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by Artha Budi Susila Duarsa

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Comprehensive Pulmonary Tuberculosis Control Using the Directly Observed Treatment Short-course Strategy (DOTS)

Artha Budi Susila Duarsa[1], I Putu Dedy Arjita[2]

[1,2]Faculty of Medicine, Islam Al-Azhar University
Corresponding author: arthaduarsa@unizar.ac.id

Abstrak

Tuberculosis is one of the most common infectious diseases in public health. This disease can be a serious problem and lead to death. So, a sustainable TB control program needs to be implemented. The government has provided free services for TB sufferers in Indonesia. This service can be accessed in government health services and some private health services. The development of a TB prevention strategy in Indonesia is carried out with the DOTS (Directly Observed Treatment Short-course) strategy. DOTS is a lung treatment strategy that prioritizes control of taking medication, preventing treatment dropouts, and finding new cases in the community. The main focus of DOTS is patient discovery and healing. Indonesia has been implementing the DOTS strategy since 1995. Unfortunately, the implementation of the DOTS strategy has not been completed successfully. This problem is caused by the emergence of new cases of TB BTA (+) (Case Detection Rate / CDR) in the community. Access to suspected/suspected TB was an important factor in the low CDR. The TB control program targets a CDR of at least 70% and a cure for 85% of all patients. Comprehensive TB prevention is not only diagnosis and treatment (curative) but also integrates the efforts of both government and society. TB prevention has become a joint responsibility of the government and society, such as promoting, preventing, curative, and rehabilitative comprehensively and sustainably. So that the use of the DOTS strategy can be more optimal in preventing pulmonary tuberculosis in Indonesia.

Keywords: pulmonary tuberculosis, DOTS strategy, public health

Background

Pulmonary tuberculosis is an infectious disease that ranks ninth in the world, pulmonary TB is still the highest disease in some developed countries, especially in Asia. About 40% of pulmonary TB cases in the world are in the Southeast Asia region. In this region, WHO data shows that pulmonary TB kills around 2,000 people every day. In 2014 India, Indonesia, and China were the countries with the most pulmonary TB patients, namely 23%, 10%, and 10% of all sufferers in the world, respectively (*Global tuberculosis report*, 2015). In Indonesia, the prevalence of pulmonary tuberculosis is grouped into three regions, namely the Sumatra region (33%), the Java and Bali regions (23%), and the eastern part of Indonesia (44%). According to the 2016 National TB Prevalence Survey, Indonesia has ranked the second country with the highest TB burden in the world. The discovery of TB cases in the Indonesian population in 2015 was 330,910 cases, this case has increased compared to TB cases found in 2014, namely 324,539 cases (Results of the National TB Prevalence Survey, 2016). (*Results of the National TB Prevalence Survey*, 2016)

The source of transmission of pulmonary tuberculosis is smearing positive TB patients through sputum spatter that is released. The infection will occur when other people breathe the air that contains the infectious sputum specks. The DOTS (Directly Observed Treatment Short Course) strategy is short-term direct supervision of treatment with the obligation of each tuberculosis program administrator to focus direct attention to find sufferers by microscopy examination. Then each patient must be observed (observed) in ingesting the medicine, each drug that the patient swallows must be in front of a supervisor. Patients must also receive treatment (treatment) that is regulated in a management system, distribution with sufficient drug supply, then each patient must receive good medicine, meaning that standard short-term treatment has been clinically proven to be effective. Finally, it is necessary to support the government to make the tuberculosis control program a high priority in health services. The World Health Organization (WHO) targets by 2020 to reduce the death rate from tuberculosis by 40% and reduce the morbidity rate by 30% in 2030 compared to 2014. TB control in Indonesia uses the DOTS strategy that has been recommended by WHO since 1995. DOTS is a strategy for controlling pulmonary tuberculosis that aims to decide the transmission of pulmonary tuberculosis to reduce TB morbidity and mortality rates in the community. However,

Tuberculosis (TB) is still a public health problem in the world today, although TB control efforts have been implemented in many countries since 1995. The success of TB control programs emphasizes program management and the availability of resources as an effort to achieve effective goals and efficiency (*Strategi nasional pengendalian tb di indonesia 2010-2014*, 2014).

