Vol. 12 No. 2 (2024) 272-280 *doi: 10.20473/jpk.V12.I2.2024.272-280*

A Scoping Review: Unveiling the Benefits of ACF on Tuberculosis Control

Saroh✉[1)], Bagoes Widjanarko[1)], Zahroh Shaluhiyah[1)]

[1] Diponegoro University, Semarang, Central Java, Indonesia
✉Email: saroh@students.undip.ac.id

ABSTRACT

***Background**: Tuberculosis (TB)* ranks among the top ten infectious diseases and causes of death worldwide. The implementation of active case-finding TV is crucial in achieving the objectives of the World Health Organization's End TB strategy. ***Aims**: This review aims to determine the role of active case finding in TB control in the community with high-burden TB.* ***Methods**: This review used databases Pubmed, Research Gate, Ebscohost, Science Direct, and Scopus. The search for articles used the main keywords community, active case finding, AND tuberculosis. The articles were selected in English, with a five-year time interval between 2019 to 2023. The type of article subject area included medicine, health, health care, environmental science, and social science. The documents were from journals and articles. The text availability was free full text.* ***Results**: This review was done on 3.561 articles screened and analyzed out of 6. The articles were originated from Cambodia, China, India, and Africa. This scoping review describes the effect of ACF in the community on TB control (cohorts and cross-sectional) in high-burden TB. Results from 5 articles including 6 studies indicated that that ACF in the community was significantly associated with TB control. One of the studies revealed that studies in which ACF reported a non-significant association.* ***Conclusion**: This review summarized that ACF provides greater benefits compared to the PCF strategy, especially in high-risk populations and those with limited access to healthcare facilities. It promotes prompt diagnosis and treatment, improves treatment outcomes, minimizes health complications, and reduces the social and economic impact of TB.*

***Keywords**: Active Case Finding, Community, Tuberculosis*

INTRODUCTION

Tuberculosis (TB) is an infectious disease that can be transmitted and is a significant contributor to poor health, ranking among the top causes of global mortality. Approximately 1.5 million people died due to tuberculosis (WHO, 2022). Before the COVID-19 pandemic, TB held the distinction of being the primary cause of death attributed to a single infectious agent, surpassing even HIV/AIDS in its impact. TB is brought about by the *Mycobacterium tuberculosis*, which spreads when individuals afflicted with TB release bacteria into the air, such as through coughing. While the illness commonly targets the lungs (known as pulmonary TB), it can also impact other locations (WHO, 2022). The symptoms of TB depend on the location of the lesions. They may manifest clinically as follows: persistent cough for more than two weeks, productive cough, coughing up blood-tinged sputum, potential chest pain, and shortness of breath. Other accompanying symptoms include malaise, weight loss, decreased appetite, chills, fever, and night sweats. Several groups of people are at a higher risk of developing TB. These include individuals with HIV and other immunocompromised conditions, those on long-term immunosuppressive medication, smokers, heavy alcohol consumers, children under the age of 5 and the elderly, individuals in close contact with someone with actively infectious TB, those in settings with a high risk of TB infection (e.g., correctional facilities, long- term care facilities, and healthcare workers (Kemenkes RI, 2020).

Cases that have been un-identified and un-reach or cases that are detected-un-notified by the program, become a source of tuberculosis transmission in the community (Kemenkes RI, 2019). It is estimated that a quarter of the global

Received: 13-12-2023, Accepted: 02-02-2024, Published Online: 02-09-2024

population has been exposed to TB, but some people avoid testing, while others recover from the infection. In 2022, only 40% of contacts under the age of 5 underwent household contact investigation, and for those above 5 years old, it was only 3% (WHO, 2022).

