

**Clinical-epidemiologic aspects of patients with tuberculosis, Guantánamo 2013-2018****Aspectos clínico-epidemiológicos de pacientes con tuberculosis, Guantánamo 2013-2018****Aspectos clínico-epidemiológicos de pacientes com tuberculose, Guantánamo 2013-2018**Betsy Donatien-González<sup>I\*</sup> , Caridad Franklin-Santel<sup>II</sup> , Lourdes Margarita Expósito-Boue<sup>I</sup> <sup>I</sup> Centro Provincial de Higiene, Epidemiología y Microbiología Guantánamo. Guantánamo, Cuba.<sup>II</sup> Universidad de Ciencias Médicas de Guantánamo. Guantánamo, Cuba.\*Corresponding author: [bdonatien@infomed.sld.cu](mailto:bdonatien@infomed.sld.cu)

Received: 15-12-2022 Accepted: 08-03-2023 Published: 11-04-2023

**ABSTRACT**

**Introduction:** despite the scientific efforts to eliminate tuberculosis, it is currently considered as a reemerging disease. In Guantánamo province, no research closely related to the subject was found. **Objective:** to describe the clinical-epidemiologic aspects of patients with tuberculosis in Guantánamo province, period 2013-2018. **Method:** a descriptive, retrospective cross-sectional study of patients with tuberculosis was carried out. The study involved a total of 103 patients (N=103) recorded in a database managed at the Centro Provincial de Higiene, Epidemiología y Microbiología of Guantánamo. The variables studied were as follows: age, sex, risk group, municipality to which patients belong and, clinical forms. The absolute and relative frequencies were used as summary statistics method. **Results:** the highest number of patients with tuberculosis was found in 40 to 49 years age group (28.16%), and the male sex stood out in the group of age 50 to 59 (15.53%). The municipality with the highest number of

cases was Guantánamo with 67 patients (65.04%), followed by Jamaica municipality with 10 patients (9.70%). Forty three of all the patients diagnosed with tuberculosis (50,0%) were addicted to smoking, 19 (22,10%) addicted to alcohol, and 11 (12,79%) in malnutrition state. As a result in the study, it was found in 72 patients (69.90%) presence of pulmonary tuberculosis and extrapulmonary tuberculosis in 31 active patients (30.10%). **Conclusions:** despite of an adequate network of diagnosis, treatment and tuberculosis follow-up in the province of Guantánamo, there are several factors that determine the presence of the disease: for instance, the inadequate use of socioeconomic, sanitary and individual factors, including also aspects like overcrowding, malnutrition, and alcoholism.

**Keywords:** pulmonary tuberculosis; epidemiology; overcrowding; malnutrition; alcoholism

**RESUMEN**

**Introducción:** a pesar de los esfuerzos de la ciencia para la eliminación de la tuberculosis, esta es considerada actualmente una enfermedad reemergente. En provincia Guantánamo no se encontraron investigaciones referida a este tema.

**Objetivo:** describir los aspectos clínico-epidemiológicos de pacientes con tuberculosis en el periodo comprendido de 2013-2018 en la provincia de Guantánamo. **Método:** se realizó un estudio descriptivo, transversal retrospectivo de pacientes con tuberculosis. El universo de estudio quedó constituido por 103 pacientes (N=103) constatados en la base de datos del programa Centro Provincial de Higiene, Epidemiología y Microbiología Guantánamo. Las variables estudiadas fueron: edad, sexo, grupo de riesgo, municipio al que pertenece y formas clínicas. Se utilizó como medida de resumen la frecuencia absoluta y relativa. **Resultados:** el mayor número de pacientes con tuberculosis se encontró en el grupo de 40-49 años (28,16 %), se destacó el grupo de 50-59 del sexo masculino con un 15,53 %. El municipio que más casos aportó fue el de Guantánamo con 67 (65,04 %), seguido de Jamaica con 10 casos (9,70 %). De los pacientes diagnosticados: 43 fueron fumadores (50,0 %), 19 alcohólicos (22,10 %) y 11 desnutridos (12,79 %). Se obtuvo como resultado que 72 pacientes (69,90 %) presentaron la forma pulmonar y 31 (30,10 %) presentaron la forma extrapulmonar. **Conclusiones:** a pesar de una adecuada red de diagnóstico, tratamiento y seguimiento de la tuberculosis en la provincia de Guantánamo, existen condiciones que determinan la ocurrencia de esta: factores socioeconómicos, sanitarios e individuales inadecuados, hacinamiento, desnutrición, alcoholismo, predisponen a la enfermedad.

