

ANALYSIS OF HEALTH PROBLEMS AS A SERVICE PLANNING FOR THE CONTROL OF TUBERCULOSIS DISEASE IN MAGETAN DISTRICT, EAST JAVA

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ABSTRACT

This research is a study to determine what health problems or diseases need to be prioritized in health programs. The aim of the study was to determine the priority of public health problems in Magetan District. This study was an observational descriptive study conducted during January-February 2022. Prioritization of problems using the Basic Priority Rating System and PEARL methods then identifying the causes of problems using path analysis diagrams. The determining the priority of the problem obtained that tuberculosis is the top priority. Identification of tuberculosis problems through path analysis diagrams showed that early detection activities in special places were low, screening of at-risk groups was not optimal, recording and reporting in hospitals and independent practitioners were low and suspects did not submit sputum back were the causes of low tuberculosis discovery. The results of the pathway analysis diagram are used as prevention planning such as optimizing health human resources, increasing community participation, multisectoral in TB elimination, improving the quality and quantity as well as equitable distribution of health resources, optimizing officers related to SITB reporting, forming coordination teams in each RT in contact investigation, increasing community knowledge with health promotion activities through counseling integrated with other programs.

Keywords: Health Analysis, Tuberculosis, Magetan District

BACKGROUND

Health development is not independent of the problem of resource constraints such as human resources, resources and funds. Therefore, in the preparation of activities to be carried out at the initial planning stage of activities for the management of health problems, priority should be made to know which health problems or diseases should be prioritized or prioritized in the health program.

Planning of health care programmes requires data analysis of health situation problems. Therefore, the first step in health planning is to identify existing health problems (Tyas, 2020)

An analysis of a good problem situation will be able to identify the problem, as well as determine the order of priorities and analyze the root causes of health problems. This

will support the success of a health program in solving the problem.

Tuberculosis is the most deadly infectious disease in world caused by the bacterial agent *Mycobacterium tuberculosis* (Cadena et al., 2017)(Simmons et al., 2018). This disease is one of the ten biggest causes of death in the world (Qiu et al., 2022). Although there is protection using the Bacillus Calmette-Guérin (BCG) vaccine, efforts to administer the BCG vaccine provide varying efficacy effects in protecting against Tuberculosis transmission (Ravimohan et al., 2018). Transmission can occur to anyone, especially to those who have never received the BCG vaccine. The problem that occurs in the Karikil area of Tasikmalaya City is that there are Tuberculosis sufferers who can possibly infect other people, especially the closest family or individuals who have been in contact with the sufferer. Transmission can occur through transmission saliva splashes or droplets that are accidentally spread through coughs or droplets from tuberculosis sufferers, which are thought to contain *Mycobacterium tuberculosis* (Dheda et al., 2016). Three possible clinical outcomes that occur due to transmission of droplets containing *Mycobacterium tuberculosis* are resistance or early clearance of the bacterium by the immune system's first line of defense, latently infected or asymptomatic and active Tuberculosis (Simmons et al., 2018). Seeing the problems that occur, preventive efforts are needed or to prevent the increase in the number of cases through early detection of Tuberculosis using laboratory examinations with Anti-TB parameters, so that we can find out whether there are individuals who have been exposed or not.

The Magetan district is a district located in the eastern Java province that is still burdened with health problems. Results of the analysis of the situation found several health problems in Magetan County including Hypertension, Diabetes Mellitus, AKI, Tuberculosis, COVID-19, AKB, Stunting, diarrhea, pneumonia, leprosy, HIV. Therefore, the purpose of this research is to determine the priority of the problem and identify the root cause of problems in the Magetan District in 2022

LITERATURE REVIEW

Tuberculosis is a disease caused by *Mycobacterium tuberculosis*. Tuberculosis can attack the lungs and can attack all parts of the body (Puspasari, 2019). Tuberculosis is a direct infectious disease caused by TB germ *Mycobacterium tuberculosis*. Most TB germs attacks the lungs, but can also affect other body organs (Sofro, et al, 2018). Tuberculosis is a chronic and infectious disease. Repeatedly usually affects the lung organs caused by *Mycobacterium tuberculosis* (Lemone, Burke, & Bauldoff, 2016).

