

● Original article

CONTROL OF TUBERCULOSIS IN A BORDER CITY: ANALYSIS OF THE INSTITUTIONAL CAPACITY OF HEALTH SERVICES*

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ABSTRACT: Objective: to analyze primary health care services regarding the control of tuberculosis in the city of Foz do Iguaçu, Paraná. **Method:** a cross-sectional study, of survey type, with quantitative approach aimed to assess the institutional capacity of the following dimensions of health care services to control TB: organization of the treatment of tuberculosis, coordination with the community, support to self-care, support to decision and design of the service delivery system, involving 105 health professionals from 14 units from December 2013 to January 2014, and in 2015 with the use of descriptive statistics and Anova analysis. **Results:** The worst capacity was that of the dimension coordination with the community, classified as low, with a mean of 3.2 and a standard deviation of 1.8. The highest rated dimension was support to self-care, classified as regular, with a mean of 6.9 and a standard deviation of 2.1. **Conclusion:** need for training of health professionals and compliance with the principles and guidelines of TB control programs and policies in primary health care were identified.

KEYWORDS: Primary health care; Tuberculosis; Border areas; Public health policies.

CONTROLE DA TUBERCULOSE EM MUNICÍPIO FRONTEIRIÇO: ANÁLISE DA CAPACIDADE INSTITUCIONAL DOS SERVIÇOS DE SAÚDE

RESUMO: Objetivo: analisar a Atenção Primária à Saúde quanto ao controle da tuberculose em Foz do Iguaçu, Paraná. **Método:** estudo transversal, tipo inquérito, com abordagem quantitativa das dimensões de organização da Atenção à Tuberculose, articulação com a comunidade, autocuidado apoiado, suporte à decisão e desenho do sistema de prestação de serviços, envolvendo 105 profissionais da saúde de 14 unidades no período de dezembro de 2013 a janeiro de 2014 e no ano de 2015 com a análise descritiva e de variância Anova. **Resultados:** evidenciou-se como pior desempenho a dimensão de articulação com a comunidade, classificada como básica, que obteve média 3,2 e desvio-padrão de 1,8. O melhor desempenho referiu-se à dimensão de autocuidado apoiado, classificada como razoável, com média de 6,9 e desvio-padrão de 2,1. **Conclusão:** foi observada a necessidade de capacitação dos profissionais e observância aos princípios e diretrizes dos programas e políticas de controle da tuberculose na atenção primária à saúde.

DESCRIPTORES: Atenção primária à saúde; Tuberculose; Áreas de fronteira; Políticas públicas de saúde.

CONTROL DE TUBERCULOSIS EN MUNICIPIO FRONTERIZO: ANÁLISIS DE CAPACIDAD INSTITUCIONAL DE LOS SERVICIOS DE SALUD

RESUMEN Objetivo: Analizar la Atención Primaria de Salud en el control de tuberculosis en Foz de Iguaçu, Paraná. **Método:** Estudio transversal, tipo encuesta, con abordaje cuantitativo de dimensiones de organización de Atención de la Tuberculosis, articulación con la comunidad, autocuidado respaldado, apoyo a la decisión y diseño del sistema de prestación de servicios involucrando a 105 profesionales de salud de 14 unidades, de diciembre de 2013 a enero de 2014, y durante 2015 con análisis descriptivo y de varianza Anova. **Resultados:** Obtuvo peor desempeño la dimensión de articulación con la comunidad, clasificada como básica, con promedio 3,2 y desvío estándar de 1,8. El mejor desempeño correspondió a la dimensión de autocuidado respaldado, clasificada como razonable, con promedio 6,9 y desvío estándar de 2,1. **Conclusión:** Se determinó necesidad de capacitación de profesionales y observancia de los principios y directrices de programas y políticas de control de tuberculosis en atención primaria de salud.

DESCRIPTORES: Atención Primaria de Salud; Tuberculosis; Áreas Fronterizas; Políticas Públicas de Salud.

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INTRODUCTION

Tuberculosis (TB) is considered a global disease and a serious public health problem. Since 2003, this endemic disease has become a priority for the Ministry of Health in Brazil, resulting in the development of activities and strategies to strengthen Primary Health Care (PHC) as an element for increasing access and improving the quality of care to people with TB⁽¹⁾. Brazil has a heterogeneous spatial distribution of TB in different Brazilian regions, with an incidence variability ranging from 11 to 68.4 cases per 100,000 inhabitants⁽²⁾.

