


Optimising the Role of TB Program Managers at Puskesmas in Increasing Coverage of TB Preventive Therapy in Serang Regency by 2024

¹Murnidar Waruwu, ²Fajar Saputra

^{1,2}Program Studi Magister Ilmu Kesehatan Masyarakat, Fakultas Ilmu Kesehatan, Universitas Indonesia Maju Jakarta

Article Info	ABSTRACT
Keywords: Tuberculosis, Tuberculosis Prevention Therapy (TPT), TB Program Manager, Health Center, Optimization	Tuberculosis (TB) is still a public health challenge in Serang Regency, with the coverage of Tuberculosis Prevention Therapy (TPT) that has not reached the target. This study aims to analyze the challenges and strategies for optimizing the role of TB program managers in Community Health Centers in increasing TPT coverage. This study used a qualitative method with in-depth interviews with nine informants, consisting of TB program managers, health workers, and policy makers at the Serang Regency Health Office. The results of the study showed that limited human resources (HR), low public awareness, lack of cross-sector support, limited number of active TB cadres, and drug distribution constraints were the main obstacles in implementing the TPT program. Efforts that have been made include training health workers, utilizing technology in patient monitoring, and cross-sector coordination, but still need to be strengthened to be more optimal. It is necessary to increase the capacity of health workers across programs and cadres who are trained in TB, increase public education, optimize drug distribution, and more supportive regional policies to increase TPT coverage and accelerate TB elimination.
This is an open access article under the CC BY-NC license 	Corresponding Author: Arina Maliya Universitas Muhammadiyah Surakarta alfinarahmadani02@gmail.com

INTRODUCTION

According to the 2023 Global Tuberculosis Report, in 2022 the estimated TB incident rate in Indonesia is 385 per 100,000 population, an increase compared to the TB incident rate in 2021 of 354 per 100,000 population. Meanwhile, the TB death rate in 2022 is 49 per 100,000 population. 6 In 2023, the total number of TB cases found was 821,200 cases, a significant increase compared to all TB cases found in 2022 of 677,464 cases. 7

At the provincial level, Banten is ranked fourth for the highest number of tuberculosis cases in Indonesia after West Java, Central Java, Central Papua with a total of 29,525 cases. The CNR of TB cases in the 2020-2022 period were 795, 168, 910 per 100,000 population, respectively. 7,8,9

Serang Regency is one of the administrative areas in Banten Province that has problems related to TB. Based on data on the number of bacteriologically confirmed pulmonary TB cases, in 2023 in Banten there were 5,297 cases. 7 Various control activities have been carried

out starting from active TB detection, building networks, TB socialization in the community; providing adequate facilities and infrastructure for TB diagnostics, to implementing TB surveillance. Contact investigations have also been intensified to examine people in risk groups so that case detection is earlier and treatment is faster.

Household contacts of tuberculosis (TB) patients are at highest risk of being infected with *Mycobacterium tuberculosis* and developing latent TB (LTB) which can develop into active TB. Close contacts, including family members who live in the same house as TB patients, are at high risk of exposure and developing latent TB infection. Latent Tuberculosis Infection (LTB) is a condition in which the immune system of an infected person is unable to completely eliminate *Mycobacterium tuberculosis* bacteria from the body but is able to control the TB bacteria so that no symptoms of TB disease arise. This latent infection, although it does not cause clinical symptoms, can develop into active TB if not treated properly through the administration of TB preventive therapy (TPT).

Several studies have shown that around 5-10% of people with ILTB will develop active TB, usually within 5 years of first infection. 8 ILTB that develops into TB disease among the 1.7 billion people infected with TB will increase every year. A systematic review of 11 studies in Southeast Asia showed that 24.4% to 69.2% of children under 15 years of age had contact with people with active TB and 3.3% to 5.5% of them would develop active TB. 11 People with ILTB if they undergo Tuberculin Skin Test (TST) or Interferon Gamma-Release Assay (IGRA) examination will be positive, but the results of chest X-ray examination are normal and the results of sputum and Xpert MTB/Rif® examination are negative. 12 Management of ILTB is an important point in the TB control strategy. This is the basis for the TB Prevention Therapy (TPT) program for TB contacts. 13 TPT is a series of treatments given to people with latent tuberculosis infection (LTBI).

The TPT program has been running since 2012 for PLHIV and in 2016 for contacts of children under 5 years old, only in 2020 the target was expanded to household contacts of all ages and other risk groups. 18 The Indonesian Ministry of Health through Circular Letter (SE) of the Director General of P2P number 2175 concerning Changes in the Implementation of Contact Investigation (IK) and the Flow of Tuberculosis Latent Infection Examination (ILTB) and Provision of Tuberculosis Prevention Therapy (TPT) in Indonesia stipulates that the target for TPT provision includes people with HIV (PLHIV) of all ages, household contacts of all ages with bacteriologically confirmed pulmonary TB patients, and other risk groups. Apart from these targets, TPT provision has not been a priority.

Based on the results of a preliminary study in August 2024, the author obtained data that of the 31 health centers in Serang Regency, there were 7 health centers that had not provided TPT to household contacts at all (0%), 22 other health centers had coverage below 45%, and only 2 health centers achieved coverage of more than 50%.

