

Epidemiological Report of the Americas**Introduction**

Since 2012, the year of the beginning of the Regional Information System for Leishmaniases in the Americas (SisLeish), countries have been making great effort to include the data within the required time, which is April 30th of the subsequent year. One of the performance indicators of the Plan of Action for Leishmaniases in the Americas 2017-2022 is the number of endemic countries that timely report the cutaneous/mucosal and visceral leishmaniasis data at the second administrative political level in SisLeish. In 2013, from the 17 countries that report data to PAHO/WHO, 29% entered the data until the scheduled date, 18% up to three months later (July 30th) and 53% six months later (October 30th). Over the years there has been a significant improvement in data entry, seeing that in 2019, in which 82% of countries complied with the indicator, **Figure 1**.

In addition to entering the data in timely manner, it is very important to continue improving the quality of the data, according to the information flow of the surveillance system of each country and the SisLeish, so that the information is increasingly more useful and efficient for surveillance. All available data has been included in SisLeish by the countries and can be revised and updated whenever necessary.

This report presents an analysis of the 2018 leishmaniases data of the Region, and Infographics with detailed epidemiological and operational information for cutaneous and mucosal leishmaniasis of all endemic countries that report to SisLeish, and visceral leishmaniasis for countries with the largest number of cases: Brazil, Colombia, Paraguay and Venezuela. **[Click on each country of the map to access the infographics.](#)**

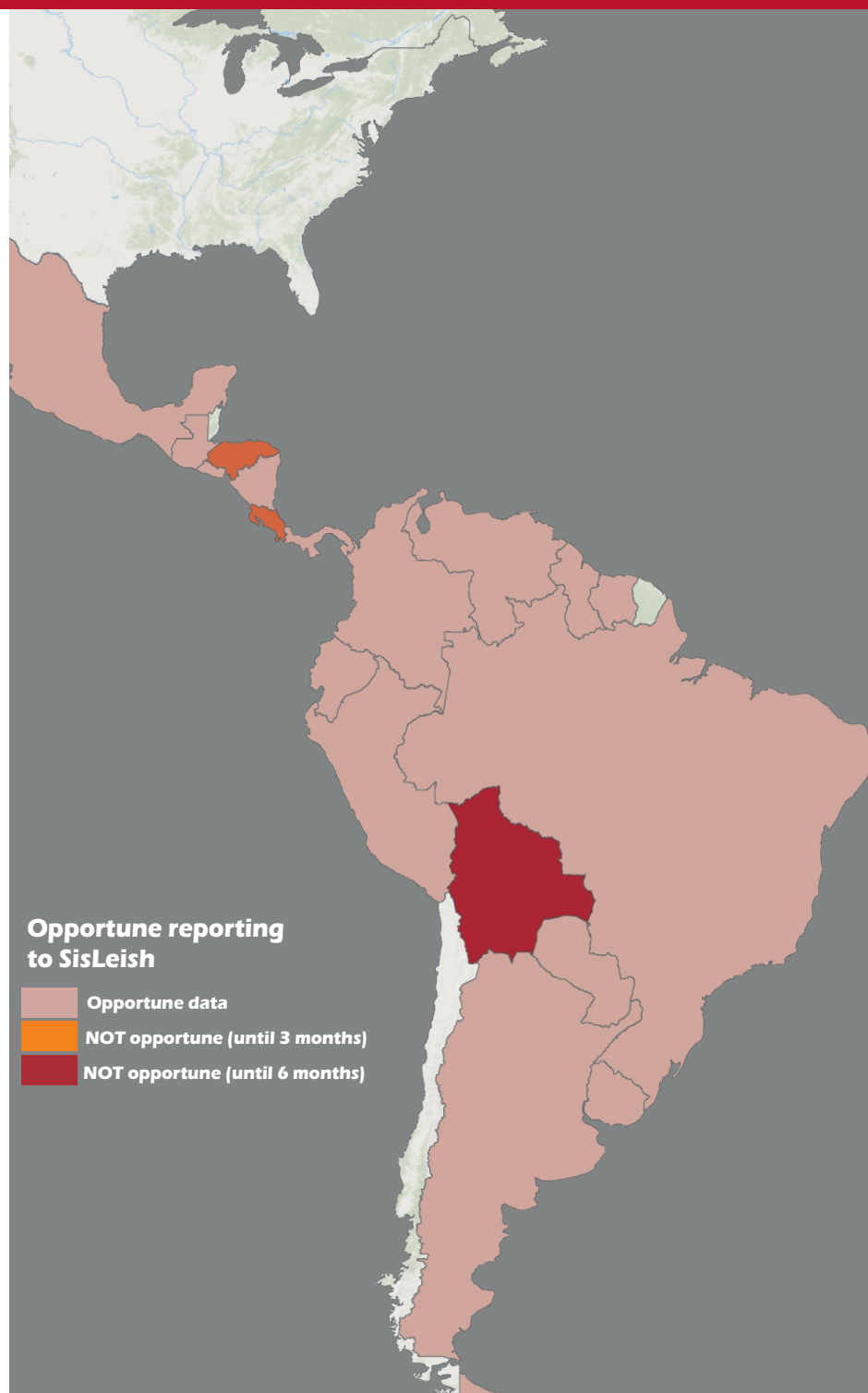


Figure 1. Opportune reporting of leishmaniases data to the Regional Information System – SisLeish, by country, Americas, 2018.

Source: SisLeish - PAHO/WHO - Data provided by the Ministries of Health - National Leishmaniases Programs. Accessed on: October, 2019.

In the Americas, leishmaniasis are diseases caused by parasites of the genus *Leishmania* and there are about 15 species that produce clinical forms that affect the skin, mucosal membranes and viscera, transmitted to humans and vertebrate animals by vector insects of the genus *Lutzomyia*. In this Region, it is a zoonotic disease with different transmission patterns, being the sylvatic the main cycle for cutaneous leishmaniasis, and the domestic (rural and urban) for visceral leishmaniasis.

Leishmaniasis have a complex transmission cycle, making surveillance and control actions different for each epidemiological scenario. The data collected by the epidemiological surveillance system of the countries are essential to generate risk stratification and guide activities, which are detailed by clinical and epidemiological classification in the **Manual of procedures for surveillance and control of leishmaniasis in the Americas published in 2019**.

Epidemiological Status

Cutaneous and mucosal leishmaniasis

Currently, 17 of the 18 endemic countries of the Americas (except for French Guyana that continues to report data directly to France) reported to the Pan American Health Organization (PAHO/WHO), a total of 989,096 cases of cutaneous and mucosal leishmaniasis (CL and ML) during 2001-2018, with an annual average of 54,950 cases and downward trend, (Figure 2).

