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Tuberculosis in primary health care: identifying priority cases in a municipality in southern Brazil

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ABSTRACT. The objective of this study was to analyze the performance of a Typical Primary Health Care Unit (TPHCU) and Family Health Unit (FHU) in the cases of TB detection and verify the capacity of health services for respiratory symptomatic (RS) care according to two types of organization. The study was carried out in Pelotas, Rio Grande do Sul, from April to August 2012. Two hundred and seventy-six health professionals from 51municipal units of Primary Health Care (PHC) participated in the study; they answered a pre-tested structured questionnaire. The data were analyzed using frequencies and multiple correspondence analyses. The FHU was associated with: professionals qualified to identify the RS, availability of container for sputum collection and request forms for baciloscopy; clinical evaluation and request for baciloscopy; collective actions in the community. The TPHCU was connected with: professionals out of date for clinical practices and tests and uncertainty in identifying RS; lack of container to collect sputum and request form for baciloscopy; professionals who did not perform clinical evaluation and did not request baciloscopy. Therefore, the detection of TB cases in primary health care center, especially in the TPHCU, was poor in structuring and developing actions to detect cases of the disease in the city.

Keywords: primary health care, health care evaluation, tuberculosis.

Tuberculose na atenção primária à saúde: detecção de casos em município prioritário do sul do Brasil

RESUMO. Neste estudo, objetivou-se analisar o desempenho da Unidade Básica de Saúde Tradicional (UBST) e da Unidade Saúde da Família (USF) na detecção de casos de tuberculose (TB) e verificar a capacidade dos serviços de saúde para atenção aos sintomas respiratórios (SR), de acordo com as duas modalidades de organização. O estudo foi realizado em Pelotas/RS no período de abril a agosto de 2012. Participaram do estudo 276 profissionais de saúde das 51 unidades de Atenção Primária à Saúde (APS) do município, que responderam a um questionário estruturado pré-testado. Os dados foram analisados por meio de frequências e análise de correspondência múltipla. A USF foi associada com: profissionais preparados para identificação de SR; presença de pote de escarro e formulários de solicitação de baciloscopia; realização de avaliação clínica e solicitação da baciloscopia; realização de ações coletivas na comunidade. Por sua vez, a UBST associou-se: a profissionais sem atualização clínica e em exames e sem segurança para identificação de SR; à falta de pote de escarro e de formulário de solicitação de baciloscopia; com profissionais que não faziam avaliação clínica nem solicitavam baciloscopia. Portanto, a detecção de casos de TB na atenção primária à saúde, principalmente na UBST, apresentou fragilidades na estrutura e no desenvolvimento das ações de detecção de casos da doença no município.

Palavras-chave: atenção primária à saúde, avaliação de serviços de saúde, tuberculose.

Introduction

Brazil has had a reduction in the epidemiological indicators related to tuberculosis (TB) for the last 10 years, emphasizing mortality rates, prevalence and to a lesser extent, the incidence (GUIMARÃES et al., 2012). However, the country is still among the twenty-two nations with the highest number of the disease and is the 17th country in relation to the number of cases (36.1cases/100,000 inhabitants) in 2012 (BRASIL, 2013).

The early identification of the RS is one of the main strategies to cause an impact on the epidemiological indicators and to contribute significantly to the control of the disease especially for the cases surveyed at health centers and in the community. This practice is extremely indicated throughout the country and it should be

incorporated in the routine of the health centers, mainly in the primary health care (PHC) services (BRASIL, 2011).

Although there are different organizational characteristics for those services, distinguishable in two care types (typical primary health care unit – TPHCU and family health unit – FHU), both are responsible for the development of actions to detect cases of TB (BRASIL, 2011).

Family health groups are broadly in contact with users, they help the family and are in proximity to the population, especially those with lower socioeconomic levels (FERNANDES et al., 2009), strongly contributing to the TB control (HINO et al., 2011) and basically to the early identification of the RS.

In Pelotas, Rio Grande do Sul State, a priority in TB care in the country, there are 51 PHC units, divided into 34 TPHCU and 17 FHU, reaching 22.8% of the population (IBGE, 2010). The detection of TB cases is mainly performed by the services in the PHC, but the treatment and monitoring of the diagnosed cases are carried out in the first aid post of the TB Control Program.

The Family Health Strategy was implemented in 2002. The city has 327,778 inhabitants (IBGE, 2010) and a TB incidence of 45.7 cases/100,000 inhabitants in 2012, higher than the country rate in the same period (BRASIL, 2011).