In addition, the results of interviews conducted with 10 TB program managers at Serang district health centers, 7 people said that they had attended TPT training but still did not fully understand how to administer TPT so they were hesitant if side effects of the drug appeared, 2 people said that the obstacle in administering TPT was when household contacts did not want to do the tuberculin test/mantoux test which is the gold standard for establishing

a diagnosis of ILTB, and 1 other person said that they had not attended training on TPT so they did not dare to administer TPT.

This study aims to explore the role of TB program managers in health centers in increasing the provision of TPT in Serang Regency in 2024. This study is expected to provide a comprehensive view of the role of TB program managers, so that relevant optimization strategies can be identified. Optimization of this role is expected to increase the coverage of TPT, which ultimately contributes to the target of TB elimination in Indonesia according to the target in 2030.

METHOD

The research design used is qualitative analysis with a case study approach (Denzin & Lincoln, 2009). Case studies are chosen because they focus on specific situations based on existing contexts and policy developments, allowing researchers to explore experiences, perceptions, and practices implemented in health centers in handling TB.³⁴ This research will be conducted in Bojonegara District and Anyer District, Serang Regency starting in December 2024. The informants in this study are supporting informants and main informants. Supporting informants are household contacts in the working areas of Bojonegara Health Center and Anyer Health Center, Serang Regency. While the main informants are the Serang Regency Health Office, Bojonegara Health Center and Anyer Health Center, Serang Regency which oversee the program and run the program.

The characteristics of the informants in this study were all female, namely the first main informant LF, aged 41 years who had completed a Masters program who was the TB program manager at the Serang District Health Office. The 4 informants came from the Bojonegara Health Center, namely informant S, aged 46 years with a last education of D3 and was the TB Program Manager at the Bojonegara Health Center. The 3rd informant was informant R, aged 51 years who had a last education of S1 as a health worker, the 4th informant was a TB cadre aged 45 years and informant N was 30 years old with a last education of high school who was a TB household contact. While the sixth to ninth informants came from the Anyer Health Center who were TB program managers, health workers, cadres and household contacts, namely the main informant YN aged 40 years, last education of D3, informant RN aged 48 years, last education of S1, informant SU with a high school education and supporting informants, namely informant YN who also completed high school education.

Data collection was obtained from two sources, namely primary data and secondary data. Primary data was conducted by means of in-depth interviews and observations. In-depth interviews were conducted with informants using interview guidelines and recorders or other aids. Observations were conducted by observing community interactions at the research location in the working area of the Bojonegoro Health Center and Anyer Health Center, Serang Regency in February 2024 and informant information. While secondary data was conducted by collecting data from related agencies related to this research.

Data testing in this study uses data triangulation techniques, which are techniques for checking the validity of data that utilize something other than the data for checking purposes or as a comparison to existing data. ²⁹ The triangulation carried out by this study is source

triangulation to test the credibility of data by checking the data that has been obtained by interviewing various informants from various data sources such as the results of interviews with informants, while method triangulation is carried out in this study to test the credibility of data that has been obtained from the results of interviews with the results of observations or documentation data.

The results of the data processing are presented in the form of narratives, quotations accompanied by implementation (Miles et al., 2018). The data analysis process in this study was carried out by collecting data from informants related to the role of TB program managers which were recorded in detail and carefully. Then the results of the recording will be summarized, and focused on the research objectives so that the results of the data reduction will provide a clear picture to facilitate drawing conclusions. After the data reduction process, the data can be presented in the form of brief descriptions, charts, and the like. The data that has been presented will then be concluded and verified. In this study, the conclusions and verification will be presented in the form of narrative text that explains the optimization of the role of TB managers in health centers in increasing the coverage of TPT provision in Serang district.

RESULTS

Suboptimal Achievement of TPT Provision

Indicators are needed to facilitate the analysis of program progress and performance data (Progress indicators). Key indicators, impact indicators and operational indicators are used in assessing the progress and success of the TB control program. Key indicators are used to assess the achievement of the national TB control strategy at the district/city, provincial and central levels using key indicators. In the main indicators there are 10 TB program indicators including the coverage of preventive therapy for household contacts. From the results of interviews with informants regarding the coverage of preventive therapy in Serang district, it has not reached the target. This is revealed from the following interview results

"Our coverage has been raised to 39% yesterday in Serang Regency from a target of 68%, hopefully it will be 80% this year because the 2025 target has increased to 80%." (Informant 1)

The achievement of TPT provision at the Puskesmas level is uneven. Some Puskesmas are still having difficulty in achieving targets, while other Puskesmas have exceeded the targets set. One informant explained that the achievement at his Puskesmas has met the national target:

"Yes, in the TB program at the health center, there are 10 national indicators, one of which is an indicator to assess the coverage of TPT provision for household contacts and thank God, the TPT achievement at our health center in 2024 has exceeded the target."(Informant 6)

Table 2.Coverage of TB Prevention Therapy Provision in 2024

COVERAGE OF TB PREVENTION THERAPY					
*Data Report January 12, 2025 at 08:22					
No.	Health Center	Target	Number	Denom	%
1	Anyar Health Center	68%	102	100	102%

