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LEPROSY CONTROL PROGRAM IN A HYPERENDEMIC CAPITAL: AN OPERATIONAL ASSESSMENT

PROGRAMA DE CONTROLE DA HANSENÍASE EM CAPITAL HIPERENDÊMICA: UMA AVALIAÇÃO OPERACIONAL

PROGRAMA DE CONTROL DE LA LEPRA EN UNA CAPITAL HIPERENDÉMICA: UNA EVALUACIÓN OPERACIONAL

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Objective: assess the Leprosy Control Program in a hyperendemic capital in Brazil. Method: assessment study, developed in all health institutions that operated in the Leprosy control program in the city of São Luís, Maranhão, Brazil, covering all new and contact cases of leprosy notified in 2012. Results: the program was classified as "Good" when considering the abandonment rates (3.4%) and the degree of physical disability in the diagnosis (94.6%). The indicators proportion of discharge due to cure (42.5%) and proportion of examined contacts (29.1%) were ranked as "Precarious". The indicator proportion of cured cases per year with assessment of degree of physical disability upon discharge was classified as "Regular" (82.5%). Conclusion: The Leprosy Control Program in the city has not been working in an effective and problem-solving manner, suggesting that the quality of the case monitoring until the completion of treatment is deficient.

Descriptors: Leprosy. Health evaluation. Quality indicators, health care.

Objetivo: avaliar o Programa de Controle da Hanseníase em capital hiperendêmica no Brasil. Método: pesquisa de avaliação, realizada em todas as instituições de saúde que operacionalizavam o programa de controle da hanseníase no município de São Luís, Maranhão, Brasil, abrangendo todos os casos novos e contatos de casos de hanseníase notificados no ano de 2012. Resultados: o programa foi classificado como "Bom" quanto às taxas de abandono (3,4%) e quanto ao grau de incapacidade física no diagnóstico (94,6%). Os indicadores proporção de alta por cura (42,5%) e proporção de contatos examinados (29,1%) foram classificados como "Precários". O indicador proporção

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de casos curados no ano com grau de incapacidade física avaliado na alta foi classificado como "Regular" (82,5%). Conclusão: o Programa de Controle da Hanseníase no município não vem atuando de maneira efetiva e resolutiva, sugerindo uma deficiência na qualidade do acompanhamento dos casos até a completude do tratamento.

Descritores: *Hanseníase. Avaliação em saúde. Indicadores de qualidade em assistência à saúde.*

Objetivo: evaluar el Programa de Control de la Lepra en una capital hiperendémica en Brasil. Método: estudio de evaluación, realizada en todas las instituciones de salud que operaban el programa de control de la lepra en el municipio de São Luís, Maranhão, Brasil, abarcando todos los nuevos casos y los contactos de casos de lepra notificados durante el año de 2012. Resultados: el programa fue clasificado como "Bueno" con relación a las tasas de abandono (3,4%) y al grado de incapacidad física en el diagnóstico (94,6%). Los indicadores proporción de alta por cura (42,5%) y proporción de contactos examinados (29,1%), fueron clasificados como "Precarios". El indicador proporción de casos curados en ese año con grado de incapacidad física evaluado en el alta, fue clasificado como "Regular" (82,5%). Conclusión: el Programa de Control de la Lepra en el municipio, no viene actuando de manera efectiva y resuelta, sugiriendo una deficiencia en la calidad del acompañamiento de los casos hasta la conclusión del tratamiento.

Descriptores: *Lepra. Evaluación en salud. Indicadores de calidad en asistencia a la salud.*

Introduction

The search for evidence capable of evaluating the quality and effectiveness of health programs in Brazil is increasing. Since the changes proposed by the World Health Organization (WHO) in 2000 and the "Pact for Health" in 2006, the perspectives related to the evaluation of indicators for the optimization of the care the Unified Health System (SUS) provides to leprosy patients has been strengthened within the framework of management policies[1].

In this sense, leprosy is one of the most persistent diseases, given that the dermato-neurological damage the disease causes is the attribute that promotes physical incapacity and deformities, and can generate several problems, such as limitation of social life, removal from the work environment, psychological problems and stigma[2].

Brazil ranks first in the list of countries with the highest incidence and second in the global prevalence of leprosy, only falling behind India. In fact, it concentrates 90% of the cases registered on the American continent, with an average of 47 thousand new cases of the disease each year. Although there is a decrease in the prevalence coefficients and in the detection rate of new cases, some regions, such as the North, Northeast and Midwest, are evaluated as endemic areas. In addition, the cities with the highest endemicity are located in the Brazilian Amazon, Maranhão being the third state with the highest rate of disease reports[3-5].

