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Original

Tuberculosis: design of the provision of services in Primary Health Care

Tuberculose: desenho da prestação de serviços na Atenção Primária à Saúde

Tuberculosis: diseño de la prestación de servicios en la Atención Primaria a la Salud

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ABSTRACT

Objective: To analyze the provision of services in tuberculosis in a Brazilian municipality of border with Paraguay and Argentina, comparing Basic Health Units to Family Health Units, under the health team's perception. **Method:** A cross-sectional study, survey, conducted with 105 health professionals, between the second half of 2013 and the first half of 2014 in Foz do Iguaçu (PR). The study used descriptive analysis (mean and standard deviation) and T-Student test, with a significance level of 5%. The questionnaire was elaborated according to MacCooll Institute for Health Care Innovation, adapted and validated in Brazil for evaluating tuberculosis control. **Results:** The study showed better ability of Basic Health Units in the variable "reference health professional in the unit" in relation to the Family Health Units. **Conclusion:** The system of provision of services in tuberculosis presents many similarities when comparing the types of Primary Care units.
Keywords: Tuberculosis; Health Systems; Primary Health Care; Health Care.

RESUMO

Objetivo: Analisar a prestação de serviços em tuberculose em um município brasileiro de fronteira com Paraguai e Argentina, comparando as Unidades Básicas de Saúde com as Unidades de Saúde da Família, sob a percepção da equipe de saúde. **Método:** Estudo transversal, inquérito, realizado com 105 profissionais de saúde, entre o segundo semestre de 2013 e o primeiro de 2014 em Foz do Iguaçu (PR). Utilizou-se análise descritiva (média e desvio-padrão) e Teste T-Student, com nível de significância de 5%. O questionário foi elaborado segundo MacCooll Institute for Health Care Innovation, adaptado e validado no Brasil para a avaliação do controle da Tuberculose. **Resultados**: O estudo demonstrou melhor capacidade das Unidades Básicas de Saúde na variável "profissional de saúde de referência na própria unidade" em relação às Unidades Saúde da Família. **Conclusão**: O sistema de prestação de serviços em tuberculose apresenta muitas similaridades quando comparados os tipos de unidades de Atenção Primária.
Descritores: Tuberculose; Sistemas de Saúde; Atenção Primária à Saúde; Atenção à Saúde.

RESUMÉN

Objetivo: Analizar la prestación de servicios en el tratamiento de la tuberculosis en el municipio brasileño de frontera con Paraguay y Argentina, comparando las Unidades Básicas de Salud con Unidades de Salud de la Familia, en virtud de la percepción del equipo de salud. **Método:** Estudio transversal, investigación, llevado a cabo con 105 profesionales de salud, entre la segunda mitad de 2013 y la primera mitad de 2014 en Foz do Iguaçu (PR). Se utilizó el análisis descriptivo (promedio y desviación estándar) y la prueba t de Student, con un nivel de significancia del 5%. El cuestionario fue elaborado según *MacCooll Institute for Health Care Innovation*, adaptado y validado en Brasil para la evaluación del control de la tuberculosis. **Resultados:** El estudio demostró una mejor capacidad de Unidades Básicas de Salud de la variable "profesional de salud referencia en la unidad" en relación a las Unidades de Salud de la Familia. **Conclusión:** El sistema de prestación de servicios en la tuberculosis presenta muchas similitudes al comparar los tipos de unidades de Atención Primaria.
Descriptores: Tuberculosis; Sistemas de Salud; Atención Primaria a la Salud; Atención a la Salud.

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INTRODUCTION

Tuberculosis (TB) causative agent is *Mycobacterium tuberculosis*, with known etiology, diagnosis and treatment. However, historically, public policies of prevention and control of the disease have low effectiveness, leading to a high incidence of the disease, with 10.4 million new cases around the world, being among the ten leading causes of death among the infectious diseases, with 1.4 million deaths[1-2]. Morbimortality has high levels, especially in poor countries, where 95% of new cases and 98% of deaths occur[3].

The goal agreed by the WHO, which proposed halving the epidemiological indicators of incidence, prevalence and mortality from TB until 2015, was not achieved in 11 of 22 countries that concentrate the largest load (80%) of the disease in the world. In these countries, since 1990, the prevalence of TB grew 45%. Nevertheless, in Brazil, the incidence coefficient reduced from 41.5 to 35.5 cases per 100 thousand inhabitants over the years from 2005 to 2014 and the mortality rate decreased from 2.8 to 2.3 deaths per 100 thousand inhabitants between 2004 and 2013. Porto Alegre, Cuiabá, Recife, Manaus and Belém were the capitals with the highest incidence of TB in 2013[4].

