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# Generic Implementation Framework approach for public private mix in Tuberculosis control at a private hospital in Gresik, East Java, Indonesia

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## ABSTRACT

**Background and purpose:** Tuberculosis continues to be a concern at the global level. Indonesia is a high-burden country that keeps efforts through TB control programs by implementing a private-public mix (PPM) strategy. This study aims to analyze the implementation of PPM in a private hospital using the Generic Implementation Framework approach.

**Methods:** This study conducted a mixed method approach including quantitative and qualitative analysis of data with explanatory sequential design. The analyzed variables were the assessment elements used in determining hospital accreditation, variables to get an overview of PPM, and achievement of indicators. Quantitative data were analyzed descriptively, while the qualitative with thematic analysis.

**Results:** The quality of TB control at the hospital was under the accreditation standards. There was an increase in the number of patients treated but uptrend in the number of loss to follow-up patients in the last three years. The success rate of treatment in 2021 has not yet achieved as it was influenced by patients who were lost to follow-up and treatment failure. Supporting factors for the PPM implementation were the script of cooperation, commitment, cooperation, communication, mutual trust, maintained service quality, inter-dependence, and mutual benefit as inhibiting factors related to the management of treatment adherence.

**Conclusion:** The achievement of program indicators has yet to meet the target. Therefore, it is necessary to evaluate regulations, standard operating procedures, and cooperation scripts to reach the standard.

**Keywords:** Generic Implementation Framework, public-private mix, Tuberculosis, hospital accreditation

## INTRODUCTION

Among thirty countries with the highest TB burden, Indonesia is ranked second. As a country that struggles to close the gaps in the achievement of tuberculosis (TB) programs, the involvement of private health facilities is necessary. This approach can be a program to accelerate the achievement of the entry target in the final phase of TB. Partnership arrangements between the government and private sector in health services are carried out when the government has limitations in terms of access to facilities.<sup>1-2</sup> Following WHO recommendations, the partnership concept implemented in the TB control program is a private-public mix (PPM), which invites non-government parties to participate in providing TB services.<sup>3</sup> The implementation of PPM has been shown to improve the detection and resolution of delayed treatment cases in several countries, such as Nigeria, Myanmar, and India.<sup>4-6</sup> The PPM strategy can lessen the financial burden of patients who received TB services.<sup>7</sup>

Fragile partnerships between the public and private health facilities, resource constraints, distrust between the public and private sectors, limited incentives for the private sector, and oversight of service quality remain threats to the sustainability of PPM. Therefore, it is necessary to strengthen collaborative work to overcome problems in implementing PPM.<sup>8</sup> Treatment services at privately owned facilities identified have a high rate of loss to follow-up (LTFU), especially in patients seeking treatment in service facilities not near their homes, so it is necessary to improve the validity of reporting results and reduce patients with LTFU.<sup>3</sup>

Indonesia has implemented PPM, however, the two main indicators of the program such as the treatment coverage and the success rate of treatment, have yet to reach the target.<sup>9</sup> In 2022, the treatment coverage only reached 68% of the target of 90%, while the success rate of treatment reaches 84% which is below the specified target of above 90%. Low achievement of this target will certainly affect the achievement of Indonesia's TB Elimination which is targeted to be achieved in 2030. East Java Province is one of the provinces with the highest number of estimated TB patients in Indonesia. The achievement of the TB control program target, apparently was also below target, for treatment coverage in 2022 reached 69%, and the success rate of treatment 89%. The involvement of the private sector, in this case hospitals, is needed to increase the notifications. In 2012 the number of hospitals that carried out TB services was around 30%, including government, state-owned hospitals, military hospitals, and the private sector. Since 2018, there has been an increase in the reach of 48.4% of hospitals providing TB service.<sup>10</sup>

Gresik has not achieved the target of the TB control program and there are already non-government-owned hospitals that have been involved which so far have never been evaluated comprehensively, as part of the quality of the hospital accreditation program and as an output in the form of program achievements. In implementing health programs, the generic implementation framework (GIF) approach can be used to find out how it is implemented from the pre-implementation stage, process implementation to post-implementation.<sup>11</sup>

The purpose of this study is to understand the implementation of the PPM in referral health facilities in Gresik, East Java including evaluating the results of program achievements with analysis of the trend of presumptive findings, trend of new cases findings, number of delays in diagnosis enforcement, the trend of LTFU, the percentage of treatment success, and the complete treatment in the hospital. In addition, we analyzed the supporting factors and obstacles of the PPM implementation.