In relation to the reporting cities, the highest number of cases was found in São Luís (13.65%), followed by Imperatriz (8.05%) and Timon (4.67%), which delimit an area of intermediary prevalence in the central region of the state, characterizing a pattern of hyperendemicity[6].

Health evaluation does not only include the identification of problems but, based on what has been evaluated, also intends to change the reality, serving as an improvement tool for SUS[7]. Evaluating programs remains a complex task though, within the similarly complex scope of epidemiology, health service organization and monitoring. Nevertheless, there are few Brazilian publications aimed at evaluating health indicators for the Leprosy Control Program (PCH)[2,6].

Currently, the PCH is the main strategy used to consolidate the monitoring actions of the endemic cities. Thus, the evaluation of health programs consists of an orderly analysis of performance and quality. This analysis should be based on the parameters established by the Ministry of Health (MS), composed of outcome indicators defined in the Strategic Plan at the municipal level, with the objective of minimizing the endemic levels of

the disease based on the orientation of the health services at their different levels of complexity, thus strengthening the epidemiological surveillance actions of leprosy. The evaluation shall investigate whether the program has achieved the planned results and expected effects[2].

This study focuses on the operational indicators of the PCH, aiming to understand the following question: What is the quality of the actions and services the PCH provides in the city of São Luís, Maranhão state, Brazil? The objective of this study was to evaluate the PCH in a hyperendemic capital in Brazil.

Method

Evaluation study with a descriptive approach, carried out in all health institutions that operate the PCH in the city of São Luís (MA), according to their level of performance in relation to the operational indicators.

According to the Municipal Health Department (SEMUS), the health service network in the city consists of 92 units of the SUS, according to data found in the National Register of Health Institutions (CNES), 57 of which offer the PCH[8-9].

The study included all cases of leprosy registered and reported in the health services that operate the PCH in 2012. Considering that, in 2012, 1,055 cases of leprosy were reported and 3,310 contacts were registered, the population determined for this study totaled 4,365 outbreaks for the evaluation of the proposed indicators[8].

The defined population, composed of the cases reported and registered in the year 2012, is justified by the need for data on the completeness of the treatment and the final outcome of the individual, keeping in mind that the minimum period for treatment of the patient with leprosy is six months and the maximum of 18 months, considering traditional therapeutic schemes. With regard to substitute therapeutic regimens, the length of treatment can reach 36 months. Therefore, if the study were performed in the years after the established period, evaluating its outcome would not be possible.

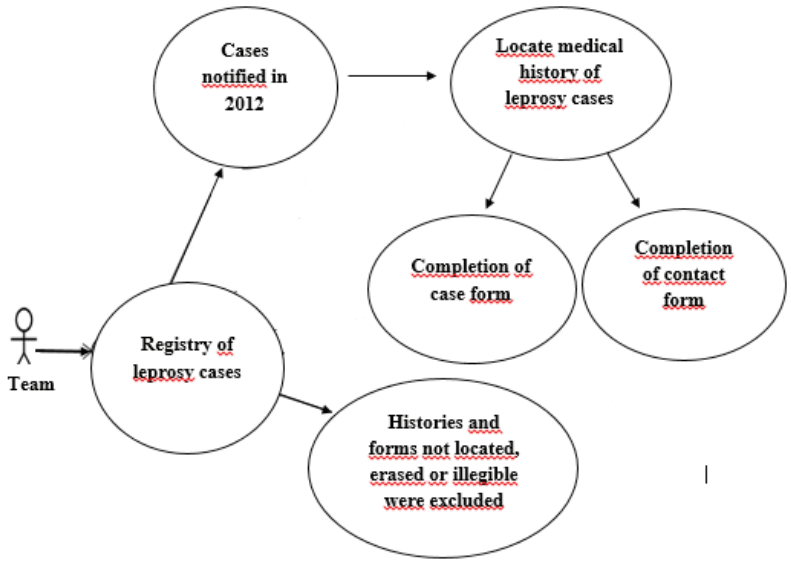
The exclusion criterion referred to those cases in which the medical records or notification forms contained erasures and/or were illegible to determine the data, as well as the cases that were not located.

