■ Original Article
doi: https://doi.org/10.1590/1983-1447.2018.20180157

Detection of tuberculosis: the structure of primary health care

Detecção da tuberculose: a estrutura da atenção primária à saúde

Detección de la tuberculosis: la estructura de la atención primaria de salud

Lílian Moura de Lima Spagnolo[a]
Jéssica Oliveira Tomberg[a]
Martina Dias da Rosa Martins[b]
Luize Barbosa Antunes[a]
Roxana Isabel Cardozo Gonzales[a]

How to cite this article:
Spagnolo LML, Tomberg JO, Martins MDR, Antunes LB, Gonzales RIC. Detection of tuberculosis: the structure of primary health care. Rev Gaúcha Enferm. 2018;39:e20180157. doi: https://doi.org/10.1590/1983-1447.2018.20180157.

ABSTRACT

Objective: To analyze the structure of primary health care for the detection of tuberculosis cases in two municipalities of Rio Grande do Sul.
Method: Descriptive, evaluative mixed methods research, with direct observation of the physical structure of 69 primary health care units; and semi-structured interviews with 10 subjects. Conducted between 2014 and 2016. Using descriptive statistics and content analysis for data analysis.
Results: In the 50 units in Pelotas there was an absence of: pots (24%); forms (53.1%), register books (48%) and of transportation of material to the laboratory (86%). In the 19 units of Sapucaia do Sul, these inputs were available. The absence of professionals, the turnover of human resources and the lack of training, emerged as the main structural deficiencies.
Conclusion: There are structural differences between municipalities. The study suggests that Pelotas should adopt tuberculosis care coordination.
Keywords: Primary health care. Tuberculosis/prevention & control. Health services research.

RESUMO

Objetivo: Analisar a estrutura da atenção primária à saúde para a detecção de casos de tuberculose em dois municípios do Rio Grande do Sul.
Método: Descritivo, avaliativo utilizando métodos mistos, com observação da estrutura física em 69 unidades de atenção primária à saúde; e entrevistas semi-estruturadas com 10 indivíduos. Realizado entre os anos de 2014 e 2016. Utilizou-se análise estatística descritiva e análise de conteúdo.
Resultados: Nas 50 unidades de Pelotas observou-se ausência de: potes (24%); formulários (53,1%), livro de registro (48%) e transporte do material até o laboratório (86%). Nas 19 unidades de Sapucaia do Sul havia disponibilidade destes insumos. A ausência de profissionais, a rotatividade dos recursos humanos e a deficiência de capacitações foram as principais deficiências estruturais.
Conclusão: Conclui-se que há diferenças estruturais entre os municípios, e sugere-se à adoção da coordenação da atenção à tuberculose em Pelotas.
Palavras-chave: Atenção primária à saúde. Tuberculose/prevenção & controle. Pesquisa sobre serviços de saúde.

RESUMEN

Objetivo: Analizar la estructura de la atención primaria de salud para detección de casos de tuberculosis en dos municipios del Rio Grande do Sul.
Método: Descriptivo, evaluativo con uso métodos mixtos, aplicando la observación acerca de la estructura física de 69 unidades de atención primaria de salud; y entrevistas semiestructuradas con 10 individuos. Realizado entre 2014 y 2016. Análisis estadístico descriptivo y análisis de contenido.
Resultados: En las 50 unidades de Pelotas no había: pote de esputo (24%); formularios de solicitud (53,1%); libro de registro (48%) y transporte de esputo al laboratorio (86%). En Sapucaia do Sul las 19 unidades tenían disponibilidad de estos materiales. La falta de profesionales, el cambio de los profesionales y la deficiencia de formación continua fueron las principales deficiencias estructurales.
Conclusión: Existen diferencias estructurales entre los municipios, y se sugiere la adopción de la coordinación de la atención para la tuberculosis en Pelotas.
Palabras clave: Atención primaria de salud. Tuberculosis/prevención & control. Investigación en servicios de salud.