Thus, the goal of this cross-sectional study is to detect cases in the PHC services, which involves the identification of the respiratory symptomatic (RS) in a person who has been coughing for more than three weeks; The formulation of TB diagnosis through clinical evaluation; and the attitude towards the subject – require exams (BRASIL, 2011).

The performance of the primary health care service when detecting TB cases was analyzed, and the capacity of the health services in taking care of the RS was checked according to the two types of care organization.

Material and methods

Acting is to perform the actions to detect cases, such as: recognizing the problem (clinical evaluation), treating individually (require exams) and collectively (actions in the community) the suspect cases, considering the capacity of the health services, because it is necessary an appropriate structure for the case detection.

The professionals studied were doctors, nurses and nursing technicians and assistants from 51 PHC units in Pelotas, Rio Grande do Sul State, who were identified through a list grouped by Municipal Health Secretary. Twenty-seven professionals were not included in the study due to illness, maternity leave, vacation or because they were away for personal reasons or collecting data. Nine professionals (3.04%) were not reached in the unit during their work time after at least four attempts and 11 (3.72%) refused to participate in the study. Thus, 276 health professionals at the PHC of Pelotas, Rio Grande do Sul State, were interviewed from April to August 2012.

The interviewees answered a pre-tested structured questionnaire, adapted from the questionnaire of performance evaluation in the primary health care in TB control (VILLA; RUFFINO-NETO, 2009), which was applied by interviewers previously trained.

The stratification of the health services for analysis started with this question 'Does the health unit have Family Health Strategy? Yes/No'. The tool variables were allocated in two components of evaluation of health services, The Procedure and The Structure were stablished according to the definition of Startfield (STARFIELD, 2002). In that way, the Structure is the characteristic that makes possible to offer services and that meant the capacity to detect cases of TB; The Procedure is the actions developed by the professionals and users involved in the health care, therefore, is the actions performed to identify and confirm cases of the disease.

The groups of variables of the Structure were: 1) Staff: clinical and TB exam updates; turnover of professionals; enough professionals to meet the demand; knowledge on TB; health professionals prepared to identify the RS; 2) Facilities and equipment: availability of materials (pot, refrigerator and request forms for baciloscopy); appropriate place for the sputum collection in the unit; and 3) Organization: business hours, interference of the health service organization in the diagnosis of the disease.

The Procedure included two groups of variables: 1) Recognition/knowledge of the problem: clinical evaluation of the RS; and 2) Handling; a) Individual: waiting time to consult the doctor longer than 60 minutes; time period spent with the doctor; request of sputum baciloscopy, sputum collection in the unit; b) Collective: Search for RS in the unit; visits in the community in the search for RS; health education on TB in the community.

Multiple Correspondence Analysis (MCA) was used to analyze the performance of the actions to detect cases of TB, identify similarities and associations without previous causal relationship (CARVALHO, 2004). The decrease in eigenvalues

was used to define the dimensions of the analysis, considering previous dimensions for significant decreases in eigenvalues, since they have more variability of the data. Such dimensions represent a set of variables; from which the variables with lower absolute contributions were excluded ($Cos^2 < 0.10$) because they are unstable in the perceptual map. The absolute contribution is the sum of contributions for each option of variable answer for the dimension.

Thus, the following structure variables were excluded: turnover of professionals; enough professionals to meet the demand; knowledge on TB; available refrigerator; appropriate place to collect sputum in the unit; business hours; interference of the health service organization in the diagnosis of the disease. From the Procedure were excluded: waiting time to consult the doctor longer than 60 minutes; period spent with the doctor and sputum collection in the unit.

The passive variables 'type of health service (FHU/TPHCU)' and 'professional training (Nurse/Doctor/Nursing Technician or Assistant)' were included for the analysis of the Perceptual Map of MCA. They do not contribute for the dispersion of the points in the map but they help to understand the results of the graphs (LE ROUX; ROUANET, 2004).

The Statistica 12-*STATSOFT* was used to analyze the data. The study was approved by the Research Ethics Committee at Universidade Católica de Pelotas, Rio Grande do Sul State, n 2009/04. The ethical precepts were respected and the interviewees signed a Term of Free and Informed Consent to participate in the study.

