

Article

Identification of new cases of tuberculosis during the COVID-19 pandemic using model strategic management

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Abstract

Introduction: Tuberculosis (TB) is a world health problem that causes the third-largest death after cardiovascular and respiratory diseases. One of the causes of transmission of environmental factors is controlling the mobilization of individuals suffering from tuberculosis. This research aims to develop a strategic model of finding new TB cases based on region.

Method: This descriptive research utilizes primary and secondary data. Variables consist of geographical and demographic characteristics, resources, tuberculosis prevalence, and indicators of tuberculosis response processes. The TB management planning model document is based on the experiences of health centers Perak Timur, Wonokromo, and Siwalankerto in maximizing TB case detection.

Results: The management model outlines policies and procedures based on the variables. For example, the detection of new TB patients became a priority at the health center in Perak Timur. In contrast, the health center in Wonokromo focused on developing cadres and private practice physicians.

Conclusions: This research provides an overview of the aspects that need attention and improvement by discovering different new cases in each region.

Introduction

The struggle became a big challenge during the pandemic, particularly in eliminating Tuberculosis (TB) disease. As a result, WHO declared the disease caused by Mycobacterium Tuberculosis (MTB) a global public health emergency since 1993.¹ Indonesia is one of the high burden countries with TB and ranks fifth after India, China, South Africa, and Nigeria.^{2,3} TB is a problem in Surabaya since almost every health center gets more than ten patients.^{4,5}

The neglect of tuberculosis during this pandemic has led to more complicated issues affecting health, social, economic, and mortality rates.^{6,7} In the TB countermeasures handbook, every health service is expected to make fundamental efforts to create

and implement regional-based strategy management to identify new case discoveries. Furthermore, they should create and implement regional-based TB strategy management to identify new case discoveries. However, none of the available health facilities has created or implemented this strategy.^{8,9}

The discovery of lung tuberculosis cases was neglected because most activities focused on solving COVID-19.¹⁰ However, this is not a reason to abandon the investigation of certain TB patients who seek treatment at the Public Health Center.^{11,12} In this study, the discovery of lung TB cases was more on the family approach and the environment around people with pulmonary TB,^{13,14} which has not been carried out in research.

A series of strategic management processes to identify new regional-based TB cases is needed to determine the direction and focus of TB prevention in its region. For this reason, specific needs can promote the successful prevention of TB disease in each region.^{15,16} Based on some previous problems, a research needs to be conducted on the new regional-based TB case discovery strategy management model in Surabaya. Regional strategies are management made in an integrated and data-based or fact-based area by utilizing clinical information, epidemiological, administrative, and demographic facts.^{17,18} This research compiles a model management strategy and discovers new regional-based TB cases in Surabaya.

Research Methods

This qualitative research with a case study approach was conducted in April-June 2021 at three health centers in Surabaya, namely Perak Timur Health Center, Wonokromo Health Center, and Siwalankerto Health Center. These three locations are selected based on the characteristics of Surabaya regions with a high average TB prevalence during the previous five years. The population was employees of Perak Timur, Wonokromo, and Siwalankerto Health Center. The sample is based on two criteria of core informants, namely officers involved in TB countermeasures program activities. In contrast, key informants are TB supervising representative of Surabaya City Health Office and nurses who hold TB

Significance for public health

The neglect of Tuberculosis (TB) during the pandemic has led to more complicated issues affecting health, social, economic, and mortality rate. In the TB countermeasures handbook, every health service is expected to make fundamental efforts to create and implement regional-based strategy management to identify new case discoveries. Furthermore, they should create and implement regional-based TB strategy management to identify new case discoveries. However, none of the available health facilities has created or implemented this strategy.

programs. The sample used was 10 informants; three from Perak Timur, three from Wonokromo, three from Siwalankerto, and one from TB supervising representative of Surabaya City Health Office as a key informant. The research uses a system approach theory consisting of inputs, processes, and outputs through in-depth interviews. The contents of the questionnaire inputs include human resources, infrastructure facilities, budget, policy, SOP (Standard Operational Procedure). Furthermore, the process includes planning a TB treatment program, structure, active discovery of TB patients, passive discovery of TB patients, supervision, and evaluation. The output includes the number of TB patients in three health centers for one year, namely in 2020.