Traditionally, TB cases are reported and passively notified when people with TB present themselves to a health facility. The tuberculosis prevention program has transformed its case detection strategy, not only passively through promotional activities but also intensive and active case finding (ACF) based on families and communities. This approach—focuses on delivering quality services under the established standards (Kemenkes RI, 2019). The implementation of active case finding TV is crucial in achieving the objectives of the World Health Organization's End TB strategy in high-burden TB (Sumner *et al*., 2019)

Several studies have provided evidence of the impact that ACF can have on controlling TB. ACF is often associated with the systematic screening of active TB in populations at risk, typically involving screening activities conducted outside of healthcare facilities. However, in this compilation of evidence, we considered interventions commonly carried out beyond health facilities, such as screening populations in the community or specific settings (World Health Organization, 2021).

More and more studies have assessed ACF. However, the effect of ACF on TB control in communities is unclear. Recent studies have focused more on the antecedents, components and influencing factors for ACF policy development and implementation. Therefore, further studies to examine the effect of ACF in the community for TB control are needed to allow a robust interpretation of the results (Biermann *et al*., 2019).

METHODS

This review was conducted and designed in September 2023. We conducted a scoping review based on the following research question: What is the effect of active case finding in the community for tuberculosis control? The relevant articles were obtained from reputable journal databases including Pubmed, Research Gate, Ebscohost, Science Direct, and Scopus. The search for articles used the main keywords: community AND active case finding AND tuberculosis. The articles were in English, with a selected time interval of five years between 2019 to 2023. Type article subject area included medicine, health, health care, environmental science, and social science. The hind of documents were journals and articles. The text availability was free full text. We included any type of research from countries with high burden TB Cambodia, China, India, and Africa. There was a PRISMA flow diagram to guide reporting.

RESULTS AND DISCUSSION

Searches in Pubmed, Research Gate, Ebscohost, Science Direct, and Scopus yielded 3562 citations (excluding duplicates, n= 2.447). Of these publications, 217 were excluded after the initial screening of titles and abstract information. A total of 6 articles were selected for this study after the full text was reviewed (the reasons were generally: 187 articles mismatched with inclusion criteria and 24 articles did not focus on active case finding. The detailed process of study research is shown in Figure 1.

Of the six articles for scoping review, one is cohort studies, four cross-sectional study and one cross-sectional and descriptive survey. Three studies were conducted on the Afrika population, two studies on the Indian population, and one study on the Chinese population. The majority of studies used structured questionnaires, CXR, GeneXpert test, and sputum smear to diagnose TB. Screening visits were conducted by trained community health workers, trained medical undergraduate students, community volunteers, and the public health team. We identified the benefits of ACF in the community. The characteristics of the selected studies are shown in Table 1.

Articles identified through database searches (n= 3561). Pubmed (n=221), Research Gate (n=74), Ebscohost (n=918), Science Direct (n=2084) dan Scopus (n=264),

