

Epidemiological Report

## Tegumentary Leishmaniasis

Historic Series 2015 – 2020

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## BRIEF HISTORY

There are several species of *Leishmania* that, when infecting humans, can cause a set of clinical syndromes in the skin, mucous membranes and viscera of the infected individual. The disease appears with a varied spectrum, according to the interaction between several factors related to the parasite, vector and host.<sup>1</sup> The term tegumentary leishmaniasis (TL) includes different clinical forms of a non-contagious, vector-borne infectious disease that affects humans.

Tegumentary cutaneous leishmaniasis is the most frequently reported clinical form in the Americas<sup>1</sup> and in the state of São Paulo (SSP). In São Paulo, the occurrence of the disease was initially restricted to the West and Northwest regions, however, from 1970 onwards, it was identified in the South, an area previously considered unaffected. In these areas, an endemic profile was observed and human transmission was detected outside the forest environment, occurring both in rural and peri-urban areas.<sup>2</sup> The profound alterations and reductions in the vegetation cover of the SSP modified, throughout the 20th century, the epidemiological profiles for the disease in the territory of São Paulo, since the environmental changes provoked significant transformations in the composition of the sand fly fauna and, thus, interfered in the transmission of the disease.<sup>3</sup>

In the last decade, the occurrence of the disease in the SSP was reported in all regions of São Paulo. In most cases, it was characterized by sporadic transmission, usually associated with occupational and leisure activities in wild areas or by outbreaks in peri-urban areas, characterized by the following epidemiological profiles:<sup>4</sup>

- a) occupational or leisure – in which transmission is associated with the disorderly exploitation of the forest and clearing of forests for road construction, logging, development of agricultural activities, ecotourism (anthropozoonosis); and
- b) rural or peri-urban – in colonization areas (zoonosis of residual forests) or peri-urban, where the vector has adapted to the peridomicile (zoonosis of residual forests and/or anthropozoonosis).

## ETIOLOGICAL AGENT

TL is an anthroponotic disease caused by infection by protozoa of the genus *Leishmania*, with several of its species associated with the disease.<sup>1</sup> In Brazil, the main species identified are three: *L. (V.) braziliensis*, *L. (V.) guyanensis* and *L. (L.) amazonenses*. In the SSP, the species *L. (V.) braziliensis* is the predominant etiologic agent.

