



PROBLEM ANALYSIS OF CHILD TUBERCULOSIS PREVENTION AND CONTROL PROGRAM LAMONGAN DISTRICT, EAST JAVA

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Abstrak

Tuberculosis (TB) is an infectious disease caused by the bacterium *Mycobacterium tuberculosis* and is one of the unresolved health problems in Lamongan District. The purpose of this study was to analyze the problems in the Child Tuberculosis Prevention and Control Program in Lamongan Regency. This study was a descriptive observational study conducted at the Lamongan District Health Office from January 02 to January 27, 2023. Problem identification was conducted using brainstorming techniques and then prioritizing the problems using the CARL method (Capability, Accessibility, Readiness, and Leverage). Furthermore, identification of the causes of problems that have been prioritized is carried out with a fish bone diagram using a process approach. Based on the root causes of the problems that have been identified, recommendations are given to the health department to overcome the problems found. Suboptimal cross-program/sector coordination with a CARL value of 505.440 became the top priority health problem in the child tuberculosis control program. Therefore, it is necessary to optimize the discovery of child TB suspects and education through integration with other activities, improving the competence of field officers, ensuring budget availability, data management, good recording and reporting.

Keywords : Childhood Tuberculosis, Lamongan, Suspected

Introduction

Tuberculosis is an infectious disease caused by the germ *Mycobacterium tuberculosis*. The germs spread from people with TB through the air. This TB germ usually attacks the lung organ and can also be outside the lung (extra lung). Almost a quarter of the world's population is infected with the *Mycobacterium tuberculosis* germ, about 89% of TB is suffered by adults, and 11% is suffered by children. At the time (COVID-19 Pandemic), TB is still the highest cause of death after HIV/AIDS, and is one of the 20 leading causes of death worldwide. Indonesia is ranked 3rd with the highest number of TB patients in the world after India and China. Globally, it is estimated that 9.9 million people will suffer from TB in 2020(1).

Based on the results of the United Nations (UN) high-level meeting, the target of treating TB of all ages in 2018-2022 is 40 million with the achievement of the target of TB patients treated in 2018-2021 of 26.3 million (66%). Meanwhile, the target for pediatric TB treatment in 2018-2022 is 3.5 million with the achievement of the 2018-2021 target of 1.9 million treated children (54%). Worldwide, an estimated 10.6 million people have TB in 2021. Geographically, in 2021 the majority of TB cases will be in the Southeast Asia region (45%). Eight countries including Indonesia account

for two-thirds of total TB cases: India (28%), Indonesia (9.2%), China (7.4%), Philippines (7.0%), Pakistan (5.8%), Nigeria (4.4%), Bangladesh (3.6%) and Democratic Republic of Congo (2.9%). The highest burden was in adult men 56.5% of all TB cases, adult women 32.5% and children 11% (2).

Data from the Global TB Report, from 2020 to 2022 there was an increase in the number of TB cases where in 2020 393,329 cases were found, in 2021 it increased to 443,235 cases and in 2022 to 661,784 cases. The increase in TB cases is in line with the increase in pediatric TB cases, in 2020 it decreased to 33,366 pediatric TB cases, but in 2021 there was an increase to 42,187 cases and in 2022 it increased to 100,726 cases (3).

Tuberculosis case finding in East Java Province in 2019-2021 has not yet reached the specified target of 70%, where in 2020 there was a 48% decrease in tuberculosis case finding rate when compared to 2019 and 2021, which amounted to 66% (4). Meanwhile, TB case finding in Lamongan District fluctuated from 2019-2021. There was a decrease in TB case finding in 2020 (62%) and an increase again in 2021 (67%) where the achievement of TB case finding is still far from the set target of 100%. Meanwhile, the case finding of pediatric tuberculosis in Lamongan District fluctuated from 2019-2021. Child TB case finding in 2019 (89%) decreased in 2020 (26%) and increased again in 2021 (30%) where the achievement of TB case finding is still far from the set target of 85% (5).

Lack of prioritization of TB case management is a major cause of transmission in children globally. Surveillance and epidemiological data on pediatric pulmonary TB are difficult to obtain due to difficulties in diagnosing pediatric pulmonary TB, an increase in pediatric pulmonary TB cases, lack of standardized case definitions, and prioritization of adult TB cases. The distribution of infectious diseases is a spatially explicit process, not only do new cases and deaths show a heterogeneous distribution, but the transmission process also moves through the area as the virus spreads and expands in a particular location (6). Places that are close to each other are likely to have the same level of infection, this is based on proximity and sociocultural ties that are not that different (7). Understanding spatial patterns is essential for identifying at-risk populations and for determining the allocation of resources and interventions to areas at high risk of disease (8).

