

**TUBERCULOSIS' EPIDEMIOLOGICAL PROFILE: HISTORIC SERIE****PERFIL EPIDEMIOLÓGICO DA TUBERCULOSE: SÉRIE HISTÓRICA****PERFIL EPIDEMIOLÓGICO DE LA TUBERCULOSIS: SERIE HISTÓRICA**

Amanda de Fátima Alves Costa¹, Ana Zaira da Silva², Lucilane Maria Sales da Silva³, Raimundo Augusto Martins Torres⁴

ABSTRACT

Objective: to analyze the tuberculosis' epidemiological profile. **Method:** descriptive study, transversal study, quantitative approach, related to the new tuberculosis' cases occurrence in Ceara (2004-2014). The data is available on the Information System for Notifiable Diseases - ISND. The collection took place in October 2015. Data analysis was conducted by the TABNET software. **Results:** the highest incidence was in 2015 with 3.910 cases and the lowest incidence was in 2014, with 3.252 cases. There is a predominance at the age between 20 to 39 years old, characterizing the young and adults (44%). The predominance was male, with 61,1% in 2004; in 2014 it was 64,8%. 15,6% of the people had less than 8 years of schooling. 64% of the people were brown. **Conclusion:** There was high tuberculosis' incidence in Ceará/CE, even though it had the established treatment and even being sensible to the primary care. **Descriptors:** Epidemiology; Tuberculosis; Incidence.

RESUMO

Objetivo: analisar o perfil epidemiológico da tuberculose. **Método:** estudo descritivo, transversal, abordagem quantitativa, relativo à ocorrência de casos novos de tuberculose no Ceará (2004-2014). Os dados disponibilizados no Sistema de Informação de Agravos de Notificação - SINAN. A coleta foi realizada em outubro de 2015. A análise dos dados foi realizada pelo programa TABNET. **Resultados:** a maior incidência foi no ano de 2005 com 3.910 casos e o menor em 2014, com 3.254 casos. Há predomínio da faixa etária entre 20 a 39 anos, caracterizando os adultos jovens (44%). Predominou o sexo masculino, com 61,1% em 2004, já em 2014 apresentou 64,8%. 15,6% dos indivíduos possuíam menos de 8 anos de estudo. 64% dos indivíduos eram pardos. **Conclusão:** houve alta incidência da TB no Ceará/CE, apesar de ter o tratamento estabelecido e ser sensível à atenção primária. **Descritores:** Epidemiologia; Tuberculose; Incidência.

RESUMEN

Objetivo: analizar la epidemiología de la tuberculosis. **Método:** estudio descriptivo, transversal con enfoque cuantitativo sobre la aparición de nuevos casos de tuberculosis en Ceará (2004-2014). Los datos están disponibles en el Sistema de Información de Enfermedades de Declaración Obligatoria - SIEDO. La recolección de datos se llevó a cabo en octubre de 2015. El análisis de los datos se realizó mediante el programa TABNET. **Resultados:** la incidencia más alta fue en 2005 con 3.910 casos y el más bajo en 2014, con 3.254 casos. Hay un predominio del grupo de edad entre 20 a 39 años, con los adultos jóvenes (44%). El predominio del sexo masculino, con 61,1% en 2004, ya en 2014 tenía 64,8%. 15,6% de los sujetos tenían menos de 8 años de estudio. 64% de los sujetos eran de color marrón. **Conclusión:** hubo una alta incidencia de la tuberculosis en Ceará/CE, a pesar del tratamiento establecido y la sensibilidad a la atención primaria. **Descriptor:** Epidemiología; Tuberculosis; Incidencia.

¹Nurse, Master's degree, Clinical Cares at Nursing and Health Graduation Program, Ceará State University. Brazil. E-mail: amandadefatima91@gmail.com; ²Nurse. Master's degree, Clinical Cares at Nursing and Health Graduation Program, Ceará State University. E-mail: anazaira18@gmail.com; ³Nurse, Doctor Professor (Post-doctor), Clinical Cares at Nursing and Health Graduation Program, Ceará State University. Fortaleza (CE). Brazil. E-mail: lucilanemaria@yahoo.com.br; ⁴Nurse, Doctor Professor in Education, Clinical Cares at Nursing and Health Graduation Program, Ceará State University. Fortaleza (CE). Brazil. E-mail: augustomtorres70@gmail.com

