



Care production for tuberculosis cases: analysis according to the elements of the Chronic Care Model*

Produção do cuidado aos casos de tuberculose: análise segundo os elementos do *Chronic Care Model*

Producción del cuidado en los casos de tuberculosis: análisis según los elementos del *Chronic Care Model*

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ABSTRACT

Objective: To analyze the care provided to tuberculosis cases in primary health care services according to the elements of the Chronic Care Model. **Method:** Cross-sectional study conducted in a capital city of the northeastern region of Brazil involving 83 Family Health Strategy professionals. A structured tool adapted to tuberculosis-related care in Brazil was applied. Analysis was based on the development of indicators with capacity to produce care varying between limited and optimum. **Results:** The organization of care for tuberculosis and supported self-care presented reasonable capacity. In the coordination with the community, the presence of the community agent presented optimum capacity. Partnership with organizations of the community and involvement of experts presented limited capacity. The qualification of professionals, the system for scheduling and monitoring tuberculosis in the community, and the clinical information system presented basic capacity. **Conclusion:** The capacity of the primary health care services to produce tuberculosis-related care according to the elements of the Chronic Care Model is still limited. Overcoming the fragmentation of care and prioritizing a systemic operation between actions and services of the health care network remains as a major challenge.

DESCRIPTORS

Tuberculosis; Primary Health Care; Health Services; Nursing in Public Health.

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INTRODUCTION

Primary health care (PHC) in Brazil is the main access to the health care services network and a regular point of contact in seeking and obtaining care. However, in relation to chronic diseases such as tuberculosis (TB), it is observed that diagnosis in these services is usually late, leading the specialized clinics to offer case detection actions and treatment⁽¹⁻²⁾.

A gap was identified between the transference of responsibilities related to disease control actions to PHC services and the responsiveness of the teams in relation to clinical and epidemiological management⁽³⁻⁴⁾. This situation reflects directly on morbidity indicators, percentage of detection, healing, and abandoning rate of the disease, which remain lower than the levels expected by the World Health Organization⁽⁵⁾.

It is important to take into account that the response of PHC services is consistent with the obstacles present in the Unified Health System (SUS), whose organization is responsible for a fragmented, reactive, and hegemonic model that is more prepared to the clinical management of acute conditions. Changes in health conditions resulting from demographic and epidemiological transitions unequivocally require systemic reforms in the organization of PHC services that effectively meet management requirements of care for chronic health conditions⁽⁶⁾.

The Chronic Care Model – CCM⁽⁷⁾ was developed in response to health conditions including high prevalence of chronic conditions and the collapse of fragmented systems. It consists of six elements subdivided into two major fields: the health care system and the community. In the first field, changes must be performed in the “organization of health care”, in the “rendering of services system design”, in the “support to decisions”, in the “clinical information systems” and in the “supported self-care”. In the second field, changes are focused on the “coordination of health care services with the community resources⁽⁶⁾”.

“Organization of health care” to deal with chronic conditions must be available to implement changes in the management process, identify and prevent failures in the coordination, and promote agreements to facilitate the communication and flows of information and people, including managers and service providers. “Rendering of services system design” requires the definition of roles and tasks to ensure a structured, planned, continuous care that is shared by peers. “Support to decisions” provides for the use of tools for continuing education, sharing of clinical information between staff and users, and integration with specialized care. “Clinical information system” aims at organizing the data of the population/users in order to allow for ready access to the elaboration of an individualized care plan, identification of risk groups, and monitoring. “Supported self-care” aims at collaborative care management and empowerment of users to self-manage their health. “Community resources” covers the strengthening of social control, partnerships with health organizations, and community organizations⁽⁶⁾.

Seemingly the major challenge lies in the development of an integrated, proactive system that is focused on the individual, family, and community, favoring ongoing access of users to the different parts of the system, enhancing the coordination between the managing entities of system and services, integrating the clinical practice among professionals in the care network, promoting social control, and allowing the rational use of diagnostic and therapeutic resources^(6,8).

In this perspective, the care to TB cases requires an ordered response from different points of care; its logic takes into account the elements of the CCM. The management of its extended course requires an individualized care plan involving the users and their families; it demands an efficient, cooperative, interdependent health care system that is able to identify situations requiring skills and technologies of other individuals and services⁽⁹⁾.

In view of the challenges to the guidance of care for chronic conditions and the potentiality of PHC services to provide decentralized actions of TB control, the aim of this study was to analyze the production of care to TB cases in PHC services according to the elements of the CCM.