One of the problems with child TB in Indonesia is diagnosis. Since 2005, the child TB scoring system has been socialized and recommended as a diagnostic approach (9). The problem is that not all health care facilities in Indonesia have facilities for tuberculin testing and thoracic photo examination, which are the 2 parameters in the scoring system. As a result, health facilities with limited access and facilities often underdiagnose child TB. Another issue in the child TB control program is the increasing number of drug-resistant TB (DR-TB) cases in adults, which can be a source of infection for children. The exact number of cases of DR-TB in children in Indonesia is currently unknown, but is increasing (10). Therefore, it is necessary to revise the technical guidelines for the management of child TB so that the findings of child TB cases will increase and the management will be better.

The goal of child TB control is to protect public health from TB transmission so that mortality from child TB disease can be reduced by increasing the number of pediatric TB patients. The discovery of child TB patients can be found through passive and active discovery efforts. Passive discovery is an effort made on children who have symptoms and or clinical signs of TB who come to health facilities, including TB services integrated with Child Health and Nutrition programs. These integrated services in health facilities have not been optimized, and have not contributed to the discovery of child TB cases.

During a pandemic, the health system is faced with the challenge of maintaining a balance between meeting the needs of pandemic management on the one hand, and fulfilling routine health services on the other. The limitations of various resources have led to the reassignment of almost all lines in the health system to respond to pandemic needs. However, if basic routine health service needs are not met, it is feared that this could lead to an increase in morbidity and mortality due to various other health conditions that can actually be prevented or treated. To anticipate this, the health

system needs to be prepared to adapt to ensure that the community can still get the necessary health services during the outbreak. The purpose of this study is to determine and find the root of the problem in the Child Tuberculosis Prevention and Control Program in Lamongan District.

Methods

This study was a descriptive observational study conducted at the Lamongan District Health Office on January 02 to January 27, 2023. The informants in this study were 7 people consisting of 1 Tuberculosis Program Supervisor & 1 Tuberculosis Technical Officer (TO) of Lamongan District Health Office and 5 Tuberculosis Program Managers of Puskesmas (Puskesmas Ngimbang, Puskesmas Brondong, Puskesmas Babat, Puskesmas Sugio, Puskesmas Tikung).

The identification of problems in the tuberculosis prevention and control program was initiated by conducting a document study, namely the document on the results of the implementation of the tuberculosis program in Lamongan District for the last three years (2019-2021) contained in the health profile and the Tuberculosis Program Report (SITB). The documents studied provided information on several important indicators such as case finding rate (CDR), number of suspects treated according to standards (SPM TB indicator), incidence rate based on population (CNR), proportion of TB cases in children, drug resistant TB cases (MDR-TB), treatment success rate, cure rate, TB case contact investigation and preventive treatment activities in risk groups.

In addition to conducting a document study, problem identification on informants used the brainstorming method with the aim of extracting information related to the problem of childhood tuberculosis from the puskesmas TB program manager. The brainstorming method is a method of collecting a large number of ideas from a group of people in a short period of time, this method is often used in identification or creative problem solving. Informants who participated and were actively involved in the brainstorming activities were 1 wasor and 1 TB TO from the Lamongan District Health Office and 5 (five) TB program managers at the Puskesmas (Puskesmas Ngimbang, Puskesmas Brondong, Puskesmas Babat, Puskesmas Sugio, Puskesmas Tikung).

Problem prioritization uses the CARL (Capability, Accessibility, Readiness, and Leverage) method. CARL stands for several criteria used in prioritizing problems consisting of: C = Capability, namely the availability of resources (funds, facilities and equipment), A = Accessibility, namely ease, whether the existing problem is easy to overcome or not. Ease can be based on the availability of methods/technology and implementation support such as regulations or operational guidelines. R = Readiness, namely the readiness of the implementing personnel and the readiness of the target, such as expertise or ability and motivation. L = Leverage is how much influence one criterion has on the other in solving the problem under discussion. The prioritized problem is the problem with the largest total number of scores. Each participant scored each criterion with a value of 1-5 (1 = Very small, 2 = Small, 3 = Medium, 4 = Large, 5 = Very large). The total score is obtained by summing up the total assessment on each criterion based on the number of participants then the total of the four criteria is multiplied by (CxAxRXL).