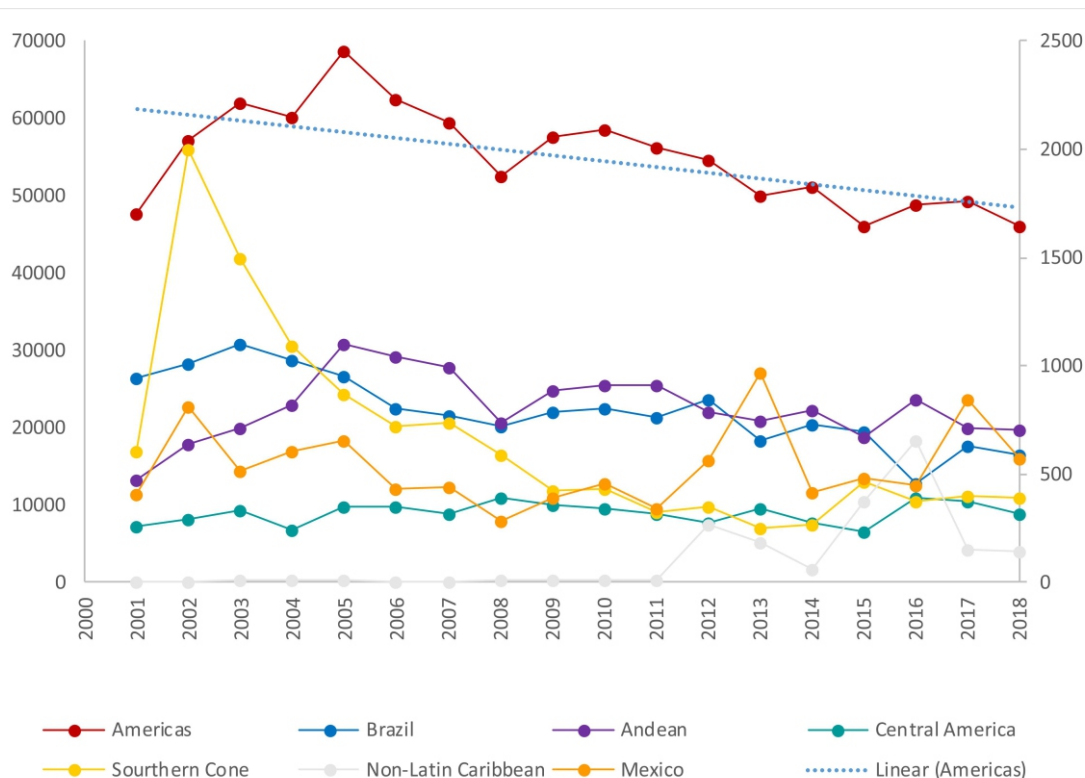


Figure 2. Number of cutaneous and mucosal leishmaniasis cases in the Region and Subregions, in the Americas, 2001-2018. Note: Americas, Brazil, Andean Area and Central America at the left axle; Southern Cone, Non-Latin Caribbean and Mexico in the right axle.

Source: SisLeish - PAHO/WHO - Data provided by the Ministries of Health - National Leishmaniasis Programs. Accessed on: October, 2019.

The graphic shows that, 2018 had the lowest number of new cases reported in the Region (46,041), which is justified by the reduction of cases in most countries, with an exception of Bolivia, Venezuela, El Salvador, Guatemala and Guyana, which had an increase of 37%, 12.3%, 13.6%, 34.7% and 28.5%, respectively.

Of the total cases in 2018, 84% were reported by Brazil (16,432), Colombia (6,362), Peru (6,321), Nicaragua (3,722), Bolivia (3,127) and Venezuela (2,612). The incidence rate of the Region was 18.91 cases per 100,000 population, which represents a 15% decrease compared to the previous year (22.51/100,000 inhabitants). Four countries had a significant reduction in the incidence rate compared to 2017: Ecuador, Costa Rica, Mexico and Nicaragua, with a decrease of 54%, 48%, 45% and 41%, respectively. Meanwhile, four countries had a large increase of the incidence rate: Guatemala (117%), Bolivia (85%), Paraguay (57%) and El Salvador (30%), **Table 1**.

Table 1. Number of CL/ML cases and incidence rate* in the Region, subregion and countries of the Americas, 2001-2018.

Year Location	2012		2013		2014		2015		2016		2017		2018	
	CL Cases	Incidence*	CL Cases	Incidence*	CL Cases	Incidence*	CL Cases	Incidence*	CL Cases	Incidence*	CL Cases	Incidence*	CL Cases	Incidence*
Americas	54508	22.46	49960	19.81	51098	19.33	46082	18.35	48915	21.71	49961	22.51	46041	18.91
Andean	22109	27.60	20828	23.71	22336	24.19	18723	21.64	23713	36.55	20636	22.58	19659	19.15
Bolivia	1767	34.84	2016	26.83	1683	32.98	2231	30.14	2222	32.20	2283	29.45	3127	54.71
Colombia	9757	36.43	9353	37.52	11586	42.72	7541	33.61	10966	52.93	7764	29.41	6362	26.17
Ecuador	1512	382.66	873	9.35	1175	11.16	1479	14.89	1197	10.12	1632	22.59	1237	10.26
Peru	6969	25.14	6948	26.31	6231	21.49	5459	22.98	7271	28.59	6631	24.89	6321	25.63
Venezuela	2104	10.45	1638	8.34	1661	8.06	2013	8.75	2057	8.87	2326	11.26	2612	10.32
Southern Cone	350	3.74	252	2.93	263	1.78	462	4.2	377	5.15	398	7.31	387	6.39
Argentina	173	3.80	90	1.35	139	1.33	336	3.57	241	4.94	306	10.27	303	6.55
Paraguay	177	3.69	162	8.33	124	2.86	126	7.93	136	5.59	92	3.73	84	5.88
Brazil	23547	18.08	18226	14.08	20418	15.14	19395	15.29	12690	13.00	17528	17.71	16432	15.82
Central America	7668	48.85	9501	51.30	7599	45.82	6650	35.97	11037	59.22	10404	48.86	8842	41.46
Costa Rica	1453	37.72	1950	50.08	2150	52.56	1171	29.98	1148	28.49	2224	51.68	1247	26.81
El Salvador	21	32.54	16	14.36	29	17.41	20	14.40	13	3.83	44	9.63	50	12.59
Guatemala	572	28.90	664	22.90	254	10.33	564	18.24	589	27.46	775	17.98	1044	39.17
Honduras	1927	46.45	2074	46.34	1936	47.44	2040	35.76	2666	43.91	1854	29.65	1636	31.22
Nicaragua	1884	64.97	3035	83.04	1649	62.05	1925	76.64	5423	197.20	4343	140.00	3722	82.14
Panama	1811	65.83	1762	50.57	1581	50.53	930	29.68	1198	36.29	1164	40.60	1143	29.76
Non-Latin Caribbean	267	112.93	183	331.65	64	0.00	373	56.14	651	49.33	153	75.48	145	58.53
Guyana	7	2.96	4	20.56	64	0.00	132	23.82	396	87.82	21	22.11	27	21.51
Suriname	260	727.74	179	501.02	0	0.00	241	218.48	255	267.90	132	121.08	118	137.09
Mexico	567	8.00	970	12.52	418	7.22	479	6.32	447	5.97	842	11.50	576	6.31

*Incidence rate: cases per 100,000 population.

Source: SisLeish - PAHO/WHO - Data provided by the Ministries of Health - National Leishmaniasis Programs . Accessed on: October, 2019.