COVERAGE OF TB PREVENTION THERAPY					
*Data Report January 12, 2025 at 08:22					
No.	Health Center	Target	Number	Denom	%
2	Bandung Health Center		1	67	1%
3	Baros Health Center		3	105	3%
4	Binuang Health Center		24	56	43%
5	Bojonegara Health Center		12	86	14%
6	Carenang Community Health Center		1	69	1%
7	Cikande Health Center		87	193	45%
8	Cikeusal Health Center		71	136	52%
9	Cinangka Community Health Center		52	104	50%
10	Ciomas Health Center		35	77	45%
11	Ciruas Health Center		33	142	23%
12	Gunung Sari Health Center		5	42	12%
13	Jawilan Health Center		15	107	14%
14	Kibin Health Center		130	102	127%
15	Kopo Health Center		38	50	76%
16	Kragilan Health Center		8	79	10%
17	Kramatwatu Health Center		65	171	38%
18	Lebak Wangi Community Health Center		23	68	34%
19	Mancak Health Center		3	85	4%
20	Nyompok Health Center		16	45	36%
21	Pabuaran Community Health Center		21	78	27%
22	Padarincang Community Health Center		2	124	2%
23	Pamarayan Health Center		46	107	43%
24	Pematang Health Center		9	61	15%
25	Petir Health Center		39	110	35%
26	Pontang Health Center		83	82	101%
27	Pulo Ampel Health Center		3	68	4%
28	Tanara Health Center		32	76	42%
29	Tirtayasa Community Health Center		2	84	2%
30	Tunjung Teja Community Health Center		27	83	33%
31	Waringin Kurung Community Health Center		123	86	143%
Serang Regency			2842	1113	2842

The Role of TB Program Managers in Health Centers

The role of TB program managers in health centers is very important in increasing the coverage of TB preventive therapy. As managers, they are responsible for planning, implementing, and evaluating programs related to TB prevention and control. From interviews about the role of TB programs in health centers, it was found that 2 main informants carried out their roles as in the following statements

"As a program manager, my main role is in the service or implementation of the TB program, increasing cross-sector roles and collaborating with cross-programs, in maximizing the achievement of targets from TB program indicators. As a manager, I am also responsible for inputting program achievements into the SITB application and

reporting during monthly workshops" (Informant 2)

TB cadres have an important role in supporting TB control programs in community, including in finding suspected TB cases, providing education, assisting in sputum sampling, and monitoring patient compliance in undergoing treatment. However, in its implementation, several cadres faced obstacles that hampered their duties. One informant conveyed the following conditions:

"As a TB cadre, my job is to search for and find suspected TB cases in the community, providing education about TB, assisting health workers in taking sputum samples, and monitoring patient compliance in taking medication, unable to carry out activities due to illness." (Informant 4)

Meanwhile, other informants showed awareness of the importance of TB prevention and an active role in following preventive therapy.

"I took the preventive medicine so I wouldn't get infected." (Informant 9)

Implementation Challenges

Human resource limitations

From the statement of informant 1, it is known that all TB program managers, doctors who handle TB and TB cadres have received training or workshops on latent TB infection (ILTB) and provision of TPT in 2022. The following is an excerpt from an interview with the main informant regarding this matter:

"We have conducted workshops for all program managers of the Serang District Health Office and TB cadres at that time in 2022. We also invited the doctors through funding from the Ministry of Health. However, maybe because some of the program managers applied it and some applied it late, sometimes if the knowledge is not applied immediately, they forget it. (Informant 1)

Ideally, health workers can conduct direct home visits to ensure that patients and their families receive therapy according to procedure. However, the limited number of health workers often becomes an obstacle in implementing these activities. This was conveyed by one of the main informants as follows:

"Because if I go down to the field myself, I won't be able to catch up on time. We should be able to go directly, like a home visit, so when the patient has been diagnosed, it should be 2 weeks after he/she receives treatment or even before 2 weeks, ideally the TPT should be in the same house, but because of the lack of human resources, sometimes it hinders the provision of TPT." (Informant 2)

One of the main informants said that due to the limited number of nurses at the health center, the schedule for field visits was very lacking for program managers to carry out active recruitment, just waiting for those who came.

"If I look at it from the human resources, because the TB program has many indicators that must be achieved, home visits must be made if all of them are to be achieved, while in our case, especially in Health Center B, there are only a few nurses, sometimes they clash with the shifts while they have to open the polyclinic twice a week, guarding in the morning, afternoon and evening, so if possible, it can be increased. So the TB program manager only has a morning schedule to optimize field visits, if they only wait

at the health center like this, only those who come will be caught. So, it would be better if there is already a target, to visit it immediately so that the target gets TPT."(Informant 3)