ted: 02-02-2024, Published Online: 02-09-2024

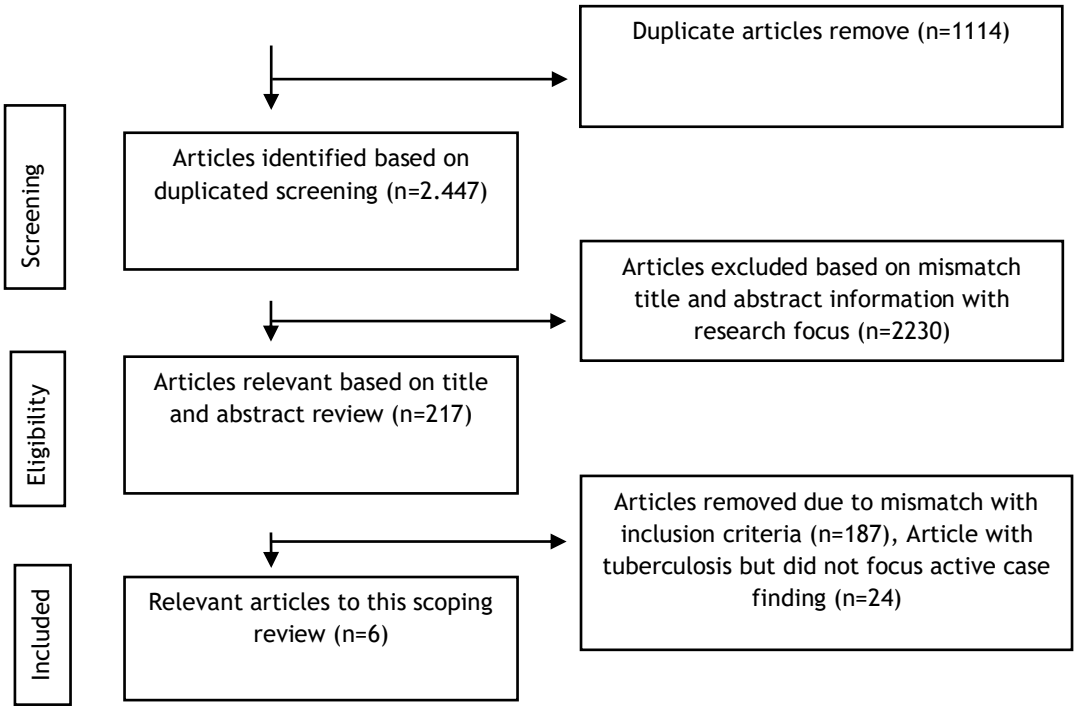

Figure 1. PRISMA Flow diagram for reporting scoping review

Table 1. Characteristics of the selected studies

References	Study Design	Sampling	Result
Role of Community- Based Case Finding in Screening Tuberculosis in Yunnan Province China *(Chen et al.*, 2019)	Cohort study between 2013-2015	Multi stage cluster sampling and randomly sampled 10 counties in 10 provinces throughout the nation based on population size and TB prevalence level.	In this study, screening visits were conducted by Trained Community Health Workers (CHW) using standardized questionnaires, chest X- Ray (CXR) and sputum smear result to diagnosed. The total number of individuals visited was 97.521. A total of 12.007 individuals exhibited symptoms and/or belonged to high-risk groups. Among them, 11.991 had abnormal CXR results and underwent sputum examination. The result 66 individuals were diagnosed with active TB. The incidence of TB is 18.7/100.000 in the general population, and the incidence of TB 416.4/100.000. From 2013- 2015 high risk population diagnosed with TB included: elderly, people with diabetes mellitus, people with HIV/AIDS, close contact with index cases, and people with a history of a previous TB case. The implementation of ACF is not effective in the general population. ACF proves beneficial for high-risk groups, requiring fewer screenings to identify a TB case compared to Passive Case Finding (PCF). Additionally, the ACF strategy led to a