## TRANSMISSION MODE

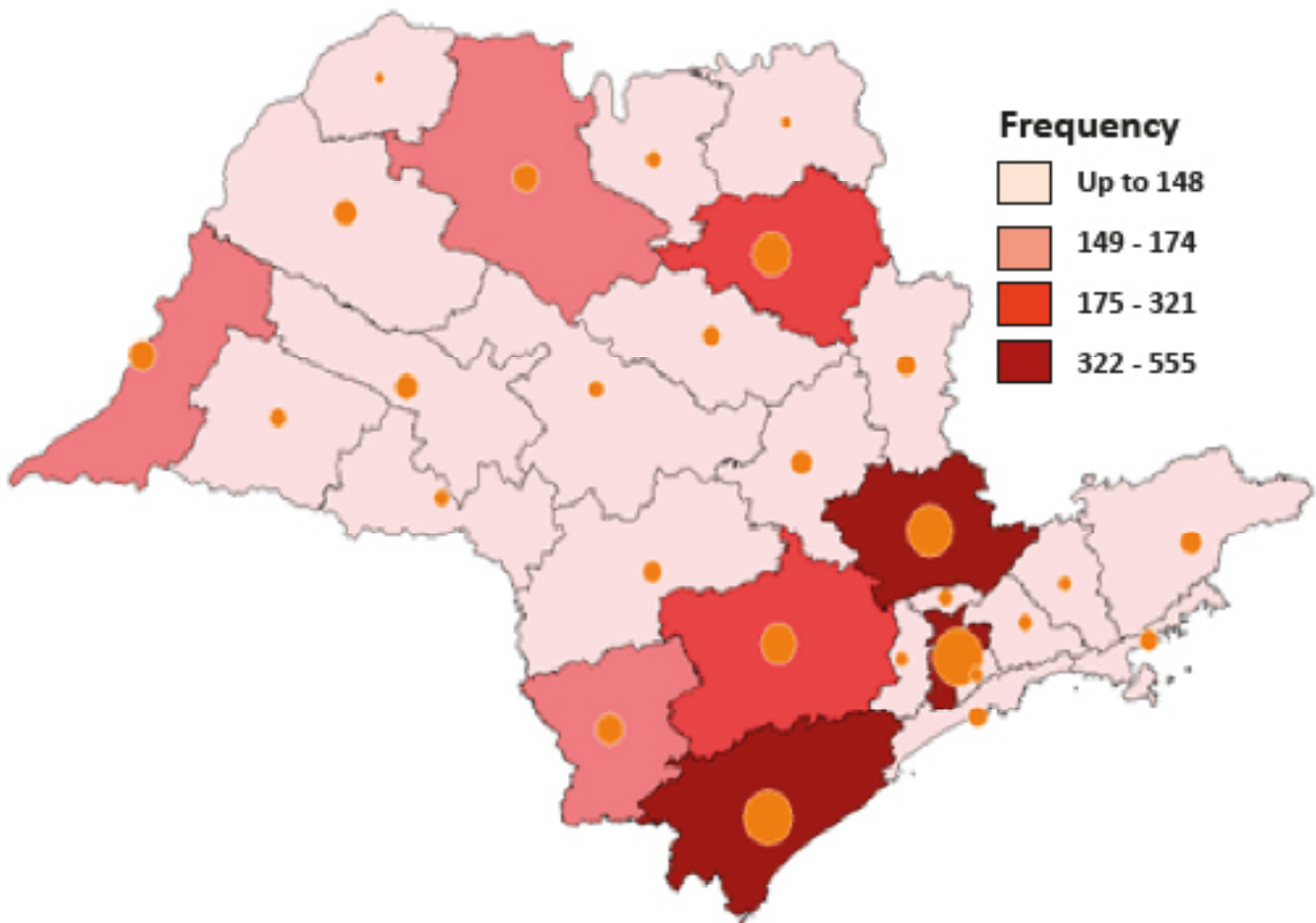
The mode of transmission is through the bite of infected phlebotomine sandflies. There is no person-to-person transmission. The vectors that represent a health risk for the transmission of CL are sand fly species of the genus *Lutzomyia*.<sup>1</sup> In the SSP, three species are present in municipalities that have the highest averages of standardized incidence coefficients.: *L. migonei*, *L. fischeri* and *L. intermedia s.l.*<sup>2,3</sup>. It is attributed to the species *L. intermedia s.l.* the main role in the transmission of TL in an environment altered by anthropic action, highlighting its marked adaptation to artificial ecotopes in the home environment. The species *L. migonei* assumes importance in the extra-domestic environment.<sup>2,3</sup>

## RESERVOIRS

Regarding the *Leishmania* species responsible for the cutaneous and mucosal forms of the human disease, it is assumed that not only one host or reservoir is involved in the maintenance of these parasites, but that, probably, several key species, with great transmission competence, are responsible for the maintenance and transmission of these species in nature.<sup>1</sup> In the SSP, among wild animals, rodents of the genera *Proechimys*, *Rhipidomys*, *Oryzomys*, *Akodon*, *Rattus* and the marsupial of the genus *Didelphis* were found naturally infected. Other animals seem to play a secondary role.

