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# Matrix of leprosy indicators in pinheiro - Maranhão 2015 to 2017

Matriz de indicadores de lepra em pinheiro - Maranhão 2015 a 2017

Matriz de indicadores de hanseníase em pinheiro – Maranhão de 2015 a 2017

## ABSTRACT

Objectives: to discuss the panorama of the disease in Pinheiro - MA and to consider new perspectives on health care related to pathology, from the perspective of interprofessionality. Methods: A cross-sectional, descriptive and retrospective study was carried out between 2015 and 2017, using files from the Hansen's disease control and treatment department located at the Centro de Especialidades Médicas de Pinheiro (CEMP). The Stata program, version 14 was used to analyze the variables. Results: The epidemiological profile of the municipality showed a prevalence of men 58 (52.7%), between 40 - 59 years old 28 (25.45%), with incomplete elementary education and prevalent multibacillary therapeutic classification 60 (54.5%). Most patients were discharged during the analysis period 66 (60%). The dermatoneurological evaluation is underreported. Conclusion: The mapped situation points out flaws in the strategies for coping with leprosy that could be reformulated through interprofessional, collaborative and structured work.

**DESCRIPTORS:** Leprosy; Indicators; Epidemiology; Interprofessional Education.

## RESUMEN

Objetivos: discutir el panorama de la enfermedad en Pinheiro - MA y considerar nuevas perspectivas sobre la atención de la salud relacionada con la patología, desde la perspectiva de la interprofesionalidad. Métodos: se realizó un estudio transversal, descriptivo y retrospectivo entre 2015 y 2017, utilizando archivos del departamento de control y tratamiento de la enfermedad de Hansen ubicado en el Centro de Especialidades Médicas de Pinheiro (CEMP). Se utilizó el programa Stata, versión 14 para analizar las variables. Resultados: El perfil epidemiológico del municipio mostró una prevalencia de hombres 58 (52,7%), entre 40 - 59 años 28 (25,45%), con educación básica incompleta y clasificación terapéutica multibacilar prevalente 60 (54,5%). La mayoría de los pacientes fueron dados de alta durante el período de análisis 66 (60%). La evaluación dermatoneurológica no se informa. Conclusión: La situación cartografiada señala fallas en las estrategias de afrontamiento de la lepra que podrían reformularse mediante un trabajo interprofesional, colaborativo y estructurado.

**DESCRIPTORES:** Lepra; Indicadores; Epidemiología; Educación Interprofesional.

## RESUMO

Objetivos: discutir o panorama da doença em Pinheiro - MA e ponderar novas perspectivas acerca do cuidado em saúde referente à patologia, sob a ótica da interprofesionalidade. Métodos: Realizou-se um estudo transversal, descritivo e retrospectivo, entre 2015 e 2017, utilizando-se arquivos do departamento de controle e tratamento da Hanseníase localizado no Centro de Especialidades Médicas de Pinheiro (CEMP). O programa Stata, versão 14 foi utilizado para análise das variáveis. Resultados: O perfil epidemiológico do município demonstrou prevalência de homens 58 (52,7%), entre 40 - 59 anos 28(25,45%), com ensino fundamental incompleto e classificação terapêutica multibacilar prevalente 60(54,5%). Maioria dos pacientes teve alta no período de análise 66(60%). A avaliação dermatoneurológica está subnotificada. Conclusão: A situação mapeada aponta falhas nas estratégias de enfrentamento da hanseníase que poderiam ser reformulado através de trabalho interprofissional, colaborativo e estruturado.

**DESCRIPTORES:** Hanseníase; Indicadores; Epidemiologia; Educação Interprofissional.

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## **INTRODUCTION**

Leprosy is established by the World Health Organization (WHO) as a public health problem, because it causes physical, social and economic disability. One of the characteristics of the disease is the tropism of *Mycobacterium leprae* by peripheral nerves, resulting in neural damage. The disease can progress slowly and quietly, with

decreased thermal, painful, and tactile sensitivity.<sup>1</sup>

According to Ribeiro<sup>2</sup>, the prevalence of leprosy cases in Brazil in 2015 was 1,01/10.000 inhabitants. The highest prevalence rates were recorded between 2005 and 2009. Since 2005, the country's prevalence rate has remained classified as average (from 1,00 to 4,99/10.000 inhabitants). Despite the national trend of decrea-

sing prevalence, this behavior was not observed in the North, Northeast and Midwest regions, presenting a prevalence coefficient above the national average in 2015. The states responsible for the high prevalence rates in these regions in 2015 were Mato Grosso, in the Center-West (7,75/10.000 inhabitants); Tocantins, in the North (4,2/10.000 inhabitants); and Maranhão, in the Northeast (3,76/10.000

inhabitants). The Southeast and South regions had no record of leprosy cases between 2005 and 2008. In the other years, the prevalence coefficient was below the national average in these regions.<sup>2</sup>

Brazil ranks second in the world in number of new cases notified, second only to India. In Maranhão, in 2011, 56 cases were detected per 100.000 inhabitants, characterizing it as a hyper-endemic state. Their average detection rates exceed the average in the Northeast and Brazil.<sup>3,4</sup>

