

The Pan American Health Organization/World Health Organization (PAHO/WHO) is issuing this Epidemiological Update to summarize the dengue situation in the Region and remind Member States of the need to maintain and strengthen prevention and surveillance actions. It also urges them to remain alert to increases in cases so that they can organize and adapt health services in a timely manner to ensure prompt, high-quality clinical management, prevent complications, and avoid overwhelming specialized care services. In addition, PAHO/WHO recommends strengthening and deploying integrated vector management actions in areas of highest risk, including health facilities that care for patients with dengue.

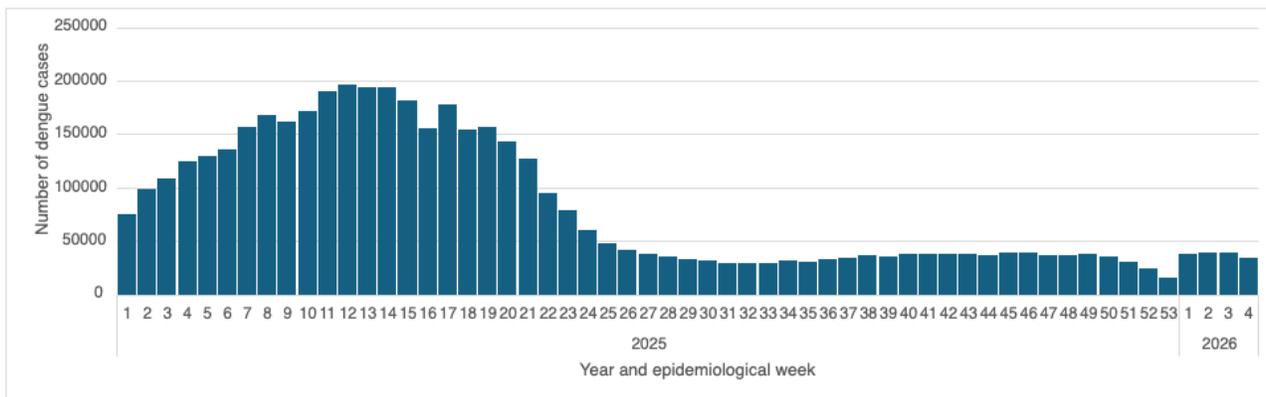
Summary of the situation in the Americas Region

In the Americas Region, during 2025, and as of epidemiological week (EW) 53, 4,459,521¹ and 1,682,588 confirmed dengue cases were reported to the Pan American Health Organization (PAHO) Health Information Platform for the Americas (PLISA per its acronym in Spanish) (1). Of this total, 8,966 (0.2%) were characterized as severe dengue, and 2,207 deaths were recorded (case fatality rate of 0.05%) (1). The total number of cases reported through PLISA in 2025 shows a similar trend to that observed in non-epidemic years (**Figure 1**) (1), showing a 66% decrease compared to 2024, a year in which there was a historic increase in reported dengue cases in the Americas Region (n= 13,063,434 cases) (1, 2). During 2026, as of EW 4, 122,090 cases have been reported, including 22,409 laboratory-confirmed cases, 242 cases of severe dengue, and six deaths (1).

During 2025, circulation of all four dengue virus serotypes was identified in the Americas Region. Brazil, Colombia, Costa Rica, El Salvador, Mexico, Panama, and Puerto Rico reported simultaneous circulation of all four serotypes (DENV-1, DENV-2, DENV-3, and DENV-4). In addition, Argentina, Ecuador, Guatemala, Paraguay, and Peru reported simultaneous circulation of DENV-1, DENV-2, and DENV-3 (1).

¹ The number of suspected dengue cases corresponds to the total number of dengue cases according to the definitions described in PLISA Health Information Platform for the Americas, Dengue Portal. Washington, DC: PAHO; 2026 [cited 10 February 2026]. Available from: <https://www.paho.org/en/arbo-portal/dengue-data-and-analysis>.

Figure 1. Total number of suspected dengue cases reported 2025–2026 (as of EW 4 of 2026), Americas Region.



