

# Implementation Of Active Case Finding Tuberculosis By TB-Worker In Community Health Center On Achievements Of New TB Case Findings In Daerah Istimewa Yogyakarta (DIY)

Sri Arini Winarti Rinawati<sup>1</sup>, Wahyu Ratna, Induniasih<sup>2</sup>

*Nursing Program of the Ministry of Health Polytechnic Yogyakarta, Jl. Tata Bumi No.3  
Banyuraden, Gamping, Sleman, Yogyakarta 55293. 0274-617679 Email  
[:arinihidayat@gmail.com](mailto:arinihidayat@gmail.com)*

## **ABSTRACT**

### **Background**

*Tuberculosis (TB) is a problem in developing countries, because the rate of disease incidence is still high and included in the big 10 leading cause of death in the world. As TB prevalence cases increase, community participation in finding new TB cases is very important. The method that used by various countries is by community-based case finding or Active Case Finding in the community (Active Case Finding).*

### **Purpose**

*Evaluating the program implementation in the discovery of new TB cases by TB careworker at the health center in an effort to control TB in DIY (Daerah Istimewa Yogyakarta, DIY).*

### **Method**

*This type of research is a quantitative survey. The subjects are TB worker in Puskesmas Yogyakarta, as much 120 people. The instrument used was a questionnaire containing ways of case finding, knowledge, behavior, case finding constraints, types of activities, and main tasks. The analysis uses frequency distribution and is presented in tabular form.*

### **Result**

*TB worker in Puskesmas DIY have taken several ways in carrying out new TB case finding; such as Active Case Finding, Pasive Case Finding, knock on the door, counseling, screening and screening. There are some obstacles in the implementation of the discovery of new TB cases; such as limited time and lack of personnel, lack of budget, multiple task burdens, and some areas that do not yet have cadres. The majority of TB careworker are nurses (90%). The aim of new TB cases found in DIY Province was only 48.3% from the target.*

### **Conclusion**

***Implementation of the discovery the new TB cases in DIY has not been reached to the maximum.***

**KEYWORDS**

***Active Case Finding, community health centers, Tuberculosis***

## **1. BACKGROUND**

Tuberculosis (TB) is the main cause of death and public health problems in the world globally. Until nowadays, there are still many people with TB who are lately diagnosed, or given a diagnosis after a long delay. The high burden of TB is partly contributed by the late diagnosis (World Health Organization (WHO), 2013). Tuberculosis is an infectious disease caused by *Mycobacterium Tuberculosis* (Kementrian Kesehatan RI, 2014). Tuberculosis is a global problem in the world, and the high number of tuberculosis (TB) sufferers is a problem in developing countries because the incidence rate of the disease is still high (WHO, 2019). WHO targeting the discovery of all lost TB cases or undetected TB cases by 2030 using The End TB Strategy and SDGs strategy. Achieving this target requires intensive activities to increase TB case detection, especially hard-to-reach population (Biermann et al., 2019). So far, Indonesia has conducted a survey system in 2013-2014 by confirming the numbers affected by these acid-resistant bacteria with a result of 759 per 100,000 population, especially in the age group 15 years and over, and there is a TB prevalence of 297 per 100,000 in age group 15 years and over (Indah, 2018).

The high number of new TB cases, and the persistence—even increasing—of TB prevalence cases, the role of the community in the discovery of new TB cases is very important. New case finding can be carried out passively and actively by the collaboration of community and health workers (holders of the Puskesmas's TB program). Unfortunately, until now the gap between Case Detection Rate (CDR) and Rate Mash notifications is still high. Therefore, it is necessary to take action to see firsthand how the pattern of TB control program implementation through accurate data from Puskesmas's TB Worker in the implementation of TB Active Case Finding (ACF) (Chadha & Praseeja, 2018).