Assuming that there is no efficient way to protect against the disease and understanding that its transmission is associated with a lower socioeconomic level, the prevalence of the disease in developing countries is justified.<sup>5</sup> The disease is implicated in low mortality, however high morbidity, mainly due

to neurological sequelae and social stigmas.<sup>6,7,8,9</sup>

The PET SAÚDE Project - Interprofessionality of Pinheiro in Maranhão has as one of its tutorial groups focused on the theme of leprosy, which has high rates of incidence and prevalence in the region. Interprofessional education (IPE) is understood when students from two or more professions learn about each other and each other to enable effective collaboration and improve health outcomes.<sup>10</sup> In this sense, the objectives of this study are to discuss the panorama of the disease in Pinheiro - MA and to consider new perspectives on health care related to pathology, from the perspective of interprofessionality.

## METHODS

In this sense, the objectives of this

study are to discuss the panorama of the disease in Pinheiro - MA and to consider new perspectives on health care related to pathology, from the perspective of interprofessionality.

For data collection, a specific form was used with information included in the patient's surveillance forms, developed by the members of the Pet-Hanseniasis Group.

The study population had 91 patients notified between 2015 (17 cases), 2016 (51 cases) and 2017 (23 cases). The definition of clinical forms was made from the characteristics listed by the Ministry of Health (MS) of Brazil, in paucibacillaries and multibacillaries.

For reference calculation, the population of Pinheiro - Maranhão was used, according to IBGE 2018, totaling 82.990 people. All rates were equivalent for 100.000 inhabitants. In order to calculate the incidence, cases of death and intercity transfer were excluded. The analysis was performed using simple and comparative descriptive statistics, using the Stata program, version 14.

This study followed the ethical procedures established by the Resolution of the National Health Council 466/2012, being approved by the Research Ethics Committee of the Federal University of Maranhão under CAAE n° 29652520.0.0000.5087 and Opinion n° 3.938.591.

## RESULTS

Leprosy had a prevalence of 110 cases per 100 thousand inhabitants, in the municipality, in the years 2015 to 2017. As for the incidence, there were 20 cases, 57 cases and 23 cases in the respective years of analysis. The epidemiological situation of leprosy is shown in table 1.

As for age, there is the prevalence of the age group of those over 15 years old in all the years analyzed. 2016 saw the peak of the 40-59 year old range, and two ages were not reported. Male

Table 1. Distribution of variables, age, sex, education and leprosy classification in Pinheiro - Maranhão, from 2015 to 2017.

VARIABLES	2015	2016	2017
<b>Age</b>			
0 – 15 years	0	3	0
16 – 39 years	7	14	9
40 – 59 years	3	18	7
60 years or more	7	14	7
<b>Sex</b>			
Male	11	32	15
Female	6	19	8
<b>Education</b>			
Uninformed	-	15	5
Illiterate	-	8	0
Inc. Elementary School	-	16	12
Complete Elementary School	-	1	0
Inc. High School	-	1	3
Complete High School	-	10	3
Higher Education	-	0	2
<b>Classification</b>			
Paucibacilar	6	17	5
Multibacilar	11	31	18
Total cases	17	51	23

Source: Epidemiological surveillance files from Pinheiro/MA.

gender was more prevalent in all years analyzed, 11 (64,79%), 32 (62,74%) and 15 (65,21%) cases in ascending order of the punctuated years. With regard to education, the highest prevalence is “incomplete elementary education”, and there are no records in 2015. It is noted that the number of cases 20 (27%) not reported is significant in the years analyzed. The number of graduates with leprosy was only two cases in 2017. In general numbers, academic training fulfills an inverse function when related proportionally to the total number of cases.

The frequency of multibacillaries is higher in all years surveyed 11 (64,79%), 31 (64,38%) and 18

(78,26%) in 2015, 2016 and 2017, respectively. Two cases regarding the therapeutic classification were not registered in 2016. The discharge rate prevails regarding the therapeutic evolution of leprosy in the period 13 (76,47%), 39 (76,47%) and 14 (60,86%) in increasing order over the years. Two developments were not reported in the years surveyed. One death was reported in 2016 and one in 2017. Finally, the abandonment rates are considered significant over time 12 (13,18%), due to the transmission of the disease and its evolution.

Regarding the presence of physical disabilities, it is observed that the number of unreported cases is preva-

lent 24 (61,53%), 18 (78,26%) in the years 2016 and 2017 (Graph 2). This category was not reported in 2015. Among the categories that investigate the degree of disability, “Degree of disability 1” stands out with 6 (35,29%), 7 (7,39%) and 1 (5,26 %). Among the alterations reported, the following are punctuated: thermal and painful sensitivity absent or decreased in any part of the body found in five cases, visual acuity in 3 cases, fibular thickening in 3 cases, pain and paresthesia of the limbs in 3 cases and one case of alopecia in the spots.

