

# EPIDEMIOLOGY OF AMERICAN TEGUMENTENT LEISHMANIASIS IN THE FEDERAL DISTRICT AND THE IMPORTANCE OF THE MULTIDISCIPLINARY APPROACH

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**Abstract:** Introduction: American Tegumentary Leishmaniasis is an infectious, non-contagious disease, with compulsory notification and severe evolution, caused by protozoa of the genus *Leishmania*. The medications used for treatment are multidisciplinary approach strategies. Objective: To survey the epidemiological profile of a decade, 2009 to 2019, specifically in the Federal District, with the participation of a multidisciplinary approach in treatment. Methods: The procedures involved stages of preparing maps and graphs using the Power Bi program, to identify numbers of confirmed cases, with data by administrative regions of the Federal District, with treatment analysis. The epidemiological survey was carried out using data from SINAN and the Epidemiological Information on Leishmaniasis of the Federal District. Results: It was evident that the treatment is carried out at the reference center, Hospital Universitário de Brasília. Epidemiological information by Health Superintendencies, with constant case records, however in 2019 there was a significant decrease. Conclusion: It is pointed out that confirmed cases during the decade fluctuated and were recurrent. Participation in treatment, within the scope of the multidisciplinary approach, is necessary and requires, in addition to dispensing, monitoring the use of the medication by the patient, it is important to guarantee safety and effectiveness, guaranteeing health quality, avoiding errors related to medication. .

**Keywords:** American Cutaneous Leishmaniasis. Federal District. Multidisciplinary approach

## INTRODUCTION

American Cutaneous Leishmaniasis (ATL) is an infectious, non-contagious disease caused by

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different species of protozoa of the genus *Leishmania*, which affects the skin and mucous membranes. (BRAZIL, 2017). Primarily, it is a zoonotic infection, affecting animals other than humans, which can be involved secondarily. In Brazil, there are seven species of leishmanias, responsible for the cases. Its main species are: *Leishmania (Leishmania) amazonensis*, *L. (Viannia) guyanensis* and *L(V.) braziliensi*, transmitted by the bite of infected female sandflies (sandfly, birigui, etc.), in which the dog is the main reservoir, as untreated cases lead to a lethality of 90%, (ATL) is an important public health problem. (BRAZIL, 2016). (BRAZIL, 2019)

In Brazil, Cutaneous Leishmaniasis (TL) has a high frequency, in addition to wide territorial expansion and essentially local transmission (BRASIL, 2002). It is one of the dermatological conditions that demands attention, due to its magnitude, as well as the risk of occurrence of deformities that it can produce in human beings, and in addition to the psychological involvement with reflections in the social and economic field, since it can be considered an occupational disease. It has a wide distribution with records of cases in all Brazilian regions (BRASIL, 2017). ATL is a notifiable disease, which consists of the communication of the event of individual cases, clusters of cases, suspected, confirmed or outbreaks, from the list of diseases listed in the ordinance and which must be made to the health authorities by health professionals or any citizen, aiming at the adoption of the pertinent control measures, with clinical characteristics of severe evolution, the diagnosis must be accurate and early (BRASIL, 2010). The current treatment scenario in Brazil has peculiar characteristics due to the variety of contexts where transmission occurs, which is correlated with parasite species, vectors, reservoirs and ecosystems. The clinical presentation exhibits polymorphism and the spectrum of severity of signs and symptoms is also variable, although there is a certain correspondence between the different clinical presentations and the different species of the parasite (BRASIL, 2017).

Cutaneous leishmaniasis is included in the national list of diseases and conditions of compulsory notification, according to Consolidation Ordinance No. 4, of September 28, 2017, annex V - Chapter I (BRASIL, 2018). According to the Ministry of Health, in ten years, the number of cases of Tegumentary Leishmaniasis in this period was reduced by 27%, from 26,685 cases in 2005 to 19,395 cases in 2015.