METHOD

This cross-sectional study, with a descriptive design and a quantitative approach, was conducted in health units of the capital city of the state of Paraíba. The city organizes the health care services by regions, into five health districts with 182 Family Health teams and 7 teams of Community Health Agents (CHA), distributed into 126 Family Health Units (FHU), covering 88.3% of the population. For TB cases, there are two points of access in the city: FHU and specialized clinics of the Clementino Fraga Hospital Complex, which is considered as a state reference for diagnosis and treatment of the disease. In 2014, the city of João Pessoa presented an incidence rate for TB of 35.7 cases per 100,000 inhabitants and a healing rate of 58.6%; treatment abandoning rate exceeded the national parameter (10.5%), reaching 18.6%⁽⁵⁾.

The population of the study consisted of health professionals from the 182 family health units of the city (physicians, nurses, nursing technicians/aides, and community health agents) selected with the following inclusion criteria: working exclusively in the health unit during the period of data collection in order to avoid overestimating the sample, and having monitored TB patients at least once during the treatment. An estimate error rate of 5% and reliability and accuracy rate of 95% plus 10% for potential losses were considered for the selection of sample size. The sampling process was conducted through proportional sharing according to the professional category, resulting in 83 health professionals (25 nurses, 10 physicians, 43 CHA, and 5 nursing technicians/aides).

Data were collected from September 2013 to February 2014 by means of interviews using a structured questionnaire that enabled the analysis of coordination of care, articulation between the levels of care, and offer of actions for TB control. This questionnaire proposed by the MacColl Institute for Health Care Innovation was based on the elements of the CCM; it was adapted and validated

in Brazil⁽¹⁰⁾ for “assessment – by professionals – of the local institutional capacity to develop the model of care that covers chronic conditions” and support the teams to improve the care to these conditions in the community, services, and relationship with users. This tool was adapted for TB care by the Epidemiological and Operational Studies Group of the Brazilian Network of Tuberculosis Research; it is divided into seven dimensions: I – Organization of TB care; II – Coordination with the community; III – Supported self-care; IV – Support to decision; V – Rendering of services system design; VI – Clinical information systems; VII – Integration of the components of the model of care for individuals with TB. Each dimension consists of questions that may present answers in four levels (D, C, B, A); D corresponding to the worst level, C and B to intermediate, and A as the most favorable level. The levels are represented by values ranging from 0 to 11.

Data were analyzed through techniques of descriptive

statistics, generating assessment indicators of care provided to TB cases in PHC services (Chart 1) according to the mean values obtained in each component. The total of each dimension was calculated to create the indicators; the corresponding mean value was subsequently calculated.

For values between 0 and < 3 the capacity for TB care was considered limited; between 3 and < 6 the capacity for TB care was considered basic; between 6 and < 9 the capacity for TB care was considered reasonable; and between 9 and 11 the capacity for TB care was considered optimum. Data were submitted to analysis of variance with the use of One-way ANOVA.

The research proposal was approved by the Research Ethics Committee of the University Hospital Lauro Wanderley of the Universidade Federal da Paraíba under protocol 0404/2013, meeting the inherent guidelines of the research protocol from Resolution 466/2012 of the National Health Council.

Chart 1 – Dimensions and indicators of assessment of the care produced to tuberculosis cases in Primary Health Care according to the elements of the adapted Chronic Care Model – João Pessoa, PB, Brazil, 2014.

Dimensions	Indicators
Organization of TB care	<ul style="list-style-type: none"> – Health unit manager's interest in relation to changes in TB care; – Goals agreed and recorded by the health unit for TB control in the coverage area; – Strategies to improve TB care; – Strategies to make PHC the place of treatment for TB; – Participation of the health unit manager to improve TB care; – Benefits and motivation to TB patients.
Coordination with the community	<ul style="list-style-type: none"> – Coordination of the health unit and TB patients with the community organizations; – Partnerships with community organizations for TB control – Council/Local Health Committee; – Community health agents.
Supported self-care	<ul style="list-style-type: none"> – Records relating to the support provided by professionals in the health unit for TB patients to manage their own health; – Support for TB patients to manage their own health; – Acceptance of concerns of TB patients and their families; – Interventions related to behavioral changes of TB patients.
Support to decision	<ul style="list-style-type: none"> – Manual of guidelines for TB control in the health unit; – Involvement of experts in TB that are not in the team in supporting health professionals of the unit; – Training of health professionals for TB care; – Information to people about TB.
Rendering of services system design	<ul style="list-style-type: none"> – Teamwork for TB control; – Professionals from the reference health unit to develop TB control actions; – Scheduling system for TB treatment; – Monitoring of the situation of TB in the community; – Planned care for TB control; – Continuity of care to TB patients.
Clinical information systems	<ul style="list-style-type: none"> – Clinical records; – Records of TB patients; – Warnings/alerts for health professionals sent by epidemiologic surveillance department (ESD), laboratories, etc.; – Return of information; – Information on TB patients under risk for neglect, failure, and death; – Care plan for TB patients.
Integration of the care model components for TB patients	<ul style="list-style-type: none"> – Information to TB patients in relation to their care plan; – Records; – Community programs – non-governmental organizations (NGO), community centers, churches, pastorals, etc.; – Planning of TB care in the health unit where the patients undergo treatment; – Monitoring of goals and care plan for TB patients; – Recommendations of the Ministry of Health for TB control.