INTRODUCTION

The primary care to the disease in Basic Health Unit allows that the individual conducted the accompaniment next to his residence, making easier his access and only when necessary, be guided to others care levels. One of the diseases monitored in primary care is tuberculosis, so the communication among care services, complement each other in the detection and treatment of patients with the disease, so the initial suspicion of infection occurs at the primary level, making it fundamental in the process of cure.¹

The National Agenda of Priorities in Health Research seeks the link between the priorities of research in academia and the principles established by Health Unic System (HUS). Among the priorities is found the tuberculosis, as follows appearing on the national scene as a health problem, requiring the development of strategies to control and, for this, knowledge of morbidity.²

In Ceará, on the other hand, the tuberculosis is characterized as an endemic disease, with record 3.508 cases of tuberculosis in 2012.³ Despite this number, there was a slight decline in incidence rates, from 46,5 cases in 2001 to 38,7 cases per hundred thousand inhabitants in 2014.⁴

The combination of the high incidence of tuberculosis to the concentration of urban risk groups, this demonstrates the need for specific management of the national control program to tuberculosis.⁵ According to the state panorama, specific actions to control the disease must be constantly evaluated and deployed, needing to both the recognition of the regional situation on the incidence of tuberculosis.

To facilitate the professionals and the public to access health information on reportable diseases, such as tuberculosis, was created the ISND (Information System for Notifiable Diseases) to facilitate the collection, transmission and dissemination of data generated routinely by the Epidemiological Surveillance System of the

three spheres of government, providing data for analysis of disease morbidity profile, such as tuberculosis.⁶

Given the above, the purpose of the study is to analyze the panorama of tuberculosis morbidity in Ceará for a better understanding of the state situation, so that in this way there is a management of prevention, diagnosis and treatment of disease effectively.

OBJECTIVE

- To analyze the tuberculosis' epidemiological profile.

METHODOLOGY

Descriptive study, transversal with quantitative approach related to new tuberculosis' cases occurrence in Ceará from 2004 to 2014. The data were used in available on DATAHUS, through the Information System for Notifiable Diseases - ISND.

The health surveillance is a sanitary character of action and is constituted as a set of activities that aggregate and articulate data and information about the health situation of public health programs and thereby gives managers the ability to plan their ways of actions positive.⁷

The number of new cases of tuberculosis is available on the Information System for Notifiable Diseases - ISND, this is powered mainly by the reporting and investigation of cases of diseases and disorders that appear on the national list of reportable diseases.

Data collection was conducted in October 2015 in the previously mentioned database. Data analysis coming from ISND was conducted by the TABNET software.

RESULTS

Through database analysis about the tuberculosis' cases in Ceará from 2004 to 2014, the confirmed tuberculosis' cases per diagnostic year present a higher diagnosed individual number in 2005 with 3.910 cases and the lower in 2014 with 3.254 cases, presenting a small incidence decrease