The state of Paraná had high rates of TB: in 2014, the figures were lower than those registered all over the country: in Paraná 18.7 per 100 thousand inhabitants and in Brazil 33.5 per 100 thousand inhabitants⁽²⁻³⁾. Brazil's Information System for Notifiable Diseases and Events (SINAN) recorded 2,402 new TB cases in this state, according to data from the 2015 Epidemiological Bulletin, with an incidence rate of 18.9 cases per 100 thousand inhabitants and 32.4 per 100 thousand inhabitants in Brazil, demonstrating the decrease in the incidence rate in Brazil and the increase in the rate of TB in Paraná⁽³⁻⁴⁾.

One municipality selected by the Ministry of Health as a priority for the control of TB in Paraná is located in the Tri-Border area, which is formed by the cities of Foz do Iguaçu, in Brazil, Ciudad del Este, in Paraguay and Porto Iguaçu, in Argentina. In 2015, Foz do Iguaçu, in the state of Paraná, had the highest incidence rate (62.9 cases per 100 thousand inhabitants) compared to the state (18.9 cases per 100 thousand inhabitants) and the capital of Paraná (17.6 cases per 100 thousand inhabitants)⁽³⁻⁴⁾.

The intense mobility of people makes this region vulnerable to the emergence of epidemics, posing a major challenge for TB control⁽⁵⁾. We reaffirm the existence of initiatives for the development of health actions and services in the border cities. However, the health policies do not address local specificities, since the cities are not contemplated by the central development policies, configuring a cross-border area of exchange and integration⁽⁶⁾. For example, the city of Foz do Iguaçu began to treat TB in people who lived in Paraguay and Argentina, but due to the lack of integration of health services many patients do not return to monthly follow-up appointments, contributing to the increase abandonment rates.

In view of the recent decentralization of TB control and treatment in Foz do Iguaçu, this study aimed to analyze the institutional capacity of the health services to control TB in the referred city, based on the integration and coordination of actions as an instrument for the management of health services and actions implemented in the treatment of TB, from the perspective of the Triple Frontier.

METHOD

This is a cross-sectional epidemiological study, with a quantitative approach. The study was conducted in Foz do Iguaçu, PR, a city located on the triple border of Brazil, Paraguay and Argentina, which had an estimated population of 255,718 inhabitants in 2012⁽⁷⁾.

Healthcare in this city is organized in five health districts (north, south, east, northeast), composed of four Family Reference Centers (CRFs), PHC health units that provide specialized care and multidisciplinary teams; eight Basic health Units (UBS), and one is a reference unit for care to foreigners, and 16 Family Health Units (USF), with 38 teams. There are also units that provide urgent care (UPAs), urgent and emergency care services, a municipal hospital, private hospitals and a Center of Medical Specialties and Referral.

TB control actions, such as the Directly Observed Treatment (DOT), are performed in PHC by the reference team of the area, usually composed by a nurse, nursing assistant/technician and Community Health Agents (ACS). The most serious cases are monitored by a specialized team that provides technical and complementary support in tuberculosis (support team).

The reference population was composed by the health professionals of the minimum team of a family health strategy unit registered in the National Registry of Health Establishments (CNES) of the city. Inclusion criteria were professionals who had monitored the treatment of at least one TB patient for a minimum period of six months prior to data collection and who were performing their work activities. The exclusion criteria adopted were professionals with two employment contracts, who worked in specialized services (Outpatient Referral, Special Care Service, Psychosocial Support Center and Tubercu-

losis Control Program) and those who worked in hospitals and private clinics.

In the calculation of the sample of health professionals interviewed, the total number of workers who performed their activities in PHC services of Foz do Iguaçu was considered, and duplicate registrations and professionals who did not meet the inclusion criteria were excluded. Subsequently, the sample size was calculated using equation $n_0 = \frac{P(1-P)Z^2}{e^2}$, with the following parameters: sample error of 0.05; confidence interval of 95% and P (population ratio) of 50%. Because it has a finite population of 252 professionals, the calculated sample was corrected using equation $n = \frac{n_0}{1 + (n_0 - 1/N)}$ which resulted in a sample composed of 113 (100%) professionals.

Of the total sample of 113 health professionals, the number of respondents of each category was defined through proportional distribution, as follows: 11 (9.75%) nursing technicians, 14 (12.4%) physicians, 17 (15.05%) nurses, 19 (16.8%) nursing assistants and 52 (46%) community health agents (ACS).