RESULTS

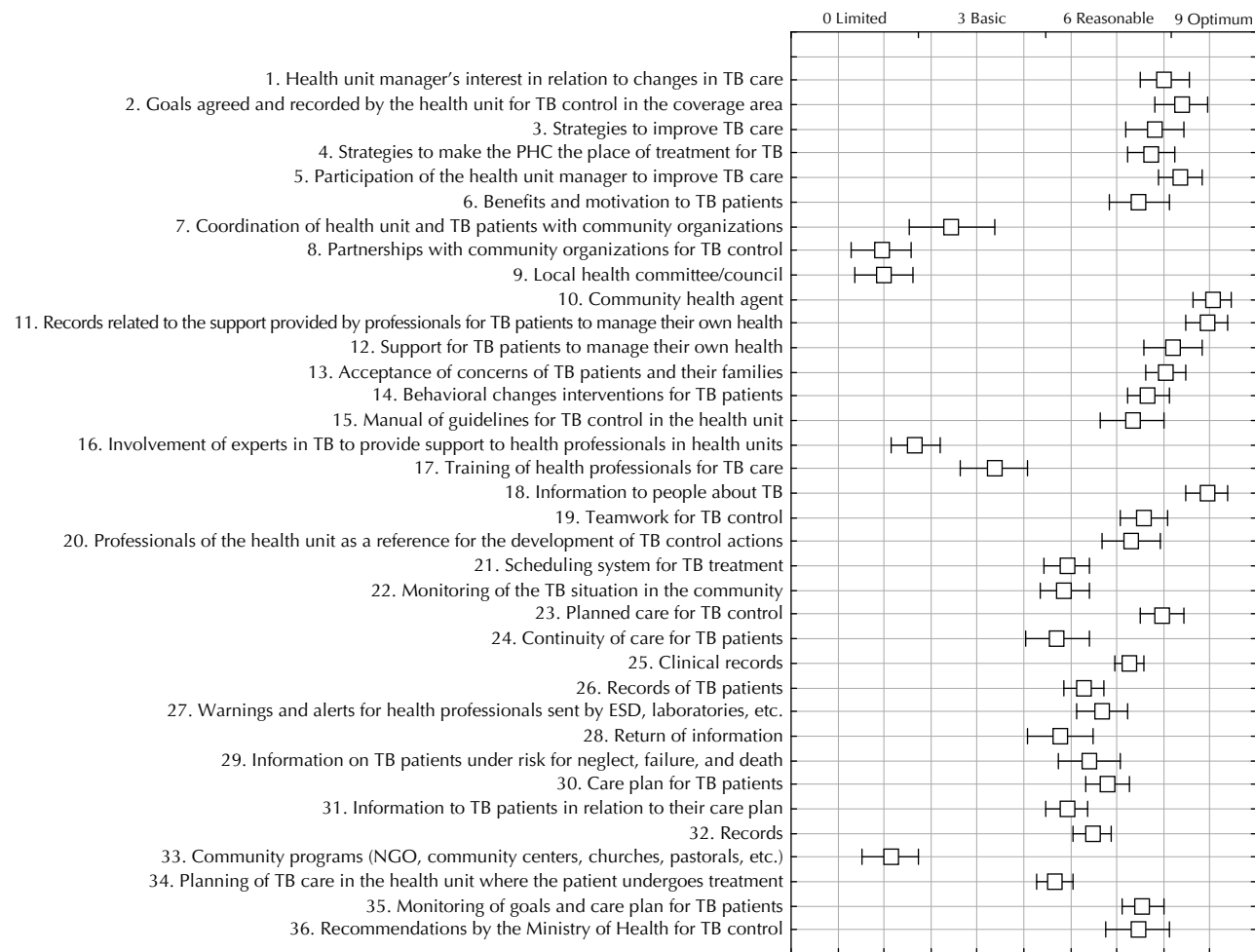
Figure 1 shows the indicators of assessment of care produced for TB cases in primary health care services according to the elements of the Chronic Care Model. The items of the Organization for TB Care (existence of interest by the health unit manager in relation to changes in TB care; goals agreed and registered by the health unit for

