Facilities and difficulties in implementation of the tuberculosis control program in Primary Health Care

Sandy Yasmine Bezerra e Silva[1], Eliabe Rodrigues de Medeiros[1], Sérgio Balbino da Silva[1], Rayla Patrícia da Silva Andrade[1], Aline Ale Beraldo[2], Érika Simone Galvão Pinto[1]

[1]Universidade Federal do Rio Grande do Norte (UFRN) – Rio Grande do Norte (RN), Brazil
[2]Ministério da Saúde (MS) – Brasília (DF), Brazil

Corresponding author: Sandy Yasmine Bezerra e Silva - Universidade Federal do Rio Grande do Norte - Br-101, s/n - Campos Universitário - CEP 59078-970 - Lagoa Nova – Natal (RN), Brazil - Email: sandyyasmine@hotmail.com

Introduction: The Brazilian National Tuberculosis Control Program was created to recommend and direct clinical actions, organizational setting, information systems and surveillance of tuberculosis. The process of implementation of control actions in Primary Care took place in several formats and with different outcomes, due to the influences of local organizational configuration. **Objective:** To identify the facilities and difficulties reported by nurses in the implementation of the Tuberculosis Control Program in Primary Health Care. **Methods:** A descriptive cross-sectional study with a quantitative approach, conducted in the city of Natal, Brazil. Data collected from November from 2017 to February 2018, with 80 nurses from Primary Health Care, through a structured questionnaire. Data were categorized according to similarity criteria and analyzed using descriptive statistics. **Results:** The availability of nurses to work in the program (47.5%) and the presence of materials (31.2%) were the most frequently mentioned facilities. The most frequently mentioned difficulties were: adherence to treatment (21.2%) and the performance of complementary tests (15.0%). **Conclusion:** The findings of the study may contribute to reflection and planning of actions by health teams, as well as a tool for local managers to organize their services, in order to ensure the person with tuberculosis comprehensive care.

Keywords: tuberculosis; primary health care; health evaluation.

INTRODUCTION

Tuberculosis (TB) is considered a serious public health problem worldwide that has perpetuated throughout human history. In 2018, it was considered the infectious disease that killed the most in the world[1]. Characteristics such as the current scenario of the migratory process added to the financial crisis and political instability have contributed to the maintenance of the TB transmission chain in developed and developing countries[2-4].

It is estimated that 11 million people develop the disease annually[1]. In 2018, 72,788 new cases were reported in Brazil, and in 2017, 4,534 deaths from the disease were identified[5].

With a view to reducing the occurrence of the disease, in 1999 the Brazilian Ministry of Health created the National Tuberculosis Control Program and based on this program, clinical, organizational, information and surveillance systems actions are recommended and directed, in addition to interaction with areas inside and outside the health context, at all levels of health care[6].

In Primary Health Care (PHC), the development of TB control actions takes place through the efforts of the multiprofessional team in meeting the needs of people with the disease. In this context, studies bring the nurse as a prominent professional in the team to accompany these users and promote the strengthening of individual and collective relationships in order to enable comprehensive care, going through assistance activities, case management and health information systems and in the development of health education activities[7-9].

The process of implementing health programs in Brazil has an autonomous character, result of different conceptions of policies, and studies on the implementation of programs are important tools for analyzing the operational and contextual components that influenced the variation in the results achieved. It is considered that something is in place when its operationalization is adequate, that is, it is being used appropriately[10]. Relating to the TB Control Program, the process of implementing control actions in PHC services took place in different formats and with different results, due to the influences of the local organizational configuration[11].

In the case of Brazil, in the existing research on the implementation of the Tuberculosis Control Plan, the identification of critical and favorable points for achieving the proposed objectives is explored as well as possible solutions. These existing studies collaborate to strengthen the municipalities' adherence to the program, but they are still insufficient for TB control in the localities[12,13].