Received: 13-12-2023, Accepted: 02-02-2024, Published Online: 02-09-2024

			reduction in patient delay.
Active Case Finding of Tuberculosis Among Household Contact of Newly Diagnosed Tuberculosis Patients: A Community-Based Study from Southern Haryana (Chawla *et al.*, 2020)	A community-based cross-sectional	The study incorporated 55 index cases along with 356 household contacts. Individuals who did not meet the specified case definitions or were unwilling to provide written consent were excluded from the study. Every person involved was treated with courtesy, and the confidentiality of their information was upheld.	The researcher carried out home visits and interacted with the relevant index case and their household contact to establish a connection. Following an explanation of the study's purpose and objective, along with addressing any questions they might have had, written consent was acquired from both the index case and household contacts (with parental/guardian consent when the contacts were minors) before they participated in the study. Information was gathered through a semi-structured questionnaire. A total of 55 index cases and 356 household contacts underwent screening. Among them, 43 showed positive symptoms of TB, and 7 had a positive result in the sputum smear test. Screening household contacts for ACF is a viable and effective approach that has the potential to lead to earlier diagnosis and treatment of active TB. This, in turn, can reduce the severity of the disease and decrease its transmission. Additionally, it may play a role in enhancing treatment outcomes, minimizing health complications, and mitigating the social and economic impact of TB.
Community-Based Active Tuberculosis Case Finding in Pastoralist Communities of North Eastern Uganda *(Isaac et al.*, 2019)	A community-based cross-sectional	In this study, 385 adults were enrolled. Participants considered of individuals aged 15 years and above residing in densely populated environments with poorly ventilated houses.	Trained medical undergraduate students, assisted by community health workers, conducted door-to-door visits to screen available household members for TB symptoms as defined in the intensified case finding (ICF) form, such as cough, unintentional weight loss, fever, night sweats, or hemoptysis. If a client reported any symptoms, they were classified as presumptive cases and underwent clinical assessment. All consenting adults aged 15 years or older with a positive TB symptom screen were interviewed using a standardized questionnaire in the local language. They collected the specimens at home, picking one sample on the spot to laboratory procedure. The total respondents were 385, with 143 showing symptoms indicative of TB. Out of these, 84 were able to produce sputum for examination and 11 new cases of TB were identified (37,5% of positive cases involve the elderly), with 8 of them confirmed through the GeneXpert test. The positive results were notified within a median time of 3 days from sputum collection. Subsequently, all confirmed cases were closely monitored and promptly started on treatment. ACF for TB, which involves an initial sensitive symptom screening followed by GeneXpert testing, enhanced the detection of TB cases. This approach also reduced the turnaround time, leading to the timely initiation of TB treatment for patients.

Received: 13-12-2023, Accepted: 02-02-2024, Published Online: 02-09-2024

Community-Based Active Tuberculosis Case Finding Using a Symptom-Based Screening Tool in The Volta Region Ghana *(Ntow et al.*, 2021)	A community based cross-sectional	High-risk and low-risk districts were determined with the use of the 2014-2017 annual review of TB control documents. Proportional sampling was employed to determine the number of eligible participants from two districts to be included in the study, taking into account their populations, to constitute the overall calculated sample size of 332.	A structured questionnaire was administered to eligible individuals randomly selected in the study by the public health team. The questionnaire collected demographic and TB risk data (cough of more than 2 weeks with or without additional symptoms: cough of any duration with at least one systemic symptom of TB, such as night sweat, weight loss, fever or hemoptysis, and HIV positivity for anyone with TB systemic symptoms). Individuals who met these criteria were considered as having presumptive TB and sputum was collected for examination. In Ghana, GeneXpert is the first-line testing technique an MTB/RIF GeneXpert assay detected M. tuberculosis. In this study, the total screened population was 1.025 (high risk 670, low risk 355), Non-presumptive TB 693 (high risk 400, low risk 293), Presumptive TB 332 (high risk 251, low risk 81), sputum not produced 18 (high risk 10, low risk 8), sputum produced 314 (high risk 241, low risk 73), Total GeneXpert positive 6 (high risk 4, low risk 2). Despite being laborious and requiring significant capital, ACF in communities through house-to-house screening is likely to yield better detection of TB cases compared to screening during communal gatherings.
Is it Feasible to Carry Out Active Case Finding for Tuberculosis in Community Based Settings? *(Mani et al.*, 2019)	A community-based, cross-sectional and descriptive survey	This study encompassed all individuals in the study area who expressed a willingness to participate. Houses that remained locked after two visits throughout the survey period were not considered. The study was conducted in January 2018	Trained undergraduates assessed the demographic characteristics and presence of presumptive symptoms and signs related to TB. Presumptive TB was operationally defined as the presence of one or more of the following symptoms (cough for more than 2 weeks, fever, recent weight loss, hemoptysis, chest pain, and loss of appetite). If an individual was found to have any one of the presumptive symptoms, they were motivated to undergo a sputum examination. After educating the presumptive cases to bring out mucopurulent sputum rather than saliva, pot samples were collected by the survey team in the household. The second container was given to the presumptive case to collect early morning sputum, which the survey team collected the same the next day. Of the 6606 populations surveyed, the number of presumptive TB identified was 55, the number of presumptive cases did not undergo any investigation 4, some presumptive cases underwent at least one investigation 51, sputum collected 37, sputum positive TB 1, Chest X-Ray 25, suggestive of TB 1, Gene X Part 1. So, the total number of active TB cases is 2. The prevalence in the present study is lower, which may be linked to a higher socioeconomic status, improved living conditions, and convenient access to

