CUIDADO É FUNDAMENTAL

ELABORATION OF INSTRUMENT FOR ASSESSING ASSISTANCE TO PATIENTS WITH TUBERCULOSIS IN PRIMARY HEALTH CARE

Elaboração de instrumento de avaliação da assistência ao paciente com tuberculose na atenção primária em saúde

Elaboración de instrumento de evaluación de asistencia a pacientes con tuberculosis en atención primaria de salud

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ABSTRACT

Objective: validate an instrument for assessing the care of patients with tuberculosis in Primary Health Care. **Method:** the construction stages of the evaluation instrument were: construction of logical model, bibliographic review, identification of the evaluative dimensions and subdimensions and indicators development. The Delphi Technique with specialists was used in order to obtain consensus on the relevance of dimensions and subdimensions and to assign weights to the indicators. The pilot test was carried out in two units. **Results:** the evaluation instrument results in a maximum score of ten points distributed in physical resources, human resources and technical capacity, subdivided into seven subdimensions and 44 indicators. The evaluation enabled the knowledge of the individual reality of the units evaluated. **Conclusion:** the proposed instrument can be used as a management tool and can be useful in identifying strategies for qualifying the care of patients with tuberculosis in Primary Health Care.

DESCRIPTORS: Tuberculosis; Health services research; Health services accessibility.

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RESUMO

Objetivo: validar um instrumento de avaliação da assistência ao paciente com tuberculose na atenção primária em saúde. **Método:** as etapas de construção do instrumento avaliativo foram: construção do modelo lógico, revisão bibliográfica, identificação das dimensões e subdimensões avaliativas e elaboração de indicadores. A Técnica Delfos com especialistas foi utilizada a fim de obter consenso sobre a relevância das dimensões e subdimensões e atribuir pesos aos indicadores. O teste-piloto foi realizado em duas unidades de saúde. **Resultados:** o instrumento de avaliação resulta em uma nota máxima de dez pontos distribuída em recursos físicos, recursos humanos e capacidade técnica, subdividida em sete subdimensões e 44 indicadores. A avaliação possibilitou o conhecimento da realidade individual das unidades avaliadas. **Conclusão:** o instrumento proposto pode ser utilizado como instrumento de gestão, podendo ser útil na identificação de estratégias para qualificação da assistência do paciente com tuberculose na atenção primária em saúde.

DESCRITORES: Tuberculose; Pesquisa sobre serviços de saúde; Acesso aos serviços de saúde.

RESUMEN

Objetivo: validar un instrumento de evaluación de la atención de pacientes con tuberculosis en Atención Primaria de Salud. **Método:** las etapas de construcción del instrumento de evaluación fueron: construcción del modelo lógico, revisión bibliográfica, identificación de las dimensiones y subdimensiones evaluativas y desarrollo de indicadores. Se utilizó la Técnica Delphi con especialistas para lograr consenso sobre la relevancia de dimensiones y subdimensiones y asignar ponderaciones a los indicadores. La prueba piloto se realizó en dos unidades. **Resultados:** el instrumento de evaluación arroja un puntaje máximo de diez puntos distribuidos en recursos físicos, recursos humanos y capacidad técnica, subdivididos en siete subdimensiones y 44 indicadores. La evaluación permitió conocer la realidad individual de las unidades evaluadas. **Conclusión:** el instrumento propuesto puede ser utilizado como herramienta de manejo y puede ser útil en la identificación de estrategias para calificar la atención de pacientes con tuberculosis en Atención Primaria de Salud.

DESCRIPTORES: Tuberculosis; Investigación sobre servicios de salud; Accesibilidad a los servicios de salud.