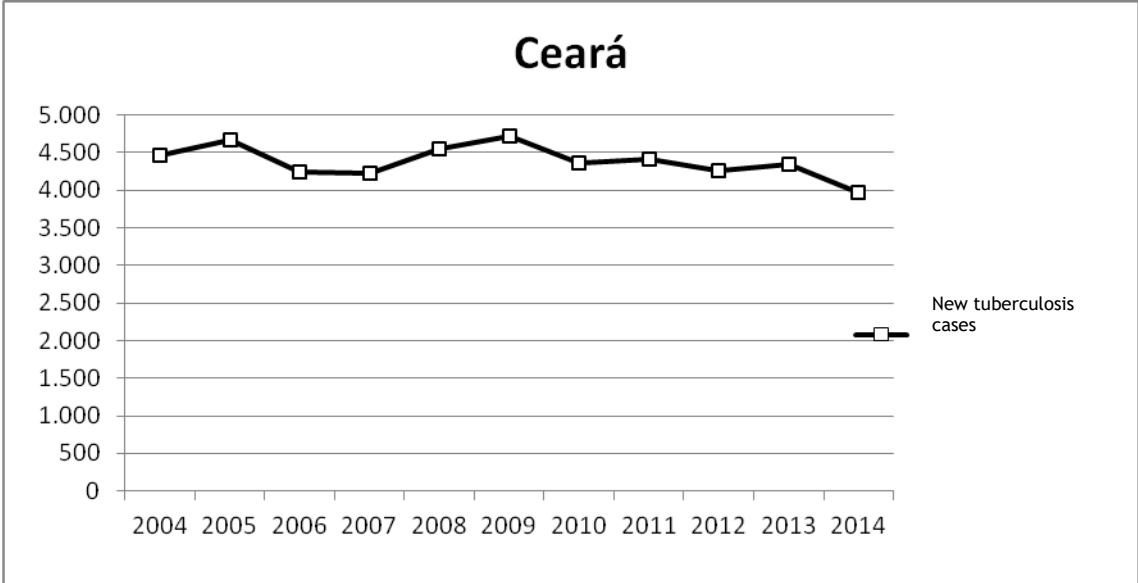


Figure 1 New tuberculosis cases in Ceará per year(2004-2014)

In terms of age, there is a predominance of individuals affected with the disease aged 20 to 39 years, featuring young adults the most infected individuals. It is noteworthy that in the period analyzed from Ceará population consists primarily of individuals in this age group, representing 33,1% of the state population in the period of 2004-2012, the last available.

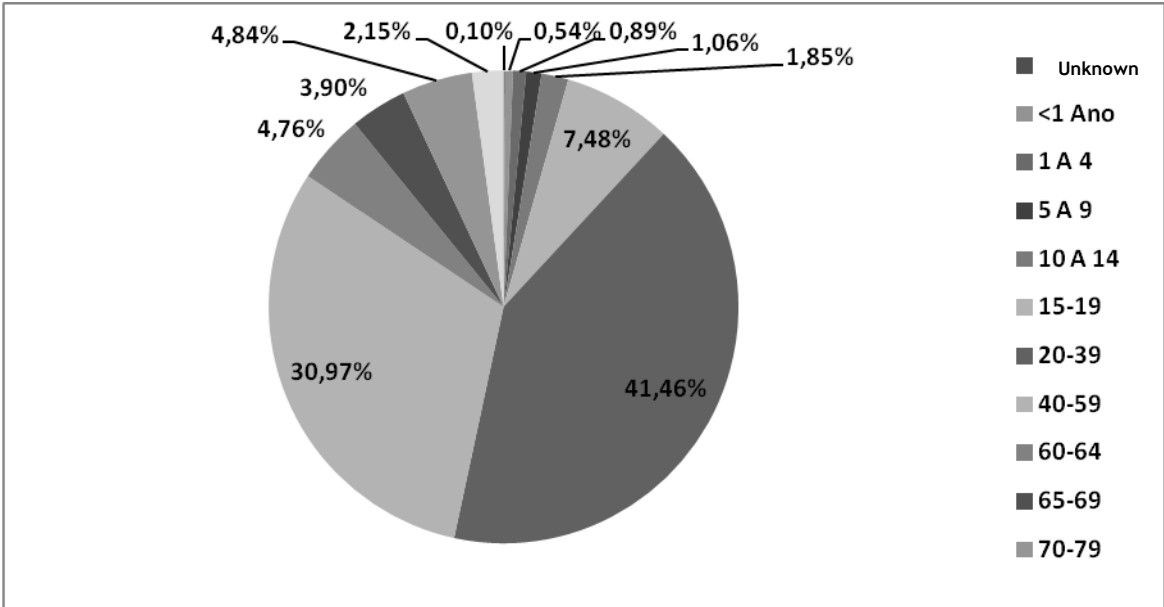


Figure 2 Tuberculosis cases per age (2004-2014)

Table 1. New tuberculosis cases per gender (2004-2014)

Diagnoses Year	Male		Female		Total
	n	%	n	%	
2004	2.743	61%	1.718	39%	4.462
2005	2.722	58%	1.949	42%	4.674
2006	2.643	62%	1.601	38%	4.244
2007	2.598	62%	1.623	38%	4.221
2008	2.863	63%	1.690	37%	4.553
2009	2.934	62%	1.784	38%	4.718
2010	2.789	64%	1.565	36%	4.354
2011	2.833	64%	1.582	36%	4.415
2012	2.774	65%	1.481	35%	4.255
2013	2.797	64%	1.544	36%	4.343
2014	2.593	65%	1.384	35%	3.977
TOTAL	30.289	63%	17.921	37%	48.216

Regarding gender, we can perceive a male predominance of involvement by the disease, with 61,1% of cases in 2004, already in 2014 showed 64,8%, showing a considerable increase in the involvement of tuberculosis in men.

