



Pan American
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Americas

Epidemiological Alert: Preparedness and response to imported malaria in non- endemic countries.

31 August 2023

The COVID-19 pandemic highlighted the importance of countries being operationally prepared to respond to the threats of emerging diseases, mainly regarding the capacity for timely detection, diagnosis, and adequate case management. In the Region of the Americas, 19 non-endemic countries and territories are considered free of malaria transmission, with some sporadically reporting imported cases of malaria from endemic countries in the Region and beyond. However, recently autochthonous cases of malaria have been detected in areas where historically no cases had been recorded. The Pan American Health Organization / World Health Organization (PAHO/WHO) encourages Member States to maintain surveillance, early diagnosis, and timely treatment of malaria cases throughout the Americas, with special attention to the countries and territories free of malaria but who are receptive (risk of vector transmission) and vulnerable (risk of imported cases).

Situation summary

The Pan American Health Organization (PAHO) estimated that there are approximately 41 million people living in areas where the risk of infection by malaria is considered moderate to high, in 21 Latin American countries (1).

Between 2000 and 2021, the Region of the Americas recorded a significant decrease in the burden of malaria; the total number of cases fell by 56% (from 1,181,095 to 524,154), and malaria deaths decreased by 70% (from 410 to 126). From 2020 to 2021, the number of cases decreased by 602,478 to 524,154 cases. This reduction in the burden of malaria is partly explained by the effects of the pandemic on the weakened health systems and, to some extent, due to reduced population movements. This downward trend continued in 2022 (479,975 cases¹) and 2023 (with 238,412 cases as of epidemiological week 33¹) within a context of countries recovering surveillance efforts and capacity (**Figure 1**).

Four countries in the region, Paraguay, Argentina, El Salvador, and Belize, were certified by the World Health Organization (WHO) as malaria-free in 2018, 2019, 2021, and 2023, respectively.

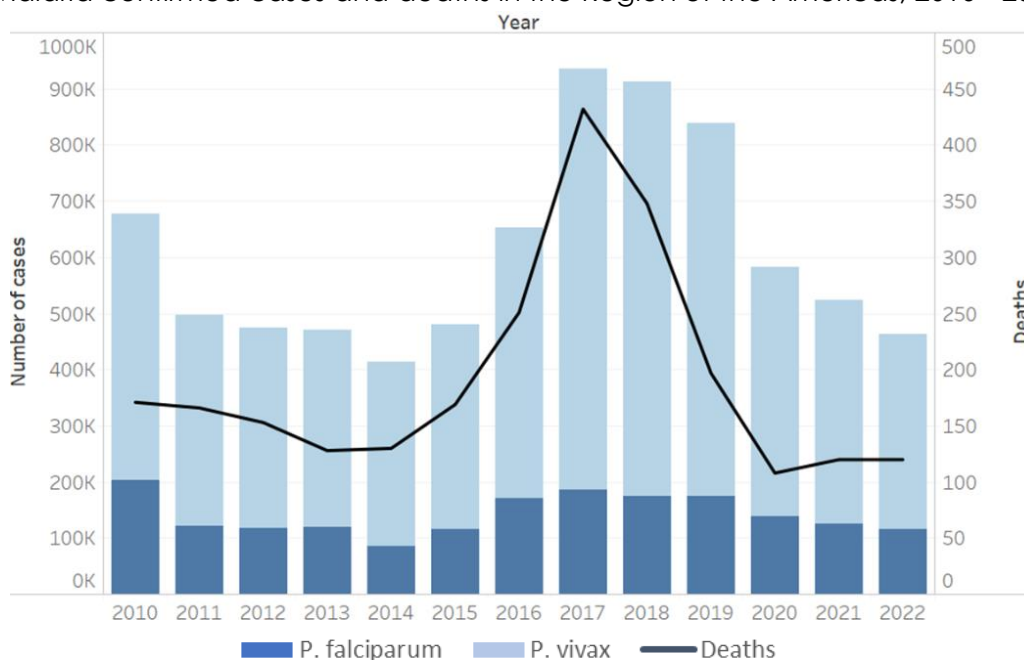
In 2019, nine Member States and territories considered free of malaria transmission reported or publicly disclosed a total of 2,002 cases of malaria, mostly among travelers from endemic countries (3). In subsequent years and periodically, some non-endemic countries continue to diagnose

¹ Data reported to PAHO by Member States. Unpublished, subject to change based on retrospective review.