TB control in the coverage area; strategies to improve TB care; strategies to make the primary health care the place of treatment of TB; participation of the unit manager to improve TB care; existence of benefits and motivation for TB patients) presented reasonable capacity.

In relation to the coordination with the community, only the presence of CHA presented optimum capacity.

The existence of partnerships with community organizations for TB control and with local health councils/committees presented limited capacity. In relation to the items that make up the supported self-care component in the city (records related to the support of professionals of the health

unit to enable TB patients for self-care; support for TB patients to care for their own health; acceptance of concerns of TB patients and their families; and behavioral changes interventions, quitting smoke, drinking, using drugs of TB patients), all presented reasonable capacity.



Interpretation of results: between 0 and < 3 – limited capacity; between 3 and < 6 – basic capacity; between 6 and < 9 – reasonable capacity, and between 9 and 11 – optimum capacity. NGO – Non-governmental organizations, ESD – Epidemiological surveillance departments
 *Data collected between September 2013 and February 2014.

Figure 1 – Assessment indicators of care produced to TB cases in primary health care according to the elements of the adapted Chronic Care Model – João Pessoa, PB, Brazil, 2013-2014.

Also in relation to the items that make up the support to decision in the city (Figure 1), both the availability of a manual of guidelines for TB control in the health unit and the transfer of information to people about TB were classified with reasonable capacity. Training of health professionals for TB care was classified as basic, and the involvement of TB experts that were not in the team supporting health professionals of the unit was classified with limited capacity.

In relation to the items making up the rendering of services system design in the city, the scheduling system for TB treatment and the monitoring of TB situation in the community are emphasized. They were classified with basic capacity, below the other items that reached reasonable capacity.

Regarding the clinical information system, only the item return of information (Epidemiologic Surveillance/

Tuberculosis Control Program Coordination) about the performance of the health unit in relation to TB control presented basic capacity; the other items presented reasonable capacity. As regards the integration of the care model components for TB patients, the item community programs (non-governmental organizations, community centers, churches, pastorals), with limited capacity, is emphasized. It is also important to mention that no statistical significance was found among the items of the study.

DISCUSSION

The assessment of the items that make up the organization of TB care in the studied city shows that this component has elements that may enhance the relationship of the professionals with patients and health staff as the internal organization of the work in the health unit, through the

management of policies and programs for TB control by all people involved in the management of the case, enables the knowledge of the patient and the generation of information that are relevant and necessary for the reference system when required⁽³⁾.

It is noteworthy that the organization of TB care and the proper management of the cases in an inter-sectoral manner in João Pessoa may be also affected by the human resources quantitative and qualitative deficiency and the turnover within the PHC services in the city, generating work overload and care fragmentation. Also, data collection was conducted within a period of change in the administration in the city.

Studies⁽¹¹⁻¹²⁾ show that the quantitative deficiency of professionals and the turnover of professionals within the services may generate work overload and care fragmentation to TB patients, thus affecting the problem-solving capacity of the services, the process of interaction with patients, and commitment and adherence to the treatment.

This fragmentation is intensified as we observe the data related to the coordination of PHC services with the community in which the partnerships with community organizations and the local health council for TB control are limited. The coordination established between the team and the community has an important role in the management and clinical management of TB as it enables the work of the team not only in the health unit but also in the social space of the community and in the family and cultural contexts, establishing bonds and joint responsibility with the population in order to work on situations that go beyond the specificity of the health sector and that determine the health and life conditions of individuals, family, and community⁽¹³⁻¹⁴⁾.

Another aspect that interferes in the comprehensive care of TB patients relates to supported self-care, often occurring in a standardized way without any articulation with patients and without the development of an individualized care plan for TB patients. Corroborating the findings of this study, a study⁽¹⁵⁾ conducted in the Netherlands points out that the way how chronic diseases care is organized between the health teams does not offer conditions for the effective participation of the user in the decision-making process and self-management of the disease.

