

Epidemiological Report of the Americas

Introduction

Leishmaniasis are neglected, infectious and vector-borne diseases occurring in the poorest countries and most vulnerable populations with difficult access to health services. They have a wide worldwide distribution and most cases occur in Africa, Asia and the Americas.

In the Americas, leishmaniasis are present in 18 countries and the most common clinical form is the cutaneous leishmaniasis (CL), whereas, the visceral leishmaniasis (VL) is more severe and often fatal if not treated. Moreover, the mucosal/mucocutaneous (MCL) has a chronic progression which may lead to deformities and long-term effects .

The leishmaniasis surveillance and control program is based on detection and treatment of cases, combined with other health education measures, as well as actions towards vector and reservoir, when recommended. Case investigation and risk stratification are strategies that help the managers address these actions to be more opportune and efficient, however, the challenges in maintaining these activities sustainable over time persist, due to the high costs of the surveillance, prevention and control actions.

This report presents the 2017 leishmaniasis data analyses for the Region, as well as the CL and VL risk stratification proposed by the Regional Program along with experts and the countries. Likewise, the establishment of the Triennium - Composite Indicator, which takes into consideration the average of number of cases and incidence from the past 3 years for both clinical forms.

Figure 1 shows the CL risk stratification at the second subnational administrative level based on regional analyses, and the VL epidemiological scenarios according to its status in the Americas.

In the map below, you can visualize an infographic containing the epidemiological and operational information on cutaneous and mucosal leishmaniasis from each country.

Please click in each country to access their infographics.

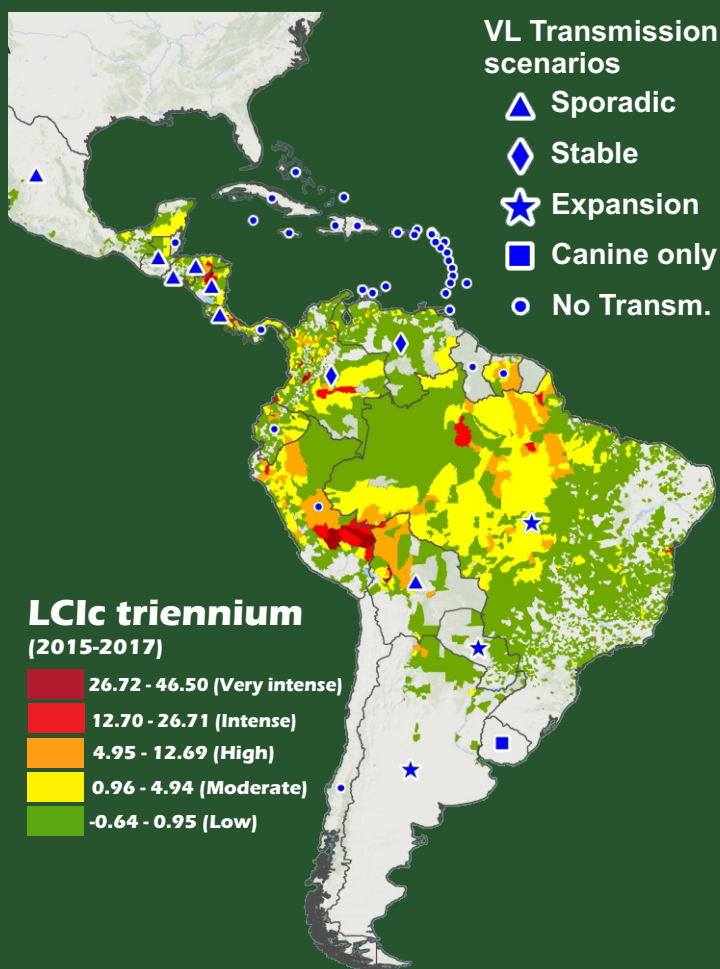


Figure 1. Visceral leishmaniasis transmission scenarios and cutaneous leishmaniasis composite indicator triennium at the second subnational administrative level, Americas, 2017.

Source: SisLeish-PAHO/WHO: Data reported by the National Leishmaniasis Programs/Surveillance Services. Accessed on: November 2018

Epidemiological status

Cutaneous and mucosal leishmaniasis

In the Americas, a total of 940,396 new cases of cutaneous (CL) and mucosal leishmaniasis (ML) were reported by 17/18 endemic countries from 2001-2017, with an annual average of 55,317 cases. This historic series of 17 years shows that 2015 had the lowest number of new cases (46,074) in the region, mostly given by a case reduction of 45%, 42% and 35% in Costa Rica, Panama and Colombia, respectively. In 2016, there was an increase of cases in the region, despite a 35% reduction in Brazil (**Figure 2**).