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imported cases, both from endemic countries in the Region of the Americas and from other regions. While most cases are due to *Plasmodium vivax*, imported cases of *P. falciparum* have also been documented.

Figure 1. Malaria confirmed cases and deaths in the Region of the Americas, 2010 - 2022.



Source: Regional Malaria Program Database.

Following is a summary of the imported and local transmission malaria cases notified by non-endemic countries in the Region of Americas through the International Health Regulations (IHR) National Focal Points (NFPs) from January 2021 to August 2023.

Argentina (4)

From December 2022 to August 2023, Argentina's IHR NFP notified 12 imported cases of malaria.

On 2 December 2022, an imported case of malaria was notified in a national from Argentina, Chaco province, with a history of travel to South Africa, with the return travel to Argentina occurring on 22 November 2022. The samples, obtained on 30 November 2022, were identified as *P. falciparum*. The patient had a severe clinical presentation and required mechanical ventilation.

On 8 February 2023, two imported cases of malaria were notified. One case which was reported in a 35-year-old male, resident of the City of Buenos Aires with a history of travel to Sierra Leone and confirmed for *P. Ovale*. The diagnosis was made on 2 January 2023. The other case was reported in a 32-year-old patient with onset of symptoms on 26 December 2022 and had a history of travel to Myanmar and Ghana. The diagnosis was made on 8 January 2023, and the case was confirmed for *P. falciparum*.

On 24 May 2023, two additional malaria cases were notified. The first case, corresponds to a 25-year-old patient with *P. falciparum*, whose diagnosis was made in the city of Buenos Aires on 24 February 2023. The patient showed evidence of recent travel history to Cameroon as the probable country of infection. Another case which corresponds to a 28-year-old patient with *P. falciparum*.

The diagnosis was made in the Province of Buenos Aires on 21 April 2023. The probable origin of infection was Ghana.

In June 2023, a case of malaria was reported in a 44-year-old patient in San Nicolás de los Arroyos, Buenos Aires province, with a history of travel to Nigeria. The diagnosis was made on 12 June 2023 and was confirmed for *P. falciparum*.

In July 2023, three additional cases were notified. One case was in a 29-year-old foreign national ship crew member. The case was detected on 7 July in Bahía Blanca, Buenos Aires province, and was confirmed for *P. falciparum*. The probable country of infection was cited as the Republic of Congo. Other case was in a 69-year-old national detected on 17 July in the city of San Rafael, Mendoza province, with travel history to Tanzania, which was confirmed for *P. falciparum*. The other case was in a 33-year-old national diagnosed with *P. falciparum*. The diagnosis was made in the town of Mercedes, Buenos Aires Province, on 19 July 2023 and the probable country of infection was cited as Senegal.

Additionally, in August 2023, three new malaria cases were notified by the Argentina NFP. The first case was in a 53-year-old from Cameroon and was detected with *P. falciparum* on 1 August in Buenos Aires province. The country of infection was Cameroon. The second case was a national with history of travel to the Republic of Congo. The case was detected on 15 August in the Autonomous City of Buenos Aires and confirmed for *P. falciparum*. The third case was in a 39-year-old national diagnosed with *P. vivax*. The probable country of infection was Colombia, where the case had been diagnosed with malaria in May, and the 19 August diagnosis in the autonomous city of Buenos Aires was considered a relapse.

