

IMPACT OF TUBERCULOSIS CONTACT INVESTIGATION EDUCATION ON HEALTH CADRES' KNOWLEDGE AT GIRISUBO HEALTH CENTER, GUNUNGKIDUL, YOGYAKARTA, INDONESIA

Zahra Rasyida¹, Liena Sofiana² , Ardyawati Wira Oktaviana³ 

¹Department of Public Health, Faculty of Public Health, Ahmad Dahlan University, Yogyakarta, Indonesia

²Faculty of Public Health, Ahmad Dahlan University, Yogyakarta, Indonesia

³Masters Program in Public Health, Sebelas Maret University, Surakarta, Indonesia

ABSTRACT

Tuberculosis (TB) is an infectious disease that remains a worldwide health concern, with Indonesia having the second-highest number of cases in the world. Contact investigation is a crucial tool for the early diagnosis and prevention of tuberculosis transmission, and health cadres play a vital role in this process. However, a lack of training reduces their efficiency in discovering instances. This study investigates the impact of IC training on cadre knowledge at the Girisubo Health Center, which had the highest number of TB patients in Gunungkidul in 2022. With most cadres not yet trained, this training will deepen their understanding and support TB case detection. This quasi-experimental study used a One-Group Pretest-Posttest design to investigate the influence of TB contact investigation training on the knowledge of 48 health cadres at the Girisubo Health Center. A validated questionnaire was used to gather data before and after the exam. A paired t-test with a 95% significance level ($p < 0.05$) was used to assess changes in knowledge following training. This study found that TB patient contact investigation education was beneficial for the understanding of health cadres (p -value = 0.000; 95% CI: 2.962-5.643). TB contact investigation education improves cadres' knowledge at the Girisubo Health Centre. The rise in post-test scores demonstrates the efficacy of lecture, audiovisual, and role-playing modalities. Interactive talks help alleviate boredom and improve comprehension. Continuous assistance is required to optimize the role of cadres in TB detection. tuberculosis contact investigation education was effective in increasing health cadres' knowledge regarding contact investigation.

How to cite:

Rasyida, Z., Sofiana, L., and Oktaviana, A. W., 2025. Impact of Tuberculosis Contact Investigation Education on Health Cadres' Knowledge At Girisubo Health Center, Gunungkidul, Yogyakarta. Journal of Community Medicine and Public Health Research. 6(2): 167 – 176.



Open access under Creative Commons Attribution-ShareAlike 4.0 International License (CC-BY-SA)

ARTICLE HISTORY

Received: July, 08, 2025

Revision: September, 03, 2025

Accepted: September, 15, 2025

Online: November, 21, 2025

doi:

10.20473/jcmphr.v6i2.75635

KEYWORDS

Contact investigation, education, knowledge, tuberculosis.

Corresponding author

Liena Sofiana

✉ liena.sofiana@ikm.uad.ac.id

Faculty of Public Health, Ahmad Dahlan University, Yogyakarta, Indonesia

Highlights:

1. This study highlights the significant impact of tuberculosis contact investigation education in increasing the knowledge of health cadres at the Girisubo Health Center.

2. The use of interactive methods such as lectures, audiovisual materials, and role-playing proved effective in enhancing cadre understanding and readiness to support TB case detection in the community.

INTRODUCTION

Tuberculosis (TB) is a contagious illness caused by *Mycobacterium tuberculosis*, which spreads through the air when infected people cough. Before COVID-19, tuberculosis was the primary cause of mortality from infection, exceeding HIV/AIDS. The illness most commonly affects adults, particularly males, and primarily the lungs, though it can also affect other organs¹. The World Health Organization (WHO) proclaimed tuberculosis (TB) a global health emergency in 1993. According to WHO figures, there were 9.96 million tuberculosis cases in 2019. Cases reached 10 million in 2020 but dropped to 9.87 million in 2021². According to the WHO, India has the most tuberculosis cases, with Indonesia coming in second. In 2019, Indonesia reported 568,987 cases of tuberculosis. Cases fell to 393,323 in 2020 but rose again to 443,235 in 2021, indicating a serious health issue³.

