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Health evaluation: the level of implantation of the tuberculosis program in primary health care

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ABSTRACT. The aim of this study is to analyze the level of implantation of the Tuberculosis Control Program in Primary Health Care in a medium-sized city. Normative evaluation study, with a quantitative approach, emphasizing the level of implantation of programs. The sample included 80 nurses and data collection took place from November 2017 to March 2018, using a questionnaire with 62 questions. To identify the level of implantation, the percentage of responses identified was distributed in four classifications: not implanted (from 0% to 25%); incipient (from 26% to 50%); partially implanted (from 51% to 75%) and implanted (from 76% to 100%). The Tuberculosis Control Program in the city was classified as partially implanted (62.85%). The dimensions Structure and Process were also evaluated as being in the same level (61.80% and 63.17%, respectively). The level of implantation of the program was classified as partially implanted, showing shortcomings with regard to the activities developed in the city. Health professionals are expected to make decisions to improve the program.

Keywords: tuberculosis; health evaluation; program evaluation; primary health care; nurses.

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Introduction

Tuberculosis (TB) has been known for millennia, with diagnosis and available treatment, but it is still an international health preoccupation. Worldwide, 11 million people are estimated to acquire the disease every year (World Health Organization [Who], 2018). In Brazil, in 2018, there were 72,788 notifications of new cases, with a percentage of cure of 71.4%. In the case of the state of Rio Grande do Norte (RN), 1,243 new cases were notified and in 59.9% a cure was achieved (Brasil 2019).

Considering this problem, the National Tuberculosis Control Program (PNCT) establishes directives to confront the disease since 1999, the year of its creation. In 2014, the current global strategy for the control of the disease was approved, aiming to free the world from TB until 2035 (Brasil, 2018).

The PNCT has well-defined standards and its operationalization involves all government levels. In the municipal level, the operationalization of Programs for Tuberculosis Control (PCTs), despite considering all goals and directives from the National Program, takes place in different forms and with different results, due to the existence of many administrative, political, and geographic specificities (Gonçalves, 2012).

The Ministry of Health (MH) recommends the incorporation of the PNCT in the Primary Health Care (PHC) network, and one of the principles it establishes for the control of TB is the monitoring and evaluation of interventions. This is why the evaluation of the implantation of the PCT process is necessary, as a contribution for the control of this disease (Heufemann, Golçalves & Garnelo, 2013; Arakawa et al., 2017). Studies about the evaluation of programs to control this disease have been carried out in countries such as Canada (Long, Heffernan, Gao, Egedahl,&Talbot, 2015), the United States (Cass et al., 2013), and Turkey (Yasin, Biehl,& Erol, 2015).

The PHC is the structuring axis that organizes the health service network. The user must enter the service and be embraced for the control of TB, from the first suspicion of the case up to its outcome, in a qualified health service and attended by a trained health team (Andrade, Oliveira, Gontijo, Pessôa, and Guimarães, 2017).

Within the PHC health team, the nurse has the main role in controlling TB. Some studies found that this professional is seen as the responsible for the program of assistance activities; case management; systems of health information; and for health education activities (Brunello et al., 2015; Rêgo et al., 2015).

In the meantime, national studies that evaluate the structure and process of assistance of PHC services for the follow up and monitoring of indicators that are associated to the control of the disease are essential. The results of the evaluation of the items for the control of TB could guide actions to improve the quality of the health care of the user and the organization of the services.

Considering the above, this study asks the question: how are Programs for the Control of Tuberculosis being operationalized in the city of Natal, Rio Grande do Norte? To respond to this question, this study aims to evaluate the level of implantation of the Tuberculosis Control Program in Primary Health Care in the city of Natal, Rio Grande do Norte.

Methods

This is quantitative study of standard evaluation, emphasizing the level of implantation of programs. In the evaluation of the level of implantation there is a comparison between policies, plans and programs with what is actually in effect in practice (Vieira, 2015). The verification list of the STROBE directive was used to write this study.

This study was carried out in the Health Units (HU) of the PHC of the city of Natal, capital of the state of RN, in the Brazilian Northeast. It was carried out from November 2017 to March 2018.