## EPIDEMIOLOGICAL SITUATION

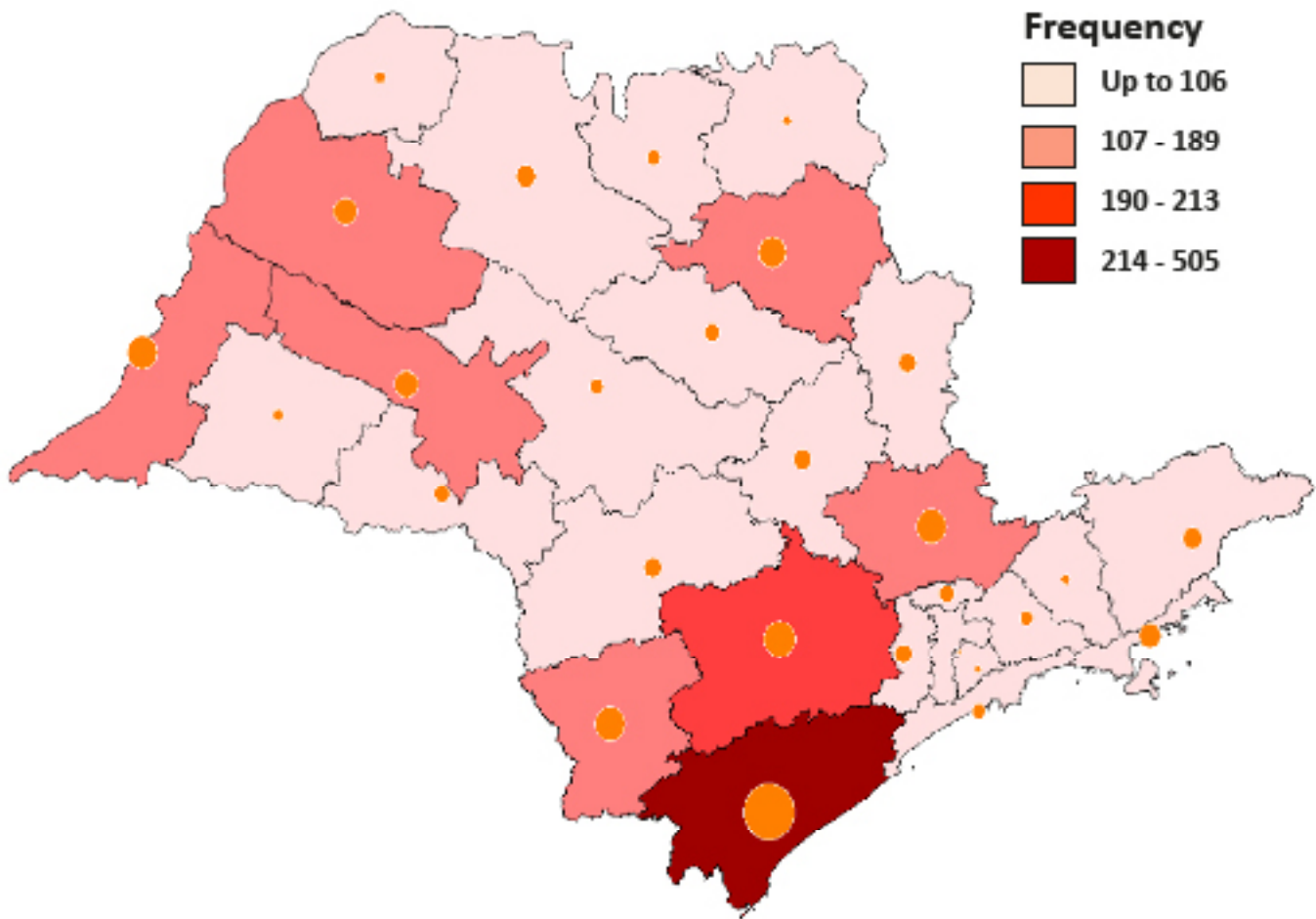
Between 2010 and 2021, 4,063 cases of TL were reported in the state of São Paulo. The notification occurred in the territories of all Epidemiological Surveillance Groups (ESG) ([Figure 1](#)), with the highest number of records in the ESG of the capital (555 cases), Registro (518), Campinas (469), Ribeirão Preto (321) and Sorocaba (301). These five regions represented 53.26% of the total number of cases reported in the state. These locations have specialized medical centers, are a reference for the care of leishmaniasis and represent the places where diagnosis, notification and treatment of cases occur most frequently.