Generally, ACF is implemented with special management provided by health service providers. The ACF's main target audience is high-risk groups who may have difficulty accessing health services. The application of ACF is able to provide potential benefits such as reducing morbidity, mortality, and preventing economic consequences with the application of early diagnosis. However, if ACF is implemented without clear targets and does not use integrated methods, it can lead to expensive budget expenditures and potentially lead to redirection and waste of scarce resources, potentially weakening the passive case-finding infrastructure and health system. The Case Notification Rate (CNR) in the Daerah Istimewa Yogyakarta (DIY) is the second lowest in Indonesia, which is 99 cases per 100,000 population. TB DIY's Case Detection Rate (CDR) rate is 33.9%, and this condition makes DIY being one of the provinces with a lower Case Detection Rate (CDR) rate than the average CDR in Indonesia (67.2%). DIY also has not get the TB treatment success target,

because it has a success rate of 85.1% (target > 90%). Thus, this study was conducted to measure the readiness of Puskesmas's TB Worker in all over DIY Provinces in implementing ACF in its working area, as well as uncovering obstacles that occur in the community and solutions that can be applied.

## 2. METHOD

This research is a basic quantitative survey with a cross-sectional approach. The subjects used were 120 TB worker in the Puskesmasat DIY. The samples were selected using random sampling. The measurement instrument used a questionnaire containing case finding methods, knowledge, behavior, case finding constraints, types of activities, and main tasks of TB officers at the health center. The analysis was carried out using the frequency distribution in tabular form.

## 3. RESULT

The majority of TB worker in Yogyakarta Province are officers who aged > 40 years. Yogyakarta City has the highest percentage of officers aged > 40 years, namely 67% as many as 12 officers. The education level of the respondents shows that the majority have 3<sup>rd</sup> Diploma (DIII) education, with the highest Sleman Regency at 88%. The TB Worker majority being nurses for more than 20 years. The duration of being a TB Worker at the Puskesmas majority 1-5 years. The main occupation of TB worker are nurse. Yogyakarta City has 94% of TB worker who work as nurses

### *Way to Find TB Cases by Puskesmas's TB Workers*

Way to find TB Cases	District				
	Gunung Kidul	Sleman	Bantul	KulonPr ogo	Kota Yogya
1. Seeking transmission among Local neighbors	V	V	V	V	V
2. Seeking transmission among schoolmates	V		V		
3. Sputum test	V	V	V	V	V
4. Seeking transmissin in work place			V		
5. Classifying symptoms	V	V	V	V	V
6. Molecular rapid test		V	V	V	V

Each of Puskesmas's TB Worker detecting new TB case through combination ways at their working area. Bantul Regency combining 6 ways, combination, which is more than the other regions

*Knowledge of Puskesmas's TB Workers*

District	Good		Fair		Poor	
	F	%	F	%	F	%
Sleman	3	2,5	22	18,3	0	0,0
Kulon Progo	6	5,0	13	10,8	1	0,8
Kota Yogyakarta	2	1,7	14	11,7	2	1,7
Bantul	4	3,3	19	15,8	4	3,3
Gunungkidul	5	4,2	20	16,7	5	4,2
Totally	20	16,7	88	73,3	12	10

The level of knowledge of TB worker about Active Case Finding TB in Yogyakarta Province majority 88%, with Sleman Regency in the first rank 18.3%.

*Suitability of TB Worker's Behavior towards ACF TB*

Kabupaten/Kota	Suitable		Unsuitable	
	Frek	%	Frek	%
Sleman	15	12,5	10	8,3
Kulon Progo	12	10,0	8	6,7
Kota Yogyakarta	11	9,2	7	5,8
Bantul	14	11,7	13	10,8
Gunungkidul	20	16,7	10	8,3
Totally	72	60,0	48	40,0

Based on the table above, TB workers in Gunungkidul Regency have a higher percentage of suitable behavior than other areas. The behavioral suitability referred to is the suitability of behavior towards the implementation of ACF-based TB case finding.

*The Obstacles for in Finding New TB Cases Among TB Workers*

Obstacles in the discovery of new TB cases are the lack of human resources, limited time, multiple tasks, lack of personnel, lack of budget, and some areas do not have active cadres. The dissimulate of society about TB Cases is also a challenge in itself, which tends to cloak the situation and does not want to be examined. This condition may be the reason that makes the implementation of TB case detection in DIY has not been maximally achieved