The analysis of the findings also reveals a tendency in the health sector to produce care based on the so-called macropolicy of meetings in which changes occur from macro-social spheres, that is, the interactions occur in a way that the people involved in the process are placed accordingly in order to coordinate their action plans; professionals set goals and users meet (or not) such goals. Thus, the production of care contributes to a tendency towards standardization, following standardized behaviors, leading to conveyance of the work process, and bringing back characteristics of the biomedical model⁽¹⁶⁾.

In this sense, the initiation of the production of care focused on the user and that enhances the supported self-care requires the use of the model of micropolicy of meetings practiced in a given social context in which there are expectations and production of subjectivity mutually expressed in

the relationships and everyday events. That is, the changes, interventions, actions on health, and results are consequences of reflections between users and professionals; they favor the improvement of quality of the health care provided⁽¹⁶⁾.

As an aggravating factor, the result of this study evidences that the support to decision in the city for professionals working in TB control is also weakened due to the non-availability of a manual of guidelines for TB control in the unit in a regular way, lack of a continuous follow-up by experts, or even by the trainings provided to part of the team only. In turn, such findings reflect the discontinuity of the training process, the absence of a policy of continuing education, and the high turnover of health professionals related to the party-political discontinuity. Other studies⁽¹⁷⁻²⁰⁾ conducted in several regions of Brazil corroborate these results.

Another relevant aspect found in this study relates to the rendering of services system design; it must involve more than simply adding interventions to a system focused on acute conditions care, providing comprehensive care from intersectoral articulations and multidisciplinary work. However, data point out that the services are focused on the “sharpening” of diseases in a fragmented, non-articulated way.

The health teams of the studied city present a profile of grouping teams with juxtaposed actions characterized by the fragmentation of work and centralization of actions in the nurse professional; each professional works alone within their expertise. A certain level of communication between nurses and CHAs or nurses and physicians was observed, however it occurs only as a technical instrumentalization or behavior to be followed in which the CHA supervises and the nurse makes records. Therefore, this type of teamwork is based on the archive expressed in the merely technological equipment and knowledge in which the professional does not feel able to intervene, leading to a non-free production of their work, a non-empowerment of the health-disease process, and generating a process of alienation⁽²¹⁻²²⁾.

However, this fragmented care process may be heading to a change as every month a meeting with the TB teamwork occurs in the city. It consists of representatives of the epidemiologic surveillance of the city, the coordination of the municipal TB control program, and the matrix supporters – to discuss and follow-up TB cases. Although not sufficient for an effective management of cases, this is a moment in which the interaction of agents and coordination of action occurs. In a multidisciplinary way, there is the problematization of TB cases from distinct perspectives, different expertises articulated in favor of a common objective, control and follow-up of cases in a systematic and effective way. These characteristics fit the type of integration team based on a live work that produces the process of listening to the needs of the user for an exchange of information, mutual recognition of rights and duties, and the decision-making process that enables interventions⁽²³⁾.

One of the strategies to improve this flow of information consists in the improvement of clinical information systems, which represents a useful and convenient

information individualized per person and per TB patient user populations. However, the city still presents an incipient information system; it is not computerized and it is restricted to the local team.

A study⁽³⁾ that assessed the actions and strategies for TB control performed in health services points to the need and importance of computerized systems about TB patients, including clinical records, in order to facilitate the flow of information between the different care levels and the continuity of care, as it could be used as a support tool for health managers and professionals to plan actions and services, reducing costs and increasing the effectiveness and efficacy of services that make up the public system.

These findings directly interfere in the integration of the components of the care model to TB patients, that is, in the effective health system that integrates and combines all the elements of the model, such as the association of self-care goals with the records in the information systems, or the association of local policies with activities of the user care plans as evidenced in the results presented by the items of these components.

The management of TB care points out that the lack of information, interdisciplinary contacts, and concerns to capture the several dimensions of the individual with health problems are rooted in the traditional model of power structure in health organizations⁽²⁴⁾.

Therefore, the coordination of primary care services with other levels of care represents an important resource for expanding the clinics in which the team providing care perceives the differences between people with the same disease and produces different and appropriate therapeutic approaches and performs the work in an interdisciplinary manner and, consequently, reorienting the practice in the perspective of a complex, dynamic health-disease process^(3,25).

It is also important to mention that the limitation of this research is related to the fact that it does not include all people involved in the care process, such as users and managers, possibly presenting opinions differing from the professionals and contributions to the production of care for TB cases in PHC services.