**Palabras clave:** tuberculosis pulmonar; epidemiología; hacinamiento; desnutrición; alcoholismo

**RESUMO**

**Introdução:** apesar dos esforços da ciência para eliminar a tuberculose, atualmente é considerada uma doença reemergente. Na província de Guantánamo, não foram encontradas investigações relacionadas a este tema. **Objetivo:** descrever os aspectos clínico-epidemiológicos de pacientes com tuberculose no período de 2013-2018 na província de Guantánamo. **Método:** estudo descritivo, retrospectivo e transversal de pacientes com tuberculose. O universo do estudo foi composto por 103 pacientes (nº 103) encontrados no banco de dados do programa Centro Provincial de Higiene, Epidemiologia e Microbiologia de Guantánamo. As variáveis estudadas foram: idade, sexo, grupo de risco, município a que pertence e formas clínicas. Frequência absoluta e relativa foram usadas como medida sumária. **Resultados:** o maior número de doentes com tuberculose foi encontrado na faixa etária de 40 a 49 anos (28,16%), destacando-se a faixa de 50 a 59 anos do sexo masculino com 15,53%. O município que mais contribuiu com casos foi Guantánamo com 67 (65,04%), seguido de Jamaica com 10 casos (9,70%). Dos pacientes diagnosticados: 43 eram tabagistas (50,0%), 19 etilistas (22,10%) e 11 desnutridos (12,79%). Obteve-se como resultado que 72 pacientes (69,90%) apresentavam a forma pulmonar e 31 (30,10%) apresentavam a forma extrapulmonar. **Conclusões:** apesar de uma rede adequada para o diagnóstico, tratamento e monitoramento da tuberculose na província de Guantánamo, existem condições que determinam sua ocorrência: fatores socioeconômicos, de saúde e individuais inadecuados, superlotação, desnutrição, alcoolismo, predispoem à doença.

**Palavras-chave:** tuberculose pulmonar; epidemiologia; superlotação; desnutrição; alcoolismo

**How to cite this article:**

Donatien-González B, Franklin-Santel C, Expósito-Boue LM. Aspectos clínico-epidemiológicos de pacientes con tuberculosis, Guantánamo 2013-2018. Rev Inf Cient. 2023; 102:4081. DOI: <https://doi.org/10.5281/zenodo.7817872>



## INTRODUCTION

Tuberculosis (TB) was first called phthisis (from the Latin phthisis) in ancient Greece by Hippocrates, and its causative agent was discovered in 1882 by Robert Koch, who isolated and cultured the bacilli responsible for the disease. Despite the efforts of science for the elimination of TB, the appearance and application of effective treatments, the establishment of standards for the control of the disease in the community, TB is currently considered a re-emerging disease.<sup>(1)</sup>

Declared so, and in addition, due to global socioeconomic problems, lack of priority in the program to control it, the spread of the human immunodeficiency virus (HIV/AIDS) and multidrug resistance. It was also considered that between 2015 and 2020 around one billion people could become infected, 200 million would fall ill from TB and some 35 million would die from the disease. About 1.3 million people die each year, which represents 25% of all preventable deaths in adults in developing countries, with great social repercussions because it affects young people of productive and reproductive age.<sup>(2,3)</sup>

With the establishment in Cuba of the National Tuberculosis Control Program since 1970, a decrease in morbidity and mortality from this cause has been achieved, with a rate of 4.7 per 100,000 inhabitants in 1991. In 1992, the downward trend was reversed due to the operational problems of the program, the lack of hierarchy and control at the base, as well as some material insufficiencies at certain times, together with the existence of risk factors in the community in previous years that led to an increase in the incidence of cases.<sup>(4)</sup>

During the study, we did not find other research in Guantánamo province, Cuba, referred to this topic; for this reason, it was decided to carry out this research which aims to describe clinical and epidemiological aspects of patients with tuberculosis in the period 2013-2018 in Guantánamo province.

## METHOD

A descriptive, cross-sectional, retrospective study on tuberculosis was carried out at the Centro Provincial de Higiene, Epidemiología y Microbiología Guantánamo.

