

Implementation of Management of Pulmonary Tuberculosis with the Directly Observed Treatment Short Course Strategy

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Abstract

The purpose of this study was to describe the implementation of pulmonary TB disease management with the DOTS strategy at the Jagong Health Center, Central Aceh Regency. The implementation of Pulmonary TB Management with the DOTS (Directly Observed Treatment Shortcourse) strategy in the working area of the Jagong Health Center, Central Aceh Regency has been maximized. by facilitating and providing motivation so that patients want treatment in a complete and integrated manner, case detection can be carried out by health workers or cadres who have been given training to recognize the symptoms of pulmonary TB. The distribution of drugs is distributed to each puskesmas in Central Aceh Regency, from the Puskesmas the drugs are arranged directly by P2TB officers then given directly to the PMO or the patient himself. PMO performance has never been given special training about treatment, PMO only received direction from P2TB Pulmonary officers. Recording and reporting carried out at the Jagong Health Center includes case finding, treatment, and recovery. Suspected pulmonary TB will be recorded and then monitored until the results of the examination have been obtained. Recording and reporting will be reported every month in a meeting at the Central Aceh District Health Office. For the Central Aceh Regency government to further enhance the development and improvement of infrastructure in the health sector so that health services are more easily accessible to people in remote areas.

Keywords: DOTS Strategy, Case Detection, PMO

Introduction

Pulmonary tuberculosis (TB) is a lung infection caused by *Mycobacterium tuberculosis*. TB patients with smear positive status can infect at least 10-15 people every year. Since 1993, WHO has declared that TB is a global emergency for humanity. With the progress made since 2003, it is estimated that there are still around 9.5 million new cases of TB, and about 0.5 million people die from TB worldwide (Buse et al., 2016).

The emergence of the HIV/AIDS pandemic in the world adds to the problem of pulmonary TB. Coinfection with HIV will significantly increase the risk of pulmonary TB. At the same time, the double immunity of pulmonary TB bacteria to anti-TB drugs (multidrug resistance = MDR) is increasingly becoming a problem due to cases that cannot be cured. This situation will eventually lead to an epidemic of pulmonary TB that is difficult to handle (Sugiyono, 2015). (Miles, 1984)

Nationally, the National Medium-Term Development Plan (RPJMN) which refers to the strategic plan of the Ministry of Health for 2015-2019 sets the TB prevalence target in 2019 to

be 245,000 per 100,000 population. The target of the National TB Control Program according to Permenkes No. 67 of 2016 is the elimination of TB by 2035 and Indonesia free of TB by 2050 (Indah, 2018). The principle of sanatorium treatment, rest and diet therapy is abandoned, replaced by active action with collapse therapy surgery which aims to shorten the length of stay.(Sugiyono. (2017)., 2017)

According to the World Health Organization (WHO) Tuberculosis is a re-emerging disease, it is estimated that at this time, from the results of the latest survey, the number of new cases of Tuberculosis or TB in Indonesia is estimated to reach 1 million cases per year or double the previous estimate. Indonesia's position also jumped to the country with the second most TB cases after India in 2015. This became an alarm in the midst of the commemoration of World TB Day. The highest number of reported cases was in the provinces with the largest population, namely West Java, East Java, and Central Java. New cases of AFB+ in these three provinces accounted for almost 40% of the total number of new cases in Indonesia (Kementerian Kesehatan RI Badan Penelitian dan Pengembangan, 2018)

In Indonesia, the prevalence of pulmonary TB is grouped into three regions, namely Sumatra (33%), Java and Bali (23%), and Eastern Indonesia (44%). Pulmonary TB is the third leading cause of death after heart and respiratory disease in all age groups and number one for infectious diseases. The death toll from pulmonary TB in Indonesia is estimated at 61,000 deaths each year (Inayah & Wahyono, 2019)

The provision of DOTs to TB patients and case finding or case detection requires a commitment from various parties, especially to local governments, communities, health services, institutions and non-governmental organizations in the implementation of Tuberculosis control programs. However, the current condition of the commitment has not gone well. This is due to the lack of coordination and socialization that supports the formation of a forum that can coordinate the prevention of TB transmission.