Indonesia has one of the highest tuberculosis burdens in the world. In 2017, the WHO projected 842,000 tuberculosis cases (319 per 100,000 people) and 36,000 TB-HIV infections (14 per 100,000 population). TB fatalities were 107,000, with TB-HIV causing 9,400 deaths. Approximately 32% of all cases have not been identified, treated, or recorded in health programs⁴. Active tuberculosis is transmitted through coughing, sneezing, or close contact with infected individuals. *Mycobacterium tuberculosis* can harm the lungs, bones, and brain. Typical symptoms include coughing for over two weeks, with or without bloody sputum, shortness of

breath, weakness, reduced appetite, night sweats, and a fever lasting up to one month⁵.

The conduct of TB patients influences the transmission of the disease. Throwing phlegm irresponsibly can spread bacteria to others. The risk of transmission is further increased by a lack of coughing etiquette and a failure to follow Clean and Healthy Living Behaviors. Furthermore, smoking increases the risk of tuberculosis infection⁶. Cadres and health professionals collaborate in contact investigations to control tuberculosis. Cadres educate the community, investigate cases, conduct contact investigations, and accompany patients to promote Clean and Healthy Living Behavior (CHLB)⁴. Contact Investigation is an endeavour to identify early cases of tuberculosis among people who have had contact with the source of infection, enabling faster case detection, preventing disease progression, and reducing transmission. In addition, contact investigation identifies latent tuberculosis infections that require preventive treatment. This activity requires collaboration between health workers and the community, which includes health cadres, Drug Supervisors, and peer educators⁴.

Cadres help prevent pulmonary TB by raising awareness and building skills in the community. They act as counselors, refer patients, monitor adherence to treatment, and identify cases early to prevent the disease from spreading. Community participation in tuberculosis control is critical for improving health and changing behaviour toward a healthier lifestyle⁷. Mentoring programs can

encourage health workers to become more involved in contact investigations to identify individuals who may have tuberculosis. When health professionals are more aware of how to identify suspected TB patients and their contacts, it supports efforts to control TB

. Mentoring activities can include orientation to fundamental TB information, training cadres to counsel patients and families, and conducting contact investigations⁸.

According to a preliminary assessment conducted by the Gunungkidul District Health Office, Girisubo Health Center reported the highest number of TB cases in 2022, with 15 cases, while Tepus II Health Center had the fewest, with only 2. The success rate of cases found in Girisubo was 98%, while that of Tepus II was 70%. Health cadres play a significant role in case finding and are rewarded by the health centre for discovering new cases. The study was conducted at Girisubo Health Center, Gunungkidul Regency, Special Region of Yogyakarta, Indonesia, as it had the highest number of tuberculosis patients, despite most cadres being new and lacking training in contact investigation. This study, conducted at the Girisubo Community Health Center, will examine the impact of TB contact investigation training on healthcare personnel's understanding. With 40 participants, the majority of whom were new and inexperienced, the training is designed to increase their comprehension, preparedness, and early identification of tuberculosis cases in the community.

Health staff play a key role in preventing and controlling tuberculosis. Most new health professionals at Girisubo Community Health Center have not received proper training in contact investigation. This gap highlights a clear

need for research, as it is not yet known whether TB contact investigation education can enhance health workers' knowledge or facilitate community-based TB case detection in this setting.

This study aimed to determine the impact of TB contact investigation education on the knowledge of healthcare workers at the Girisubo Community Health Center. It also examined whether organized training could enhance their knowledge before and after the sessions, enabling them to conduct TB contact investigations and support community-based TB control efforts.