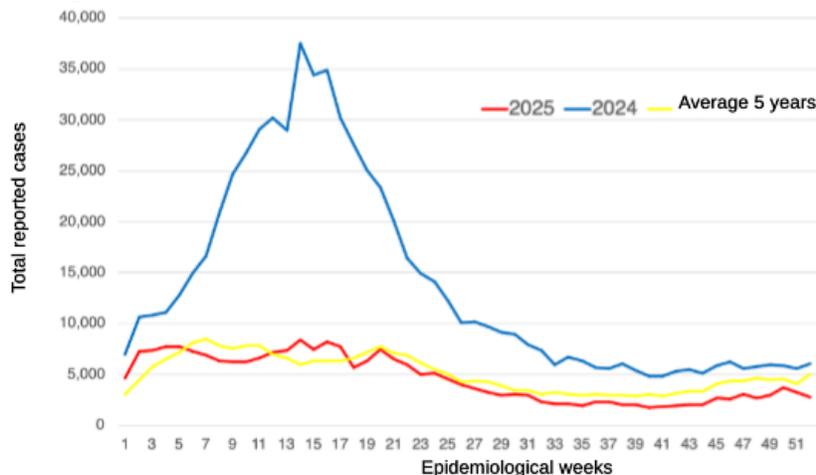
Source: Adapted from the Pan American Health Organization. PLISA Health Information Platform for the Americas, Dengue Indicators Portal. Washington, DC: PAHO; 2026 [cited 10 February 2026]. Available from: <https://www.paho.org/en/arbo-portal/dengue-data-and-analysis> (1).

Summary of the current situation by subregion²

Andean Subregion

Between EW 1 and EW 53 of 2025, 240,198 suspected dengue cases were reported, representing a 66% decrease compared to 2024 (n= 712,790) and a 10% decrease compared to the average for the years 2019-2023 in the subregion (**Figure 2**) (1).

Figure 2. Suspected dengue cases in 2024-2025 (as of EW 53 of 2025) and 5-year average (2023-2019). Andean subregion.



Source: Adapted from the Pan American Health Organization. PLISA Health Information Platform for the Americas, Dengue Indicators Portal. Washington, DC: PAHO; 2026 [cited 10 February 2026]. Available from: <https://www.paho.org/en/arbo-portal/dengue-data-and-analysis> (1).

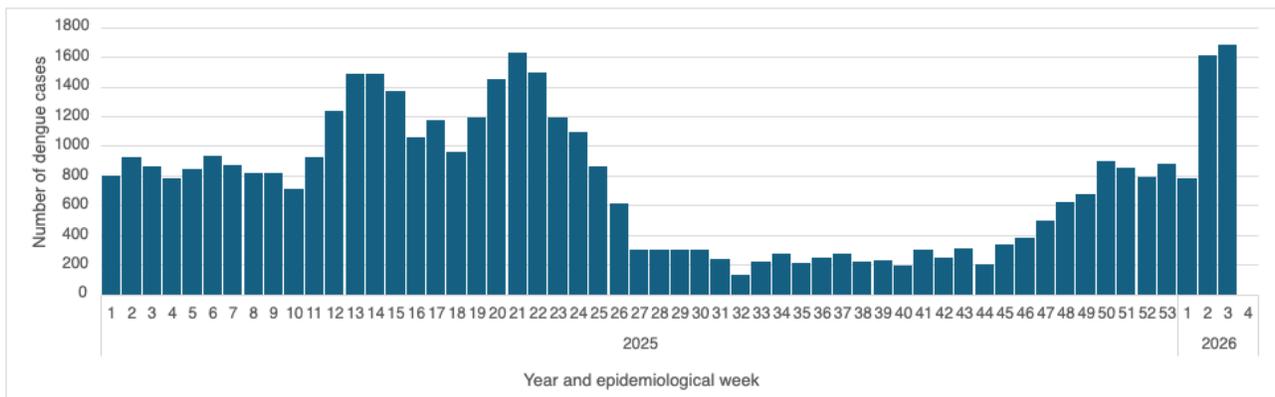
² The subregions and corresponding countries and territories follow the divisions described in PLISA Health Information Platform for the Americas, Dengue Portal. Washington, DC: PAHO; 2026 [cited 22 January 2026]. Available from: <https://www.paho.org/en/arbo-portal/dengue-data-and-analysis>.

