

## **OCCURRENCES OF LEPTOSPIROSIS IN THE CENTRAL REGION OF RONDÔNIA FROM 2010 TO 2020**

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## INTRODUCTION

Leptospirosis is a global zoonosis directly linked to social and economic issues, such as lack of basic sanitation and precarious infrastructure, as well as the presence of rats in metropolises. Tropical climate regions are more susceptible, especially during the flood season, when rains cause flooding (TEIXEIRA et al, 2018). Contagion occurs through contact with the urine of infected rats, mainly through interaction with water containing the urine (MELO, PECONICK, 2019).

In Brazil, the law establishes leptospirosis as a notifiable disease, however the records present in the Ministry of Health database do not reflect the real number of cases, since notification is not always carried out, the causes vary from leptospirosis being confused with other diseases with similar clinical signs, even the person affected by the disease does not seek medical help (HICKEL, 2021).

Although the North region does not have very high rates compared to the rest of the country due to the lower population density, the year 2014 presented a peak of cases that was disproportionate to the other years studied (TEIXEIRA et al, 2018).

The objective of this observational, analytical, descriptive and retrospective study is to evaluate the space-time distribution of confirmed cases of leptospirosis in the central region of Rondônia from 2010 to 2020, with the aim of generating an epidemiological bulletin detailing the number of cases per municipality and year.

## MATERIALS AND METHODS

As a method for data acquisition, the group chose to carry out research using SINAN as a source through the portal of the Unified Health System, DataSUS of the Ministry of Health. For data searches, the 'DataSUS' website was used, in the 'Tabnet' section, expanding the dropdown menu

'Epidemiological and Morbidities', then selecting the option 'Diseases and Notifiable Diseases – 2007 onwards (SINAN)', where possible to choose leptospirosis as the disease and Rondônia as the search area.

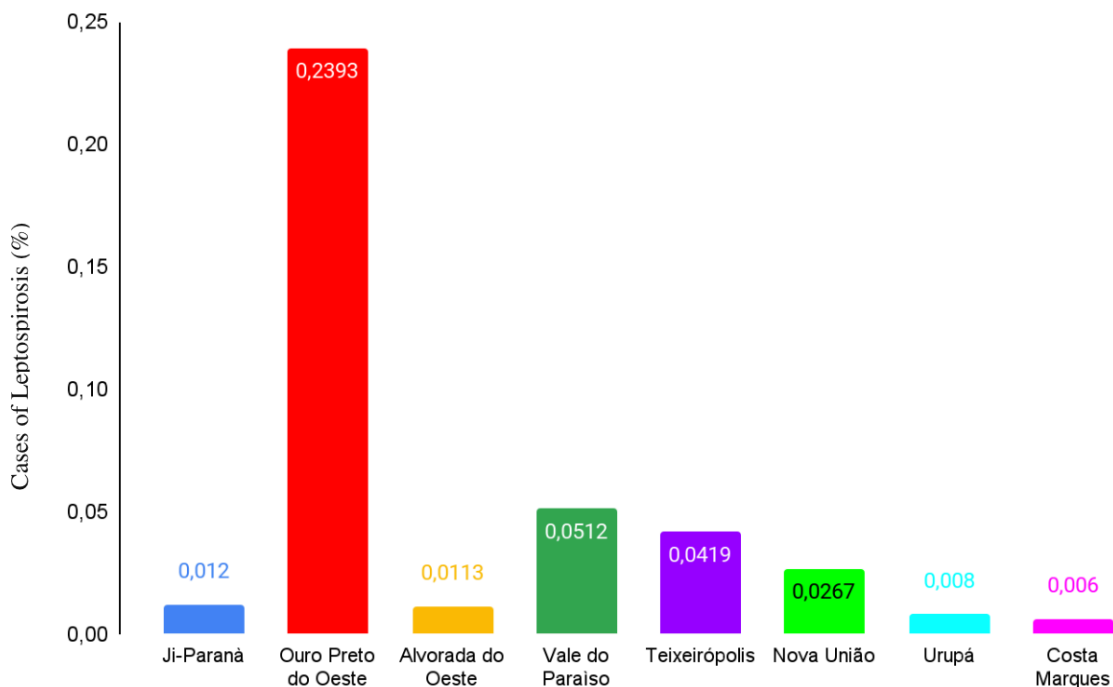
During the study, the search parameters for the research were inserted: For the columns, the municipalities of Ji-Paraná, Ouro Preto do Oeste, Presidente Médici, Alvorada do Oeste, Vale do Paraíso, Teixeiraópolis, Nova União, Urupá, Mirante da Serra, São Miguel do Guaporé, São Francisco, Seringueira and Costa Marques, which make up the central region of the state.