In 2018, there was a 10.5% increase in the number of units of the first subnational administrative political level (departments, states, regions or provinces, according to the division of each country) and 5% of units of the second administrative level (municipalities, cantons, provinces, districts, etc.) of reported cases compared to the previous year, indicating a geographical expansion of the disease. While at the borders, the cases remained like in 2017, with a total of 20.6% (9,510) of the cases in 302 international border administrative units.

Figures 3 and 4 show the regional analysis of the CL/ML data, which are disaggregated at the second administrative level, according to the 2018 number of cases and incidence.

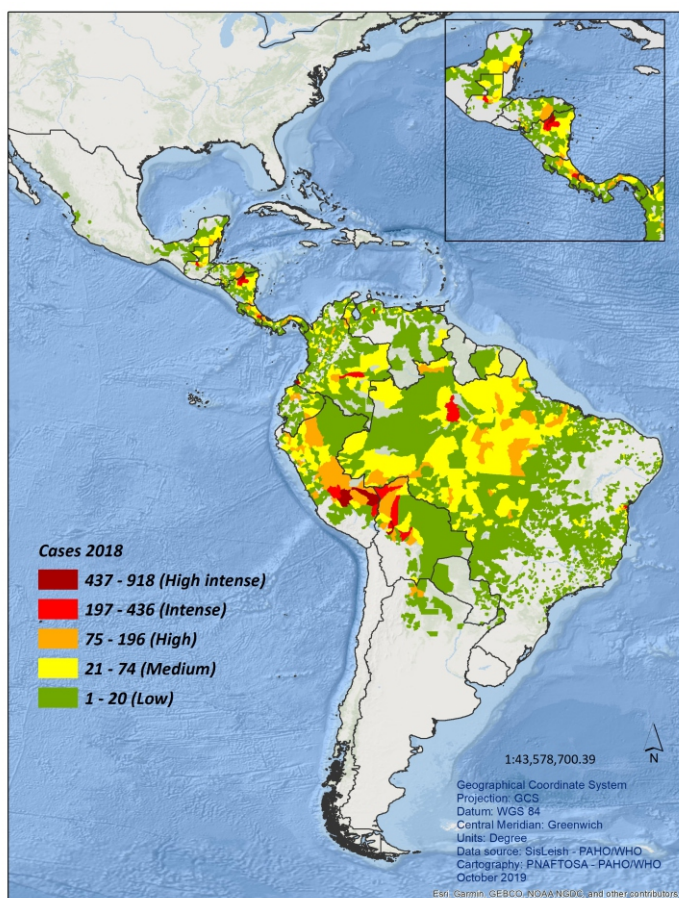


Figure 3. Number of cases of cutaneous/mucosal leishmaniasis by second administrative level, 2018, Americas.

Source: SisLeish - PAHO/WHO - Data provided by the Ministries of Health - National Leishmaniasis Programs. Accessed on: October, 2019.

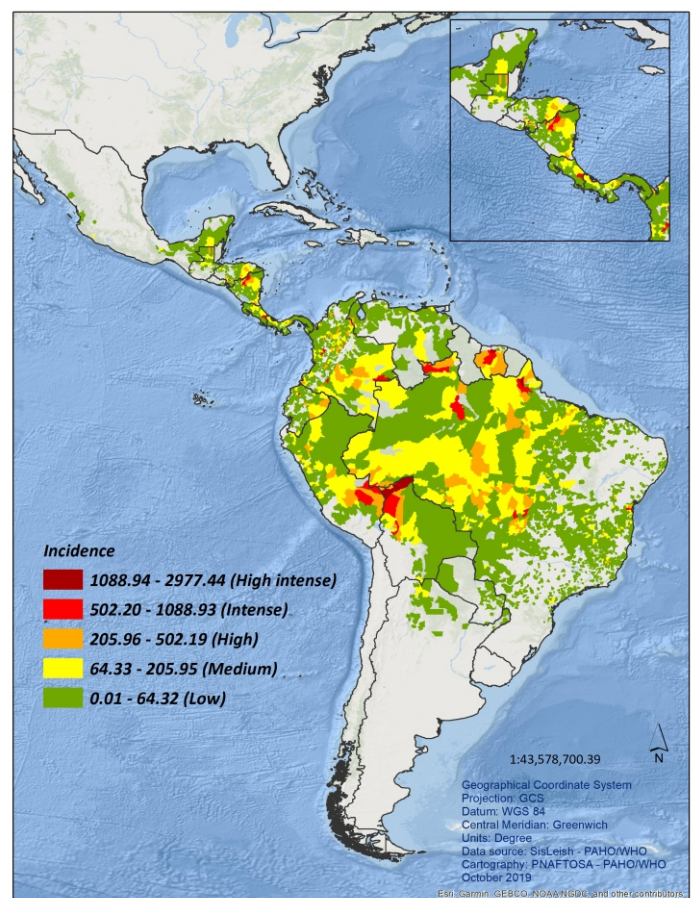


Figure 4. Cutaneous/mucosal leishmaniasis incidence per 100,000 population, by second administrative level, 2018, Americas.

Source: SisLeish - PAHO/WHO - Data provided by the Ministries of Health - National Leishmaniasis Programs . Accessed on: October, 2019.

Figure 5 presents the triennium composite indicator, which is used for the risk stratification based on data from the last 3 years (2016-2018), where in a decreasing order, La Convención, Tambopata (Perú); San Jose de Bocay, Cua, Waslala, Rancho Grande, Wiwili de Jinotega (Nicaragua); Sud Yunga (Bolivia); San Andres de Tumaco y Rovira (Colombia) are the 10 units of the second administrative levels with highest average of CL cases in 2016-2018, ranging from 348 to 711 cases.

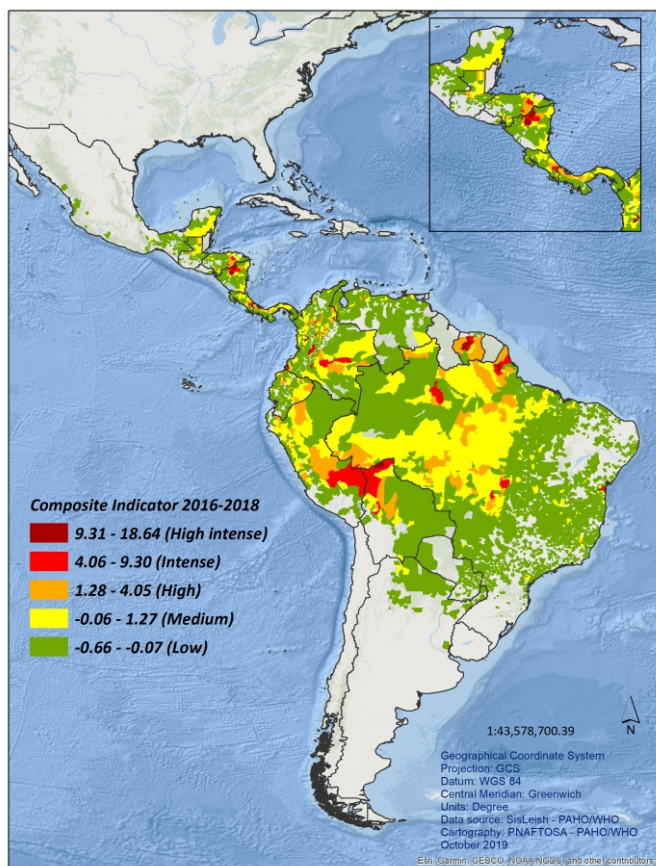


Figure 5. Composite indicator* stratified by risk of transmission at the second subnational administrative level, Americas, 2016-2018.**

Source: SisLeish - PAHO/WHO - Data provided by the Ministries of Health - National Leishmaniases Programs. Accessed on: October, 2019.