## METHODS

### Study Design

This study used an explanatory sequential design by the Creswell model with the mixed method approach. Researchers obtained quantitative information and then outlined the findings deeper through qualitative exploration.<sup>12</sup> The quantitative data were collected from medical records at the TB information system (SITB) of presumptive and TB cases in 2020. The qualitative data for implementation of PPM was obtained from 9 key informants and 4 critical informants. The key informants included the director, management, TB team leader, internal network coordinator, external network coordinator, recording and reporting coordinator, person in charge of the pharmacy, and laboratory analyst from the studied hospital. The critical informants were the District Health Office (DHO) which consists of the head of the disease control division, the person in charge of the TB program, and the District Technical Officer TB Private Sectors (DTO-TBPS). Furthermore, these respondents were coded R1 to R13. The population of the study were all implementers of TB management programs in health facilities in Gresik. Whereas the sample was the TB team at a private hospital and the staff of Gresik Health Office.

### Data Collection

The research began with the collection of quantitative data regarding the assessment of hospital accreditation standards regarding the National TB Control Program, and the achievement results of program indicators in the hospitals. The collection of these data through interviews, observation, and documentation of the respondents, and for program achievements the data was taken from SITB of the hospital. Quantitative data from the results of the accreditation assessment then assessed for the total score.

The assessment components of the national hospital accreditation standards such as regulations, TB teams, promotional activities, monitoring and prevention efforts, health promotion implementation reports, outpatient rooms, inpatient rooms, specimen collection rooms, adherence to the standard of care, planning and provision of anti-TB drugs, Multidrug-resistant (MDR) TB services, recording and reporting also investigated in this research. Furthermore, data were collected from patient medical records from 2020 to 2022 to calculate the achievement of program indicators including 1) Proportion of internal referrals, 2) Number of presumptive findings, 3) Percentage of new patient findings, 4) Percentage of late diagnosis, 5) Percentage of loss to follow-up, 6) Succeed rate.

Researchers collected several quantitative data. The data of PPM implementation included operational agreements, communication, dependencies, mutual trust, financing, synchronization of activities, supervision, evaluation, and capacity building. To collect qualitative data for the implementation of PPM, in-depth interviews were carried out with the director, the head of the Hospital TB Team. The results of accreditation, achievement indicators, and implementation of PPM became material for FGDs, to obtain factors of success and obstacles in implementing TB control programs, and to formulate improvement efforts that had to be made on the identified obstacles.

### Data Analysis

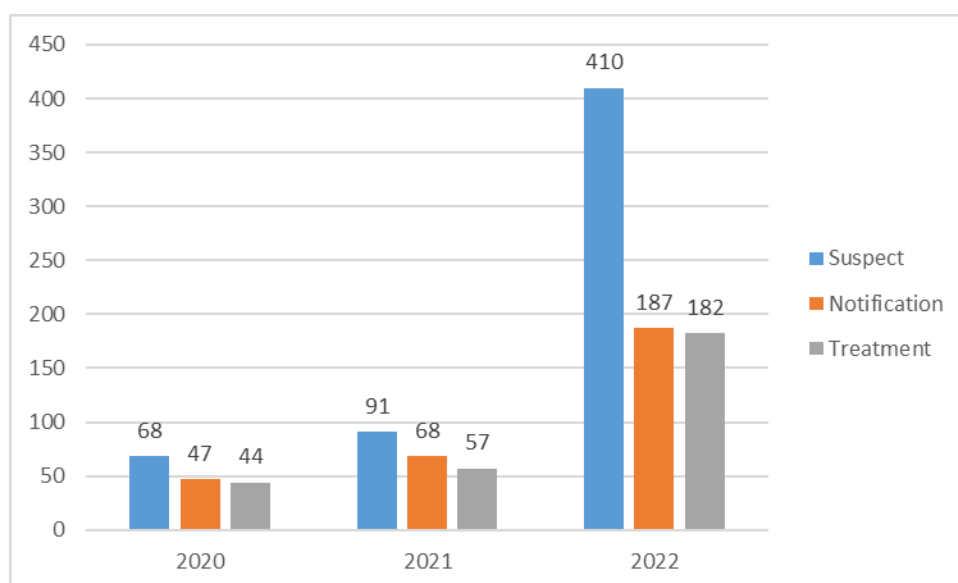
Quantitative data were analyzed descriptively in the form of percentage calculations, comparative proportions, and trends from the achievement indicators for finding and treating TB patients in hospitals. For FGD qualitative analysis was also carried out to help determine the causal factors of success and inhibition in implementing TB control programs, through thematic analysis.