Received: 13-12-2023, Accepted: 02-02-2024, Published Online: 02-09-2024

			healthcare facilities. Implementing ACF for TB is viable, as long as the health system allocates sufficient human resources and establishes effective referral linkages to support peripheral centers.
Case Finding of Tuberculosis Among Mining Communities in Ghana *(Ohene et al.*, 2021)	Cross-Sectional Study	The TB screening initiative was provided solely voluntarily for all community members aged 15 and above who expressed their willingness to take part. A total of 10.441 individuals from 78 communities in 21 districts were screened across the three regions of Brong Ahafo, Ashanti, and Western. On average, 226 people underwent screening each day.	One week before the team arrived in the community, the district's TB focal person, in cooperation with community volunteers, engaged in community mobilization through diverse methods such as door-to-door awareness campaigns and announcements on the community radio. A TB symptom screening was conducted through a questionnaire assessing the presence or absence of symptoms such as cough, fever, sputum production, chest pain, weight loss and night sweats. Except for pregnant or potentially pregnant women and those unable or unwilling to undergo chest X- ray, everyone underwent digital X- Ray examination. Digital X- ray images categorized findings into three groups: normal, abnormal suggestive of TB, and abnormal but unlikely to be TB. Individuals with abnormal X- ray findings suggestive of TB, those reporting a cough of at least 2 weeks or any duration with at least one other symptom, and those unable to undergo X- ray or identified as HIV- positive were presumed to have TB. They were requested to provide a spot sample of sputum, which was then transported to designated laboratories with GeneXpert machines for testing. A total number of community members screened was 10.441, Chest X- ray done 10.329, the presence of 1 or more symptoms 3.319, Chest X- ray suggests TB 1.448, Presumed TB among number screened (X- ray suggests TB or presence of cough and at least one other symptom 2.389, Number tested out of presumed TB 2.250, Bacteriologically positive out of number tested 95, Rifampicin resistant 5. The elevated risk of TB in artisanal mining communities and among miners, as demonstrated in this study, underscores the necessity to focus on these populations through outreach programs, especially considering that they may reside in remote or challenging-to-access- areas.

This scoping review describes the effect of ACF in the community on TB control (cohorts and cross-sectional) in high-burden TB. Results from 5 articles including 6 studies indicated that that ACF in the community was significantly associated with TB control. One of the studies revealed that studies in which ACF reported a non-significant association.

Our results provide evidence of the association between ACF are recommendation for TB control which provides greater benefits compared to the PCF strategy, especially in high-risk populations and those with limited access to healthcare facilities. It promotes prompt diagnosis and treatment, improves treatment outcomes, minimizes health

Received: 13-12-2023, Accepted: 02-02-2024, Published Online: 02-09-2024

complications, and reduces the social and economic impact of TB.

Numerous studies have confirmed that ACF in a community especially among household contact and high-risk groups could be used as an effective TB case detection. Several research has indicated that the ACF strategy enhances the detection of TB cases in high-risk populations, particularly among individuals who are HIV- positive and those with diabetes mellitus (DM) (Lorent *et al*., 2014; Mtwangambate *et al*., 2014; Rivera *et al*., 2017). According to the guidance from WHO, it is recommended to prioritize ACF in populations with a high prevalence of TB. Certain groups identified with elevated prevalence include individuals who are in close contact with households, those living with HIV (PLHIV), and individuals incarcerated in prison facilities (World Health Organization, 2021). Under normal circumstances, infections can be fought off. In high-risk group conditions, there is a weakening of the immune system that progressively damages white blood cells. The declining immunity affects the immune system's inability to combat ongoing infections. This conditions facilitate opportunistic infections, including the Mycobacterium tuberculosis (Cahyatii W, 2019). In the PCF strategy, residing in rural areas posed a risk factor for both patient and diagnostic delay.