The North region recorded the highest number of cases (8,939), followed by the Northeast (5,152); Midwest (2,937); Southeast (1,762; and South (493). (BRASIL, 2019).

ATL transmission cycles vary according to geographic region, involving a diversity of parasite species, vectors, reservoirs, and hosts (BRASIL, 2017). According to the parameters of the Ministry of Health, the Federal District is classified as an area of sporadic transmission, or *seja*, (MINISTRY OF HEALTH, 2019).

Even though it is an important pathology that places Brazil among the countries with the highest number of scientific publications on the subject; on the other hand, it is also the country that stands out for the lack of access to effective treatments for patients and also registered an increase in the number of registered cases, nationally. (FIOCRUZ, 2020)

The drug of choice for treatment is pentavalent antimony, with the exception of patients co-infected with HIV and pregnant women. If there is no satisfactory response with pentavalent antimony, the drugs of second choice are amphotericin B and pentamidine isothione (BRASIL, 2011). In patients coinfecting with *Leishmania*-HIV, the drug of choice is amphotericin B (BRASIL, 2011).

All drugs used for the treatment of endemic diseases, such as Leishmaniasis, whose control and treatment have an established protocol and standards and that have a socioeconomic impact, are considered strategic for multidisciplinary care (BRASIL, 2020).

The Unified Health System (SUS) offers specific and free treatment for Cutaneous Leishmaniasis (TL) (BRASIL, 2019). Treatment is done with the use of specific medications, rest and a good diet. Treatment should be conducted under the responsibility of the physician, with the effective participation of the other professionals of the health team, after evaluation of possible contraindications, provided that the monitoring of adverse effects of the treatment is ensured (BRASIL, 2017).

Epidemiological information on Cutaneous Leishmaniasis by Administrative Areas of the Federal District, as well as multidisciplinary care for patients in basic health, are of paramount importance to formulate hypotheses about the main causes and incidences, enabling the organization and planning of health actions, vector control and greater clarification to the population about treatment.



The treatment and management of this condition can benefit from a multidisciplinary approach, which involves the collaboration of different areas of health. For an Integrated diagnosis, professionals from different areas, such as dermatologists, infectious disease specialists, and pathologists, can work together to ensure an accurate and fast diagnosis, using laboratory and clinical-epidemiological techniques. (BRAZIL, 2017)

For pharmacological treatment, medical specialists, such as infectious disease specialists and general practitioners, can determine the appropriate drug therapy, considering factors such as the severity of the infection, the response to previous treatments, and the patient's comorbidities. Dermatological care can act in the treatment of skin lesions, offering aesthetic and dermatological interventions, such as the use of healing creams and the monitoring of possible complications, such as secondary infections.

Psychological support, cutaneous leishmaniasis can have a significant impact on the patient's self-esteem and mental health. Psychologists and psychiatrists can offer emotional and psychological support, helping with adaptation and acceptance of the condition.

Physiotherapy in cases of extensive injuries or sequelae, physiotherapists can help in rehabilitation, promoting the recovery of function and improving the patient's quality of life. (BRAZIL, 2017)

Research and Innovation Collaborations between research institutions, universities and health services can boost studies on new therapies, vaccines and prevention strategies, contributing to a more effective management of leishmaniasis, so this research is justified by the need to highlight the occurrence of continuous cases during the last decade, with the presentation of statistical data to be exposed and report the importance and relevance of the multiprofessional team in the participation of assistance to the population.

The present study aimed to evaluate the epidemiological profile of Leishmaniasis in the last decade in Brazil, specifically to survey the epidemiology of the Federal District in the period from 2009 to 2019, with the emphasis on evaluating the multidisciplinary approach to the treatment of the disease in the Federal District.



## METHODOLOGY

The study area was the Federal District, which is located at 15°47' south latitude and 47°56' west longitude and occupies an area of 5,779 km<sup>2</sup>. It is about 1,000 meters above sea level and has a predominantly flat relief.