Tuberculosis or TB or TB is a disease that caused by infection with the bacteria *Mycobacterium tuberculosis*. Bacteria entering and collecting in the lungs will develop especially well in people with low immune systems and spreads through blood vessels or lymph nodes. Hence TB infection can infect almost all organs of the body such as the lungs, tract digestion, bones, brain, kidneys, lymph nodes, etc., However, the organs most often affected are the lungs.

Tuberculosis is caused by *Mycobacterium tuberculosis*. It is spread through coughing or sneezing and people inhaling it droplets

expelled by the patient. Although TB spreads with the same way as the flu, but transmission is not easy. TB infection It usually spreads between family members who live in the same house. However, someone can become infected while sitting next to the sufferer inside bus or train. Apart from that, not everyone who gets TB can transmit it (Puspasari, 2019)

Manifestations of Pulmonary TB:

1. Fever 40-41° C, and there is a cough or coughing up blood
2. Shortness of breath and chest pain
3. Malaise (feeling uneasy), night sweats
4. Characteristic sounds on chest percussion, chest sounds
5. Increased white blood cells with a predominance of lymphocytes.

Classification is based on previous treatment history

1. New TB clients, namely clients who have never been treated with
2. OAT or have swallowed OAT for less than 1 month (< of 28 doses).
3. Clients who have been treated for TB, namely previous clients have ever swallowed OAT for 1 month or more (\geq of 28 doses).
4. These clients are further classified based on the results

Last TB treatment:

1. Clients relapse, namely clients who previously had TB received TB treatment and has been declared cured or complete treatment, diagnosed TB based on the results bacteriological or clinical examination.
2. Clients who are treated again after failure, namely TB clients been treated and was declared a failure in the last treatment.
3. Clients who are treated again after drug withdrawal, namely clients who have been on

treatment and have been off medication for 2 months or more with BTA positive.

4. Others, namely TB clients who have been treated but the final results are poor previous treatment is unknown.

RESEARCH METHODOLOGY

This study is an observational descriptive study conducted in the Health Department of Magetan district during January-February 2022. Data collection uses primary and secondary data. Prioritizing problems using the Basic Priority Rating System (BPRS) and PEARL methods and determining the root cause of the problem is done with in-depth interviews with the designated program responsible through the cause diagram and then used to create alternative troubleshooting.

BPRS is a problem prioritization method that helps systematically identify problems helpful in making decisions without being influenced by individual desires. BPRS is assessed by distributing questionnaires regarding several health problems. Participants or respondents will assess on a scale of 1-10 based on three assessment components, namely the magnitude of the problem (A), the seriousness of the problem (B), and the success of the intervention (C), which is then calculated by the formula = $(A + 2B) \times C$. In addition, the PEARL assessment is also conducted to predict the doability of the program. PEARL assessment covers factors such as Propriateness, Economy, Acceptability, Resources, and Legality, scoring 1 or 0 in each component where 1 means that it can be implemented and 0 means cannot. Then it is totaled to find out the priority of the problem.

RESULT METHODOLOGY

BPRS is assessed by distributing questionnaires about health problems to the Head of Field and Heads of Sub-Coordinator of

Fields in the Magetan District Health Office. The result is explained in the following :

Table 1
Results of Problem Determination using BPRS

| Health Problems | Component | | | SKOR BPRS | PEARL | SKOR TOTAL | Peringkat |
|---------------------|--------------|--------------|--------------|----------------|--------------|----------------|-----------|
| | A | B | C | | | | |
| COVID-19 | 50,28 | 52,42 | 47,28 | 7334,07 | 11111 | 7334,07 | 2 |
| Hypertension | 49,28 | 46,26 | 40,28 | 5713,32 | 11111 | 5713,32 | 10 |
| HIV | 49,14 | 47,14 | 43,14 | 6187,14 | 11111 | 6187,14 | 8 |
| Diabetes Melitus | 48,14 | 48,28 | 44,28 | 6407,32 | 11111 | 6407,32 | 6 |
| AKB | 45,28 | 48,42 | 47,28 | 6719,43 | 11111 | 6719,43 | 4 |
| Lepra | 44,14 | 41,14 | 43,28 | 5471,46 | 11111 | 5471,46 | 11 |
| Tuberkulosis | 53,28 | 50,14 | 48,14 | 7392,38 | 11111 | 7392,38 | 1 |
| Stunting | 48,28 | 48,28 | 44,14 | 6399,24 | 11111 | 6399,24 | 6 |
| Pneumonia | 45,28 | 44,28 | 43,28 | 5792,60 | 11111 | 5792,60 | 9 |
| Diare | 50,14 | 43,14 | 47,28 | 6449,94 | 11111 | 6449,94 | 5 |
| AKI | 48,82 | 49,42 | 49,28 | 7256,97 | 11111 | 7256,97 | 3 |