In view of this panorama, the following question emerged: what aspects facilitate or hinder the implementation of the TB Control Program in PHC? This study aims to identify the facilities and difficulties mentioned by nurses in the implementation of the Tuberculosis Control Program in Primary Health Care.

METHODS

Descriptive cross-sectional study with a quantitative approach. The STROBE guideline checklist was used for the writing of this study[14].

The study was carried out in the city of Natal, capital of the State of Rio Grande do Norte, located in the northeast of Brazil. Its PHC services network is organized in 54 Health Units (HU), geographically distributed in five health districts (HD): Sul, Leste, Oeste, Norte I e Norte II.

The control plan in the municipality has the sputum flow protocol for the diagnosis of Tuberculosis using the Rapid Molecular Test (RMT-TB) using the GeneXpert MTB/RIF (Cepheid) method of smear and culture. Thus, in cases of diagnosis of pulmonary or laryngeal TB, the RMT-TB is performed and bacilloscopic is requested to monitor the cases. Health units are responsible for collection and conservation. The samples are registered through the Laboratory Environment Management System (LEM) and the transport of the collected material is carried out through prior contact with the HD management[15].

The flow of biological material for diagnosis is divided by DS. In the South, East and West DS the samples are sent to the reception of

the Zeca Passos Laboratory, responsible for carrying out the screening and forwarding the second sample with the protocol number of the LEM system to the Central Laboratory (LACEN), which will perform the RTM-TB. In HD Norte I and Norte II, the samples are sent to the Paulo Gurgel Clinic, which performs the screening and forwards the second sample with the protocol number of the LEM to LACEN, in order to perform the RTM-TB[15].

The study population consisted of the total number of PHC HU in the municipality (N=54). The sample of the units was calculated using the sample calculation for finite populations, considering a sampling error of 5% and a confidence interval of 95%, with data collection defined at 48 HU. The participation of at least two nurses per US was recommended, thus resulting in a sample of 96 nurses, without replacement.

The inclusion criteria used were: nurses who were in practice during the data collection period and who performed actions to control TB in PHC.

The data were collected from November 2017 to February 2018, using an instrument developed by the researchers, based on the Manual of Recommendations for Tuberculosis Control in Brazil, which provided elements for the construction of the items[6], consisting of 62 questions for this study, 4 multiple-choice questions referring to the characterization of professionals and 2 open questions, with no pre-formed list, were selected, in which the participants were asked about the facilities and difficulties faced by PHC nurses who develop TB control actions.

The data collection team consisted of 3 undergraduate students and 9 nurses, properly trained. It should be noted that prior to data collection, the instrument was analyzed by researchers and coordinated by the State TB Program of the State and applied with three nurses working in PHC who were not part of the study to verify the clarity and adequacy with the study proposal.

The data were analyzed with the aid of the Statistical Package for the Social Sciences (SPSS) program, version 22.0 IBM, and the data regarding the facilities and difficulties in implementing the program were organized and categorized according to similarity criteria, and the results presented in tables using descriptive statistics in absolute and relative numbers.

The ethical aspects were met, according to the favorable opinion of the Research Ethics Committee of the Universidade Federal of Rio Grande do Norte, under number 2,327,693 and Certificate of Presentation for Ethical Appreciation 76788317.9.0000.5537.

RESULTS

Of the 96 nurses selected to participate in the study, 6 refused to participate, 8 were away from work during the collection period and 2 were not available because there was only one nurse responsible for the activities at the Health Unit, totaling 80 participants in the study.

Among the 80 study participants, 75 (93.7%) were female, with an average age of 48 years, with an average time in this function of 18 years. The highest number worked in units belonging to the HD Oeste (23.6%), followed by the HD Norte II (22.5%), Norte I (18.7%), and DS Leste and Sul (both 17.5%).

Table 1 shows the facilities mentioned by nurses when implementing the Tuberculosis Control Program. The availability of nurses to act in the actions and availability of medicines and supplies, such as sputum collection pots, notification forms and case monitoring, record books stand out.