Results and discussion

Two hundred and seventy-six (276) professionals were interviewed for this study but four of them were excluded of the analysis because they did not answer questions that were interesting for the study (type of work, procedure variables), thus, in all, 271 professionals were interviewed. An amount of 110 professionals (40.6%) were nurse technicians or assistants, 74 (27.3%) were nurses and 87 (32.1%) were doctors. Of these professionals, 78% were statutory employee and 13% were hired professionals. Also 83% of the doctors and 72% of the nurses said that they completed their post-graduation course, and 6% of the doctors and 22% of the nurses answered that they are still attending the course.

From the MCA, it was possible to identify the dimensions before the significant decrease in eigenvalues (Figure 1), considering the first two values, which were 0.290 and 0.179, respectively, and that illustrate 18.8% and 11.6% of the variability of the data.

Table 1 shows the contribution of the variables structure and procedure and the dimensions that they corresponded, which made possible to identify the selection of the set of variables relevant for each dimension.

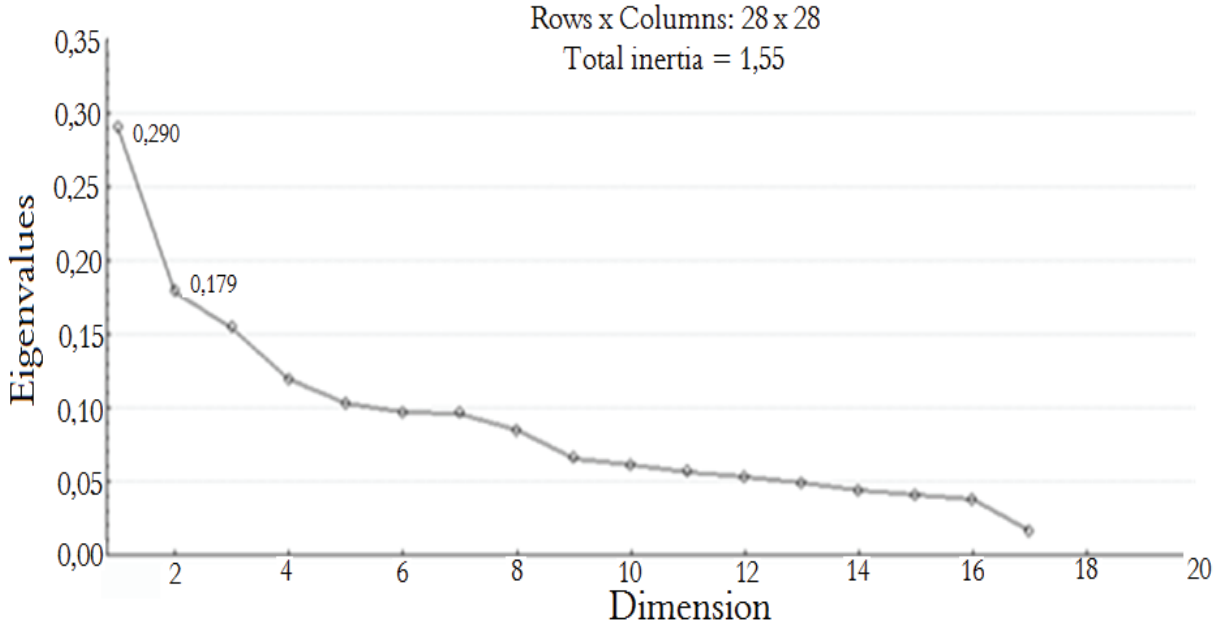

Figure 1. Decrease of dimension in eigenvalues .

Table 1. Contribution of active variables and the corresponding dimension, Pelotas, Rio Grande do Sul State, 2012.

Variables	$Cos^2 1$	$Cos^2 2$	Dimension
B – Clinical Update for Tuberculosis	0.490	0.006	1
C – Test Update for Tuberculosis Diagnosis	0.452	0.010	1
D – Human Resource Turnover	< 0.10	< 0.10	-
E – Number of Available Professionals	< 0.10	< 0.10	-
F – Knowledge on Tuberculosis	< 0.10	< 0.10	-
G – Trained Professionals	0.155	0.008	1
H – Safe Identification of Respiratory Symptoms	0.338	0.008	1
I – Refrigerator	< 0.10	< 0.10	-
J - Pot for Sputum	0.182	0.111	1
K – Request Form for Sputum Baciloscopy	0.289	0.237	1
L – Appropriate place for sputum collection	< 0.10	< 0.10	-
M - Work time	< 0.10	< 0.10	-
N – Type of service that makes the TB Diagnosis difficult	< 0.10	< 0.10	-
O – Clinical Diagnosis of Respiratory Symptom	0.141	0.007	1
P – Request for Sputum Baciloscopy	0.290	0.005	1
Q –Sputum Collection in the unit	< 0.10	< 0.10	-
R – Written Information to send to the user	< 0.10	< 0.10	-
S – Waiting time to consult the doctor > 60 minutes	< 0.10	< 0.10	-
T – Time that the user spend with the doctor	< 0.10	< 0.10	-
U – Search for Respiratory Symptom in the unit	0.274	0.457	2
V – Search for Respiratory Symptom in the community	0.303	0.399	2
X – Health Education about Tuberculosis in the Community	0.238	0.394	2