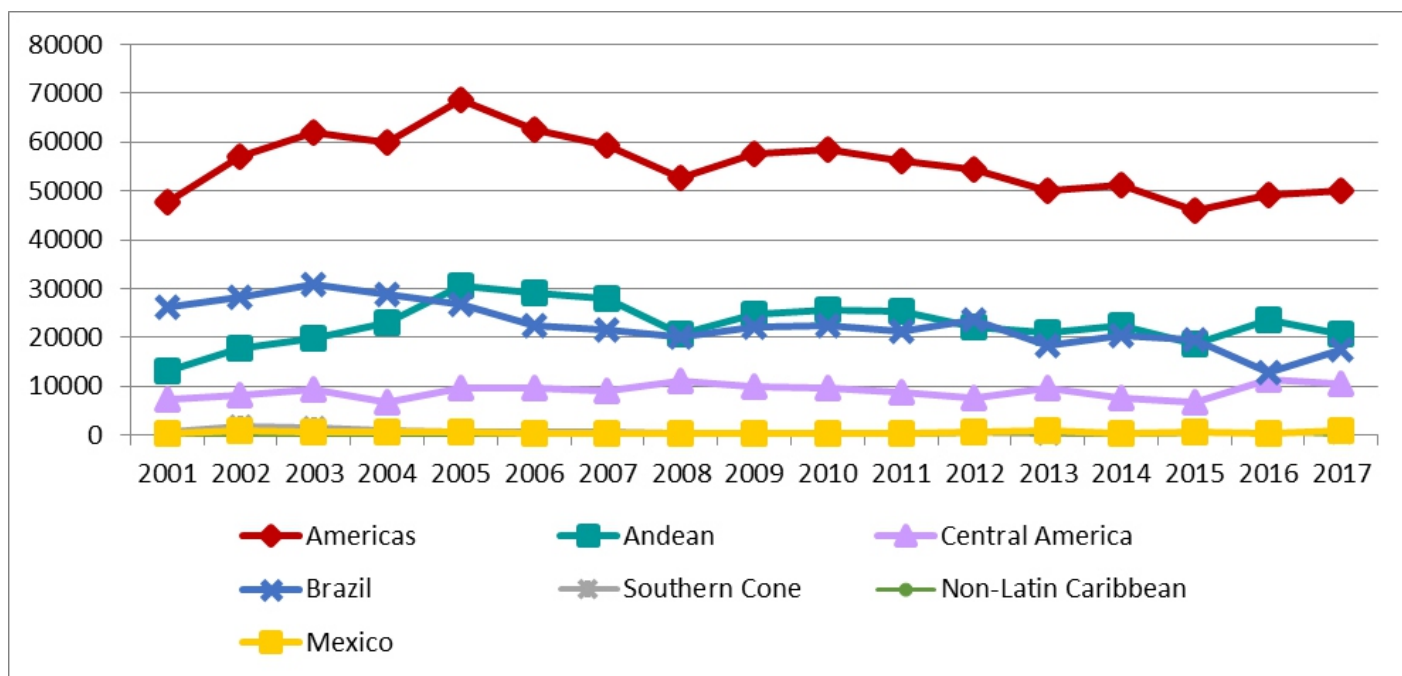


Figure 2. Number of cutaneous and mucosal leishmaniasis cases in the region, subregions and selected countries of the Americas, 2001-2017
Source: SisLeish-PAHO/WHO: Data reported by the National Leishmaniasis Programs/Surveillance Services. Accessed on: November 2018

In 2017, 49,959 cases were reported to the Pan-American Health Organization (SisLeish – PAHO/WHO) by 17 endemic countries, seeing that French Guyana continues reporting directly to France. In general, there was a decrease in the number of cases in 9 endemic countries, nevertheless, the total number of cases in the region has maintained stable compared to 2016 due to the increase in Brazil (38%), Costa Rica (94%), Mexico (88%) and Ecuador (36%).

From the total of the 2017 cases, 72.6% were reported by Brazil (17,526), Colombia (7,764), Peru (6,631) and Nicaragua (4,343). The incidence rate of the region was 22.51 cases per 100,000 population, resulting in an increase of 17.3% compared to 2016 (21.71 cases/100,000 pop.) the highest rates were reported by Nicaragua (140/100,000 pop.), Suriname (121/100,000 pop.) and Costa Rica (51.7/100,000 pop.). Five countries presented an expressive increase in the incidence rate compared to the previous year: El Salvador (9.63/100,000 pop.), Argentina (10.27/100,000), Mexico (11.5/100,000 pop.), Ecuador (22.6/100,000 pop.) and Costa Rica (51.7/100,000 pop.).

The CL cases were registered in 210 (61%) units of the first subnational administrative political level (states, departments, regions or provinces, according to each national political division) and in 2,895 (24%) units of the second administrative level (municipalities, cantones, provinces, districts, etc.). A total of 20.2% (10,081) of cases were reported in 332 (11.3%) international borders units, highlighting Argentina, Costa Rica and Guatemala with over 36% of CL cases occurring in border zones.

Figure 3 presents the regional analyses of the average CL number of cases and incidence from 2015-2017, normalized and stratified in the triennium-composite indicator, disaggregated at the second subnational administrative level.