This study has been approved by the health research ethics committee of RSUD Haji Provinsi Jawa Timur

(No. 073/01/KOM.ETIK/2023).

## RESULT AND DISCUSSION

The studied hospital will begin implementing the national TB control program starting in 2020. The results of the presumptive finding and TB patients in the hospital can be seen in Figure 1. The positivity rate or proportion of TB patient among presumptive was at 45.6% (187/410) in 2022. The achievement was lower than in 2020 which was at 69% (47/68), and 2021 at 74% (68/91). The flexibility for determining TB presumptive is important to capture as much as possible as a preventive effort, the discovery of TB patients as early as possible, and treatment to reduce the risk of transmission. There is a difference in the number of patients notified and those treated, giving the idea that there are a few patients who moved or were referred to other health facilities before treatment began.



**Figure 1. Presumptive who were notified as TB patients and treated at private hospital in Gresik, 2020-2023 (source: SITB of the hospital)**

For the treatment of TB patients, 100% of TB patients were given treatment. However, there was one patient who experienced delays more than one week delay in treatment, as can be seen in Table 1. Information from the respondent showed that the results of the rapid molecular test (RMT) examination from the examining public health center were delayed because they felt that there were no more complaints. After tracking the patient's home visit, they finally wanted to seek treatment again.

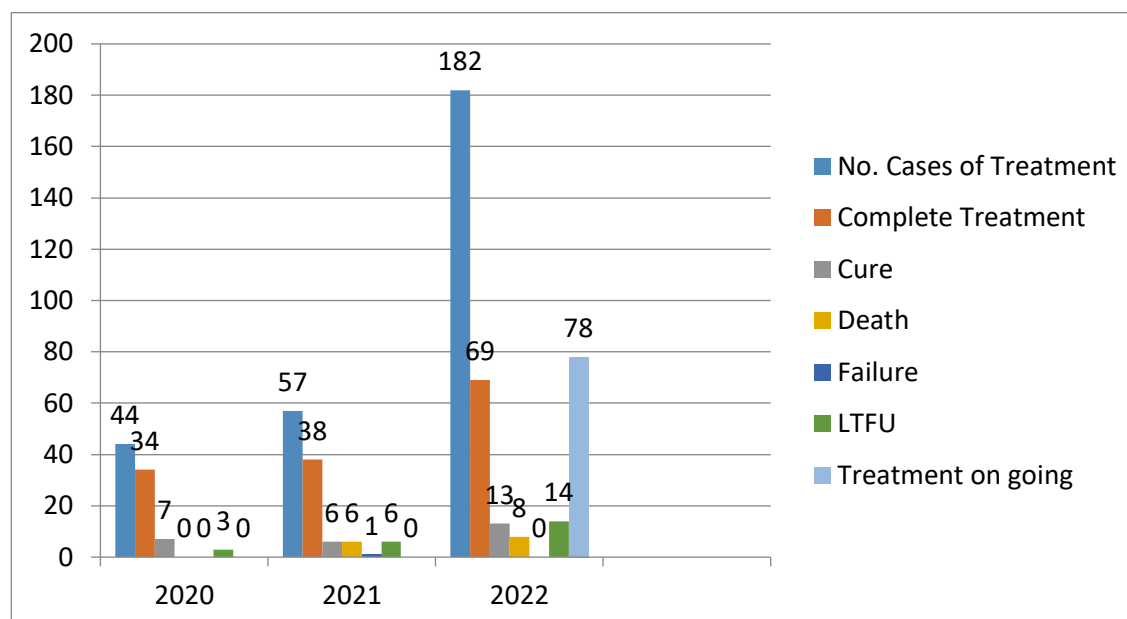
The results of the notification of TB patients who were treated showed the success of treatment at this hospital and would certainly contribute to the performance of the TB management program in Gresik. The data from R5, laboratory form, in 2022, showed that the notification of new patients treated at the hospital contributed for 6%. In comparison to other non-government-owned hospitals, the contribution of this hospital is ranked second.