MATERIALS AND METHODS

This was a quasi-experimental research using a one-group pretest-posttest format. From June to August 2024, researchers performed this study at the Girisubo Community Health Center Working Area, Gunungkidul Regency, Yogyakarta Special Region, Indonesia. This study involved 43 health cadres from the Girisubo area, distributed across eight hamlets. The sampling technique applied was total sampling. The independent variable was the provision of tuberculosis contact investigation education, while the dependent variable was the cadres' level of knowledge. The operational definition of the knowledge variable referred to the cadres' understanding of pulmonary tuberculosis within the working area of the Girisubo Community Health Center, including its causes, modes of transmission, identification of suspected cases, treatment options, prevention efforts, the role of health cadres, and the implementation of contact investigation. The operational definition of the contact investigation education variable is the provision of

information about tuberculosis and contact investigation procedures during a cadre forum or class.

The knowledge variable was measured using a questionnaire based on the tuberculosis pocketbook released by the Republic of Indonesia's Ministry of Health in 2020, which was validated with a Cronbach alpha score of 0.83. The collected data were evaluated using a paired t-test to determine the impact of tuberculosis contact investigation education on the knowledge of health cadres. The Ahmad Dahlan University Ethics Committee (registration number 012403057) conducted an ethical review of this project.

RESULTS

Most health cadres are in the early elderly age group (46-55 years), accounting for 32.55%, and the late elderly (56-65 years) for 37.21%. This demonstrates that the majority of cadres are elderly, which can impact the effectiveness of training and mobility during contact investigations. Most cadres are farmers (41.86%) and housewives (46.51%). This demonstrates that most cadres have jobs that allow them to devote more time to healthcare activities, particularly among farmers with more flexible schedules Table 1.

Table 1. Characteristics of research respondents

Variable	n	%
Age		
Early adulthood (25-35 years)	5	11.63
Late adulthood (36-45 years)	8	18.61
Early elderly (46-55 years)	14	32.55
Late elderly (56-65 years)	16	37.21
Job		
Housewife	20	46.51
Farmer	18	41.86
Entrepreneur	5	11.63
Education level		
High school/equivalent	25	58.14
Junior high school/equivalent	12	27.91
Elementary school/equivalent	6	13.95
Length of Time as a Health Cadre		
0-10 years	21	48.84
11-20 years	16	37.21
21-30 years	6	13.95
Training experience		
Ever	4	9.30
Never	39	90.70
Total	43	100

Most cadres (58.14%) have a high school education/equivalent, indicating a secondary education level, which may limit their capacity to absorb and apply training materials in contact investigation activities. Some cadres have 0-10 years of experience (48.84%), indicating that most cadres are relatively new to the health cadres or have

limited experience, which may affect their understanding and ability to conduct contact investigations. Most cadres (90.70%) have never attended training, indicating that tuberculosis contact investigation training remains in high demand to increase cadre knowledge and skills Table 1.

Tuberculosis contact investigation training significantly improved the health personnel's knowledge at Girisubo Health Center. The average posttest score was considerably higher than the pretest score (p -value = 0.000), as shown in Table 2.

Table 2. The Influence of TB Contact Investigation Training on the Knowledge of Health Cadres at Girisubo Health Center

	Mean	SD	95% CI	sig
Pre-test	20.47			
Post-test	24.77	4.356	2.962-5.643	<0.001

DISCUSSION

Age, education, information sources, and experience, among other factors, all impact a person's knowledge level. Training participants with high school education and in the productive age group make up the majority, indicating they can receive the material delivered by the resource person. Age considerations affect a person's ability to comprehend and think. The productive-age health cadres dominate participant involvement during the conversation, with saturation in the senior age group⁹. Cadres were provided with various instructional materials, including the essentials of screening, how to collect sputum specimens, the basics of establishing a TB diagnosis, treatment initiation, the importance of treatment adherence, community TB stigma, and general TB information¹⁰. Most TB cadres at the Girisubo Health Center are knowledgeable, having received TB-related information and education from health workers. The findings of this survey show that most cadres have positive attitudes (80%) and motivation (90%). Knowledge, attitudes, education, stakeholder support, and motivation will significantly influence cadres' behaviour when seeking new tuberculosis cases. Motivation is a powerful

motivator that drives people to take action, such as actively searching for tuberculosis cases. To maximize the follow-up investigation program, efforts are made to enhance the specialized expertise of tuberculosis exposure investigation officers and to provide training and workshops for nurses¹¹.