The study universe was constituted by the 103 patients diagnosed with TB (N=103) according to the results found in the database of this program. The variables studied were age and sex, risk groups (smokers, alcoholics, malnourished, mentally retarded, prisoners, AIDS patients and pregnant women), municipality to which they belonged and clinical form (pulmonary, extrapulmonary). The data inherent to each of the variables were obtained from the aforementioned database of the Guantánamo Provincial Center of Hygiene and Epidemiology.

Absolute and relative frequency (%) was used as a summary measure. The results were presented in tables designed for this purpose, these were analyzed and discussed in the light of the literature reviewed, coming from both the national and international scope, which allowed making the corresponding deductions and issuing the conclusions.



## RESULTS

Upon identifying the age groups related to the appearance of TB (Table 1), it was observed that the highest number of patients with TB was found in the 40-49 years age group (28.16%), with the male sex standing out in the 50-59 years age group (15.53%). The smallest group affected by this entity was the 60-69 years age group with 5.82%, with the female group being the least affected (1.94%).

**Table 1. Patients with tuberculosis according to age groups and sex**

Age group(years)	Male		Female		Total	
	No.	%	No.	%	No.	%
18-28	12	11,65	5	4,86	17	16,51
29-39	14	13,59	5	4,86	19	18,45
40-49	14	13,59	15	14,57	29	28,16
50-59	16	15,53	5	4,86	21	20,39
60-69	4	3,88	2	1,94	6	5,82
70 +	8	7,76	3	2,90	11	10,66
<b>Total</b>	<b>68</b>	<b>66,00</b>	<b>35</b>	<b>34,00</b>	<b>103</b>	<b>100,00</b>

Source: Database. Centro Provincial de Higiene, Epidemiología y Microbiología Guantánamo.

When describing the distribution of patients according to the municipality to which they belong (Table 2), it was found that the municipality that contributed the most cases was the municipality of Guantánamo with 67 cases (65.04%), followed by the health area of Jamaica and San Antonio del Sur, with 10 cases (9.70%) and 9 cases (8.73%), respectively.

**Table 2. Patients by municipality to which they belong**

Municipalities	No.	%
Guantánamo	67	65,04
Jamaica	10	9,70
San Antonio del Sur	9	8,73
El Salvador	6	5,82
Caimanera	4	3,90
Imías	4	3,90
Yateras	2	1,94
Niceto Pérez	1	0,97
Maisí	-	-
Baracoa	-	-
<b>Total</b>	<b>103</b>	<b>100,00</b>

Among the risk factors (Table 3) identified in the patients studied, there was an increase in the number of smokers, alcoholics and malnourished patients. Out of a total of 103 patients diagnosed with TB: 43 were smokers for 50.0 %, alcoholics 19 for 22.10 % and 11 malnourished for 12.79 %.

**Table 3.** Patients by risk group (N=86)

Risk group	No.	%
Smokers	43	50,0
Alcoholics	19	22,10
Malnourished	11	12,79
Mentally retarded	5	5,81
Inmates	4	4,65
AIDS patients	3	3,48
Pregnant women	1	1,16

On identifying the clinical forms of TB in the patients studied, 72 patients were identified, 69.90% of whom presented the pulmonary form, while 31, representing 30.10%, presented the extrapulmonary form.

**Table 4.** Patients by clinical forms of tuberculosis

Form	No.	%
Pulmonary	72	69,90
Extrapulmonary	31	30,10
<b>Total</b>	<b>103</b>	<b>100,0</b>

## DISCUSSION

Since the discovery of TB and the beginning of scientific studies on it, there has been a slight predominance of the disease in the male sex, attributable to greater exposure.<sup>(5,6)</sup>

International authors in their research have estimated age as an important factor to suffer from this disease.<sup>(5,6)</sup> In research reviewed with respect to this risk factor, a predominance of the 60 and older age group was found, as a result of the physiological immunosuppression that occurs in the extreme ages of life, the increase in the incidence and prevalence of chronic diseases in older adults and the unfavorable social conditions they face: internment and isolation in nursing homes, inadequate food conditions and long-term exposure to other risk factors such as smoking and alcoholism.<sup>(7)</sup>

Blanco Zambrano, *et al.*<sup>(8)</sup> in their study on this disease in the municipality of Manzanillo obtained similar results, of the total number of cases studied, they found a predominance of 73.5% of the male sex. In women, the total prevalence is lower and the increase with age is less marked than in men.