Unlike the states of the country, Brasília is not divided into cities and neighborhoods, so there are no city halls. The capital is composed of 31 Administrative Regions (RA's) officially constituted as dependent on the Government of the Federal District.

The study was restricted to the following regions: Águas Claras, Asa Norte, Asa Sul, Brazlândia, Ceilândia, Estrutural, Fercal, Gama, Guará, Itapoã, Núcleo Bandeirante, Paranoá, Planaltina, Recanto das Emas, Riacho Fundo, Samambaia, Santa Maria, São Sebastião, Sobradinho, Taguatinga, Vicente Pires and other Federation Units.

This is a prospective analytical study in the form of a survey of data related to the occurrence of cases and the prevalence of American Cutaneous Leishmaniasis in the Federal District in the estimated period of one decade prior to the study. From 2009 to 2019.

To survey the procedures followed in the treatment, an on-site survey was carried out, searching for the hospitals that perform treatment, addressing which protocols are followed, how the treatment is conducted and the participation in the stage of pharmaceutical care, the doctor, as well as multidisciplinary care in the treatment. The methodological procedures of this study involved elaboration stages, with tables and graphs to identify the number of confirmed cases of ATL, using data from the Federative Unit of Brazil, with its administrative regions.

The Notifiable Diseases Information System (SINAN), the Undersecretary of Health Surveillance (SVS) of the Federal District, the Epidemiological Bulletin of Leishmaniasis made available by the Health Department of the Federal District, and the administration of the University Hospital of Brasília were used as sources for data search.



Secondary data on the number of ACL cases were used to carry out the study, according to the SINAN Net version of the Notifiable Diseases Information System, made available by the Ministry of Health and the Undersecretary of Health Surveillance (SVS) of the Federal District.

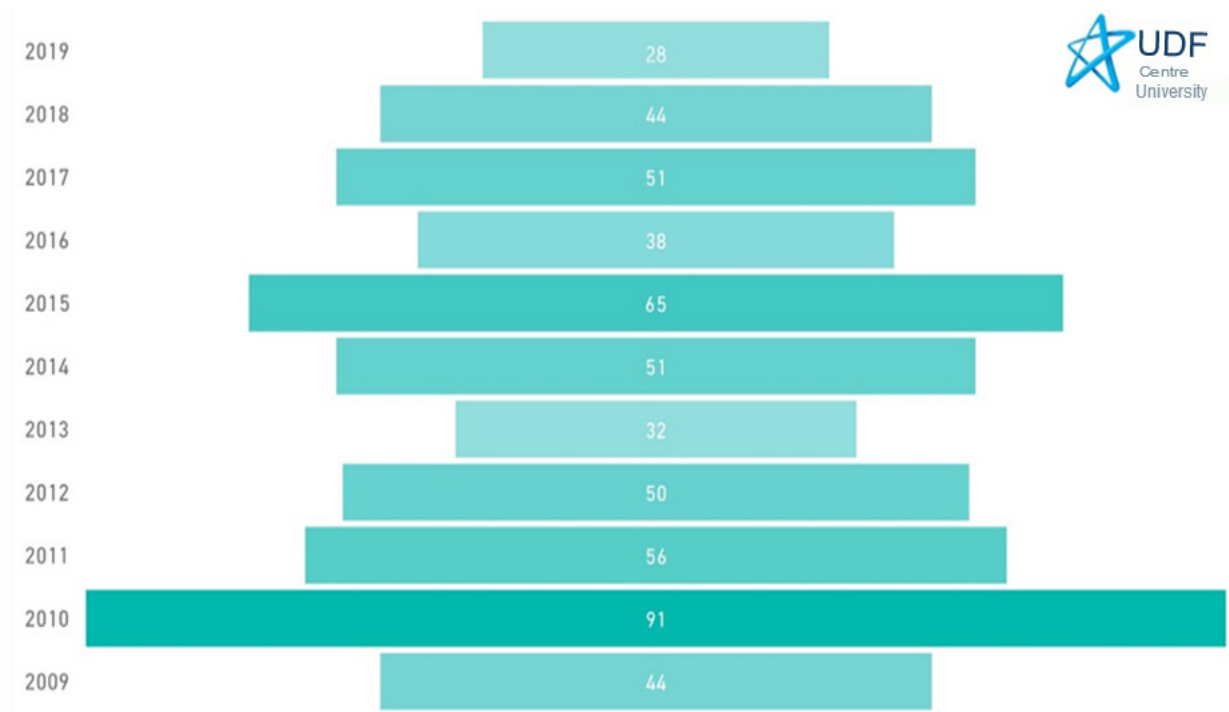
For the visual generation of the map and table for collecting and processing information on the diffusion of diseases, the Power Bi Desktop Free 2019 program was used for research.