Results and Discussions

The results of data analysis based on identification are displayed in the form of fish bones and through strategy theory, including process input and output arranged in the principles of strategic management. These processes include environment scanning, formulation strategy, implementation strategy, evaluation, and control. The initial stage of a strategic management process is to perform a situation analysis on three Surabaya health centers, namely Perak Timur, Wonokromo, and Siwalankerto, and they have different lung TB sufferers in the high, moderate, and low categories.⁸

Strategic steps are carried out to find new cases of lung TB sufferers through planning with several steps. First, the assessment process is carried out with staff in the Pulmonary TB program at both health centers, involving village cadres who have conducted some coaching and training by the community health center. Then, the source of the issue was described using fishbone diagrams. Next, the reason for the selected problem was narrowed down to

various problem-solving options. Finally, the problem-solving alternatives were picked using the CARL method, and the planning was compiled. Each stage at each health facility is detailed in Figure 1.

The problem of the high prevalence of pulmonary TB in the working area of Perak Timur Health Center based on fishbone diagrams is caused by several factors, including the method of handling, human resources, and the environment. In terms of countermeasure methods, Perak Timur Health Center has continued to use passive case networking and tuberculosis health promotion, namely netting cases and conducting health promotion only on individuals accessing health services at the center. Additionally, numerous organizations and agencies have established no partnerships related to tuberculosis countermeasures. In terms of human resources, Perak Timur Health Center has not met the minimum standard of human resources trained in TB management for the PRM category. Finally, judging from the environmental aspects of the working area of Perak Timur Health Center classified as a densely populated area, most of its people are in the category of common welfare.

A problem solver selected in this region cannot discover TB cases using passive case-finding methods. Therefore, alternatives developed from the causes of the selected problems. They produced problem-solving alternatives to increase community participation and support ACF with TB screening campaigns through counseling, empowering midwives, and village health post nurses. Furthermore, they establish cooperation with integrated service post cadres to net TB suspects in the working area of Perak Timur Health Center. The alternative to solving the problem using the CRL method is to increase public knowledge about ACF with a TB screening campaign through counseling during citizen meeting activities every month. However, the pandemic period of the meeting is conducted through zoom meetings, and counseling on TB disease is also achieved in conjunction with the meeting. Strategy Management Model identifies new TB case discovery in

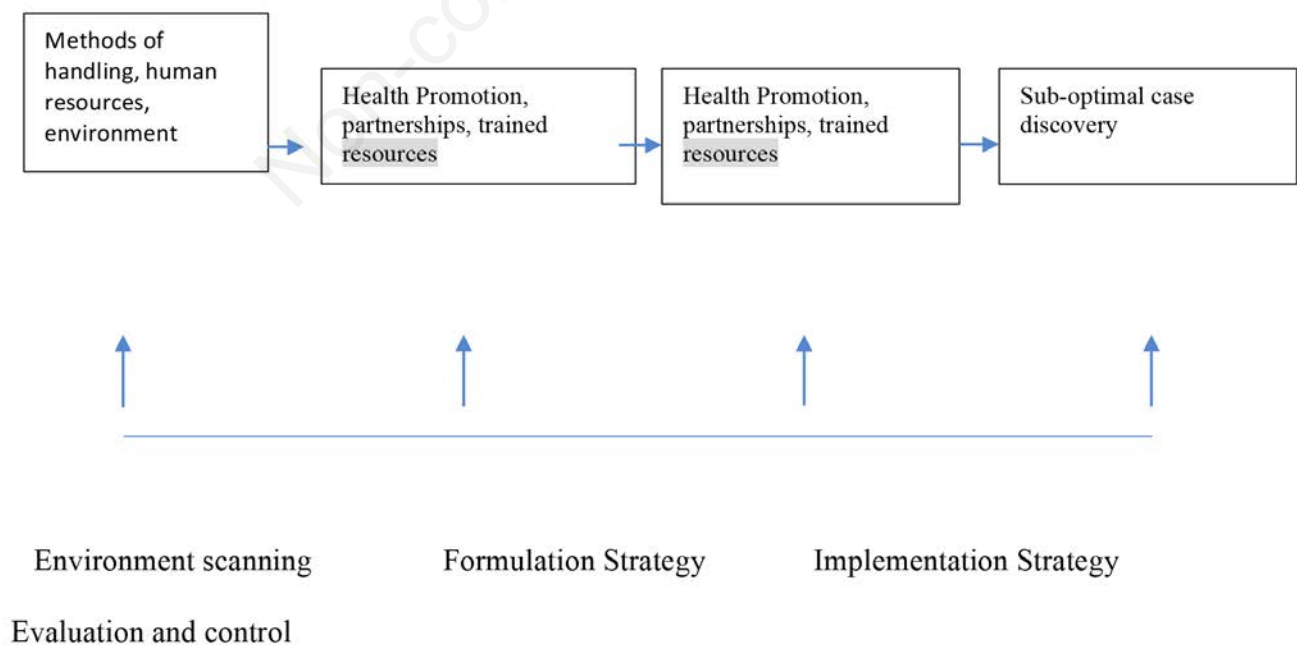


Figure 1. Strategic steps find new case of lung TB sufferers.

