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The performance of health services in providing Directly Observed Treatment (DOT) in households to control

DESEMPENHO DE SERVIÇOS DE SAÚDE NO TRATAMENTO DIRETAMENTE OBSERVADO NO DOMICÍLIO PARA CONTROLE DA TUBERCULOSE

DESEMPEÑO DE LOS SERVICIOS DE SALUD PARA EL CONTROL DE LA TUBERCULOSIS A TRAVÉS DEL TRATAMIENTO DOMICILIAR DIRECTAMENTE OBSERVADO

Roxana Isabel Cardozo Gonzales¹, Aline Aparecida Monroe², Elisangela Gisele de Assis³, Pedro Fredemir Palha⁴, Tereza Cristina Scatena Villa⁵, Antonio Ruffino Netto⁶

ABSTRACT

Exploratory study of qualitative and quantitative nature that evaluates the performance of the health services in providing DOT in households of a big city in Brazil. For the quantitative analysis, indexes were created to evaluate the optimization of material/human resources and the observation of the medicine ingestion. It was observed that performance of services is influenced by the availability of human/material resources, the internal organization of services and the absence of the ill person in the household. For the qualitative analysis it was used the content analysis, thematic modality. The main factors influencing the performance of the health service were found to be its *insufficiency of material and human resources and the ill person's social-cultural and economic context*. Concluding, it is necessary permanent managerial, organizational and techno-assistance qualification of the health professionals in the TB control.

KEY WORDS

Tuberculosis.
Directly observed therapy.
Home care services.
Health services evaluation.

RESUMO

Este é um estudo exploratório de natureza quantitativa e qualitativa, que avalia o desempenho dos serviços de saúde na execução do DOT no domicílio em um município de grande porte. Para a análise quantitativa foram construídos indicadores que avaliaram a otimização dos recursos materiais/humanos e a efetivação da observação da ingestão da medicação. Identificou-se que o desempenho dos serviços é influenciado pela disponibilidade de recursos humanos/materiais, organização interna dos serviços e ausência do doente no domicílio. Para a análise qualitativa, utilizou-se a técnica de análise de conteúdo, modalidade temática. A *Debilidade de recursos materiais e humanos dos serviços de saúde e o Contexto sócio-cultural e econômico do doente* foram identificados como os principais fatores que influenciam no desempenho dos serviços de saúde. Considera-se necessário uma permanente qualificação gerencial, organizativa e técnico-assistencial dos profissionais no controle da TB.

DESCRIPTORES

Tuberculose.
Terapia diretamente observada.
Serviços de assistência domiciliar.
Avaliação de serviços de saúde.

RESUMEN

Estudio exploratorio de tipo cuantitativo y cualitativo, que evalúa el desempeño de los servicios de salud al realizar el DOT en el domicilio en una ciudad grande. Para el análisis cuantitativo fueron construidos indicadores que evalúan la optimización de los recursos materiales/humanos y la observación de la ingestión de los medicamentos. Se identificó que el desempeño es influenciado por la disponibilidad de recursos humanos/materiales, organización interna de los servicios y la ausencia del enfermo en el domicilio. Para el análisis cualitativo, se utilizó la técnica de análisis de contenido por temática. La *Debilidad en cuanto a recursos materiales y humanos en los servicios de salud y el Contexto socio-cultural y económico del enfermo* fueron identificados como principales factores que influyen en el desempeño de los servicios de salud. Es importante una permanente calificación gerencial, organizativa y técnico-asistencial de los profesionales para el control de la TBC.

DESCRIPTORES

Tuberculosis.
Terapia por observación directa.
Servicios de atención de salud a domicilio.
Evaluación de servicios de salud.

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INTRODUCTION

The policies for tuberculosis (TB) control using the DOTS strategy, proposed by the World Health Organization (WHO) in 1993, emphasize: a) the need for political-governmental commitment, to guarantee the insertion of the TB issue on the agendas of the authorities connected either directly or indirectly to the health area; b) priority detection of cases in at least 70% of estimated cases of bacillary pulmonary TB (using the positive result of spontaneous sputum smear); increasing healing rates over 85%, with the adoption of short-term medication treatment containing rifampicin and isoniazid, in directly observed treatment (DOT); regular medication provision; e) adequate TB notification system for monitoring control activities⁽¹⁾.