Pulmonary TB case finding activities at the Puskesmas Jajang were carried out by involving health cadres or PMOs in the implementation of pulmonary TB program activities such as disseminating information about pulmonary TB in the community, actively seeking and motivating pulmonary TB suspects to health service facilities. The briefings that have been carried out to health cadres or PMOs at the Puskesmas are counseling and training activities for cadres about pulmonary TB, but in practice not all cadres or PMOs have an active role in finding suspected pulmonary TB.

Patients with pulmonary TB can infect 10-15 people around them within one year. Pulmonary TB disease without treatment after 5 years, 50% of patients will die, 25% will recover on their own with a high immune system and 25% as chronic cases that remain infectious. The number of new cases of the disease caused by the bacterium *Mycobacterium tuberculosis* in 2010 was recorded at 8.8 million cases and the number of deaths due to TB was 1.4 million. This number decreased compared to 2009 which was 9.4 million cases (WHO, 2011). The prevalence of tuberculosis in Indonesia is 281 cases per 100,000 population with a treatment success rate of 90.3%. This number decreased compared to 2010 as much as 289 per 100,000 population (Direktorat Bina Upaya Kesehatan Kemenkes RI, 2012).

The factors that can hinder the TB control program in the public private mix are limited human resources, budget, TB logistics and DOTS unit infrastructure and resource dependence on investment parties, the absence of operational guidelines that regulate cooperation mechanisms, lack of commitment from the government and partners in the implementation of TB control,

the lack of communication and coordination between PPM networks in maintaining the treatment of patients (P.Tondong et al., 2014)

Based on data from the Aceh provincial health office, the highest cases were Banda Aceh City (304), Subulussalam (259), Simeulue (221), Gayo Lues (216), and North Aceh (213). While the lowest cases were Aceh Besar (93), Southeast Aceh (77), Central Aceh (67), and Bener Meriah (41). From this data, Central Aceh ranks second from the bottom. Meanwhile, at the sub-district or Puskesmas level in the working area of the Jagong Health Center, in 2019 there were 11 cases of Tuberculosis patients and 4 new cases in 2020 (Data from the Central Aceh District Health Office, 2020).

Methods

This type of research is survey research with a qualitative approach. Qualitative research uses purposive sampling technique because the researcher wants to increase the depth of the data according to the research objectives of several characteristics. Informants as the main source of qualitative data in addition to other data obtained from the results of the Library study, so that informants are one of the important data sources in this study. Informants in research are people who really know the problem to be studied. The key informants are Pulmonary TB officers at the Jagong Health Center, Jagong Jeget District, Central Aceh Regency, totaling 2 people. Supporting informants, namely the Health Problem Control Staff (PMK) of the Health Office of Central Aceh Regency, amounted to 1 person, the Head of the Jagong Health Center, Jagong Jeget District, Central Aceh Regency, 1 person, Patients with Pulmonary TB in the working area of the Jagong Health Center, Jagong Jeget District, Central Aceh Regency, 4 people, Families of the sufferer There are 3 pulmonary TB in the working area of the Jagong Health Center, Jagong Jeget District, Central Aceh Regency.

Results and Discussion

Description of informant

This research was conducted. where the researcher went to the Central Aceh District Health Office to conduct interviews and look for data related to the management of tuberculosis with the DOTS strategy at the Jagong Health Center, Central Aceh Regency, namely the Head of the Jagong Health Center, Pulmonary TB Officer at Jagong Health Center, Pulmonary TB Patients and (PMO) Drinking Supervisor Drugs that are appointed from the closest family of patients with pulmonary TB.

