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CHARACTERIZATION OF THE EPIDEMIOLOGICAL PROFILE OF TUBERCULOSIS PATIENTS IN A LARGE CITY IN BRAZIL

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ABSTRACT

Tuberculosis is an infectious and contagious disease that has been a concern for public health for decades. About 90,000 cases of the disease are reported per year in Brazil alone. Of these patients reported about 3,000 have the outcome determined by death each year. In the state of Maranhão, eight municipalities are considered a priority in the fight against the disease, is considered a priority municipality with an incidence of 40 / 100,000 cases / year. This study was conducted in the municipality of São Luís, state of Maranhão, which is considered by the Ministry of Health as one of the priority municipalities to fight the disease. The study aimed to draw an epidemiological profile of tuberculosis in the city of São Luís-MA, considering the sociodemographic, clinical and epidemiological factors. The results showed that the indicators established by the Ministry of Health are not being met and that according to the social and demographic profile, the municipality has a similar profile to the other municipalities in Brazil and the world.

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INTRODUCTION

Tuberculosis is a serious airborne bacterial infection caused by the bacterium Mycobacterium tubeculosis. In recent years, the emergence of multidrug-resistant strains has placed tuberculosis in the spotlight again among infectious diseases (NOGUEIRA, 2012). In 2017, it is estimated that 10 million people fell ill with tuberculosis (TB) and that the disease caused 1.3 million deaths worldwide, which keeps TB among the 10 leading causes of death on the planet (BRAZIL, 2019). Brazil ranks 15th among the 22 countries responsible for 80% of all tuberculosis cases in the world. It is estimated a prevalence of 50 million infected with about 111,000 new cases and 6,000 deaths occurring annually (BRASIL, 2017). The Ministry of Health has created tools for health service evaluation, highlighting the health pact guaranteed by Ordinance 399 of 2016, which enabled a systematic evaluation through the creation of objectives, priorities, goals, through three main axes: Defense of SUS, Management Pact and Pact for Life (BRAZIL, 2016). In addition, other tools were also created to monitor the results, such as the PPI-VS (Pactual and Integrated Health Surveillance Programming), and also the PAVS (Health Surveillance Action Programming). Where PAVS is an instrument focused on surveillance actions, and PPI-VS with the objective of integrating surveillance actions and the health pact (BRAZIL, 2006). Brazil has adopted the National Tuberculosis Control Program (PNCT) as its endemic control strategy. It aims to reduce treatment dropout to less than 5%, detect 70% of bacilliferous lung cases and cure 85% of reported cases (HEUFEMANN *et al*, 2013). Given the current situation, there is a need for investments in the qualification of health services, in the training of human resources for surveillance, evaluation and control activities, in order to increase the diagnostic capacity through bacilloscopy, promote cure, intensify the search for respiratory symptoms and patient contacts in Brazilian municipalities and especially

in priority municipalities for the National Tuberculosis Control Program (BRAZIL, 2017). Studies evaluating the PNCT have shown that health services in Brazil are not adequately prepared to assist the TB patient. Problems such as the lack of integration between the services that make up the health care network, the low resolution of PHC in the diagnosis, failures in the laboratory and professional incapacity to deal with new technologies are pointed as causes of the current disease situation in the country (VILLA *et al*, 2013). In public health evaluation has as its main purpose to support decision-making processes within the Sistema Único de Saúde (SUS). The idea is that evaluation processes support the identification of problems and the reorientation of actions and services developed, enable better decisions on the incorporation of new health practices in the routine of professionals and measure the impact of actions implemented by services and programs on health status. population's health (BRAZIL, 2005). Given the information mentioned above, it is possible to observe the importance of the health evaluation of the Tuberculosis Control Program, since from this evaluation the points that are responsible for the ineffectiveness of the program are established. Thus, the present study aims to evaluate the effectiveness of the Tuberculosis Control Program in the city of São Luís.

MATERIALS AND METHODS

This is a descriptive evaluative study conducted in the city of São Luís - MA. The study was conducted from January to June 2019, with tabulation of data contained in the DATASUS (Department of Informatics of the Unified Health System), the tables were obtained for the periods from 2008 to 2017. The city of São Luís, is The largest municipality in the state of Maranhão in population, today with 7,035,055 inhabitants (estimated for 2018), has an area of 329642,170 km² (IBGE, 2018). To characterize the sociodemographic and clinical-epidemiological profile, all notifications from 2008 to 2017 were considered. To characterize the population in relation to the sociodemographic and clinical-epidemiological aspects, the following variables were used.

Sociodemographic variables:

Years: Under 1, 1-4, 5-9, 10-14, 15-19, 20-39, 40-59, 60 or older;
Race / color: white, black, yellow, indigenous, brown, ignored;
Gender: male and female;
Schooling: years of patient study at the time of diagnosis of tuberculosis.

Clinical epidemiological
By input types:

New Case - Patient did not undergo anti-tuberculosis chemotherapy, did for less than 30 days or more than 5 years ago, the calculation method is made by dividing the new cases reported in the year by the total resident population times 100,000 (BRAZIL, 2011). Relapse - An active tuberculosis patient who was previously treated and was discharged for cure, provided that the interval does not exceed five years (BRAZIL, 2011). Re-entry after abandonment - Patient who returns after treatment and has stopped taking medication for more than 30 consecutive days (BRAZIL, 2011). Transfer - Patient is transferred to another health unit in the same diagnostic municipality or to another municipality or state (BRASIL, 2006)

Forms of the disease: Positive tuberculosis case - A case confirmed by bacilloscopy or culture and one that the physician based on clinical and epidemiological data and the results of complementary tests, confirms the diagnosis and initiates treatment; The calculation method is made by dividing the number of tuberculosis cases with positive smear or culture in a given period and the number of cases of pulmonary tuberculosis in a given period x 100 (BRAZIL, 2011). Pulmonary: when tuberculosis is in the lung. Extra-pulmonary: when tuberculosis is located outside the lung based on bacteriological, radiological and histopathological findings (BRASIL, 2011). Whether or not HIV is associated: whether the test result is positive, negative, or if the patient has had it.