## **FINDINGS**

The data in the graph in Figure 1 show the confirmed cases of American Cutaneous Leishmaniasis in the Federal District, added to the total number of cases in each Superintendence, according to each year, in a period of one decade, according to the Notifiable Diseases Information System (SINAN) and the Epidemiological Bulletin of Leishmaniasis made available by the Health Department of the Federal District.



FIGURE 1. Total number of cases of American Cutaneous Leishmaniasis in the Federal District per year, in the period of one decade (2009-2019).



Source: Notifiable Diseases Information System (SINAN NET).

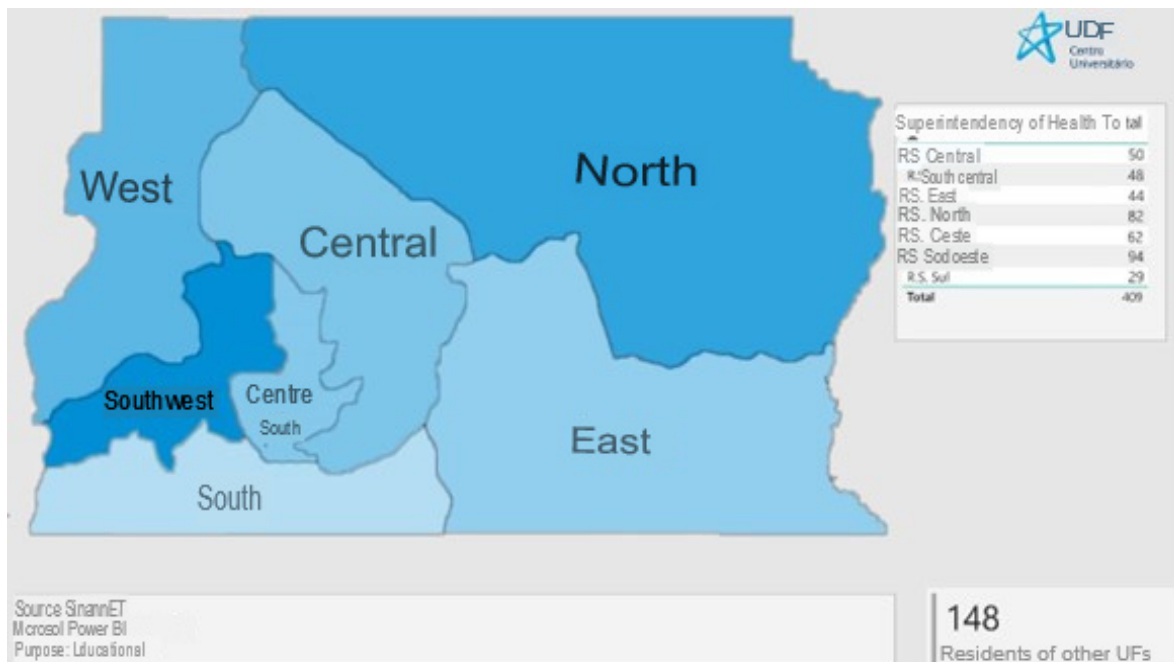
Figure one shows that the years 2010 and 2015 were the years with the highest number of cases, unlike the years 2009, with 44 cases and in 2019 with only 28 cases. The map in Figure 2 shows the number of total cases by divisions of each Health Superintendencies of the Federal District, including cases of residents of other Federation Units. It is portrayed by total cases of one decade according to the Notifiable Diseases Information System (SINAN) and the Undersecretary of Health Surveillance (SVS) of the Federal District.

