang Health Office)

"We just ask for support from them. It is their work area, and the community is their area too. If we have a health department, we have a program. We have this program from education as well. We gathered everyone in the forum that Monday, we wanted all regional work units to be present, here in Subang. On Monday, they were called to a briefing, after-ceremony briefing. We conducted the briefing with the leaders. Each regional work unit reported for activities to be carried out. Now, this was before we had disseminated the information, for example, that the filariasis drug would be held. That was from 2 months or a month before, and it was continuous. Let's say, we put up banners. We obliged each health centre to conduct activities on filariasis. All of them already agreed. The community here in Subang is good, thank God. I already care about activities like this. That is precisely what supports us. The support is from the sub-district heads, leaders, especially regents here, village heads, and heads of community health center who have helped us."

(DW, Head of Subang District Health Office)

IV. DISCUSSION

The commitment of Local Governments, particularly at the regency level, is a major factor in the successful implementation of the Filariasis Elimination Policy from other multifactorial contributors. It is due to the long journey in achieving the certification of lymphatic filariasis elimination, which is approximately 11 years, in which policy change is very likely to occur. The systematic review results highlight a better understanding of factors that influence compliance in the implementation of MDA-LF lymphatic filariasis that may be used to improve results for current and future MDA program campaigns [9]. The factors include building strategic partnerships in order to mobilize resources and the possibility of program integration, both at the central and regional levels [10]. In addition, the involvement of the wider community is also stated as one of the factors contributing to the success of MDA-LF.

The resources in implementing the filariasis elimination program in Tangerang Regency, in terms of budget, are from regional revenue and expenditure budget as well as state revenue and expenditure budget. One thing that can be appreciated is the priority allocation that is accommodated by regional planning agency of Banten Province to support the filariasis elimination program in the form of awareness-raising activities for sufferers. One of the pillars of lymphatic filariasis elimination is preventing and limiting disability caused by filariasis [11]. During MDA-LF from 2009 to 2013, in the form of budget resources and human resources, Tangerang Regency carried out cross-sector programs and cross-sector integration. Program integration requires careful consideration regarding the consideration of several issues, namely Neglected Tropical Diseases (NTD's) geography, epidemiology, and ecology, in addition to the advantages and disadvantages of the control strategy. Another important thing is the integration effort directed at strengthening the health system to encourage program continuity [12,13].

Cross-sector cooperation in Tangerang Regency is centrally coordinated, with one instruction command, namely the Head of Regional Government at the regency level. This is one strength that contributes to the success of MDA-LF implementation. Although there is no legality as outlined in regional government regulations, central policy translation is well followed up through circular letter and active participation. The involvement of health volunteers as a solution to the limited human resources is one form of cross-sector collaboration that becomes the spearhead of the successful program. The presence of health volunteers became the foundation for the success of MDA-LF through several stages of MDA-LF implementation that were diffused, starting from recording the target population, dissemination, distribution and supervision in taking medication. Focus of community participation is to have communities direct and manage the recruitment of volunteers and strategies for drug distribution [14,15]. One important factor in arousing public awareness is the existence of partnerships and collaboration through appropriate incentive and training mechanisms [16]. Strategic partnerships and collaboration are very important for the successful implementation of MDA-LF because it utilizes limited government resources and guarantees ongoing political commitment by local authorities [9,17].

One obstacle related to the implementation of the lymphatic filariasis elimination program was the lack of knowledge of the personnel, ranging from the health workers to health-volunteers. One strategy that can be done is increasing knowledge through training related to the lymphatic filariasis mass drug administration program. Increased knowledge in health workers is expected to be capital for the dissemination to the community level. Several studies revealed that the elimination strategy for compliant MDA-LF program to be successful was making the population involved aware of the disease [18]. MDA was performed by family healthcare professionals in Brazil, which had different strategy in India; the most important people were those who administered the drug. Thus, training and capacity building were essential for increasing compliance with MDA [19].

The limited human resources was one of the problems aroused for the great coverage level of MDA-LF program.

This resulted in the absence of absence of the drug administration monitoring and the long response made to drug side effects reports. Effective drug delivery strategies and repeated home visits are needed in order to improve its coverage. MDA engaged all components of health system, that needed to have the capacity to deliver interventions at the community level [20].

In addition to training for health volunteers, giving incentives can be one solution to overcome the limited human resources. Thus, they can empower more health volunteers who can be given additional assignments related to the reports of side effects [10,21,22].

Meanwhile, in this study, we had successfully interviewed wide-ranged informants with different roles, ranging from top-level management (e.g., managers) and operational staff, of which only a few had actually involved in the MDA implementation. This might partly be due to staff rotation that occurred in the institution. As a result, we were not able to capture more information from the informants. The findings, hence, may not represent the general conditions of MDA implementation areas where LF is also endemic.

V. CONCLUSION

The leverage factors of MDA-LF program implementation are the regiona1 government's commitment and the existence of health volunteers as community empowerment. Hindrances in its implementation include the low motivation of community health volunteers through incentives and training, inadequate information about MDA-LF and the limited effects of drug distributors to monitor adverse effects. Mass drug administration for LF elimination program should hold promotion strategies and surveillance model in Post-MDA on specific contextual factors to improve implementation outcomes.

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