[a] Universidade Federal de Pelotas (UFPel), Faculdade de Enfermagem, Programa de Pós-Graduação em Enfermagem. Pelotas, Rio Grande do Sul, Brasil.

[b] Universidade Federal de Pelotas (UFPel), Faculdade de Enfermagem. Pelotas, Rio Grande do Sul, Brasil.

INTRODUCTION

Tuberculosis (TB) control is a priority to be adopted worldwide, since 22 countries concentrate the estimated burden of the disease, and one of these is Brazil[1]. In 2014, he incidence rate in the country was 34.2 cases per 100 thousand inhabitants and the mortality rate was 2.1 deaths per 100 thousand inhabitants[2]. Among the Sustainable Development Goals (SDG) adopted by the United Nations in 2015, to be reached by 2030, is the end of the global TB epidemic, which would mean less than 20 new TB cases per 100 thousand people and the reduction of the number of deaths in 90%, when compared to 2015[3].

To do so, the early detection of TB and the adequate treatment of people with the disease is paramount[4]. To detect the disease early, it is necessary to detect respiratory symptom patients (SR) (people with cough for three or more weeks) in the first weeks of the disease. To this end, actively searching the community is essential, which is in accordance to premises of actions for TB control decentralization in primary health care (PHC)[2,5].

Since this is a complex activity, the detection of cases demands the actions of multi-disciplinary teams, adequately trained and supported by organizational and physical structures, with inter-sectoral actions and a continuous information flux, allowing for an effective coordination of assistance, capable of guaranteeing that attention is continuous and can attend the needs of users[5-7].

The necessary structure for the detection of TB cases prescribes that municipal management should consider physical and organizational aspects of PHC teams, including any necessary input for the bacilloscopy catarrh exam (sterile pots with screw tops, forms to request the exam, register books for those with respiratory symptoms, thermal boxes to store the catarrh samples), the transport of the samples to the lab and a team of professionals properly trained and aware, so that the SRs can be conducted to a diagnostic[2]. Studies conducted in many regions of the country[5,7-8] made clear that there are structural and organizational limitations for the execution of TB control actions in PHC, which led to the fragmenting of care and reflected in the efficacy of said control actions.

The physical and organizational structures of the PHC are recognized as conditions for an effective detection of TB cases and the consequent reaching of the goals of global and national strategies for the control of the disease. Therefore, a question was raised: What is the structure available in primary health care units for the detection of cases of tuberculosis? This research aimed at analyzing the structure available in the primary health care for the development of actions to detect cases of tuberculosis in two municipalities in Rio Grande do Sul.

METHODS

Descriptive, evaluative and sequential exploratory study using mixed methods. It was developed from October 2013 to October 2016, analyzing the actions of TB control in the PHC of two cities in Rio Grande do Sul.

The first one, Pelotas, is in the south of the state. It has 343,651 inhabitants and at the time of collection had 50 PHC units. The Family Health Strategy (ESF) covered 70.2% of the population in June 2016. The detection of cases is decentralized for the PHC and the treatment is centralized in one outpatient service. Sapucaia do Sul is in the metropolitan region of the city of Porto Alegre and has a population of 138,933 inhabitants. During data collection, it had 19 PHC units, and the ESF covered 49.6% of the population by June 2016. Actions for TB control are taken by the municipalities and decentralized, being put in charge of the PHC[9-10]. These municipalities were selected due to their differences regarding the organization of TB control actions that make possible the understanding of different realities – in addition to the fact that the Tuberculosis Control Program is municipal in both cases.

The research is divided in two stages, the first is quantitative, originated from a multi-centric and census study[11], conducted from October 2013 to November 2014, in which data was collected from visits to the 69 PHC units of the cities in the study. The second stage was qualitative, conducted in July 2016. A semi-structured interview was applied to the municipal managers of TB control actions, and the PHC professionals responsible for these actions were interviewed in the units where they worked.