Wonokromo Health Center with moderate prevalence average (Figure 2).

Wonokromo Health Center is an area with an average prevalence of 7 out of 14 over the past three years. An overview of the factors or causes of great TB problems illustrated in *fishbone* diagrams in terms of methods is that the Health Center applies TB case networking passively. Meanwhile, partnerships with several organizations and agencies have not been established and has not met the minimum standard of trained tb management for the PS category. The working area is classified as a very densely populated area.

The establishment of a partnership between the community health center and private practice doctors is the cause of selected problems in this region. Alternatives developed from the underlying causes of the selected problem, resulting in problem-solving alternatives include providing TB countermeasures training under DOTS standards for DPS, inviting DPS to send patients suspected of tuberculosis and reporting to Wonokromo Health Center, enacting regulations that TB patients accessing health services in the DPS are guaranteed treatment until they are cured.

Selected troubleshooting possibilities from several attempts utilizing the CARL is to establish and promote a ministry of private practice physicians responsible for referring patients to Wonokromo Health Center. A series of steps led to the arrangement of model documents to manage the identification strategy for discovering new tb cases based on the region in the working area. As a result, the management program's name for identifying new cases of TB in the region is "Unyielding Overcome TB (Pamera kolaborasi TB)". The purpose of the program is to pursue a partnership between the community health center and private practice doctors in the working area of Wonokromo Health Center. These include several indicators of the success of activities, specifically in partnership cooperation with private practice doctors, Composed MOU Pamera collaboration TB, the formation of the organization Pamera Collaboration TB and formed a work and follow-up plan Pamera collaboration TB with sending the report of

each TB patient to Wonokromo health center.

A summary of the factors/causes of significant TB issues at Siwalankerto Health Center in terms of methodologies is shown in fishbone diagrams. Siwalankerto Health Center has passively used TB case networking, specifically noting instances in persons seeking health services at health centers and establishing collaborations with several organizations and instansi (Figure 3). However, it has not satisfied the minimal criteria for human resources educated in TB management for the ppm category. Furthermore, the working area is classified as a region with a dense population.

Inadequate detection of TB patients using the passive case finding approach is the source of difficulties in the active area. This shows that other methods of resolving the issue were devised and adopted. These methods are educating positive BTA TB patients to detect the possibility of TB suspects in their environment, conducting home visits to all BTA positive TB patients to determine whether or not the transmission is occurring nearby, empowering midwives, nurses, and posyandu cadres to catch TB suspects in the region, and establishing cooperation with posyandu cadres to catch TB suspects in the Siwalankerto Health Center's working area. Selected troubleshooting alternatives from multiple troubleshooting using the CARL are to educate patients with positive BTA TB to detect the possibility of TB suspects around the home environment.

The sequence of actions culminated in creating a model document to manage the strategy of discovering new TB patients depend on the region in Siwalankerto Health Center's operational area. The name of the TB prevention program in the region is Find and cure TB patients Siwalankerto Health Center (Tebus TB Sito). The program aims to optimize the discovery of TB suspects by establishing TB care komunitas in the Siwalankerto region. There are several indicators of the main activities of this program, namely the formation of the Tebus TB community in Kutisari Subdistrict, the existence of socialization and declaration of the TB Tebus community, and the establishment of a follow-up plan with the existence of five main agenda activities of the Tebus TB Sito

