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The Application of SOSA Bottle to Reduce The Pulmonary TB Transmission in Tanjung Gusta Penitentiary

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Abstract. The prevalence of pulmonary Tuberculosis (TB) in penitentiaries is 3 times higher compared to the general population. Reviono (2016), TB ranks in the 4th among the most common illnesses suffered by prisoners and is the major cause of morbidity and death in penitentiaries and detention centers in Indonesia. Sarumpaet and Syarifah (2018) posit the effectiveness of using SOSA (Sori-Syarifah) bags compared to SOSA bottles including 5% of Chlorophen accompanied by masks, tissues in cutting off the transmission of pulmonary TB with Acid Fast Bacilli (AFB+). SOSA bottles is significantly more effective ($p < 0.05$) compared to the SOSA bags. A community service is needed in applying SOSA bottles to reduce the incidence of pulmonary TB, begins with the cooperation of partners, which is the doctor at the Penitentiary. The socialization of SOSA bottle application method has been carried out to reduce the risk of pulmonary TB transmission to the prison staff, health care workers, cadres and prisoner pulmonary TB patients at the penitentiary. The evaluation shows that the application of SOSA bottles has been done by the prisoner TB patients, while the reason for not using SOSA bottles is that there is no more sputum.

Keyword: SOSA Bottle, Prisoner TB Patients

Abstrak. *Prevalensi TB Paru di lapas 3 kali lebih tinggi dibandingkan dengan populasi umum. Reviono (2016) TB menempati urutan ke-4 penyakit paling banyak diderita napi dan merupakan penyebab utama kesakitan dan kematian di lapas dan rutan seluruh Indonesia. Sarumpaet dan Syarifah (2018) mendapatkan efektivitas penggunaan kantong SOSA (Sori Syarifah) dibandingkan botol SOSA yang berisi Klorofen 5% disertai masker, tisu untuk memutus rantai penularan TB Paru BTA(+), diperoleh hasil botol SOSA lebih efektif signifikan (p<0,05) dibandingkan kantong SOSA. Metode pengabdian diawali kerjasama mitra yaitu dokter di Rutan dan dilakukan sosialisasi metode aplikasi botol SOSA untuk menurunkan risiko penularan TB Paru kepada petugas rutan, tamping dan kader kesehatan serta WBP penderita TB Paru di rutan. dengan metode ceramah, tanya jawab dan pengenalan botol SOSA. Evaluasi penggunaan botol SOSA menunjukkan bahwa aplikasi botol SOSA sudah dilakukan oleh WBP Penderita TB Paru, adapun alasan tidak menggunakan botol SOSA adalah sudah tidak ada lagi dahak.*

Kata Kunci: *: Botol SOSA, WBP penderita TB-Paru*

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1. Introduction

Tuberculosis (TB) is an infectious disease caused by Mycobacterium tuberculosis which is a serious health threat to the global community. There are six countries contributing 60% to the number of new cases, such as India, Indonesia, China, Nigeria, Pakistan and South Africa. The estimated prevalence of TB for all cases in Indonesia is 660,000 and the estimated incidence is 430,000 new cases per year. The number of deaths due to TB is estimated to be 61,000 deaths annually. The case notification rate of new and recurring pulmonary TB are known to have increased between 2000 and 2009, then decreasing slowly until 2013, before increasing in 2013 and 2015. In 2015, the case notification rate of pulmonary TB for Indonesia is 117 per 100,000 population [1].

There are 22,627 TB patients in Sumatera Utara Province in 2013. Out of these numbers, there are 15,414 cases of TB AFB (+) cases. The mortality rate is 1.27 per 100,000 population [2]. In Medan, there are 5,386 pulmonary TB patients in 2011. The number of treated pulmonary TB AFB (+) is 2,966 cases. In 2012, there are 5,936 pulmonary TB patients. The number of treated pulmonary TB AFB (+) is 2,286 [3].

The prevalence of pulmonary TB in penitentiaries is estimated to be 3 times higher than in the general population [4]. TB is ranked as the 4th most common disease suffered by prisoners and is one of the main causes of morbidity and death in penitentiaries and detention centers throughout Indonesia. Add to this the fact that the penitentiaries situation that accommodates prisoner exceeds capacity so that it contributes to increasing the prisoners vulnerability to pulmonary TB transmission.