In **Bolivia** (Plurinational State of), between EW 1 and EW 53 of 2025, 38,028 suspected dengue cases were reported, including three deaths. Of the total number of cases reported, 1,357 were confirmed, corresponding to an incidence rate of 302.7 per 100,000 population (pop.) and a case fatality rate of 0.008% (1). During 2025, two dengue virus serotypes (DENV-1 and DENV-2) were identified (3).

During 2026, 4,067 dengue cases have been reported (between EW 1 and EW 3) and no deaths have been reported. Of the total number of cases reported, 35 were confirmed, which corresponds to an incidence rate of 31.9 cases per 100,000 pop. Of the cases reported, 0.3% were severe dengue (n= 10 cases) (1).

Regarding the trend in 2025, the expected behavior was observed, with an increase in cases during the first half of the year and a peak in notified cases in EW 21, similar to that recorded in non-epidemic years (**Figure 3**). In the last weeks of 2025 and the first weeks of 2026, an upward trend was observed (1, 3).

Figure 3. Number of reported dengue cases in Bolivia by epidemiological week and year, between EW 1 of 2025 and EW 3 of 2026.



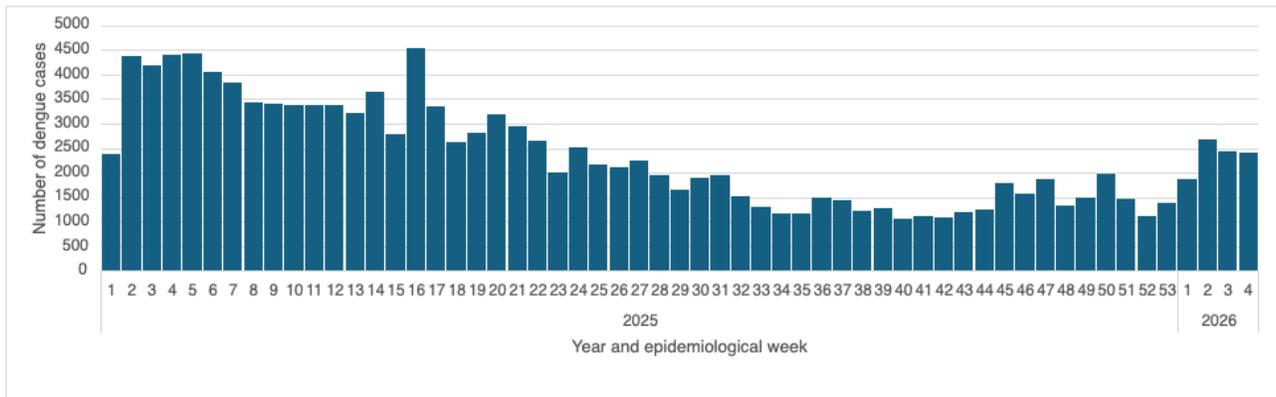
Source: Adapted from the Pan American Health Organization. PLISA Health Information Platform for the Americas, Dengue Indicators Portal. Washington, DC: PAHO; 2026 [cited 10 February 2026]. Available from: <https://www.paho.org/en/arbo-portal/dengue-data-and-analysis> (1).

In **Colombia**, between EW 1 and EW 53 of 2025, 125,119 suspected dengue cases were reported, including 124 deaths. Of the total number of reported cases, 86,881 were confirmed, including 124 deaths, corresponding to an incidence rate of 234 per 100,000 pop. and a case fatality rate of 0.9% (1). Of the total number of reported cases, 0.99% correspond to severe dengue cases (n= 1,241). During 2025, the circulation of the four dengue virus serotypes (DENV-1, DENV-2, DENV-3, and DENV-4) was identified. (4).

During 2026, 9,383 dengue cases were reported (between EW 1 and EW 4), including two deaths. Of the total number of reported cases, 5,109 were confirmed, corresponding to an incidence rate of 7.4 cases per 100,000 pop. Of the reported cases, 1.2% were severe dengue (n= 96 cases) (1).