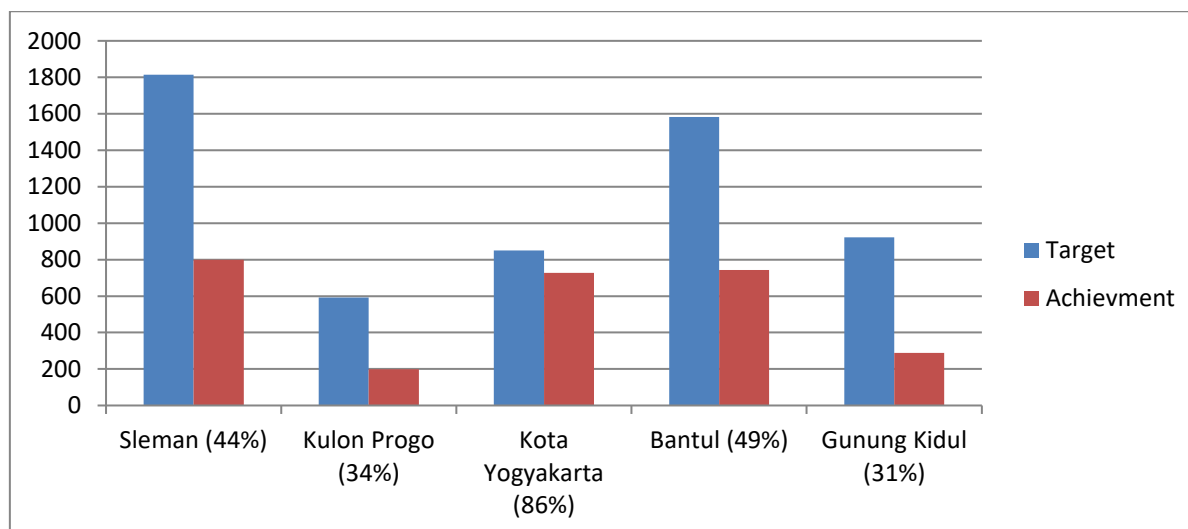
*The Main Occupation of Puskesmas's TB Workers Who Involved in Finding New TB Cases*

District	Nurse	Midwife	Laboratorian/
----------	-------	---------	---------------

			<b>Sanitarian</b>
Sleman	25	0	0
Kulon Progo	20	0	0
Kota Yogyakarta	18	0	0
Bantul	23	0	4
Gunungkidul	27	1	2
Jumlah	113	1	6

Ninety percent (90%) of the survey results indicated that the main job of TB worker who involved in finding new TB cases were nurses, who involved as TB Workers. Ten percent (10%) of them are laboratory officers, environmental health workers, and midwives. Based this condition, they might need to uniforming perception for a common perception of the mechanism for finding new TB cases in Puskemas work area. Nurses appointed as TB worker are also mostly assigned other tasks, such as the UKS program coordinator, leprosy control coordinator, sensory program holder, HIV / AIDS program holder, ISPA program holder. , etc

#### *Achievements in Finding New TB Cases in 2019*



Based on the data above, it can be interpreted that the city of Yogyakarta has the highest result in the detection of new TB cases at 85.5%. This can be made possible because of the distance and monitoring from health workers are handled more quickly.

#### **4. DISCUSSION**

TB worker at puskesmas struggle to find new TB cases in the community by means of counseling, knocking on doors, coming door to door to the community, through PIS-PK activities, as well as involving cadres and community leader to catching suspects. In this case,

community involvement has been carried out, but it is still has not as optimal as it needs. Lack of optimization of community involvement will make it difficult for health to directly reach every element of society, so that it will tend to be difficult to find cases that are not properly detected, considering that community support is a gap-bridge between the health care workers and the community itself (Arshad et al., 2014). The community is the only party who can understand how effective TB services are to reach marginalized and hidden population groups (World Health Organization, 2014). The community can be maximized by being involved in various relevant activities (Zhang et al., 2016), such as door to door, PIS-PK, as well as involvement of community leader. Optimizing the role of the community can be initiated through communication with community leaders (World Health Organization, 2008). TB worker might lacking in approaching community leaders. This can be caused by a lack of communication between health workers and cadres / local community leaders, considering that cadres and community leaders have a special role that can be included in the social determinants of health in the community. Cadres, community leaders, and other influential groups can make a major contribution in improving the public health status (Okeyo & Dowse, 2016). The situation in the community shows that there are many potentials of the local community that can be maximized for community's health.