This demonstrates that the training improves cadres' comprehension of TB contact investigation. According to studies conducted at Girisubo Health Center, education on tuberculosis patient contact investigation has an impact on healthcare knowledge. The pretest and posttest findings show that most respondents have higher posttest scores than their pretest scores. Education can boost respondents' knowledge, as demonstrated by prior research, which found that education for posyandu cadres increased knowledge from 40% to 95.5%¹². Mentoring with orientation activities, simulations, and practices can develop knowledge and skills, enabling cadres to conduct contact investigations to detect probable tuberculosis⁸. Training through simulation will make them skilled, responsive, and nimble in deciding which steps to take based on the cadres' knowledge¹³. Contact inquiries are critical for cadres because they help eradicate tuberculosis by identifying and addressing cases¹⁴.

The function of health cadres is to help the community understand and utilise the information provided by the health facility. This is because cadres are drawn from local community members and interact more closely with locals. In addition to understanding tuberculosis disease, causes, symptoms, transmission routes, and management, cadres should be familiar with the referral system and investigation of tuberculous patient

contacts. This is necessary so that cadres understand the procedures to follow if they discover a TB case. As a result, patients can receive effective treatment right away¹⁵. A variety of factors influence the restrictions on supervision. Some variables contributing to poor cadre performance include unclear guidelines, ineffective instructional techniques, inadequate supervision, insufficient support, and strained community connections. Various alternative methods might be used during regular meetings, such as role-playing, photographs, or quizzes¹⁵.

Cadres play a vital role in persuading the population to undergo TB tests and take the necessary medications. Furthermore, cadres can provide education, record, and report on the achievements of suspects referred to healthcare facilities, including TB patients who are accompanied and those who have recovered while receiving support¹⁶. The importance of health cadres serving as motivators for patients to take their medication regularly has an impact on the increasingly high rate of recovery of sufferers, which, of course, reduces the risk of TB transmission¹⁷. This community service activity program will improve the role of TB cadres by providing them with strong knowledge, effective communication and education strategies, an understanding of recording and reporting, and exemplary case investigation skills so that TB cadres in the field can play a more effective role in dealing with TB and assisting with health issues.

Cadres do not directly impact patient medication adherence, but they can provide valuable support to TB patients. Cadres are responsible for screening patients, identifying barriers to therapy, and resolving any issues that arise. One advantage is the emotional and cultural

intimacy it provides, which allows cadres to integrate more easily into society. As a result, in addition to learning about early detection, stigma, and TB management, cadres should be educated on how to carry out their responsibilities and tasks effectively, including communication skills¹⁸. This training enables officers and cadres to perform their roles more effectively in achieving the treatment coverage program¹⁹. Following teaching on how to identify contacts of TB patients, extra support from the community health center staff is required. Supporting cadres can help identify new tuberculosis cases earlier, enabling quicker treatment and preventing further transmission²⁰. This study has limitations, including a narrow scope. It did not investigate other elements that influence cadre motivation. A more in-depth study is required on the numerous internal and external factors influencing cadre motivation, with a larger scope and more participants.

Strengths and limitations

The efficacy of TB contact investigation education in enhancing healthcare personnel's knowledge was demonstrated using interactive and practical learning modalities, including lectures, video aids, and role-playing simulations. This study's strengths include direct implementation in a high-TB burden area, targeting healthcare personnel who have not received training, and the use of validated instruments. Other limitations, such as the small sample size and reliance on a single community health center, may limit the generalizability of the findings. Furthermore, this study did not examine other potential influencing factors, including worker motivation, reward systems, or long-term knowledge retention, which would have provided a more

comprehensive picture of the intervention's impact.