In the qualitative stage, a structured and previously codified form was used, one that had been formulated according to the recommendations of the National Tuberculosis Control Program for the detection of TB cases. Data collection took place through the application of a checklist, containing the variables related to the structural context: modality of the health services; existence or not of directly observed treatment strategies; working hours; number of professionals, including nurses, physicians and community health agents; existence of a register of people with respiratory symptoms; pots for the collection of catarrh; specific place for the collection of catarrh; fridge to store the biological material; thermal box; form for the request of bacilloscopies; transport of the sample to the lab. The analysis of these variables allowed for the verification of whether the structure of PHC

units was adequate to execute TB control. A database was created in the software Microsoft Excel®, and a descriptive analysis was carried out in the software Statistica 12, by Statsoft®, describing relative and absolute frequencies of the variables.

The selection of health professionals to take part in the qualitative data collection was made according to a stratification of the PHC units in the municipalities, according to the quantitative analysis of the number of recorded catarrh bacilloscopy exam requests in 2012. Therefore, they were characterized according to a higher, intermediary, or lower number of requests. In Pelotas, in addition to these categories, other two were created, since there was no register in all units, and some others had no records of the requests (no book of records – 24 units; with a book but with no requests – seven units; from one to nine requests – eleven units; from ten to 18 requests – six units; from 19 to 27 requests – two units); while there were three groups in Sapucaia do Sul (from three to 36 requests – 11 units; from 37 to 73 requests – six units; from 74 to 111 requests – two units).

One unit was randomly chosen for each category mentioned above, to a total of eight units. Contact was made via telephone and the interview was scheduled with the professional responsible for TB in the unit. The inclusion criteria considered professionals who had been working in the PHC of the city for six months or longer. The group of randomly selected units in Pelotas was made up of two traditional basic health units (UBST) and three family health strategy units (ESF). In Sapucaia do Sul the group was made up of one UBST, one ESF and one unit that was in a transition from UBST to ESF.

The semi-structured interviews were made up of open questions regarding the physical and organizational structures of the PHC to attend for TB, including: How is your health unit organized to attend the users with tuberculosis symptoms? Tell me about your work in TB control at the PHC? How do you see the potentialities and weaknesses of attention for TB in this municipality? What can be improved? And how is it possible to operationalize these improvements? The interviews were recorded in audio and later transcribed and analyzed in the software Hyper Research®, version 2.8.3, using a content analysis, thematic modality[12], to identify the presence of themes that made up the interviews and interpret their meanings. From the analysis, the following themes emerged: structured and attention flow. Considering the goals of this publication, the theme structure will be addressed. It includes: material, human and organization resources for the operationalization of TB attention at the PHC.

To carry out this study, the ethical precepts in Resolution 466/12 from the National Council of Health were respected[13]. The anonymity of the subjects was guaranteed. They were identified by the letter G, in case of managers, and by the letter P, in the case of professionals, plus the initial letter of their cities. The project was submitted to the Plataforma Brasil and its quantitative stage was approved under protocol 702.283. Later, the qualitative stage was submitted, being approved under protocol 1485.708.

RESULTS

Regarding the physical and organization structures in Pelotas, the health units were found to be organized to act, especially, in two shifts (72%). Regarding the inputs, 48% did not have a register of people with respiratory symptoms, 53.1% did not have forms to request catarrh bacilloscopy, and 24% do not have pots to store the samples.

It was also found that, in Pelotas, there was no specific place for the collection of catarrh in the health units, and the recommended place for the collection in 65.1% of cases was the residence of the SR. The units did not have a fridge for the storage of biological material and 40% of them had thermal boxes. The transportation of samples to the municipal laboratory is left in charge of the patients themselves or their relatives in 86% of cases.

In Sapucaia do Sul, the units work primarily in two shifts (73.7%) and all units had inputs for the request of bacilloscopies. The units did not have a specific place for exam collection, and the recommendation is for users to collect it at their residences. The health care units had thermal boxes in 94.7% of cases and only one unit (5.3%) had a fridge to store the samples. The transportation of catarrh samples to the lab is carried out by a vehicle owned by the municipality.