The theoretical-methodological reference was the health evaluation from the perspective of Avenis Donabedian (1980). For this study, Structure and Process were analyzed. According to the author above, the dimension Structure is related to the physical, human, and organizational resources needed for health care. The Process, in turn, is related to the activities that make up health care.

The population of the study included nurses from the PHC of the city of Natal/RN, from the 54 HUs of the city. The study included nurses who were working at the time of data collection and who worked in the control of TB. All professionals who acted in the control of TB in other contexts than PHC were excluded.

To define the sample, a sample calculation for finite populations was used, considering a sampling error of 5% and a confidence interval of 95%. As a result, 48 PHC units made up the sample and were randomly selected.

It was found that two nurses from each HU would be interviewed (the minimum number of professionals expected to be in each unit), adding up to 96 nurses, randomly selected. The professionals who refused participation were not replaced.

A logical model was built before the evaluation. It presents a visual and systematic scheme of the theory of a program. Its construction took place considering the standard evaluation (Contandriopoulos, 1997) and was based on the Logic Model Development Guide from the Kellogg Foundation (2004). The standardizations that already existed about the PCT from the MH were used, and the evaluation triad by Donabedian (1980) was also considered.

The Logic Model of the PCT that was built was evaluated by experts in the field of evaluation in health and is presented in Figure 1.

Data were collected from November to February 2018, by a team made up by three Nursing professors and eight nurses, all of whom had been previously trained.

A questionnaire elaborated by the researchers was used, based on the Manual of Recommendations for the Control of tuberculosis in Brazil (Brasil, 2011). The instrument included 62 questions, and was made up by two parts: the first was to characterize the professional and the second for the dimensions of Structure and Process of the PCT.

The objective questions either had two possible answers or were multiple choice questions with a single answer that used the Likert scale.

It stands out that, before data collection, the instrument analyzed by the coordination of the State TB Program from the RN was applied to three nurses that work in the PHC but were not part of the study, so the clarity of the questions and their fitness with the proposal of the study could be verified.

The data were organized and analyzed through the IBM software Statistical Package for the Social Sciences (SPSS), version 22.0, using descriptive statistics in absolute and relative numbers.

To evaluate the level of implantation, the logic model was used to build a matrix to analyze and judge. The matrix was divided in dimensions, subdimensions, criteria, and items.

The dimension Structure was made up by three subdimensions: human, physical, and material resources; the Process dimension, in turn, had three subdimensions: operational activities, health education activities, and

activities related to the information systems of the programs mentioned. Each subdimension had its criteria, and among these criteria, when possible, certain items were listed, according to the standardizations of the MH.