Among the risk factors identified in the patients studied, it was observed that smokers, alcoholics and malnourished were more frequent. Of a total of 103 patients diagnosed with TB: 43 were smokers (50.0%), 19 were alcoholics (22.10%) and 11 were malnourished (12.79%). These results allow us to

consider that these factors lead patients to a greater susceptibility to this disease because it leads them to a state of immunosuppression that makes them vulnerable to acquiring it, together with other epidemiological and socioeconomic factors.

Riquelme, *et al.*<sup>(9)</sup> obtained in their research as risk factors, alcoholism with 17%, 25% of the population smoking and 13% with some type of immunosuppression in a total of 298 cases diagnosed with pulmonary TB.

National research reviewed found that among the most important risk factors for acquiring the disease were smoking, alcoholism and malnutrition.<sup>(3,7,8,10)</sup>

In the present study, the most predominant clinical form was pulmonary. These results are related to the exposure and way of acquiring the disease, since it is transmitted through the respiratory route by means of small microdroplets, being the most frequent. The extrapulmonary form was found to a lesser extent precisely because TB is an infectious disease that is eminently transmitted more frequently by the respiratory route.

In his research, Da Silva<sup>(11)</sup> found that out of a total of 9055 patients with TB, 92.4% presented the pulmonary form. Other authors such as Silvério Freire, *et al.*<sup>(12)</sup> found that the pulmonary form was the most frequent in their research.

When reviewing national studies<sup>(13)</sup> related to the subject, it was found that the predominant clinical form of TB in the province of Santiago de Cuba was pulmonary.

The limitations of this research were related to not relating the described variables such as age and sex, risk factors and clinical forms. This will be the subject of research in subsequent studies in order to know the behavior of these in the province.

## CONCLUSIONS

The clinical-epidemiological characteristics of tuberculosis in the province of Guantánamo do not differ from those found in the world epidemiological context. The disease is concentrated in male population subgroups in intermediate and advanced ages of life, so the tendency to its decrease is slow, and the pulmonary form prevails.

## REFERENCES

1. Jam Rivero M, León Valdivies YJ, Sierra Martínez DP, Jam Morales BC. Tuberculosis pulmonar: estudio clinico-epidemiológico. *Rev Cubana Med Gen Int* [Internet]. 2017 [citado 8 May 2022]; 33(3): 321-330.

Disponible en  
[http://scielo.sld.cu/scielo.php?script=sci\\_arttext&pid=S0864-21252017000300005&nrm=iso](http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S0864-21252017000300005&nrm=iso)