When asked about whether there are sufficient inputs to carry out the catarrh bacilloscopy, the health care professionals unanimously stated that there was no problem, as can be seen in the extracts below:

> *The resources that we have to carry out the attention, if we want, are the pots, the register and the contact with the specialty center [reference service]. When it's over we just have to ask and they send more! (P2_P).*

> *I believe that tuberculosis is a complex issue, but you don't need complex physical tools to attend to it. What you need is more an issue of human awareness, understanding and analyzing the symptoms (P1_S).*

Table 1 - Structure for the detection of tuberculosis cases in the primary health care units in two municipalities in Rio Grande do Sul

Structure	Pelotas (n=50)		Sapucaia do Sul (n=19)	
	N	%	N	%
Working shifts				
One shift	6	12.0	1	5.3
Two shifts	36	72.0	14	73.7
Three shifts	8	16.0	4	21.0
Book to register people with respiratory symptoms				
No	24	48.0	0	0.0
Yes	26	52.0	19	100
Form for bacilloscopy request				
No	27	53.1	0	0.0
Yes	23	46.9	19	100
Pots for catarrh collection				
No	12	24.0	0	0.0
Yes	38	76.0	19	100
Specific room for catarrh collection				
No	50	100	19	100
Where is it collected*				
Residence	28	65.1	19	100
Common use room in the unit	15	34.9	0	0.0
Fridge to store the samples				
No	50	100	18	94.7
Yes	0	0.0	1	5.3
Thermal box to store the samples				
No	30	60.0	1	5.3
Yes	20	40.0	18	94.7
Transport of samples to the lab				
Patient/relatives	43	86.0	0	0.0
Mayor's office	7	14.0	19	100

Source: Multi-centric Primary health care study for the detection of cases of tuberculosis in priority municipalities in the south of Brazil: challenges and investments in information strategies.
*five respondents ignored this variable

On the other hand the professionals mentioned the insufficient human resources in the units and the high turnover as structural problems to execute actions for TB control. That was especially the case in Pelotas, as indicated below:

> *Right now we don't have a general practitioner in the Unit, that makes it difficult. So, the nurse is the one to evaluate the situations! [...] we have a high turnover! We don't have a community health agent because this is not an ESF, it takes time for us to bond with the person [...] (P5_P).*

In Sapucaia do Sul, the lack of human resources was related to the community health agents (ACS), since it is a traditional unit that does not have this type of professional. The other professional categories were seen as satisfactory. One of the interviewed workers brought forth the issue of

human resource turnover as a factor that interferes in the actions to detect TB cases.

> *I think the amount of professionals we have today is ok! The only thing that still is not good enough is the active search, because this is a traditional UBS, we don't have community health agents (P3_S).*

> *There's a high turnover, and that interferes, they arrive here with no training or they never heard of TB. Sometimes the person who left was the reference of the team regarding tuberculosis, and then you have to start or do it again (P1_S).*

Regarding organizational resources, there are differences in the structure of the municipalities. In Sapucaia do Sul the treatment is decentralized, with a reference physician in the PHC units and the adoption of directly observed treatment (DOT) in all units. Meanwhile, in Pelotas, only the detection is carried out by the PHC. The treatment is centralized in a reference outpatient unit, located in the center of the city. In this unit, the person with TB goes through monthly follow-up consultations, get medication for thirty days and receives guidance to self-apply said medication.

> *We decentralized all actions for primary health care in 2005 [...] in the ESF we only have the professionals that take complete responsibility for the patient [...] for the basic schemes, there is a physician that makes the prescriptions in primary care, for comorbidity or infectious disease cases this physician stays in the reference or infectious disease services (G_S).*

The manager of Pelotas points out that the professionals lack interest for TB, especially the physicians, and that this is a structural problem for the operationalization and the organization of the decentralization of the treatment for TB throughout the primary health care system.

> *We decentralize detection actions for primary care [...] has been trying for a long time to decentralize care. I have a great limitation, which is the lack of professionals, especially physicians, that are sensitive towards the TB cause. I myself can't leave everything to the network and risk them doing things that shouldn't be done (G_P).*

The same issue was brought forth by the manager at Sapucaia do Sul, who mentioned the maintenance of the decentralization of actions throughout the PHC as a potentiality, a way to face the resistance of professionals when it comes to attention for TB.