The majority of TB worker have fair knowledge about Active Case Finding activities, it might because the TB worker have received appropriate training. Training is held to improving mastery of skills and techniques for carrying out certain jobs. Training is part of an educational process to improve the special abilities or skills of a person or group of people. Training improves the quality of work, through training it is hoped that it will be easier for someone to implement their certain task (Maryun, 2007). Appropriate training will be able to increase the knowledge of worker (Maryun, 2007) and this will have an impact on the attitude and behavior of officers in carrying out what they already know (Alotaibi et al., 2019). There are many studies that support that knowledge is an element that greatly influences a person's behavior (Alotaibi et al., 2019; de Freitas et al., 2015; Trajman et al., 2019), including the behavior of TB worker in carrying out ACF TB activities in the community (McAllister et al., 2017). This also relates to the level of education of officers, who are mostly graduates of health tertiary institutions. Education is able to have such a big effect on someone's knowledge (Kumari et al., 2018), behavior, attitude (Economic & Social Research Council, 2014), even for pattern of person's way of life. Appropriate education will make it easier for a person to carry out what they have been obliged to do, and uphold the integrity they have had since they were legalized from the education they finished, so that globally education can affect their self quality (Edgerton et al., 2012).

Most of the types of activities of TB officers towards the implementation of ACF in DIY were appropriate to ACF activities. Most of the TB officers' behavior regarding Active Case Finding activities was also appropriate, perhaps because the TB worker already had sufficient knowledge. This is in line with the results of Duarte's research (Tlale et al., 2015) which show that the factors that influence the behavior of health workers towards TB treatment are knowledge, attitudes, and practices. TB worker have understood the basic activities of implementing ACF, namely conducting rapid molecular tests, screening at schools, screening

at work, screening neighbors, sputum testing, and classifying symptoms. Activities that have not been carried out very often are networking in the workplace and in schools. This can be a separate evaluation for TB worker, considering that screening in workplaces and schools is an important activity in implementing ACF TB (Banner, 2013; Duarte et al., 2012). Schools are places of association that are reached every day, as well as workplaces. Thus, transmission in schools and workplaces needs to be a major focus in finding TB cases that are unlikely to be detected. Both of these places are risky, but are often overlooked in the implementation of tuberculosis screening (Banner, 2013; Duarte et al., 2012).

Even though TB worker have sufficient knowledge, good behavior, and know the types of activities that are suitable for Active Case Finding activities, their implementation is still not optimal. This is because officers experience obstacles and constraints in achieving ACF, such as lack of time and human resources, minimal budget, and there are some areas that do not have cadres, so it is more difficult to reach the community. Lack of time and manpower will greatly affect the performance of employees or officers (Abuhashesh et al., 2019), including TB worker at puskesmas in DIY areas. With the lack of personnel and time available for TB screening, it will be difficult for health worker to focus on the TB program. The large amount of workload can become a separate obstacle for the person's psychic (Abuhashesh et al., 2019). Some TB Worker even have concurrent HIV programme, ARI programme, etc. In accordance with Sayd's statement that limited human resources, facilities, infrastructure and an inadequate workload can affect the performance of health workers (Sayd et al., 2016). This can also be exacerbated by a lack of motivational support and a lack of concern for the needs of officers in carrying out their duties. Thus, evaluating workload and providing motivation may be the main keys in improving the performance of TB Worker (D, 2018; Kuranchie-Mensah & Amponsah-Tawiah, 2016). Inadequate budget also affects officers in carrying out their duties, so that an appropriate budget arrangement needs to be reconsidered (Cemerlang, 2016). In addition, the public is still considered less open to tuberculosis, so it is not easy to really maximize Active Case Finding. The public's openness about TB is due to several factors, namely education and knowledge. The community's basic knowledge of TB symptoms and methods of transmission has important implications for the ACF program, and this can reduce delays in diagnosis and treatment, and the spread of disease (Tolossa et al., 2014).

The main task of TB worker in puskesmas who are involved in finding new TB cases is 90% working as nurses who have additional duties as TB officers. Optimizing the role of nurses in various TB control methods, such as Active Case Finding can be the main key to the successful treatment of tuberculosis in the community (Tolossa et al., 2014).

## 5. CONCLUSION

TB Worker have sufficient knowledge, appropriate behavior, and a good understanding of the types of activities carried out in the application of ACF. However, the implementation of ACF is still not optimal due to several technical obstacles such as double loads, inadequate facilities and infrastructure, limited costs, and the openness of the community.