The difficulties for implementing the actions are shown in Table 2. The lack of adherence of people with TB to the treatment stands out, the performance of complementary tests, also the absence of professional involvement.

DISCUSSION

The results show that, in the view of the nurses participating in the study, the amount of difficulties exceeds the facilities for implementing the Tuberculosis Control Program in PHC services.

Table 1: Facilities mentioned by nurses in the implementation of the Tuberculosis Control Program in Primary Health Care. Natal, Rio Grande do Norte, Brazil, 2018.

Facilities	n	%
Availability of nurses to work in the program	38	47.5
Availability of medicines and supplies	25	31.2
Existence of training on Tuberculosis	5	6.2
Access of the person with Tuberculosis to the Health Unit	3	3.8
Adherence of the person with Tuberculosis to the treatment	3	3.8
Health Unit Infrastructure	2	2.5
Did not respond or identified facilities	4	5.0
Total	80	100.0

Table 2: Difficulties reported by nurses in implementing the Tuberculosis Control Program in Primary Health Care. Natal, Rio Grande do Norte, Brazil, 2018

Difficulties	n	%
Lack of adherence to treatment	17	21.2
Complementary exams (chest X-ray and tuberculin skin test)	12	15.0
Absence of involvement of the multidisciplinary team	9	11.2
Delay in laboratory results	8	10.0
Access to information systems	7	8.7
Inadequate infrastructure of the Health Unit	5	6.2
Work overload	5	6.2
Lack of coordination between levels of health care	4	5.0
Absence of health education activities	3	3.7
No training	2	2.5
Disease stigma	2	2.5
Did not respond or identified difficulties	6	7.5
Total	80	100.0

Among the facilities, the nurse's commitment to carrying out the disease control actions stood out. A similar result was found in a study developed with PHC nurses who showed professional, ethical and social commitment to people with TB. Comprehensive and individualized care to the reality of each person with TB was highlighted and not only the technical act of delivering medicines and conducting tests[16].

This finding reinforces the role of nurses in TB control, since this professional performs numerous actions in the services, from assistance, management activities to the search to promote better articulation and dynamics among the other professionals of the multidisciplinary team[8].

It was also evidenced in this study the availability of materials used for the diagnosis, treatment and records of the disease. Different findings were reported in studies in which the lack of material in the units was mentioned, such as sputum collection pots, record books and a Styrofoam box for sputum storage[17,18]. The importance of supplies such as the sputum collection pot and the medicines provided by the PHC Health Units are indispensable for the diagnosis and treatment of TB, and their offer is necessary for quality care and early diagnosis of the disease[19].

The availability of materials is fundamental for the launching of the program's activities, but it should be noted that only its existence does not guarantee the execution of the actions. Professionals are responsible for the continuity of the process.

An important point, but little mentioned by the participants, was the users' access to health units, unlike the finding of a study carried out in Minas Gerais, in which accessibility to the health service was identified as easy[4]. The Family Health Strategy is the preferred gateway for users to treat the disease, where embracement is carried out through comprehensive assistance providing the link between user and health professional. Studies have found that difficulties in accessing US can delay diagnosis and reduce the success of treating the disease[20,21].

One of the factors that can restrict the population's access is the fact that the disease is still stigmatized and some people still feel constrained to seek health services when they feel sick[22].

As for the difficulties mentioned by the participants for the implementation of the Tuberculosis Control Plan, there is the lack of adherence of the person with TB to the treatment, related by the participants, mainly to users of licit and illicit drugs, and the appearance of the adverse effects of drugs used in treatment.

Adherence to treatment involves several aspects of a physical, social and behavioral nature that permeate different approaches to its implementation. A study carried out on the perception of nursing professionals and people with TB on the offer of actions for adherence to treatment pointed out the importance of the protagonism of the person with TB in the treatment itself as a means for adherence to treatment, especially with regard to adequate operationalization of Directly Observed Treatment[23].