Aimed at guaranteeing the conclusion of treatment and avoiding multi-drug resistance (MDR), the DOT component was officially introduced in Brazil in 1997, consisting in the direct application of the medication by another person⁽²⁾.

The patient in DOT is not the only person in charge of treatment compliance. Healthcare professionals, government and communities also share the responsibilities, and the strategy provides several support services the patients need in order to continue and conclude the treatment⁽¹⁾.

In order to control TB effectively, it is necessary to organize the services, considering the flexibility of the teams in following the patient. Patient supervision can occur at their homes or even their workplaces, by someone willing, trained and responsible, whom the patient accepts and under the responsibility of the TB Control Programs (TCP)⁽¹⁾.

WHO also highlights the importance of the organizational and performance dimensions of healthcare services (HS), stating that *the problem does not lie in detecting or treating TB, but in how healthcare services are organized to detect and treat cases of TB*⁽¹⁾.

The analysis of an intervention involves a technical dimension of the services, focusing on its adequacy to client needs and service quality; a dimension focused on interpersonal relations, observing psychological and social interactions between clients and service providers, supporting the patients and their satisfaction and, finally, an organizational dimension of the process, regarding accessibility to services and extended coverage for the services offered⁽³⁾.

Due to the need to understand some aspects in the management and organization of healthcare services performing DOT for TB control, this study aimed to evaluate the performance of the healthcare services executing DOT at the patients' homes in a large city.

METHOD

This study, both qualitative and quantitative, was performed in July 2003 in Ribeirão Preto – SP, Brazil. Healthcare in the city is organized in five regions, named Health Districts. Each district has a Basic District Healthcare Unit - *Unidade Básica e Distrital de Saúde* (UBDS) and a number of Basic Healthcare Units - *Unidade Básica de Saúde* (UBS). There are 30 UBS, which aim to provide basic medical, dentistry and nursing services to the population within their area of coverage.

The identification and detection of TB cases are permanent activities for the teams from the Basic Healthcare Units (UBS), integrated into the service routine. Treatment and monitoring of confirmed TB cases are performed by TCP teams at the patient's home.

The quantitative approach aimed to evaluate the optimization of the material and human resources and the observation of actual medication intake at the healthcare services that offer DOT at home.

Therefore, two performance indicators of the TCP healthcare teams were elaborated: *Use of resources* (resource time spent/resource time available) and *Medication intake monitoring* (number of household visits with Observation of Medication Intake (OMI)/number of home visits for OMI).

The available time was considered to start when the driver with the official car arrives at the healthcare service to perform the supervision home visits; and the resource time spent corresponds to the time when the professional leaves the healthcare unit until he returns. The OMI visits were those aimed at

the observation itself, and the home visits with OMI were those in which the patient took the medication in the presence of the healthcare professional.

The Systematic Observation Technique was used for quantitative data collection in the four healthcare districts of the city, named services A, B, C and D.

Forty-seven patients receiving DOT at home were monitored in four districts during one month. Twenty-eight subjects were male and 29 female; 91.49% had the pulmonary form of the disease and 74.47% were receiving treatment for the first time.

The qualitative approach sought a broader comprehension of the study object, by analyzing the values and meanings built socially by the study subjects. Qualitative research methods *are those capable of incorporating the issue of Meaning and Intentionality as inherent to the actions, relations and social structures*⁽⁴⁾.

In order to control TB effectively, it is necessary to organize the services, considering the flexibility of the teams in following the patient. Patient supervision can occur at their homes or even their workplaces...

Thus, the TCP healthcare professionals were interviewed, since they are considered fundamental to obtain information that will help to understand the factors that may facilitate or hamper the execution of DOT at the patient's household.

Eight healthcare professionals participated in the study. The interview questionnaire included the following guiding questions: *What are the difficulties related to the healthcare service in order to perform DOT at their homes? What are the difficulties related to the patient and his/her family to perform DOT at his/her home?*

The statements were integrally recorded and transcribed, with the authorization of the participating subjects by signing a term of consent, thus complying with resolution 196/96 of the National Health Council (Protocol n. 0406/2003).