> *After all they [referring to health professionals] are not sympathetic to these actions [referring to TB attention]! When a person arrives at the unit, generally, the first question is, to whom should I refer possible cases of tuberculosis? Because decentralization is not routine in our state! I think that our strength is that the municipality is persistently training. Our health network is trained daily all the time! (G_S).*

The municipal manager highlighted, as an organizational aspect of Sapucaia do Sul, yearly training sessions. He indicated that not all professionals adhere to the training, and reiterated the difficulty associated to the turnover of human resources. Regarding the training, the professionals mentioned that they do not take place often.

> *Every year we do it! Not everyone participates, we send invitations, but not everyone comes! In unit x, for instance, it is the third nurse, the high turnover started there [...] in these units, where there's high turnover, micro-training is necessary! No one can manage to train all these people (G_S).*

> *One thing I miss! I had it in my job in the previous municipality, there we received [updates], and here I don't see that happening a lot! (P2_S).*

> *It happens, once a year. Not long ago there was a specific one for nursing technicians with the TB coordinator of the municipality (P3_S).*

In Pelotas, statements regarding the lack of training promoted by the Municipal Health Secretariat were unanimous.

> *[...] we lack refreshing courses considering that [referring to TB control actions], because the information you get is bureaucratic, which paper do you use, which you don't, and they demand the information (P5_P).*

> *No [referring to whether the municipal management offers training activities for TB control actions to the PHC network professionals]. We have the support of the state program, all the training is conducted by the state program supervision. I can't tell how frequently (G_P).*

Another organizational issue made clear in the statements of the professionals from Pelotas was regarding the transport of the PHC samples to the municipal lab.

> *To send the sample... the patient is the one who takes it to the lab! You ask the patient, sometimes they don't have money to pay the bus or think its too far, and you lose the*

sample! I think there should be a place for you to store the sample here in the unit, and the secretariat should fetch it and take it to the lab (P1_P).

We guarantee the delivery of the sample to the lab! If you let they take the sample somewhere else, maybe that would be lost. Due to many other issues, sometimes they don't have money to go to the lab, to pay for transportation, they don't know how to store it right (P1_S).

It is clear from the statements of the professionals in Pelotas that sample transportation to the lab does not happen, which is a factor that makes it more difficult to detect TB cases, considering how far the neighborhoods are from the center of the city. Be it due to low financial resources of the population in the territory or due to the risks of losing the collected sample. On the other hand, in Sapucaia do Sul, the professionals, when talking about the operationalization of the transport of the samples to the lab, mention it as a potentiality of the municipal organization.

DISCUSSION

The improvement in the indexes related to the detection of TB cases requires the units to be ready to develop actions that include, mainly, the location of SRs and the execution of catarrh bacilloscopy exams[4]. This exam, carried out with two samples, is the main strategy to detect early the pulmonary cases of the bacillus, with higher epidemiological importance due to the potential transmission of the disease. Considering that, the units need to have input made available to them, including sterile pots with screw tops, forms for requesting the exam, a register of people with respiratory symptoms and the thermal box to store the samples[2].

In Pelotas, most units did not have these materials, a situation also found in studies conducted in Rio de Janeiro[7] and Paraíba[5]. Despite the absence, the professionals were unanimous, during the qualitative analysis in Pelotas, in saying how easy it was to restock the input. These statements suggest potential negligence by the teams when it comes to maintaining a minimal structure to detect the cases, revealing problems in the management of the PHC units. The absence of material can lead to a delay in the diagnostic and even in the loss of the individual from possible supervision.

According to the statement of the P1_S professional, the greatest challenge in case detection is the awareness, and the capability of the professionals to have interpersonal relations with the community. This statement corroborates scholars who point out that case detection is a complex action that involves many stages, since the active search for the SR until the finding of a diagnostic and the beginning of the treatment. During these stages, both the absence of inputs and the non-guarantee, by the attention network, of the flux of the user and of the information related to them, compromise the continuity of attention and the consequent efficacy of the results found[5].