A total of 105 (100%) health professionals agreed to participate in the study and were distributed as follows: 10 (62.5%) of family health units (USF); 3 (37.5%) of basic health units (UBS) and 1 (25%) of the Family Reference Centers (CRF), totaling 14 (50%) professionals of PHC services. Of these, 65 (61.9%) worked in family health units (USF), 29 (27.6%) in UBS and 11 (10.5%) at the Family Reference Centers (CRF).

Data collection and observation of the organization and work process in the health units were carried out by trained researchers and took place from December 2013 to January 2014 and in 2015. A questionnaire proposed by the MacCool Institute for Health Care Innovation, validated in Brazil by Moyses (2012) and adapted for the evaluation of tuberculosis control or for the evaluation of the institutional capacity of the TB control services by Villa (2012) was used. This questionnaire comprises 7 dimensions: Organization of Care of Tuberculosis (6 components), Coordination with the community (4 components), Supported self-care (4 components), Support to decision making (4 components), Design of the service delivery system (6 components) and Integration of the components of the care model for people with TB (6 components). An 11-point numeric rating scale of 0-10 was used in the assessment of the components.

The dimension Organization of the treatment of TB concerns the effectiveness of the management of tuberculosis control policies/programs throughout the system (organization, institution or unit) in which the care is provided, and should be focused on the care of TB patients.

The dimension Coordination with the Community addresses coordination between health systems (health institutions or units), including community resources, given their key role in the clinical management of tuberculosis.

The dimension Supported Self-Care attempts to identify supportive and effective self-care to help people with TB and their families cope with the challenges of the disease and reducing complications and symptoms.

The dimension Support to decision making involves the access of health professionals to evidence-based information to support the process of decision making in the delivery of care to the users. It includes evidence-based guidelines and protocols, consultation with specialists, health educators, and user engagement to enable health teams to identify effective care strategies.

The dimension Design of the service delivery system focused on the necessary changes in the organization of the system, with redefinition of care supply, since evidence suggests that the effective management of TB treatment involves more than simply adding intervention to a system focused on acute care.

The dimension clinical information systems concerns useful and timely information related to individuals and populations affected by TB who use the health services. It is a critical aspect of effective care models, especially those based on population approaches.

The dimension Integration of the components of the model of care to individuals with TB seeks evidence about the effective Health System, attempts to find out whether this system integrates and combines all the elements of the model, for example, associating self-care targets with the records in the

information systems, or associating local policies with activities of the users' care plans.

Statsoft Statistica 9.0 software (Statsoft Inc.) was used for data analysis. Initially, a descriptive analysis was performed, with calculation of the mean and the respective standard deviation, so that the institutional capacity of the health services for TB control in each component assessed was classified according to the values obtained: 0- 2, limited capacity; 3-5, low capacity; 6-8, regular capacity; and 9- 11, high capacity.

Later, analysis of variance Anova and multiple comparison test were conducted to verify the differences between the means, according to the type of health service (UBS/USF/CRF), as they met the assumptions of homoscedasticity and normality by Levene test and Kolmogorov-Smirnov test, respectively. The statistical significance level adopted for these tests was 5%.

A structured observational roadmap was used to record the organization of the health services, as well as the work process of the teams to monitor TB cases, which provided the basis for the discussion of the findings of this study. The research was submitted to the Research Ethics Committee, obtaining approval under protocol no 348.117.

RESULTS

The institutional capacity of organization of care to TB in Foz do Iguaçu was classified as regular, 10 (71.4%), the USF units showed a capacity regular and higher than 3 (21.4%) basic health units (UBS) and 1 (7.2%) CRF, that showed week capacity, with 5% significance (Table 1). Regarding the components of organization of the treatment of TB, it can be observed that the dimension *benefits and incentives to TB patients* were the components with the lowest capacity in the dimension, classified as limited, that is, the supply of these items is incipient. Regular capacity was found in the other components.

The results showed that the dimension coordination with the community had low capacity in eight (57.1%) health units. In the analysis by type of service, FHS and UBS showed better results when compared to CRF, which had a limited capacity. However, no statistically significant difference was observed (Table 1).

The dimension support to self-care was classified as having a regular capacity, reproducing the same result in 13 (92.9%) of the health units. The Family Health Units (USF) showed a higher capacity of organization of the treatment of TB in this dimension compared to the other types of health services (Table 1).