The variation of colors in the map is ordered according to the variables according to the number of cases, so in a greater number of cases the darkest colors predominate, and for the smallest number of cases, the lightest ones.





FIGURE 2. Total number of cases recorded by the Health Superintendence of the Federal District in the period of a decade (2009-2019).



Source: Notifiable Diseases Information System (SINAN NET). Undersecretary of Health Surveillance – DF.

According to the Department of Primary Care and Health Surveillance, the multiprofessional team should be involved in all services that develop surveillance and control actions for ATL, for early diagnosis and appropriate treatment. It is of utmost importance to provide continuous care, articulated with the other levels of care, aiming at longitudinal care and educational actions and community mobilization in relation to the control of ATL (BRASIL, 2009).

Regarding the treatment of ATL, offered free of charge by the SUS, it is done with the use of specific and alternative medications. The treatment is conducted under the responsibility of the doctor, together with the professionals of the health team according to the protocol, who are adequate to the hospitals in the Federal District, according to the management and protocol adopted by each of them.

The Reference Center for the Care of Patients with Cutaneous Leishmaniasis in the Federal



District, according to the diagnostic and treatment manuals of the Ministry of Health and as made available by the Health Department of the Federal District, is the University Hospital of Brasília (HUB). It is currently the only one in the one that performs the treatment and follow-up of confirmed cases of American Cutaneous Leishmaniasis, so the other hospitals in the Federative Units of the Federal District carry out the diagnosis, notification according to the protocol and refer those diagnosed for treatment at the reference center, also including emergency cases.

According to the Department of Health and the team of the LTA treatment sector at the University Hospital of Brasília, the follow-up is carried out on Wednesdays of the month, so the appointments for the follow-up of the treatment are carried out four times a month with previously scheduled times, with the exception of emergency cases.

The participation of the team of professionals is composed of a doctor and a nursing technician. The nursing technician is the professional who performs the triage of the patient, who is waiting for medical care. The standardized medication is dispensed by the pharmacist to the nursing team, which during the patient's care is delivered to him, being the last contact with the patient in his care.

## **DISCUSSION**

It is pointed out that most of the confirmed cases in the Federal District were predominant in the Residents of other Federation Units, totaling 138, followed by the second highest number of registered cases and the first of the Superintendence of the Federal District to the Southwest with 92 cases, followed respectively in descending order by the Superintendencies North, West, Central, Center-South, East, and the South Superintendence, which recorded the lowest amount, totaling 28, considering imported and autochthonous cases.

The year with the number recorded in the decade was in 2010, with a total of 91 cases, and the lowest number was in 2019, totaling 28, but the region is not currently endemic. In the years 2018 and 2019 in relation to the average of the other years there was no significant decrease, however in 2019 there



was a reasonable decrease with almost half the number of cases of the previous year.

Part of the strategic component of disease control is the notification to the National Health Surveillance Agency by those responsible for monitoring patients, in case of the appearance of serious or rare adverse effects and technical complaints associated with the use of drugs prescribed for the treatment of Leishmaniasis (BRASIL, 2018).

The pharmacist must work together with the nursing team, as co-responsible for the implementation and adjustment of the therapeutic plan, for supporting the user and for monitoring the therapeutic results, giving feedback to the team and allowing the entire system to feed back and remain organized (BRASIL, 2015).

The World Health Organization (WHO) recommends a multidisciplinary approach to the control and fight against Leishmaniasis, which involves several integrated strategies. These strategies include: Epidemiological Surveillance - Constant monitoring of Leishmaniasis cases to identify outbreaks and risk areas, allowing the rapid implementation of control measures.