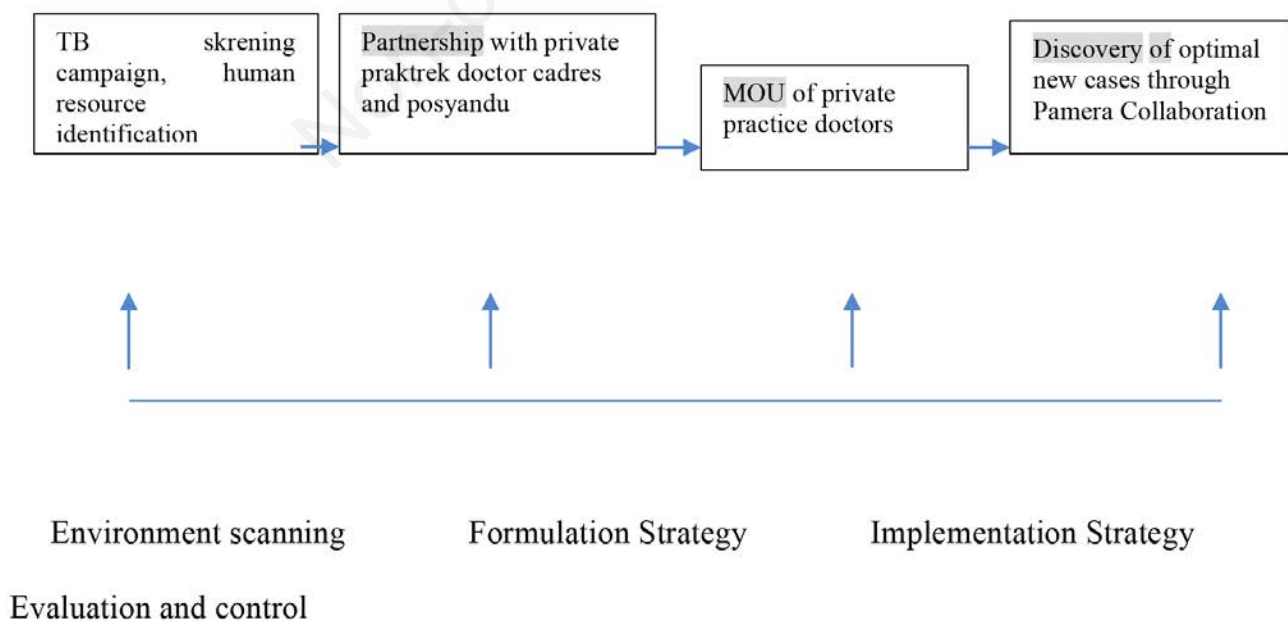


Figure 2. Model management strategy of finding new TB cases Wonokromo Health Center (Wheelan and Hunger 2008, modified).

community.

The management strategy model of finding new TB cases in Perak Timur Health Center with the highest average prevalence has a selected problem-solving alternative to increase public knowledge on ACF with a TB screening campaign through counseling with *meting zoom* media. This is conducted considering that the situation is still in pandemic at data retrieval. For the Asian region, there are three million undiagnosed TB sufferers, specifically in countries with a *high tb burden*, including Indonesia. This occurs because the discovery of active TB suspects and information about screening is not widespread.^{1,19}

Interventions are undertaken to identify new cases of TB are reducing diagnostic delays. This can be achieved through active promotion and active discovery or *active case finding*, increasing the proportion of cases identified. As a result, the duration of transmission can be shortened since the model of management of TB new case discovery strategies for the working area of Perak Timur Health Center is similar to Figure 1.^{20,21} The discovery of new cases of region-based TB was conducted through active promotion and counseling with *meting zoom* media. The implementation of these efforts certainly involves the active role of posyandu cadres, health extensionists, and TB management program holders.^{21,22}

The problem-solving model for managing a novel TB case finding method in the Wonokromo Health Center area was conducted with a high incidence of TB. This fosters a private practice physician partnership to send tb suspect patients to Wonokromo Health Center. Based on data from the TB prevalence survey, the Ministry of Health shows that TB sufferers use health services in the community health center and general practitioners.^{8,23} The Decree of the Minister of Health No. 364 of 2009 also explained that private practice doctors are one element of health care efforts and centers. Furthermore, TB cases should be reported to the Health Service to increase the number of recorded case findings.^{24,25}

The strategy management model in Figure 2 of lung TB case discovery strategies in the Wonokromo region is produced accord-

ing to existing theories and needs. The partnership of Puskesmas with private practice doctors is one element of health care efforts and health centers. They should report TB cases or make patient referrals to the Health Center to increase the number of recorded case findings.^{24,26}

The strategic management model of finding new TB cases in the wonokromo Health Center work area generates existing theories and needs. The partnership of community public health and private practice physicians is indispensable. Wonokromo Health Center's work area has the highest density among the other two regions. The region has 6 private practice doctors.²⁵ Planning to realize and foster the partnership is expected to embrace all private practice doctors to carry out several activities of TB sufferers such as in hospitals and pulmonary disease treatment centers.^{8,27} Under certain conditions, private practice doctors can refer patients and specimens back to the health center for treatment and subsequent supervision.^{28,29}