Label: $Cos^2 n$: value of cosine squared of the variable and dimension angle

The perceptual map (Figure 2) shows the characteristics associated with the PHC services and professional category. The variables associated with the TPHCU structure were: professionals without clinical updates or of examinations to diagnose TB; insecurity in the RS identification. The TPHCU did not use sputum pot or request form for baciloscopy.

The procedure to detect cases of TB in the FHU was associated with clinical evaluation and request of baciloscopy, with search for RS in the unit and in the community as well as with health education about TB in the community.

Nurses were confident in identifying the RS; they performed the clinical evaluation and requested the baciloscopy. The doctors were updated and were confident about identifying the RS. Nurse technicians and assistants were not associated with clinical evaluation, did not request the baciloscopy, were not confident in identifying the RS and were not sure if there were pots and forms in the unit and if a collective management was applied.

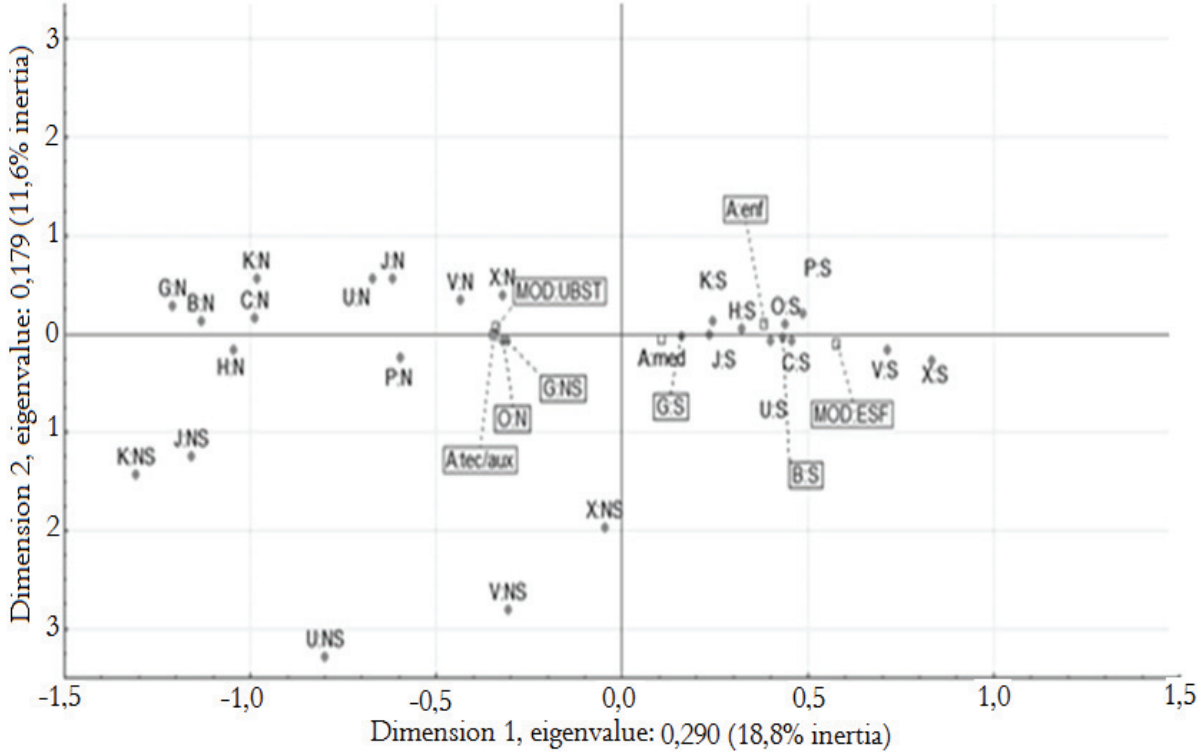

Figure 2. Percentage map of the performance in the PHC services and capacity to detect cases of TB, Pelotas, Rio Grande do Sul State, 2012. Label:Passive Variables: MOD - Type of Health Service[1]; A – Professional Education[2]; Active Variables[3]; B – TB Clinical Update; C – Test Update for TB diagnosis; G – Trained Professionals; H – RS safe identification; J – Sputum Pot; K – Request form for baciloscopy; - O – Clinical Diagnosis; P – Request for Baciloscopy; U – RS search in the unit; V – RS search in the community; X – Health Education on TB in the community; Answer Categories: [1]UBST (TPHCU) – Traditional Primary Health Care Units; ESF (FHU) – Family Health Units; [2]Enf – Nurse; Med – doctor; Tec/Aux – Nurse Technician or Assistant; [3]N – No; NS – Unknown; S – Yes.

In the descriptive evaluation of collective actions to identify cases of TB (Table 2), 41.52% of the health professionals of the TPHCU said that they had never searched for RS in the unit, 77.78% had never searched in the community and 76.60% had never applied health education in the community. The FHU, sometimes, searched for RS in the unit and never searched for RS in the community or had any actions for health education about the disease in the community.

Table 2. Collective handling to detect cases of Tuberculosis in Primary Health Care Units, Pelotas, Rio Grande do Sul State, 2012.

Type of PHC Services	FHU n = 100	TPHCU n = 171
Variables	n (%)	
RS search in the unit		
Never	18 (18.00)	**71 (41.52)**