The municipalities of Presidente Médici, Mirante da Serra, São Miguel do Guaporé, São Francisco and Seringueira, which had no registered cases in the eleven years studied, were excluded from the creation of graphs and tables.

To match the information from different municipalities, the number of inhabitants of each municipality was researched at IBGE (Brazilian Institute of Geography and Statistics) and applied to a base ratio of 100 as well as the number of registered cases, finding the percentage of occurrences. The collected data were stored and classified in the text storage and editing service Google Drive and Documents, respectively.

## RESULTS AND DISCUSSIONS

The information (graph 1) obtained from searches in the SUS database, on reported cases of leptospirosis between the years 2010 and 2020 in the central region of Rondônia, comprising the municipalities of Ji-Paraná, Ouro Preto do Oeste, Alvorada do Oeste, Vale do Paraíso, Teixeiraópolis, Nova União, Urupá, Costa Marques, ignoring municipalities with no case records:



Graphic 1: Cases of Leptospirosis by municipalities in the years 2010 to 2020 (%).

Source: DataSUS: (<https://datasus.saude.gov.br/informacoes-de-saude-tabnet/>).

Initially, it was assumed that municipalities with a larger population also had more cases of leptospirosis, however, when analyzing the data, it was found that the assumption could not be taken forward, as shown in (graph 1), the municipality of Ouro Preto Do West is the one with the highest number of reported cases, despite having a smaller population compared to the city of Ji-Paraná.

Noting that all the municipalities studied have some level of lack of basic sanitation, it is not possible to correlate this factor with the high number of cases in Ouro Preto do Oeste.

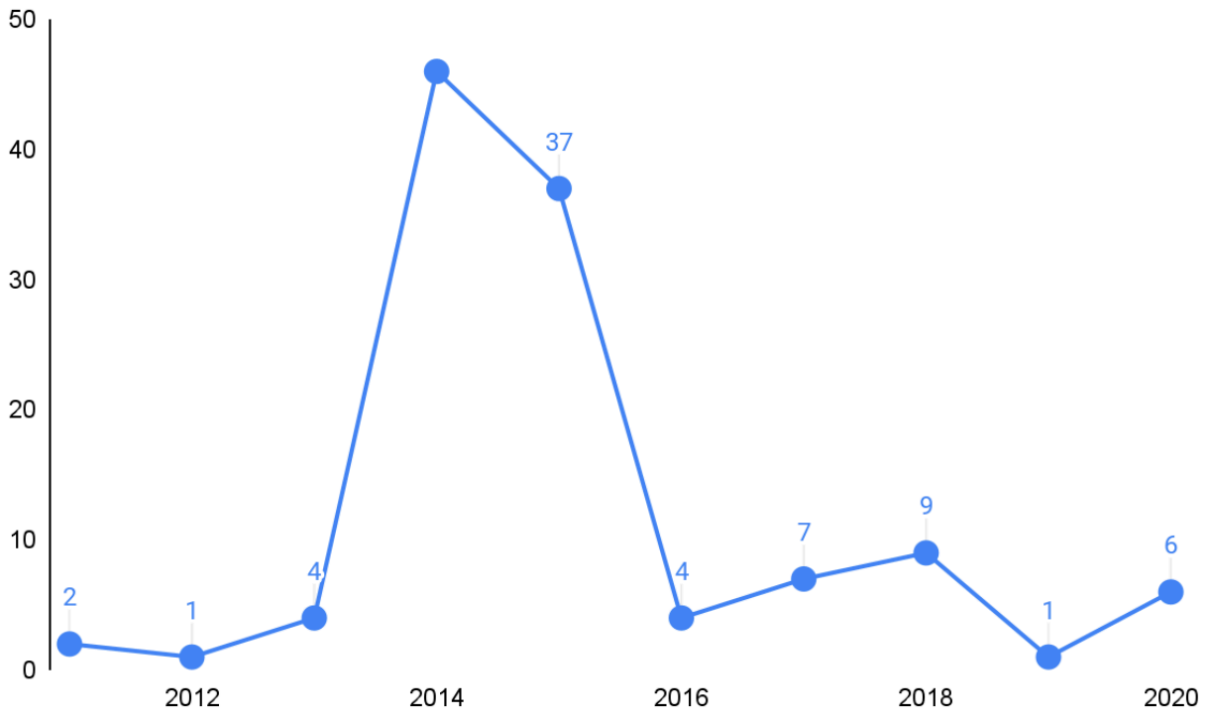
Pursuant to Arts. 7 and 8 of Law No. 6,259, of October 30, 1975, reporting cases of leptospirosis is compulsory (BRASIL, 1988). so that the probable reason for the high number of cases in Ouro Preto do Oeste is associated with compliance with the guidelines for notifying the disease. Regarding the minimum amounts of occurrences in the other municipalities and the five that did not present any records during the eleven years

studied, further research is necessary.