INTRODUCTION

Tuberculosis (TB) remains a major public health problem worldwide, with relevant morbidity and mortality rates.[1,2,3] An estimated 10 million ill people, 1.4 million deaths, and 500,000 new cases of Rifampicin-resistant TB are expected to occur in 2018.[3] Despite advances in the diagnostic and therapeutic fields, including the use of molecular rapid tests and new drugs developed for treatment, additional efforts are needed in the provision of high-quality, people-centered care and intersectoral actions that serve the most vulnerable populations.[4]

In Brazil, in 2018, 72,788,000 cases of TB were reported, representing an incidence of 34.8 cases/100,000 inhabitants, and 4,534,000 deaths. The country is part of the list of 30 countries that concentrate about 87% of the number of TB cases in the world, occupying the 20th position. This disease is the fourth leading cause of death from infectious diseases and the first among infectious diseases among patients with acquired immunodeficiency syndrome.[3,5]

The National Tuberculosis Control Program (PNCT) is a unified program of actions operated jointly by the federal, state, and municipal spheres. The PNCT is structured by an action planning policy with well-defined technical and care standards that ensure the necessary supplies and distribution of drugs for treatment, as well as articulate the actions of prevention and control of the disease. Some of the goals set by the PNCT are to detect 80% of the estimated annual cases, to cure 85% of these, and to present only 5% of treatment abandonment. In the

organizational aspect, the PNCT privileges the decentralization of the measures to control the disease to Primary Health Care (PHC) in order to ensure universal access, especially to the most vulnerable populations at increased risk of contracting the disease.[1,6,7]

PHC services, based on practical, scientifically grounded and socially accepted methods and technologies, are essential to the population and should be placed within the reach of the largest number of individuals as a guarantee of access, especially to disease prevention. [1,8-12] The decentralization of TB control actions to PHC seeks to increase the effectiveness of the operationalization of activities [3,13,] but studies have pointed out some weaknesses that can hinder this process.[1,2,8-12,14-21] The difficulties in the decentralization process can be mentioned as the low number of TB suspects examined, difficulties in the operationalization and disorganization of treatment monitoring records, in addition to the almost nonexistence of contact assessment, resulting in cure and abandonment rates below the PNCT targets.[10,12,21]

Therefore, it is necessary to know the local context of care for TB patients in PHC in order to seek effective strategies for disease control actions. This study aimed to validate an instrument to evaluate the quality of care provided to TB patients in PHC.

METHODS

The following steps were taken to develop the content of the evaluative instrument: literature review, identification of dimensions and sub-dimensions, construction of indicators,