Regarding the trend in 2025, the usual pattern was observed, with an increase in notified cases during the first half of the year and a peak in EW 16, similar to that recorded in non-epidemic years (**Figure 4**) (1, 4). In the last weeks of 2025 and the first weeks of 2026, an upward trend was observed, consistent with the expected behavior for this time of year.

Figure 4. Number of dengue notified cases in Colombia by epidemiological week and year, between EW 1 of 2025 and EW 4 of 2026.



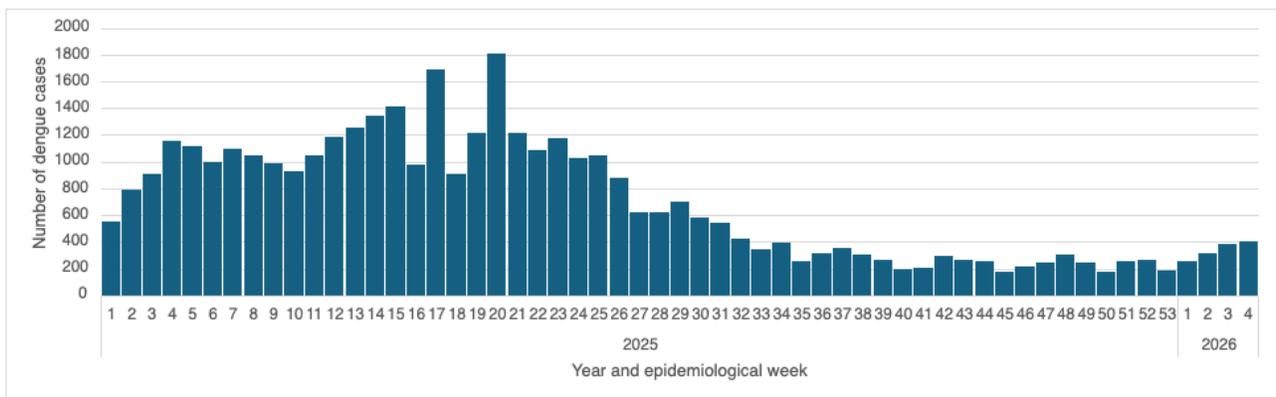
Source: Adapted from the Pan American Health Organization. PLISA Health Information Platform for the Americas, Dengue Indicators Portal. Washington, DC: PAHO; 2026 [cited 10 February 2026]. Available from: <https://www.paho.org/en/arbo-portal/dengue-data-and-analysis> (1).

In **Ecuador**, between EW 1 and EW 53 of 2025, 37,840 confirmed dengue cases were reported, including 65 deaths. This corresponds to an incidence rate of 207 per 100,000 pop. and a case fatality rate of 0.17%. The cases were reported in all 24 provinces of the country. Of the total number of cases reported, 0.97% were severe dengue cases (n= 367) (6). During 2025, three dengue virus serotypes (DENV-1, DENV-2, and DENV-3) were identified (5).

During 2026, 945 dengue cases have been confirmed (between EW 1 and EW 3), with no deaths reported. Of the reported cases, 0.3% correspond to severe dengue (n= 3 cases) (1).

Regarding the trend in 2025, the usual pattern was observed, with an increase in notified cases during the first half of the year and a peak in EW 20, similar to that recorded in previous years (Figure 5) (1, 5).

Figure 5. Number of notified dengue cases in Ecuador by epidemiological week and year, between EW 1 of 2025 and EW 4 of 2026.