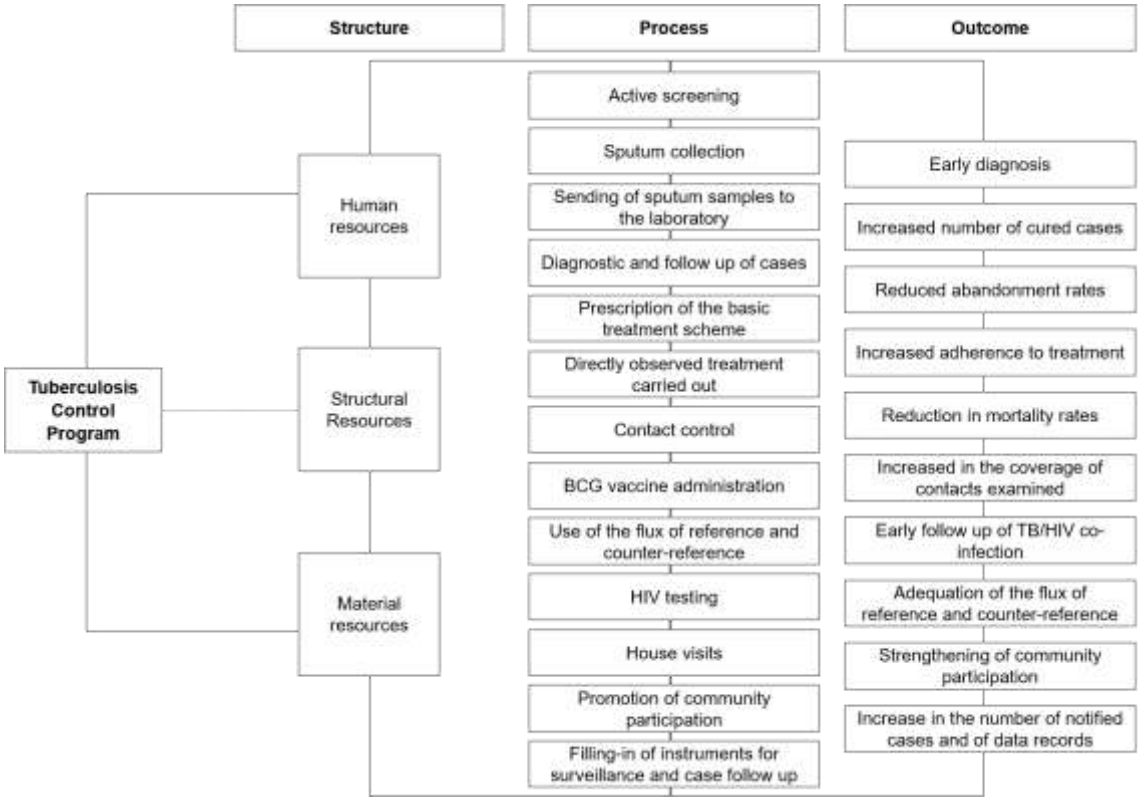

Figure 1. Logic Model of the Tuberculosis Control Program. Natal, RN, Brazil, 2018.

Thirty-one (31) criteria were selected (7 from the Structure dimension and 24 from the Process dimension), and their expected score in the matrix was attributed. Since the activities were not distinguished according to the priority of their activities and resources, all criteria were considered to be equally important, and each of the 31 had a 3.23 score, as shown in Table 1, below.

Table 1. Matrix for analysis and judgment according to dimensions, subdimensions, criteria, and items selected for the evaluation of the Tuberculosis Control Program. Natal, RN, Brazil, 2018.1

Dimensions, subdimensions, criteria, and items	Expected score
Structure	22.58
HUMAN RESOURCES	6.45
Physician	0.40
Nurse	0.40
Nursing technician	0.40
Community health agent	0.40
Dentist	0.40
Pharmaceutic and pharmacy auxiliary	0.40
Psychologist	0.40
Nutritionist	0.40
Professional that responds for the program in the unit	3.23
STRUCTURAL RESOURCES	9.68
Specific place for attention	3.23
Offices are ventilated	3.23
There is a room for vaccination	3.23
MATERIAL RESOURCES	6.45
Manual of recommendations for the control of tuberculosis	3.23
The unit has:	3.23
Equipment for exams (stethoscope)	0.23
Pots for catarrh collection (Fast molecular/bacilloscopy/culture)	0.23
Thermal box/styrofoam/fridge	0.23