## 6. SUGGESTION

Full support is needed for TB worker in puskesmas to carry out ACF in a focused, such as reducing the burden of task, completing facilities, loosening the budget, increasing community sensitivity to TB, and refocusing TB programs to be oriented to ACF.

## 7. LIST OF CITATION

- [1] Abuhashesh, M., Al-Dmour, R., & Ed Masa'deh, R. ' . (2019). Factors that affect Employees Job Satisfaction and Performance to Increase Customers' Satisfactions. *Journal of Human Resources Management Research*, 2019(April), 23. <https://doi.org/10.5171/2019.354277>
- [2] Alotaibi, B., Yassin, Y., Mushi, A., Maashi, F., Thomas, A., Mohamed, G., Hassan, A., & Yezli, S. (2019). Tuberculosis knowledge, attitude and practice among healthcare workers during the 2016 Hajj. *PLoS ONE*, 14(1), 1–15. <https://doi.org/10.1371/journal.pone.0210913>
- [3] Arshad, A., Salam, R. A., Lassi, Z. S., Das, J. K., Naqvi, I., & Bhutta, Z. A. (2014). Community based interventions for the prevention and control of tuberculosis. *Infectious Diseases of Poverty*, 3(1). <https://doi.org/10.1186/2049-9957-3-27>
- [4] Banner, P. (2013). Tuberculosis contact tracing within a school environment: lessons for the future. *New South Wales Public Health Bulletin*, 24(1), 27–28. <https://doi.org/10.1071/NB12096>
- [5] Biermann, O., Lönnroth, K., Caws, M., & Viney, K. (2019). Factors influencing active tuberculosis case-finding policy development and implementation: A scoping review. *BMJ Open*, 9(12), 1–12. <https://doi.org/10.1136/bmjopen-2019-031284>
- [6] Cemerlang, M. A. I. (2016). Pengaruh partisipasi penyusunan anggaran, kejelasan tujuan anggaran, dan evaluasi anggaran terhadap kinerja aparat pemerintah kabupaten indragiri hilir. *JOM Fekom*, 3(1), 693–704.
- [7] Chadha, V. K., & Praseeja, P. (2018). Active tuberculosis case finding in India – The way forward. *Indian Journal of Tuberculosis*, 8, 1–8. <https://doi.org/10.1016/j.ijtb.2018.05.014>
- [8] D, R. (2018). Negative impacts of heavy workload: a comparative study among sanitary workers. *Sociology International Journal*, 2(6). <https://doi.org/10.15406/sij.2018.02.00086>
- [9] de Freitas, I. M., Popolin, M. P., Touse, M. M., Yamamura, M., Rodrigues, L. B. B., Neto, M. S., Crispim, J. de A., & Arcêncio, R. A. (2015). Fatores associados ao conhecimento sobre tuberculose e atitudes das famílias de pacientes com a doença em Ribeirão Preto, São Paulo. *Revista Brasileira de Epidemiologia*, 18(2), 326–340. <https://doi.org/10.1590/1980-5497201500020004>
- [10] Duarte, R., Neto, M., Carvalho, A., & Barros, H. (2012). Improving tuberculosis contact tracing: The role of evaluations in the home and workplace. *International Journal of Tuberculosis and Lung Disease*, 16(1), 55–59. <https://doi.org/10.5588/ijtld.10.0511>
- [11] Economic & Social Research Council. (2014). The wellbeing effect of education. In *Evidence Briefing* (Issue July). Cardiff University.