For the data on eleven assessment elements of the national TB control program based on hospital accreditation standards, ten elements were appropriate and proven by data or supporting documents, so that it gets a perfect score of 100. There is one element that cannot be assessed, namely the treatment of TB multiple drug resistant (TB MDR) patients which were not carried out at this hospital.

**Table 1. Number of new cases with delay treatment at private hospital in Gresik**

Year	Number of New Cases	Number of Treated Cases	Number of delay treatment cases
2020	44	44	0
2021	57	57	0
2022	182	182	1 (>7 days since diagnosed with TB)

(Source: SITB of the studied hospital)



**Figure 2. The number of treated patients and the number of final evaluations of treatment in 2020-2022 at a private hospital in Gresik (Source: SITB of the hospital)**

Based on our exploration, activities conducted in the process of implementing PPM in the hospital include screening, treatment services, supporting examinations, sending specimens for RMT supporting examinations, educational and information communication (IEC), officer training, recording, reporting, provision of oral anti TB (OAT), BCG vaccine, and recording forms, receiving presumptive referrals from primary health facilities. Then other activities are integrated and carried out by the district health office (DHO) according to its authority in the national TB management program: supervision, monitoring and evaluation, advocacy, distribution of OAT, facilitation of specimen referrals, tracing of absentee patients, and contact investigation. The RMT examination is carried out by a health center determined by the DHO.

PPM strategy implementation is one of the methods to accelerate the achievement of TB elimination in Indonesia by 2030 and to solve the limited access from government-owned health facilities. Partnerships with referral and primary health facilities is part of the PPM process. The studied hospital is one of the 18 non-government-owned hospitals in Gresik that have implemented a national TB mitigation program. The partnership started after the signing of a cooperation agreement between the hospital and the DHO, and a referral cooperation agreement with the nearest health facility that has supporting examination facilities, such as RMT, in this case, the public health center. In this study, we identified the cooperation agreement with the DHO that consists of an agreement from each institutional leader in terms of rights and obligations of the parties, responsibilities of the

parties, implementation of activities, and period of agreement. The agreement included a form of commitment.

From the thematic analysis of FGD, some factors supported the PPM implementation process in this hospital. In addition to the commitments previously discussed, internal and external cooperation, established communication, mutual trust, and maintained service quality, interdependence, and mutual benefit. Meanwhile, an obstacle is monitoring patients that were loss to follow up. The description on the qualitative part of the study is discussed below.

In the studied hospital there has been an increase in TB presumptive, especially in 2023, due to screening activities for visitors and patients. Screening as a prelude to its implementation in the process of implementing TB PPM in the hospital was carried out comprehensively.

*"....it is necessary to carry out screening for the prevention of transmission as well as the netting of new case findings. Screening is carried outpatient, in the emergency room and inpatient care facility, security guards or registration officers on an outpatient basis if they find a presumptive directly directed to counter C, to do special registration, continued to the TB polyclinic. In the emergency room, if the hospitalized patient is presumptive of TB, he/she immediately pass the room, and a RMT examination is carried out. For hospitalization, screening all non-TB patients is done if there are changes. If there are clinical complaints of TB, the patient will move to another room." (R2)*

This screening, which could then separate hospital visitors as TB presumptive from other visitors, is carried out by frontline officers who also serve as security in front of the entrance. In Gresik District, there are three primary health facilities specifically affiliated with the studied hospital. If they find a presumptive, then the cases will be sent to this hospital.

As for the TB treatment results, the increasing number of TB patients treated was followed by a decrease in their success rate because some patients died and loss to follow up (see Figure 2). Failures in treating tuberculosis occur as the result of inadequate dosages due to irregular OAT consumption. Loss to follow up patients continue to exist every year, and with more TB patients detected, there is potency to have an increased loss to follow up.

*"..... Patient's loss to follow up occurs most patients come from out of town, and fishermen's jobs, there is a stigma.....and patients choose treatment that is far from home other than work because there is still stigma in society." (R3)*

To reduce loss to follow up, we recommended a preliminary assessment should be carried out before treatment began by providing more counselling by paying attention to the patients' age, occupation and address, comorbidities, and side effects after the initial treatment. Preliminary identification was carried out if a patient could not come to take medicine and could not be contacted to be informed by the DHO. According to the operational cooperation script, the DHO would slow down the missing patient. Preliminary information regarding TB patients who were potential to be loss to follow up could not be detected in the SITB, so it was proposed by the researchers that there was an initial notification if there were TB patients who arrived late.