E-SUS form	0.23
Notification form for SINAN/TB	0.23
Follow up form for SINAN/TB	0.23
Respiratory symptom book	0.23
Book for the recording of cases	0.23
Prescription book	0.23
Pad for requiring exams	0.23
Educational pamphlets about tuberculosis	0.23
Follow up card for Directly observed treatment	0.23
Tuberculosis medication	0.23
Mask	0.23
PROCESS	77.42
OPERATIONAL ACTIVITIES	54.84
The health team uses the standards from the Ministry of Health to diagnose and treat the person with tuberculosis	3.23
Anyone with respiratory symptoms is guided to undergo sputum examination	3.23
There is guidance to undergo sputum examinations	3.23
The sputum samples are sent to the lab weekly	3.23
Daily	0.81
Once a week	0.81
Twice a week	0.81
Three times a week	0.81
To diagnose and control tuberculosis the exam requested is	3.23
The fast molecular test	0.81
Bacilloscopy	0.81
Culture + sensitivity test	0.81
X-ray	0.81
Frequency with which control bacilloscopies are carried out	3.23
Monthly	1.08
Bimonthly	1.08
Quarterly	1.08
Radiological exams are requested for all with suspected tuberculosis	3.23
In the unit, patients with tuberculosis are tested for HIV	3.23
The directly observed treatment is offered in the unit	3.23
The user who undergoes the directly observed treatment is followed up by	3.23
Physician	0.81
Nurse	0.81
Nursing technician	0.81
Community health agent	0.81
Respiratory symptoms are screened for	3.23
Contacts are examined	3.23
There are house visits	3.23
The unit applies the BCG vaccine	3.23
The unit does tuberculosis testing	3.23
In the unit, the reference and counter-reference flux works	3.23
The unit provides medication	3.23
In a specific room of the program	1.08
In the pharmacy of the unit	1.08
In an office, the nurse's office, and attention	1.08
HEALTH EDUCATION ACTIVITIES	6.45
The service offers health education activities for users with tuberculosis	3.23
The service promotes community participation, social mobilization	3.23
ACTIVITIES FROM THE INFORMATION SYSTEM	16.13
The book of records is accompanied by a record of tuberculosis case treatments and is routinely filled in	3.23
The book of records of patients with respiratory symptoms in the health service is routinely filled in	3.23
The cases are notified in SINAN	3.23
Knows the Laboratory Environment Manager	3.23
The sputum samples for the diagnostic exams or tuberculosis follow up are inserted in the Laboratory Environment Manager	3.23

According to the responses of the participants, the relative values between the expected score and the score found were calculated. Similarly, the values for each subdimension and for each dimension were identified.

To evaluate the level of implantation, the classification proposed by Ferreira and Silva (2014) was used: not implanted (from 0% to 25%), incipient (from 26% to 50%); partially implanted (from 51% to 75%); and implanted (from 76% to 100%) To calculate each score and its percentages, the following formula was used (Ferreira e Silva, 2014): EF= PO/PM x 100, in which: PO = Score found; PM= Maximum score; EF= Final score.

This research was approved by the Research Ethics Committee at UFRN, under opinion No. 2.327.693. The prescriptions of resolution 466/2012 (Brasil, 2012) were respected.

Results

From the 96 nurses selected to participate in the research, 80 made up the sample. The reasons for refusing to participate in the research were: there was only one nurse responsible for the activities at the HU (2); refusal (6); being on leave at the time of data collection (8).

It was found that 93.7% of participants were female, with a mean age of 48 years of age and a mean time working in this role of 18 years.

Considering the data analyzed, it was possible to identify the level of PCT implantation in the city of Natal/RN, as well as the level of the implantation of its dimensions Structure and Process, as presented in Table 2.

Table 2. Classification of the Level of Implantation of the Tuberculosis Control Program. Natal, RN, Brazil, 2018.

Dimensions and Subdimensions	Expected	Found	Level of implantation(%)	Classification of implantation
Structure	22.58	13.95	61.80	Partially implanted
Human resources	6.45	3.55	55.00	Partially implanted
Structural resources	9.68	4.80	49.58	Incipient
Material resources	6.45	5.61	86.92	Implanted
Process	77.42	48.91	63.17	Partially implanted
Operational activities	54.84	32.50	59.26	Partially implanted
Health education activities	6.45	2.38	36.88	Incipient
Information system activities	16.13	14.03	87.00	Implanted
Total	100.00	62.85	62.85	Partially implanted

The level of PCT implantation in the city of Natal, as well as that of its dimensions Structure and Process, was defined as partially implanted.

Discussion

The PNCT has existed for two decades in the country, and its implantation in the municipal sphere offers challenges regarding the lack of professionals, the fragmentation of user assistance, the absence of planning and of activity evaluation. Evaluative studies carried out in Minas Gerais and Amazonas (Long et al., 2015; Yasin et al., 2015) corroborate this study presenting the same partial implantation found here.

Regarding human resources, a subdimension evaluated as partially implanted, it was found that the professional who has the most relevant role in the program, in the view of the participants, is the nurse, followed by the physician and by the nursing technician. The nurse was also identified as the specific professional that responds for the program in the HUs.