The implementation of the DOTS strategy in health services is very dependent on facilities and infrastructure as well as the participation of health workers so that case finding and treatment of patients with pulmonary tuberculosis can be resolved immediately. There are five components in the DOTS strategy, namely: Political commitment, case detection, drug distribution, the performance of the Drug Administration (PMO), and recording and reporting using books to facilitate monitoring and evaluation of pulmonary TB control programs (*Strategi nasional pengendalian tb di indonesia 2010-2014*, 2014).

Methods

The method used in this paper is a literature review. Literature taken based on the keywords entered "Comprehensive Management" "pulmonary tuberculosis" "Directly-Observed Treatment Short-course (DOTS)". Publication manuscripts used ranged from 2011-2017. The type of research used is quantitative and qualitative research, whether it is direct research, systematic reviews, pilot studies, and protocol studies. The search indexes used are PubMed, science direct, ProQuest, and google scholar.

Results

DOTS Program in the Management of Pulmonary Tuberculosis. Directly-Observed Treatment Short-course (DOTS) is the implementation of the Tuberculosis control strategy adopted in Indonesia through WHO recommendations (Kamelia, 2014). The DOTS program in Indonesia is also guided by the national TB strategy for 2011-2014 (Kamelia, 2014). The DOTS program aims to cure patients with Tuberculosis with a short course of medicine for 6 months. The DOTS program consists of 5 components, such as:

1. Political Commitment

   In the case of pulmonary tuberculosis, political commitment from health workers, especially policymakers in the health sector, is required. Not only that, but there is also a need for collaboration from related sectors to achieve

2. Case Detection

   In finding TB cases, efforts from all parties are required. The discovery of pulmonary TB cases begins with providing training to health workers who specifically cover the problem of pulmonary TB, then continued with cadre training to find suspected pulmonary TB in the community or up to health education to increase community participation.

3. Drug Distribution.

   The availability and distribution of OAT drugs do not experience shortages and distribution constraints because it must be systematic and directed, starting with the district health office then continuing the distribution to health centers. At the Puskesmas, the drugs are directly taken over by P2TB officers and given directly to patients or PMO gradually and periodically.

4. Performance of supervisors taking medication (PMO)

   To achieve optimal and complete treatment for pulmonary tuberculosis patients, it is necessary to have someone in charge of supervising and monitoring the treatment of patients because OAT must be taken regularly and regularly, a group called the drug-taking supervisor (PMO) is formed. PMO itself comes from the sufferer's family or closest people. In choosing PMO there is no special training, but PMO is sufficiently explained the drugs that the patient must consume while undergoing treatment.

5. Recording and reporting

   Recording and reporting are used to see the extent of the results achieved in the handling of pulmonary TB cases. A recording is done regularly starting from case finding, treatment, and recovery.

Discussion

The DOTS strategy is implemented nationally in all health service units, especially in community health centers which are integrated into basic health services. In its implementation, the Ministry of Health has set several indicators, namely a case detection rate of at least 70%, a minimum conversion rate of 80%, and a minimum cure rate of 85% (Nurmadya et al., 2015).

There are five components in the DOTS strategy, namely: 1. Political commitment from the government to run the national TB program. 2. Diagnosis of TB through microscopic sputum examination. 3. TB treatment with a combination of anti-tuberculosis drugs (OAT), which is directly supervised by the Drug Administration (PMO). 4. Continuous supply of OAT. 5. Standard recording and reporting to facilitate monitoring and evaluation of pulmonary TB control programs (Kemenkes RI, 2014). Treatment of TB cases is one of the DOTS strategies that can control TB disease because it can break the chain of transmission of the disease. Although the National TB Control Program has succeeded in achieving the target detection rate and cure rate, TB management in most health centers, hospitals, and private practices is not yet under the DOTS strategy and the application of service standards based on the International Standards for Tuberculosis Care (ISTC) (*Strategi nasional pengendalian tb di indonesia 2010-2014*, 2014).

1. DOTS strategy with political commitment

The government's political commitment to supporting tuberculosis control is essential for the other four elements to be implemented properly. This commitment should begin with the government's decision to make tuberculosis a major priority in the health program. To have an adequate impact, a comprehensive national program must be developed followed by a guideline explaining how DOTS can be implemented in the existing public health program/system. Once these foundations have been put in place, it will require financial support as well as trained implementing staff to be able to turn the program into concrete activities in the community.