Prioritization of the problems found identified the cause of the problem with a fishbone diagram. This method is used to identify and organize the possible causes of a specific effect and then separate the root causes. In creating a fishbone diagram, the approach used is a process approach. Major causes are depicted as large bones on the diagram while the small bones depicted are the root causes of minor problems. The root causes found and then described were the result of brainstorming activities and in-depth interviews with the TB Supervisor, the Lamongan District TO, and the TB Program Manager of the selected Puskesmas in the Lamongan District area. Alternative solutions were formulated and recommended based on the identified root causes of the problems.

Results

Problem Identification of Child Tuberculosis Prevention and Control Program

The results of problem identification through brainstorming with district and puskesmas officials are shown in the following table:

Table 1. Results of P2TB Problem Identification with Brainstorming Method at Lamongan District Health Office

No	Problem
1	The child cannot produce phlegm, so TCM cannot be checked
2	Family/parents refuse examination of their child
3	The child does not show any obvious/ easily recognizable symptoms
4	Lack of parent/family knowledge about TB
5	Cross-program/sector coordination has not been maximized in the discovery of child TB
6	Lack of tools to determine or diagnose child TB at the puskesmas
7	Less than optimal search/screening for child TB
8	Not all staff have received specialized training on child TB

Source: Dinkes Kab. Lamongan, 2022

Problem Prioritization

Problem prioritization is done with the aim of knowing the extent to which the problem is important and the problem can be resolved. In prioritizing problems, a problem-solving method is needed. The method used in determining the priority of the problem in this analysis is the CARL method. Based on the results of the assessment of each participant and sorted by rank, the following results were obtained:

Table 2 Results of Prioritization of Child TB Program Problems with the CARL Method at the Lamongan District Health Office

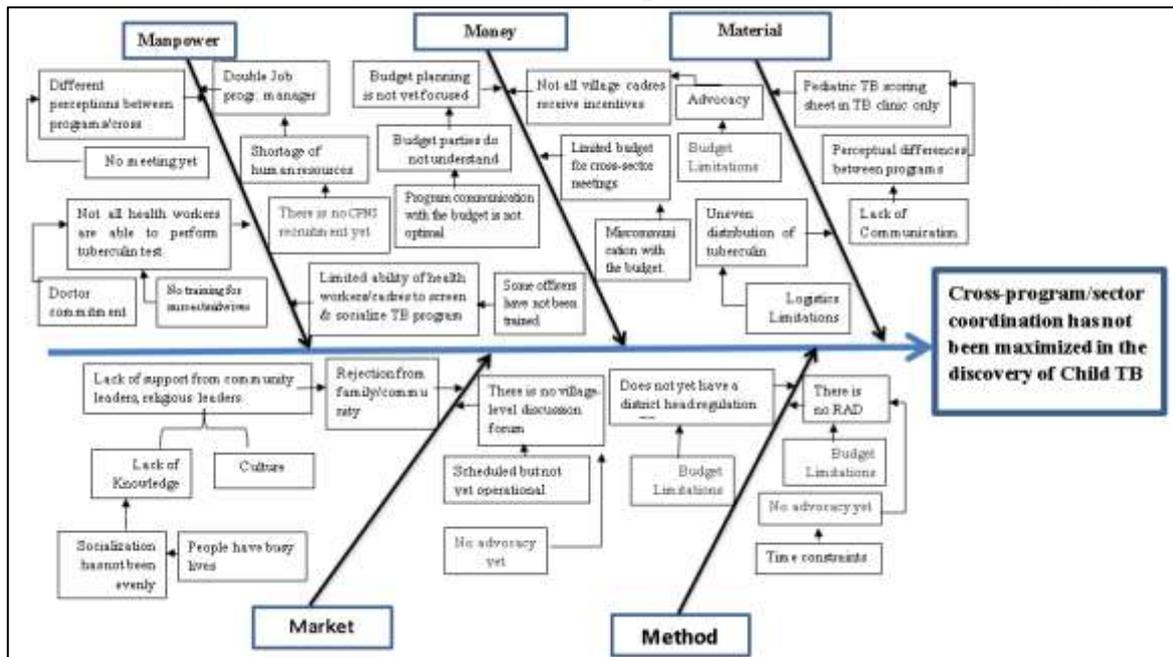
No	Problem	Criteria				Total CxAxRx L	Rangkin g
		C	A	R	L		
1	Cross-program/sector coordination has not been maximized in the discovery of child TB	30	27	26	24	505.440	I
2	Not all staff have received specialized training on child TB	27	24	25	26	452.088	II
3	The child cannot produce phlegm, so TCM cannot be checked	26	27	23	28	421.200	III
4	Lack of parent/family knowledge about TB	23	25	24	23	317.40	IV
5	Lack of tools to determine or diagnose child TB at the puskesmas	25	25	24	21	315.00	V
6	The child does not show any obvious/ easily recognizable symptoms	22	20	26	24	274.56	VI
7	Family/parents refuse examination of their child	21	25	19	24	239.40	VII
8	Less than optimal search/screening for child TB	19	22	21	20	175.56	VII