application of the Delphi technique and attribution of value to indicators. The steps in the development of the Instrument for evaluation and validation of the quality of care to TB patients in PHC are summarized in Figure 1.
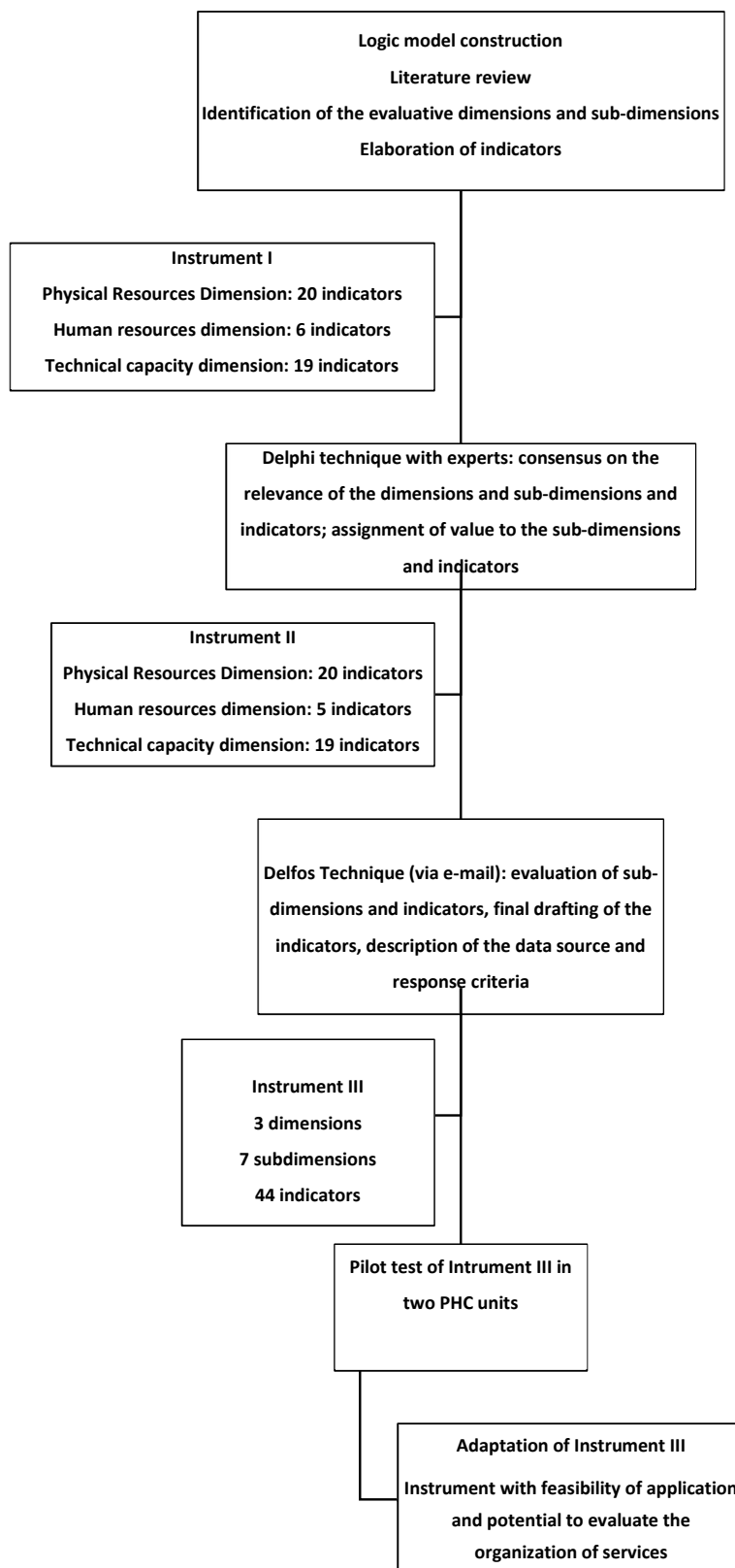
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┌─────────────────────────────────────────────────────┐
│            Logic model construction                  │
│            Literature review                         │
│  Identification of the evaluative dimensions and     │
│                  sub-dimensions                      │
│            Elaboration of indicators                 │
└─────────────────────────────────────────────────────┘

┌──────────────────────────────────────────────┐
│               Instrument I                    │
│  Physical Resources Dimension: 20 indicators  │
│  Human resources dimension: 6 indicators      │
│  Technical capacity dimension: 19 indicators  │
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┌──────────────────────────────────────────────────┐
│  Delphi technique with experts: consensus on the  │
│  relevance of the dimensions and sub-dimensions   │
│  and indicators; assignment of value to the       │
│  sub-dimensions and indicators                    │
└──────────────────────────────────────────────────┘

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│               Instrument II                   │
│  Physical Resources Dimension: 20 indicators  │
│  Human resources dimension: 5 indicators      │
│  Technical capacity dimension: 19 indicators  │
└──────────────────────────────────────────────┘

┌──────────────────────────────────────────────────┐
│  Delfos Technique (via e-mail): evaluation of     │
│  sub-dimensions and indicators, final drafting    │
│  of the indicators, description of the data source│
│  and response criteria                            │
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│        Instrument III         │
│         3 dimensions          │
│        7 subdimensions        │
│         44 indicators         │
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┌──────────────────────────────┐
│  Pilot test of Intrument III  │
│       in two PHC units        │
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│        Adaptation of Instrument III           │
│  Instrument with feasibility of application   │
│         and potential to evaluate the         │
│          organization of services            │
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Figure 1 – Development of the Instrument for evaluation and validation of the quality of care to TB patients in PHC. Porto Alegre, RS, Brazil, 2018

The articles considered adequate from the methodological point of view allowed the identification of the attributes or the main strategic lines of action, that is, the dimensions of the Tuberculosis Control Programs (PCT) based on the question: What are the processes and structural aspects necessary to achieve a positive result in the care of TB patients in PHC? Once the dimensions were identified, they were subdivided into categories of lesser complexity (subdimensions) considering which PCT components would be associated with the best resolution of TB control actions. The article search strategy is described in Supplement 1.