*TLCIc: Triennium Cutaneous leishmaniasis composite indicator, representing the average of cases and incidence (cases/100,000 pop.) of the 2016-2018.

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

Of the total cases reported to SisLeish, 99.7% (45,897) had the gender variable available, from which 70% (32,049) of the cases were in males, however, four countries presented more than 40% of the cases in women (Costa Rica, El Salvador, Honduras and Nicaragua).

For the age variable, 99.3% (45,726) of the reported cases were classified according to the age group, from which 12.7% (5,846) occurred in children under 10 years old, indicating an improvement of this indicator in several countries and in the Region, which in 2017 was 14.40%; 10 countries decreased the number of cases in this age group (Bolivia, Brazil, Colombia, Costa Rica, El Salvador, Guatemala,

Nicaragua, Panama, Peru and Suriname), however, countries with proportions above 10% are still observed (10-20%: Bolivia, Ecuador, Guatemala, Peru and Venezuela; 20-30%: Costa Rica, Honduras and Nicaragua;> 30%: El Salvador and Panama) (Figures 6 and 7).

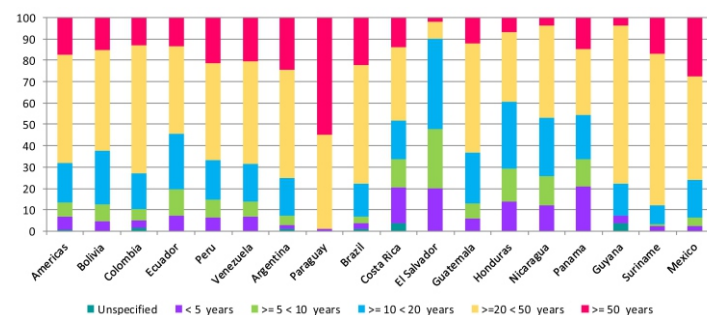


Figure 6. Proportion of CL and ML cases by age group, Americas, 2018.
Source: SisLeish - PAHO/WHO - Data provided by the Ministries of Health - National Leishmaniases Programs. Accessed on: October, 2019.

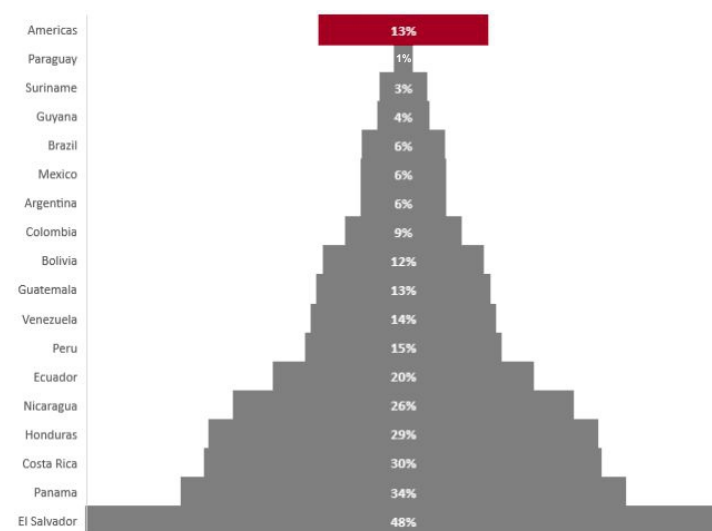


Figure 7. Proportion of cutaneous/mucosal leishmaniasis cases in children under 10 years old, Americas, 2018.

Source: SisLeish - PAHO/WHO - Data provided by the Ministries of Health - National Leishmaniases Programs. Accessed on: October, 2019.

It is important to highlight, unlike the sylvatic cycle, which is the most important one for cutaneous leishmaniasis, the atypical cutaneous leishmaniasis transmission cycle is domestic, where transmission occurs in the intra and/or peridomicile. For countries that have this clinical form, it is essential to differentiate the areas of transmission from ulcerated and non-ulcerated forms, carry out separate epidemiological analyzes and direct specific actions. Likewise, it is important to carry out systematic monitoring and epidemiological and entomological research of the transmission foci with a proportion of cases higher than 10% in children under 10 years and higher than 40% of cases in women, so that, through the characterization of the transmission, it is possible to indicate and implement in both situations, the possible prevention, surveillance and control measures, when indicated.

Regarding clinical form, 96.4% (44,383) of the cases had this variable available, indicating a slight decrease compared to 2017 (98.87%). Of the total, 4.22% (1,942) of the cases reported occurrence of the

mucosal/mucocutaneous (ML) form, representing an 11% increase in relation to 2017, nonetheless, the proportion of cases has remained stable in the region in the past few years (3.78% - 4.22%). Bolivia (428), Brazil (800) and Peru (417) are responsible for 84.1% of the cases of ML in the Americas. However, even though Paraguay presented a decrease in the total number of cases, it still presents the highest proportion of ML cases (61.9%). In 2018, 812 cases of atypical cutaneous leishmaniasis (ACL) were reported by Honduras (702), Nicaragua (60) and El Salvador (50). The clinical form of leishmaniasis remains unavailable in Suriname, while in Guyana there was an improvement of this information, which was available in 60% of the cases, as well as in Panama in 90%. On the other hand, Costa Rica, that in 2017 reported this information, in 2018 did not had it available in 100% of the cases, **Figure 8**.

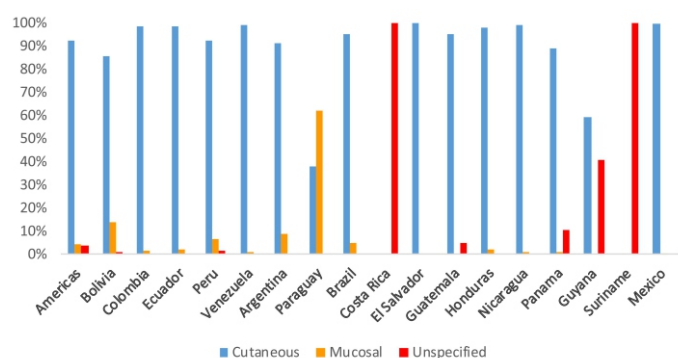


Figure 8. Proportion of cutaneous and mucosal leishmaniasis cases by clinical form and country, Americas, 2018.
Source: SisLeish - PAHO/WHO - Data provided by the Ministries of Health - National Leishmaniasis Programs . Accessed on: October, 2019.