Table 1. Informant Data

Report	Gender	Age	Education	Position
Mr. A	Male	40 years	S1 (Bachelor)	PMK Central Aceh Health Office
Mr. NS	Male	50 years	S1 (Bachelor)	Head of Puskesmas
Mrs. EA	Woman	37 years old	S1 (Bachelor)	P2 TB officer
Mrs. NB	Woman	50 years	SD (Elementary School)	Tb sufferers
Mrs. R	Woman	25 years	SMA (High School)	Tb sufferers
Mrs. B	Woman	35 years	SMA (High School)	Tb sufferers
Mr. H	Male	30 years	SMA (High School)	PMO
Mr. M	Male	30 years	SMA (High School)	PMO
Mrs. R	Woman	38 years old	SMP (Junior School)	PMO

Source: Primary Data processed 2021

	(Ny.R, 38 years old) Report 9		<p><i>going to treatment, initially embarrassed if I know people that I am sick like this, but many are also giving spirit to go for new treatment visited also I am the same mr. reje same his wife at home told me diligently go control so that quickly healed.</i></p> <p><i>"... There is no training from the local government, who chooses to be the PMO is only his P2 TB officer in the health center..."</i></p>	<p>There is a commitment from sufferers to keep treatment and convey to others so that if there are symptoms immediately checked</p> <p>Political commitment in this field P2TB proposes that there be special training for PMO from related agencies.</p>
2.	(Mr. H., 30 Years,) Report 7			
	(Mr. A,40 years) Report 1	Case Detection	<p><i>"... We have repeatedly held training, such as training managers and all managers of pulmonary TB programs in Central Aceh are trained all the doctors we have trained and our laboratory officers have trained even in Central Medicine now there is mdr TB treatment (multi direct resistance) which is where patients no longer work on category 1 and category 2 treatment and there is already a special team or special doctor for the treatment of MDR TB because in Central Aceh There have been many cases that have been dealt with.</i></p> <p><i>"The strategy of finding lung TB cases in central Aceh is two, namely actively and passively, our friends</i></p>	<p>The political commitment of the government has been going well as shown by the establishment of cross-sector and cross-program cooperation in the fight against pulmonary TB.</p>
	(Mrs. EA,37 years old) Report 3			

	<p>Mrs. NB.50 years</p> <p>Mrs. R., 25 years old</p>		<p><i>expect to be actively discoveries, we with the manager of the Pulmonary TB program at the health center are active discoveries, the strategy is by tracking TB cases, active discovery is for example if there is information or patients themselves dating in health services."</i></p> <p><i>We also involve cadres who already understand and know the symptoms of TB disease.</i></p> <p><i>At first I coughed cough and told me to go to the health center to go check, because if cough like that treatment to puskesmas.</i></p> <p><i>"The first story of the cadre's mother near my house said coughing up this brother's blood, he kept telling me let's take it to my health center between because of this pulmonary TB disease I suffered"</i></p>	
3	<p>Mr. A., 40 Years</p> <p>Mr. NS.50 years</p>	Distribution of Drugs	<p><i>"The availability of anti-TB drugs Alhamdulillah until now globalfarm still finances us for the availability of drugs and Alhamdulillah is still fulfilled, distribution is usually facilitated from the health service to the health center in Central Aceh regency"</i></p> <p><i>"For the time being the medicine is still smooth and complete. The process of</i></p>	<p>Distribution of pulmonary TB drugs (OAT) has been distributed to each health center in Central Aceh Regency, after OAT is in the OAT health center taken over directly by P2 TB officers, OAT is usually given to PMO or the patient itself for up to 6 months So far the availability and distribution of drugs in Puskesmas Jagong has never experienced obstacles and deficiencies.</p>

	<p>Mrs. EA,37 years old Report 3</p> <p>Mrs. R., 38 Report 9</p>		<p><i>giving is clearly already following the existing rules and SOPs and there is also a kind of family that is trusted to handle the treatment."</i></p> <p><i>"If the logistic drug is always no less or no, if the drug is dependent on weight, and TB is also divided into three there is child TB, adult TB and category 2 TB, namely the disease recurs again."</i></p> <p><i>"Just come to the health center later will be in love the place of sputum so that it is checked later the same labor puskesmas officer and later will know the results of the sputum examination, just given the drug if you already know the results of peeriksaan</i></p>	
4	<p>Mr. A.40 years REPORT 1</p> <p>Mr. NS.50 years Report 2</p>	Drug Supervisor (PMO)	<p><i>"Special training in the PMO we still give to the PMO and this is given by tb puskesmas officers to provide information to the PMO, this is so that the supervision of swallowing drugs from patients is still observed or supervised so that this treatment is not interrupted because if the treatment is interrupted can occur whose name is resistant or relapsed or default or even disappear from treatment".</i></p> <p><i>"For the time being there has not been a special training, the family that becomes a PMO, which is involved is the family of the sufferer, and can also ask</i></p>	<p>The supervisor of swallowing drugs carried out at jagong health center has been in accordance with national guidelines for TB eradication that can be used as a PMO as good as health workers, if it is not possible to be appointed which allows for example the next of kin who have been counseled about TB.</p>