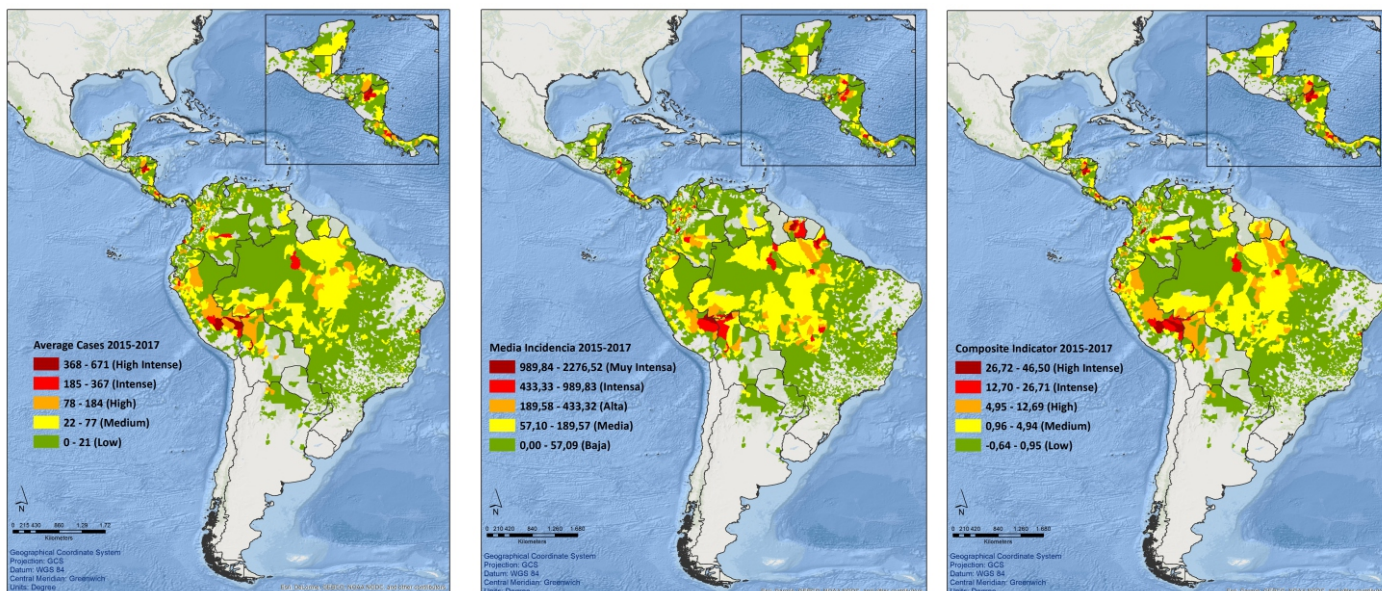


Figure 3. Average of CL number of cases and incidence, and composite indicator* stratified by risk of transmission at the second subnational administrative level, Americas, 2015-2017.**

Source: SisLeish-PAHO/WHO: Data reported by the National Leishmaniasis Programs/Surveillance Services. Accessed on: November 2018.

*CLC: Cutaneous leishmaniasis composite indicator, representing the average of cases and incidence (cases/100,000 pop.) of the 2015-2017 triennium.

** Guyana is not represented in the figure because their data is only available at the first administrative level (Regions).

According to the data registered in SisLeish, 99.9% (49,354) of the cases informed gender and 68.7% (34,305) of the cases were male. As for the age group, 99.6% (49,744) of the cases reported this variable with 14.35% (7,168) of cases occurring in children under 10 years old, where seven countries (Bolivia, Colombia, Ecuador, Peru, Venezuela, Guatemala and Suriname) reported 10-20% of their cases in this age group, 2 countries (Honduras and Nicaragua) between 20-30%, and 3 (Costa Rica, El Salvador and Panama) over 30% (Figure 4).

necessary (Figure 5). The monitoring of cases in children under 10 years old must be systematic, seeing that one of the regional targets of the Leishmaniasis Plan of Action is the reduction of the CL proportion in this age group by 50% in the region until 2022.

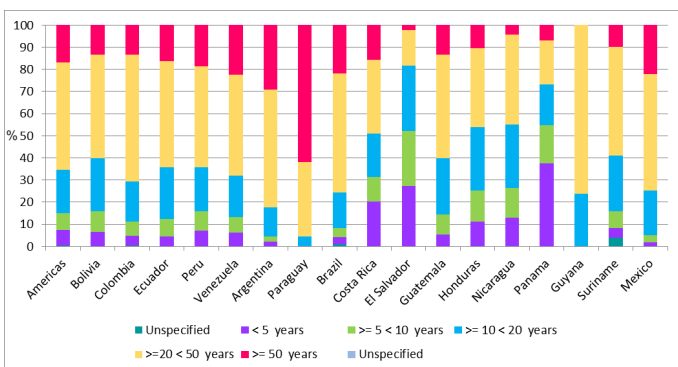


Figure 4. Proportion of CL and ML cases by age group, Americas, 2017.

Source: SisLeish-PAHO/WHO: Data reported by the National Leishmaniasis Programs/Surveillance Services. Accessed on: November 2018.

Twelve (70%) out of the 17 countries reported proportion of CL in children under 10 years old within the country higher than 10%, while in five countries this percentage is higher than 25%. Additionally, in Costa Rica, Nicaragua and Panama the percentage of affected women is 46%, 42% and 47%, respectively. These data suggest a domicile or peri-domicile transmission, however, it is necessary to perform an adequate epidemiological and entomological investigation in these areas to recommend possible prevention, surveillance and control measures, if

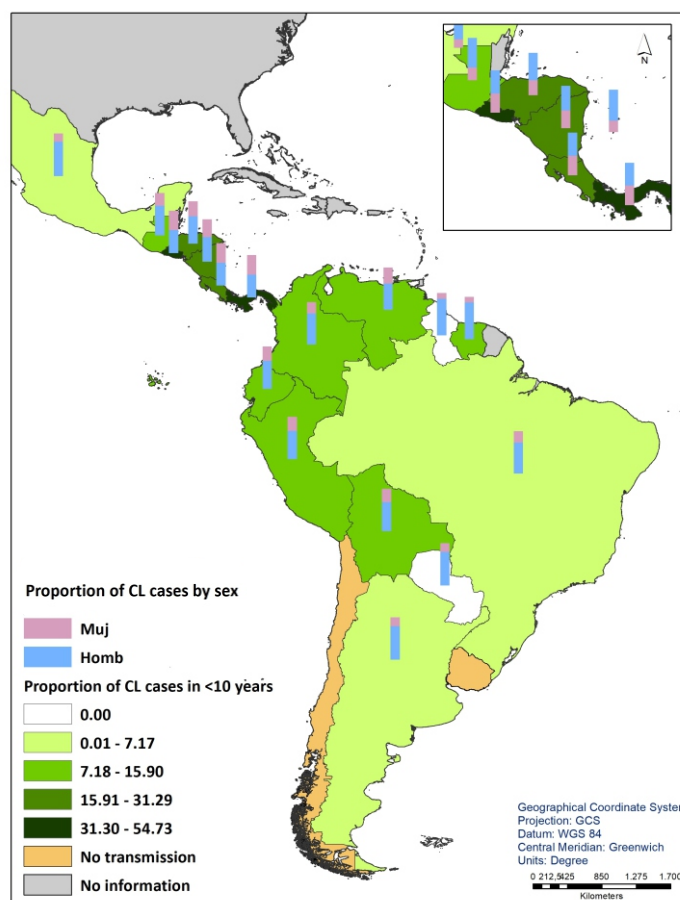


Figure 5. Proportion of CL and ML cases in children under 10 years old by gender and country, Americas, 2017.