According to the data available in the regional information system, for the diagnostic criteria, in 2018, 83.6% (38,511) cases were diagnosed by laboratory testing, 9.96% (4,587) by clinical and epidemiological criteria and in 6.39% (2,942) this information was not specified. In Costa Rica and Guatemala 100% of this information was not available, as in 21.2% of cases in Venezuela. (**Figure 9**).

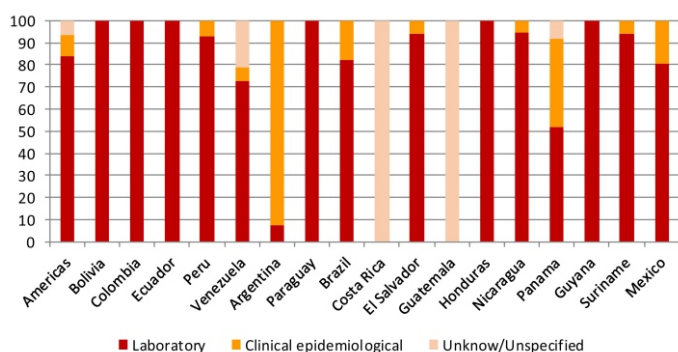


Figure 9. Proportion of cutaneous and mucosal leishmaniasis cases by diagnostic criteria and country, Americas, 2018.
Source: SisLeish - PAHO/WHO - Data provided by the Ministries of Health - National Leishmaniasis Programs . Accessed on: October, 2019.

In recent years, it is possible to observe an increase in the proportion of cases of coinfection of CL/ML and HIV, where in 2018 the highest number (278) of coinfecting people was registered, representing a 29% increase in the proportion when compared to 2017, **Figure 10**. A total of 7 countries registered cases of coinfection in 2018: Bolivia (7), Colombia (57), Peru (11), Brazil (168), Guyana (1), Nicaragua (1) and Mexico (2). This increase possibly represents an improvement in patient surveillance and assistance.

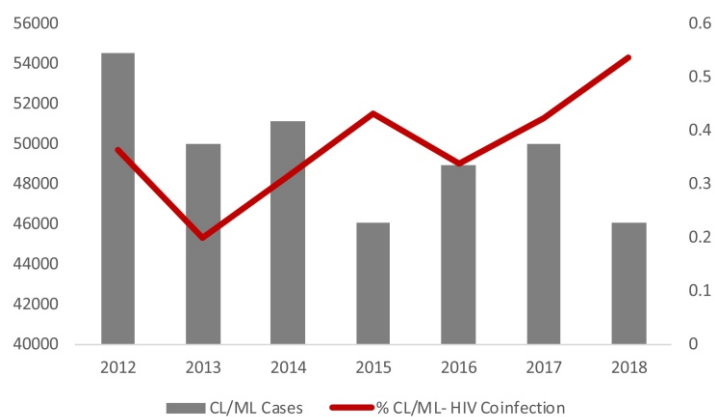


Figure 10. Cutaneous/mucosal leishmaniasis cases and proportion of HIV co-infection, Americas, 2018.
Source: SisLeish - PAHO/WHO - Data provided by the Ministries of Health - National Leishmaniasis Programs . Accessed on: October, 2019.

Regarding case progression, in 4 countries (Argentina, Colombia, Costa Rica and Panama), this information was not available. 65% (30,381) progressed to cure, representing an improvement in the reporting when compared to 2017 (49.10%). 89 patients died, where 11 were associated to CL/ML and 78 associated to other causes (**Figure 11**). Of the deaths caused by CL/ML, 81.8% were patients older than 50 years, which may be associated with possible complications caused by the use of the drug, and underlying diseases.

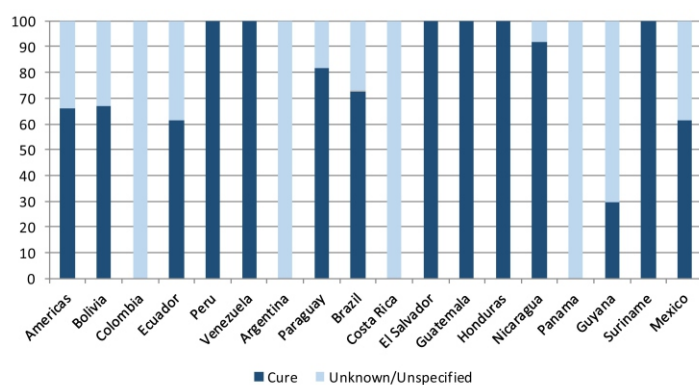


Figure 11. Proportion of cutaneous and mucosal leishmaniasis cases by clinical progression and country, Americas, 2018.
Source: SisLeish - PAHO/WHO - Data provided by the Ministries of Health - National Leishmaniasis Programs . Accessed on: October, 2019.

Visceral Leishmaniasis

Visceral leishmaniasis (VL) is the most severe form of leishmaniasis and it can be fatal in cases that are not diagnosed in a timely manner and/or treated properly. It is endemic in 12 countries of the Americas, where 63,331 new cases have been registered from 2001 to 2018, with an average of 3,518 cases per year, **Figure 12**. In 2018, of the total cases, 97% (3,466) were reported by Brazil, and the other cases by Argentina, Colombia, El Salvador, Guatemala, Honduras, Paraguay, Venezuela and Uruguay.