**Figure 1.** CL cases notified in the SSP according to the ESG of notification, from 2010 to 2021.\*

\*Provisional data as of June 20, 2022. Source: Division of Zoonoses/CVE/CCD, Sinan Net.

Of the 4,063 cases reported in the SSP, autochthonous transmission was characterized in 2,570 records, indicating that of this total of TL presented by the state health services, only 63.25% had transmission identified in the territory of São Paulo. The highest transmission occurred in municipalities located in the Epidemiological Surveillance Groups of Registro (505 cases), Sorocaba (213), Campinas (189), Itapeva (177), Presidente Venceslau (171), Ribeirão Preto (153), Marília (124) and Araçatuba (107). These eight regions had about 64% of the autochthonous occurrences in the state ([Figure 2](#)).

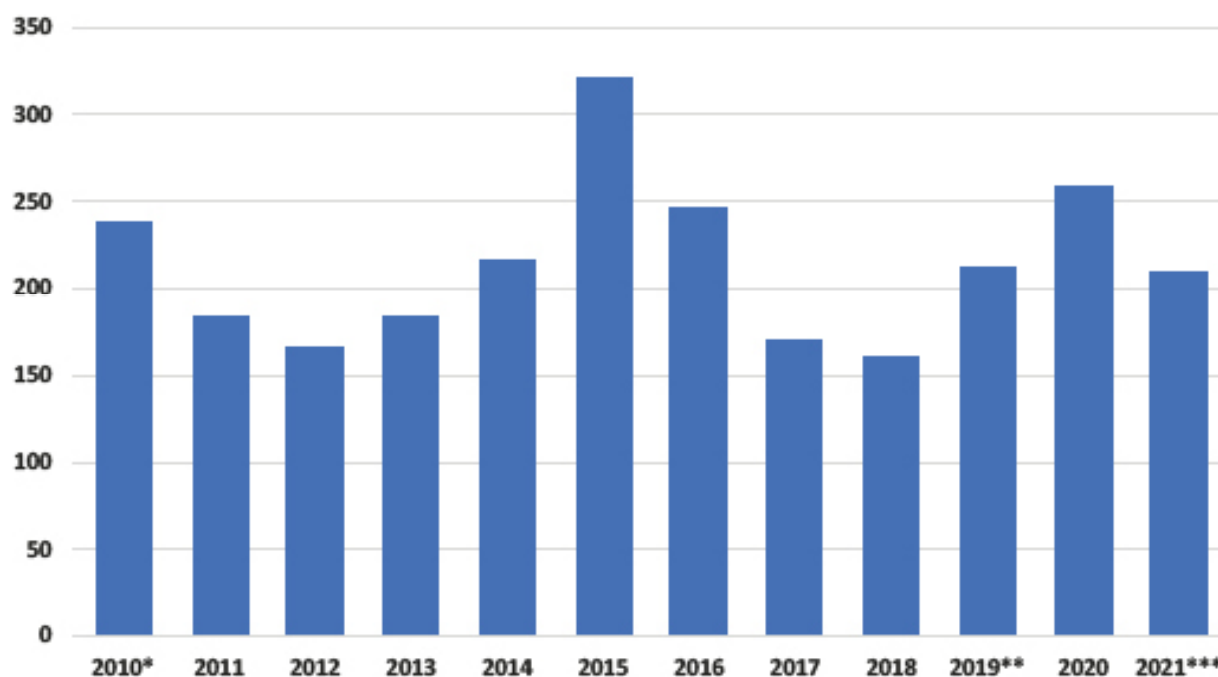
In Brazil, there are, on average, about 21,000 cases/year, with an incidence rate of 8.6 cases/100,000 inhabitants in the last five years. The North region has the highest incidence coefficient (46.4 cases/100,000 inhabitants), followed by the Central-West (17.2 cases/100,000 inhabitants) and Northeast (8 cases/100,000 inhabitants) regions.

**Figure 2.** Autochthonous cases of TL reported in the SSP according to ESG of infection, from 2010 to 2021.\*

\*Provisional data as of June 20, 2022. Source: Division of Zoonoses/CVE/CCD, Sinan Net.