After the dimensions and subdimensions were defined, key questions were prepared that could clarify how much of an initial situation could be transformed by an intervention. From this, we identified the available PCT data and data sources that answered these questions, which were then transformed into indicators that could be analyzed and compared through value judgment.

For each indicator, a technical sheet was prepared containing the indicator's name, objective, data source, form of calculation, and expected response pattern. This instrument was called Instrument I and submitted to the specialists' analysis.

Ten experts who met at least one of the following criteria were invited to participate: have experience in TB care; have experience in PCT management or have experience in PHC management (for at least two years); have expertise in a clinical area relevant to TB patient care; and be recognized locally for their knowledge and experience in TB or related areas. The experts were consulted about their interest in participating in the study by telephone, and were later invited by e-mail to participate in a face-to-face meeting.

The Delphi technique was applied during the face-to-face meeting, after a brief explanation of the study objectives. The experts assessed the relevance of the dimensions, sub-dimensions and indicators of the evaluative instrument by assigning a score from 1 to 5 for each indicator, as follows: 1=not important, 2=not very important, 3=moderately important, 4=very important, 5=extremely important.

The internal consistency analysis was evaluated using Cronbach's alpha reliability coefficient. The cut-off point chosen was 0.75, that is, a 75% agreement level among the experts in order to provide greater consistency and applicability of the indicators in care practice.[7,17,22] The experts also suggested a weight for each dimension, and the sum of the three dimensions should result in a ten-point value.

After this meeting, the qualitative considerations made by the specialists were incorporated into the instrument and values were assigned to the sub-dimensions and indicators, resulting in Instrument II. This version was sent via email for further review and all experts returned the evaluations, resulting in the third version – Instrument III, which was applied in the pilot test phase, carried out in two PHC units in the city of Porto Alegre.

The evaluated units were selected by convenience. Two health units were selected, each with two teams, in the Family Health Strategy model, designated as US-A and US-B. Both are located in one of the territories with the highest incidence of TB cases in the municipality and one of the highest dropout rates. US-A is known to have successful TB practices (search for the respiratory symptomatic patient, search for patients who skip treatment and the highest number of completed treatments) and good organization of care in the attention to TB cases, while US-B presents unsatisfactory indicators for the same criteria.

A field research script was prepared for the application of the instrument in the selected health units. After explaining the work proposal to the institutional supporter of the territory and to the unit coordinator, and upon acceptance of participation, the visit was carried out, and the signature of the Free and Informed Consent Form was requested.

During the visits, we were asked to see the facilities of the US and the supplies available, to check the Respiratory Symptom Book and the TB Case Monitoring Book, and to interview the coordinator. The electronic medical records were consulted based on the names of the patients in treatment registered in the Case Management Book. The information was recorded in the field research script.

This study was approved by the Ethics Committee of the Federal University of Health Sciences of Porto Alegre and by the Ethics Committee of the Porto Alegre Municipal Health Department, in accordance with the recommendations contained in Resolution 466/1223 of the National Health Council.

RESULTS

In the search for studies on the evaluation of care provided to TB patients in PHC, 117 articles were found. The evaluation of the titles and abstracts was performed by two reviewers, resulting in 15 selected articles. [1,2,8-12,14-21] One study was conducted in Cuba[1], all others were Brazilian, which are associated with few research groups.