The absence of professionals in the work units, especially that of physicians and ACSs, and the turnover of human resources, were issues in both studied cities. These results corroborate international[14] and national[15-16] studies that identified the high turnover of physicians and nurses who work in the PHC.

This generates work overloads, and consequently, in detriment of the assistance, weakening the link between user, team and fragmenting care[16-17]. Even though the active search of cases is an activity inherent to all PHC professionals, the units with ESF are more capable of executing it, because their teams are required to have an ACS professionals, who have to carry out domiciliary visits in their daily routines, increasing the odds of early discovery of the disease[18].

The proximity to a reference professional and a bond of trust established with the health unit favor the search for care when the first symptoms appear, leading to an early diagnosis. A study conducted in the Rio de Janeiro state[7], in 2015, revealed that one of the main difficulties in keeping the TB control actions decentralized and in the PHCs is the turnover of professionals, since it is impossible to maintain the program active in a unit where the professionals are not made aware of TB and trained to deal with it.

Considering that, it is essential for the municipal management to solve the problematic turnover. Scholars have pointed out, as a possible way to deal with the professional turnover, the promotion of improvements in the career plans, coupled with investments in qualification and team training[14,17].

Another relevant issue regarding human resources was mentioned by the municipal managers, who highlighted difficulties in finding professionals willing to be actively involved in actions to control TB, especially among physicians. G_P, placing the responsibility on physicians, reports that in Pelotas they tend to work in line with a biomedical model when it comes to the fragmentation of care. This result corroborates those found by other scholars, who place responsibility on the structure made available for TB attention, and on the attitude of managers regarding the ways they deal with the disease in the municipality, which would be directly proportional to the commitment of professionals to actions to control the disease[7].

Considering that, teams need to be correctly and continuously sensitized and trained to promptly identify SRs, be it from spontaneous demand or through active searches in the community. While also being responsible for the effective execution of the catarrh bacilloscopy exam and for the monitoring of the treatment[4], taking into account the physical and organizational structures offered by the municipality, compatible to an effective performance of PHC actions.

Specific training on the theme of TB was mentioned by the G_S as a potential for the organization of the municipality. According to his statement, however, not every professional adheres. Activities are often performed outside the unit, being it necessary for the professionals to leave the premises, and as a result, the participation of the entire team is not viable. Therefore, the knowledge is restricted to one member of the team who may be unable to transmit the information to the others[19].

In Pelotas the lack of training courses was unanimously pointed out, and the communication between TB coordination and PHC teams was described as purely bureaucratic, related to exam results and material requirements. For the early detection of SRs to be possible, all professionals in the PHC team must be prepared and aware, so they can raise immediate suspicion for TB cases when respiratory symptoms are present, which is only possible if they are made aware, not only in the form of goals to meet a certain number of detected cases, but also in the offer of theoretical-scientific subsidies, continued training, disease control and epidemiological importance[20].

Regarding the transportation of the catarrh sample, the professionals from Sapucaia do Sul recognize that they would hardly be able to find early diagnostic without a guarantee that the catarrh arrives at the laboratory as soon as possible. In the statements of these same professionals, concerns over the monitoring of the SRs until the diagnostic are made clear, showing that, in the municipal organization, the professionals act according to a culture in which one takes responsibility for the individual under one's care. On the other hand, in Pelotas, the feeling of impotence, in the statements of P2 when it comes to the lack of structure, and the way in which the SR is made responsible for taking the sample to the laboratory, show that the model of attention in effect is fragmented. That is not in accordance to the national directive recommendations, according to which catarrh samples must be stored and directed to the labs by health services[2,4].

The availability of vehicles for the transportation of samples makes the diagnostic faster and guarantees that the catarrh sent to the lab is of good quality for the analysis, since, before being sent, the sample is evaluated and conditioned by the professionals in the PHC. Additionally, it assures that the users will not have to spend anything in the process of examination[5].