Low of medication adherence increases the risk of poor outcomes, including treatment failure, recurrence, and development or increase of drug resistance.<sup>13-14</sup> There is an increase in drug resistance because of incomplete treatment. TB patients missing treatment will increase the risk of drug-resistant tuberculosis.<sup>15</sup> In MDR TB patients on treatment, the outcome ranges from 64%.<sup>16</sup> Patients with MDR TB, in their treatment are often associated with adverse drug effect events, absenteeism and treatment failure.<sup>17</sup> There is a risk of increased LTFU, so the hospital should also start treating MDR TB patients.

From the results of the assessment of elements of national hospital accreditation standards, it was obtained



from observations of the suitability of inpatient, outpatient with Infection Prevention and Control, that there was no HIV-TB service. If there is a pulmonary TB disease with HIV comorbidities, it will have a significant effect on the success of treatment.<sup>18-19</sup> One of the most difficult infections that humanity faces is TB, followed by HIV. The main risk factor for turning latent *Mycobacterium tuberculosis* (MTB) into an active illness is HIV. Tuberculosis is the leading cause of death for PLHIV. Both illnesses place a heavy pressure on the world's health care systems. Over the past two decades, persistent initiatives in public health and research on medicinal advancements and prevention have eased TB and HIV are largely responsible for morbidity and mortality, but more must be done.<sup>20</sup> So, TB patients need to be tested for HIV, as well as HIV patients need to be screened for TB in one hospital. Obstacles are experienced related to HIV TB services. Some TB patients refused to be examined for HIV, especially TB patients of pediatric age, as stated by R3.

This study found the suitability of PPM implementation with the GIF approach, where at the pre-implementation stage preparations were made with increasing the capacity of human resources included in training, installation of TB information systems.

*"The strategy team must be formed, having clear job description, technology assistance information, enthusiastic, for honorarium because of the side jobs, no additional fee, and this is part of loyalty." (R1)*

The formation of this team must be followed by an increase in the skill of officers, i.e., attending training, added the respondent.

*"TB medical and program officers have attended the TB national program training at their own expense." (R1)*

In addition to the above strategy, at the stage of the implementation process, cooperation is considered as supporting factor. Cooperation is the equality of two parties who agree to engage in cooperative activities and have made formal written agreements. Partnership is a collaborative relationship agreement between two or more people to pursue shared objectives.<sup>21</sup> As part of the public private partnership concept, a contract is necessary in PPM to avoid unacceptable deviations and protect the public interest. At the same time, public private partnership is a contract agreement between the private sector and the government, where the two are combined in empowering their respective expertise and abilities to improve services to the public to provide the best quality service at an optimal/efficient cost to the public.<sup>22</sup>

Five forms of partnership are used in collaborations between the government and the private sector: service contracts, management contracts, lease contracts, build contracts and concession contracts.<sup>23</sup> The National TB control program with the PPM partnership method includes partnership management as a service contract. Then, due to the complexity, partnership turns into a solution because just one actor cannot do it; instead, there are two or more parties who collaborate to attain shared objectives.<sup>24</sup> Related to governance, conveyed from the results of their research that good governance in partnerships is essential for partnerships to be more effective and sustainable.<sup>25</sup>

Communication, which can take place through telemedicine or online social media groups, is the sharing of information in the form of sending messages from the message giver to the recipient of the message between officers who operationally carry out TB service activities in the hospital and external parties, in this case starting with TB programmers at the DHO. In addition to conducting IEC to patients so they can adhere to treatment, it is also necessary to target the community to take precautions and check themselves if there are signs or symptoms. In an era of information technology advancements, using mobile communication can provide an alternative method of accessing health care, particularly in situations where face-to-face contact is challenging. Various types

of mHealth interventions have been used to increase PPM in TB services such as schedule appointments for treatment time, support patient screening activities and case notifications, refer and follow-up patients, monitor compliance with TB treatment, manage data, and train TB officers.<sup>26</sup>