Table 3.Competency Based HR Training

Informant	Types of HR	Training attended
Serang District Health Office		
11	Nurse (Program Manager)	Basic training for TB program MESO TBC RO Training TB RO patient initiation training TB RO management training TB RO patient initiation training ILTB management workshop and TPT provision
Bojonegara Health Center		
12	Nurse (Program Manager)	Basic training for TB program ILTB management workshop and TPT provision
13	Doctor/Health Worker	Basic training for TB program
14	TB cadre	ILTB management workshop and TPT provision
15	Home Contact	-
Anyer Health Center		
16	Nurse (Program Manager)	Basic training for TB program ILTB management workshop and TPT provision Initiation of RO TB treatment
17	Doctor	Basic training for TB program ILTB management workshop and TPT provision
18	TB Cadre)	ILTB management workshop and TPT provision
19	Home Contact	-

Lack of Socialization and Public Awareness

The level of public understanding and awareness of the importance of Tuberculosis Prevention Therapy (TPT) is still a challenge in the implementation of this program. One of the main obstacles found is the refusal of latent TB patients to undergo therapy because they feel healthy and do not experience symptoms. This was conveyed by one of the informants as follows:

"Many people refuse because they feel healthy, they think they don't need to take medicine if they are not sick."(Informant 6)

One of the challenges in dealing with Tuberculosis (TB) in Serang Regency is the increasing number of cases, including the risk of re-infection due to household contact with TB patients. This was conveyed by one of the main informants as follows:

"This TB disease is indeed a chronic infectious disease that can be prevented by providing TB prevention therapy. To achieve this elimination, the government may have strategies to eradicate or eliminate TB in Indonesia, especially in Serang Regency. Indeed, in Serang Regency, cases continue to increase because the pattern is re-infection. So those who have recovered are infected again because their household contacts have not been explored for household contacts. With this, we may have to

work together across sectors, we must encourage or cross-program." (Informant 1)

Lack of cross-sectoral support

Cross-sector coordination is one of the important factors in the success of the TB elimination program. TB program managers at the Health Center realize that achieving the target coverage of TPT provision does not only depend on health workers, but also requires support from various parties. However, in its implementation, cross-sector support still faces several obstacles. This was conveyed by one of the informants as follows:

"Cross-sector means that the TB program is a shared responsibility. We always try our best to achieve the target. The goal of elimination is actually for everyone, not only for the health team but also for the community in the future. So in our work area, for cross-sectors it is still not optimal, meaning that support from the sector is really needed.

(Informant 3)

In addition, cross-sector collaboration is also considered important in reaching communities with limited access to health services, especially those living in areas far from health facilities. One informant conveyed the importance of service integration to support TB elimination as follows:

"We have to work together across sectors... it is impossible for us to work alone. Villages are the ones who mobilize the community in how they reach health services. Sometimes long distances are a problem, transportation is needed to get to services. Hopefully there is, with this integration of primary services we can synergize towards eliminating TB, not only program managers, but all communities are also moving." (Informant 1)

Limited number of active TB cadres

The existence of health cadres at the village level also has an important role in supporting the implementation of the TPT program, especially in providing education, monitoring patients, and assisting health workers in reaching the community. However, the limited number of active TB cadres is one of the obstacles in implementing the program in several areas. One informant conveyed the following conditions:

"There is only 1 active cadre who can help with tasks in the village for the TPT provision efforts, and he is currently not in good health." (Informant 2)

In addition to the limited number of cadres, the health condition of cadres is also an obstacle in carrying out tasks in the field. Several cadres who have important roles in searching for suspected TB cases, educating, and monitoring patients cannot carry out their duties optimally. One informant conveyed the following conditions:

"As a TB cadre, my job is to find and locate suspected TB patients in the community, provide education about TB, assist health workers in taking sputum samples, and monitor patient compliance in taking medication. I have not been able to carry out activities for several months due to illness." (Informant 4)

Drug distribution constraints

The availability of TPT logistics at the Health Center is generally sufficient and does not experience shortages. However, one of the obstacles faced in drug distribution is the allocation of drugs that are approaching their expiration date. This causes drugs to not be utilized optimally in services at the Health Center. One informant conveyed the following

conditions:

"If the logistics are smooth, then in relation to that, thank God, there is no shortage in terms of logistics, it's just that yesterday we received an allocation but the expiration date was close, so it means that the medicine was not being used at the Health Center.." (Informant 2)

Management's efforts to overcome challenges

Based on the results of interviews with informants, several efforts were found to have been made by TB program managers at the Health Center to overcome challenges in implementing the provision of Tuberculosis Prevention Therapy (TPT). These efforts include increasing education to the community, as well as strengthening coordination with related parties.

Improvement of education

In the face of limited human resources (HR), various efforts have been made to improve understanding of Tuberculosis Prevention Therapy (TPT). One informant conveyed the steps that have been taken as follows

"We have conducted workshops in 2022 and socialization via Zoom to increase understanding of TPT."(Informant 1)

TB program managers at the Health Center carry out various strategies to increase public understanding of the importance of TPT. Education is provided both directly to patients and through outreach to the wider community.

"We provide counseling at the Integrated Health Post (Posyandu) with the assistance of Posyandu cadres and health promotion officers, as well as to patients and families who accompany them when starting treatment about the benefits of TPT."