Data analysis

The analysis of the quantitative data was performed with selected study variables. The determination of differences between the TCPs was executed in function of the variance analysis, with Tukey's test, considering a level of significance of 5% ($p < 0.05$), and also with the statistical software Graphpad Instat, version 3.01.

The thematic content analysis technique was used to analyze the quantitative data, which made it possible to organize the statements of the research subjects during the interviews and discover the meaning cores composing the communication, whose presence or frequency can reveal relevant aspects to analyze healthcare service performance when executing DOT at home (1979)⁽⁴⁾.

The theoretical reference for analysis and interpretation of the data consisted of the structural action components of innovative care for chronic conditions Macro-Meso-Micro, proposed by the WHO. In this study, the *Meso*-level was emphasized, since it involves the healthcare organization and its relation with the community, as well as the *Micro*-level, which comprehends the patient-community-healthcare team interactions⁽⁵⁾.

RESULTS AND DISCUSSION

Considering the importance of the Human Resources (supervising healthcare professional and driver) and Material Resources (official car) to develop DOT at home, the results obtained in relation to the indicator use of resources in each healthcare service, which was higher in program B (91.3%), followed by D (89.6%), A (88.5%) and C (75.0%). This means that program B used the available time better, in terms of material as well as human resources, when compared with the other programs.

The longest and shortest times of resource use by the Programs are due to the *availability of Human Resources (HR) and Material Resources (MR)*. Healthcare services A, B

and C have a healthcare professional assigned to perform DOT at the patient's home, while healthcare service D has only one professional responsible for executing other activities besides home supervision, both in and out of the healthcare service. These activities demand more time, which makes visits to the patients at home impossible within the scheduled time. Moreover, this program does not have an official car or drivers assigned only to the execution of DOT, forcing the professional to constantly negotiate with the management team of other programs to obtain these resources. It is worth noting that the healthcare professionals assigned for DOT are also responsible for other activities, due to the internal necessities of the healthcare service. In addition, some programs may occasionally take responsibility for performing DOT for patients from other areas of coverage in the city, due to vacation, employees on leave or the patient's choice to receive treatment in a given healthcare center, as seen in unit C.

The *internal organization of the services* itself, which lacks systematic planning about the number of patients to be supervised for daily OMI; delays when the professional goes out for the supervision and lack of HR assigned for DOT at the scheduled time can also influence the use of resources.

The execution of DOT at home requires a reorganization of internal service activities, due to the need for a minimum structure (official car, driver and assignment of a healthcare supervisor) to develop activities inherent to TB treatment at the patient's home, and to guarantee the continuity of the activities executed within the healthcare unit.

Both the lack of human resources to perform DOT at home and the lack of systematization of the DOT-related activities result in delays for the healthcare professional when he/she is about to go to the patient's home, and also in a reduction of the time for the execution of DOT activities, a situation that can also affect the quality of the healthcare provided to the TB patient.

It is also considered that, the longer the use of the DOT resources is available, the more time the healthcare professional will have to go out for home visits.

Regarding medication intake monitoring, it is observed that healthcare service A reached a higher percentage of OMI visits (77.4%), followed by unit C (66.0%), unit D (64.1%) and unit B (54.8%).

The low percentage of OMI visits is due to the *absence of the patient from home* during the home visit. At healthcare service A, 39.3% of the patients were absent during the visit; unit B: 40.0%; C: 56.4%; D: 100.0%. It is worth noting that the OMI visit was only considered when the professional observed the patient taking the medication.

Failure to carry out the home visits, between healthcare professional and patient, can be related to the restrictive schedules for visitation, to the planning of home su-

pervisions without considering the preferences/necessities of the patient and the patient's sociocultural and economic environment. Healthcare should consider necessities and preferences of the patients to facilitate access and compliance with the treatment⁽⁶⁾.