Almost Never	13 (13.00)	16 (09.36)
Sometimes	**28 (28.00)**	35 (20.47)
Almost Always	19 (19.00)	14 (08.19)
Always	20 (20.00)	26 (15.20)
Unknown	02 (02.00)	09 (05.26)
RS search in the community		
Never	**24 (24.00)**	**133 (77.78)**
Almost Never	14 (14.00)	10 (05.85)
Sometimes	22 (22.00)	10 (05.85)
Almost Always	14 (18.42)	04 (02.34)
Always	21 (21.00)	06 (03.51)
Unknown	05 (05.00)	08 (04.68)
Health Education on TB in the community		
Never	**46 (46.00)**	**131 (76.61)**
Almost Never	20 (20.00)	9 (05.26)
Sometimes	14 (14.00)	11 (06.43)
Almost Always	03 (03.00)	01 (00.58)
Always	07 (07.00)	04 (02.34)
Unknown	10 (10.00)	15 (08.77)

Discussion

Nurses and doctors showed that they are prepared to identify the RS and results of a study in Vitória/Espírito Santo also showed that those professionals have some knowledge on case detection, diagnosis and treatment of the disease (MACIEL et al., 2009). On the other hand, it is necessary to train the nurse technicians and assistants about TB. By focusing the RS care on nurses or doctors of the unit, it may be the reason for the difference among those different professional categories.

The type of care that the health service applies can also have some impact on the performance of the professionals. When the health professionals are concerned about the acute conditions, they focus on the user demand and complaints over a complete clinical evaluation, showing some weakness in helping people with chronic conditions (MENDES, 2011), such as TB. In that way, in order to improve the disease control, it is extremely necessary to improve the consolidation of the integrated service, led by PHC units in facing chronic conditions (MONROE et al., 2008).

Distributing tasks among the professionals, because of the internal arrangements of the staff, can limit the actions to detect cases of TB, since the professional attendance in the unit also becomes limited. This situation hampers the care and prevents that other professionals can deal with the entire process to identify the disease and, consequently, their confidence to detect cases of TB is altered. It is crucial to have skilled personnel, to deal with such a complex TB care (MONROE et al., 2008), in order to have an appropriate management and effective disease control at the PHC.

The casual and non-systematic form in which the qualification courses are offered can compromise the updates and awareness of the professionals, making the RS care weakened (SÁ et al., 2011). In that way, the permanent education must be the goal for the local investments, offering guidelines for healthcare teams, regarding the needs of the population, in this case TB.