This study shows important evidence regarding the attention and detection of TB in the municipalities researched, contributing for the discussion of essential health care actions to guarantee the elimination of TB as a public health problem. In this setting, it is important to highlight the essential role of the municipal management to align structural and organizational aspects in a perspective that effectively reaches the goals proposed by the World Health Organization for the attention to TB.

CONCLUSIONS

The municipalities studied were found to have particularities regarding the execution of actions of TB control, especially concerning the detection of pulmonary bacillus cases. Sapucaia do Sul is organized in such a way that attention to the SR is possible and fragmented attention processes are overcome. Despite the existence of weaknesses regarding the turnover of professionals, training sessions are being carried out to deal with this problem.

On the other hand, in Pelotas, structural and organizational characteristics increase the chances of the discontinuity of attention. The SRs received guidance from the team, which, with no material resources or adequate training, does no more than referring them to the laboratory. The SRs are charged with the responsibility of taking it and finding a diagnostic with their own resources. Considering that, it is possible to see that the problems found in the development of TB control actions point at the need to coordinate attention to TB in Pelotas, in order to guarantee that the SRs receive continuous attention, through the offer of material and human resources, and the training of the latter to offer health care for TB.

The limits of the study were related to the non-inclusion of people with tuberculosis as subjects of the study, which could have contributed to a more global understanding of the evaluated context. This study suggests that other researches should be carried out, including these subjects and the implications of the organization of the local health systems for the early diagnostic of tuberculosis. However, this research contributes to public health as it favors the improvement of municipal health policies, concerning the relevance of continued assistance to reach the goals defined by the World Health Organization for the control of tuberculosis.