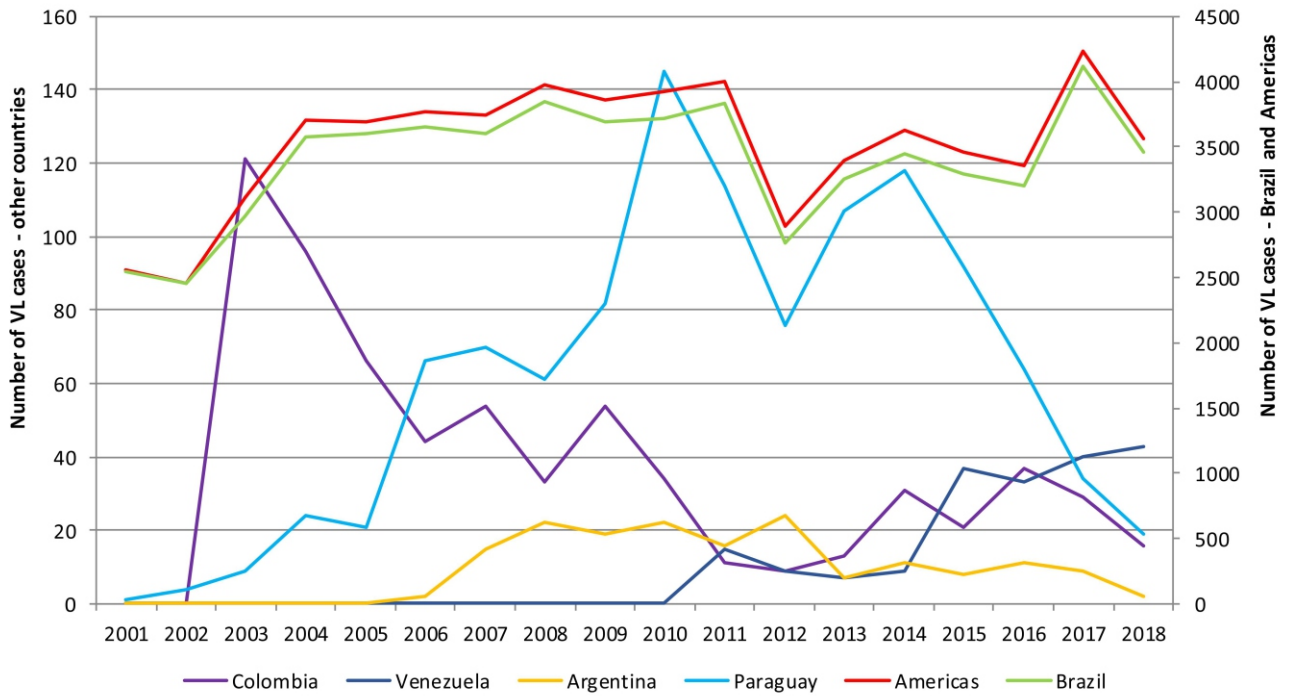


Figure 12. Visceral leishmaniasis cases in countries with the highest number of cases, Americas, 2001-2018.

Source: SisLeish - PAHO/WHO - Data provided by the Ministries of Health - National Leishmaniasis Programs . Accessed on: October, 2019.

According to the epidemiological scenarios, Colombia and Venezuela continue to have stable or controllable transmission, although it is possible to see an increase in cases in Venezuela since 2013. Argentina and Paraguay, despite the reduction in cases, VL continues to expand to areas previously without transmission. Central American countries currently classified as sporadic transmission, such as Honduras and Guatemala, continue with active transmission over the years with a tendency to increase in number of cases. In 2018, the first human case of VL in Uruguay was registered, changing the classification of the country to sporadic transmission, **Table 2**.

Table 2. Number of cases and incidence* of visceral leishmaniasis by countries, Americas, 2012-2018.

Year	2012		2013		2014		2015		2016		2017		2018	
	Cases	Incid.	Cases	Incid.	Cases	Incid.	Cases	Incid.	Cases	Incid.	Cases	Incid.	Cases	Incid.
Américas	2892	4.26	3396	4.2	3624	5.06	3448	3.86	3354	4.44	4239	5.23	3562	4.80
Colombia	9	2.34	13	2.65	31	3.3	21	7.04	37	3.54	29	3.44	16	2.65
Venezuela	9	1.28	7	0.58	9	1.55	37	1.24	33	1.03	40	1.33	43	1.64
El Salvador	-	-	1	2.74	-	-	-	-	-	-	2	4.4	3	1.16
Guatemala	-	-	1	2.58	-	-	2	1.89	2	2.2	2	5.63	4	2.64
Honduras	-	-	3	1.21	2	3.12	6	2.4	7	2.25	8	2.48	8	8.35
Brazil	2770	4.54	3253	4.35	3453	5.21	3289	4.09	3200	4.88	4114	5.23	3466	5.05
Argentina	24	1.13	7	0.61	11	1.75	-	0.89	11	0.72	9	1.07	2	0.49
Paraguay	76	2.47	107	3.85	118	4.06	92	3.01	64	2.42	34	2.1	19	1.47
Uruguay	-	-	-	-	-	-	-	-	-	-	-	-	1	0.75
Mexico	4	0.57	4	0.59	-	-	1	4.28	-	-	1	5.36	0	0

*Incidence rate = number of cases per 100,000 population of transmission areas.

Source: SisLeish - PAHO/WHO - Data provided by the Ministries of Health - National Leishmaniasis Programs
Accessed on: October, 2019.

In 2018, 3,562 new VL cases were registered, demonstrating a decrease of about 16% of the cases reported in the Americas, compared to 2017. The reduction occurred in Brazil, Colombia, Argentina and Paraguay, while El Salvador, Guatemala and Venezuela presented an increase of VL cases. The cases were registered in 9 countries, distributed in 48 units of the first subnational administrative level and 974 units of the second level, **Table 2** and **Figure 13**.

The VL incidence rate in the Americas was 4.8 and 0.62 cases per 100,000 inhabitants, considering the population of transmission areas and total population of countries with occurrence of VL cases, respectively. All countries presented a reduction in the incidence rate, with an exception of Honduras, which had a large increase compared to the previous year, **Table 2** and **Figure 14**.

Figure 15 shows the VL risk stratification in the Americas at the second sub-national administrative level, according to the 2016-2018 triennium composite Indicator. During this period, VL occurred in 1,604 municipalities, being that a total of 7 units of the second administrative level were classified as very intense transmission, 29 as intense, 122 as high, 307 as moderate and 1,139 as low transmission. Of the 158 units classified as very intense, intense and high transmission, only one is from Colombia and the remaining from Brazil. Of the 307 units classified as moderate transmission four were from Venezuela, Paraguay, Colombia and Honduras and the others from Brazil.

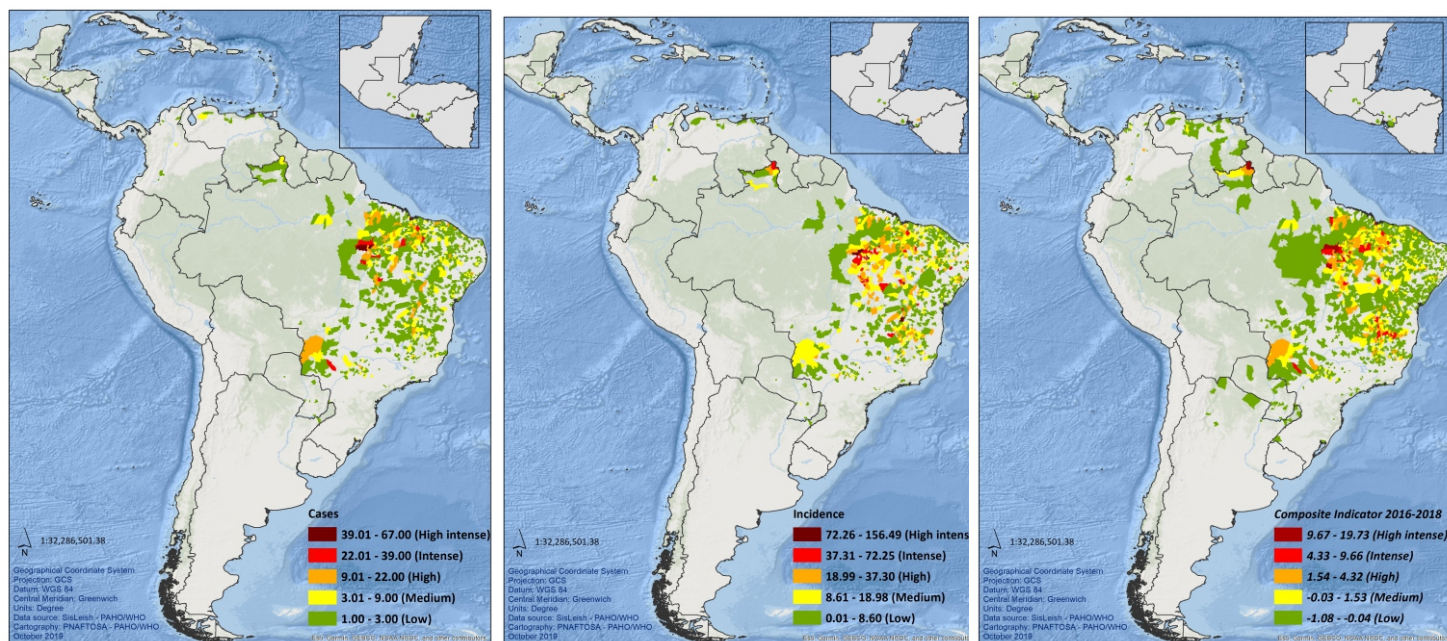


Figure 13. Visceral Leishmaniasis cases by second administrative level, Americas, 2018.

