

Epidemiological Alert

Increase in cases of malaria

15 February 2017

In 2016, malaria transmission increased significantly in endemic municipalities of some countries of the Region of the Americas, and there was an increase in cases of malaria by *Plasmodium falciparum* in some endemic foci.

The Pan American Health Organization, Regional Office of the World Health Organization (PAHO / WHO) warns Member States of the Region of the Americas on the risk of the occurrence of outbreaks, increased transmission of malaria in endemic areas, and the possible reintroduction of malaria into areas where transmission had been interrupted. PAHO / WHO urges Member States to strengthen surveillance and control activities, in particular to continue those efforts aimed at addressing barriers at local levels that cause delays or failures of detection, treatment, and follow-up of cases.

Situation summary

In 2015, a total of 451,242 malaria cases were reported in the Region of the Americas, representing a 62% decrease in comparison with cases reported in 2000, but representing a 16% increase compared to the cases reported in 2014, the year with the lowest number of malaria cases in the last four decades. In 2015, eight of the 21 endemic countries (the Bolivarian Republic of Venezuela, Colombia, the Dominican Republic, Ecuador, Guatemala, Honduras, Nicaragua, and Peru) reported an increase in cases compared to the previous year.

In 2016, the increasing trend of malaria cases continued in some countries. Colombia, Ecuador, and Venezuela reported an increase in malaria cases and an increase in the proportion of cases of *Plasmodium falciparum* in comparison to those caused by *Plasmodium vivax*. In addition, Honduras and Peru reported an increase in the proportion of *P. falciparum* malaria cases, in relation to those caused by *Plasmodium vivax*, in the country's main transmission areas.

Although the prevalence of *P. falciparum* in some countries is influenced by the racial composition of the affected areas; the increase in the proportion of *P. falciparum* in areas may be indicative of the deterioration of response capacity, both in the provision of treatment and in the implementation of vector control measures. Moreover, the increase in cases by *P. falciparum* indicates an increased risk of malaria complications.

Reports of malaria cases in Costa Rica and Cuba in epidemiological week (EW) 48 of 2016 and EW 2 of 2017, respectively highlight the risk of introduction and the importance of maintaining functional early warning and response systems at local levels.

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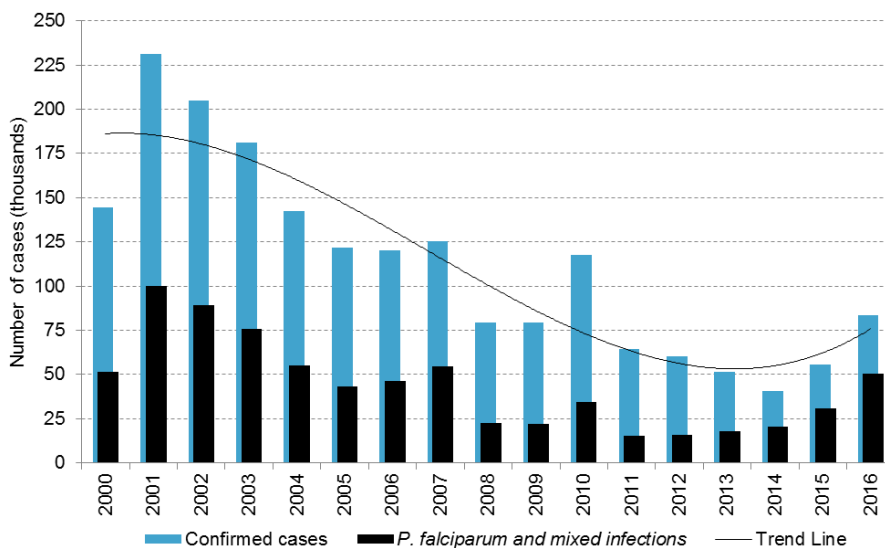
The increase in malaria transmission in some countries of the Region may be related to environmental phenomena that have historically determined a cyclical occurrence of malaria in the Americas. However, in 2015 and 2016, social and economic factors, such as mining and increased migration flow in areas with favorable ecosystems for the transmission of malaria have contributed to the transmission of the disease in the Region. The weakening of malaria diagnosis networks in some countries is another critical factor in the malaria trend of the last two years.

The risk of introduction of malaria cases by *P. falciparum* and the dissemination of strains of this species of *plasmodium* with different profiles of antimalarial resistance is affected by population movements within and between countries. In this regard, special attention should be given to the risk of introduction of *P. falciparum* strains from South America into areas with favorable ecosystems in Central American and Caribbean countries.

The following is a summary of the malaria situation in select countries.