The instrument used for the data collection was adapted based on the information contained in the sheet of the National Disease Notification System (SINAN). The form used served to complete the information on the cases of leprosy, including: Sociodemographic variables - age, sex, race/color and origin; Social variable of education; Clinical variables - clinical form, operational classification, degree of disability at the time of diagnosis, entry mode, detection mode of the new case, occurrence of reactions during treatment, type of reaction, treatment medication for reaction, degree of physical disability at the end of treatment, type of discharge, number of contacts registered, number of contacts examined, number of contacts forwarded for the BCG vaccine.

Based on the prior list provided by the State Department of Health (SES) referring to health services with cases of leprosy notified in 2012, in order to obtain support to direct the data collection, a survey was carried out of the 57 health services that operated the PCH in the city of São Luís, identifying that 44 had registered and reported cases of leprosy in the year 2012. Thus, this study was carried out in these 44 units, while the others were excluded based on the following exclusion criteria: health units that did not have case records reported in 2012.

Data were collected from September 2015 to March 2016, in the notification sheets, in the registry book and in the medical histories of patients diagnosed with leprosy, reported in the year 2012, as shown in Figure 1.

Figure 1 – Diagram of data collection phases



Source: Created by the authors.

The data were arranged in the program Excel, and then processed and analyzed in the Epi-Info program, version 7, and presented in the form of absolute and relative frequency tables.

To evaluate the program, the (operational) indicators of the quality of the actions and services, according to the parameters of the MS, were organized and evaluated systematically, using the parameters established by the MS itself. These could be classified as "Good", "Regular" and "Precarious"[2].

The operational indicators established in Decree 149, issued on February 3, 2016, are organized as follows: proportion of leprosy cure among new cases diagnosed in the cohort year (Good ≥90%, Regular ≥75% to 89.9%, Precarious <75%); proportion of cases of leprosy in cases of abandonment of treatment among new cases diagnosed in the cohort year (Good <10%, Regular 10% to 24.9%, Precarious ≥25%); proportion of contacts examined from new cases of leprosy diagnosed in the year of cohort (Good: ≥90.0%, Regular: ≥75.0% to 89.9%, Precarious: <75.0%); proportion of new cases of leprosy with a degree of physical disability assessed at the time of diagnosis (Good ≥90%, Regular ≥75% to 89.9%, Precarious <75%); proportion of cases cured in the year with a degree of physical disability assessed among the new cases of leprosy in the cohort period (Good: ≥90%, Regular: ≥75% to 89.9%, Precarious: <75%)[2].

The indicators were organized and calculated according to the type of indicator, its construction, utility and quality parameters.

The study complied with the formal requirements contained in national and international regulatory standards for research involving human beings under opinion 1.152.824 and CAAE 44720914.3.0000.5086.

Results

In the evaluation of the operational indicators, in which the first indicator was intended to evaluate the "Proportion of leprosy cure among the new cases diagnosed in the city of São Luís in 2012", based on the parameters established by the MS, in which "Good" is considered ≥90%, "Regular" ≥75% to 89.9% and "Precarious" <75%, this indicator was considered "Precarious", as only 42.5% of newly diagnosed patients left the program due to cure.

Also regarding the leprosy patients' type of exit from the program, the indicator referring to the "Proportion of leprosy cases in treatment abandonment among the new cases diagnosed in the city of São Luís in the year 2012" was classified as "Good", with an abandonment percentage of 3.4%, in which the parameters required by the MS are defined as follows: Good <10%; Regular 10% to 24.9%; Precarious ≥25%.

As for the third indicator, which was characterized as the "Proportion of examined contacts of new leprosy cases diagnosed in the cohort year", of the total number of contacts recorded (2,214), only 29.1% [645] were examined, classifying that indicator as "Precarious".

The data presented in Table 1 show that, among the new cases reported, 96.2% performed an assessment of the degree of physical disability at the time of diagnosis. Of these, 60.4% presented Grade 0 of incapacity; another 27.5% presented Grade 1; and 8.3% Grade 2. Thus, the indicator capable of evaluating the "Proportion of new leprosy cases with a degree of physical disability assessed at the time of diagnosis" was classified as "Good".

Table 1 – Proportion of new leprosy cases with grade of physical disability assessed at the time of diagnosis, reported in 2-12. São Luís, Maranhão, Brazil – 2016

Variable	Categories	n	%
Grade of disability at diagnosis	Grade zero	406	60.4
	Grade 1	185	27.5
	Grade 2	56	8.3
	Not evaluated	15	2.2
	Not registered	10	1.6
	Total	**672**	**100.0**

Source: Created by the authors.