RESULTS AND DISCUSSION

Table 1 presents the data regarding the type of entry and closure situation during the study period. When the variables were analyzed, it was observed that regarding the type of entry the new cases were the majority in relation to the other ways of entering the program. Regarding the situation of closure, it was observed that the cure was the main way out of the program.
When related to the type of entry and closure situation, it is observed that the variables that negatively evaluate the effectiveness of the program have higher numbers than expected, such as relapse, re-entry after abandonment, do not know, after death.

The total number of cases diagnosed in the years 2008 to 2017 were: 9,110 cases, which represent: cures, abandonments, deaths, deaths from other causes, transfers and abandonments. The amount of cures was: 6,262 cases which represents only 68% of the total. The results regarding cure differ from the objective of the tuberculosis control program which indicates that 100% of the diagnosed cases should be treated and the cure rate should be 85% of them, the minimum expected was that 7,994 were cured (BRASIL, 2014). The Tuberculosis Control Program (2014) states that the dropout rate should be 5% of the diagnosed cases, making the study dropout data divergent from that established by the program, as 470 dropout was expected. people, which does not occur in São Luís because the number of abandonment was 1504 people (16%). Regarding the incidence of new cases and social status, (LIMA, 2017) reports in his research that the largest number of notifications and the highest incidence of new cases of tuberculosis increased gradually with the increase of deprived areas and population concentration. (BARROS, 2014), in his study reported that the population with low educational level and low social status are more vulnerable, thus more likely to develop the disease. Table 2 presents data regarding the situation of closure and education, relating the variables. Where it can be observed that the highest number of diagnoses of the disease was present in the group with complete high school, and in this group highlighted the cure was the main situation of closure. It is also observed that the lower the level of education, the greater the number of people diagnosed with tuberculosis. Where in the group of 1-4 year olds of study 1409 people were notified, and in the complete higher education group 327 were notified, showing a large difference between the groups. Was reported in a work that the schooling with the highest incidence of cases was incomplete high school, and that low or lack of schooling is an important risk

Table 1. Number of confirmed tuberculosis cases in the municipality of São Luís - Maranhão, Brazil by type of entry and closure situation from 2008 to 2017

Tipo de entrada	Cura	Abandono	Óbitos	Óbito outras causas	Transferência	Abandono
CASO NOVO	5496	1049	283	123	652	20
recidiva	308	82	38	10	45	1
reingresso	278	345	29	14	59	3
n/informado	6	5	6	2	7	-
TRANSFERÊNCIA	174	23	7	5	29	-
PÓS ÓBITO	-	-	7	4	-	-
Total	6262	1504	370	158	792	24

Source: DATASUS, 2019.

Table 2. Number of tuberculosis cases by year of schooling and closure in the municipality of São Luís, Marahão, Brazil from 2008 to 2017

Encerramemento	0	1-4	5-8	EF com	EM inc	EM completo	Superior in	Superior
Cura	296	853	1007	474	705	1714	199	263
Abandono	88	260	376	173	141	238	18	27
Óbito por tuberculose	39	75	69	25	24	58	6	6
Óbito por outras causas	15	24	42	8	11	28	2	2
Transferência	58	151	151	54	85	145	17	16
Mudança de Esquema	-	3	8	-	1	3	-	2
Abandono Primário	2	2	8	-	1	4	-	1
Total	512	1409	1714	752	994	2255	254	327

Source: DATASUS, 2019.

Table 3. Cases confirmed by Situation Closure of tuberculosis and race in the municipality of São Luís, Maranhão, Brazil from 2008 to 2017

Situação Encerramento	Branca	Preta	Amarela	Parda	Indigena	Total
Ign/Branco	15	16	-	123	1	157
Cura	862	705	36	4561	40	6262
Abandono	138	229	9	1109	5	1504
Óbito por tuberculose	45	46	4	267	2	370
Óbito por outras causas	16	15	-	125	1	158
Transferência	107	91	2	576	8	792
TB-DR	13	8	1	91	-	113
Mudança de Esquema	1	4	-	14	-	19
Falência	1	1	-	4	-	6
Abandono Primário	1	1	-	21	1	24
Total	1199	1116	52	6891	58	9405

Source: DATASUS, 2019.

factor for the development of the disease, and a risk factor for not adherence to the correct treatment. This idea corroborates this study, since the population with the least education had the highest incidence rate of the disease (BERALDO, 2017). Another important variable is the obit for tuberculosis, where it was also observed that in populations with less education more people die from the disease. Corroborating with Guimarães, 2012 who reports in his study that the deterioration of social conditions represents vulnerability for the population in question. The table 3 presents the results related to the closure situation related to the race. Of 9405 people diagnosed with tuberculosis, 6891 are of the brown race. The largest number of people diagnosed with tuberculosis were brown and black, where it can be related to the racial division of the municipality, since most of the population is part of these groups. The economic condition also explains this result, since the population of the brown and black races has less economic conditions, making connection with the municipality's poverty.

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