## Situation summary

Between 2005 and 2014, there was an overall decreasing trend in the number of cases of malaria in the Region of the Americas; however, since 2015, there has been an increase in the number of malaria cases reported in the Region. This overall increase is due to the increase in cases over the last three years in the Bolivarian Republic of Venezuela along with increased transmission in endemic areas of countries such as Brazil, Colombia, Guyana, Nicaragua, and Panama, as well as outbreaks in countries that were moving towards elimination (Costa Rica, the Dominican Republic, and Ecuador) (**Figure 1**).

Despite this, in 2018, Guatemala and Honduras reported a significant decrease in malaria cases compared to the prior year, which has continued as of November 2019. El Salvador has not reported an autochthonous case in almost three years, while Paraguay and Argentina were certified by the Pan American Health Organization/ World Health Organization (PAHO/WHO) as malaria-free countries in July 2018 and May 2019, respectively.

Figure 1. Number of malaria cases and deaths in the Americas, 2008-2018.
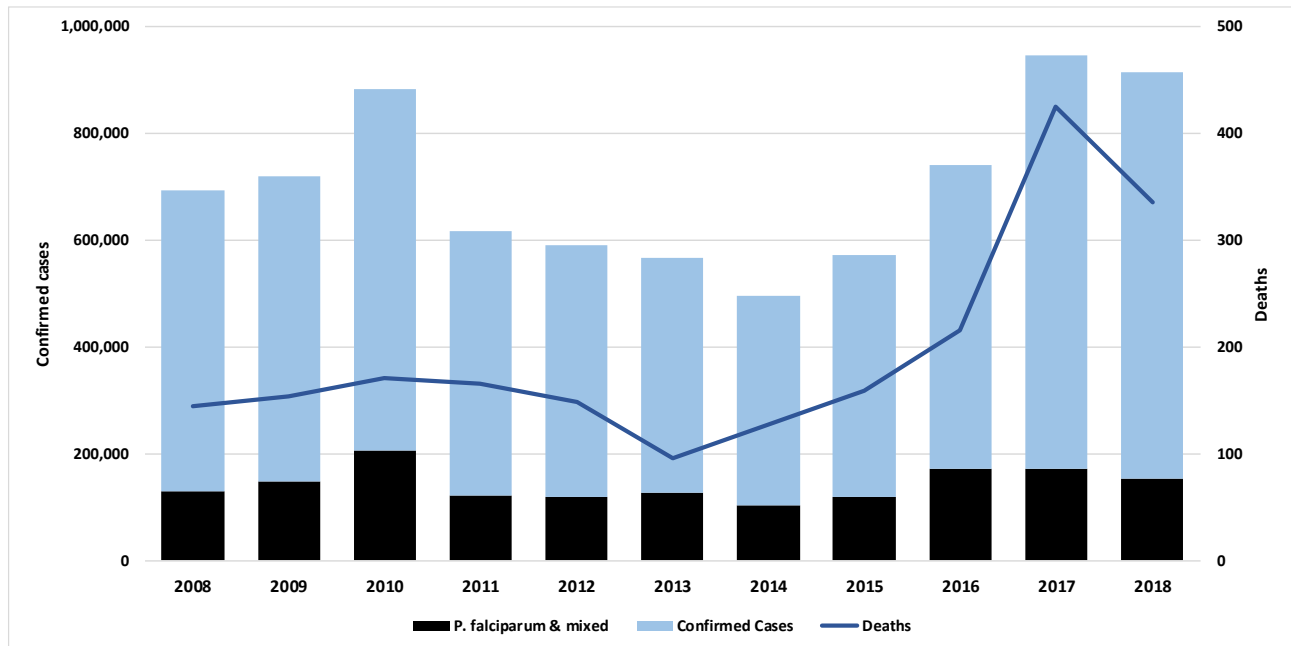
Source: Annual Malaria Country Reports to PAHO/WHO

In 2019, some countries have reported increases in malaria cases while other reported decreases. The following is a summary of the situation in countries of the Region of the Americas.

In **Bolivia**, after 3 consecutive years of no reported cases of malaria due to *Plasmodium falciparum (P. falciparum)*, an outbreak due to this species has been reported in 2019 following an imported case from Brazil. Secondary cases were reported in the localities of Guayaramerín and the Sena, belonging to the departments of Beni and Pando, respectively, with a total of 12 cases. Bolivia is implementing the necessary containment measures to prevent the re-establishment of transmission by this species in the country.