Figure 14. Incidence* of visceral leishmaniasis by second administrative level, Americas, 2018. *Incidence per 100,000 population

Figure 15. Visceral leishmaniasis composite indicator* stratified by risk of transmission at the second subnational administrative level, Americas, 2016-2018.**

*TLCLV: Triennium Visceral leishmaniasis composite indicator, representing the average of cases and incidence (cases/100,000 pop.) of the 2016-2018.

Source: SisLeish - PAHO/WHO - Data provided by the Ministries of Health - National Leishmaniasis Programs. Accessed on: October, 2019.

In all the reported cases, the variables sex and age group were available, where 67% (2,385) were male and the most affected group were those under 5 years (31.86%), followed by $\geq 20 < 50$ years (31.44%) and over 50 years (16.79%). In 2018, 100% of cases in Honduras, Guatemala and Uruguay occurred in children under 5 years, followed by Colombia (75%), Venezuela (74.4%), El Salvador (66.7%), Argentina (50%), Brazil (31%) and Paraguay (21%), **Figure 16**.

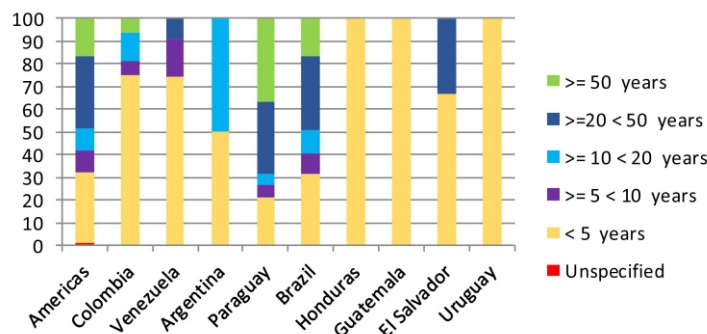


Figure 16. Proportion of visceral leishmaniasis cases by age group and country, Americas, 2018.

Source: SisLeish - PAHO/WHO - Data provided by the Ministries of Health - National Leishmaniasis Programs. Accessed on: October, 2019.

presented the highest proportion of VL-HIV coinfection, with 21% of the cases.

Regarding the confirmation criteria, 99.5% of the cases presented this variable, where 87.7% (3,123) were diagnosed by laboratory testing and 11.9% by clinical-epidemiological criteria, remaining like in 2017. 70.4% of the cases progressed to cure, 8% died from the disease, 2.7% from other causes and in 18.9% of the cases this information was not available in 100% of cases in Colombia and 18.9% in Brazil, **Figure 17**.

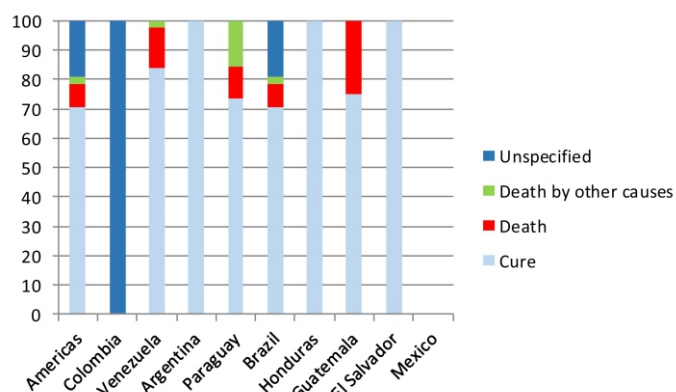


Figura 17. Proportion of visceral leishmaniasis cases by disease progression, Americas, 2018.

Source: SisLeish - PAHO/WHO - Data provided by the Ministries of Health - National Leishmaniases Programs. Accessed on: October, 2019.

The fatality rate in the Americas was 8%, representing an increase of 6% compared to 2017, being the highest fatality registered in the Region since 2012, **Figure 18**.

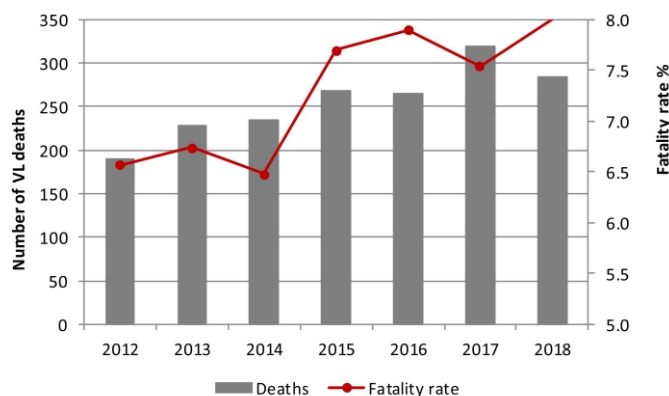


Figura 18. Number of deaths and fatality rate, visceral leishmaniasis, Americas, 2012 -2018.

Source: SisLeish - PAHO/WHO - Data provided by the Ministries of Health - National Leishmaniases Programs. Accessed on: October, 2019.

Figure 19 shows the cases that died from VL according to age group and sex, highlighting that for those under 20 years old, gender is similar, while, over 20 years old, despite an apparent difference in males, that difference is not statistically significant.

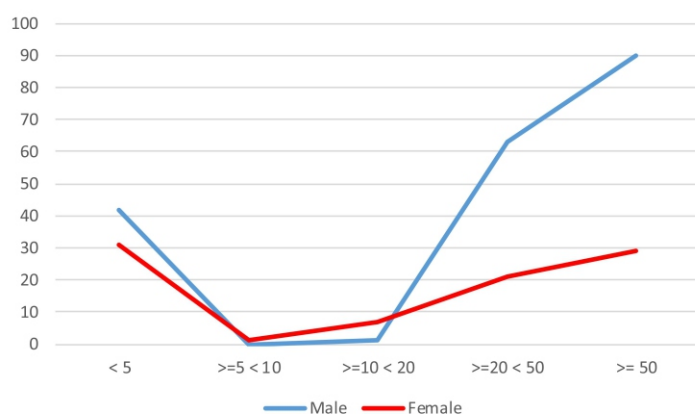


Figure 19. Visceral leishmaniasis deaths by age group and gender, Americas, 2018.