	<p>Mrs. EA,37 years old Report 3</p> <p>Mrs. R., 25 years old Report 6 Mrs H,33 Report 7</p>		<p><i>for help cadres in the village village"</i></p> <p><i>"All we have trained until now is only cadres, for families of sufferers have not been given training, so far we only ask families to supervise the patient while taking medicine"</i></p> <p><i>"If you always remember taking my mamak's medicine"</i></p> <p><i>"If I usually ask if the time to take medicine, usually what time to take the medicine must be right, never follow pulmonary TB training, only the incarnation alone in the kasiih know from the nurse"</i></p>	
5.	<p>Mr. A.40 years</p> <p>Mr. NS.50 years</p> <p>Mrs. EA,37 years old</p> <p>Mrs. NB.50 years</p> <p>Ny, H,33 years</p>	Recording and Reporting	<p><i>"The backup and pe report is now good especially since there is a term SITT (Integrated Tuberculosis Information System) by offline online so we can enter to send the report". This record is indeed reported every month to the health service"</i></p> <p><i>"He is reported per month we to the service he immediately reported to the office how positive and that's what was reported and all the records are complete"</i></p> <p><i>"if in the data as usual, the first entry time check in the data, after that is finished also treatment 6 months in the data again"</i></p>	<p>Sistem recording and reporting conducted at Jagong Health Center, Central Aceh Regency has been good. This is seen the data of suspects and sufferers is very complete and updated every year. The system will be in the form of SITT (Integrated Tuberculosis Information System) by online and offline.</p>

			<i>"I'm just in the data my name doesn't exist."</i>	
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Based on the results of the matrix above, it can be concluded that the implementation of pulmonary TB disease management with the DOTS strategy in the working area of the Jagong Health Center, Jagong Jeget District, Central Aceh Regency is going well. treatment because so far there has never been training for Cadres related to case finding and DOTS strategy management.

The DOTS strategy is implemented nationally in all health service units, especially in community health centers that are integrated into basic health services. In its implementation, the Ministry of Health of the Republic of Indonesia sets several indicators, namely a minimum case detection rate or Case Detection Rate (CDR) of 70%, a conversion rate of at least 80%, and a minimum recovery rate of 85% (Nurmadya, 2011).

DOTS strategy with political commitment

Sustained political commitment is critical to implementing and maintaining the other components of DOTS. Continuous investment and commitment is needed to ensure favorable conditions the integration of national TB case management, the supporting conditions include infrastructure development, human resource development and training, cross-program and cross-sector collaboration, support from TB control policies for the implementation of the second OAT (anti-tuberculosis drug) availability program and other supporting facilities. . In addition, the National TB control program must be strengthened to prevent the increasing incidence of TB in the community (Ministry of Health, 2012).

The government's political commitment in supporting tuberculosis control is important for the other four elements to be carried out properly. This commitment should start with the government's decision to make tuberculosis an important priority in health programs. To have an adequate impact, a comprehensive national program must be created followed by the creation of a guideline that explains how DOTS can be implemented in existing public health programs/systems. Once these foundations have been laid, funding support and trained implementers are needed to be able to turn the program into a real activity in the community.

The results of the interview show that the political commitment that exists in the ranks of the government in Central Aceh Regency is mutually supportive. In accordance with what was stated by the head of the infectious disease control section (PMK) at the Health Service who stated that support from across sectors was quite instrumental in handling pulmonary TB with the DOTS strategy, such as improving infrastructure in several locations, namely roads and assistance for watering dusty roads on a regular basis to prevent air pollution, while government support at the village level is to facilitate and motivate suspects or sufferers to seek treatment at health services regularly and thoroughly, the motivation given is in the form of counseling.