A study undertaken by Gupta *et al*. in Maharashtra, India, revealed that 3.45% of individuals in close contact with TB patients exhibited symptoms indicative of TB. Subsequently, one-third of these symptomatic individuals were diagnosed with active TB, indicating a prevalence of 1.15% among the households of index cases. This approach enabled the identification of an additional 4.51% of cases in addition to those already detected among the index cases (Gupta *et al*., 2016). Research conducted in Chennai, India, revealed a 5.3% overall prevalence of active TB among household contacts (Nair *et al*., 2016). The yield for identifying active TB cases through contact investigations varied from 0% to 6.9% among household contacts in countries with a high burden of TB (Jia *et al*., 2014). Identifying other populations with high prevalence necessitates accurate baseline prevalence and incidence rates, along with mapping areas characterized by heightened transmission ("hotspots"). Optimal selection of populations in specific locations is crucial for the effectiveness of ACF, and reliable data play a fundamental role in making informed decisions regarding population selection. In instances where prevalence survey data is lacking, available programmatic data can be utilized for modeling to identify these specific population groups (World Health Organization, 2021). The incidence of TB in the community decreased by over 40% compared to the rates before the intervention of ACF (Corbett *et al*., 2010).

Various potential mechanisms underlying the benefit of ACF in the community for TB control were reported in other studies. ACF provides benefits for collaboration between the community and healthcare services in the early detection and treatment of TB. The result revealed bacteriologically confirmed TB cases within an average of three days from the collection of sputum. This represented a significantly reduced processing time compared to the commonly reported delay of 7-10 days, particularly in community settings. The positive clients were actively monitored and commenced treatment by community health workers. If clients provided telephone contacts, they were contacted and encouraged to initiate treatment at the healthcare facilities (Isaac *et al*., 2019). ACF addresses challenges in reaching vulnerable communities, lowers the overall expenses associated with diagnosis and treatment, decreases significant financial burdens, and eliminates the financial obstacles hindering the pursuit of TB healthcare. ACF is regarded as a tool for mitigating the broader socioeconomic impact of TB (World Health Organization, 2021).

This review minimizes health complications and reduces the social and economic impact of TB. Early studies showed that the research revealed a decreased percentage and likelihood of households facing catastrophic costs in the ACF when contrasted with the PCF. This discrepancy might be attributed to the elevated levels of unemployment and income loss observed in the PCF, consequently magnifying the socio-protective impacts of ACF (Vo *et al*., 2021).

Received: 13-12-2023, Accepted: 02-02-2024, Published Online: 02-09-2024

One of the studies revealed that the method used to identify ACF did not explain the presence of heterogeneity between studies. An explanation may be that the ACF methods are linked to a higher socioeconomic status, improved living conditions, and convenient access to healthcare facilities (de Sousa *et al*., 2018)

CONCLUSION

This review has summarized that there were ACF provides greater benefits compared to the PCF strategy, especially in high-risk populations and those with limited access to healthcare facilities. It promotes prompt diagnosis and treatment, improves treatment outcomes, minimizes health complications, and reduces the social and economic impact of TB. In the other hand, ACF is not impactful when implemented in a setting general population, higher socioeconomic status, improved living conditions, and convenient access to healthcare facilities. ACF has significant effects on the community when accompanied by collaboration between healthcare professionals, the community, and the availability of necessary tools.