REFERENCES

1. World Health Organization (CH). Global tuberculosis report 2017. Geneva: WHO; 2017 [cited 2018 May 09]. Available from: http://www.who.int/tb/publications/global_report/gtbr2017_main_text.pdf.
2. Ministério da Saúde (BR). Secretaria de Vigilância em Saúde. Departamento de Vigilância das Doenças Transmissíveis. Brasil livre da tuberculose: plano nacional pelo fim da tuberculose como problema de saúde pública. Brasília; 2017 [cited 2018 Jun 15]. Available from: http://bvsms.saude.gov.br/bvs/publicacoes/brasil_livre_tuberculose_plano_nacional.pdf.
3. World Health Organization (CH). The paradigm shift 2016-2020: global plan to end TB 2015. Geneva: World Health Organization; 2015 [cited 2018 May 05]. Available from: http://www.stoptb.org/assets/documents/global/plan/GlobalPlanToEndTB_TheParadigmShift_2016-2020_StopTBPartnership.pdf.
4. Bertolozzi MR, Takahashi RF, Hino P, Litvoc M, França FOS. O controle da tuberculose: um desafio para a saúde pública. Rev Med (São Paulo). 2014;93(2):83-9. doi: https://doi.org/10.11606/issn.1679-9836.v93i2p83-89.
5. Nóbrega RG, Nogueira JA, Sá LD, Uchôa REMN, Trigueiro DRSG, Paiva RCG. Organização do serviço de controle da tuberculose em Distrito Sanitário Especial Indígena Potiguara. Rev Eletr Enf. 2013;15(1):88-95. doi: https://doi.org/10.5216/ree.v15i1.16194.
6. Sasaki NSGMS, Santos MLSG, Vendramini SHF, Ruffino-Netto A, Villa TCS, Chiaravalloti-Neto F. Delays in tuberculosis suspicion and diagnosis and related factors. Rev Bras Epidemiol. 2015;18(4):809-23. doi: https://10.1590/1980-5497201500040011.
7. Cunha NV, Cavalcanti MLT, Santos MLF, Araújo VLA, Oliveira E, Cruz DM, et al. Estrutura, organização e processos de trabalho no controle da tuberculose em municípios do estado do Rio de Janeiro, RJ, Brasil. Interface – Comunic Saude Educ. 2015;19(53):251-63.
8. Pelissari DM, Bartholomay P, Jacobs MG, Arakaki-Sanchez D, Anjos DSO, Costa MLS, et al. Oferta de serviços pela atenção básica e detecção da incidência de tuberculose no Brasil. Rev Saude Publica. 2018;52:53. doi: https://doi.org/10.11606/S1518-8787.2018052000131.
9. cidades.ibge.gov.br [Internet]. Rio de Janeiro: Instituto Brasileiro de Geografia e Estatística; c2017 [cited 2018 May 10]. Available from: https://cidades.ibge.gov.br.
10. Ministério da Saúde (BR). Departamento de Atenção primária à saúde. Histórico de cobertura saúde da família. Brasília (DF); 2016 [cited 2018 Apr 16]. Available from: http://dab.saude.gov.br/portaldab/historico_cobertura_sf.php.
11. Gonzales RIC. Atenção primária à saúde na detecção de casos de tuberculose em municípios prioritários do sul do Brasil: desafios e investimentos em estratégias de informação. [Not published]. Chamada MCTI/CNPq/MS-SCTIE - Decit N 40/2012 - Pesquisa em Doenças Negligenciadas, 2012.
12. Minayo MCS. O desafio do conhecimento: pesquisa qualitativa em saúde. 12. ed. São Paulo: Hucitec; 2010.
13. Ministério da Saúde (BR), Conselho Nacional de Saúde. Resolução nº 466, de 12 de dezembro de 2012. Diretrizes e normas regulamentadoras de pesquisas envolvendo seres humanos. Diário Oficial da União [da] República Federativa do Brasil. 2013 jun 13;150(112 Seção 1):59-62.
14. Holmes GM, Fraher EP. Developing physician migration estimates for workforce models. Health Serv Res. 2017 [cited 2018 Apr 10];52(1 Part II):529-45. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5269547/pdf/HESR-52-529.pdf.
15. Pierantoni CR, Vianna CMM, França T, Magnago C, Rodrigues MPS. Rotatividade da força de trabalho médica no Brasil. Saúde Debate. 2015;39(106):637-47. doi: https://doi.org/10.1590/0103-110420151060003006.
16. Silva DM, Farias HBG, Villa TCS, Sá LD, Brunello MEF, Nogueira JA. Care production for tuberculosis cases: analysis according to the elements of the Chronic Care Model. Rev Esc Enferm USP. 2016;50(2):237-44. doi: https://doi.org/10.1590/S0080-623420160000200009.
17. Alcalde-Rabanal JE, Nigenda G, Bämighausen T, Velasco-Mondragón HE, Darney BG. The gap in human resources to deliver the guaranteed package of prevention and health promotion services at urban and rural primary care facilities in Mexico. Hum Resour Health. 2017;15:49. doi: https://doi.org/10.1186/s12960-017-0220-5.
18. Oliveira CBB, Assolini FEP, Protti ST, Souza KMJ, Monroe AA, Villa TCS, et al. Management in primary health care: discourses about the search for respiratory symptomatics of tuberculosis. Texto Contexto Enferm. 2016;25(3):e2330015. doi: https://doi.org/10.1590/0104-07072016002330015.
19. Ponce MAS, Wysocki AD, Arakawa T, Andrade RLP, Vendramini SHF, Sobrinho RAS. Atraso do diagnóstico da tuberculose em adultos em um município paulista em 2009: estudo transversal. Epidemiol Serv Saude. 2016 [cited 2018 May 20];25(3):553-62. Available from: http://www.scielo.br/scielo.php?pid=S2237-96222016000300553&script=sci_abstract&tlng=es.
20. Lavôr DCBS, Pinheiro JS, Gonçalves MJF. Evaluation of the implementation of the directly observed treatment strategy for tuberculosis in a large city. Rev Esc Enferm USP. 2016; 50(2):245-52. doi: https://doi.org/10.1590/S0080-623420160000200010.

Corresponding author:
Lílian Moura de Lima Spagnolo
E-mail: lima.lilian@gmail.com

Received: 06.11.2018
Approved: 08.23.2018