In **Colombia**,¹ between EW 1 and EW 52 of 2016, a total of 83,356 malaria cases were reported, of which 57% (47,497) were *P. falciparum*, 39.7% (33,055) were *P. vivax*, and 3.3% (2,804) were mixed infections. While in 2013 most of the cases were caused by *P. vivax* (66%, n = 33,345), this proportion started changing in 2014 and, currently, the largest proportion of cases corresponds to *P. falciparum*. In addition, the number of *P. falciparum* malaria cases and mixed infections (49,533) reported in 2016 was higher than the number reported in the last five years (**Figure 1**). Of the total *P. falciparum* and mixed infection malaria cases reported in 2016, 94% (46,652) were reported in five territorial entities: Choco (62%), Nariño (21%), Antioquia (5%), Buenaventura, and Cauca (3%).

Figure 1. Malaria cases reported in Colombia, 2000-2016



Source: The 2000-2014 data was retrieved from the PAHO/WHO Report on the Situation of Malaria in the Americas 2014. 2015 data was obtained from the WHO 2016 World Malaria Report. 2016 data was published by the Colombia National Institute of Health (Weekly Epidemiological Bulletin EW 52 of 2016)¹

¹ National Institute of Health. Weekly Epidemiological Bulletin. EW 52 of 2016. Available at: <http://www.ins.gov.co/boletin-epidemiologico/Boletin%20Epidemiologico/2016%20Bolet%C3%ADn%20epidemiol%C3%B3gico%20semana%2052%20-.pdf>

In EW 48, the **Costa Rica** International Health Regulations (IHR) National Focal Point (NFP) notified PAHO/WHO of two autochthonous cases of *P. vivax* malaria in the Province of Limón, Matina Canton, Carrandi District, locality of Saborío. These cases occurred after a period of three years in which no autochthonous cases were reported in the country. These are isolated cases, with no recent travel history outside Costa Rica. Additionally, in EW 50 of 2016 two new autochthonous cases were reported, all in the locality of Saborío. To date, no new cases have been reported.

In EW 2 of 2017, the **Cuba** IHR NFP notified PAHO/WHO of two confirmed autochthonous cases of malaria by *P. Vivax* in the municipality of Rodas, province of Cienfuegos. The two cases are related to an imported case from Guyana. In 2016, there were 71 imported cases of malaria reported. Of these, 66% (47) were *P. falciparum*, 31% (22) were *P. vivax*, and 3% (2) were *P. malariae*.

In **Ecuador**,² between EW 1 and 52 of 2016, 926 cases of malaria were reported, of which 69% (639) were *P. vivax* and 31% (287) were *P. falciparum*. From EW 17 of 2016, there was an increase in the number of malaria cases compared to 2014 and 2015. The four provinces with the highest number of malaria cases in 2016 were Morona Santiago with 38% (355) cases reported, followed by Pastaza with 24% (220), Orellana 17% (159) and Esmeraldas with 14% (126) of the cases.

Similarly, there was an increase in the number of reported cases of malaria due to *P. falciparum* compared to that reported in 2015. Of the total cases of *P. falciparum* malaria, 49% (142) occurred in the provinces of Morona Santiago and Pastaza in the eastern part of the country. This represents an important increase compared to the 8 cases of *P. falciparum* malaria reported in 2015 in each of these provinces.³

As indicated by the Ministry of Public Health, the increase in cases in Ecuador in 2016 could be explained by the increase in migratory activity between communities in border areas.

In the **Bolivarian Republic of Venezuela**,⁴ an increase in malaria cases has been observed since 2010 and, by 2016, there were 240,613 cases, representing a 76% increase over the same period of the previous year (136,402 cases) (**Figure 2**). Of those cases, 75% (179,554) were due to *P. vivax*, 19% (46,503) due to *P. falciparum*, and 6% of cases (14,531) from mixed infections.