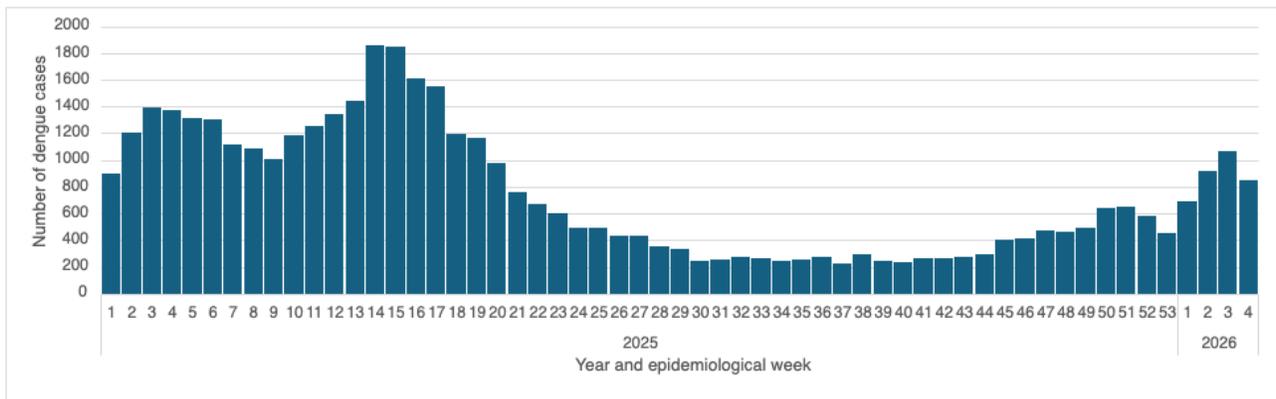
Source: Adapted from the Pan American Health Organization. PLISA Health Information Platform for the Americas, Dengue Indicators Portal. Washington, DC: PAHO; 2026 [cited 10 February 2026]. Available from: <https://www.paho.org/en/arbo-portal/dengue-data-and-analysis> (1).

In **Peru**, between EW 1 and EW 53 of 2025, 37,041 suspected dengue cases were reported. Of the total number of reported cases, 34,834 were confirmed, including 56 deaths, corresponding to an incidence rate of 108.9 per 100,000 pop. and a case fatality rate of 0.15% (1). During 2025, three dengue virus serotypes (DENV-1, DENV-2, and DENV-3) were identified (6).

During 2026, 4,344 dengue cases (between EW 1 and EW 5) were reported, and three deaths from dengue were reported. Of the total number of reported cases, 38.7% were confirmed, and the incidence rate was 12.5 cases per 100,000 pop. Of the reported cases, 0.48% were severe dengue (n= 21 cases) (1).

Regarding the trend, in 2025 the usual pattern was observed, with an increase in notified cases during the first half of the year and a peak in EW 14, similar to that recorded in non-epidemic years (**Figure 6**). In the last weeks of 2025 and the first weeks of 2026, an upward trend was observed, consistent with the expected behavior for this time of year (1, 6).

Figure 6. Number of notified dengue cases in Peru by epidemiological week and year, between EW 1 of 2025 and EW 4 of 2026.



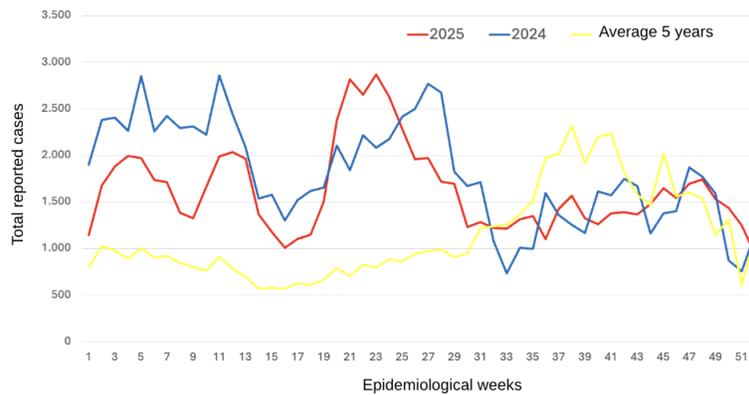
Source: Adapted from the Pan American Health Organization. PLISA Health Information Platform for the Americas, Dengue Indicators Portal. Washington, DC: PAHO; 2026 [cited 10 February 2026]. Available from: <https://www.paho.org/en/arbo-portal/dengue-data-and-analysis> (1).

Caribbean Subregion³

Between EW 1 and EW 53 of 2025, according to information recorded in PLISA, 115,711 dengue cases were reported, representing an increase of 7% compared to 2024 (n= 108,064) and 112% compared to the average for the years 2019-2023 in the subregion (**Figure 7**) (1).