Most TB cadres at the Girisubo Community Health Centre have not received professional training in TB contact investigation, which limits their ability to help with early case detection. The data show that their knowledge improved significantly after training, as seen in higher post-test scores compared to pre-test scores. This suggests that the problem of limited cadre capability can be addressed with targeted and practical training. These findings provide a clear solution to the identified gap, demonstrating that enhancing cadre knowledge through education and mentorship is an effective way to strengthen tuberculosis control in the community, particularly at the sub-district level.

Furthermore, the study's findings indicate that equipping health cadres with the proper knowledge and skills has a greater impact on the success of TB programs. By bridging the gap between community members and health institutions, competent cadres can facilitate early diagnosis, case referrals, and patient support throughout treatment. These findings demonstrate that cadre training is a feasible answer to the original obstacle of low cadre readiness, and it helps to achieve the national TB eradication target.

CONCLUSION

TB contact investigation training enabled health workers at the Girisubo Community Health Center in Gunungkidul, Yogyakarta, to gain a better knowledge. Higher post-test results following training demonstrated the efficacy of structured tactics, including lectures, multimedia aids, and role-playing exercises. These tactics

helped health professionals understand and remain involved. Ongoing training is crucial for enabling health professionals to detect tuberculosis early and prevent its spread in the community. With continued mentorship and support from health specialists, contact investigation initiatives can remain effective in the long run.

ACKNOWLEDGMENT

The authors would like to thank the Head of Girisubo Health Center and all health cadres for their enthusiastic participation in this study. We also extend our gratitude to the Gunungkidul District Health Office for their assistance and permission to conduct this study. We want to thank the Faculty of Public Health at Ahmad Dahlan University for their support and guidance throughout this study. Their participation and effort contributed significantly to the success of our investigation.

CONFLICT OF INTEREST

All Authors have no conflict of interest.

ETHIC CONSIDERATION

This research has obtained ethical approval from the Ethics Committee of Ahmad Dahlan University on May 29, 2024 (registration number 012403057), which conducted an ethical review of this project.

FUNDING

None.

AUTHOR CONTRIBUTION

All authors have contributed to all process in this research, including preparation, data gathering, and analysis,

drafting, and approval for publication of this manuscript.