Source: SisLeish-PAHO/WHO: Data reported by the National Leishmaniasis Programs/Surveillance Services. Accessed on: November 2018.

In 2017, a total of 98.9% (49,395) of the cases reported clinical form, where 3.78% (1,882) were of the mucosal/mucocutaneous form (ML), considered the most severe form because it causes clinical complications, disabilities and mutilations. The average of ML in the Region is 3.94% of all reported cases and it has been stable since 2012. Bolivia (231), Brazil (818), Colombia (101), Paraguay (62) and Peru (550) are responsible for 93.6% of the cases, and Paraguay reported the highest proportion of ML cases (67.4%), which represents a 41% increase when compared to 2016. The atypical cutaneous leishmaniasis (ACL) is generally found in countries of Central America, and in 2017 there were 687 cases in the region, being reported by Honduras (553), Nicaragua (90), El Salvador (43) and Paraguay (01), and all cutaneous leishmaniasis cases reported by El Salvador were of this clinical form and Paraguay registered it for the first time. We highlight that this information was not available in Guyana and Suriname, and in 17%, 5% and 2% of the cases in Panama, Nicaragua and El Salvador, respectively (Figure 6).

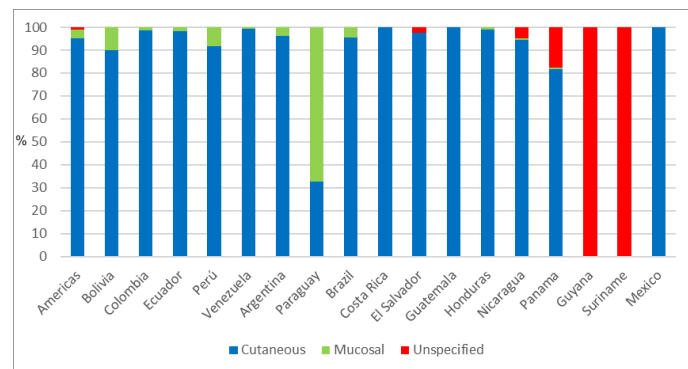


Figure 7. Proportion of cutaneous and mucosal leishmaniasis cases by clinical form and country, Americas, 2017.
Source: SisLeish-PAHO/WHO: Data reported by the National Leishmaniasis Programs/Surveillance Services. Accessed on: November 2018.

The regional data show that in 2017, 85.2% (42,562) of the cases were confirmed by laboratory diagnosis, 8.8% (4,394) by clinical and epidemiological diagnosis and 6% (3,003) were unspecified. Argentina (0%), Costa Rica (0%) and Panama (0%) were the countries that contributed to the worsening of this indicator in the Region, when compared to the previous year with 89.5% of the cases diagnosed by laboratory tests (Figure 7).

Visceral leishmaniasis

Visceral leishmaniasis (VL) is a severe systemic disease being fatal if not diagnosed and treated. In the Americas, VL is endemic in 12 countries with 59,769 new cases reported from 2001-2017 with an average of 3,516 cases per year. Approximately 96% (57,582) cases were reported by Brazil, however, southern countries such as Argentina, Colombia, Paraguay and Venezuela are among those with the highest case records (Figure 9).

Despite reporting of only a few cases of HIV coinfection with CL/ML in the Region, 209 (0.42%) cases were registered, being distributed in Colombia (75), Brazil (129), Mexico (4) and Paraguay (1), which represents a 27% increase in comparison to 2016. These coinfection cases require a more careful management, due to possible clinical complications that might occur during treatment and longer follow up of the patient.

In 2017, there was a 23.5% improvement of the clinical progression reporting, where 49.1% (24,529) of the cases progressed to clinical cure, 16 (0.03%) resulted in death and 50.7% (25,342) this information was unspecified. Out of the deaths, 16 were associated to CL and 13 cases were people over 50 years old, which corroborates to the possible complications caused by the medication, seeing that it is cardiotoxic, nephrotoxic and hepatotoxic. The total deaths reported represent a 45.5% increase as to 2016. This information was not available in SisLeish for 6 countries (Argentina, Colombia, Costa Rica, Guatemala, Panama and Peru) (Figure 8).

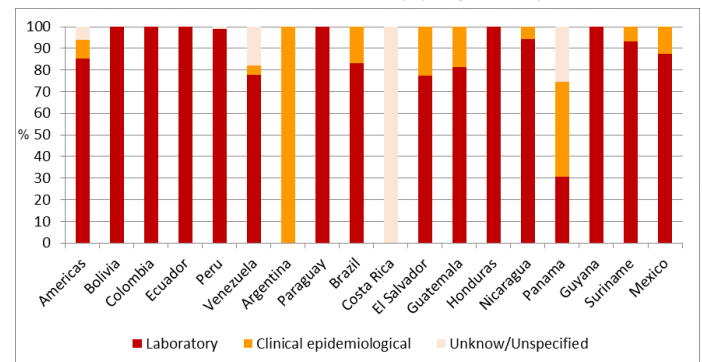


Figure 7. Proportion of cutaneous and mucosal leishmaniasis cases by diagnostic criteria and country, Americas, 2017.
Source: SisLeish-PAHO/WHO: Data reported by the National Leishmaniasis Programs/Surveillance Services. Accessed on: November 2018.