REFERENCES

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

Cahyatii W, M. N. (2019). Determinan Kejadian Tuberkulosis pada Orang dengan HIV/AIDS. *Higeia Journal of Public Health*, *3*(2), 168–178. https://doi.org/10.15294/higeia.v3i2.24857

Chawla, S., Gupta, V., Neeraj, G., Grover, K., Goel, P. K., Kausal, P., Singh, N., & Ranjan, R. (2020). Active Case Finding of Tuberculosis Among Household Contacts of Newly Diagnosed Tuberculosis Patients: A Community Based Study from Southern Haryana. *Journal of Family Medicine and Primary Care*, 9(7), 3701-3706. 10.4103/jfmpc.jfmpc_532_20

Chen, J. O., Qiu, Y. B., Rueda, Z. V., Hou, J. L., Lu, K. Y., Chen, L. P., Su, W. W., Huang, L., Zhao, F., Li, T., & Xu, L. (2019). Role of community-based active case finding in screening tuberculosis in Yunnan province of China. *Infectious Diseases of Poverty*, *8*(1), 1–12. https://doi.org/10.1186/s40249-019-0602-0

Corbett, E. L., Bandason, T., Duong, T., Dauya, E., Makamure, B., Churchyard, G. J., Williams, B. G., Munyati, S. S., Butterworth, A. E., Mason, P. R., Mungofa, S., & Hayes, R. J. (2010). Comparison of two active case-finding strategies for community-based diagnosis of symptomatic smear-positive tuberculosis and control of infectious tuberculosis in Harare, Zimbabwe (DETECTB): A cluster-randomised trial. *The Lancet*, *376*(9748), 1244–1253. https://doi.org/10.1016/S0140-6736(10)61425-0

de Sousa, D. E. R., Wilson, T. M., Machado, M., Guerra, J. M., Da Costa, D. E. M., Colling, A., & de Castro, M. B. (2018). Disseminated tuberculosis in a dog: A putative zooanthroponosis. *Acta Scientiae Veterinariae*, *46* (343), 12. http://www.ufrgs.br/actavet/46-suple-1/CR_343.pdf

Global Tuberculosis reporT 2022. (2022). http://apps.who.int/bookorders.

Gupta, M., Saibannavar, A. A., & Kumar, V. (2016). Household symptomatic contact screening of newly diagnosed sputum smears positive tuberculosis patients-An effective case detection tool. *Lung India*, *33*(2), 159–162. https://doi.org/10.4103/0970-2113.177445

Isaac, G., John Robert, E., Swabrah, N., Gloria, N., Okungura, P. D., Oboth, P., Iramiot, J. S., & Nekaka, R. (2019). Community- based Active Tuberculosis Case Finding in Pastoralist Communities of North-Eastern Uganda. *Microbiology Research Journal International*, *29*(3), 1–10. https://doi.org/10.9734/mrji/2019/v29i330166

Jia, Z., Cheng, S., Ma, Y., Zhang, T., Bai, L., Xu, W., He, X., Zhang, P., Zhao, J., & Christiani, D. C. (2014). Tuberculosis burden in China: A high prevalence of pulmonary tuberculosis in household contacts with and without symptoms. *BMC Infectious Diseases*, *14*(1), 1–7. https://doi.org/10.1186/1471-2334-

Received: 13-12-2023, Accepted: 02-02-2024, Published Online: 02-09-2024

14-64

Kemenkes RI. (2019). Petunjuk Teknis Investigasi kontak Pasien TBC bagi Petugas Kesehatan dan Kader. *Dirjen Pencegahan Dan Pengendalian Penyakit Menular*, 1–2. https://htbs.tbindonesia.or.id/wp-content/uploads/2020/03/Petunjuk-Teknis-Investigasi-Kontak.pdf

Kemenkes RI. (2020). *Pedoman Nasional Pelayanan Kedokteran Tata Laksana Tuberkulosis*.