Within Directly Observed Treatment, new strategies are being followed in pursuit of therapeutic adherence. In some states in

India, a way to guarantee adherence to the treatment of the person with TB is the supply of the drug by any identified family member, provided that a health professional remains the main motivator and provider of the treatment[24].

In view of the findings, it is necessary to reflect on the team and managers in relation to the implementation of actions aimed at the emancipation of the person with TB in their self-care and also for planning and executing strategies that focus on these licit drug users, in the sense of comprehensive care.

In the municipality where the study was conducted, participants reported that there is difficulty in performing chest X-rays and tuberculin skin test (TST) due to their lack of availability in PHC services. According to the Ministry of Health in 2019, TST is indicated for the diagnosis of Latent Infection by *M. tuberculosis*; chest radiography is the imaging method of choice in the evaluation and monitoring of pulmonary TB, and should be requested for every clinical suspect[25].

This result corroborates with a study carried out in the southeastern region of Brazil, which identified operational problems in the performance and lack of definition about the indication for TST, as well as the unavailability of chest radiography in the care network[4,26].

The lack of involvement of the multidisciplinary team in caring for people with TB was also reported as a difficulty. A study carried out in Amazonas identified as a difficulty the fragmentation of care actions due to the lack of interaction between health professionals[13]. Studies have as a strong point the relationships between health professionals in services and local communities in order to improve the monitoring of people with TB and improve treatment results[27,28].

In this study, it is notable that the nurse assumes a prominent role in the control of the disease, but it is important to emphasize that the user, upon entering the health service, has the support of a multidisciplinary team in order to offer comprehensive care.

As the articulation of care actions between the levels of care has also been identified as a difficulty, it is observed that this factor contributes to uncoordinated and fragmented assistance. This was reported in a study carried out in a capital city of northeastern Brazil, when it was found that the levels of care are organized separately without proposals for interconnection between them in the service network[29].

With regard to access to health systems, weaknesses that hinder access to TB diagnosis are still seen in practice. A study carried out in different regions of Brazil showed the complexity of access to the health system for the diagnosis of TB, more specifically in PHC services, in which it is influenced by several factors, they are: related to the patient and the service, that characterize socio-cultural, organizational, geographical and economic barriers[30].

As for the difficulty about the lack of health education reported by the study participants. It was observed in another investigation that the development of health promotion actions through educational actions promotes catalytic changes which are evidenced by the strengthening, participation and protagonism of individuals and the community in the management of self-care[31].

The difficulty in developing such educational actions leads to a collision in the search for coping with TB, as it does not allow the empowerment of patients about their health condition and, consequently, seek improvement in quality of life.

Thus, from these prerogatives, there are organizational difficulties in services and mismatch in the flow of information that interfere with disease control.

The analysis on the identification of facilitating and hindering aspects mentioned by nurses on the implementation of the TB Control Program in PHC services pointed out as favorable shows the availability of nurses to perform the actions and the availability of medicines and supplies, which contribute to the quality of disease control actions. In contrast, the aspects that make it difficult are the lack of adherence of people with TB to treatment, the failure to carry out complementary exams and the lack of involvement of the multidisciplinary team in caring for people with TB.

The findings of the study can contribute to reflection and planning of actions by PHC health teams, as well as a tool for local managers to organize the service network, in order to improve the program and guarantee the person with TB comprehensive and quality care.

It is listed as limitations of this study the fact that the research did not cover the totality of professionals from the network of PHC services in the city who may differ from opinion; also the ignorance or option of some professionals not to answer all the questions of the study instrument.