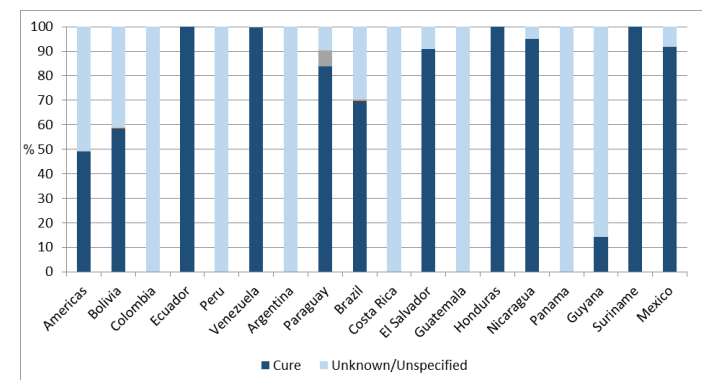


Figure 8. Proportion of cutaneous and mucosal leishmaniasis cases by clinical progression and country, Americas, 2017.
Source: SisLeish-PAHO/WHO: Data reported by the National Leishmaniasis Programs/Surveillance Services. Accessed on: November 2018.

On the other hand, some Central America countries, such as Honduras and Guatemala, which previously presented sporadic VL cases, have reported an increase or constant annual report of cases in recent years, respectively.

In 2017, 4,239 new VL cases were reported representing a 26.4% regional increase compared to the previous year, due to the 28% increase of VL cases in Brazil. Additionally, in Central America there was a growth of new cases in El Salvador and a geographic expansion in Honduras. Otherwise, there was a 21% and 47% decrease of new cases in Colombia and Paraguay, respectively (Table 2 and figure 10).

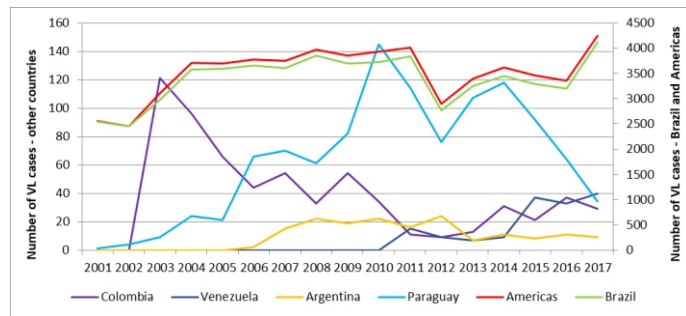


Figure 9. Visceral leishmaniasis cases in countries with the highest number of cases, Americas, 2001 -2017.

Source: SisLeish-PAHO/WHO: Data reported by the National Leishmaniasis Programs/Surveillance Services. Accessed on: November 2018.

The VL incidence rate in the Americas was 5.23 and 0.74 cases per 100,000 pop., considering the population in areas with risk of transmission and total population of endemic countries, respectively. From the countries that reported VL cases, Guatemala presented the biggest increase in the incidence rate related to 2016. Nine countries registered cases, distributed in 56 departments/states and 1,029 municipalities (1 - 409 cases), which represents a geographic expansion of the disease (Table 2 and figure 11).

Table 2. Number, proportion of cases and incidence rate of visceral leishmaniasis by country, Americas, 2015 -2017.

Countries	2015				2016				2017			
	N°	%	Risk pop incidence ¹	Total Incid. ²	N°	%	Risk pop incidence ¹	Total Incid. ²	N°	%	Risk pop incidence ¹	Total Incid. ²
Brazil	3.289	95.2	4.09	2.54	3200	95.41	4.88	1.55	4114	97.05	5.53	1.98
Paraguay	92	2.7	3.01	2.36	64	1.91	2.42	1.02	34	0.80	2.1	0.53
Venezuela	37	1.1	1.24	0.34	33	0.98	1.03	0.11	40	0.94	1.33	0.13
Colombia	21	0.6	7.04	0.63	37	1.10	3.54	0.34	29	0.68	3.44	0.06
Argentina	8	0.2	0.89	0.67	11	0.33	0.72	0.03	9	0.21	1.07	0.02
Honduras	6	0.2	2.4	0.34	7	0.21	2.25	0.08	8	0.19	2.48	0.09
El Salvador	0	0.0	0.0	0.0	0	0.00	0.0	0.00	2	0.05	4.4	0.03
Guatemala	2	0.1	1.9	1.9	2	0.06	2.2	0.01	2	0.05	5.4	0.01
Mexico	1	0.0	4.3	0.1	0	0.00	0.0	0.00	1	0.02	5.4	0.00
Total	3.456	100.0	5.07	2.42	3354	100.00	4.51	1.04	4239	100.00	5.23	0.74

Source: SisLeish-PAHO/WHO: Data reported by the National Leishmaniasis Programs/Surveillance Services. Accessed on: November 2018.

¹ Incidence rate per 100,000 pop., considering the population from areas with risk of VL transmission in the countries and the Region.

² Incidence per 100,000 pop. Considering total population of countries with VL transmission.