A study held in a large city of São Paulo state about the patient's perception of DOT at home showed that the dependence of the DOT on scheduled OMI visits by the healthcare professional is a weakness, which could be eased if other social actors were included in the therapeutic process (patients' family members, ex-patients who are cured, community members, among others)⁽⁷⁾.

It is also interesting that the monitoring of medication intake regards OMI highly in the studied city. However, other complementary activities are executed (delivery of incentives, healthcare surveillance, requirements for control sputum smear, evaluation of the contacts, psycho-social support, among others), which are fundamental for compliance with treatment and prevention of the disease within the family context. Monitoring the administration of medication necessarily involves an interaction with a bio-psycho-social reality, including the cultural repertoire and magical-religious beliefs of each family member⁽⁸⁾.

It becomes, then, essential to advance into a multidisciplinary approach and explore psychological and socio-economic determinants of the disease, so as to help develop appropriate and effective interventions for detection and treatment of cases, looking at the patient within the community context and reaching patients who are motivated to solve their healthcare problems, instead of those concerned only with finding better ways to take their medication⁽⁹⁾.

The current healthcare models for controlling infectious diseases, including TB, are directed at specific diseases and, vertically, focus only on short-term results (cure rates) instead of health production. The control of diseases is still considered a priority of the healthcare system alone. Other political and social sectors are not necessarily judged relevant for the control of infectious diseases⁽¹⁰⁾.

Available HR and MR time is an important factor for performing DOT at the patient's home, considering the need to establishing bonds and the co-responsibility among the healthcare professional and the patient/family. This enables the approach of other problems and/or necessities in the care process for patients and families, which goes well beyond the therapeutic plan. Success in these activities can be related to the time when they are performed. A greater availability of time for the home visits would permit better conditions to plan and develop DOT activities, including educating the patient, the family and the community, who become knowledge multipliers for an active participation in the development of healthcare actions to control the disease.

After the qualitative approach, the subjects' statements were coded. The *Quantitative weakness of Human and*

Material resources in the healthcare services and the Socio-cultural context of the tuberculosis patient were identified by the TCP healthcare team as the main obstacles for executing DOT at home. These aspects could jeopardize the optimization and effectiveness of the DOT and the quality of professional-user interaction with a view to adequate disease management at the healthcare centers.

The Quantitative weakness of Human and Material resources in the healthcare services is related to small healthcare teams to develop TB control actions, restrictive schedules of basic resources (official car and driver) for execution of DOT at home and discontinuity of incentives (kit with essential foods, milk and public transport passes).

Small healthcare teams face difficulty to start the supervision activities by the healthcare professional when the official car is available, because other demands of the healthcare service make it difficult to use the resources available for DOT at home.

[...] the official car doesn't come in early, you get involved with other things [...] because we share it with another unit [...] we have an hour and a half to do all this stuff (E1).

I [professional responsible for DOT at home] had to help with the pre-appointment [...] because there were lots of people [...] the patients get angry [...] I end up late, I don't have much time [...] If you help the internal services you have less time to go out, and sometimes you just have to help the service (E2).

[...] staff is a problem [...] there's no exclusive person for that, the team is very small [...] she [the responsible for DOT at home] stays in the vaccination room for a while and goes out afterwards [...] (E1).

Both the lack of MR and HR are believed to affect service organization and professional practices. Consequently, they also influence the identification of the healthcare problems the TCP teams have to deal with in the process of care delivery to the TB patients and their families.

The lack of resources sometimes forces the professionals to improvise and perform their activities in unfavorable conditions, possibly harming their interpersonal relations⁽¹¹⁾. Such a situation can jeopardize service capacity, as well as the development of integral and humanistic care.

Healthcare professionals working in units that concentrate a large number of TB patients with a *larger coverage area* report more difficulties to execute DOT at home, due to the responsibility of having to supervise a larger number of patients and the need to get to these patients' homes within a limited amount of time regarding the availability of the human and material resources (official car, driver and professional in charge of the supervision).

We have a lot of patients, our coverage area is large [...] we share our official car with other units [...] that makes it difficult, because we had to have more time [...] we should have an official car just for us (E2).