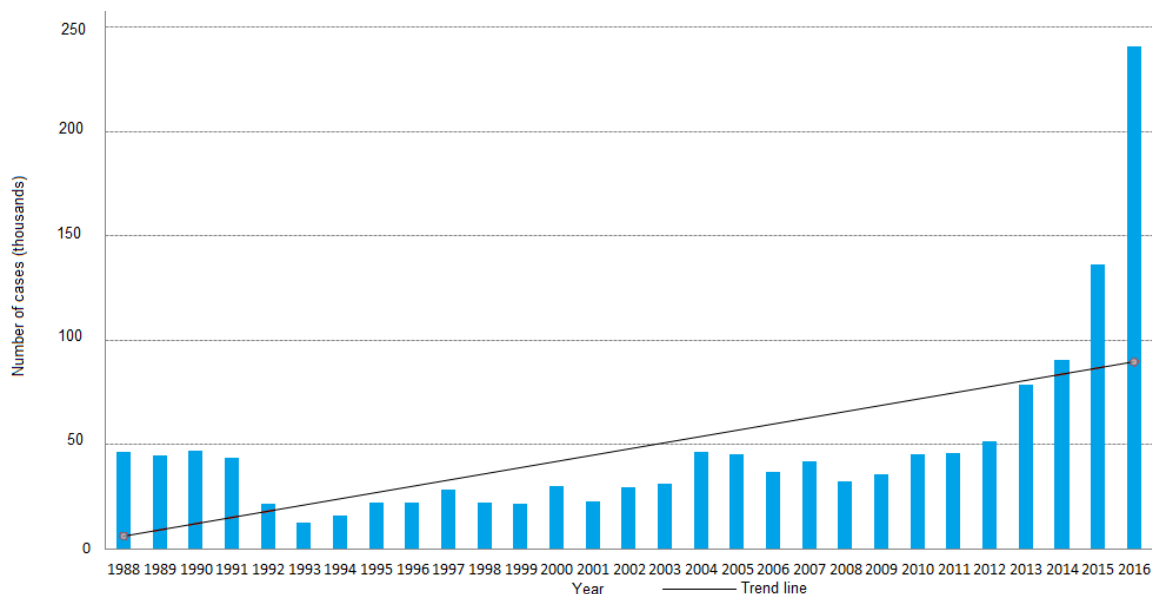
Although the cases are registered in 16 of the country's 24 states, the municipality of Domingo Sifontes, in the state of Bolívar, reported the largest number of cases nationally (43% of total cases reported), with the epidemic related to the gold exploitation surge and the corresponding movement of people from other states and countries, which settle in conditions conducive to the transmission of malaria.

² Ecuador Ministry of Public Health. Malaria - EW 52 of 2016. Available at: <http://www.salud.gob.ec/wp-content/uploads/2016/09/MALARIA-SE-52.pdf>

³ Ecuador Ministry of Public Health. Weekly Epidemiological Gazette. No. 53 of 2015. Available at: <http://instituciones.msp.gob.ec/images/Documentos/gaceta/GACETA%20SE%2053.pdf>

⁴ Reported to PAHO/WHO by the Venezuela IHR NFP.

Figure 2. Reported malaria cases. Venezuela, 1988-2016



Source: Reported by the Venezuela IHR NFP and reproduced by PAHO/WHO.

Recommendations

PAHO/WHO warns Member States of the risk of outbreaks, increased cases and deaths in endemic areas, as well as possible re-introduction of the disease in areas where transmission was previously interrupted. Achievements on the path to eliminating the disease in the Region can be compromised if disease monitoring and control actions are not maintained or strengthened.

PAHO/WHO urges to strengthen actions related to early detection and treatment based on parasitological diagnosis. The main intervention to control malaria is to shorten the time between the beginning of symptoms, the treatment of the case, and the investigation-response actions.⁵

PAHO / WHO recommends to intensify surveillance and detection of cases in health care units and active case searches in at risk populations, in known areas of transmission. Understanding the local transmission dynamics will allow the optimization of case search efforts.

In areas with low transmission, the occurrence of new cases should trigger epidemiological investigations of each case, in order to determine its status as imported, introduced, or autochthonous. It is essential that the investigation be carried out within a few days of the diagnosis of the case, in order to guide in a timely manner a response that must be directed to the timely interruption of the transmission. In this context, the reactive search of cases, which refers to the investigation and the taking of sample of people living with or related to the case or the conglomerate of cases, is an essential measure of the response.

⁵ The T3 initiative against malaria. Available at: http://www.who.int/malaria/areas/test_treat_track/en/

PAHO/WHO urges Member States to ensure the quality of parasitological diagnosis and prevent the shortage of medicines. Drug management and case management policies should address the risk of introducing chloroquine resistant *P. falciparum* strains as well as the permanent availability of drugs and staff training for the treatment of severe malaria.

Vector control interventions should complement case detection and treatment strategies. In-home residual spraying and the massive use of impregnated mosquito nets are key interventions in the control of malaria vectors. Measures that mainly affect mosquito survival (Intra-domiciliary Residual Spray and Impregnated Mosquito nets) have a greater impact on the interruption of transmission than those actions that seek to reduce vector density,⁶ such as larval control and spatial application of insecticides. Malaria larval control is applied in situations where mosquito breeding grounds are permanent or semi-permanent, can be easily identified and accessed, and where the density of the human population is sufficient to justify the resources that are necessary for this type of action.⁷ Spatial applications of insecticides are not currently recommended because of their limited effect on malaria control.⁸

Malaria control in active transmission area and the prevention of the disease spread require proactive epidemiological surveillance of the determinants and social phenomena that are conditioning transmission (movements of populations due to economic activities, agricultural undertakings or mining areas), as well as the mobilization of other actors in interventions adapted to the context of the affected populations.

PAHO/WHO urges national malaria programs or the agencies in the Ministries of Health to coordinate their national responses, to address the barriers identified at local levels which may be due 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 on malaria control in major areas of transmission. 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, reduction of incidence of cases and associated mortality.

⁶ 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

⁷ 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

⁸ 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

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