Several studies from the literature review show a political commitment that exists in the ranks of government, namely research conducted by Nurmadiyah 2011. Of the 44 respondents studied, almost all respondents answered that the implementation of this commitment was good, namely

40 respondents (90.9%) and 4 respondents (9.1%) answered poorly. This research is also in line with research conducted by Muhammad Mansyur et al., 2015 who said that the political commitment of the government has gone well, as shown by the establishment of cross-sector and cross-program cooperation in the prevention of pulmonary tuberculosis, the source of funding from the APBD is used for community PPM meetings. improved diagnosis, and supervision. The availability of OAT at Puskesmas is always available and sufficient. Recording and reporting forms of pulmonary tuberculosis are good and timely. Research conducted by Nurmala 2012, on the factors that influence the success of pulmonary TB treatment at the Helvetia Health Center, Medan, obtained the same results from 30 respondents, almost all respondents (96.67%) said that the implementation of commitments by officers was quite good.

This is also under the public implementation model put forward by George Edward III (1980) that one of the achievements in successful implementation is the disposition which is the character and characteristics possessed by the implementor such as commitment, honesty, and democratic character if the implementor has a good disposition then he can run a good policy too. Likewise with the political commitment that a government decision is needed to support the tuberculosis control program by creating a comprehensive national program in implementing the pulmonary TB control program with the DOTS strategy.

2. DOTS strategy with case detection

The microscopic examination of sputum is the most effective method for screening suspected pulmonary tuberculosis. WHO recommends a tuberculosis surveillance strategy, equipped with a well-functioning laboratory for early detection, follow-up, and establishing treatment. In general, microscopy is the most cost-effective way to find tuberculosis cases. In this case, in certain circumstances, a chest X-ray examination can be carried out, with clear criteria that can be applied in the community.

Several studies from the literature review, namely research conducted by Ichlas in 2011 at Keramat Jati Health Center are under this research. In this study, there was a significant relationship between sputum examination support and the outcome of pulmonary TB treatment with a p-value of 0.038. This research is also in line with research conducted by Adistha Eka

Noveyani et al, 2014 which concluded that the effective case-finding process at the Tanah Kalikedinding Health Center was supported by the screening of suspects that matched the main symptoms of TB by officers who had attended training according to WHO standards, and patients were diagnosed accordingly. TB diagnosis flow MOH RI. Under the achievement of the main indicator of TB, namely the case detection rate (CDR) of 112.4%, it has met the minimum target, namely ≥ 70%. CDR reached the target, indicating that effective case finding could minimize the spread of tuberculosis in the Tanah Kalikedinding Community Health Center.

This is also under the public implementation model put forward by George Edward III (1980) that one of the achievements in successful implementation is the bureaucratic structure which is the people in charge of implementing policies which can be seen from the existence of standard operating procedures (SOPs) which serve as guidelines. For each implementor in action, it is the same as case detection which aims to obtain or find TB cases through a series of activities carried out by health workers as implementers of TB case detection measures.

3. DOTS strategy with drug distribution

Guarantee the availability of drugs regularly, thoroughly, and promptly is very necessary for regular treatment. The main problem in this is the planning and maintenance of drug stocks at various regional levels. This requires good recording and reporting of drug use, such as the number of cases in each treatment category, cases handled in the past (to estimate needs), accurate data on stocks of each existing warehouse, and others.