REFERENCES

1. World Health Organization (WHO). Global tuberculosis report 2018. Geneva: World Health Organization, 2018.

2. Pereira JC, Silva MR, Costa RR, Guimarães MDC, Leite ICG. Profile and follow-up of patients with tuberculosis in a priority city in Brazil. Rev Saúde Pública. 2015;49:6. http://dx.doi.org/10.1590/S0034-8910.2015049005304

3. Lacerda TC, Souza FM, Prado TN, Locatelli RL, Fregona G, Lima RCD, *et al*. Tuberculosis infection among primary health care workers. J Bras Pneumol. 2017;43(6):416-23. http://dx.doi.org/10.1590/s1806-37562016000000211

4. Andrade HS, Oliveira VC, Gontijo TL, Pessôa MTC, Guimarães EAA. Avaliação do Programa de Controle da Tuberculose: um estudo de caso. Saúde Debate. 2017;41(spe):242-58. http://dx.doi.org/10.1590/0103-1104201718

5. Brasil. Ministério da Saúde. Secretaria de Vigilância em Saúde. Tuberculose. Bol Epidemiol. 2019;(espe):88-90.

6. Brasil. Ministério da Saúde. Manual de recomendações para o controle da Tuberculose no Brasil. Brasília: Ministério da Saúde, 2011.

7. Brunello MEF, Simiele-Beck MF, Orfão NH, Wysocki AD, Magnabosco GT, Andrade RLP, *et al*. Atuação da enfermagem na atenção a uma condição crônica (tuberculose): análise de fontes secundárias. Rev Gaúcha Enferm. 2015;36(spe):62-9. http://dx.doi.org/10.1590/1983-1447.2015.esp.56363

8. Rêgo CCD, Macêdo SM, Andrade CRB, Maia VF, Pinto JTJM, Pinto ESG. Processo de trabalho da enfermeira junto à pessoa com tuberculose na Atenção Primária à Saúde. Rev Baian Enferm. 2015;29(3):218-28. http://dx.doi.org/10.18471/rbe.v29i3.13038

9. Souza E, Barbosa E, Rodrigues I, Nogueira L. Prevenção e controle da tuberculose: revisão integrativa da literatura. Rev Cuid. 2015;6(2):1094-22. http://dx.doi.org/10.18471/rbe.v29i3.13038

10. Denis J, Champagne F. Análise da implantação. In: Hartz ZMA. Avaliação em Saúde: dos modelos conceituais à prática na análise da implantação de programas. Rio de Janeiro: Fiocruz, 1997; p. 49-88.

11. Vieira LMS. Avaliação de políticas e programas de saúde. Rio de Janeiro: Fiocruz, 2014.

12. Oliveira LGD, Natal S. Avaliação de implantação do Programa de Controle da Tuberculose no município de Niterói/RJ. Rev Bras Pneumol Sanit. 2007;15(1):29-38.

13. Heufemann NEC, Gonçalves MJF, Garnelo ML. Avaliação do programa de controle da tuberculose em cenário Amazônico: desafios em Coari. Acta Amaz. 2013;43(1):3342.

14. Malta M, Cardoso LO, Bastos FI, Magnanini MMF, Silva CMFP. STROBE initiative: guidelines on reporting observational studies. Rev Saude Publica. 2010;44(3):559-65. http://dx.doi.org/10.1590/S0034-89102010000300021

15. Natal. Secretaria Municipal de Saúde. Memorando Circular n° 066/2016. Fluxo de material biológico para diagnóstico da tuberculose. Natal: Secretaria Municipal de Saúde, 2016.

16. Cavalcante EFO, Silva DMGV. Nurses' commitment to the care of tuberculosis patients. Texto Contexto Enferm. 2016;25(3):e3930015. http://dx.doi.org/10.1590/0104-07072016003930015

17. Cunha NV, Cavalcanti MLT, Costa AJL. Diagnóstico situacional da descentralização do controle da tuberculose para a Estratégia Saúde da Família em Jardim Catarina – São Gonçalo (RJ), 2010. Cad Saúde Coletiva. 2012;20(2):177-87.

18. Cunha NV, Cavalcabti MLT, Santos MLF, Araújo VLA, Cruz DMO, Pessanha GF, *et al*. Estrutura, organização e processos de trabalho no controle da tuberculose em municípios do estado do Rio de Janeiro, RJ, Brasil. Interface. 2014;19(53):251-63. https://doi.org/10.1590/1807-57622014.0083

19. Jung BC, Gonzales RIC. Gestão do cuidado às pessoas com sintomas da tuberculose. Rev Eletr Gestão Saúde. 2016;7(1):159-75.