Finding new cases of lung TB at Wonokromo Health Center, where the incidence is lowest, has been made easier by using a management plan that promotes patients with positive BTA TB tests to act out the prospect of encountering TB suspects in their immediate surroundings. The management model of lung TB case discovery strategy previously applied in the working area relies heavily on awareness of people's behavior seeking health care. This is the weakness in most developing countries, including Indonesia. The downside of this strategy is that when infectious patients do not arrive early or refuse to visit the health facility, they will remain a source of new cases among the public.^{15,30}

The management model in Figure 3 of the new lung TB case discovery strategy produced at Siwalankerto Health Center focuses on finding cases among people closest to patients. WHO stated seven recommendations to prioritize risk groups for active TB screening. The recommendations are divided into two, namely strong and conditional. One of the groups that received strong recommendations for active TB screening was people in one house and those having close contact with sufferers. The main purpose of

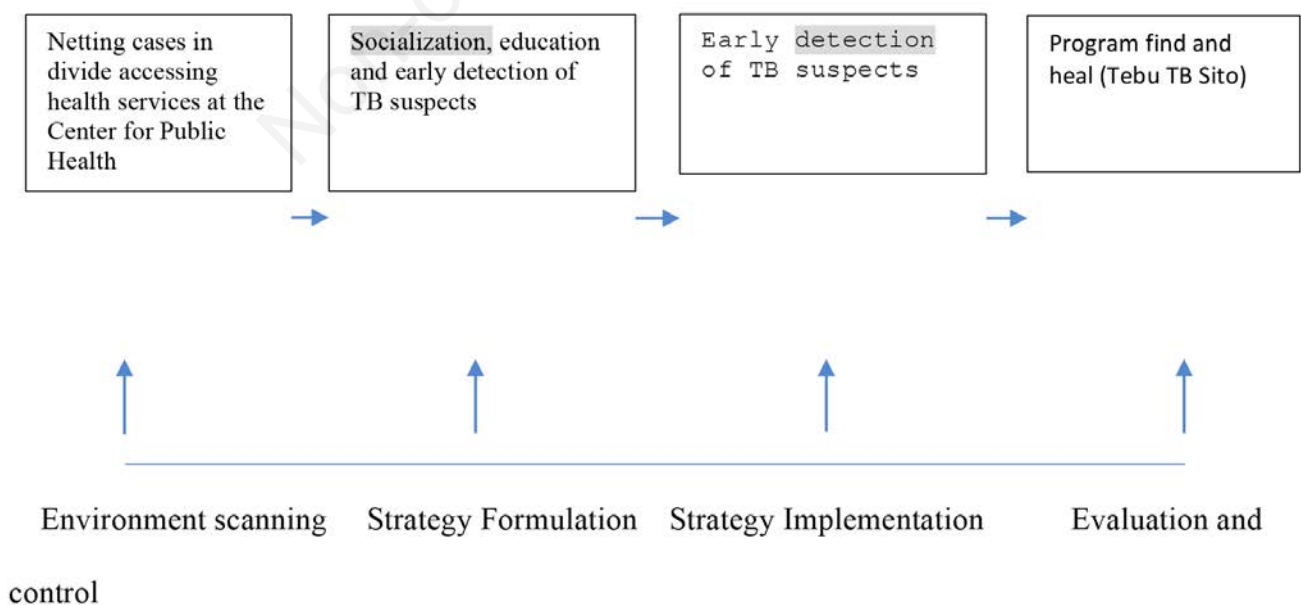


Figure 3. Model management strategy of finding new TB cases Siwalankerto Health Center (Wheelen and Hunger 2008, modified).

screening in this group is to detect active TB as early as possible, contributing to the end goal. The ultimate goal is to reduce the risk of adverse treatment outcomes such as residual health symptoms.^{1,31} More aggressive case detection closer to the target will be more expensive than passive case.^{31,32} Therefore, active detection involving former TB sufferers will certainly be good when applied by Siwalankerto Health Center.

Conclusions

This research resulted in a document management model for new case discovery identification strategies based on Perak Timur and Siwalankerto Health Centers focused on optimizing TB case discovery in the working region using active case finding methods. In contrast, Wonokromo Health Center is focused on fostering partnerships between the community health centers and private practice doctors in their work areas.

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