Regarding the dimension support to decision making, low capacity was observed in the municipality, the UBS and the CRF. A regular capacity was observed in the USF for this dimension, compared to other health services (UBS and CRF), and the difference was statistically significant (Table 1).

The institutional capacity in the dimension design of the service delivery system was classified as regular, being the second best ranked capacity, also observed in 12 (85.7%) health units assessed in Foz do Iguaçu. Analysis per health service revealed a better capacity of the USF units for TB control (Table 1).

The system of clinical information was classified as having regular capacity in Foz do Iguaçu. There were differences in the classification between the types of units, with the UBS classified as having low capacity and the other types of units as having a regular capacity. However, these are not statistically significant differences (Table 1). Regarding their components, low capacity was observed for the dimension feedback. Regular capacity was observed for the other components.

Low capacity was detected in the integration of the components of the care model for people with TB in the city of Foz do Iguaçu. Health services were also classified with low capacity (Table 1). Analysis of these components separately showed limited capacity for the component community programs (NGOs, *community centers, churches and pastoral activities*), followed by low capacity for the components of *information to individuals with TB and care planning*.

Table 1 – Dimensions of evaluation of the institutional capacity of health services for the control of TB, according to the municipality and the type of health service Foz do Iguaçu, PR, Brazil, 2014

| DIMENSIONS OF EVALUATION | MUNICIPALITY (N: 105) | | | USF (N: 65) | | | UBS (N: 29) | | | CRF (N: 11) | | |
|--|--------------------------|-----|-------|------------------|-----|---|------------------|-----|---|------------------|------------------|---|
| | M | SD | C | M | SD | C | M | SD | C | M | SD | C |
| <i>Analysis Category</i> | | | | | | | | | | | | |
| Organization of the treatment of TB | 6.2 | 1.5 | R | 6.5 ^a | 1.4 | R | 5.6 ^b | 1.4 | B | 5.5 ^b | 5.5 ^b | B |
| Coordination with the community | 3.2 | 1.8 | B | 3.4 ^a | 1.9 | B | 3.2 ^a | 1.8 | B | 2.3 ^a | 1.3 | L |
| Supported self-care | 6.9 | 2.1 | R | 7.2 ^a | 1.9 | R | 6.1 ^a | 2.3 | R | 6.7 ^a | 2.4 | R |
| Support to decision making | 5.8 | 2.1 | B | 6.3 ^a | 1.7 | R | 5 ^b | 2.4 | B | 4.8 ^b | 2.8 | B |
| Design of the service delivery system | 6.6 | 1.7 | R | 6.4 ^a | 1.6 | R | 6.6 ^a | 1.9 | R | 7.2 ^a | 1.8 | R |
| Systems of clinical information | 6.3 | 1.8 | R | 6.6 ^a | 1.5 | R | 5.7 ^a | 2 | B | 6.4 ^a | 2.3 | R |
| Integration of the components of the model of care to people with TB | 5.3 | 1.6 | 105 B | 5.5 ^a | 1.5 | B | 5 ^a | 2 | B | 5.5 ^a | 1.8 | B |

Source: Research data, 2014

Legend: (M) Mean; (SD) Standard deviation; (C) Classification.

Interpretation of the results: between 0 and 2 (L), limited capacity; between 3 and 5 (L), low capacity; between 6 and 8 (R), regular capacity; and between 9 and 11 (O), optimal capacity. Different letters have statistical significance for ANOVA.

● DISCUSSION

The capacity to organize the treatment of TB in most UBS and in the CRF was classified as low, being better in the USF where it was reported as regular. However, based on the field observation roadmap differences in work coordination and fragmentation of actions were identified in family health teams allocated to the same health unit. Also, weaknesses were observed in the work process of the UBS and CRF, which might pose obstacles to the improvement of the organization of the treatment of TB.

In addition, other barriers that impact the capacity of health services to organize the treatment of TB in PHC are the lack of incentives and benefits, lack of educational activities targeted to users, and the need for professional training. These results reveal the incoherence with strategies of positive adherence to directly observed treatment, given the positive relationship between the supply of benefits/incentives and adherence to Directly Observed Treatment (DOT), as well as the role of permanent health education in TB control⁽⁸⁾.

The managers of PHC units showed interest and commitment in the planning of care to adapt it to local managerial characteristics, particularly regarding the supply of human and material resources for the treatment of TB. In this regard, the organizational aspects of the health service are decisive in the treatment of TB, suggesting the use of managerial practices that invest in resources for infrastructure and training in PHC⁽⁹⁾.