³ Includes countries and territories belonging to the Latin Caribbean and the non-Latin Caribbean (Anguilla, Antigua and Barbuda, Aruba, Bahamas, Barbados, Bermuda, Bonaire, Cuba, Curaçao, Grenada, Guadeloupe, French Guiana, Guyana, Cayman Islands, Turks and Caicos Islands, Virgin Islands (United Kingdom), Virgin Islands (U.S.), Jamaica, Martinique, Montserrat, Puerto Rico, Dominican Republic, Saint Barthelemy, Saint Kitts and Nevis, Saint Lucia, Saint Martin, Saint Vincent and the Grenadines, Sint Maarten, Suriname, and Trinidad and Tobago, according to the divisions described in PLISA Health Information Platform for the Americas, Dengue Portal. Washington, DC: PAHO; 2025 [cited 10 February 2026]. Available from: <https://www.paho.org/en/arbo-portal/dengue-data-and-analysis>.

Figure 7. Notified dengue cases in 2024-2025 (as of EW 53 of 2025) and 5-year average (2023-2019). Caribbean subregion.

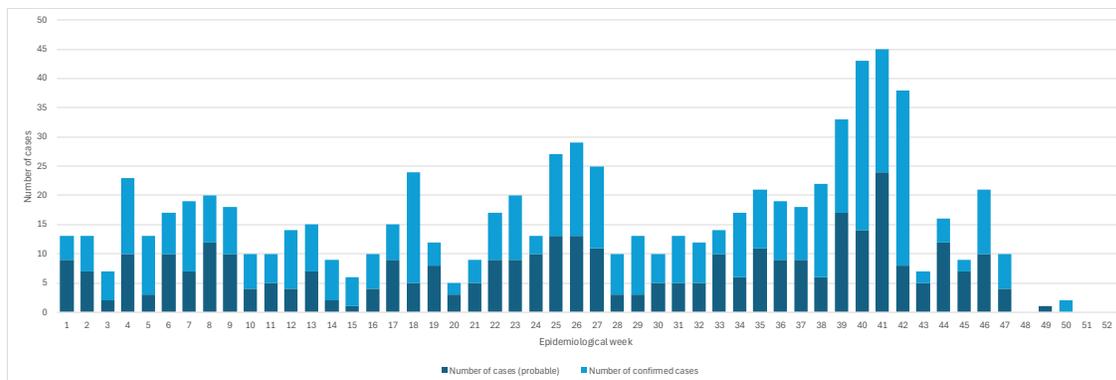


Source: Adapted from the Pan American Health Organization. PLISA Health Information Platform for the Americas, Dengue Indicators Portal. Washington, DC: PAHO; 2026 [cited 10 February 2026]. Available from: <https://www.paho.org/en/arbo-portal/dengue-data-and-analysis> (1).

In **Cuba**, between EW 1 and EW 52 of 2025, 30,692 suspected dengue cases were reported. Of the total number of cases reported, 441 were confirmed (**Figure 8**), including 19 deaths, corresponding to an incidence rate of 281 per 100,000 pop. and a case fatality rate of 0.062% (1). Of the total number of reported cases, 2.5% were severe dengue cases (n=770) (8). During 2025, three dengue virus serotypes (DENV-2, DENV-3, and DENV-4) were identified (7).

During 2026, 202 suspected dengue cases have been reported (between EW 1 and EW 2), with no deaths. Of the reported cases, 10.4% correspond to severe dengue (n= 21 cases) (1). The cases were recorded in 10 of the country's provinces (7).

Figure 8. Number of suspected and confirmed dengue cases in Cuba by epidemiological week of symptom onset and year, between EW 1 of 2025 and EW 53 of 2025.