(Informant 6)

One of the efforts made to increase the coverage of TPT provision is by taking an active approach to the community. In areas with challenging geographical conditions, such as mountainous areas, health workers and cadres must be more proactive in inviting patients and their families to undergo examinations and receive the therapy they need. This was conveyed by one of the informants as follows:

"Providing counseling and inviting them, especially since it's still mountainous here, so we have to take the initiative, we are the ones who are irritated, not the patients and their families who have TB, we have to be the ones who really invite them to get checked at the health center. (Informant 7)

Improvement Education is also carried out on various occasions by TB cadres so that the targets are willing to undergo examinations at the health center.

"Approaching the family, sometimes families who have TB don't want their illness to be known to their neighbors, so we also have to be able to make them comfortable and also provide counseling at religious study places or when there are gatherings in the village." (Informant 4)

Strengthening coordination with related parties

Coordination between TB program managers at the Community Health Center and related parties, such as the Health Service, referral hospitals, and community organizations, continues to be strengthened to support the smooth running of the TPT program.

"We routinely coordinate with the Health Office to ensure the availability of TPT drugs and reporting on the scope of therapy and cross-sectoral provision such as with cadres, thank God it has been going well until now and with the RT, we will always be informed if we will visit the patient's house" (Informant 6)

To overcome the limited number of cadres and ensure the sustainability of support in the TB program, various efforts have been made to build cadre networks at the village and sub-district levels. One informant explained these efforts as follows:

"Of course, we always try to ensure that program managers at the Health Center do not work alone so that there are hands that can reach out to bring services closer, such as networking with cadres. The cadres have been assigned by the Ministry of Health, but we also try to get cadres assigned by the village or sub-district level so that when the project from the Ministry of Health ends, there are already seeds that can continue the project.." (Informant 1)

Optimization Strategy

Strengthening human resources capacity

Strengthening of human resource capacity is carried out through various trainings and increasing the number of health workers involved in the TB program. Several informants conveyed the importance of increasing the competence of health workers in providing education and patient monitoring.

"If possible, all doctors in a health center can be exposed to the latest TB management, with the implementation taking turns so that when there is a transfer of duties, it can be continued by others, especially in the current cluster system, taking turns on guard in the room." (Informant 3)

In addition to training, adding cadres to each village is also considered a necessary step to optimize services.

"If the cadres who"By adding this TB program, patient monitoring can definitely be more optimal." (Informant 6)

Advocacy

One of the optimization strategies proposed in the implementation of the TPT program is the existence of policies that support budget allocation for TB elimination at the regional level. This was conveyed by one of the informants as follows:

"These policies are very much needed, such as the Regent Regulation on stunting, this TPT should also be like that, meaning from the Governor level to the Regent level, it becomes a kind of foothold for the village government in allocating the budget for TB elimination. This is the task of the Health Service, it is their task to convey aspirations from below. (Informant 2)

Besides that, Cross-sector support is also considered an important factor in increasing the effectiveness of TB programs. One informant emphasized the role of local governments in supporting TB elimination efforts through policies at the village and sub-district levels:

'The main thing in Serang Regency is support from cross-sectors because we cannot work alone because the community's understanding is not only health workers who provide it but also especially people who are closest to the community such as

respected people such as the village head at the village or sub-district level, right? Well, the sub-district can boost that achievement by instructing the village for efforts to prevent TB transmission to be supported by funds through village funds so that these efforts can ease the work of the Health Office, especially the Health Center in handling TB."(Informant 1)

Increasing Community Engagement

One of the strategies implemented in optimizing the Tuberculosis (TB) control program is to increase community involvement in various activities that support TB elimination efforts. Community involvement is considered important in increasing awareness, patient compliance, and expanding the reach of TB prevention and treatment programs.

Several informants said that community involvement was carried out by involving various elements, including health cadres, community leaders, and local organizations.

"We involve health cadres to help monitor patients in their communities and report if any patients stop taking their medication."(Informant 6)

In addition to health cadres, community leaders are also considered to have an important role in socializing the TB program to residents.

"Community understanding must be provided not only by health workers, but also by respected people, such as village heads or lurah, so that it is more easily accepted by the community."(Informant 1)

Another effort made is to involve the community in supporting monitoring of patients undergoing preventive therapy or treatment for active TB.

"The community around the patient can help ensure that the patient continues to follow therapy properly, especially close family and neighbors, or become a drug intake supervisor (PMO)."(Informant 8)

Utilization of field visit time after in-building services are completed

In an effort to overcome the limited human resources (HR) in the Health Center, health workers use the time after the in-building service is finished to conduct home visits. This visit aims to ensure that TB patients and household contacts who meet the requirements can immediately start Tuberculosis Prevention Therapy (TPT). One informant conveyed the challenges faced in implementing field visits as follows:

"Conducting home visits after in-building services is indeed quite tiring, especially if the location is far away, but if it is not done, many targets will not be able to start TPT treatment."(Informant 6).

However, cooperation between health workers in conducting home visits provides additional enthusiasm in carrying out tasks. One informant shared his experience in working with program managers to conduct field visits after in-building services were completed:

"Alhamdulillah, I worked with Mrs. YL, Alhamdulillah, she was so welcoming, so we got along well, so if she wanted to invite me to go for a visit even though it was already afternoon, because the service was in the morning, she was still enthusiastic for us, in fact she was even more enthusiastic because there were officers accompanying the visit."(Informant 8).