In São Paulo, the average number of cases/year in the period evaluated was 211.5, with the lowest frequency in 2018, with 161 cases, and the highest in 2015, with 322 records ([Graph 1](#)). The incidence coefficient observed in 2010 was 0.57 cases/100,000 inhabitants. In the last five years (2017 to 2021), the average number of autochthonous occurrences of TL reported was 203 cases, with an incidence coefficient of 0.44/100,000 inhabitants, showing that the incidence of the disease in the state is much lower than that observed in other regions of Brazil. In 2021, the incidence coefficient was 0.45 cases/100,000 inhabitants in the SSP. However, leishmaniasis remains endemic in the territory of São Paulo, with transmission in all regions of São Paulo, as previously observed in [Figure 2](#), indicating that control measures are not able to significantly reduce its incidence, an expected situation due to the transmission profile.

**Graph 1.** Number of autochthonous cases of TL in the SSP, 2010 to 2021.#



#Provisional data as of June 20, 2022. \*(239 cases; total population in the state of São Paulo, year 2010: 41,252,160, source: IBGE, 2010 Census results). \*\*(total population in the state of São Paulo, year 2019: 45,919,049, source: IBGE, estimate). \*\*\* (210 cases; total population in the state of São Paulo, year 2021: 46,649,132, source: IBGE, estimate). Source: Division of Zoonoses/CVE/CCD, Sinan Net.

The analysis of autochthonous cases of TL from 2010 to 2021 shows a higher occurrence among people over 50 years old (43.38%), with a predominance of males (66.18%), whites (67.04%) and of residents of the urban area (64.28%) (Table 1).

**Table 1.** Autochthonous cases of TL, according to age group, sex, race and area of residence, 2010 to 2021, state of São Paulo.

Variable	Autochthonous Cases SSP (n = 2,570)	
	n	%
<b>Age Group (in years)</b>		
> 50	1,115	43.38
< 10	122	4.74
<b>Gender</b>		
Male	1,701	66.18
<b>Race</b>		
White	1,723	67.04
<b>Housing Area</b>		
Urban	1,652	64.28

\*Provisional data as of June 20, 2022. Source: Division of Zoonoses/CVE/CCD, Sinan Net.

In the analyzed period, most cases were characterized as new (92.87%) and recurrences represented 5.09% of the total (Table 2). Cutaneous leishmaniasis predominated with 85.75% of the records, while mucosal leishmaniasis represented 14.25%. Of the reported cases of TL in Brazil, 3% to 6% are ML<sup>4</sup>, a proportionally lower occurrence than that observed in the SSP. As for the confirmation criterion, the clinical-laboratory predominated with 73.92% of the total recorded.

**Table 2.** Description of autochthonous cases of CT in the SSP, 2010 to 2021.\*

Variable	Autochthonous Cases SSP (n = 2,570)	
	n	%
<b>Input Type</b>		
New cases	2,387	92.87
Recurrences	131	5.09
<b>Clinical Form</b>		
cutaneous	2,204	85.75
mucosal	366	14.25
<b>Confirmation Criteria</b>		
Clinical-laboratory	1,900	73.92
Clinical-epidemiological	670	26.08
<b>HIV infection</b>		
Yes	41	1.59
No	1,917	74.59
Ignored	612	23.82
<b>Evolution of the case</b>		
Cure	1,908	74.24
Ignored / blank	506	19.68

\*Provisional data as of June 20, 2022. Source: Division of Zoonoses/CVE/CCD, Sinan Net.

In the period, 1.59% of HIV-infected patients were identified and 74.59% did not have the infection. The expressive amount of ignored cases regarding concomitant HIV infection (23.82%) stands out. This situation should be understood as an opportunity for improvement regarding the medical care of the cases.

Evolution to cure was recorded in 74.24% of cases. The total number of unrecorded occurrences reached 19.68%, a situation indicative of the need to improve municipal and state epidemiological surveillance services related to the follow-up of cases after treatment.

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