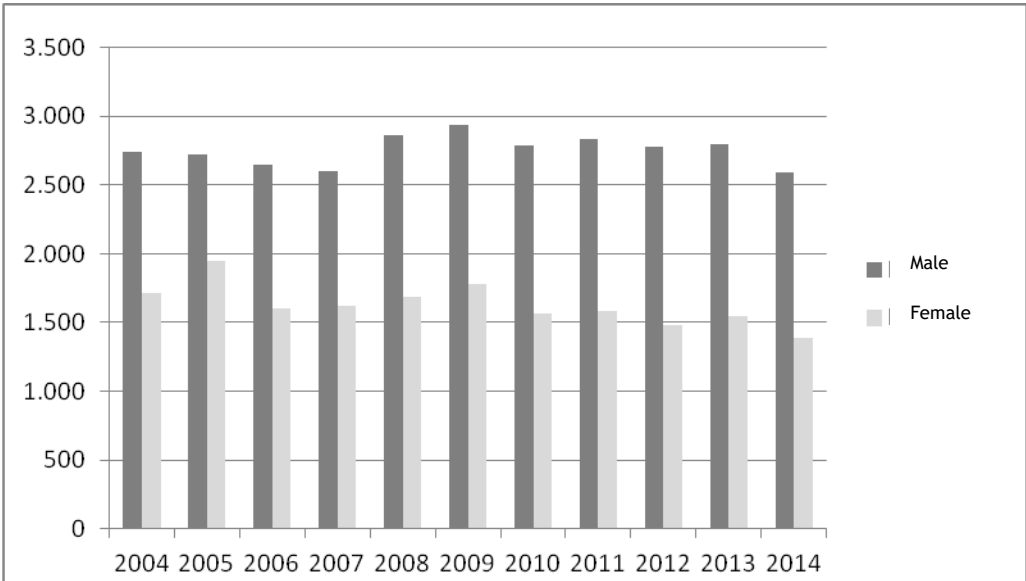


Figure 3. New tuberculosis cases per gender (2004-2014).

Another important aspect in the epidemiological profile analysis is the education of individuals affected by the disease, where 15,6% of individuals had less than eight years of study. Noteworthy is the percentage of 25,1% in the incompleteness of data.

Regarding the race, 64% of subjects were brown in new cases of tuberculosis in the period analyzed. This information is directly linked to the fact of Ceara’s population is made up of this race.

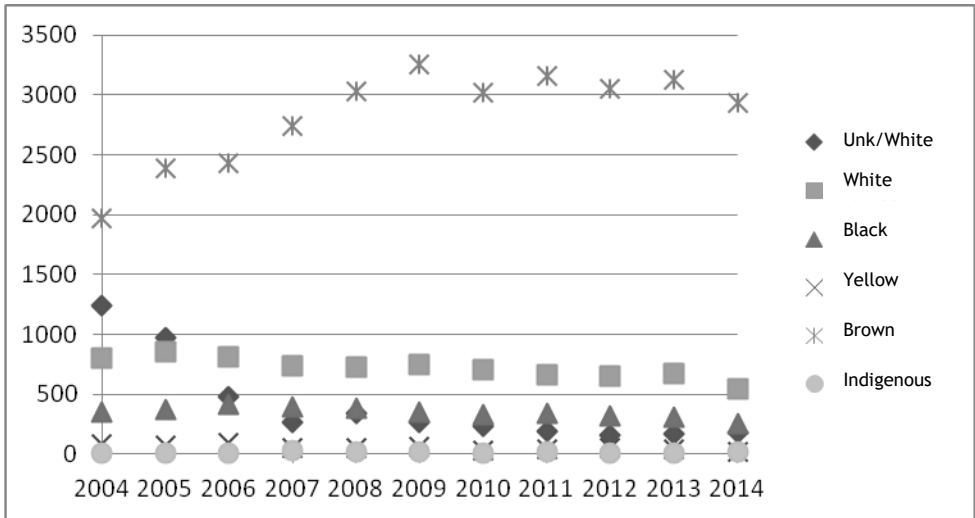


Figure 5. New tuberculosis cases per race/ skin color and year.