Based on a research by Putri et al. [5], there is an influence of cough behavior on the incidence of pulmonary TB in Class I Penitentiary in Semarang ($p = 0.022$; OR = 3.92; 95% CI: 1.28-8.,440). A research by Chiang et al. [6] shows that out of 51,496 PRISONER, there are 107 patients diagnosed with pulmonary TB (258.7 per 100,000 population) of which 88 (82.2%) are new cases. This shows the high risk of pulmonary TB transmission among prisoners in penitentiaries. Seri et al [7] finds that there is an influence of age (≥30 years) on the incidence of pulmonary TB in Abidjan Penitentiary, Côte d'Ivoire of West Africa (OR = 3.8; 95% CI: 1.1-13.3) and the cases of pulmonary TB in penitentiaries is 10 to 44 times higher compared to the general population .

A report from the Department of Law and Human Rights of Sumatera Utara Province states that during the 2009-2011 period, the cases of new pulmonary TB of inmates of penitentiaries / detention centers tend to increase every year with an average increase of 7.2% [8]. Research by Milla and Thuffi [9] states that penitentiary management needs to tackle the transmission of pulmonary TB to penitentiary residents according to the policies and national prevention action

plans about Public Private Mix, which is a mix of partnerships with other institutions in preventing the transmission of pulmonary TB [10].

A study of Suryanta [11] at Class 1 Correctional Institutions and Detention Centers Medan shows that there is an effect of counseling on increasing knowledge (p = 0.000), moreover, there is an influence of attitudes towards pulmonary TB treatment (p = 0.004) also the knowledge of prevention of pulmonary TB to prisoners affect the prevention of pulmonary TB (p = 0.000).

Previous research on the effectiveness of using SOSA bags compared to SOSA bottles including 5% of 4-chloro-alfa-phenylokresol (Chlorophen) accompanied by masks, tissues in cutting off the transmission of pulmonary TB AFB (+), after being supervised for 2 months, the result is SOSA bottles is significantly more effective ($p<0.05$) compared to the SOSA bags. SOSA bottles are more effective and more acceptable to patients with pulmonary tuberculosis in reducing the risk of transmission of pulmonary tuberculosis compared to SOSA bags (p = 0.039). The SOSA bottle is made of tritan material (BPA free), measures of 19.5 cm high, with a diameter of 6.5 cm, and has a volume of 450-500 ml. The SOSA bottles in use are bottles that are resistant to Chlorophen compounds that function as a place to dispose of used tissues and masks from patients with pulmonary TB AFB (+). In the SOSA bottle Chlorophen is poured up to half the size of the bottle, this compound will act as the killer of Mycobacterium tuberculosis. The SOSA bottle has a diameter that makes it easy for people with pulmonary TB AFB (+) to get rid of tissues and masks that have been used. The SOSA bottle is equipped with a health promotion message about breaking the chain of pulmonary TB transmission. The message is integrated in the Communication, Information, Education (CIE) promotion sticker, which is to kill pulmonary TB germs in masks and tissue, treatment periods, side effects of drugs and how to use the SOSA bottles. SOSA bottles are also equipped with covers that make it easy to carry SOSA bottles everywhere. Based on the above background, it is necessary to apply the SOSA bottle in an effort to reduce the incidence of pulmonary TB in the Tanjung Gusta Penitentiary in Medan.

2. Method

Referring to the problems of partners, the methods of implementing the activities are:

1. Cooperation of Partners

   In carrying out community service, it is based on cooperation with partners namely the Ministry of Justice and Human Rights in Sumatera Utara. Then, it is being implemented in Class I Penitentiary Medan.

2. The Socialization of SOSA Bottles Application Method in Reducing the Risk of Pulmonary TB Transmission

The socialization is conducted to partners (Clinical Doctors, assistants and health cadres) and prisoners with Pulmonary TB in the Class I Male Penitentiary Medan. The socialization is carried out by the community service team using lecture, discussion and question and answer methods for the introduction of SOSA bottles as a container to reduce the risk of pulmonary TB transmission.