During the eleven years observed (Graph 2) there was consistency in the average number of records, with the exception of the years 2013 to 2015, when the recorded increase reached unprecedented levels in the decade.

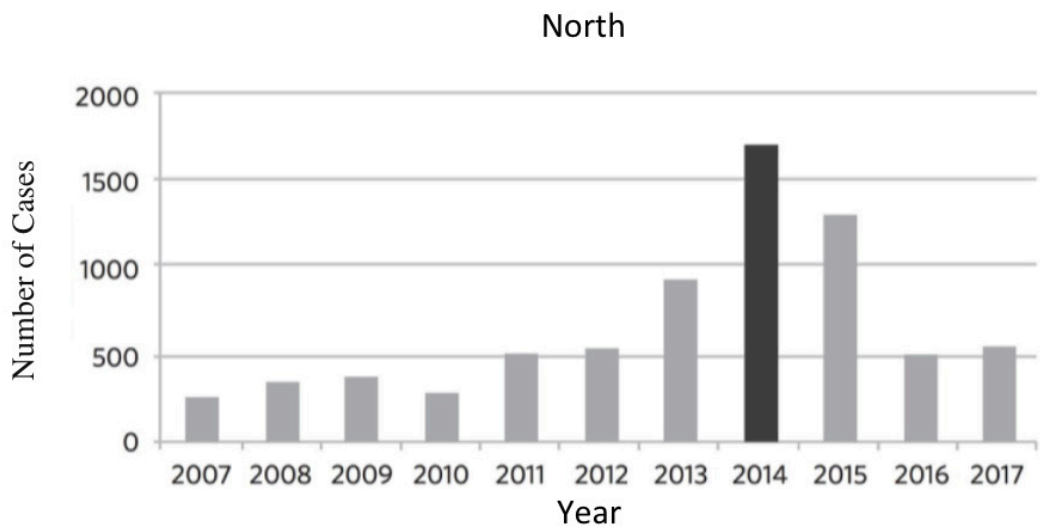
It can be seen that the high incidence of leptospirosis in 2014 coincided with the flood of the Madeira River in the capital Porto Velho and its tributaries throughout the state (g1, 2014). Areas affected by floods are often already economically and socially disadvantaged and become more vulnerable due to the spread of pathogens, including leptospirosis, by floods. The results showed a drastic increase in cases of leptospirosis during the flood, as a result of direct exposure of the region's population to contaminated water.

It can be seen (graph 3) that not only the state of Rondônia, but the entire northern region was affected by the high rainfall in 2014, when more than 1500 cases were recorded in the seven states (TEIXEIRA et al, 2018).



Graph 2: Total cases of Leptospirosis in the central region of Rondônia per year.

Source: DataSUS: (<https://datasus.saude.gov.br/informacoes-de-saude-tabnet/>).



Graph 3: Confirmed cases of leptospirosis in the northern region of Brazil.

Source: Marteli et al. (<https://www.scielo.br/j/sdeb/a/tpgTM4R7YcFTTrPMjJ3wKmyF/?lang=pt&format=html#>).

## FINAL CONSIDERATIONS

With the current research it was verified that, with the exception of the year 2014, the number of occurrences in the municipalities of the central region of Rondônia was low, the increase in cases being a probable consequence of the floods of the Madeira River in the same year. The municipality of Ouro Preto do Oeste had more cases than the others despite not being the most populous, requiring further studies to ascertain the cause.

## REFERENCES

BRASIL. Constituição (1988). Constituição da República Federativa do Brasil. Brasília, DF: Senado Federal, 1988.

HICKEL A. F. Análise temporal da leptospirose humana no Brasil, em Santa Catarina e Itajaí no período de 2001 a 2017: relações entre a incidência e a letalidade. Universidade Federal de Santa Catarina. Florianópolis, 2021.

MELO T. F.; PECONICK A. P. As características da *Leptospira* spp.: uma revisão de literatura. *Scire Salutis*, v.9, n.3, p.1-7, 2019.

TEIXEIRA K. K; SANTANA R. L; BARBOSA I. R. Associação de variáveis ambientais à ocorrência de leptospirose humana na cidade de Natal-RN: uma análise de distribuição espacial. *Journal of Health & Biological Sciences*. v. 6, n. 3: 249-257. Jul-Set. 2018.