REFERENCES

1. World Health Organization. Global Tuberculosis Report 2020. 2020. <https://www.who.int/publications/i/item/9789240013131>
2. World Health Organization. Global Tuberculosis Report 2022. 2022. <https://iris.who.int/bitstream/handle/10665/363752/9789240061729-eng.pdf?sequence=1>
3. Ministry of Health, Republic of Indonesia. Health Profile Indonesia 2021. Jakarta; 2022. https://kemkes.go.id/app_asset/file_content_download/Profil-Kesehatan-Indonesia-2021.pdf
4. Ministry of Health, Republic of Indonesia. Petunjuk Teknis Investigasi kontak Pasien TBC bagi Petugas Kesehatan dan Kader [Technical Guidelines for CONTACT Investigation of Tuberculosis (TB) Patients for Health Workers and Community Cadres. Dirjen Pencegahan dan Pengendalian Penyakit Menular. 2019. 1–2 p. <https://htbs.tbindonesia.or.id/wp-content/uploads/2020/03/Petunjuk-Teknis-Investigasi-Kontak.pdf>
5. Fahdhienie F, Mudatsir M, Abidin TF, Nurjannah N. Risk factors of pulmonary tuberculosis in Indonesia: A case-control study in a high disease prevalence region. Narra J. 2024;4(2). DOI: <https://doi.org/10.52225/narra.v4i2.943>
6. Rakhmawati W, Fitri SYR, Sriati A, Hendrawati S. Pengembangan Kapasitas Kader Kesehatan dalam Penemuan Kasus Tuberkulosis pada Anak di Tengah Pandemi Covid-19 [Capacity Building for Health Cadres in the Detection of Tuberculosis Cases in Children During the Covid-19 Pandemic]. Media Karya Kesehat. 2021;4(1):28–45. DOI: [10.24198/mkk.v4i1.29710](https://doi.org/10.24198/mkk.v4i1.29710)
7. Ratnasari NY, Marni. Peran Kader Kesehatan dalam Pencegahan Kejadian Tuberkulosis di Wonogiri [The Role of Health Cadres in the Prevention of Tuberculosis Incidence in Wonogiri]. J Penelit Kesehat SUARA FORIKES (Journal Heal Res Forikes Voice). 2020;11(3):97–101. DOI: [10.33846/sf11120](https://doi.org/10.33846/sf11120)
8. Manggasa DD, Suharto DN, Hermanto RBB, Aldina NN. Pendampingan kader kesehatan untuk meningkatkan kemampuan investigasi kontak tuberkulosis [Assistance of health cadres to improve the ability of tuberculosis contact investigation]. Community Empower. 2021;6(11):2041–7. <https://journal.unimma.ac.id/index.php/ce/article/download/5795/2859/>
9. Putra AWS, Podo Y. Faktor-faktor yang mempengaruhi tingkat pengetahuan masyarakat dalam mitigasi bencana alam tanah longsor [Factors Influencing the Level of Community Knowledge in Landslide Disaster Mitigation]. Urecol 6th. 2017;305–14. <https://journal.unimma.ac.id/index.php/urecol/article/view/1549>
10. Indraswari N, Sari AN, Susanti AI. Pengaruh Pendidikan Kesehatan Tuberkulosis Terhadap Pengetahuan Kader Tentang Tuberkulosis Paru : A Literature Review [The Effect of Tuberculosis Health Education on