Education and Awareness-Awareness campaigns to inform the population about the disease, modes of transmission, prevention and treatment.

Vector Control – Implementation of measures to control vector populations, such as the sandfly mosquito, which transmits Leishmaniasis. This can include the use of insecticides, improving housing conditions, and eliminating breeding sites.

Diagnosis and Treatment-Access to accurate diagnoses and adequate and timely treatment for Leishmaniasis cases, with the use of effective and safe therapies.

Intersectoral Approach - Engaging different sectors, such as health, environment, education, and social care, to address the social and environmental determinants of health.

Research and Development - Promotion of research for the development of new vaccines, treatments and control methods.

Community Support – Mobilization and involvement of local communities in the planning and execution of control actions, supporting public health efforts.



These actions should be coordinated by multidisciplinary teams that include health professionals, epidemiologists, veterinarians, biologists, educators, and community representatives, ensuring an effective and sustainable response to the problem of leishmaniasis.

It was evidenced that in the treatment at the reference hospital in the Federal District, it is conducted by the physician in charge, with the participation of the technical nursing team directly in contact with the patient, while the participation of the pharmaceutical care related to the treatment is carried out in the scope of selection, acquisition and dispensation of the medication indirectly to the patient.

The stages of follow-up directly to the patient and pharmaceutical care in the evaluation of the safety, efficacy, correct and rational use of the drug, despite being an attribution of the pharmacist, are not monitored in this context. Therefore, for it to be successful, a multidisciplinary approach in the treatment of Leishmaniasis is essential, according to the guidelines of PAHO, WHO and the Ministry of Health, involving several integrated strategies such as the strengthening of epidemiological surveillance to identify and monitor cases and the use of appropriate laboratory and clinical diagnostics.

Clinical treatment and use of antiparasitic medications, with a choice based on the type of Leishmaniasis (cutaneous or visceral) and the patient's condition. Follow-up by specialist doctors, such as infectologists and dermatologists. Education and community mobilization, and it is important to inform the population about prevention and treatment. Involve the community in vector surveillance and control, implementing mosquito control strategies (such as the elimination of breeding sites, applying the promotion of individual and environmental protection measures. Not forgetting that psychosocial support, psychological and social monitoring for patients and their families, is also part of the patient's treatment and recovery, considering integration with mental health services, when necessary.

Rehabilitation and follow-up rehabilitation services to deal with possible sequelae, long-term monitoring to identify complications. Intersectorality collaboration between different sectors, such as health, environment, education and social care, for a comprehensive approach. These actions must be adapted to the local context, promoting an integrated and effective response in the fight against



Leishmaniasis.

Interaction must also involve the conceptions of its subjects, respecting their biopsychosocial specificities, from the perspective of the integrality of health actions (PAHO, 2002, 2024)

## CONCLUSION

The results show that due to the particularities of each Administrative Region of the Federal District, each one presents different results according to its peculiar characteristics, so public policies and strategies should meet these individualities.

The implementation of the multidisciplinary approach is a strategy to ensure the qualification and humanization of user care, as well as possible adverse effects, drug interactions and notification of adverse events and/or side effects, being one of the most important steps in the follow-up of rational pharmacotherapy and prevention of other factors unfavorable to the success of treatment.

Pharmacotherapeutic follow-up is important to reduce errors with medications that impact the effectiveness of treatment, such as abandonment of drug therapy, aimed at ensuring improved quality of life. The implementation of the multidisciplinary approach, which makes up the care, is necessary in aggravating diseases such as Leishmaniasis, as it allows for greater benefits to the patient and better strategies for promoting public health.

Currently, treatment is based on parenterally administered drugs, highlighting the need for other and new treatment options, especially those administered orally, which could improve access to treatment in remote areas, analyzing the epidemiological and social profile of populations affected by these diseases. The information included in this research becomes a valuable instrument for the construction of public policies that encourage the early diagnosis of the disease in the various regions, aiming at reducing mortality rates and improving the quality of life of patients.



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