This political commitment at the Jagong Health Center is in line with the results of the researcher's observation that health workers provide counseling to the community in order to provide motivation in order to prevent the transmission of pulmonary tuberculosis and for positive (+) pulmonary tuberculosis patients to seek treatment at the health service unit regularly and thoroughly.

DOTS strategy with case discovery

Accurate and timely diagnosis is the main foundation in the National TB control program, including considering the development of existing and new technologies. The process of

establishing a TB diagnosis is by examining sputum microscopically, culture, and conventional sensitivity tests carried out in certified reference laboratories as well as the use of rapid tests that have received recognition from the world health agency and the Indonesian Ministry of Health (Ministry of Health, 2012).

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

The results of interviews conducted showed that the detection of pulmonary TB cases in the working area of the Jagong Health Center, Jagong Jeget District, was carried out by cadres who had generally been given training in recognizing pulmonary TB symptoms and assisted by health workers. The process of finding and early detection of suspected TB when it is found is usually directly delivered to the Puskesmas or home visits are carried out by P2 TB officers, at the initial stage an examination of sputum and a chest X-ray will be carried out after the results of the examination are there, usually OAT is given according to the results of the examination. examination, then after the patient undergoes treatment each month the patient is expected to come to the Puskesmas for further examination or if the patient cannot come a home visit will be made by the P2 TB officer. After the treatment is complete and complete, the P2 TB officer will continue to monitor the patient's recovery stage until he is fully recovered and healthy.

DOTS strategy with drug distribution

The benchmark in controlling TB is to regulate and administer standard treatment for all adult and pediatric TB cases - smear positive, smear negative and pulmonary. in all cases, WHO guidelines on patient categorization and management should be followed. These guidelines emphasize the use of standardized and most effective regimens and fixed doses of drugs to facilitate adherence to treatment and to reduce the risk of developing drug resistance. In order to achieve a high cure rate, treatment of TB patients requires the rational use of TB drugs by health workers and adequate support from various parties for TB patients and monitoring of taking medication (PMO) as well as facilitating patient access to available health services (Kemenkes, 2012).

The results of interviews conducted showed that the distribution of pulmonary TB drugs was regulated directly by the Central Aceh District Health Office, then the OAT was distributed to each Puskesmas in Central Aceh Regency, after the OAT was in the health center the OAT was taken over directly by the TB P2 officer, then If there are patients who have had an examination and have been diagnosed by a doctor with pulmonary TB, they 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 the 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 advice. So far, the availability and distribution of drugs at the Jagong Health Center has never experienced problems and shortages due to good and continuous coordination between P2 TB officers and PMK officers at the Health Office.

The distribution of drugs carried out at the Jagong Health Center was in accordance with the Anti Tuberculosis Drug Package (OAT) guidebook that OAT was used by one tuberculosis patient until the completion of the treatment period, namely from the intensive/initial stage of treatment to the advanced stage. Drug distribution begins with drug preparation for each

patient, then the intensive/initial stage OAT delivery (RHZE) is then delivered to the advanced stage OAT (RH) delivery and the last stage is the supervision of drug swallowing.

Drug Swallowing Surveillance (PMO)

To ensure the regularity of TB treatment, it is best if every dose swallowed by a TB patient is supervised by a drug taking supervisor. Supervisors of swallowing drugs should be health workers, but if this is not possible, PMOs can come from health cadres, community leaders or family members of patients. It should be noted that the PMO's job is not to replace the patient's obligation to take medication from the health care unit. Achieving the success rate of treatment is very dependent on the effectiveness of the logistics system in ensuring the availability of drugs (for the first and second drugs) and non-drug logistics continuously. Additional efforts are needed from pharmacists and health workers involving PMOs who are involved in the management of OAT at every level, starting from calculating needs, deviations, to preparation for administering (distribution) OAT to patients. To ensure the uninterrupted supply of OAT, the stock of OAT must be available in sufficient quantities for at least 6 months before the drug is estimated to run out (Ministry of Health, 2012).