- Cadres' Knowledge of Pulmonary Tuberculosis: A Literature Review]. *J Menara Med.* 2021;3(2):66–73. <https://jurnal.umsb.ac.id/index.php/menamedika/article/view/2187/0>
11. Ingot S, Nababan H, Gurusinga R. Faktor-Faktor Yang Berhubungan Dengan Kinerja Tenaga Kesehatan Dalam Penemuan Kasus Baru TB Melalui Investigasi Kontak Di Puskesmas Hutabaginda Kabupaten Tapanuli Utara [Factors Related To The Performance Of Health Workers In Finding New Cases Of TB Throug]. *J Kesmas dan Gizi.* 2024;7(1):105–14. DOI: [10.35451/jkg.v7i1.2344](https://doi.org/10.35451/jkg.v7i1.2344)
 12. Arianto A. Pengaruh Pelatihan Terhadap Tingkat Pengetahuan Gizi Dan Tingkat Keterampilan Kader Posyandu Balita Di Kecamatan Nyalindung [Changes in Training Towards Nutritional Knowledge Level and Skills Level of Toddler Integrated Healthcare Center Cadres in Nyalindung District]. *Nutr Nutr Res Dev J.* 2022;2(3):34–47. DOI: <https://journal.unnes.ac.id/sju/nutrizione/article/view/60881>
 13. Zetiawan Trisno. Pengaruh Metode Pelatihan Simulasi Terhadap Pengetahuan Dan Kinerja Kader TBC YABHYSA Di Kabupaten Sumenep Tahun 2022 [The Effect of Simulation Training Methods on the Knowledge and Performance of TB Cadres of YABHYSA in Sumenep Regency in 2022]. *J Vent.* 2023;1(2):176–89. DOI: [10.59680/ventilator.v1i2.319](https://doi.org/10.59680/ventilator.v1i2.319)
 14. Wagiran W, Sardi A, Sohibun S, Rudiansyah R, Damayanti R. Pelatihan Investigasi Kontak Bagi Relawan Surveilans Sebagai Kader TBC (Tuberkulosis) Di Kecamatan Sintang [Contact Investigation Training for Surveillance Volunteers as Tuberculosis (TB) Cadres in Sintang District]. *J Abdimas Indones.* 2024;4(2):388–95. DOI: [10.53769/jai.v4i2.718](https://doi.org/10.53769/jai.v4i2.718)
 15. Nasution AMS, Kholiq ARP, Barnita FI, Pashalenko MH, Rahmawati NF, Novianti RA, et al. Pengetahuan, Sikap, Supervisi, dan Motivasi Kader Dalam Upaya Penemuan Kasus Tuberkulosis Di Puskesmas Plupuh II [Knowledge, Attitude, Supervision, and Motivation of Cadres in the Effort to Detect Tuberculosis Cases at Plupuh II Community Health Center]. *Berk Ilm Kedokt dan Kesehat Masy (Scientific Period J Med Public Heal.* 2024;2(1):12–9. <https://journal.uui.ac.id/BIKKM/article/view/32046>
 16. Yunita A, Rahmawati E, Ni'matul Maula L, Africia F, Mulia SB. Optimalisasi Pemberdayaan Kader Kesehatan dalam Deteksi TBC Paru di Pare Kabupaten Kediri Tahun 2024 [Optimization of Health Cadre Empowerment in Pulmonary TB Detection in Pare, Kediri Regency, in 2024]. *IHLJ | Indones Heal Lit J |.* 2024;1(2):70–7. DOI: [10.70574/33kf7d81](https://doi.org/10.70574/33kf7d81)
 17. Hadland SE. Filling in the Gaps: Building the Evidence Base for SBIRT in Adolescents. *J Adolesc Heal.* 2023;71(4):1–7. DOI: [10.1016/j.jadohealth.2022.06.023](https://doi.org/10.1016/j.jadohealth.2022.06.023)
 18. Pebryanty P, Restuastuti T, Zahtamal. Pengetahuan Dan Tindakan Kader TB Dalam Upaya Pengendalian Penyakit TB Paru Di Kabupaten Kepulauan Meranti Putri [Knowledge and Actions of TB Cadres in Efforts to Control Pulmonary TB in Kepulauan Meranti Regency]. *J Online Mhs FK.*

- 2017;4(2):1–14.
<https://media.neliti.com/media/publications/189080-ID-pengetahuan-dan-tindakan-kader-tb-dalam.pdf>
19. Jannah AR, Syahadat DS, Yuniarti ID, Sari F, Fikri M, Megasari AR. Capaian Kinerja Petugas Dan Kader Terhadap Treatment Coverage (Tc) Pada Program Penanggulangan Tuberkulosis : Kajian Deskriptif Epidemiologi Di Kota Palu [Performance Achievement of Health Workers and Cadres on Treatment Coverage (TC) in the Tuberculosis Control Program: A Descriptive Epidemiological Study in Palu City]. *Prev J Kesehat Masy*. 2024;15(2):1-21.
- DOI: [10.22487/preventif.v15i2.1788](https://doi.org/10.22487/preventif.v15i2.1788)
20. Triyani Y, Achmad S, Ekowati RR. Pendampingan Kader Posyandu pada Pelaksanaan Program Investigasi Kontak Erat Pasien Tuberkulosis Paru di Wilayah Kerja Puskesmas Margahayu Raya Kota Bandung [Assistance for Posyandu Cadres in Implementing the Close Contact Investigation Program for Pulmonary Tuberculosis Patients in the Working Area of Margahayu Raya Community Health Center, Bandung City]. *Bangun Desa J Pengabd Masy*. 2024;3(1):29–34. DOI : [10.21927/jbd.2024.3\(1\).29-34](https://doi.org/10.21927/jbd.2024.3(1).29-34)