Obs.: Grade zero + grade 1 + grade 2 = 96.2%.
Parameter: Good ≥90%; Regular ≥75% to 89.9%; Precarious <75%.

Concerning the assessment of the indicator "Proportion of cured cases per year with grade of physical disability assessed among new leprosy cases in cohort period" (Table 2), 82.5% of the patients were assessed at the end of treatment. Therefore, this indicator was classified as "Regular".

Table 2 – Proportion of cured cases with grade of physical disability assessed among new leprosy cases reported in 2012. São Luís, Maranhão, Brazil – 2016

Variable	Categories	n	%
Grade of physical disability at the end of treatment	Grade zero	170	58.4
	Grade 1	55	18.9
	Grade 2	15	5.2
	Not evaluated	28	9.6
	Not registered	23	7.9
	Total	**291**	**100.0**

Source: SINAN/Registry/Medical histories, 2016.

Obs.: Grade zero + grade 1 + grade 2 = 82,5%
Parameter: Good ≥ 90%; Regular ≥ 75 to 89.9%; Precarious < 75%.

Discussion

During the evaluation of the "Proportion of cure among new diagnosed cases", essential to support the evaluation of the effectiveness and efficiency of treatment, the PCH's difficulty to improve or maintain the number of cases cured in São Luís (MA) was verified. Thus, the results presented are well below MS recommendations MS and the indicator was classified as "Precarious", which reveals weaknesses in the follow-up of people affected until the conclusion of the treatment. The cure rate was lower than the national average in 2012 (85.9%) and in cities of Paraná and Minas Gerais[10-11], for example.

These study results are related to the operational weaknesses in terms of disease control, as well as to the lack of information of patients who were transferred, as well as those who abandoned treatment[10]. Other studies indicate that this data possibly derives from health services and professionals who are unprepared to guarantee treatment compliance until discharge, or even from precarious monitoring of the patients being treated. Therefore, it is inferred that the health professionals' effective participation in the diagnosis, follow-up, until the completeness of the treatment is fundamental, aiming to increase the proportion of cure of leprosy cases[5].

During the interpretation of the indicator "Proportion of cases of leprosy in treatment abandonment", it could be verified that the abandonment rate was <10%, classifying it as "Good". The satisfactory results are justified by the fact that treatment withdrawal occurs mainly during the initial doses of treatment, leading to the disappearance of the symptoms. One of the causes associated with non-compliance with the specific treatment of leprosy in an Indian territory was the adverse effects of the drugs used[12]. Few studies on this subject were verified in a systematic review carried out in 2011. Those identified were related to the distance between the patient's residence and the health service, the length of treatment and poor follow-up of health professionals[13]. The literature also reports that feelings observed among people with the disease, such as irritation, silence, stigma and aversion, were mentioned as collaborators to low treatment compliance at a reference center in the Brazilian Northeast[14]. The participation of managers, health professionals and the community is fundamental to reduce the levels of treatment abandonment, through the active search of the absentees and educational actions[10].

Regarding the evaluation of the indicator "Proportion of contacts examined for new leprosy cases diagnosed in the cohort year" classified as "Precarious", the classification was similar to that found in the state of Bahia and in the city of Pará, where the evaluation standard was also unsatisfactory[2,15], reflecting the low percentage of new cases coming from contacts. These data reveal possible difficulties of the health services to develop contact surveillance actions. It is emphasized that at least two new cases of the disease could be diagnosed if health professionals reinforced the active search actions in the following years[16-17].

Thus, based on the precariousness of the indicator, proper investigation of this public is essential to interrupt the transmission chain of leprosy. The promotion of surveillance actions is of paramount importance, with emphasis on the accomplishment of contact examination, aiming the control this endemic condition in a scenario of hyperendemicity the state of Maranhão is part of[5,10,17]. It is important to stress that WHO has indicated recognition, education and qualified contact testing as one of the challenges to eliminate leprosy by 2020 at the subnational level[18].

In the course of this study, inconsistency was observed in the registration of leprosy contact information, in which a large part of the evaluated case forms did not contain any contact records. Experts consider that underreporting of contacts may be due to problems in the flow of information, as well as failure to complete the relevant information in the reporting forms. This situation demonstrates deficiency in epidemiological and operational surveillance activities, contributing to the maintenance of high disease levels[5,19].