The National Tuberculosis Control Program established, decades ago, recommendations for the care of tuberculosis throughout the health network, and one of its main strategies was the Directly Observed Treatment (DOT) to achieve goals of diagnosing 70% of the cases, reducing the abandonment of treatment to 5%, and achieving an 85% cure rate[5]. Since 2003, MH has routinely assessed control strategies, aiming at distributing free medicines and supplies for promotion of preventive actions of control[6].

Epidemiological data indicate that Brazil showed a reduction of 15.4% in the mortality in the period from 2006 through 2015, from 2.6 to 2.2 per 100 thousand inhabitants[7].

Nonetheless, the incidence has been varying and the distribution of TB among the Brazilian regions is heterogeneous. In this context, the state of Paraná presented, in 2013, an incidence of 21 cases per 100 thousand inhabitants, but, when considering the priority cities for the control of TB in Paraná, Foz do Iguaçu is one of the municipalities that have presented high incidence coefficient, registering 50.4 cases per 100 thousand inhabitants in 2015[8].

Considering the epidemiological situation of TB, the conduct of the system and the health model must be organized to give appropriate social responses to the real needs of health expressed by the population[7].

The main actions for controlling TB are: active structured search, confirmation and immediate notification of cases in the *Sistema de Informação de Agravos de Notificação* (Information System of Notification Grievances)[8].

Primary Health Care (PHC), through the Family Health Strategy (FHS), is a key element in the control of the disease. Thus, understanding the organization of the provision of services of TB, through the theoretical proposal of Health Care Networks (RAS - *Redes de Atenção à Saúde*), is essential to planning health actions in the global context based on epidemiological and operational assessment of coping with chronic conditions[6].

However, even with the implementation of the FHS, health attention is currently fragile due to fragmented health systems, being possible to observe isolated and unusual points of attention mainly between the levels of attention to health, preventing the continuous attention to the population[7].

To ensure patients' adherence, there must be a bond, maintaining the continuity of treatment, establishing confidence in the subject's relation, cooperation due to interpersonal ties between the professionals and the served community. Nurses stand out as the professionals that most establish this bond[9].

Therefore, the design of the system for provision of health services determines the type of care required, clarifies the roles and tasks aiming at the integral care to users of the service, as well as the involvement of the health team and effective performance of its respective professionals in care provision. Thus, this study aims to analyze the drawing of the provision of services in a municipality of triple border of the state of Paraná, comparing Basic Health Units (BHU) to Family Health Units (FHU), in the perception of the healthcare team.

METHOD

Cross-sectional study, survey type, conducted between the second half of 2013 and the first half of 2014 in Foz do Iguaçu (PR), Brazilian city with a population of 253,962 inhabitants, located at the border with Paraguay and Argentina[9].

In the study period, the city was divided into five health districts (north, south, east, west and northeast), and had 11 BHU and 17 FHU, also containing Emergency Care Unit, Emergency and Urgency Services and Municipal Hospital and Private hospitals, medical specialties and reference center with specialized and multidisciplinary teams.

The study population comprised health professionals in the municipality registered in the National Register of Health Establishments, according to the categories: doctors, nurses, nursing assistants/technicians and community health agents (CHA). The inclusion criteria were professionals who had accompanied the treatment of at least one patient in the period of six months, prior to data collection and who were in labor activity in the PHC.

The sample of subjects to be interviewed reached 153 professionals, based on the 252 who worked in the PHC health services of the municipality and who met the inclusion criteria. However, 105 health professionals accepted to participate in the research. These professionals were distributed in 14 health units, and 65 (61.9%) belonged to FHU and 40 (38.1%) to BHU.

The Group of Epidemiological-Operational Studies in Tuberculosis developed and validated the data collection instrument to evaluate TB care used for the study, basing on a questionnaire of the MacCooll Institute for Health Care Innovation for evaluation of the PHC in care for chronic conditions. This instrument was used in the project "Choke points of attention to tuberculosis in municipalities in the South, Southeast and Northeast Brazilian regions", which involved the city of Foz do Iguaçu-PR. The questions of the instrument have four levels of response, being A the most

favorable level of response (9 to 11), B (6 to 8) and C (3 to 5), intermediaries and D the most unfavorable level (0 to 2).

In addition, a field diary was used to record comments on the DOT, records about the evolution of the treatment and follow-up of cases, human resources/team that accompanies the TB cases in the health unit, data records in TB, integration between programs, services and health professionals, and the care process. Trained researchers conducted the data collection, which occurred in the PHC units, by signing the Informed Consent Form.