CONCLUSION

The application of the CCM as a resource to analyze the care produced to TB cases in PHC services was found to be useful to measure the capacity of these services to interrelate the six elements that make up the model. In the research scenario, the limited capacity of the services to mobilize resources of the community and expand the care beyond the clinical and institutional practice reveals difficulties to break up with the procedure-centered practice and reduced ability to promote empowerment and social inclusion, thus hindering the production of a comprehensive, co-responsible, and decisive care.

In addition, there is a tendency to standardize the care that does not strengthen the democratic exercise of care; the professionals are no longer only prescribers, they start to articulate in an interdependent, integrated way with the users, moving towards a collaborative management and consequently achieving a higher resolving power, sharing of therapeutics projects, and adaptation of the health services to the needs of the population.

The limited participation of experts in the care to TB cases in PHC (essential to support the teams), the weaknesses in professional training, and the incipient clinical information system directly interfere in the proper management of cases in the city and in ensuring a safe flow for users to access all levels of care and the essential care technologies to solve their health problems. In this sense, providing continuing education to professionals becomes imperative to reorient the practice and decision-makings based on new scientific evidence, enabling the creation of collective and participatory spaces for the planning of actions and establishment of goals for self-care. Therefore, overcoming the fragmentation of care and prioritizing a systemic operation among actions and services of the health care network remains a major challenge.

Furthermore, the present study emphasizes that the absence of statistical significance among the analyzed items reveals an agreement of opinions in relation to the potentialities and limitations of TB care in health services.

RESUMO

Objetivo: Analisar, segundo os elementos do *Chronic Care Model*, a produção do cuidado aos casos de tuberculose nos serviços de Atenção Primária à Saúde. **Método:** Estudo transversal, realizado em capital do nordeste brasileiro, envolvendo 83 profissionais da Estratégia Saúde da Família. Aplicou-se um instrumento estruturado, adaptado para atenção à tuberculose no Brasil. A análise pautou-se na construção de indicadores, cuja capacidade para produção de cuidados variou entre limitada a ótima. **Resultados:** A organização da atenção à tuberculose e o autocuidado apoiado apresentaram capacidade razoável. Na articulação com a comunidade, a presença do agente comunitário de saúde apresentou capacidade ótima. A parceria com organizações da comunidade e o envolvimento de especialistas obtiveram capacidade limitada. A capacitação dos profissionais, o sistema de agendamento e monitoramento da tuberculose na comunidade e o sistema de informação clínica alcançaram capacidade básica. **Conclusão:** A capacidade dos serviços da Atenção Primária à Saúde para produção do cuidado aos casos de tuberculose, segundo os elementos do *Chronic Care Model*, ainda é limitada. Superar a fragmentação do cuidado e priorizar um funcionamento sistêmico entre ações e serviços da rede de atenção à saúde é ainda um grande desafio.

DESCRIPTORIOS

Tuberculose; Atenção Primária à Saúde; Serviços de Saúde; Enfermagem em Saúde Pública.

RESUMEN

Objetivo: Analizar, según los elementos del *Chronic Care Model*, la producción del cuidado en los casos de tuberculosis en los servicios de Atención Primaria de Salud. **Método:** Estudio transversal, realizado en una capital del nordeste brasileño, que involucró a 83 profesionales de la Estrategia Salud de la Familia. Se aplicó un instrumento estructurado, adaptado a la atención a la tuberculosis en Brasil. El análisis se pautaó en la construcción de indicadores, cuya capacidad para la producción de cuidados cambió entre limitada a excelente. **Resultados:** La organización de la atención a la tuberculosis y el autocuidado apoyado presentaron capacidad razonable. En la articulación con la comunidad, la presencia del agente comunitario de salud presentó capacidad óptima. La alianza con organizaciones de comunidad y la involucración de expertos obtuvieron capacidad limitada. La capacitación de los profesionales, el sistema de programación y el monitoreo de la tuberculosis en la comunidad y el sistema de información clínica alcanzaron capacidad básica. **Conclusión:** La capacidad de los servicios de la Atención Primaria de Salud para la producción del cuidado en los casos de tuberculosis, según los elementos del *Chronic Care Model*, todavía es limitada. Superar la fragmentación del cuidado y priorizar un funcionamiento sistémico entre acciones y servicios de la red de atención a la salud es todavía un gran reto.

DESCRIPTORES

Tuberculosis; Atención Primaria de Salud; Servicios de Salud; Enfermería en Salud Pública.

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