20. Motamedizadeh F, Alimohammadzadeh K, Hosseini SM. Monitoring and Evaluation of Program Performance and Management Control System of Tuberculosis: A Ten-Year Cross-Sectional Study in Sistan and Baluchestan Province, Iran. Shiraz E-Med J. 2018;19(9):e60497. http://dx.doi.org/10.5812/semj.60497

21. Santos E, Felgueiras Ó, Oliveira O, Duarte O. Diagnosis delay of tuberculosis in the Huambo province, Angola. Pulmonology. 2018;24(5): 294-9. http://dx.doi.org/10.1016/j.rppnen.2017.10.002

22. Cecilio HPM, Teston EF, Marcon SS. Acesso ao diagnóstico de tuberculose sob a ótica dos profissionais de saúde. Texto Contexto Enferm. 2017;26(3):e0230014. http://dx.doi.org/10.1590/0104-07072017000230014

23. Beraldo AA, Andrade RLP, Órfão NH, Silva-Sobrinho RA, Pinto ESG, Wysocki AD, *et al*. Adherence to tuberculosis treatment in Primary Health Care: perception of patients and professionals in a large municipality. Esc Anna Nery. 2017;21(4):e20170075. http://dx.doi.org/10.1590/2177-9465-ean-2017-0075

24. Negandhi H, Tiwari R, Sharma A, Nair R, Zodpey S, Allam RR, *et al*. Rapid assessment of facilitators and barriers related to the acceptance, challenges and community perception of daily regimen for treating tuberculosis in India. Glob Health Action. 2017;10(1):1290315. http://dx.doi.org/10.1080/16549716.2017.1290315

25. Brasil. Ministério da Saúde. Manual de Recomendações para o Controle da Tuberculose no Brasil. Brasília: Ministério da Saúde, 2019.

26. Sá LD, Oliveira AAV, Gomes ALC, Nogueira JA, Villa TCS, Collet N. Cuidado ao doente de tuberculose na Estratégia Saúde da Família: percepções de enfermeiras. Rev Esc Enferm USP. 2012;46(2):356-63. http://dx.doi.org/10.1590/S0080-62342012000200013

27. Diallo A, Dahourou DL, Dah TTE, Tassembedo S, Sawadogo R, Meda N. Factors associated with tuberculosis treatment failure in the Central East Health region of Burkina Faso. Pan African Med J. 2018;30:293. http://dx.doi.org/10.11604/pamj.2018.30.293.15074

28. Iribarren SJ, Rubinstein F, Discacciati V, Pearce PF. Listening to Those at the Frontline: Patient and Healthcare Personnel Perspectives on Tuberculosis Treatment Barriers and Facilitators in High TB Burden Regions of Argentina. Tuberc Res Treat. 2014;2014:135823. http://dx.doi.org/10.1155/2014/135823

29. Barros DBM, Costa JMB, Reis YAC, Albuquerque AC, Felisberto E. Avaliação da coordenação do cuidado de usuários com tuberculose multidrogarresistente em Recife, Pernambuco, Brasil. Saúde Debate. 2020;44(124):99-114. https://doi.org/10.1590/0103-1104202012407

30. Quintero MCF, Vendramini SHF Santos MLSG, Santos MR, Gazetta CE, Lourenção LG, *et al.* Acesso ao diagnóstico da tuberculose em município brasileiro de médio porte. Rev Salud Pública. 2018;20(1):103-9. https://doi.org/10.15446/rsap.V20n1.64177

31. Costa AFA, Gomes AMF, Fernandes AFC, Silva LMS, Barbosa LP. Professional skills for health promotion in caring for tuberculosis patients. Rev Bras Enferm. 2020;73(2):e20180943. http://dx.doi.org/10.1590/0034-7167-2018-0943