Bahamas (5)

On 14 July 2022, the Bahamas IHR NFP notified an imported case of malaria due to *P. falciparum* in Nassau, Bahamas. The case corresponds to a 36-year-old male with a history of travel to Ghana, West Africa, departing the Bahamas on 14 June 2022 and returning on 24 June 2022. The case sought medical attention for having presented symptoms characterized by fever, headache, myalgia, and chills. The patient visited the health care center twice before his admission on 9 July 2022. On 11 July 2022, a blood sample tested positive for malaria. The sample was sent to the reference laboratory for species identification and contact tracing activities were carried out.

Jamaica (6)

On 16 August 2022, the Jamaica IHR NFP notified a confirmed malaria case who had travelled from Kenya to Jamaica on 3 August 2022, while infected. The case travelled from Kenya, via Qatar, and the United Kingdom, with arrival in Jamaica the following day, 4 August 2022. The case is a 34-year-old male resident and worker in Jamaica, originally from Kenya. The case developed symptoms during the flight from Kenya to Jamaica and was confirmed positive for malaria on 10 August 2022.

Additionally, on 10 May 2023, the Jamaica IHR NFP notified a confirmed malaria case who had travelled on an international flight to Jamaica from Nigeria while infected. The case had travelled from Jamaica to Nigeria on 24 January 2023 and returned to Jamaica from Nigeria on 13 April 2023. The case corresponds to a 39-year-old female. Test results were positive for malaria by *P. falciparum*.

United States of America (7-9)

So far in 2023, three states in the United States have reported cases of local transmission of malaria: Florida, Texas, and Maryland in May, June, and August, respectively.

The United States of America IHR NFP reported that the Florida Department of Health reported a case of locally acquired malaria in Sarasota County, Florida, on 26 May 2023. As of 25 August 2023, seven cases of locally acquired malaria were reported with symptom onset occurring in May (one case), June (five cases), and July (one case) respectively, all infected with *P. vivax*. The Florida Department of Health reported that expanded syndromic surveillance in nearby hospitals was being implemented, as well as the training of health care providers and the public and conducting vector surveillance and control.

Separately, on 23 June 2023, the Texas Department of State Health Services reported a *P. vivax* case of malaria in a resident of the state of Texas, Cameron County, with no history of travel outside the country or state. State health officials are working with local health authorities to follow up on the case and determine if other individuals may have been exposed. The authorities also conducted vector surveillance and control activities.

On 18 August 2023, the Maryland Department of Health Services reported a locally acquired case of malaria, this time by *P. falciparum*, with no history of recent travel to an area with malaria transmission. Public health actions including vector control activity are underway. No other local cases have been identified as of 25 August 2023.

On average, approximately 2,000 cases of imported malaria are diagnosed in the United States each year among people with a history of travel to endemic areas. However, autochthonous cases of malaria had not previously been reported in the United States since 2003.

Recommendations

The basic intervention for malaria, in both endemic and non-endemic countries, is diagnosis and immediate treatment, followed by the recommendations of the diagnosis, treatment, investigation, and response (DTI-R) strategy. It is important that public health authorities provide access to diagnosis and treatment in the shortest possible time to ensure that cases are investigated and responded to appropriately, with reactive case finding and, when appropriate, with additional response measures such as reactive indoor residual spraying. In receptive scenarios, with a high risk of importing the parasite and with vulnerable populations living in conditions that expose them to vectors, in addition to the above, the locations and outbreaks where it is necessary to install insecticide-treated mosquito nets or routine indoor residual spraying should be prioritized. Such actions should be part of national strategies for integrated vector management and prevention of insecticide resistance (10).

PAHO/WHO encourages Member States to strengthen efforts for preparedness and response to face malaria cases in non-endemic countries or countries where elimination has been achieved. Given the characteristics of these areas, a greater effort is required in surveillance, and in keeping health personnel trained and updated regarding the guidelines for the detection, diagnosis, and treatment of cases.

The following is a summary of the main recommendations for Member States.