Still on the dimension organization of care for TB, considering the component benefits and incentives to individuals with TB, the records of the field diary showed that all health units (except UBS reference for foreigners) provided the DOT, but without a strategy of additional adherence, since the municipality does not routinely provide benefits/ incentives to enhance treatment adherence. On the other hand, the respondents reported high levels of DOT coverage, and only the UBS for foreigners has partial coverage.

It should be noted that the UBS for foreigners differs from the others, because its users are mostly Arab and Chinese immigrants, and mainly Paraguayan and “Brasiguayans” (children of Brazilians living in Paraguay and children of Brazilians born and resident in Paraguay). Therefore, drug administration is organized according to the possibility of transporting the individual with TB to the health unit, with drug dispensation up to 30 days.

As for the dimension organization of the treatment of TB, considering the goals agreed and registered by the health unit for TB control in the area of coverage, regarding the coverage of supervised treatment and the strategies for improving the treatment of TB, the protracted drug dispensation to meet the needs of foreign users makes it impossible to ensure adherence to DOT and to monitor these users. This obstacle

to DOT is consistent with the difficulties of diagnosing and tracking patients in this tri-border area⁽⁵⁾.

TB control in border regions is a challenge that requires specific tactics involving different actors to meet the social, cultural and local specificities⁽¹⁰⁾.

The low capacity detected in the category of analysis, support and decision, except for the USF, is related to the lack of clinical-epidemiological knowledge on TB by physicians, particularly in the UBS, where most professionals are duty physicians who do not feel responsible for treating TB. Thus, care is provided by nurses and the support team. Even in the USFs, few physicians are involved in the treatment of TB. Some professionals said they felt insecure to provide such care⁽¹¹⁾. There is lack of updating on TB and low frequency of physicians in the areas provided^(8,11).

Given the high turnover of physicians observed in this study, especially in UBS, and the difficulty faced by these professionals to work with the multidisciplinary teams, it is believed that such turnover ruptures the work process, preventing teamwork in the control of TB⁽¹²⁾.

Weaknesses were identified in the dimensions coordination with the community and design of the system, revealing lack of teamwork and monitoring of TB situations in the community. Thus, the findings of this study show non-compliance with the essential and derived characteristics of PHC (care in a family-centered, comprehensive and coordinated system) and with the recommendations of the Ministry of Health for the control of TB, when analyzed in light of the essential attributes of PHC and the Family Health Strategy⁽¹²⁻¹³⁾.

Coordination with the community was observed only in the actions of the community health agents (ACS). However, their knowledge of on TB management is considered poor given the lack of effectiveness of TB control actions carried out by these actors⁽¹⁴⁻¹⁵⁾. From a qualitative point of view, one wonders whether the ACSs are qualified to play the role of coordinators between the community and the PHC team, despite their key contribution for the control of TB⁽¹⁵⁻¹⁶⁾. It is believed that the current care model does not favor collective and coordinated work by the ACS, since the actions of this professional concern the technical dimension and, at a small degree, the political dimension⁽¹⁶⁾.

Another study shows that health professionals do not involve the community in TB control actions and that in fact families and communities are not focused on this process. Evidence suggests that this may be related to an assistance model that limits the movement of a more collective work directed to the real needs of the community⁽¹⁶⁾.

In order to improve care to different chronic conditions, continuous organization of the health care system, integrated in its care levels and focused on the promotion and maintenance of health, is necessary⁽¹⁶⁾. Also, it is important that the interaction of health professionals with the families, community and TB patients contributes to demonstrate the key role of these professionals in the maintenance of health based on health education, empowerment, care management, ensuring continuity of care⁽¹⁶⁻¹⁷⁾.

Regarding the design of the system, evidence suggests that the effective management of the treatment of TB involves more than simply adding intervention to a system focused on acute care: changes in the organization of the system, with redefinition of care supply, are needed. Still on this dimension, regarding the item team work it was found that the actions and responsibilities are centered on the nurses. These professionals are the main reference for the treatment of TB.

Other studies corroborate that the nurse is the main character in the work team, the first reference of care and usually the professional responsible for coordination, who leads health actions and brings together the different actors of the process^(8, 18). However, PHC care should be consistent with a system that delivers comprehensive health care, through the integration of health teams and based on a multidisciplinary approach,⁽⁸⁾ considering that health care professionals have different responsibilities regarding the delivery of care to individuals with TB, and it is of utmost importance that each professional is aware of his/her responsibilities in the treatment of TB⁽¹⁹⁾.