Discussion

TPT Grant Achievements and Implementation Challenges

The results of the study showed that the coverage of TPT provision in Serang Regency is still not optimal. Several main factors that are obstacles in the implementation of this program are limited health workers, low public awareness, and obstacles in drug distribution.

This finding is in line with research conducted by Sari et al. (2020), which found that the lack of health workers and public understanding of latent TB were the main obstacles in providing TPT.

Limited health workers

The limited number of health workers is one of the main obstacles in implementing the TPT program at the Health Center. Although health workers and TB cadres have received training related to Latent Tuberculosis Infection (LTBI) and the provision of TPT in 2022, there are still gaps in implementation because some new officers have not received the same training.

"We have conducted workshops for all program managers in the Serang District Health Office and TB cadres at that time in 2022. We also invited doctors through funding from the Ministry of Health. However, maybe because some of the program managers applied it and some applied it late, sometimes if the knowledge is not applied immediately, they forget it."(Informant 1)

The change of officers is also an obstacle in the implementation of the program. One informant said that as a new health worker assigned to the TB program, he still does not fully understand the latest TB management.

"In the current Health Center, it was in 2018. I just joined the DOTs team for less than a year because actually, I was in charge of PTM and Doctor F was the one who was contagious. Well, because Doctor F moved, so I took this one so that it was contagious and not contagious to me, I didn't really understand the latest TB management."(Informant 3)

The lack of nursing staff at the Community Health Center also results in limited field visit schedules, so that patient screening only depends on those who come to the health facility..:

"If I went into the field myself, I wouldn't be caught up in time. After a patient is diagnosed, within two weeks all their household contacts should have received TPT. But due to a lack of human resources, sometimes the provision of TPT is hampered."(Informant 2)

In the theory of Health Policy Implementation (Van Meter & Van Horn, 1975), it is stated that the success of implementing a health program is highly dependent on available resources, policy support, and public understanding and acceptance of the program being implemented. 41

Lack of Socialization and Public Awareness

The level of public understanding of TPT is still low, causing rejection of therapy because patients feel healthy and do not understand the benefits of preventive therapy. This is supported by findings from Rahman et al. (2019) which stated that the level of rejection of

TPT generally occurs because patients feel healthy and do not understand the benefits of preventive therapy.

"Many people refuse because they feel healthy, they think they don't need to take medicine if they are not sick."(Informant 6)

In addition, limited information in the community also affects the level of acceptance of this program.

"Public knowledge is still minimal, meaning that not everyone has been exposed to and knows about TPT."(Informant 2)

The Health Belief Model theory (Rosenstock, 1974) explains that individual perceptions of disease risk and treatment benefits greatly influence their decisions in undergoing health therapy.⁴⁰ In this study, the lack of patient understanding of the risk of latent TB and the benefits of TPT was one of the factors inhibiting the success of the program.

Obstacles in Drug Distribution

The availability of TPT logistics is one of the important factors in the success of the Tuberculosis (TB) elimination program. Based on the results of the study, although the stock of TPT drugs in the Health Center is available, there are obstacles in the distribution of drugs, especially related to the expiration date of the drugs being too close. This causes the use of drugs to be less than optimal, so that it can hinder the coverage of TPT provision.

One informant conveyed this condition as follows:

"If the logistics are smooth, yes, related to that, thank God there is no shortage in terms of logistics, it's just that yesterday we got an allocation but the expiration date was close, so it means that the medicine is as if it is not being used at the Health Center."(Informant 2)

This finding is in line with the research of Rahman et al. (2021) which states that the effectiveness of the TB program is highly dependent on the availability and distribution of drugs that are timely and in accordance with quality standards.³⁸ According to the Supply Chain Management for Health (SCMH) Model, poorly planned drug distribution can cause an imbalance between the availability and utilization of drugs in health facilities.

If the distribution of drugs is not adjusted to the needs of each Health Center, then the stock of drugs that are almost expired will be difficult to fully utilize, thus potentially causing waste and decreasing the effectiveness of the program. In line with the research of Kurniawan et al. (2022), suboptimal drug distribution can cause delays in the provision of therapy, which has an impact on decreasing patient compliance in undergoing TPT. ³⁹

Limited Number of Active TB Cadres

Conducting education, monitoring patients, and assisting health workers in reaching the community. However, research results show that the limited number of active TB cadres is one of the obstacles in implementing the program in several areas.

WrongOne informant said that the number of cadres tasked with providing TPT was very limited, even only one person at the village level. In addition, the poor health conditions of cadres also hampered the implementation of their duties.

"There is only 1 active cadre who can help with tasks in the village for the TPT provision effort, and he is currently not in good health."(Informant 2)

In addition to the limited number of cadres, the health condition of cadres is also an obstacle in carrying out tasks in the field. Several cadres who have roles in searching for suspected TB cases, education, and monitoring patient compliance in taking medication cannot carry out their duties optimally.