- [12] Edgerton, J. D., Roberts, L. W., & Below, S. von. (2012). Education and Quality of Life. *Handbook of Social Indicators and Quality of Life Research, January 2012*, 1–593. <https://doi.org/10.1007/978-94-007-2421-1>
- [13] Indah, M. (2018). Tuberkulosis. *InfoDATIN 2018 Kementerian Kesehatan Republik Indonesia*, 6. <https://doi.org/2442-7659>
- [14] Kementerian Kesehatan RI. (2014). *Pedoman Nasional Pengendalian Tuberkulosis*. Kementerian Kesehatan Republik Indonesia.
- [15] Kumari, A., Sharma, P. K., Kansal, D., Bansal, R., & Kumari, S. (2018). *IJBCP International Journal of Basic & Clinical Pharmacology Original Research Article Socio-demographic profile of multi-drug resistant tuberculosis patients and its association with severity of adverse drug reactions in DOTS plus centre at tertiary hosp.* 7(12), 2342–2346.
- [16] Kuranchie-Mensah, E. B., & Amponsah-Tawiah, K. (2016). Employee motivation and work performance: A comparative study of mining companies in Ghana. *Journal of Industrial Engineering and Management*, 9(2), 255–309. <https://doi.org/10.3926/jiem.1530>
- [17] Maryun, Y. (2007). *Beberapa Faktor yang Berhubungan dengan Kinerja Petugas Program TB Paru Terhadap Cakupan Penemuan Kasus Baru BTA (+) di Kota Tasikmalaya Tahun 2006*. 1–125.
- [18] McAllister, S., Lestari, B. W., Sujatmio, B., Siregar, A., Sihaloho, D., Fathania, D., Dewi, N. F., Koesoemadinata, C., Hill, P. C., & Alisjahbana, B. (2017). Feasibility of two active case finding approaches for detection of tuberculosis in Bandung City, Indonesia. *Public Health Action*, 7(3), Syzdykova, A., Zolfo, M., Malta, A., Diro, E., O. <https://doi.org/doi.org/10.5588/pha.16.0125> Setting:
- [19] Okeyo, I., & Dowse, R. (2016). Community care worker perceptions of their roles in tuberculosis care and their information needs. *Health SA Gesondheid*, 21, 245–252. <https://doi.org/10.1016/j.hsag.2016.05.004>
- [20] Sayd, G. A., Gana, F., & Kase, P. (2016). Faktor-faktor yang mempengaruhi kualitas kinerja pegawai kantor pertanahan di Kabupaten Rote Ndao. *Masyarakat, Kebudayaan Dan Politik*, 29(2), 61. <https://doi.org/10.20473/mkp.v29i22016.61-67>
- [21] Tlale, L. B., Masupe, T., Molefi, M., & Tshikuka, J. (2015). *Knowledge , Attitudes and Practices of health care workers ' towards tuberculosis contact tracing in a TB / HIV Prevalent setting*. 2(3), 16–22.
- [22] Tolossa, D., Medhin, G., & Legesse, M. (2014). Community knowledge, attitude, and practices towards tuberculosis in Shinile town, Somali regional state, eastern Ethiopia: A cross-sectional study. *BMC Public Health*, 14(1), 1–13. <https://doi.org/10.1186/1471-2458-14-804>
- [23] Trajman, A., Wakoff-Pereira, M. F., Ramos-Silva, J., Cordeiro-Santos, M., Militão De Albuquerque, M. D. F., Hill, P. C., & Menzies, D. (2019). Knowledge, attitudes and practices on tuberculosis transmission and prevention among auxiliary healthcare professionals in three Brazilian high-burden cities: A cross-sectional survey. *BMC Health Services Research*, 19(1), 1–8. <https://doi.org/10.1186/s12913-019-4231-x>
- [24] WHO. (2019). *Global Tuberculosis Report 2019*. World Health Organization.

- [25] World Health Organization. (2008). Community involvement in tuberculosis care and prevention. In *Who*. WHO Library Cataloguing.
- [26] World Health Organization. (2014). What is Community System Strengthening ? Who are the Key Affected Populations in the context of TB ? What do Communities do in the TB response ? In *Stop TB Partnership*. World Health Organization. [http://www.stoptb.org/assets/documents/global/fund/COMMUNITY SYSTEM STRENGTHENING AND TB.pdf](http://www.stoptb.org/assets/documents/global/fund/COMMUNITY_SYSTEM_STRENGTHENING_AND_TB.pdf)
- [27] World Health Organization (WHO). (2013). *Systematic screening for active tuberculosis : Principles and recommendation*. WHO Library Cataloguing. <https://doi.org/ISBN 978 92 4 154860 1>
- [28] Zhang, H., Ehiri, J., Yang, H., Tang, S., & Li, Y. (2016). Impact of community-based DOT on tuberculosis treatment outcomes: A systematic review and meta-analysis. *PLoS ONE*, *11*(2), 1–19. <https://doi.org/10.1371/journal.pone.0147744>