2.1 SOSA Bottle Procurement Efforts

The procurement of SOSA bottles is carried out by the community service team at the Laboratory of FKM USU by preparing facilities of:

a. SOSA bottle container;

b. Sticker design and promotional media on SOSA bottles;

c. 5% of Chlorophen;

d. Container to fill SOSA bottle containers with Chlorophen;

e. Tissue;

f. Face mask;

g. Measuring cup.

How to prepare SOSA bottles for the prevention of pulmonary TB transmission:

a. Preparing SOSA bottles;

b. Designing stickers with pictures supplemented with promotional messages for breaking the chain of pulmonary TB transmission from prisoner with pulmonary TB to fellow prisoner to put on the SOSA bottles. These stickers contain messages on how to prepare a SOSA bottle before use, namely: how to fill Chlorophen according to the dose, its use, the disposal of the contents and subsequent refilling as well as the duration of its use.

c. Filling a SOSA bottle with 5% of Chlorophen as much as 300-350 mL so that the tissue and the face mask can be completely submerged.

d. Preparing a container for the 5% of Chlorophen that will be used by pulmonary TB patients to refill the SOSA bottles.

e. Preparing tissues and face masks for sputum and covering the mouth when coughing.

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Figure 1. SOSA Bottle Design

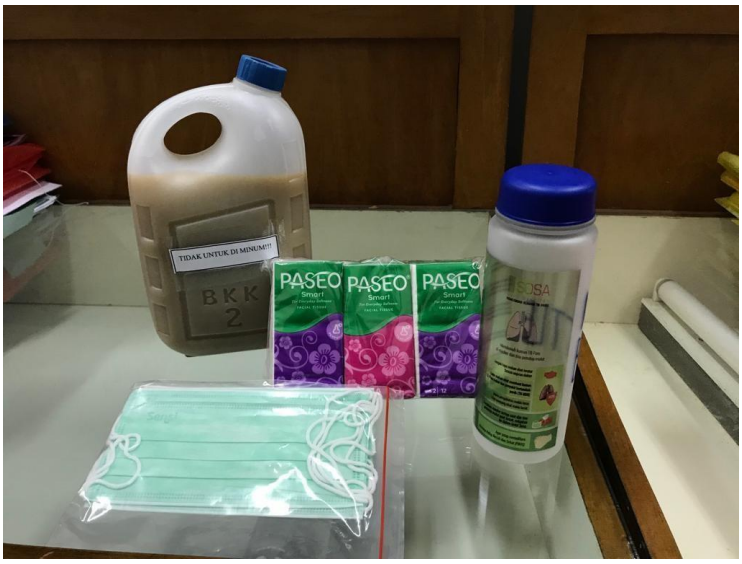

Figure 2. SOSA Bottle Package

2.2 The Marketing of SOSA Bottle

The production of the SOSA bottle in the Laboratory of FKM USU is carried out by the community service team and the students of FKM USU. The production of SOSA bottles for the community service activities is as many as 100 SOSA bottles, and for each prisoner with pulmonary TB is given 2 (two) bottles.

2.3 Activity Plan

The activity plan that will be carried out to solve the problem include:

1. The preparation (Compilation of Collaboration) between the community service team and partners, namely the Ministry of Law and Human Rights in Sumatera Utara. Furthermore, it is implemented in the Class I Male Penitentiary Medan.

2. The socialization of Community Service Activity, namely The Explanation of Training Plan of SOSA Bottle to Reduce the Risk of Pulmonary TB Transmission.

The socialization of community service activity is given to health workers in the clinics in Class I Male Penitentiary and Detention Center Medan which aims for the partners to understand the benefits of community service activities. This socialization will also form an attitude and a desire to be fully involved in community service activities. With this attitude, the implementation of activities will go well.

3. The Health Officers and Officers of Penitentiary as Facilitators to Reduce the Risk of Pulmonary TB Transmission

   The officers and health workers as facilitators to attend the training and the will monitor the pulmonary TB patients in the use of SOSA bottles, masks, tissues and behavior in an effort to reduce the risk of pulmonary TB transmission.

   The staff and health workers of penitentiary are asked to take part in training to become a facilitator of community service activities as well as to monitor prisoners with pulmonary TB and the sustainability of the program when the community service team is through with the activities in penitentiary.