Studies focused on the management of the treatment of TB showed that the training of nursing professionals should be improved with regard to the promotion of care, and not in the biomedical conception, regarding their practical activities^(8,20). When considering the knowledge of PHC nurses, a study carried out in Foz do Iguaçu reported the need for improvement in the management of TB, since the training provided to the professionals is consistent with the technical and biologist concept of

health. It should be emphasized that this model has predominated over the delivery of comprehensive care and the concern with cultural aspects of the users,⁽²¹⁾ and that the training provided by health managers is insufficient due to the lack of professionals^(8, 22).

Thus, the need for continuing training of PHC professionals is highlighted, since care should be based on a comprehensive health system, based on the integration of teams and a multidisciplinary approach,⁽¹⁸⁾ as well as adequacy of the actions to the local reality and coherence with the guidelines for the control of TB and the use of methodologies consistent with the health condition^(14, 19-22).

Support to self-care, i.e. components related to support from professionals in health units where TB patients are responsible for their own health care, who address the concerns of individuals with TB and their families, and promote interventions to change the behavior of TB patients showed regular capacity; however, field observation revealed limitations in the initiatives for support to self-care, such as health education actions and the establishment of links with professionals of the reference team, and interventions to change the behavior of the individuals with TB, such as stopping smoking or persisting in other behaviors that delay or make recovery and cure more difficult for individuals with TB.

These results corroborate the observation that health education is not a regular activity in the healthcare practice of health professionals. There are difficulties in the insertion of integrated work processes due to lack of training / permanent education, weakening the control of TB⁽⁸⁾.

The model of care to chronic conditions encourages the dialogue between health and education policies, since changes in the behavior of health professionals and users of health services is obtained through sound educational processes⁽¹⁶⁾. Therefore, health professionals should be partners in this process of empowerment, and the uniqueness of the roles of the actors (professionals and users) should be complementary^(16, 12).

Although the clinical information system showed regular capacity in most health units, low capacity was observed in the UBSs and in the item feedback for all types of services. In this regard, medical records are used by the three types of health services and includes records of diagnosis, therapy, schedule of follow-up appointments scheduling and records of DOT. However, since the implementation of the EMR system is underway, some information is being fed into this new system, the TB patient registration and follow-up book (Green Book) is not used by all services. Moreover, other studies reported that some health professionals find this book unnecessary. However, we stress that this tool can be very useful in the evaluation and planning of actions at the local level⁽¹¹⁾.

Providing effective care to chronic conditions depends on access to individual and collective information of the population. Thus, an information system integrated with the different components of the care network is necessary to facilitate health care, ensure the development of health care plans and feedback⁽¹⁶⁾.

Regarding the capacity of integration of the components of the care model in PHC services, it was considered low in the planning of the treatment of TB and in the dissemination of information about the care plan to the patients, demonstrating that integration/ communication between community initiatives and health facilities is limited. In addition, coordination with the community demonstrates a limited to regular capacity of PHC in providing a family-centered and community-oriented care in their work process.

The poor integration between the levels of care and the problems of communication and integration are related to selective health policies and to the growth of the private health care plans that provide efficient medium and high technology care services⁽²⁴⁾.

One limitation of this study may be related to a possible information bias regarding the operationalization of the treatment of TB in PHC, since the decentralization of the treatment of TB is recent, and some respondents may have answered the questions based on their personal experiences and technical recommendations.

● CONCLUSION

The treatment of TB in Foz do Iguaçu is decentralized in the USF and UBS units, being characterized by asymmetric, fragmented and uncoordinated work processes that are not consistent with PHC principles.

The evaluation dimensions of this study are interconnected and revealed weaknesses in work processes and structural problems related to information, communication, integration and support to decision making, particularly in coordination with the community, impairing the organization of the system and the coordination of care.

It is recommended that PHC in border regions provide health care that meets local and regional specificities in this area and is oriented to the care of chronic health conditions. The involvement of managers, the presentation of clear and achievable goals/strategies, as well as investments in human, structural and material resources to ensure PHC plays a key role in the healthcare network, oriented to the logic of care to chronic conditions are essential. The need for institutionalized and computerized communication, as well as focus on teamwork and health education should be stressed.

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