According to the problem analysis priority of public health problems using the BPRS method, secondary data on PEARL factors, and databases from the Magetan District Health Office in 2022, tuberculosis was one of the priority health problems that must be resolved. In-depth interview with

the TB program's PIC is analyzed using Problem Analysis Diagrams, obtained from several levels ranging from the root of the problem and deepened to the indirect cause of the problem to provide intervention on the problem more efficiently and more precisely. The result is mapped in the following diagram:

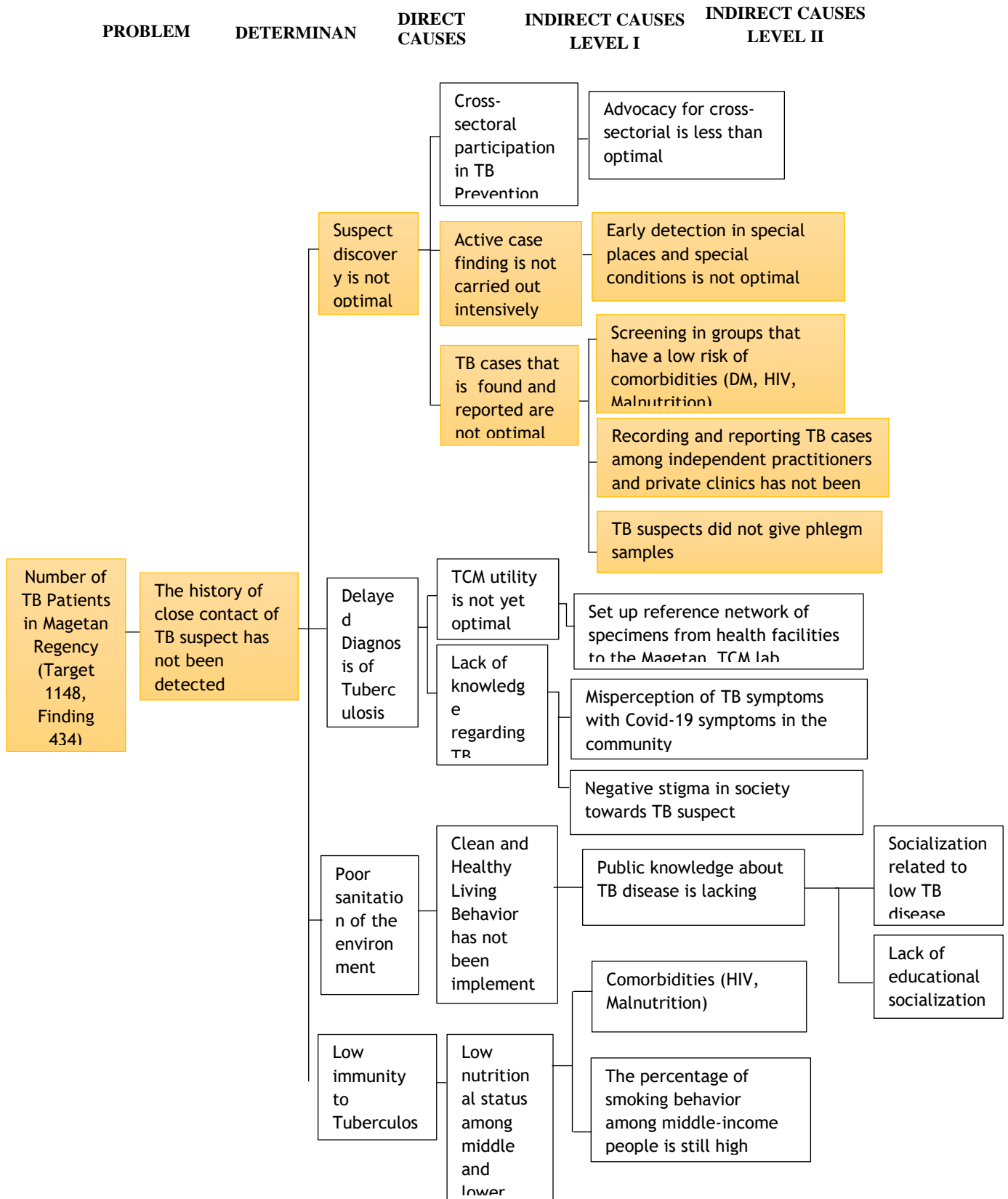


Figure 1. Diagram

Based on data was obtained after conducting an in-depth interview with the Head of the Infectious Disease Prevention and Control Section, the Co-Head Supervisor tuberculosis at the District Health Office, and the P2 Head Division of the Magetan Regency Health Office, the results of

the cause analysis diagram conducted with the tuberculosis program's person in charge, the cause of tuberculosis cases in Magetan has decreased over the past three years due to 3 determinants, four direct causes, eight indirect causes level 1, 11 indirect causes level 2.

DISCUSSION

The screening in groups with comorbidities (DM, HIV, Malnutrition) is still lacking

According to the problem diagram analysis result, the close contact history with TB sufferers is still largely undetected due to a suboptimal suspect discovery. When the tracing process to find TB suspects is slow, it will enhance the potential for TB disease to spread to the surrounding environment. Suboptimal suspect discovery indirectly occurs because the screening process is still low towards groups with comorbidities (DM, HIV, and Malnutrition).

According to the Regulation of the Minister of Health (Permenkes) Number 67 of 2016 regarding tuberculosis Management, the screening process is one of the TB prevention strategies that can be carried out actively, passively, intensively, and massively. Mass screening is an active discovery activity implemented once a year to improve the discovery of TB suspects in areas where case findings are still very low. The active discovery activities are carried out in places with limited access to health services, such as refugee shelters, slums, remote areas, border areas, and islands. Implementing active screening can also educate the community that TB does not cause by biological factors only but also by a series of interrelated causes. Thus cross-sectoral cooperation can be