In **Brazil**, the Amazon region[1] is characterized by high endemicity of malaria, accounting for nearly 99% of the cases reported nationally. In this region, there was a 24% overall decrease in the number of cases reported during the first semester of 2019 (71,549 cases) compared to the first semester of 2018 (93,995 cases), notwithstanding an increase in cases in the states of Amapá, Mato Grosso, and Rondônia. Between January and June 2018, the states that reported the highest numbers of autochthonous cases were Amazonas (36,776 cases), Pará (21,535 cases), and Acre (15,245 cases), representing 41%, 24%, and 17% of all autochthonous cases reported in Brazil, respectively. During the same period in 2019, the states that reported the highest proportions/numbers of autochthonous cases were Amazonas (43%; 29,556 cases), Pará (22%; 15,317 cases), and Roraima (13%; 9,137 cases).

Of the 2,119 imported cases reported in the first half of 2019, 65% (1,370 cases) were from Venezuela.

In **Colombia**, since epidemiological week (EW) 1 and EW 42 of 2019 an outbreak has been occurring. there were 66,581 malaria cases reported, representing a 28.2% increase compared to the same period in 2018 (51,935 cases). Of the total cases, 65,480 were classified as uncomplicated malaria and 1,101 as complicated malaria. *P. falciparum* infection predominates, accounting for 50.9% (33,894 cases) of cases, followed by *Plasmodium vivax* (*P. vivax)* with 48% (31,931 cases) of cases and mixed infection with 1.1% (755 cases) of cases; one case was due to *P. malariae*.

In 2019, 74.3% of cases have been reported by the departments of Chocó (33%), Nariño (20.1%), Córdoba (12%), and Antioquia (9.2%). The departments of Chocó, Nariño, Córdoba, Norte de Santander, Meta, and Cauca have had outbreaks in 2019.

Of the 1,967 imported cases reported in 2019, 96% (1,885 cases) were from Venezuela.

In **Costa Rica**, between EW 1 and EW 41 of 2019, 91 cases of malaria were reported, of which 37 were imported. In 2018, 108 cases were reported, of which 38 were imported. There is a local vulnerability to imported cases from neighboring countries and increased case searches being carried out in geographical difficult to access areas. Two districts in San Carlos Canton, Alajuela Province (bordering Nicaragua)—Cutris (18 imported cases) and Pocosol (2 imported cases)—account for 54% of the imported cases reported in 2019.

In the **Dominican Republic**, between EW 1 and EW 40 of 2019, 618 confirmed cases of malaria were reported, representing a 58% increase compared to the same period in 2018 (393 cases). Malaria transmission continues to be concentrated as part of 2 outbreaks in La Ciénega and Los

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[1] Consists of the states of: Acre, Amapá, Amazonas, Maranhão, Pará, Mato Grosso, Rondônia, Roraima, and Tocantins.

Tres Brazos, which includes municipalities in the Santo Domingo and San Cristóbal provinces and some neighborhoods in the National District. All autochthonous cases are due to *P. falciparum*, and 10 of the 16 imported cases (63%) have been due to *P. vivax*. Most of the imported cases were from Guyana. Furthermore, there have been 2 deaths reported in the La Ciénaga outbreak and one death reported in the Los Tres Brazos outbreak.

In **Ecuador**, between EW 1 and EW 41 of 2019, there were 1,540 cases of malaria reported while in 2018, there were 1,718 cases reported. In 2019, the provinces of Morona Santiago (717 cases; 3.8 cases per 100,000 population), Pastaza (582 cases; 5.4 cases per 100,000 population), and Orellana (276 cases; 1.8 cases per 100,000 population) account for 84% of the total cases reported in 2019. Of the total reported cases, 31 are among pregnant women.

Guatemala has reported a decreasing trend in malaria cases in 2019, with 963 cases reported as of EW 43 of 2019, representing a 38% decrease compared to the same period in 2018.

In **Guyana**, the number of cases reported in 2019 nationally as of EW 39 of 2019 represents a slight increase (1%) compared with the same period in 2018. In contrast, Regions 7 and 8 reported increases of 51% and 23 %, respectively.

In 2019, **Haiti** has reported a 27% decrease in cases reported until September 2019 (4,603 cases) compared to the same period in 2018 (6,285 cases).

In **Honduras** is experiencing a downward trend in malaria cases, with 253 cases reported in 2019 as of EW 35 of 2019, representing 45% fewer cases than in 2018 during the same period.

In **Nicaragua**, in 2019 as of EW 41 of 2019 there were 9,358 cases reported, representing a 15% decrease compared to the same period in 2018 (10,988 cases). This is mainly due to the decrease in cases reported in Puerto Cabezas since mid-2019.