Because of the *limited time of MR and HR*, the healthcare professionals often find themselves unable to perform healthcare that is comprehensive, more humanized and committed to the needs of the TB patients and their families. DOT requires, besides supervised medication administration, appropriate information and clarifications to the patient and the family about the disease or other healthcare problems or concerns, thus promoting the motivation of patient and family to encourage compliance with the therapeutic process.

[...] sometimes you come across some things there that you could also be seeing, but I don't have much time for talking, receiving patients, there's too much stuff (E2).

[...] sometimes you supervise a medication and lots of other types of problems come up in the household (E6).

Another aspect reported as a difficulty refers to the *discontinuity of incentives* (kit with essential foodstuffs, milk and public transport passes). Such resources are considered facilitators for the patient's compliance, but their irregular availability may result in a lack of motivation for the patients, reflecting in the planning and execution of the supervision, and especially in compliance with the therapeutic process.

The kit [...] helps the person comply with the treatment, because his economic condition forces him to do the treatment so he can receive a kit [...] (E1).

[...] sometimes the kit causes a few problems [...] because usually we have many problems with dates, or shortages, sometimes the patient is really hoping for it and suddenly it's not available that day, that month, only later. This has happened quite frequently [...] (E6).

The weakness of MR and RH in the healthcare services influences how DOT at home is organized, which may result in an inadequate organization for the reality of the patients and their families. Due to the limited MR and HR times, the established supervision schedules are usually conflicting with the DOT patient's available times, making it impossible for the professional to execute the supervision activities.

[...] there were days when I arrived there [home] [...] I've already taken it [the patient said] [...] there were days when I arrived there [...] I was sleeping [patient], they don't wake up, you have to respect the patient, you cannot force them [...] (E3).

Other relevant aspects were mentioned by the professionals as factors that interfere in the execution of DOT at home, such as the profile of the professional to execute DOT at home and the need for greater involvement of the TCP coordinator with TB management in the peripheral services of the healthcare system.

Regarding the profile of the professional, it was reportedly difficult to find a qualified person, not only in technical and managerial capacities, but also in interpersonal skills and

emotional support to deal with the many social and economic situations of patient and family in the home context.

[...] the greatest difficulty is to find a person with the profile to do that, leave the unit every day and visit patients [...] things that are not usually enjoyable to see [...] you face the patient's reality, poverty, misery [...] sometimes you arrive [...] they are using drugs, smoking marijuana [...] there are employees who just can't do these activities [...] it's difficult, not many people want to be exposed like this [...] (E7).

TB care also implies in dealing with a disease considered as a *chronic condition*, which demands specific skills for a differentiated care, since it is a long-term disease. Action planning should include the socio-economic-cultural aspects of the patient and the establishment of a bond and co-responsibility between the healthcare services, patients and families⁽⁵⁾.

In this context, a qualified and sensitive professional should be assigned, who is aware of the specificities of this practice, and also of the possible hazards for his/her physical integrity, as shown below.

[...] he [healthcare professional] was following a group of crack users, we even discuss the issue of protection [...] sometimes there are shootouts, we've been through it [...] (E7).

Regarding the involvement of the TCP coordinator, a weakness was identified in the articulation of this actor with the healthcare professionals developing TB control actions, according to the following statement

[...] we feel that there is a gap between the front line nurse and the municipal coordination (E7).

The TCP coordinator is responsible for other management activities, involving other healthcare programs besides TCP. This situation has hampered their availability for articulation with the healthcare team, which is fundamental for the adequate management of TB control actions. The relevance of the coordinator's role is emphasized as a function of integration and co-responsibility among the care points, in the promotion of healthcare quality through incentives to the professionals, guarantees of knowledgeable teams, skills and motivation that are indispensable for the good performance of healthcare professionals when dealing with the disease⁽⁵⁾.

Regarding the socio-cultural and economic context of the tuberculosis patient, the main difficulties identified were the social issues of the TB patients:

[...] the social issue is the first problem [...] 80% have very relevant social problems [...] they collect cardboard, they depend on late nights to survive [...] if they can, they work, they do some job around, they are not registered or have any other aid [...] during the treatment, they can count on a kit with basic foodstuffs [...] not enough for them [...] (E8).