For the analysis, the mean and standard deviation of responses of workers were calculated according to BHU and FHU. According to the averages, the results were interpreted in the following way: from 0 through 2 limited capacity; 3 - 5 basic capacity; 6 - 8 reasonable capacity and 9 - 11 optimal capacity. For comparison of averages between the study groups, the Student T test was used.

The study complied with the formal requirements contained in the national and international regulatory standards for researches involving human beings, contained in Resolution 466/2012, being approved by the Research Ethics Committee of the State University of Western Paraná-UNIOESTE, campus Foz do Iguaçu, according to protocol 348.117

RESULTS

The professionals who participated in the study were distributed in 14 health units, namely: 65 (61.9%) belonged to FHU and 40 (38.1%) to BHU, including professionals who had accompanied the treatment of at least one patient in the period of six months, prior to data collection and who were in labor activity in the PHC. The nursing team corresponded to 44 (41.8%) professionals of the PHC teamwork, CHA correspond to the largest number of workers interviewed 48 (45.8%).

There was statistical significance ($p< 0.05$) for the Student T test in the comparison between BHU (average 8.7) and FHU (average 6.7) in relation to the variable “Health Professional from the unit itself who is a reference in the development of TB control actions”. The other study variables of the study showed no statistically significant difference in the organization of the system for provision of services in TB, when considered the types of PHC services (Table 2).

Table 1: Health professionals from the Primary Care who had already accompanied the treatment of at least one patient during six months, prior to data collection, and who were in labor activity in the Primary Care, Foz do Iguaçu, Paraná, 2013-2014.

Profissionals	N	Percentage
Nurses	16	15.2%
Physicians	13	12.4%
Nursing assistants	18	17.1%
Nursing technicians	10	9.5%

Community health agents	48	45.8%
Total	105	100%

Table 2: Distribution of variables of dimension "Design of the system of provisiono f services" according to the Primary Health Care Unit in Foz do Iguaçu- Paraná, in 2013-2014.

Variables	BHU *Mean ¤ SD	FHU *Mean ¤ SD	P value
Teamwork for controlling Tuberculosis	5.2 ¤ 2.4	5.4 ¤ 2.7	0.7112
Health Professional from the unit itself who is a reference in the development of Tuberculosis control actions	8.7 ¤ 2.2	6.7 ¤ 2.9	0.0002
Scheduling system for Tuberculosis treatment	7.2 ¤ 2.3	6.8 ¤ 2.7	0.4339
Monitoring of the Tuberculosis situation in the community	6.0 ¤ 2.5	5.4 ¤ 2.5	0.3153
Attention planned for controlling Tuberculosis	6.9 ¤ 1.8	6.7 ¤ 2.0	0.6253
Care continuity for the Tuberculosis carrier	6.7 ¤ 3.7	7.6 ¤ 2.5	0.1424

*Parameter: 0 - 2 limited capacity; 3 - 5 basic capacity; 6 - 8 reasonable capacity and 9 - 11 optimal capacity

DISCUSSION

The early diagnosis, rapid adherence to drug treatment and the ability of health professionals to address and identify different conditions of vulnerability and risk are strategies effectively advocated for controlling TB[10-11].

Regarding teamwork, the practice of work centralization in nursing also occurred in a municipality in the northeast of Brazil, where the actions on TB are fragmented, and the nurse is responsible for various activities such as notification, prediction of materials, control of absentees and contacts, DOT, among others. This teamwork fragmentation and work process centralization compromises the interaction between health professionals and patients, not favoring the integrality of care and preventing the realization of actions for evaluating both the process of attention as results. This model of organization of services answers social demands in a restricted manner by means of reactive actions directed to acute episodes and to exacerbations of chronic conditions[12].

The work centralization in the nurse was also present in a study conducted in Lisbon - Portugal, due to the insufficient number of workers in the team. However, there was no teamwork resistance, occurring cooperation, exchange of information, construction of the work plan and in-group planning, and of meetings to in-group decision-making, resulting in the appropriate monitoring of people living with chronic diseases[13].

Currently, the CHA has assumed, along with the health team, a very important role in health care, as in the TB surveillance, especially in the early record and follow-up of cases, due to his/her greater contact with the community, creating bond and being able to identify socioeconomic aspects, symptoms and complaints during home visits[14].

The CHA are key elements in the work process when involved in the therapeutic planning of cases, resulting in advances in care and control of the disease[15]. In both realities witnessed - FHU and BHU, the involvement of CHA was significant in team actions for controlling TB as shown in Table 1, in which 45.8% of health professionals were CHA, who followed-up a patient for at least six months as an inclusion criterion in the study.