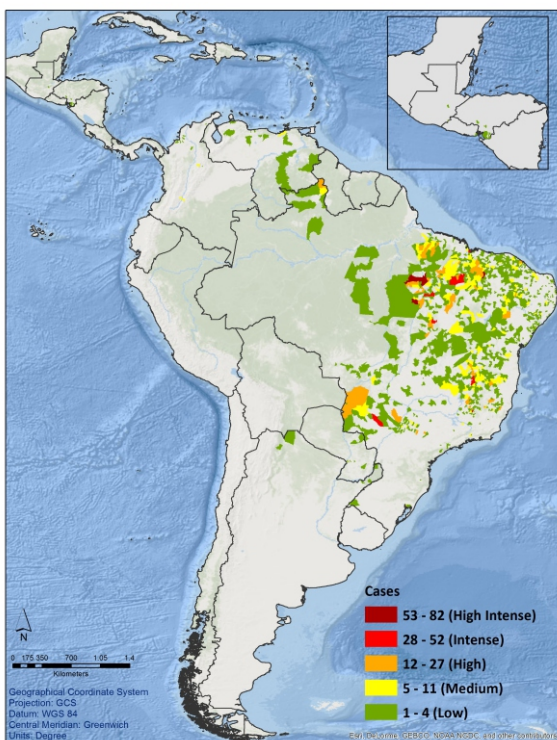


Figure 10. Visceral Leishmaniasis cases by second administrative level, Americas, 2017.

Source: SisLeish-PAHO/WHO: Data reported by the National Leishmaniasis Programs/Surveillance Services. Accessed on: November 2018.

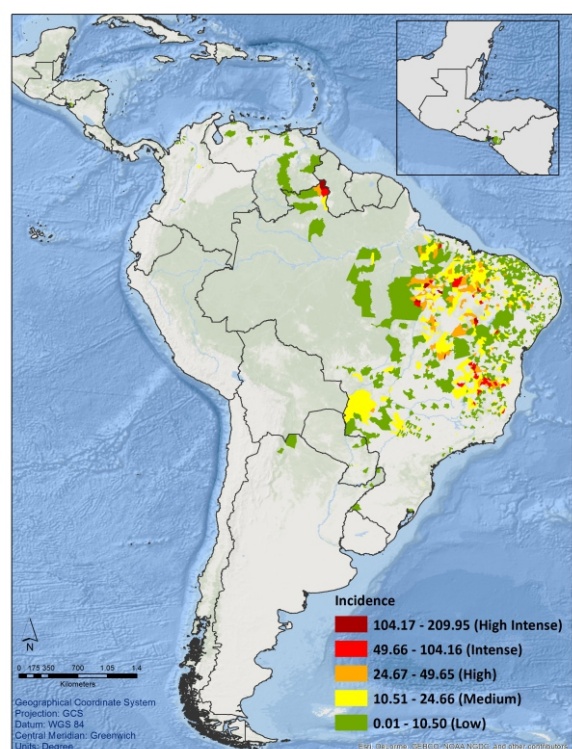


Figure 11. Incidence* of visceral leishmaniasis by second administrative level, Americas, 2017.

*Incidence per 100,000 pop. Source: SisLeish-PAHO/WHO: Data reported by the National Leishmaniasis Programs/Surveillance Services. Accessed on: November 2018.

Around 100% of the cases informed gender and age group, where 64.6% (2,739) were male and the most affected age group was between $\geq 20 < 50$ years old (32.8%), followed by children under 5 years old (31.3%) and over 50 years old (17%). In Honduras, Guatemala and El Salvador 100% of the cases occurred in children under 5 years old, as well as 79.3% and 72.5% in Colombia and Venezuela for the same age group, respectively (Figure 12).

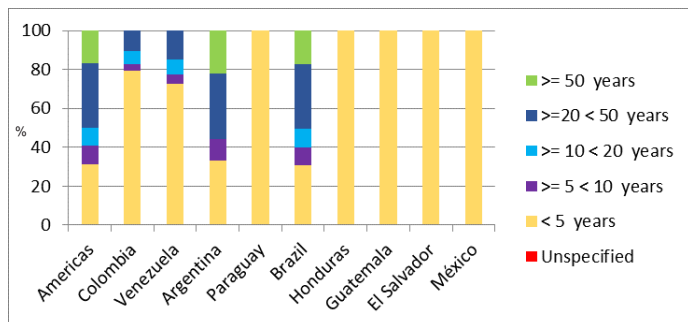


Figure 12. Proportion of visceral leishmaniasis cases by age group and country, Americas, 2017.

Source: SisLeish-PAHO/WHO: Data reported by the National Leishmaniasis Programs/Surveillance Services. Accessed on: November 2018.

In 2017, 7.97% (338) of the cases presented VIH-VL coinfection, which represents a decrease of coinfecting cases in comparison to the previous year (10.13%). From the 338 reported cases, 322 (95.3%) were from Brazil, 13 (3.85%) from Paraguay, 2 (0.59%) from Argentina and 1 (0.3%) from Colombia, nonetheless, Paraguay has the highest proportion of coinfecting cases (38.23%), followed by Argentina (22.22%) and Brazil (7.82%), Figure 13.

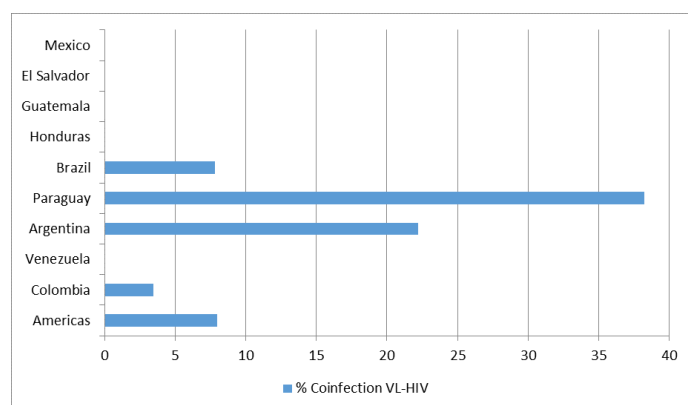


Figure 13. Proportion of VIH/VL coinfecting cases by countries, Americas, 2017.