In **Panama**, outbreaks have been reported in four endemic regions: Guna Yala, East Panama, Ngãbe Buglé, and Darién. Between EW 1 and EW 42 of 2019, there were 1,386 cases reported (32.9 cases per 100,000 population), representing an increase of 140% compared to the same period in 2018 with 378 cases (13.9 cases per 100,000 population).

In **Peru**, there has been a decrease in cases of malaria in 2019, with 56% fewer reported as of EW 40 compared to the same period in 2018. The districts with the most notable decrease in cases are Napo (77%), Punchana (72%), San Juan Bautista (71%), and Andoas (41%). However, in 2019, an outbreak of 34 cases of malaria due to *P. vivax* was reported in Tumbes Department, in the northern part of the country, which included 22 autochthonous cases and 12 cases imported from Venezuela; this outbreak highlights the risk of re-introduction of malaria in a historically endemic area where transmission had been interrupted in recent years.

In **Suriname**, there were 113 malaria cases reported in 2019 as of EW 44 of 2019, including 35 autochthonous cases, compared to 197 cases, including 26 autochthonous cases, reported during the same period in 2018.

In **Venezuela**, between EW 1 and EW 41 of 2019, a total of 323,392 malaria cases were reported, representing a slight decrease (1.5%) compared to the same period in 2018 (328,373 cases). In contrast, in 2017, there were 321,358 cases reported during the same period (**Figure 2**).

Figure 2. Distribution of reported malaria cases by epidemiological week. Venezuela. EW 1 - EW 41 of 2019.
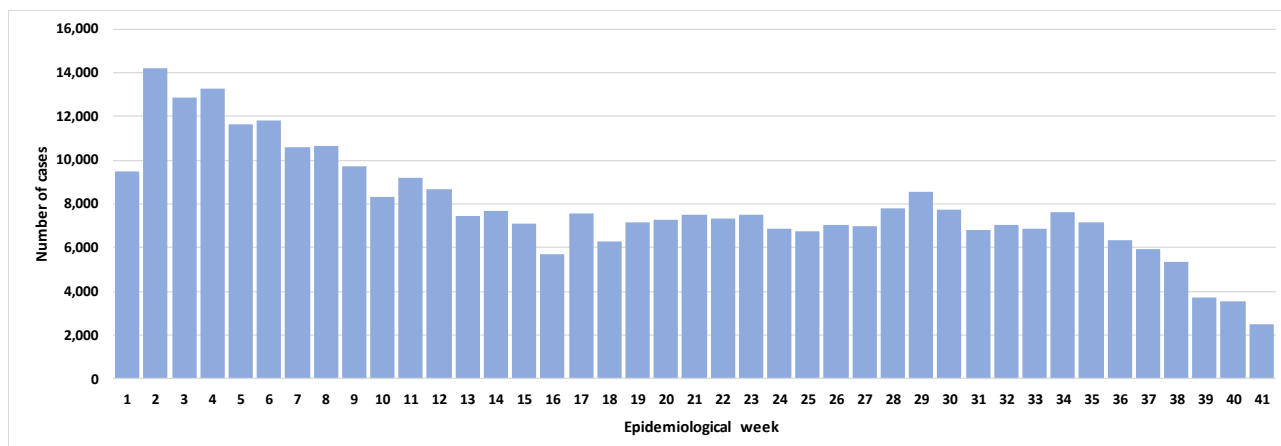
Source: Data from the Venezuela Ministry of People's Power for Health and reproduced by PAHO/WHO.

In 2018, the states of Amazonas, Bolívar, and Sucre reported the highest number of cases (90% of the national total). Between EW 1 and EW 41 of 2019, the states of Bolívar and Amazonas reported a decrease of 2.5% and 24% in cases, respectively, compared to the same period of 2018, while, in Sucre, an increase of 3.4% was observed with 55,342 reported cases. Other states that have also reported an increase in transmission are Anzoátegui (54.3%), Delta Amacuro (64.2%), Mérida (89.7%), and Monagas (40.5%).

With respect to the number of deaths caused by malaria, a decrease has been observed; as of EW 41, 100 deaths have been reported in 2019 compared to 229 reported during the same period in 2018, which represents a 55.7% decrease in the case-fatality rate. The number of pregnant women with malaria has increased by 55% at the national level, with cases reported in almost every state.

Belize and **El Salvador** have not reported any autochthonous cases of malaria in 2019.