Lorent, N., Choun, K., Thai, S., Kim, T., Huy, S., Pe, R., Van Griensven, J., Buyze, J., Colebunders, R., Rigouts, L., & Lynen, L. (2014). Community-based active tuberculosis case finding in poor urban settlements of Phnom Penh, Cambodia: A feasible and effective strategy. *PLoS ONE*, *9*(3), 1–12. https://doi.org/10.1371/journal.pone.0092754

Mani, M., Riyaz, M., M, S., Vaithiyalingam, S., Anand, V., Selvaraj, K., & Purty, A. J. (2019). Is it Feasible to Carry Out Active Case Finding for Tuberculosis in Community Based Settings? *Lung India*, *36*(1), 28-31. https://doi.org/10.4103/lungindia.lungindia_324_18

Mtwangambate, G., Kalluvya, S. E., Kidenya, B. R., Kabangila, R., Downs, J. A., Smart, L. R., Fitzgerald, D. W., & Peck, R. N. (2014). "Cough-triggered" tuberculosis screening among adults with diabetes in Tanzania. *Diabetic Medicine*, *31*(5), 600–605. https://doi.org/10.1111/dme.12348

Nair, D., Rajshekhar, N., Klinton, J. S., Watson, B., Velayutham, B., Tripathy, J. P., Jawahar, M. S., & Swaminathan, S. (2016). Household contact screening and yield of tuberculosis cases-a clinic based study in Chennai, South India. *PLoS ONE*, *11*(9), e0162090. https://doi.org/10.1371/journal.pone.0162090

Ntow, G. E., Kweku, M., Aninagyei, E., & Duedu, K. O. (2021). Community-based active tuberculosis case finding using a symptom-based screening tool in the Volta Region, Ghana. *International Journal of Infectious Diseases*, *102*, 56–62. https://doi.org/10.1016/j.ijid.2020.09.1439

Ohene, S. A., Bonsu, F., Adusi-Poku, Y., Dzata, F., & Bakker, M. (2021). Case finding of tuberculosis among mining communities in Ghana. *PLoS ONE*, *16*(3 March), 1–16. https://doi.org/10.1371/journal.pone.0248718

Rivera, V. R., Jean-Juste, M. A., Gluck, S. C., Reeder, H. T., Sainristil, J., Julma, P., Peck, M., Joseph, P., Ocheretina, O., Perodin, C., Secours, R., Duran-Mendicuti, M., Hashiguchi, L., Cremieux, P. Y., Koenig, S. P., & Pape, J. W. (2017). Diagnostic yield of active case finding for tuberculosis and HIV at the household level in slums in Haiti. *International Journal of Tuberculosis and Lung Disease*, *21*(11), 1140–1146. https://doi.org/10.5588/ijtld.17.0049

Sumner, T., Bozzani, F., Mudzengi, D., Hippner, P., Houben, R. M., Cardenas, V., Vassall, A., & White, R. G. (2019). Estimating the Impact of Tuberculosis Case Detection in Constrained Health Systems: An Example of Case-Finding in South Africa. *American Journal of Epidemiology*, *188*(6), 1155–1164. https://doi.org/10.1093/aje/kwz038

Vo, L. N. Q., Forse, R. J., Codlin, A. J., Dang, H. M., Van Truong, V., Nguyen, L. H., Nguyen, H. B., Nguyen, N. V., Sidney-Annerstedt, K., Lonnroth, K., Squire, S. B., Caws, M., Worrall, E., & de Siqueira-Filha, N. T. (2021). Socio-protective effects of active case finding on catastrophic costs from tuberculosis in Ho Chi Minh City, Viet Nam: a longitudinal patient cost survey. *BMC Health Services Research*, *21*(1), 1–11. https://doi.org/10.1186/s12913-021-06984-2

World Health Organization. (2021). *Optimizing active case-finding for tuberculosis: Implementation lessons from South-East Asia*.

Received: 13-12-2023, Accepted: 02-02-2024, Published Online: 02-09-2024