Administration of drugs that are directly supervised, or known as DOT (Directly Observed Therapy), patients are monitored directly when ingesting their drugs, where the drugs given must be according to standards. In the rule of short-term tuberculosis treatment lasting for 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. Direct monitoring of medication is important at least during the intensive treatment phase (first 2 months) to ensure that the drug is taken in the right combination and for the right duration. With direct medication supervision, the patient does not bear the responsibility for medication adherence himself. Health care workers, community health workers, government and society all have to share the responsibility and give a lot of support to patients to continue and complete their treatment. Treatment supervisors can be anyone who is willing, trained, responsible, acceptable to the patient and responsible for tuberculosis treatment supervision services.

The results of the interview show that the role of the Drug Drinking Supervisor (PMO) is very necessary in order to achieve optimal treatment considering that pulmonary TB treatment must be taken regularly and on time. . However, so far, PMOs have never been given special training so that PMOs have very little knowledge about TB treatment. The PMO is only given an explanation of the dose and method of administering the drug. However, there are some sufferers who do not use their PMO who directly regulate OAT personally.

DOTS strategy with record keeping and reporting

The procedure for establishing a TB diagnosis takes a varying amount of time (depending on the method used), a long and unequal treatment period, a large number of OATs being swallowed, the possible side effects that cause differences in program reporting. Integrated management of TB control. Drug Resistance with the system used for TB is not resistant to drugs that have been running so far. Differences include recording the results of culture examination and OAT susceptibility testing, supervision of treatment administration and response during the completion of treatment. Recording and reporting of results is required for cohort analysis, calculating intermediate indicators and reporting of treatment outcomes. In addition, verifying the quality of information and solving performance problems (Ministry of Health, 2012). Recording and reporting systems are used to systematically evaluate patient progress and treatment outcomes. The system consists of a laboratory register containing

records of all patients whose sputum was examined, a patient medication card detailing drug use and follow-up sputum examinations.

In general, patients who are declared suspect pulmonary TB in the working area of the Puskesmas will be directly recorded from the start of treatment until entering the recovery stage and will continuously be monitored and recorded their progress. The system currently used in recording and reporting is in the form of SITT (Integrated Tuberculosis Information System) both online and offline. The recording and reporting carried out at the Jagong Health Center was in accordance with the standard operating procedure (SOP) which explained that the evidence of activity was in the form of a tuberculosis report, evaluation was carried out every 3 months with monthly reports using the SITT program.

Conclusion

The implementation of pulmonary TB control with the DOTS (Directly Observed Treatment Shortcourse) strategy in the working area of the Jagong Health Center, Central Aceh Regency has been maximized, judging from the management it has been in accordance with the DOTS strategy. The political commitment that exists within the government ranks is mutually supportive. Government participation at the village level in Jagong Jeget District is to facilitate and provide motivation so that patients want to seek treatment in a complete and integrated manner, the motivation given is in the form of counseling. Case detection in the working area of the Jagong Health Center, Jagong Jeget District, is usually in the net or found by health workers or cadres who have been trained to recognize the symptoms of pulmonary TB. Usually, the cadres will report or direct the suspected pulmonary TB to be examined at the puskesmas. The distribution of drugs starts from the Health Office of Central Aceh Regency and then distributed to each puskesmas in Central Aceh Regency, from the Puskesmas the drugs are administered directly by the TB P2 officer then given directly to the PMO or the patient himself. So far, the distribution process and the stock of OAT have never experienced that the stock of OAT is always sufficient in each Puskesmas. The performance of the PMO in the Jagong Health Center is usually chosen from the patient's own family or who lives in the same house as the patient. PMOs have never been given special training regarding treatment, PMOs have only received directions from P2 pulmonary TB officers. Recording and reporting carried out at the Jagong Health Center includes case finding, treatment, and recovery. Suspected pulmonary TB will be recorded and then monitored until the results of the examination have been obtained. Recording and reporting will be reported every month in a meeting at the Central Aceh District Health Office.

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