Recommendations

At the beginning of 2017 and 2018, the Pan American Health Organization / World Health Organization (PAHO / WHO) had alerted about the risk of outbreaks of malaria, increased cases and deaths in endemic areas, as well as possible re-establishment of the disease in areas where transmission has been interrupted.

Although the Member States made efforts in response to PAHO/WHO's alert, the increase in cases during 2018 indicates the persistence of the constraints and gaps in the response. On the other hand, the reduction of cases in some countries during 2019 highlights the importance of the actions that countries have undertaken. For this reason, PAHO/WHO urges the strengthening of actions for surveillance and control of malaria, especially measures related to the early detection of cases, timely diagnosis, and the immediate initiation of treatment.[2]

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[2] The T3 initiative against malaria. Available at: http://www.who.int/malaria/areas/test_treat_track/en/

PAHO / WHO recommends that in endemic areas, healthcare services intensify surveillance by improving coverage of case diagnosis in health centers and providing diagnosis and complete treatment with antimalarials closer to the communities at-risk. In endemic areas with active transmission, periodic analysis of the data should allow the identification of clusters of cases and populations at-risk to direct active case detection and improve the timeliness of diagnosis and treatment.

In areas with low transmission, the occurrence of new cases should trigger investigation of each case, in order to determine its status as imported, introduced, or indigenous. It is essential that the investigation be carried out within a few days of detection to guide the response that must be directed to the interruption or prevention of the re-establishment of transmission. In this scenario, the reactive case detections, which refers case detection in people related to the diagnosed case or the cluster of cases, is an essential measure of the response.

PAHO/WHO urges Member States to ensure the quality of parasitological diagnosis and prevent the shortage of medicines. Antimalarial supply chain and case management policies should contemplate the permanent availability of medicines and training of personnel for the treatment of malaria (including severe cases).

The countries of Central America, Hispaniola, or malaria-free Caribbean territories should consider the risk of importation of chloroquine resistant *P. falciparum* strains from endemic areas in South America and other continents.

Vector control interventions should complement case detection and management strategies. Indoor residual spraying (IRS) and the mass distribution of long-lasting insecticide-treated nets (LLINs) are key interventions in the control of malaria vectors. Measures that mainly affect mosquito survival (IRS and LLINs) have a greater impact on the interruption of transmission than those actions that seek to reduce vector density,[3] such as larval control and spatial application of insecticides. Malaria larval control is effective in situations where mosquito breeding sites are few, fixed and findable, and where the density of the human population is sufficient to justify the resources that are necessary for this intervention.[4] Spatial applications of insecticides are not currently recommended because of their limited effect on malaria control.[5]

Malaria control in active foci and the prevention of the spread of the disease require proactive surveillance of the determinants and social phenomena that propagate transmission (movement of people related to economic activities, agricultural farms or mining). It also requires the mobilization of other actors in interventions adapted to the context of the affected populations.

PAHO/WHO urges national malaria programs and the agencies in the Ministries of Health to coordinate the health care and surveillance of at-risk communities and address the barriers at local levels may be leading to delays in the detection, treatment, and follow-up of cases. Reducing the burden of disease and the risk of transmission at the national level depends upon malaria control in principal foci.

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[3] WHO Decision making criteria and procedures for judicious use of insecticides. Available at: http://apps.who.int/iris/bitstream/10665/67365/1/WHO_CDS_WHOPES_2002.5_Rev.1.pdf
[4] WHO 2013. Larval source management: a supplementary measure for malaria vector control: an operational manual. Available at: http://apps.who.int/iris/bitstream/10665/85379/1/9789241505604_eng.pdf
[5] WHO 2012. Global Plan for Insecticides resistance management in malaria vectors. Available at: http://apps.who.int/iris/bitstream/10665/44846/1/9789241564472_eng.pdf

PAHO/WHO emphasizes the need for Member States to continue efforts to achieve the goals of the *Plan of Action for the Elimination of Malaria 2016-2020* related to the interruption of local transmission and reduction of case incidence and associated mortality.

Sources of information

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2. **Bolivia** International Health Regulations (IHR) National Focal Point (NFP) report to PAHO/WHO received by email.

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8. **El Salvador** International Health Regulations (IHR) National Focal Point (NFP) report to PAHO/WHO received by email.

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10. **Guyana** International Health Regulations (IHR) National Focal Point (NFP) report to PAHO/WHO received by email.

11. **Haiti** International Health Regulations (IHR) National Focal Point (NFP) report to PAHO/WHO received by email.

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