Aiming at succeeding in actions, the decentralization of TB for PHC was implemented, offering diagnostic tests, medications and training for the multiprofessional team, in order to strengthen the bond with users. The FHS should serve as entrance door to all users for the healthcare system, offering integral care along with the Health Care Network when referrals to specialists are necessary[10-11].

The work process at health units reflects the "scheduling system in the control of TB". The turnover of on-duty physicians at traditional BHU is common. The nurse is responsible for planning actions and performing the scheduling of medical consultations of the patient directly with the reference physician from the matrix team, since, in some cases, the doctors of the teams refuse to attend to the TB patient, claiming they are not their patients and consequently do not form any bond with them nor with the community.

In the state of Rio de Janeiro, a study developed with residents showed that TB is still as a major problem in the country, once it is the main cause of death in 25% of patients with the disease after two years of diagnosis, mainly due to barriers to access to diagnosis to treatment and interruption of the treatment[16].

The present study identified that some FHU teams perform the clinical management in the unit itself, and only refer to a matrix team in exceptional situations, being fully responsible for the patient.

Both types of services, although not fully computerized, presented an active scheduling system enabling the "continuity of care to patients with TB". The records are made in paper and electronic charts, book of follow-up of cases in the health units (Green Book) and the accompanying card of the patient.

To refer patients to specialized care (exams, pulmonology, nutrition, social assistance, cardiology, among others), depending on the unit and/or situation, communication occurs by phone, online scheduling or the patient or his/her family, with the requisition, can make the schedule. In case of assistance related to the matrix team, this moves up to the reference unit for the patient's care, as field observations.

Despite some failures in the work process at health units, professionals are responsible for carrying out the "scheduling system" and the "continuity of care to a TB patient", assessed as reasonable in this research, since, in cases that

required the intervention of other professionals (specialists), communication between them occurs by telephone or at meetings at the health unit and between health units, verbally, with formal record (guides and clinical records) and written without using the reference and counter reference register, although not desirable.

The support of the matrix team also occurs for other lines of care, representing an established practice, supported by personalized relationships among professionals. In the PHC, it corresponds to a joint action between the health and support team for discussion of TB cases and definition of procedures, even when the treatment is shared with specialists. Thus, the joint action leads to knowledge production, co-responsibility for treatment among the partners of the services and coordination of care[17].

Therefore, the formation of a multidisciplinary team and the interconnection of two or more teams is of fundamental importance to a positive outcome of the patient's case.

The "monitoring of TB in the community" only occurs from the identification of cases by health services. The scenario identified by observations and notes in a field diary differs from the BHU professionals' responses, who evaluated the TB monitoring in the community as reasonable, and FHU workers, as basic. However, there is no planning/organization of actions geared to the needs of the population, from the strategic information from information systems, thus, TB assistance occurs from the identification of new cases by spontaneous demand and not in a programmed manner, with health information derived from information systems present at Health Units.

The computerization of health systems is an important tool in the planning of actions for TB control. In a study carried out in Curitiba, this feature positively affected the reduction of the proportion of noncompliance to treatment, since any professional in the public health network of the municipality had access to the information notification and follow-up of cases. "The attention planned for TB control" occurs in a timely manner, with cases already diagnosed, and there is no preventive interventions or support groups to the patient. In this respect, both types of services studied evaluated it as reasonable; however, the progress in controlling the disease requires an approach that goes beyond curative actions, focused on preventative measures, as well as continuous follow-up of the patient and his/her family to detect and treat cases among contacts, interrupting the chain of transmission of the disease[18].

Even taking into account the importance of "continuity of care", considered as one of the tools that result in the cure of the disease, THE research shows that this activity was classified as reasonable, in both the BHU as the FHU, with no significant difference between them. In this sense, the study by Silva in 2014, held in Vitoria – ES, states that the non-cure of TB patients relates to factors associated with the organization of the PC service[12].

This study did not involve all actors involved in the TB control in the municipality, such as users and managers, who may have an opinion different from PHC workers, which was

considered a methodological limitation of the research.

CONCLUSION

The difference in the design of provision of services in TB among the types of phc services in the municipality was small, contrary to expectations, due to the care approach recommended for FHU, showing difference between the modalities of PHC Units only for the variable “existence of a reference professional for TB care”.

Actions are necessary to improve teamwork and follow-up of TB, which are fundamental, because the involvement of a multidisciplinary team is essential to avoid complications that favor the abandonment, relapse, loss and multidrug resistance.

The need for theoretical, conceptual and practical investment regarding the FHU role stands out, which has extended care framework in relation to BHU. Generalizations of the results of this study should be made carefully, considering how this study sample is similar to the context of comparison.

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