Another important aspect is the concentration of new cases of tuberculosis in the state capital, with 18 224 cases (45,9%). Representing the highest incidence in the state.

DISCUSSION

The persistence of high numbers related to the tuberculosis in the state proves the necessity of a direction from policy and programs on the combat to a disease that keeps itself at the state scenario as an epidemic. Highlights the importance of identifying and jointly manage the risk factors of diseases affecting the population, so that way we can reduce the costs and individual efforts, achieving the control of infections.⁸

The occurrence of tuberculosis in a greater proportion of individuals with reproductive age factor is characteristic of countries with high prevalence of disease, while in low

prevalence countries the infection occurs proportionally with increasing age.⁹ This finding converges with the data analyzed in this study, the highest incidence of tuberculosis cases occur in young adults.

Regarding sex, one can see the predominance of involvement of men, although there were a greater number of women in Ceara population. The occurrence of tuberculosis in the male population is common, because this aspect appears in other diseases, it is necessary to consider the most self-care performed by the female population.¹⁰

Another factor to consider is the association between age and sex to an important scene related to tuberculosis in Ceara, according to epidemiological and operational report of tuberculosis in the state released in May 2015, 7,57% of all cases of the disease occur to the prison population, this is

Costa AFA, Silva AZ da, Silva LMS da.

Tuberculosis' epidemiological profile:...

characterized as a vulnerable population exposed crowding and poor sanitation. Another study confirms this picture in his study, where males had 67% of affected individuals and the prevalent age group was 20 to 49 years.¹¹

Tuberculosis is endemic in the Brazilian system, because it is associated with overcrowding, poorly ventilated cells, low standards of hygiene, malnutrition and illegal behavior, commotion alcohol and drugs.¹²

The prevalence of disease occurrence in the state capital can be related to a greater agglomeration of people living in areas with higher population density. Performing a multivariate analysis of TB notification rates in Brazil it was associated with a higher proportion of families living in precarious conditions in urban environments and higher population density.¹³

It is noteworthy that the average household income per capita of Ceará over the five years analyzed does not reach the minimum wage considered in the period of R\$ 622,00 in 2012, according to the National Survey sample households - NSSH 2001-2009, 2011-2012.¹⁴ Thus, one can see the socio-economic panorama of the population is also considered a risk factor for the high tuberculosis incidence rates. The influence of the economical situation regarding to the infection by tuberculosis is related to social conditions, turning the incidence rate twice higher than the rest of the population.⁹

CONCLUSION

It is serious the tuberculosis incidence in Ceará, since it gathers a lot of risk factors to the illness, as the socio economical conditions, the high incidence rate at the prisoner population, among others, but, this disease's panorama can't be justified by the presence of the risk factors, but must be known the disease epidemiological profile so that the actions may be directed in a efficient and successful way. In addition, tuberculosis is a disease characterized as sensitive to primary care for diagnosis; treatment and control are the focus of attention of the professionals involved in direct care in the community, in Basic Health Units.

FINANCING

Ceara Scientific and Technological Support Foundation - CSTSF.

REFERENCES

1. Elsayed DS, Salahy MMA, Hibah NAA, Mehry GFE, Essawy TS, Eldesouky RS. Evaluation of

Primary Health Care service participation in the National Tuberculosis Control Program in Qalyubia Governorate, Egypt. Egypt J Chest Dis Tuberc [Internet]. 2015 [cited 2015 Nov 05];64(4):921-8 Available from: <http://www.sciencedirect.com/science/article/pii/S042276381530042X>

doi:10.1016/j.ejcdt.2015.05.009

2. Ministério da Saúde (BR). Manual de Recomendações para o Controle de Tuberculose no Brasil. 2011. Brasília: Ministério da Saúde, 2011. Available from: <http://www.cve.saude.sp.gov.br>.