## DISCUSSION

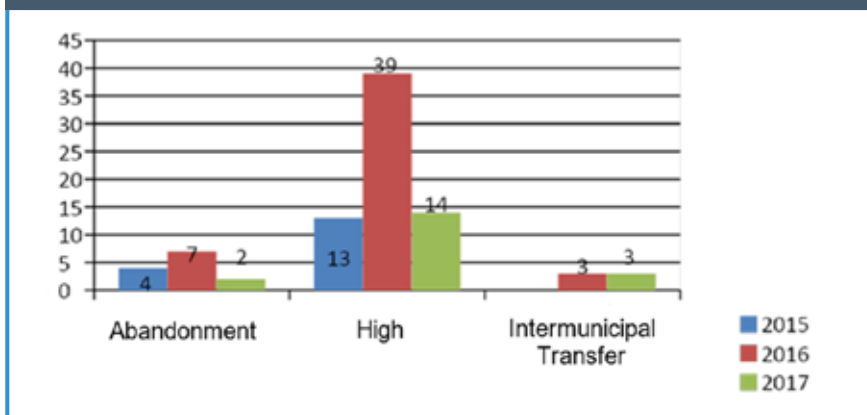
The municipality of Pinheiro presented 110 cases of leprosy per 100.000 in the period studied, data that exceeded the Brazilian prevalence of 14,8 cases per 100.000 inhabitants in 2018. 10 All the territories under analysis violate the goal of eliminating leprosy proposed by the WHO (less than 10 cases per 100 thousand inhabitants).<sup>11</sup>

The prevalence of the male population was shown in the study. This fact can be explained by the negligence with health, added to the greater exposure in risky environments, characteristic of this population.<sup>12</sup>

In line with the literary production, the cases are concentrated in the age group of over 15 years, with no significance between classes.<sup>13</sup> By reaching the economically active population, in view of the possibility of physical disabilities and neurological changes, losses to the economy are stipulated. In 2015, there were three cases reported among children under 15 years of age. The occurrence of leprosy in children can be considered an indicator of the prevalence of the disease in the general population and its detection is important to determine the severity of the endemic disease.<sup>14</sup>

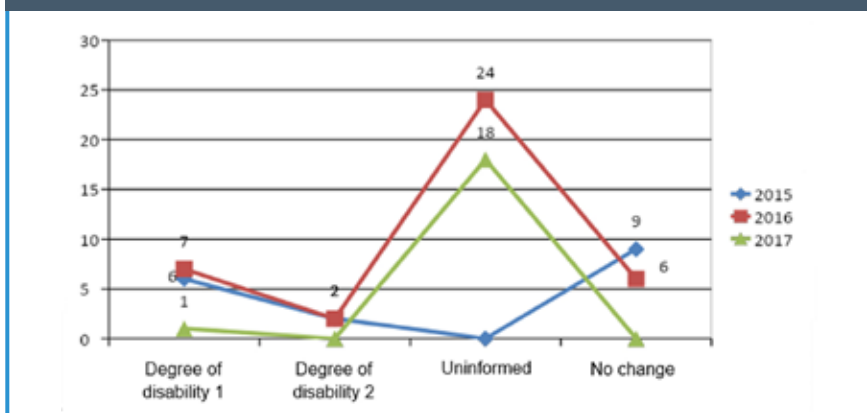
Low education individuals prevailed in the study, pointing out the need to focus on educational actions

Graph 1. Therapeutic follow-up of leprosy in Pinheiro - Maranhão, from 2015 to 2017



Source: Epidemiological surveillance files from Pinheiro/MA.

Graph 2. Degree of disability due to leprosy in Pinheiro - Maranhão, from 2015 to 2017



Source: Epidemiological surveillance files from Pinheiro/MA.

for this class. This concentration is linked to living conditions, degree of exposure and access to the health network. The significant percentage of non-fulfillment in this category can change the disposition and analysis of the data in relation to this variable.

The predominance of multibacillaries is in agreement with similar articles. These patients are, in general, the most susceptible to the disease and the highest rate of transmission of leprosy, which reiterates the need for identification and treatment of this population.<sup>15</sup>

The predominance of multibacillaries is in agreement with similar articles. These patients are, in general, the most susceptible to the disease and the highest

rate of transmission of leprosy, which reiterates the need for identification and treatment of this population.

Considering the low socioeconomic levels of the municipality added to the characteristic negligence of the pathology that intersect and potentiate the endemicity disposed in Pinheiro - MA. In this sense, teamwork through Inter-professional emerges as a strategy for the reformulation of the working method, aiming at better quality in primary care health services, professional training and seeking to focus on the relationship between academic, professional and community knowledge and practices through the collaborative, effective and resolute work.<sup>16,17</sup>

## CONCLUSION

It is concluded that the municipality of Pinheiro in Maranhão is hyper endemic in relation to leprosy. In general, the patients are men, older than 15 years, with low education, multibacillary patients with prevalent therapeutic follow-up for discharge. In view of this scenario, the need to facilitate access to early diagnosis and treatment is evident, through the restructuring of the leprosy control program with a focus on joining forces for a broad approach, which values the different roles involved, be it the family, community, user, health and academic staff. ■

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