created to achieve a TB-free Indonesia by 2050. With the screening, public awareness will increase and have an impact on the application of PHBS to prevent TB transmission (Novitasari & Rahingrat, 2021). Tuberculosis is caused by the bacillus of *Mycobacterium tuberculosis*, which spreads when a person with TB spreads bacteria into the air (e.g., through coughing). The disease usually occurs in the lungs (pulmonary TB) but can also occur elsewhere. About 90% of cases occur in adults, mainly in men rather than women, and about a quarter of the world's population is infected with *M.tuberculosis* (World Health Organization, 2019).

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intensity of coughing, the proximity of contact with the source of transmission, the concentration of bacterias inhaled, the age of a person who is infected, the immunity of a person with comorbidities (DM, HIV/AIDS or malnutrition); as well as environmental factors namely the concentration of germs in the air (air ventilation quality), the amount of ultraviolet light, and air filtration (CDC, 2001).

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Early Detection In A Certain Place Is Not Optimal

According to the problem diagram analysis, the close contact history with TB sufferers is still

largely undetected due to a suboptimal suspect discovery; it will slow down the tracing process and increase the risk of death from TB due to failure or late treatment. Suboptimal suspect discovery is indirectly affected by early detection in special conditions that are not optimal.

According to the Regulation of the Minister of Health (Permenkes) Number 67 of 2016 regarding Tuberculosis Management, discovery in a certain place is an active discovery activity carried out in an environment that is prone to TB transmission, namely prisons/detention centers, mental hospitals, workplaces, dormitories, Islamic boarding schools, schools, nursing homes (Novitasari & Rahingrat, 2021) Early detection in a certain place is a strategy carried out periodically that is prioritized for community members who live in areas with limited access to healthcare facilities (Hanum et al., 2021). Enforcing a fast and accurate diagnosis of tuberculosis can be used to solve the problem of limited tuberculosis detection methods that result in delays in tuberculosis treatment (Kusuma, 2019).