Source: SisLeish - PAHO/WHO - Data provided by the Ministries of Health - National Leishmaniases Programs. Accessed on: October, 2019.

Figure 20 presents the distribution of cases of visceral and cutaneous leishmaniasis, by month of occurrence, however, Argentina, Costa Rica, Honduras and Nicaragua did not report these data in SisLeish, despite this, there was an improvement of this information when compared to 2017. The two clinical forms of leishmaniasis occurred throughout the year, with a peak in the first months of the year and a gradual decrease over the next months.

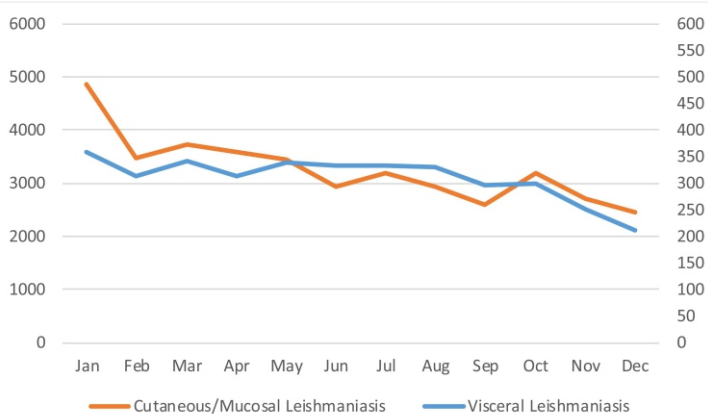


Figure 20. VL and CL case distribution according to the month of occurrence, Americas, 2018.

Source: SisLeish - PAHO/WHO - Data provided by the Ministries of Health - National Leishmaniases Programs. Accessed on: October, 2019.

Final considerations

The opportunity and quality of the information reported in the regional information system of leishmaniases in the Americas have improved in recent years, however, there is still the need of some countries commitment of moving forward with the inclusion of data regarding assistance, species of parasites and vectors, as well as with the reduction of the percentage of cases with unknown information.

The historical series presented shows a decrease tendency of CL cases in the Region. However, in some countries, for example, in Guatemala and Bolivia, there was an increase in cases, due to better organization of services for diagnosis and treatment.

The proportion of CL cases in children under 10 years, one of the goals of the Leishmaniasis Plan of Action, continues to reduce since 2016, and in 2018 ten countries contributed to this decrease. Another indicator that continues with a progressive improvement is the proportion of cases that were cured, where it went from 40.8% in 2016 to 65% in 2018, however, in some countries such as Colombia, Argentina, Costa Rica and Panama, this information is unavailable in 100% of cases.

Of the 89 deaths in CL/ML patients reported in SisLeish, 78 were registered as deaths by other causes unrelated to leishmaniasis, however, it is striking that 79.4% (62) occurred in people over 50 years old that generally present comorbidities. Considering the possible complications that can be caused by the use of antileishmanial drugs, mainly in this age group, it is suggested that all CL/ML deaths be investigated and analyzed.

In 2018, the VL cases decreased 16%, returning to the number of annual records reported in the Region starting from 2013. Despite the reduction in cases, the disease continues to expand geographically, mainly in the countries of the Southern Cone, especially in Uruguay, which recorded its first human case in late 2018. In addition, there is an expansion in Honduras and El Salvador, where detailed epidemiological and entomological research is required to better characterize these transmission areas.

A 12% reduction in the proportion of VL-HIV coinfection was observed, however, Paraguay is still the country with the highest proportion of coinfecting patients (21%). The VL fatality in the Americas remains a great challenge and despite the incorporation of new diagnostic tools and inclusion of safer medications, the fatality rate in 2018 was 8%, reaching its highest rate.

A study conducted with 1,589 VL deaths reported in the Brazilian National Notification System from 2007 to 2014 shows that the median time between the onset of symptoms and the date of notification (tStoN) for VL cases is 25 days. In terms of survival time, the median time between case notification and death (tNotD) is 9 days. In fact, for younger than 5 years old patients, the median tStoN is 17 days (IQR 8-31) and the median tNotD is 6 days (IQR 2-13). This time is 1.4 times faster in individuals who are not infected with HIV than in people who are infected with HIV, (Maia-Elkhoury et al, in press 2019). These data reinforce the findings of Belo et al. 2014 and show the importance of the Ministries of Health in defining a joint strategy between the areas of surveillance and health services for a better management of visceral leishmaniasis cases, both for specific treatment of the disease as a support, with the purpose of avoiding complications caused by bacterial infections and bleeding, main risk factors for deaths in patients with VL.

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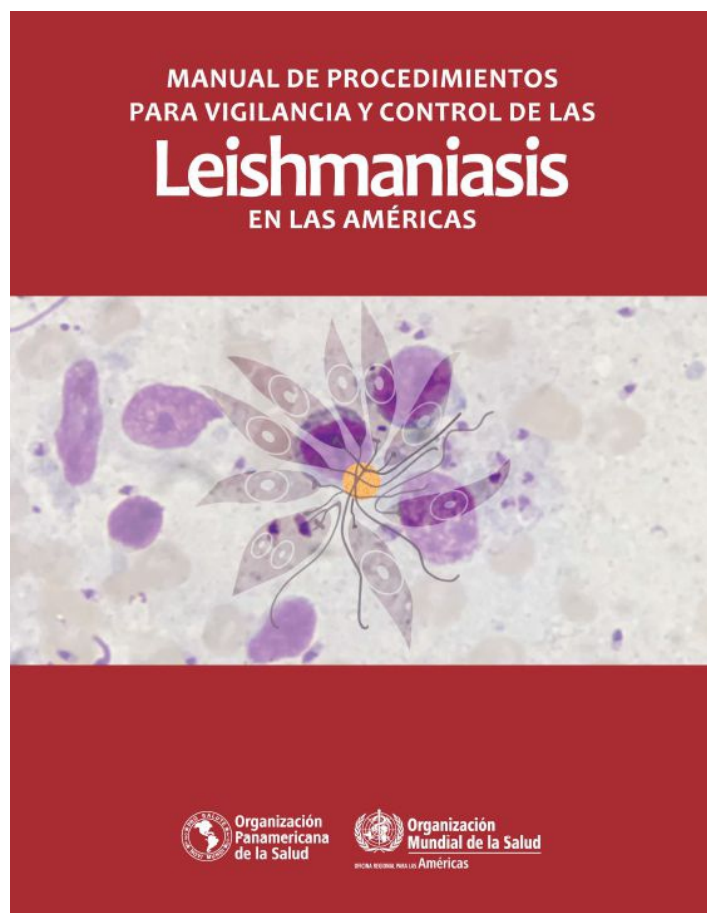
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«It aims to expand knowledge regarding the disease and construct a working tool for use by health professionals that have to deal with the disease. It also aims to support National Leishmaniasis Control Programs and Surveillance Areas in their respective processes to structure health services and, optimize and guide actions to fight leishmaniasis»

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