Regarding the evaluation of indicator 4, "Proportion of new leprosy cases with grade of physical disability assessed at the time of diagnosis", its analysis is fundamental, given that physical disabilities and deformities generate several personal and social problems[5,19]. Based on the total number of patients evaluated in this aspect, the indicator could be classified as "Good" (94.6%) in São Luís, a reality similar to that identified in the cities of Londrina, Foz do Iguaçu and Curitiba, which revealed evaluation percentage of disability grade at the time of diagnosis superior to 90%[10]. A different scenario was found in cities in the state of Bahia[20] though, where this indicator was classified as regular or precarious in 53% of the cities.

The results suggest conspicuous indicators of the quality of actions and health services, as it reflects the evolution time of the disease, quality in the early detection of cases and a decrease in the hidden prevalence of cases. In addition, due to the disabling potential of the disease, MS establishes that the patient's physical disability should be assessed at the beginning of treatment, every three months, whenever the patient reports complaints, during reaction states and at dischargedue to cure, so that problems are identified early and appropriate interventions are performed for the sake of prevention and treatment[5,21-22].

The total number of patients evaluated based on the indicator "Proportion of cases cured in the year with physical disability assessed among the new cases of leprosy in the cohort period" was classified as "Regular", similar to the indicator with the city of Curitiba. There was disagreement regarding the reality of Foz do Iguaçu and Londrina though (classified as precarious)[10]. This indicator points to existing gaps in the evaluation process of patients during the treatment, possibly triggered by the lack of experience and inaptitude of the professionals responsible for the management of these patients. This data allows us to measure the health services' capacity to control physical disabilities, as well as to infer perspectives related to the treatment, by means of comparative analyses between probable evolutionary changes in the grades of disability from diagnosis to discharge[5,10,19,21].

The results achieved for this indicator suggest interventions focused on the need to implement effective measures to prevent disability after discharge. For this to occur, it is fundamental to train and quality the health team for patient monitoring, together with health promotion, in governmental partnerships, with a view to the accomplishment of joint work, aiming to improve the quality of life and to prevent chronic conditions the disease provokes[10,21].

The study was limited by the significant number of boxes the health professionals ignored, as well as irregularities in the completion of the contact records, registry book, medical histories and report forms of patients with leprosy. This scenario makes it difficult to accurately diagnose the city's current situation. In addition, it strengthens the idea that there has been a mismatch between the city's epidemiological surveillance actions and the MS, as the proportion of new leprosy cases without registration of contacts is a variable that can measure the quality of the actions and services the health professionals provide, contributing to the maintenance of high endemic levels.

Conclusion

Based on the results obtained, the following operational indicators classified as "Good" could be identified: proportion of cases of leprosy in treatment abandonment among new cases diagnosed in the year of cohort and proportion of new cases of leprosy with grade of physical disability assessed at the time of diagnosis.

In contrast, the operational indicators classified as "Precarious" were: proportion of leprosy cure among the new cases diagnosed in the year of cohort and proportion of contacts examined for new leprosy cases diagnosed in the year of cohort. The indicator "proportion of cases cured in the year with grade of physical disability assessed among new cases of leprosy in the cohort period" was classified as "Regular".

In general, the PCH in the city of São Luís has not been effective and problem-solving in relation to most of the operational indicators evaluated. This result suggests a deficiency in the quality of the follow-up and monitoring of the cases until the completion of the treatment, which contributes to the maintenance of high endemic rates in the city, considered as hyperendemic until then.

Thus, it can be affirmed that the training of health professionals for the management, detection, follow-up and monitoring of leprosy cases and contacts, since the diagnosis until the completion of treatment, with the lowest possible grade of disability, is a determining factor for the success of disease control actions. Finally, this study strengthens the importance of evaluation studies as a method to support the planning of prevention actions.

Collaborations:

1. conception, design, analysis and interpretation of data: Yara Naya Lopes de Andrade Goiabeira, Isaura Letícia Tavares Palmeira Rolim, Dorlene Maria Cardoso de Aquino and Leonardo Hunaldo dos Santos;

2. writing of the article and relevant critical review of the intellectual content: Yara Naya Lopes de Andrade Goiabeira, Alice Bianca Santana Lima and Vanessa Moreira da Silva Soeiro;

3. final approval of the version to be published: Yara Naya Lopes de Andrade Goiabeira, Isaura Letícia Tavares Palmeira Rolim, Dorlene Maria Cardoso de Aquino, Leonardo Hunaldo dos Santos, Alice Bianca Santana Lima and Vanessa Moreira da Silva Soeiro.

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