"As a TB cadre, my job is to find and locate TB suspects in the community, provide education about TB, assist health workers in taking sputum samples, and monitor patient compliance in taking medication. I have not been able to do activities for several months due to illness."(Informant 4)

According to the Community Health Worker Model (CHW) theory, the involvement of health cadres in the primary care system greatly influences the effectiveness of public health programs. WHO (2022) also emphasizes that health cadres act as intermediaries between health workers and the community, and help ensure wider access to health services. However, in this study, the limited number of cadres and the health problems of existing cadres hampered the sustainability of the program.

The limited number of TB cadres also has an impact on the lack of monitoring coverage of patients undergoing TPT, especially in areas with limited access to health services. In line with the research of Widyaningsih et al. (2021), which found that the number and capacity of health cadres are directly proportional to the level of success of implementing health programs in the community, strengthening the number of TB cadres and increasing their capacity is something that needs to be considered.

The Need for Policy Strengthening in the TB Elimination Program

Strong policies and cross-sectoral support are critical factors in the success of public health programs, including the elimination of Tuberculosis (TB). Based on the results of the study, TB program managers at Puskesmas expect a more assertive policy to support the implementation of Tuberculosis Prevention Therapy (TPT), as has been implemented in the stunting control program. One informant conveyed the importance of regulations that can be the basis for local governments in allocating budgets for TB elimination:

"These policies are very much needed, such as the Perbup on stunting, this TPT should also be like that, meaning from the Governor level to the Regent as a kind of foothold for the village government in allocating the budget for TB elimination. This is the task of the Health Service, it is their task to convey aspirations from below."(Informant 2)

This finding is in line with the WHO study (2020) which shows that the integration of health programs with the support of local government policies can increase the effectiveness of the implementation of public health programs. In the theory of Collaborative Governance (Ansell & Gash, 2007), the success of implementing health policies is highly dependent on cross-sector coordination and government commitment in providing adequate resources. 35

In this study, the absence of regional policies that specifically regulate TB elimination and budget allocation for TPT is an obstacle in increasing therapy coverage. In line with the research of Kurniawan et al. (2022), which states that regional regulations that support health programs can increase compliance with implementation at the primary service level, stricter policies in the TB program need to be strengthened. 39

Efforts to Optimize the Role of TB Program Managers

In facing these challenges, TB program managers at the Health Center have implemented various strategies to increase the coverage of TPT provision. One of the main strategies is strengthening the capacity of health workers through training and increasing the number of medical personnel handling the TB program.

"There needs to be more frequent training so that officers can better understand how to provide education and accompany patients during treatment."(Informant 3)

Research by Kurniawan et al. (2021) shows that training and capacity building of health workers play an important role in the successful implementation of public health programs. With better trained health workers, monitoring and education of patients can be carried out more optimally. 39

In addition, in monitoring patient compliance, the program manager provides a control schedule help book so that patients who do not come to the check-up can be identified and contacted via the recorded WhatsApp or SMS number. The use of technology in patient monitoring is also one of the strategies implemented in increasing patient compliance in undergoing therapy.

*"The schedule of patients taking medication is in the aid book,"*So it can be seen which patients took their medicine that day or not, if the patient does not come to take their medicine I call them directly & also coordinate with the Posyandu cadres in the village & also the local village midwife to help contact the patient/family." (Informant 6)

This finding is supported by research by Widyaningsih et al. (2022) which states that the use of technology in health monitoring can increase patient compliance in undergoing long-term therapy. 37

Another strategy is to increase cross-sector coordination and community involvement in supporting the TB elimination program. TB program managers are working with local governments and local communities to increase support for the TPT program.

"These policies are very much needed, such as the Perbup on stunting. This TPT should also be like that, meaning from the Governor to the Regent level, so that it can be a basis for village governments in allocating budgets for TB elimination."(Informant 2)

"The sub-district can boost achievements by instructing villages to support the TB program through village funds, so that it can ease the work of the Health Office and Health Centers in handling TB."(Informant 1)

This finding is in line with the concept of Collaborative Governance (Ansell & Gash, 2007) which states that cross-sector coordination in health policy can increase program effectiveness and expand the scope of health services at the community level. 35

CONCLUSION

This study shows that the coverage of Tuberculosis Prevention Therapy (TPT) in Serang Regency is still not optimal, with various challenges in program implementation. The main factors that hinder the achievement of targets include limited human resources (HR), lack of socialization and public awareness, minimal cross-sector support, limited number of active TB cadres, and obstacles in drug distribution. Replacement of officers who have not received

training, high workload of health workers, and allocation of drugs that are approaching their expiration date also affect the effectiveness of the program. Although efforts have been made such as training of health workers, utilization of technology in patient monitoring, and cross-sector coordination, the implementation of this strategy still requires strengthening to be more optimal. Therefore, it is necessary to increase the capacity of health workers across programs and cadres who are trained in TB, continuous education to the community, optimization of drug distribution, and more supportive regional policies to increase TPT coverage and accelerate TB elimination.