Based on related research describes the residents or individuals who were not examined infected by bacteria that cause tuberculosis (*Mycobacterium tuberculosis*). This Anti-TB examination uses the method Immunochromatography is an examination to detect a response significant antibodies to *Mycobacterium tuberculosis* (Ancient & Manurung, 2017) This interpretation has gone through appropriate control by looking at the quality control which gives the red color to the line special controls. If the control line does not give a red color then the inspection results are invalid or do not meet the Quality

Control (Mulyantari et al., 2018). There were also several negative results for these residents possibilities such as the amount of antibodies still detectable within low concentration due to the incubation period of bacteria in the body has not provided a large amount of antibody immune response so not detected properly. Another possibility is the sensitivity of the tool

The immunochromatography method still has shortcomings, namely lacking sensitive and specific compared to the IGRA method. Method Immunochromatography is only a screening that requires testing further confirmation with more accurate parameters such as false sat is IGRA. Examination using methods Immunochromatography is still carried out because the process is relatively faster which is about 15 minutes. Examination using a sputum sample is not we do it because individuals or citizens are willing to be targets, have no clinical symptoms so phlegm is not available, and A cheap and fast examination is the immunochromatography method (Mulyantari et al., 2018).

Investigation Of Close Contact With TB Sufferers Has Not Been Optimal

According to the problem diagram analysis, the close contact history with TB sufferers is still largely undetected due to a suboptimal suspect discovery; it will risk certain groups that are very susceptible due to frequent contact with TB sufferers, making it difficult to avoid. Suboptimal suspect discovery activities indirectly occur because the investigation of close contact with tuberculosis sufferers has not been optimal.

Contact Tracing and Contact Investigation are implemented to support this active discovery activity. Contact Investigation is a

tracing and investigation aimed at people who are in contact with TB patients to find TB suspects (Kemenkes RI, 2019). Contact Investigations were conducted on at least 10 to 15 people in close contact with TB patients. Contact Investigation is prioritized in people at risk of TB, such as children aged <5 years, people with impaired immune systems, malnutrition, the elderly, pregnant women, smokers, and former TB patients. Contact Investigation found in children with TB aims to find the transmission source (Novitasari & Rahingrat, 2021).

Openness of information to society is basically indispensable because indirectly that will happen getting the community involved in each policy implementation process and will have a positive impact on implementation of this policy (Joko, 2015). With openness of information, society can be actively involved to be able to carry out prevention and control TB optimally to break the chain spread of TB cases in Sukabumi City while also helping program implementers policies to be able to convey messages to other community members about safe way to stay interact with TB sufferers without having to give a stigma like a negative one formulated in the Minister of Health policy Number 67 of 2016 Article 7 paragraph (4). Based on this, then implementation of the TOSS-TB program still not in accordance with the contents of the policy Minister of Health Regulation Number 67 of 2016 because active involvement is not yet optimal from the scope of society in accordance with contents of Minister of Health Policy Number 67 of the Year 2016 which has an impact on it still the number of TB cases discovered in the region Selabatu Health Center, Sukabumi City.

CONCLUSION

Based on the results and the discussion above, it can be concluded that the health problems at the Magetan District Health Office are:

1. The problem in the Magetan District Health Office using the BPRS method and PEARL factor shows the highest scores were Dengue Hemorrhagic Fever (DHF), COVID-19, and Tuberculosis.
2. According to the result of the problem diagram analysis, there are indirect causes of the problem:
 - a) The screening in groups with comorbidities (DM, HIV, Malnutrition) is still lacking
 - b) Early detection in certain places is not optimal
 - c) Investigation of close contact with TB sufferers has not been optimal
 - d) Recording and Reporting are not optimal in health facilities
3. Alternative Solutions
 - a) Optimizing the existing health human resources by varying activities ranging from regular training, monitoring, and evaluation.
 - b) Raising the knowledge among the communities with health promotion activities through counseling integrated with other programs such as *Posyandu*, pregnant women's classes, and *Poslansia*.
 - c) Improving the participation of communities, partners, and other cross-sectoral parties in TB elimination.
 - d) Improving health resources' quality, quantity, and equity, especially in the

District Health Office and Public Health Center.

- e) Optimizing health workers in recording and reporting for SITB.
- f) Establishing a Contact Investigation coordination team in communities. The team comprises health workers, cadres, and other related parties such as neighborhood associations, youth associations, etc.

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