Source: Dinkes Kab. Lamongan, 2022

Based on the results of the problem prioritization in the table above, it is known that the priority problem is that cross-program and cross-sector coordination is not optimal in the discovery of child TB with a total score of 505,440.

Problem Cause Identification

Identification of the causes of problems is carried out on problems that have been selected as priority problems. Identification of the causes of problems is done using the fishbone diagram method. The results of the analysis of the causes of the problem are shown in the following figure:



Source: Dinkes Kab. Lamongan, 2022

Figure 1 Fishbone diagram analyzing the causes of the problem Cross-program/sector coordination not maximized in Lamongan District

Figure 1 shows that the factors that influence the problem of not maximizing the role of cross-programs and cross-sectors in Lamongan District are caused by Manpower or Human Resources (HR), Money/budget, Material, Market and Method.

The root causes of the problems found in terms of human resources were that there were still TB program managers at the health office and puskesmas who were still concurrently assigned to other programs, the limited ability of health workers or cadres to screen and socialize TB programs, differences in understanding between program managers and cross-sectors because regular meetings had not been held, and not all health workers especially (doctors, nurses, midwives) were able to conduct tuberculin tests so that special training was needed in this regard. The budgeting process has also not been focused because the budget department does not understand the TB program so it is necessary to establish good communication between the TB program manager and the finance department, not all cadres have received incentives and cross-program meetings have not been held due to budget constraints. The material side is also influenced by the uneven distribution of tuberculin in each health service facility and the TB scoring sheet which is not distributed to the loyal poly so that the scoring sheet is only available at the TB clinic. In terms of market, there is no discussion forum at the village level due to lack of advocacy between the health office/puskesmas and local village officials. The Lamongan District Health Office does not yet have a Regent Regulation (Perbub) on TB control, so it has not been able to develop a Regional Action Plan (RAD) as a reference and regional commitment in supporting TB prevention and control programs.

Discussion

Problem prioritization

Based on the results of the analysis of health problems, the problem at the Lamongan District Health Office is obtained as a priority problem, namely cross-program/sector coordination is not optimal in the discovery of childhood TB, this is caused by many factors grouped in aspects of human resources (Man), budget (Money), equipment (Material), environment (Market) and regulations (Method).

The implementation of TB control needs to be supported by efforts to develop and strengthen coordination mechanisms, as well as partnerships between TB program managers with cross-sector and cross-program government agencies, stakeholders, service providers, community organizations, health insurance, both at the central, provincial and district/city levels. Activities to strengthen coordination, networking and partnerships should cover all aspects of TB control, including advocacy, case finding, TB control, risk factor control, IEC improvement, early vigilance and TB preparedness, integration of TB control and referral systems (11).

Identification of Problem Causes

Some of the factors causing the priority problem of cross-program/sector coordination is not optimal in the discovery of child TB include:

Man

Man is a component of human resources that plays a role in the implementation of tuberculosis prevention and control. In accordance with Permenkes RI number 67 of 2016 concerning Tuberculosis Control, it mandates that each provincial health office and district/city health office must establish a work unit responsible for managing the TB control program, which must at least have health workers with competence in public health and non-health workers with certain competencies (11). Puskesmas must assign trained doctors, nurses, and laboratory analysts who are responsible for the implementation of the TB control program. Hospitals must establish a Directly Observed Treatment Shortcourse (DOTS) team responsible for the implementation of the TB control program. Non-health workers are personnel who have received technical and management training and perform auxiliary roles in patient care, counseling, supervision of drug swallowing, and control of risk factors (12).