REFERENCES

1. Floyd K, Glaziou P, Zumla A, Raviglione M. The global tuberculosis epidemic and progress in care, prevention, and research:an overview in year 3 of the End TB era. *Lancet*
2. Agustina, S., & Wahjuni, C. U. (2017). Knowledge and Preventive Action of Pulmonary Tuberculosis Transmission in Household Contacts. *Jurnal Berkala Epidemiologi*, 5(1), 85. <https://doi.org/10.20473/jbe.v5i1n2017.85-94>
3. Nurhidayati I, Sulistyowati AD, Dewi AYKS. Health Belief Penderita Tuberkulosis Paru Relaps Di Balai Kesehatan Masyarakat (Balkesmas) Wilayah Klaten: Studi Fenomenologi. *J Keperawatan dan Kesehatan Masyarakat Cendekia Utama*. 2019;8(1):17
4. Mar'iyah K, Zulkarnain. Patofisiologi penyakit infeksi tuberkulosis. *Pros Semin Nas Biol* [Internet]. 2021;7(November):88–92. Available from: <https://doi.org/10.24252/psb.v7i1.23169>
5. Kristini TD, Hamidah R, Masyarakat FK, Semarang UM, Kesehatan D, Jawa P, et al. Potensi Penularan Tuberculosis Paru pada Anggota Keluarga Penderita. 2020;15:24–8.
6. Global Tuberculosis Report 2022.” <https://www.who.int/teams/global-tuberculosis-programme/tb-reports/global-tuberculosis-report-2022> (accessed oct. 18, 2024).
7. Dinkes Banten : Profil Kesehatan Provinsi Banten Tahun 2022 (Internet) Dinas Kesehatan Provinsi Banten.2023. <https://dinkes.bantenprov.go.id/storage/dinkes/files/1109/PROFIL%20KESEHATAN/Profil%20Kesehatan%20Banten%20Tahun%202023.pdf>
8. Dinkes Banten : Buku Profil Kesehatan Provinsi Banten Tahun 2021 (Internet) Dinas Kesehatan Provinsi Banten.2022 https://dinkes.bantenprov.go.id/storage/dinkes/files/shares/BUKU%20PROFIL%20KESEHATAN/buku_profil_kes_banten_2022_opt.pdf
9. Dinkes Banten : Profil Kesehatan Provinsi Banten Tahun 2019 (Internet) Dinas Kesehatan Provinsi Banten.2021. <https://dinkes.bantenprov.go.id/storage/dinkes/files/1109/Profil%20Kesehatan/Profil%20Kesehatan%20Banten%20Tahun%202021.pdf>

10. Kementerian Kesehatan Republik Indonesia. Peraturan Menteri Kesehatan no.67 Tahun 2016 tentang Penanggulangan Tuberkulosis. Jakarta: Kementerian Kesehatan Republik Indonesia; 2016
11. Li, S., et al. (2021). *Training and Competence of Healthcare Workers in Tuberculosis Control Programs in China*. BMC Health Services Research, 21(1), 234.
12. IMPAACT4TB. Clinician Guideline 3HP-Rifapentine and Isoniazid Tuberculosis Prevention [Internet]. Johannesburg: The Aurum Institute; 2019. Available from: www.impaact4tb.org/library
13. Kemkes. Petunjuk Tehnis Penanganan Infeksi Laten Tuberkulosis (ILTb) [Internet]. Jakarta: Direktorat Jenderal Pencegahan dan Pengendalian Penyakit; 2020. 84 p. Available from: https://tbindonesia.or.id/wp-content/uploads/2021/01/Isi-Juknis-ILTb-FINAL-ok_published.pdf
14. Kementerian Kesehatan Republik Indonesia :Peraturan Menteri Kesehatan no 43 Tahun 2019 Tentang Pusat Kesehatan Masyarakat
15. Kementerian Kesehatan Republik Indonesia. Buku Petunjuk TB HIV bagi Petugas Kesehatan. Jakarta: Direktorat Pencegahan dan Pengendalian Penyakit Kementerian Kesehatan RI; 2016.
16. Waworuntu, W. (2019). Update Situasi Penanggulangan Tuberkulosis di Indonesia (Issue November). Direktorat Jenderal Pencegahan dan Pengendalian Penyakit (P2P) Kementerian Kesehatan RI
17. Dye, C., Watt, C. J., Hunt, T. K., et al. (2013). Financing and the Global Response to TB: The End TB Strategy. *The Lancet*, 378(9809), 953-964. [https://doi.org/10.1016/S01406736\(13\)61501-7](https://doi.org/10.1016/S01406736(13)61501-7)
18. Kemkes. Petunjuk Tehnis Penanganan Infeksi Laten Tuberkulosis (ILTb) [Internet]. Jakarta: Direktorat Jenderal Pencegahan dan Pengendalian Penyakit; 2020. 84 p. Available from: https://tbindonesia.or.id/wpcontent/uploads/2021/01/Isi-Juknis-ILTb-FINAL-ok_published.pdf
19. (SITB) Dinas Kesehatan kabupaten Serang. 2023
20. Kumar, A., & Xie, L. (2021). Barriers to tuberculosis treatment adherence in trust-based relationships in rural settings: A qualitative study. BMC Public Health, 21(1), 678. <https://doi.org/10.1186/s12889-021-10730-y>
21. Chimbindi, N., et al. (2020). *Managerial Competency and the Uptake of Tuberculosis Preventive Therapy in South Africa*. International Journal of Tuberculosis and Lung Disease, 24(3), 112-119