- Provide regulatory, financial, and logistical solutions for the maintenance of basic actions for timely diagnosis, treatment, case investigation, response, and prevention of malaria.
- Provide and communicate guidance for patients with suspected malaria on where to access malaria diagnosis and treatment. Particular emphasis should be given to migrants,

agricultural workers, or other population groups that may experience barriers of some kind in approaching the health system.

- Implement actions to ensure the existence of capacities in the country for the microscopic diagnosis of malaria with quality assurance, at least at a reference level that can confirm and guide the follow-up of cases.
- Facilitate the purchasing processes of antimalarials and rapid diagnostic tests (RDTs), ensuring sufficient stock in central, regional, and hospital warehouses², including a minimum stock of antimalarials for the management of complicated malaria.
- Promote more proactive strategies and systems to monitor important social, economic, and political developments that may affect the dynamics of malaria transmission, importation of cases and reintroduction of the disease, such as tourism sector policies, migration, extractive activities, socio-political events, or natural disasters. Based on these developments, countries can prepare by increasing surveillance (strengthening passive surveillance and conducting proactive searches as appropriate).
- Adopt actions related to the prevention of the reestablishment of transmission from the PAHO Malaria Elimination Action Plan 2021-2025 (3).
 - The PAHO Malaria Elimination Action Plan 2021–2025 is aligned with the WHO Global Malaria Technical Strategy 2016-2030 (11), which provides a framework for the formulation of tailored programs to accelerate the progress towards the elimination of malaria, with the goal of reducing the global burden of the disease by 90% by 2030.

² Combinations based on artemisinin, chloroquine, primaquine and artesunate etc., as well as RDT's and supplies for microscopy.

References

1. Pan American Health Organization / World Health Organization. Integrated vector control: a comprehensive response to vector-borne diseases [Resolution CD48. R13]. 48th Directing Council, 60th Session of the WHO Regional Committee for the Americas; 29 September to 3 October 2008. Washington, DC: PAHO; 2008. Available in Spanish from: <https://www3.paho.org/spanish/gov/cd/cd48-13-s.pdf>
2. World Health Organization. World Malaria Report 2022. Geneva: WHO; 2022 Available from: <https://www.who.int/teams/global-malaria-programme/reports/world-malaria-report-2022>
3. Pan American Health Organization. Malaria Elimination Action Plan 2021-2025; 15 December 2022. Washington, DC: PAHO; 2022. Available in Spanish from: <https://iris.paho.org/handle/10665.2/56859>
4. Argentina International Health Regulations (IHR) National Focal Point (NFP). Report received on 28 August 2023. Buenos Aires; 2023. Unpublished.
5. Bahamas International Health Regulations (IHR) National Focal Point (NFP). Report received on 28 August 2023. Nassau; 2023. Unpublished.
6. Jamaica International Health Regulations (IHR) National Focal Point (NFP). Report received on 28 August 2023. Kingston 2023. Unpublished.
7. United States of America International Health Regulations (IHR) National Focal Point (NFP). Report received on 23 July 2023. Washington, DC; 2023. Unpublished.
8. United States of America International Health Regulations (IHR) National Focal Point (NFP). Report received on 22 August 2023. Washington, DC; 2023. Unpublished.
9. Center for Disease Control and Prevention of the United States of America (CDC). Locally acquired malaria cases identified in the United States; 26 June 2023. Atlanta; 2023. Available from: <https://emergency.cdc.gov/han/2023/han00494.asp>
10. Pan American Health Organization / World Health Organization. Manual for malaria risk stratification and elimination of transmission hotspots; 18 November 2022. Washington, DC: PAHO; 2022. Available in Spanish from: <https://iris.paho.org/handle/10665.2/56731>
11. World Health Organization. Global Malaria Technical Strategy 2016-2030, update 2021. Geneva: WHO; 2021. Available from: <https://www.who.int/publications/i/item/9789240031357>