The results of this study showed that in the human resources component, all Puskesmas TB program managers had double workloads or double jobs, limited ability of officers in conducting TB socialization and screening, lack of ability of officers in conducting tuberculin tests and differences in understanding between programs in finding TB suspects.

The main obstacle for health workers in finding TB suspects is the double workload that must be carried out by the Puskesmas TB program manager, so that the TB program manager cannot focus on his duties, this is supported by Latifah (13) that concurrent TB program managers affect the performance of Puskesmas TB program officers. In addition. According to Wijaya (12) the success of the discovery of suspected pulmonary TB is strongly influenced by knowledge of the discovery method itself, without a comprehensive briefing effort to the officers, it tends to cause lower discovery coverage. Knowledge of the mechanisms of finding and handling suspected pulmonary TB is very important for officers, because without understanding how the mechanism must be followed to find suspected pulmonary TB and how to handle it, health workers are unable to carry out their duties properly (14).

The results of a modeling analysis conducted by the STOP TB Partnership (Geneva, Switzerland) indicate that the COVID-19 pandemic is strongly influencing TB service delivery efforts in prevention, case detection and management. This is especially true in resource-limited settings, but

can also occur at varying levels in resource-abundant settings. As a result, increases in TB incidence and mortality are expected in the future, potentially compromising the results achieved so far and delaying strategies to achieve TB elimination. COVID-19 has radically changed the management of TB care and therefore requires greater attention and innovation to control TB (15).

Money

Health funding is one of the important inputs in realizing health status. With good funding, the implementation of a program or activity of an organization will also run optimally. The results showed that funding in the implementation of TB prevention in health facilities comes from the health department. The health office obtains funds from the APBN, APBD, Global Fund funds in the form of grants (assistance) nationally and NGOs. In addition, there are still many village cadres who have not all received incentives from village funds due to lack of advocacy from the health office or puskesmas with the local village. These conditions indicate that the budget planning for the TB program at the Lamongan District Health Office and Puskesmas has not been maximized in accommodating all priority activities, in this case activities that support TB case finding so that TB case finding activities do not run optimally.

According to Faradis and Indarjo (2018), in addition to human resources, the availability of funds is a supporting factor in the implementation of a policy, including TB control policies. The availability of sufficient funds will support the policy process to be effective and efficient, otherwise a policy will be hampered if there are inadequate funds (16). Therefore, optimal financing is needed to reduce the TB problem in Lamongan District as an effort to support the achievement of SDG's targets and TB Elimination in 2035. To overcome limited funding, good financial management is needed so that the allocation of funds can be prioritized for the most vital TB programs. Officers are also advised to advocate for TB program funding to policy makers such as district and provincial governments, non-governmental organizations (NGOs), and other parties related to TB control (17).

Material

The material referred to in the study is the availability of infrastructure in supporting the TB control process. TB control is implemented in accordance with the principle of decentralization within the framework of regional autonomy with districts/cities as the focal point of program management, which includes: planning, implementation, monitoring and evaluation as well as ensuring the availability of resources (funds, personnel, facilities and infrastructure). In terms of the availability of infrastructure in supporting tuberculosis control activities at the Lamongan District Health Office, most of it is available, but there are still some logistics that are still lacking, such as child TB scoring forms and tuberculin.

Based on the results of the study, it is known that there is still a problem in the process of distributing the child TB scoring sheet, where the child TB scoring sheet is only available in the TB poly section of the health center, this is due to a lack of communication resulting in differences in understanding of the TB program between programs. The pediatric TB scoring sheet should be distributed to other clinics such as the MCH clinic, pediatric clinic and others. In addition, the uneven distribution of tuberculin in each health center due to limited logistics also affects the process of screening for childhood TB in health care facilities. To minimize obstacles to the implementation of activities due to limited logistics, it is necessary to plan, monitor, and analyze the availability of TB logistics at Central Government, Local Government, and non-government health service facilities so that the logistical needs of the TB Control program at Central Government, Local Government, and non-government health service facilities are available (18).