3. Ministério da Saúde (BR). Boletim Epidemiológico. Secretaria de Vigilância em Saúde - Ministério da Saúde. 2012 [cited 2015 Nov 07]. Available from: http://www.saude.rs.gov.br/upload/1337634001_Tuberculose-Boletim%20Epidemio.pdf

4. Secretaria de Saúde (CE). Informe Epidemiológico e Operacional da Tuberculose, 2015.

5. Craig GM; Zumla A. The social context of tuberculosis treatment in urban risk groups in the United Kingdom: a qualitative interview study. ISRN infectious diseases. 2015 [cited 2015 Nov 07];32:105-10. Available from: [http://www.ijidonline.com/article/S1201-9712\(15\)00012-0/pdf](http://www.ijidonline.com/article/S1201-9712(15)00012-0/pdf)

doi:10.1016/j.ijid.2015.01.007

6. Brasil, Ministério da saúde. Secretaria de Vigilância à Saúde. Departamento de Vigilância Epidemiológica. Coordenação Geral de Doenças Transmissíveis. Gerência Técnica do SINAN. 2010.

7. Farias EJS, Albuquerque IMN, Araújo RA de, Soares JSA, Linhares MSC. Análise epidemiológica dos casos de tuberculose notificados no município de Sobral - Ce no período de 2007 a 2011. Sanare (Sobral. Online). 2013 [cited 2015 Nov 10];12(1):33-9. Available from: <http://sanare.emnuvens.com.br/sanare/article/view/333/267>

8. Cowie CE, Marreos N, Górtazer C, Jaroso R, White PC, Balseiro A. Shared risk factors for multiple livestock diseases: A case study of bovine tuberculosis and brucellosis. Res Vet Sci. 2014; [cited 2015 Nov 14];97(3):491-7. Available from: <http://www.sciencedirect.com.ez76.periodicos.capes.gov.br/science/article/pii/S0034528814002392> doi: 10.1016/j.rvsc.2014.09.002

9. Rodrigues, CCG, Espíndola, AL, Penna, TJP. An agent-based computational model for tuberculosis spreading on age-structured populations. Physica A [Internet]. 2015 [cited 2015 Nov 15];428(15):52-9. Available from: <http://www.sciencedirect.com/science/article>

Costa AFA, Silva AZ da, Silva LMS da.

Tuberculosis' epidemiological profile:...

- [e/pii/S0378437115001296](https://doi.org/10.1016/j.physa.2015.02.027) doi:
10.1016/j.physa.2015.02.027
10. Campos RI, Neto, RT de L, Leite SFP, Saraiva NB, Lima FVF, Ferreira NB, *et al.* Análise do perfil epidemiológico da tuberculose no município de Iguatu - Ceará. Caderno de Cultura e Ciência. Ano IX, Sept 2014,13(1).
11. Piller RVB, Epidemiologia da Tuberculose. Pulmão RJ. 2012; [cited 2015 Nov 14] 21(1): 4-9. Available from: http://sopterj.com.br/profissionais/_revista/2012/n_01/02.pdf
12. Alcantara LM, Alves RS, Oliveira RCC, Andrade SLE, Costa LS, Sá LD. Ações para controle da tuberculose no sistema penitenciário. J Nurs UFPE on line [Internet]. 2014 Nov; [cited 2015 Nov 14] 8(11):3832-32. Available from: [file:///C:/Users/Amanda/Downloads/6679-64251-1-PB%20\(3\).pdf](file:///C:/Users/Amanda/Downloads/6679-64251-1-PB%20(3).pdf) doi: 10.5205/reuol.6679-58323-1-ED.0811201402
13. Harling G, Castro, MC. Aspatial analysis of social and economic determinants of tuberculosis in Brazil. Health Place. 2014 Jan [cited 2015 Nov 18]25:56-67. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/24269879> doi: 10.1016/j.healthplace.2013.10.008.
14. Ministério da Saúde (BR). Principais Marcos Normativos da Gestão Interfederativa do SUS. Secretaria de Gestão Estratégica e Participativa Departamento de Articulação Interfederativa. Brasília: Ministério da Saúde [Internet]. 2014 Apr [cited 2015 Nov 18]:[about 5 screens]. Available from: http://bvsmis.saude.gov.br/bvs/publicacoes/principais_marcos_normativos_gestao_tomo2.pdf

Submission: 2015/12/19

Accepted: 2016/04/12

Publishing: 2016/06/01

Corresponding Address

Amanda de Fátima Alves Costa
Rua Capitão Manoel Bandeira, 517
Bairro Centro
CEP 61940-170 – Maranguape (CE), Brazil