Source: SisLeish-PAHO/WHO: Data reported by the National Leishmaniasis Programs/Surveillance Services. Accessed on: November 2018.

Regarding case confirmation criteria, this information was not available for only 1 case. From the rest of cases, 3,712 (87.6%) were diagnosed by laboratory testing and 526 (12.4%) by clinical-epidemiological diagnosis. The cure rate was 71.3%, which represents a slight improvement compared to 2016 (70%). Brazil had the highest proportion of cases in which this information is unknown (18.9%), followed by Colombia (10.34%) and Paraguay (5.9%). The historical series shows an increase in the VL fatality rate since 2014, however, in 2017 we can observe a discrete reduction (7.55%) (Figures 14 and 15).

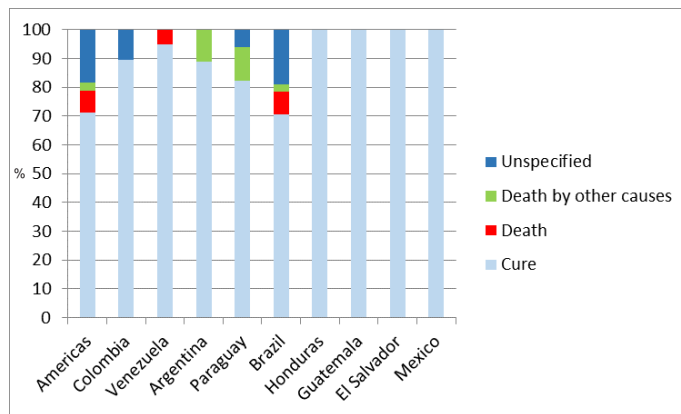


Figure 14. Proportion of visceral leishmaniasis cases by disease progression, Americas, 2017.

Source: SisLeish-PAHO/WHO: Data reported by the National Leishmaniasis Programs/Surveillance Services. Accessed on: November 2018.

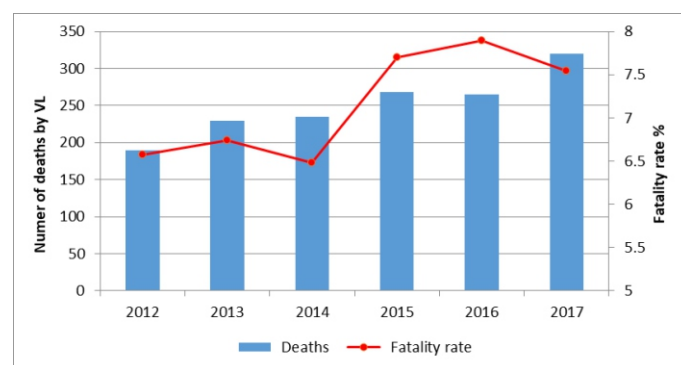


Figure 15. Number of deaths and fatality rate, visceral leishmaniasis, Americas, 2012-2017.

Source: SisLeish-PAHO/WHO: Data reported by the National Leishmaniasis Programs/Surveillance Services. Accessed on: November 2018.

The risk stratification continues to be an important tool for surveillance since it provides better understanding of the health problems and supports managers and health professionals in the adoption of actions, as well as, in the guidance and prioritization of areas to be worked in. In the last 15 years, Brazil has been using an individual indicator (3-year average of cases) to stratify risk areas for visceral leishmaniasis. However, this indicator has shown limitations, being suggested by experts the inclusion of other indicators to form a composite indicator. Despite recognizing the importance of social, environmental, canine, vector and human indicators for a better analysis, and after discussing it with experts and specialists, it was suggested a composite indicator that is feasible and available for usage in transmission areas. Thus, the use of the 3-year average of incidence and VL cases indicators was agreed for this purpose. These indicators were normalized and resulted in an index, that, when combined, formed the VL composite indicator. To classify risk areas, natural breaks were used to stratify transmission areas into 5 categories (low, moderate, high, intense and very intense). Considering the need for a wide use of this indicator at the most disaggregated level, it is available at SisLeish and the analyzes can be by data from all the region, data solely from the country, or internally at the first subnational administrative level, as represented in Figure 16.

Figure 16 presents the VL risk stratification according the 5 categories of transmission (low, moderate, high, intense and very intense) for the region, Brazil and Maranhão (first subnational administrative level).