An intervention study performed in a FHU in Fortaleza, Ceará State, showed the awareness and quality of the professionals regarding the actions to detect TB cases, such as the search for RS. Also showed a significant increase in the identification of cases of the disease (FAÇANHA et al., 2009), suggesting that the trained teams can have positive impact on the control of the disease, such as a long-term decrease of the incidence. It is important to consider that planning and organizing the capacity activities must be feasible because problems with the possibility of the team to be absent from work or communication problems among the teams have to be solved in order to allow updates and discussions about tuberculosis in the region of the health unit.

Another important aspect for the development of actions to detect cases is the availability of materials and inputs. The performance of the health professionals highly depends on available materials, so that the shortage of those work tools can interfere on the quality of work (SZNELWAR; ABRAHÃO, 2007).

There may be no requests for sputum baciloscopy because of untrained professionals and lack of basic inputs to control TB at the TPHCU. If the professionals are not confident enough, they can indicate the RS to another professional, which may delay the diagnosis (SILVA-SOBRINHO et al.,

2012), being necessary to schedule an appointment in another unit and stand in a long queue.

A favorable individual performance at the FHU, by requesting sputum baciloscopies can be influenced by the available capacity (availability of sputum pot and request form for baciloscopy), since this could make possible to collect sputum immediately after the identification of the RS, according to the national guidelines (BRASIL, 2011).

The nurse performance is focused, because of the actions to identify the disease, mainly the actions of clinical evaluation and request of sputum baciloscopy for RS. This performance meets the political privilege, showing the effective participation of the nurse in detecting cases, mainly to request examinations, confirming the study in the city of Paraíba (STARFIELD, 2002).

The collective actions to detect TB cases, which were not performed by the TPHCU, and the low frequency by developing the practices identified at FHU predict that these actions were not added to the daily routine at the health centers. Another study performed at a national level had already showed this fact (RODRIGUES; CARDOSO, 2010). However, a study on the evaluation of PHC developed in Porto Alegre, State of Rio Grande do Sul, showed that the FHU has a significantly higher score of satisfaction for the community guidance in relation to the adult health, when compared to the TPHCU (CASTRO, 2012).

The WHO suggests that there should be continuously search for RS (WHO, 2008). The results showed that only 21% of the professionals of the FHU always perform this activity, therefore, it is necessary to intensify it. A study in Bayeux/PB presented different results in relation to the permanence of the search for RS in the community, in which 73.8% of the professionals reported that they always perform this action. Nevertheless, it must be considered that this city is small, presenting 92% of the population assisted by the Family Health Strategy (NOGUEIRA et al., 2011).

The low number of home visits by the professionals of the FHU is due to the fact that during their work routine the visits can weaken the development of actions of individual and collective management for TB (MARCOLINO et al., 2009). The community health worker inside the PHC does not guarantee that the TB control actions are effective, although they have strongly contributed for the development of health actions in this place.

A study carried out in a city in the State of São Paulo, with the same support as in Pelotas, Rio Grande do Sul State (35%), did not identify significant differences in the actions of the community health worker in the control of TB when compared with the TPHCU. The study also highlights that it is a kind of weakness not to identify the RS during the home visits (CRISPIM et al., 2012).

The continuous search for RS in the community and actions in health education concerning TB are necessary to control the disease. However, the study presents low frequency to perform this activity, and the PHC units do not consider this as a priority. Thus, investments on collective management are essential because they can expand the possibilities to detect cases and reduce visits at the emergency and urgency centers according to a study carried out in a large city in the State of São Paulo (OLIVEIRA et al., 2009).

The differences of organization and procedure in the individual and collective care between FHU and TPHCU must be minimized in order to approximate the development of actions in order to add the actions of Family Health Strategy to the work of the TPHCU in Pelotas, Rio Grande do Sul State. In that way, it is possible to continue the procedure of reorientation of the example of care in the city, strengthening the PHC so that this can be an officer of the primary health care network (MENDES, 2011; STARFIELD, 2002; BRASIL, 2011).

It is necessary to observe before using the results of this study because not all categories of professionals who work at the PHC were interviewed. The results indicate that both types of care had weaknesses by performing actions in order to detect cases of TB. The TPHCU did not carry out actions to recognize/understand the problem, neither individual nor collective management actions, and did not present a basic organization to develop such actions.

The FHU had better resources and favorable performance of the actions to detect cases. Even though, it is necessary to increase the frequency of the developing collective management.

It is necessary to strengthen the actions to detect cases of TB at the PHC, providing qualification for healthcare professionals who work with TB and improving the resources in those units. More studies on the performance in detecting cases of TB from the point of view of the users need to be suggested.

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