The physical resources dimension was selected because it considers that the physical structure and the inputs necessary for the diagnosis and treatment of TB are reflected in the functional organization of health facilities.[2,18] In this dimension, the subdimension facilitators of adherence was included, i.e., factors that encourage the guarantee of directly observed treatment in order to avoid complications that favor abandonment.

The human resources dimension refers to the group of trained professionals who largely define the quality and effectiveness of treatment, as well as the real access of the population to health services.[2,11,21]

The technical capacity dimension refers to the training/preparation for the job, that is, to the issues related to the system of use of human and physical resources. This dimension presumes that the quality of information, associated with workers' continuing education, can avoid the use or reuse of unnecessary services.[12,15,18] Technical capacity was inserted in the instrument as a way to elucidate actions of small investment of resources that

may interfere in the organization of care and health networks and was subdivided into the categories diagnosis, treatment and impact of actions.

Instrument I was developed from the literature review and submitted to the specialists' analysis. Seven out of ten invited guests attended the face-to-face meeting. The Delphi panel was composed of one pharmacist, one physician, and five nurses, with a mean age of 41 years and a mean time to graduate degree of 16 years. All claimed to have done graduate work, two at the master's level and five at the specialization level, and were workers in public health institutions, with length of time in the institution ranging from three to 33 years. Five professionals worked directly with TB patient care and two with health services management in Primary Care. Three specialists responded that they had ongoing research in the area of TB.

In the evaluation related to the pertinence and relevance of the proposed indicators, the mean values attributed to the indicators by the specialists ranged from 3.28 to 5.00, with a mean of 4.37 points. The Cronbach's alpha reliability coefficient for the indicators ranged from 0.77 to 0.81, and for the overall instrument was 0.80.

The average value of the weight of the score attributed by the experts for the physical resource dimension was 2.4 points; for the human resource dimension, 3.1 points, and for the technical capacity dimension, 4.4 points; rounded up to 2.5; 3.0; and 4.5, respectively, by the researchers.

The final product after the pilot test was an instrument with a maximum score of ten points: physical resources dimension, with three sub-dimensions and 20 indicators (2.5 points); human resources dimension, with one sub-dimension and five indicators (3.0 points); and technical capacity dimension, with three sub-dimensions and 19 indicators (4.5 points). The score for the indicators used in the evaluation of TB patient care in the US-A and US-B can be seen in Table 2.1.

Regarding the application of the instrument during the visit to US-A, in the physical resources dimension, of the twenty proposed indicators, the unit scored six indicators in full and three indicators partially, resulting in the achievement of 40.0% of the maximum score in this dimension, i.e., 1.0 point. In relation to the human resources dimension, of the five proposed indicators, four were scored in full, resulting in a score of 2.4 points. Regarding the technical capacity dimension, nine indicators were scored in full, one partially, five did not score, and four were not applicable, which led USA to reach 46.6% of the maximum score in this dimension.

The duration of the visit to the US-B was longer because the professional used this time to clarify several doubts regarding TB control actions and also to help in the organization of the records in the Respiratory Symptom Book, the Case Monitoring Book, and in the review of cases. US-B achieved 68.0% of the maximum score in the physical resources dimension, with full score for 11 indicators, partial score for two indicators, four indicators without score and three indicators not applicable. For the presence of non-applicable indicators, the final score (F) was adjusted to 1.7.

Regarding the human resources dimension, US-B reached 36.6% of the maximum score, or 1.1 points. In this category the unit scored two indicators and did not score the other three. In the technical capacity dimension, the BHU achieved 24.4% of the maximum score by scoring four indicators fully, 11 did not score, and four were not applicable. The final adjusted score (F) for this dimension resulted in 1.1 points.

After the pilot test, the need to adapt the evaluation instrument was verified. It was standardized that when it is not possible to calculate the indicator due to a lack of recorded information, the score assigned to that indicator will be zero. When it is not possible to calculate the indicator due to the inexistence of the situation in question in the US, the code Not Applicable (NA) will be adopted for that indicator.