From the results of a literature review of the research (Aningsih, 2017) shows that the distribution of pulmonary TB drugs is directly managed by the Polewali Mandar District Health Office then the OAT is distributed to each Puskesmas in Polewali Mandar Regency after the OAT is in the Puskesmas the OAT is taken Direct transfer by P2 TB officers, then if there is a patient who has done an examination and has been diagnosed by a doctor suffering from pulmonary TB, he will immediately be given treatment for 6 months. And as long as OAT treatment will be given gradually and periodically, OAT is usually given to PMO or the patient himself. If up to the first 6 months the patient has not recovered, he will be given further treatment plus 3 months according to the doctor's recommendation. So far, the availability and

distribution of drugs at the Batupanga Health Center have never experienced problems and shortcomings due to good and continuous coordination between P2 TB officers and PMK officers at the Health Office. This is in line with the research conducted by Nurmadyah, 2011 results, (81.8%) of respondents stated that the availability of OAT at Puskesmas Padang Pasir was good. From the research results, it was found that the percentage of respondents who did not succeed in their treatment was higher in the availability of OAT which was less good than the good ones. From the results of statistical tests, it was found that a significant relationship was p = 0.002. This research is also in line with the research conducted by Muhammad Mansyur et al., 2015 which stated that the availability of OAT at Puskesmas is always available and sufficient.

This is also under the public implementation model put forward by George Edward III (1980) that one of the achievements in successful implementation is the bureaucratic structure which is the people in charge of implementing policies which can be seen from the existence of standard operating procedures (SOPs) which serve as guidelines. For each implementor in acting, it is the same as the distribution of drugs carried out by health workers who act as a benchmark in controlling TB, namely by regulating, managing standard treatment, and providing therapy to TB sufferers. Health workers here act as implementers in drug distribution.

4. DOTS strategy with PMO

Providing directly controlled drugs, or known as DOT (Directly Observed Therapy), patients are directly monitored when they ingest the medicine, and where the drugs are given must meet the standards. In the regimen of short-term tuberculosis treatment lasting 6-8 months using an adequate combination of anti-tuberculosis drugs. Drug administration should be based on whether the patient is classified as a new case or a follow-up/relapse case, and should be given free of charge to all tuberculosis patients.

Several literature reviews such as the research conducted by Nurmadiyah 2011 showed that more than half of the respondents stated that the role of PMO in monitoring drug ingestion was good, namely 72.7%. This study is also in line with the research conducted by Muhammad Mansyur et al., 2015 which concluded that in determining PMO by pulmonary TB officers, namely appointing family members of patients who are young and have a good memory so that the PMO

who is responsible for the patient does not forget to remind under supervision of daily ingestion of medication. However, at the Lalang Village Health Center, there is no PMO from health workers such as village midwives, nurses, or doctors for pulmonary TB sufferers, so this will result in a lack of motivational support for patients as well as information about pulmonary TB prevention which results in case finding rates, not on target and disease transmission. Pulmonary TB is increasing.

5. DOTS strategy with recording and reporting

Recording and reporting systems are used to systematically evaluate patient progress and treatment outcomes. The system consists of a laboratory list containing records of all patients examined for sputum, a patient treatment card detailing drug use, and a follow-up sputum examination. Every tuberculosis patient who is treated must have a patient identification card that has been recorded in the tuberculosis records in the district. Wherever this patient goes, he or she must use the same card so that he can continue his treatment and not be recorded twice.

This research is in line with the research conducted by Adistha Eka Noveyani which states that recording and reporting use the tuberculosis reporting system with an electronic system and the Tanah Kalikedinding Community Health Center is quite complete because it has been reported online named SITT (Tuberculosis Integrated Information System). This is also in line with the research conducted by Nurmadiyah 2011 which stated that in general, the respondents stated that the recording and reporting of pulmonary TB patients at Puskesmas Padang Pasir was good, namely 88.6%.

This is also under the public implementation model put forward by George Edward III (1980) that one of the achievements in successful implementation is the resource which is the ability of health workers to cover all groups of society with good quality and quantity, as well as how the ability of health workers. WHO will apply policies that are sufficient in number, level of understanding of the goals and objectives and application of program details as well as recording and reporting of health workers to verify the quality of information and addressing performance problems, a recording and reporting system is used to systematically evaluate patient progress and outcomes of pulmonary TB treatment.

Conclusions

Comprehensive tuberculosis prevention does not only use diagnosis and treatment (curative) but also requires integration from both the government and society. TB prevention has become government cooperation and community responsibility such as promotive, preventive, curative, and rehabilitative. So using the DOTS strategy can be optimized in the prevention of pulmonary TB in Indonesia.

For future researchers to conduct a more in-depth study of the DOTS strategy in terms of political commitment, case detection, drug distribution, PMO performance, and recording and reporting

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