   Furthermore, the facilitator is being briefed in a meeting. The briefing material provided is on the knowledge about pulmonary TB which includes understanding, signs and symptoms, ways of transmission, prevention and treatment of pulmonary TB. In addition, the facilitator is given material on communication methods, empowerment and motivational techniques so that prisoners will change their behavior in an effort to reduce the risk of pulmonary TB transmission.

4. Producing SOSA bottles and other complements (tissues and masks) for training materials and distributing them to prisoners with pulmonary TB.

3. Results and Discussion

1. The cooperation between the community service team and partners, namely the Ministry of Law and Human Rights in Sumatera Utara.
2. The socialization of the application method of SOSA bottle in reducing the risk of pulmonary TB transmission.

The socialization of community service activities is given to all prisoner suffering from pulmonary TB in the Class I Penitentiary in Medan which aims for the partners to understand the meaning and purpose of the community service activities. The socialization carried out at the clinic of Class I Penitentiary Medan, there are 19 patients with pulmonary TB, 1 doctor, 5 health cadres and 1 pulmonary TB assistant. the Class I Penitentiary in Medan has 1 clinic with a schedule for taking pulmonary TB drugs every day.

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This socialization will also form an attitude and a desire to be fully involved in community service activities. With this attitude, the implementation of activities is expected to go well.

During the socialization there is a question from one of the of pulmonary TB patient, Mr. Aminuddin, the question is what is the cause of someone who still affected by pulmonary TB even after taken care of their health and the answer then is being explained by Prof. dr. Sorimuda Sarumpaet.

Figure 3. Socialization with Pulmonary TB Patients on Pulmonary TB Disease

After the education on pulmonary TB, a demonstration is held on SOSA Bottles, starting from the benefits of using SOSA Bottles as an effort to break the chain of transmission, how to make use of the SOSA Bottles, Chlorophen liquid, tissues, and masks to be given. For the effective use of SOSA bottles by prisoners, the clinic doctor facilitates the provision of SOSA bottles, masks and tissues every day so that their use can be monitored. Furthermore, the facilitator is being briefed in a meeting. The briefing material provided is knowledge on pulmonary TB which includes understanding, signs and symptoms, ways of transmission, prevention and treatment of pulmonary TB.

Figure 4. The Demonstration of SOSA Bottle

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3. Evaluation of the Usage of SOSA Bottles as a Media for Reducing the Risk of Pulmonary TB Transmission.

After the training, the usage of SOSA bottle for 1 month (34 days) is obtained as follows:

Table 1. Monitoring of the usage of SOSA bottles in penitentiary for 34 days

Patient	The usage of SOSA bottle in penitentiary for 34 days				
	Number of days ofusage	%	Numberof daysof no usage	%	Reason for not using
1.	34	100	0	0	-
2.	6	17.6	28	82.4	No Phlegm
3.	10	29.4	24	70.5	No Phlegm
4.	34	100	0	0	-
5.	32	94.1	2	5.9	No Phlegm
6.	21	61.7	13	38.3	Absent, No Phlegm
7.	34	100	0	0	-
8.	21	61.7	13	38.3	Absent, No Phlegm
9.	20	58.8	14	41.2	Absent, No Phlegm
10.	21	61.7	13	38.3	Absent, No Phlegm
11.	3	8.8	31	91.2	No Phlegm
12.	0	0	0	0	No Phlegm
13.	0	0	0	0	No Phlegm
14.	32	94.1	2	5.9	No Phlegm
15.	0	0	0	0	No Phlegm
16.	5	14.7	29	85.3	No Phlegm
17.	0	0	0	0	No Phlegm
18.	34	100	0	0	-

Based on the data above there are 4 patients (Patient 1, 4, 7, and 17) who used SOSA bottles for 34 days. Table 1 can be concluded that all prisoner with pulmonary TB utilize SOSA bottles for phlegm and masks and tissues that have been given. The reason of prisoners with pulmonary TB do not use the SOSA bottles is there is no phlegm

4. Conclusion

The socialization of the usage of SOSA bottles to prisoners with pulmonary TB has been carried out. A training has been carried out on the knowledge, attitudes and measures of prisoners in an effort to prevent the transmission of pulmonary TB. A monitoring activity has been carried out to determine the usage of SOSA bottles in prisoners with pulmonary TB. Most of prisoners utilize SOSA bottles so that it is expected to reduce the risk of pulmonary TB transmission in penitentiaries / detention centers.

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