In the case of an N/A situation, the value of the indicator will be deducted from the total value of the dimension to which it belongs and the final score (F) will be adjusted so as not to

Table 1 – Results of the assessment of the US-A and US-B from the application of the instrument assessment of the care provided to patients with tuberculosis in Primary Health Care. Porto Alegre, RS, Brazil 2018

Dimension	Subdimension	Subdimension Value	Number of Indicators	Score US-A	Score US-B
Physical Resources (2,5 points)	Physical structure	0,6	3	0,2	0,4
	Inputs	1,7	15	0,8	1,05
	Factors that facilitate adherence	0,2	2	0	NA
Human Resources (3,0 points)	Qualified professionals	3,0	5	2,4	1,1
Technical Capacity (4,5 points)	Diagnosis	1,5	3	0,8	0
	Treatment	2,2	8	1,02	0,7
	Scope of actions	0,8	8	0,3	0,1
Total				5,1	3,4
Total after adjustment				5,5	3,9

penalize the US. Therefore, to adjust the score (P) the maximum value of the sum of the indicators of the dimension (ID), the sum of the values of the non-applicable indicators (NA) of the dimension and the sum of the score of the applicable indicators (NIA) of the dimension investigated in the equation: P= NIA / (ID-NA) was taken into account. The final adjusted score (F) will be: F=P x ID.

The final evaluation matrix with the indicator name, description of the data source, standard criteria, score and question for each indicator can be seen in full in Supplement 2.

DISCUSSION

The final product, after the pilot test, consists of an instrument to evaluate the care provided to TB patients in PHC. The application of the instrument allowed us to visualize the current panorama of the Municipal TB Control Program.

Based on the literature review, in order to define the dimensions, it was emphasized that the supply/organization of health services presupposes the existence of physical resources, human resources, and technical capacity.

The selection of experts considered the valorization of knowledge from the practical field, as a way to strengthen the political, managerial, and care focus of the evaluative instrument, in order to involve professionals in the management and care of TB patients. The qualification of PHC services, characterized as the gateway to the health system, is necessary to meet the PNCT guidelines. Overcoming the deficiencies in the performance of these services requires that key players in the care and management spaces get involved and articulate themselves to combat the fragmentation of care.[24, 25]

During the application of the pilot test of the instrument, the indicators measured allowed a discussion with the professionals of the units and several shortcomings were pointed out regarding the care provided to TB patients in PHC. However, it is noteworthy that as a monitoring tool, it has shown potential to motivate the teams to obtain better results in a future evaluation.

Regarding the physical structure, the results pointed to inadequate biosafety criteria for the care of patients with airborne disease. The places are poorly ventilated and have difficulties in the circulation of contaminated air. However, this situation is not unique to the municipality investigated and is also described in other studies.[10,12]

Both units had supplies, such as sputum collection jars and forms to request tests, despite the low search for respiratory symptomatic patients and the non-guarantee of treatment follow-up tests, as occurs in other Brazilian municipalities.[16,19,26,27]

As for the supply of medications, both units stated that there are no shortages, although the quantities are insufficient to start new treatments. Providing medicines and clarifying doubts contributes to building a bond and facilitates the identification of patient needs regarding the disease process, which influences treatment adherence.[20,28] Decentralization of treatment should be based on the planning of drug distribution to health units as a way to improve the performance of TB control actions.[2]

Regarding human resources, the lack of professionals in the teams, especially doctors, can induce other professionals to prefer that care be provided in the referral center in order to reduce work overload, a fact already revealed in other scenarios in the country[9,10,12,14]

The effectiveness of the actions and the quality of the health care service require an adequate number of human resources, but, above all, they are related to the technical capacity of the teams, as has been pointed out by other researchers.[1,2,10,14-16,28,29] Technical capacity refers to the commitment and responsibility of health care professionals in relation to the demands of patients and the commitment to efficient and quality care.[1,9] The visits to the USs revealed a lack of training and a shortage of qualified and motivated professionals, as well as of adequate supervision of the actions carried out in relation to TB. Studies[10,12,21] point out that creating spaces for discussion in loco, with continuous supervision, can identify the flaws and difficulties in the care process.