Studies mention the main role of the nurse in the PHC regarding TB management, with roles in the assistance and training of health teams and in the evaluation of actions within the program, according to the PNCT recommendations (Yasin et al., 2015; Sousa, Baldoino,& Silva, 2016).

It is noteworthy that the role of the nurse stands out in the control of the disease, but it is important for the user to receive care from a multidisciplinary team, from the beginning to the end of their case. Therefore, the involvement of other health professionals must be greater, in order to increase the control of the disease, as well as the functioning of the program (Furlan, Santos,& Marcon, 2017).

Regarding structural resources, the ventilation conditions of offices and the lack of a specific place for attention, both of which were classified as incipient, suggest that these factors are inadequate. A similar situation was found in studies that showed that ventilation was deficient in the offices and there are no specific places or separated waiting areas for SR (Heufemann et al, 2016; Engelbrecht, Kigozi, Van Rensburg &Van Rensburg, 2018).

Regarding material resources, found to be implanted, it was found that the most available ones were those used to diagnose the disease (pots for catarrh collection), to record data (forms for notification and follow-up of cases, register books), and treatment (tuberculosis medication). On the other hand, in another study carried out in Brazil, the lack of materials such as pots to collect sputum and record books was mentioned (Cunha et al., 2014).

With regard to the dimension process, more specifically with regard to the TB diagnosis, it was found that the requests for fast molecular tests for TB (FMT-TB) is not yet the go-to exam to diagnose the disease, and its use was classified as incipient. The bacilloscopy was the exam asked for the most in the city, both for diagnostic and control purposes.

This result, in addition to the non-implantation of weekly scheduled sending of sputum samples to the lab, suggests that there are varied conducts through the city, which can imply in a delayed diagnostic and in a continued transmission chain. The strengthening of laboratory services is, therefore, necessary, together with the actions of professionals and management (Nyasulu, 2018).

The item regarding HIV testing was found to be implanted. The WHO and the MH state that it should be offered and carried out with all TB hosts. On the other hand, a study carried out in Teresina-PI related that the use of this item was insufficient (Sousa et al., 2019).

Regarding treatment, the PNCT proposes the adoption of the directly observed treatment (DOT), which is considered to be paramount to strengthen the adherence of the TB host to the treatment. Its use depends on the actions of management, health professionals and of the population (Negandhia, Sharmab, Rajesh, Sanjay, & Ramesh, 2017; Peruhype, Mitano, Hoffmann, Surniche, & Palha, 2018).

When the follow up of the user that undergoes DOT from the physician and the nursing technician is not implanted, this could be due to the lack of involvement of these categories. This result, together with the incipient implantation of the DOT, shows the need for the management and the professionals to reflect on their attributions with regard to the strategy.

The subdimension that refers to the carrying out of health educational activities was classified as incipient, as were its items — health education activities carried out by the health service and promotion of community participation and social mobilization.

These classifications are negative for the program, since the association of these actions with the control of the disease is known, since they contribute for self-care, early diagnoses, and adherence to the treatment. Furthermore, the social and family support for the TB host may diminish the stigma related to the disease (Brazil, 2018; Nyasulu, 2018).

Regarding activities related to information systems, all items were classified as implanted. Similar results were found in studies from Manaus (Lavôr, Pinheiro,& Gonçalves, 2016), which shows that these are priorities to be attended by the professionals.

It is extremely important that management, provided with the knowledge of the shortcomings in the Structure and in the Process of the PCT of the city, seeks to make decisions to improve the program.

Conclusion

The level of implantation of the Tuberculosis Control Program was classified as partially implanted, showing shortcomings with regard to the activities developed in the city.

Health teams from the PHC must reflect and make decisions with regard to the findings of this research, in order to relate them to their work process to improve the assistance and the implantation of the program.

The limitations of this study were its mean of 17% of sample loss and the fact that it involved only the nurse, as opposed to considering all actors involved in the PCT. Although the nurse is the main actor in TB control at the PHC in Brazil, this study encourages studies that can encompass other health professionals, managers, and users.

Data found in this research, although it refers to a specific implantation context, contributes for reflections by the health team, and managers can offer guidance for the improvement of the PCTs in other contexts. This is why this study suggests the application of this methodology in other evaluation studies.

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