Trust is one of the elements that affects a partnership, along with commitment, cooperation, and communication.<sup>27</sup> In PPM, some materials must constantly be available, particularly pharmaceuticals and reagents for laboratory testing, and it must be specified in the collaboration script in their respective topics and obligations who delivers and distributes them. Another factor that increases confidence is the requirement to send notification to the facilities who refer the patients so they are aware with the patients' progress. The ability of each party to refer patients with confidence is the second most crucial factor. The medical decisions made by each party when referring must be reliable because they will significantly impact the subsequent medical decisions made by the party who received the referral for a TB patient, including a shared commitment to patient confidentiality. PPM is a tried-and-true method for ending tuberculosis globally.<sup>28</sup>

Service quality means that the goods and services offered must meet or exceed medical requirements and preserve the quality of the laboratory. The officers involved in PPM implementation in government-owned and privately-run health facilities must follow technical instructions and undergo standardized training. Standardized TB countermeasures services will certainly provide services without any difference according to the level of health facilities. Private hospitals can deliver high-quality medical care, make it simple to access them, and perform social health services at least as well as government-owned public hospitals. Due to TB patients' difficulty accessing government-owned hospitals, PPM is an effort to preserve the caliber of TB treatment services in private healthcare facilities. The same thing was obtained by Izudi *et al*, (2020), it turns out that there is no difference in the results of pulmonary TB treatment in privately owned health facilities with government ones. According to Stallworthy *et al*, (2020), PPM has improved detection and treatment outcomes among patients seeking TB treatment with private providers. This studied hospital has been accredited with plenary (*paripurna*) status.

In PPM, the public and private sectors will implement a patient referral system that will foster interdependence in coordinating care under unique circumstances because of resource constraints. The relationship between actors, institutions, and their associations is one of dependence, because actors at some point in time, depending on other actors and institutions, whilst institutions depend on actors to produce.<sup>29</sup> Collaborative interdependence becomes a sign of cooperative interaction.<sup>30</sup>

Interestingly, as a non-government-owned hospital, it will benefit from the PPM implementation process such as getting financial support from the Global Fund through the DHO in the form of packaging and transport costs for specimen delivery, free OAT provision, sputum pot facilities, and recording forms. Private hospitals will make money under PPM from the care of TB patients rather than individuals with health insurance and patients who participate in health insurance. Partnership as an association of two or more parties equally conscious of giving mutual benefits and receiving more significant benefits to achieve goals more effectively.<sup>31</sup> Maintain long-lasting and mutually successful collaborations in TB services, the public and private sectors must respect one another's individuality, collaborate as equal partners, and share resources.<sup>32</sup> The studied hospital has prepared financial support if external financial aid no longer exists.

In the study, it was found that there were obstacles to the implementation of PPM, namely the management of loss to follow up patients, as previously described. With the constraints and to ensure the implementation of PPM in private hospitals, monitoring and evaluation must be carried out by impartial parties. The monitoring team, comprised of academics and relevant professional organizations, then periodically monitors the cooperation process. Furthermore, they will monitor the agreement that entitles both parties to carry out each other's rights



and obligations that have been written. If the rights and duties are not fulfilled, an evaluation will be carried out to improve the performance of parties who do not meet and terminate cooperation.

In the post-elimination stage, there has been an increase in the percentage of notification rates and treatment success rates. The national TB program can become one of the priorities to be implemented in non-government-owned hospitals, especially from social angle. The weakness of this study is that it does not involve the role of other non-government parties, namely community empowerment which also supports the implementation of TB programs in hospitals.

## CONCLUSION

The TB program achievement remains yet to meet the standards. There was an increase in the number of TB case findings per year, however, treatment success rate was low. The supporting factors in implementing PPM were commitment, internal and external cooperation, established communication, mutual trust, maintained service quality, interdependence, and mutual benefit. The evaluation indicators of the program were regulations, SOP, and operational cooperation scripts, especially for handling loss to follow up. In the Generic Implementation Framework approach to partnership-based health programs, it is necessary to add a partnership element. PPM approach is potential to support the achievement of national TB program, hence its implementation should be well planned, executed and evaluated.

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## AUTHOR CONTRIBUTION

Ansarul Fahrudha: Conceptualization, data analysis, writing draft of manuscript and editing;  
Kusbaryanto: Data collection, visualization, analysis, writing draft of manuscript and editing

## CONFLICT OF INTEREST

All authors declare that they have no conflicts of interest.

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Not Applicable

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