Team training is necessary for early diagnosis, for the easy identification of TB suspects in the community, for the increase in team resoluteness, facilitating cooperation with specialists, and for the population's trust. A resolutive team is capable of ensuring continuity of care and comprehensiveness, both vertically (among the various points of care) and horizontally (articulation among the team, health services, and social equipment). [9,15,16,21]

It was observed that in the units visited, TB control actions are still in the implementation phase, although these had begun about six years ago.[30] A study by Pelissari and collaborators[31] described the process of decentralization of TB care in Brazil, considering the type of establishment registered in the National Registry of Health Establishments (CNES) in the period from 2002 to 2016. All regions showed an increase in TB care in primary care, except the South Region, specifically the State of Rio Grande do Sul, which showed a negative trend, despite efforts to strengthen and decentralize care. Such circumstances may reflect a fragmented form of care that is detrimental to treatment adherence and reflects negatively on the epidemiological indicators of the municipality, as has occurred in other instances of decentralization of TB control activities to PHC.[9,15,16] This is exemplified by the lack of review of the TB case record books and TB case monitoring in the visited PHCUs, suggesting that the services use the information only to feed the monthly monitoring bulletins required by the epidemiological surveillance, and do not use it as a strategy for case management or for organizing TB control actions within the team.

The proposed evaluation instrument highlights the need to expand strategies that involve TB as a public health problem. It is necessary to emphasize the systematization of the evaluation and monitoring of actions to control this grievance, to have workers who are committed and responsible for the demands of patients, in addition to defining the network of care for TB patients in the municipality, with co-responsibility among the different levels of complexity.[1,9,11,14,32]

Based on the pilot test data, the proposed indicators proved to be adequate, based on available and easily accessible data. The evaluation of both units reflects that the organization of TB control actions is still very fragile.

In addition, the evaluation instrument proved to be a training tool, since many questions were answered by the researcher during the field research. Providing opportunities for discussion in health services is an important strategy for reducing treatment abandonment rates, since the lack of information or its inadequate assimilation contributes to a mistaken therapeutic conduct.[2,20]

The disclosure of the results of this study makes it possible to know the local reality and, based on the data obtained, to design improvement strategies. Moreover, the elaboration of the evaluative instrument was accompanied by the previous experience and plurality of professional backgrounds of the specialists involved, even though they were few in number. The information generated from a systematized evaluation tool can produce data to support decision making by managers regarding the health care of TB patients. Moreover, the understanding of the use of technologies and resources available in PHC and the continuous and prospective analysis of the evolution of the network of care for TB patients can draw early warning scenarios of future problems.[14,17] On the other hand, we can mention as a limitation of this study the application of the instrument in only two health units selected for convenience.

It is worth noting that the instrument was designed and validated in a local context, according to the dynamics of the municipality in question and the opinion of local experts. Therefore, before applying the instrument in other contexts, it can be adapted to the local reality.

Results of the National Program for Improvement of Access and Quality of Basic Care (PMAQ-AB) show a precarious situation throughout Brazil in TB control, with macro-regional differences. By monitoring and evaluating the PHUs, and by identifying gaps in the organization of TB control actions[33] and possible interventions, we hope to impact the epidemiological indicators of TB in the municipality, reducing dropout rates and increasing treatment cure indicators.

CONCLUSION

The tool proposed in this study presented feasibility of application and potential to evaluate the organization of PHC services in the care of TB patients, however, the context in which this study was conducted should be taken into account. It is possible that there may be difficulties in implementing these results in another setting. It is recommended that a description of each step in the process should be carried out to identify the difficulties of implementation according to local conditions.

In addition, the proposed indicators have demonstrated relevance and capacity to identify weaknesses related to patient care, pointing to the recognition of limiting and specific issues of each health care facility related to TB control and that can influence the identification of strategies to improve care.

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