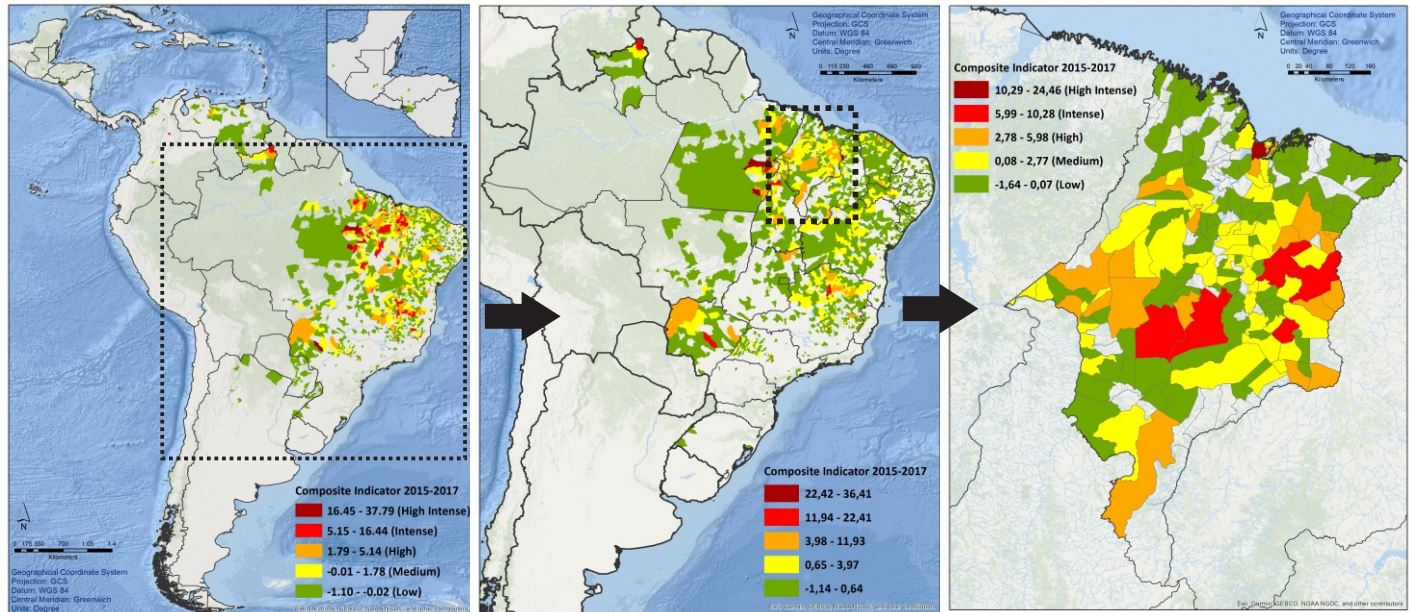


Figure 16. Composite indicator* for visceral Leishmaniasis – Risk stratification in the Americas Brazil and Maranhão, 2015-2017.

*LCI: visceral leishmaniasis composite indicator, represented by the 2015-2017 average of cases and incidence/100,000 population.

Source: SisLeish-PAHO/WHO: Data reported by the National Leishmaniasis Programs/Surveillance Services. Accessed on: November 2018.

Final considerations

The 2017 epidemiological analyses show that the number of cutaneous leishmaniasis cases was maintained when compared to 2016. However, there was a slight reduction of the proportion of cases in children under 10 years old, from 15.4% to 14.3%, despite Costa Rica, El Salvador and Panama presenting more than 30% of cases in this age group.

The CL/ML-HIV coinfection cases had a 27% increase indicating an improvement of the national reports. Regardless of the rise of the case percentage that progressed to cure, some countries such as Argentina, Colombia, Costa Rica, Panama and Peru this information is unavailable. From the 16 deaths by CL and ML, 13 were people over 50 years of age suggesting possible complications caused by the medication which is cardiotoxic, nephrotoxic and hepatotoxic.

There was a 26.4% increase of VL cases in the region given by the 28.5% (914 cases) growth in Brazil when compared to 2016. Additionally, in the past 3 years Honduras has been showing an annual rise of cases and geographic expansion of the disease.

The proportion of VL-HIV coinfection cases reduced from 10.14% in 2016 to 7.97% in 2017, nevertheless, Paraguay presented a 38.23% increase of these cases.

From the objectives of the NID Plan of Action and the 4 regional targets of the Leishmaniasis Plan of Action it was possible to observe a reduction of the visceral leishmaniasis fatality rate and the proportion of cutaneous leishmaniasis cases in children under 10 years old. Efforts must be continued by all endemic countries to keep on reducing these indicators, as well as incidence and deaths caused by these diseases.

1-Elaboration: Ana Nilce Silveira Maia-Elkhoury, Samantha Yuri Oshiro Branco Valadas, Santiago Nicholls and Lia Puppim Buzanovsky.

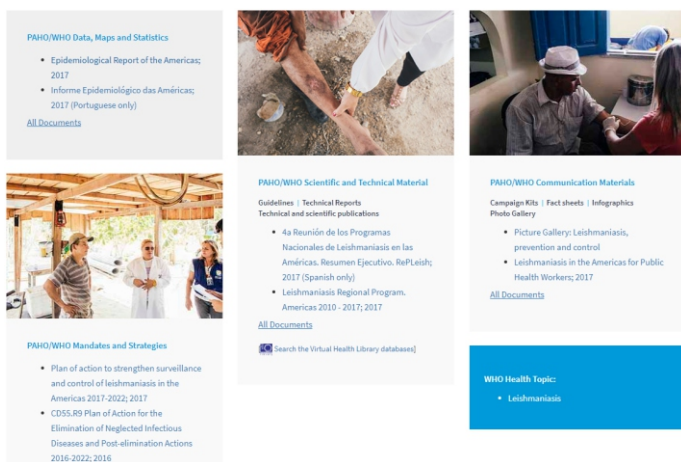
Correspondence: aelkhoury@paho.org

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PAHO/WHO Data, Maps and Statistics

- Epidemiological Report of the Americas; 2017
- Informe Epidemiológico das Américas; 2017 (Portuguese only)

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- 4a Reunión de los Programas Nacionales de Leishmaniasis en las Américas. Resumen Ejecutivo. RePLEish; 2017 (Spanish only)
- Leishmaniasis Regional Program, Americas 2010 - 2017; 2017

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- Plan of action to strengthen surveillance and control of leishmaniasis in the Americas 2017-2022; 2017
- CD55.R9 Plan of Action for the Elimination of Neglected Infectious Diseases and Post-elimination Actions 2016-2022; 2016

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Leishmaniasis Tegumentaria en las Américas

Diagnóstico y tratamiento

To carry out the free virtual course for diagnosis and treatment of cutaneous/mucosal leishmaniasis, visit: <https://mooc.campusvirtualsp.org/enrol/index.php?id=9>



Leishmaniasis Visceral en las Américas - Diagnóstico y Tratamiento

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