Market

The market is the target of information dissemination resulting from TB control activities. Community participation in TB prevention and control efforts can encourage the achievement of program targets. The community needs to be actively involved in activities in accordance with their conditions and abilities because tuberculosis can be overcome together. Active involvement of the community, community, and religious organizations, both cross-program and cross-sector, is prioritized in the four areas of the TB control program, namely finding people suspected of TB, supporting TB treatment, preventing TB, and overcoming social factors that affect TB control (19).

Based on the results of this study, it is known that there is still rejection from families/communities in the process of TB control, especially in cases of child TB, due to lack of support from community leaders, religious leaders due to lack of knowledge and lack of information dissemination related to TB programs. In addition, the health office or puskesmas has not conducted advocacy related to TB control with the village government, so activities such as discussion forums at the village level have not been conducted.

The role of the community is expected to help overcome factors outside the technical medical problems of TB but which greatly affect or worsen the situation, namely poverty, poor living conditions, poor nutrition, hygiene and sanitation, and population density. The role and activities of communities and community organizations in TB control can be realized through good coordination and communication with the person in charge of the TB program. Communities and community organizations can be involved in outreach to people suspected of TB in vulnerable or special groups through existing community empowerment. Community-Based Health Efforts (UKBM), is one of the community empowerment efforts in the village, the integration of TB services in the village through UKBM is part of the Desa Siaga / Healthy Village activities which are the responsibility of the village/kelurahan government, where the Poskesdes is the UKBM coordinator. In addition, to empower patients, former patients, families and communities to improve treatment adherence and quality of care, a Patient-Based Approach (PBP) is implemented. TB patients as the main focus in TB control are the center point in the health care system related to the rights and obligations as patients and health facilities as service providers in an effort to realize quality TB services that are patient-centered (11).

Method

The method component in activities that support cross-program/sector coordination in child TB case finding includes the availability of implementation guidelines, technical instructions, decrees, regional policies and so on. Based on the results of the study, it is known that a guideline book for the implementation of child TB case finding is available but Lamongan District does not yet have a Regent Regulation (Perbub) and a Regional Action Plan (RAD) document on Tuberculosis Control due to lack of advocacy with related cross-sectors and budget constraints. This can be realized through the establishment of a Regent Regulation or Regional Regulation on Tuberculosis Management.

The RAD document for TB is certainly not automatically included in the regional planning and budgeting system, because according to Law Number 23 Year 2014 Article 263 and Permendagri Number 33 Year 2019, RAD is not included in one of the regional planning guidelines. For this reason, the RAD for TB document still needs legal force to become an official guideline and enter the regional planning and budgeting system, namely through the formation of a Perbub/Perda (20).

In order to accelerate the achievement of the 2030 elimination of tuberculosis that has been launched by WHO, various efforts and strategies have been implemented by the Indonesian government, one of which is the preparation of a Regional Action Plan (RAD) for TB in the

District/City. RAD for TB is a regional strategic planning document that comprehensively contains TB prevention efforts from the planning stage to the monitoring and evaluation stage. This document serves as a guideline for all parties in the region, both public and private, to be implemented in the implementation of their respective main tasks and functions. Thus, the RAD for TB in the district/city is indispensable. The importance of RAD for TB is to gain political commitment, budget commitment and joint commitment of all parties involved in TB control efforts (17). When the RAD for TB as a regional strategic planning document has legal force and is included in the regional planning and budgeting system, it is expected that there will be a budget commitment in the APBD for TB control. What is to be achieved is the support of funds budgeted in the APBD document for TB. Of course, the expected budget is in accordance with what is stated in the RAD document for TB.

Conclusion

The Child Tuberculosis Prevention and Control Program is a crucial program because it provides basic health services for the community, especially for children, besides being an essential program during a pandemic that must continue to run according to target. Health problem analysis is very useful in identifying problems and finding solutions in program implementation so that targets and achievements are as expected. Finding and treating pediatric TB remains the basic pillar of TB prevention and control. The low rate of discovery of suspected pediatric TB will result in many cases of pediatric TB not being detected early and not accessing treatment, which will increase morbidity and mortality due to TB.

Therefore, recommendations to address the lack of cross-program/sector coordination in the discovery of childhood TB should be considered for immediate implementation. By optimizing the discovery process through integrated activities, improving the quality of health and community human resources, budgeting support, support for facilities and infrastructure, and social support for the surrounding environment, it is hoped that it will be able to boost the achievement of the discovery of suspected child TB in Lamongan District.

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