It should be noted that tuberculosis is intimately linked to poverty, social problems and access to the healthcare

system^(10,12). Thus, it is possible that there are difficulties for the execution of DOT activities, such as the professionals *not finding the patients at home*, as mentioned below:

[...] the strategy of waiting for the healthcare professional at that specific time, but they often [...] are not there waiting [...] sometimes we do not find the patient at home [...] the visitor goes there and the patient comes here [healthcare unit] [...] (E1).

You don't find them there [...] it happens frequently (E2).

This situation can be related to several factors, some of which are patient-related, such as their own perception about their health, knowledge of the disease and unemployment, which make the patient neglect the TB treatment. Factors related to healthcare service organization can also cause missed appointments, such as the work hours of the healthcare services, which frequently are the same times as most family and personal activities of the patients, especially those inserted in the formal job market, which would imply frequent absences from the workplace and negative consequences for the patient. Due to difficult socioeconomic conditions, the patients often decide to prioritize their work, being usually absent from home during the times scheduled for the healthcare team or professional home visit to supervise the TB treatment. The hours of the healthcare services also represent difficulties for unemployed or informally-employed patients, due to the need to look for any sort of activity that will yield financial gains. This aspect is considered another important risk factor for abandonment of the anti-tuberculosis treatment⁽¹³⁾.

Another difficulty is related to the patient's *refusal* during DOT at home. This refusal happens because of several factors, among them alcoholism, drug abuse, amount of medications to treat the disease and the patients' lack of interest in health and curing TB.

[...] Sometimes they refuse it [...] the patient drank all night, has nausea, is vomiting, there's no way to medicate him (E1).

[...] guy is an alcoholic, he won't accept it, it's no use going to their home, they don't drink with us, they don't stay home, if he knows you're coming he leaves half an hour before [...] he says he's coming here to take it [...] they don't come, not for one day, not for three days, and after all that, it's over [...] (E7).

[...] we have lots of problems with crack users, sometimes they do not stay anywhere for long periods of time [...] some places are too dangerous (E7).

[...] those patients who are really poor [...] they don't accept it [...] you go to their homes, they always make up stories [...] just woke up [...] or just ate, I'll take it later (E3).

[...] the difficulties that we face [...] the patient refuses because it is a large amount of medication [...] (E4).

[...] some patients are hopeless, although they are bacillary, we reach a limit [...] we have a patient who abandoned treatment, he's TB-resistant, he's multi-resistant, the community, we did what we could do (E6).

The management of care for TB patients and their families demands the incorporation of other types of knowledge, such as anthropology, sociology, among others. It is imperative to identify the subject's knowledge and beliefs about the disease in order to develop more effective TB control actions.

Knowledge and beliefs about the treatment are mentioned as important factors for compliance⁽¹⁴⁻¹⁷⁾. The behavior of the individuals is oriented by beliefs, values and representations about the health-disease process⁽¹⁸⁾.

FINAL CONSIDERATIONS

The execution of DOT at home requires that healthcare professionals have *management skills* that enable them to create mechanisms to carry out the reorganization process and plan actions and services according to the particularities of the social and cultural context where an activity happens; *organizational skills*, which enable them to maintain permanent articulation with other healthcare teams/units and the other actors involved in TB control actions, and *technical-care skills* that can guarantee an effective relation between healthcare professionals, patients and families.

It is considered that healthcare services' good performance of DOT at home does not exclusively depend on the qualification and continuous supervision of the professionals, but also that a minimum structure can be granted for the healthcare teams' actions. In addition, the joint efforts of different actors responsible for TB control are also important, aiming to optimize existing resources and good performance by the healthcare professionals in the process of care delivery. Constant reorganization of the activities performed by the teams executing DOT at home are necessary in view of social, cultural and economic factors (entering the job market, alcoholism, unemployment, among others) of the population receiving care, and also the availability of material and human resources at the healthcare services. DOT practice necessarily implies rescuing the individuality and knowledge of each patient's history, who should be examined and considered in the process of healthcare planning and implementation, with a view to adequate performance of TB control actions.

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