2. Valdés García L. Enfermedades emergentes y reemergentes. La Habana: MINSAP; 2015.
3. Ministerio de Salud Pública. Programa Nacional de Control de la Tuberculosis. En: Manual de normas y procedimientos. La Habana: MINSAP; 2014.
4. Quintero Salcedo S, Reyes Castillo A, Blanco Zambrano GL, Marrero Rodríguez H, Quintero García JA. Caracterización clínico epidemiológica de pacientes con tuberculosis diagnosticada en el Hospital Provincial “Celia Sánchez Manduley”. Medisan [Internet]. 2014 [cited 13 Apr 2022]; 18(6):799-805. Available in: [http://scielo.sld.cu/scielo.php?script=sci\\_arttext&pid=S1029-30192014000600008](http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S1029-30192014000600008)
5. Hernández-Guerrero IA, Vázquez-Martínez VH, Guzmán-López F, Ochoa-Jiménez LG, Cervantes-Vázquez DA. Perfil clínico y social de pacientes con tuberculosis en una unidad de medicina familiar de Reynosa, Tamaulipas, México. Rev Dig Aten Fam [Internet]. 2016 [cited 13 Apr 2022]; 23(1):8-13. DOI: [https://doi.org/10.1016/S1405-8871\(16\)30070-0](https://doi.org/10.1016/S1405-8871(16)30070-0)
6. Rodríguez E, Villarrubia S, Díaz O. Tuberculosis en España en el año 2013. Situación Epidemiológica. Bol Epidemiol Sem [Internet]. 2014; 22(15):201-209. Available in: <https://revista.isciii.es/index.php/bes/article/view/903>
7. León Valdivieso YJ, Jam Rivero M, Jam Morales BC, Martínez Oquendo A, Alonso Cabrera E, Montes de Oca Montano JL. Tuberculosis Pulmonar. Estudio clínico-epidemiológico en la provincia Cienfuegos durante el periodo 2006-2015 [Tesis de Maestría]. Cienfuegos: Editorial Médica JIMS; 2017. Available in <https://jimsmedica.com/wp-content/uploads/2017/10/11.-Tuberculosis-Pulmonar.-Estudio-Clinico-Epidemiologico-en-la-Provincia-Cienfuegos-durante-el-periodo-2006-2015.pdf>
8. Blanco Zambrano GL, Arias del Castillo AM, Marrero Rodríguez H, Quintero Salcedo S, Serra Valdes MA. Tuberculosis pulmonar con baciloscopia positiva en el Municipio Manzanillo de 1990 al 2010. Rev Cubana Hig Epidemiol [Internet]. 2015 [cited 12 Jun 2022]; 53(1):[aproximadamente 7 p.]. Available in: [http://scielo.sld.cu/scielo.php?script=sci\\_arttext&pid=S1561-30032015000100005&lng=es](http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S1561-30032015000100005&lng=es)
9. Riquelme DJ, Morales VJ, Aguilera VR, Espinosa RO, Vidal A, Riquelme RO. Impacto de la tuberculosis en el hospital de Puerto Montt, Chile. Rev Chil Enferm Resp [Internet]. 2018 Mar [cited 12 Jun 2022]; 34: 165-170. DOI: <http://dx.doi.org/10.4067/s0717-73482018000300165>
10. Marrero Rodríguez H, Quintero Salcedo S. Factores de riesgo de la tuberculosis pulmonar en pacientes timorenses MEDISAN [Internet]. 2018 [cited 12 Jun 2022]; 22(1):57-64. Available in: [http://scielo.sld.cu/scielo.php?script=sci\\_arttext&pid=S1029-30192018000100008&lng=es&nrm=iso&tlng=es](http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S1029-30192018000100008&lng=es&nrm=iso&tlng=es)
11. Ferreira da Silva L, Lima da Silva E, Silva TC, Mendes Caldas AJ. Tuberculosis in elderly people from the state of Maranhão: contribution to the control program. Rev Fund Care [Internet]. 2019 Jul-Sep [cited 12 Jun 2022]; 11(4):1088-1095. DOI: <https://dx.doi.org/10.9789/2175-5361.2019.v11i4.1088-1095>
12. Silvério Freire IL, dos Santos FR, Cunha de Menezes LC, Brito de Madeiros A, Ferreira de Lima R, Oliveira da Silva BC. Adhesión de los Ancianos a las Formas de Administración del Tratamiento de la Tuberculosis. Revista de Pesquisa: Cuidado é Fundamental



[Internet]. 2019 [cited 12 Jun 2022]; 11(3):555-559. Available in: <http://ciberindex.com/c/ps/P113555>

13. Silva Reyes I, Campo Mulet E del, Nápoles Smith N, Cuba García M, Arias Deroncerés IJ. Aspectos clínico-epidemiológicos en pacientes con coinfección por sida y tuberculosis en la provincia de Santiago de Cuba. MEDISAN [Internet]. 2016 Oct [cited

12 Jun 2022]; 20(10):2267-2275. Available in: [http://scielo.sld.cu/scielo.php?script=sci\\_arttext&pid=S1029-30192016001000010&lng=es&nrm=iso&tlng=es](http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S1029-30192016001000010&lng=es&nrm=iso&tlng=es)

#### Conflict of interest:

The authors declare that there are no conflicts of interest.

#### Author contributions:

*Conceptualization:* Betsy Donatien-Gonzalez.

*Data curation:* Caridad Franklin-Santel.

*Formal analysis:* Caridad Franklin-Santel.

*Investigation:* Betsy Donatien-González.

*Methodology:* Lourdes Margarita Expósito-Boue.

*Project administration:* Betsy Donatien-González.

*Supervision:* Lourdes Margarita Expósito-Boue.

*Validation:* Betsy Donatien-González.

*Visualization:* Betsy Donatien-González.

*Writing-original draft:* Betsy Donatien-González, Lourdes Margarita Expósito-Boue.

*Writing-review and editing:* Betsy Donatien-González, Caridad Franklin-Santel, Lourdes Margarita Expósito-Boue.

#### Funding:

The authors did not receive funding for the development of the present research.

#### Complementary file (Open Data):

[Base de datos de Aspectos clínico-epidemiológicos de pacientes con tuberculosis, Guantánamo 2013-2018](#) (Database of clinical-epidemiological aspects of patients with tuberculosis, Guantánamo 2013-2018)