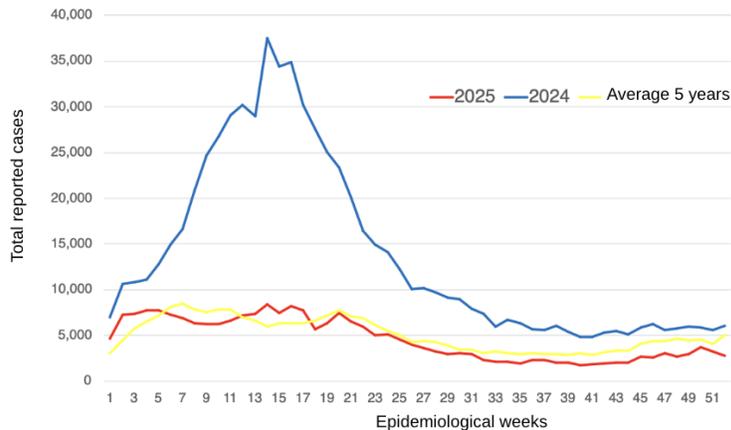


Source: Adapted from the Cuba International Health Regulations National Focal Point (NFP). Email information dated 20 January 2026. Havana; 2026. Unpublished (7).

Southern Cone Subregion⁴

Between EW 1 and EW 53 of 2025, 3,851,402 suspected dengue cases were reported, representing a 65% decrease compared to 2024 (n= 11,144,657) and an increase of 83% compared to the average for the years 2019-2023 in the subregion (**Figure 9**) (1).

Figure 9. Dengue cases in 2024-2025 (through EW 53 of 2025) and 5-year average (2023-2019). Southern Cone subregion.



Source: Adapted from the Pan American Health Organization. PLISA Health Information Platform for the Americas, Dengue Indicators Portal. Washington, DC: PAHO; 2026 [cited 10 February 2026]. Available from: <https://www.paho.org/en/arbo-portal/dengue-data-and-analysis> (1).

The situation in selected countries is detailed below, listed in alphabetical order:

In **Argentina**, between EW 1 and EW 53 of 2025, 17,648 suspected cases were reported, of which 8,111 were confirmed dengue cases (by laboratory and clinical-epidemiological link), including 13 deaths. The incidence rate of dengue cases was 38.5 cases per 100,000 pop., with a case fatality rate of 0.074% (1). Of the total number of reported cases, 0.27% were severe dengue cases (n= 47) (1). During 2025, three dengue virus serotypes (DENV-1, DENV-2, and DENV-3) were identified (1, 8).

During 2026, four imported dengue cases have been reported (between EW 1 and EW 4), with no deaths (1, 8).

In terms of the temporal evolution during 2025, the usual seasonal pattern was observed, with a progressive increase in notified cases throughout the first half of the year and a peak in EW 14 (1, 8). In the last weeks of 2025 and the first weeks of 2026, the number of cases reported was lower than in the same period of the three previous seasons (1, 8).

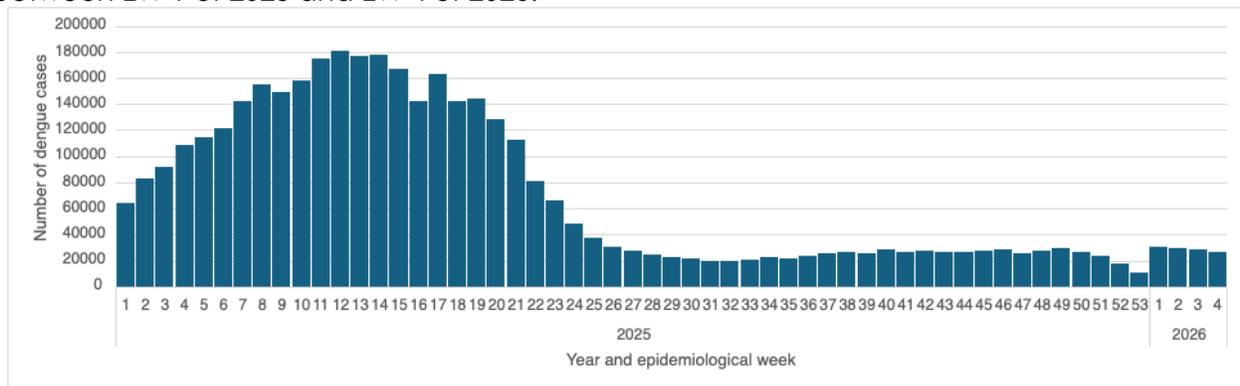
In **Brazil**, between EW 1 and EW 53 of 2025, 1,655,644 probable dengue cases have been reported, including 1,793 deaths. Of the total number of reported cases, 1,453,633 were confirmed, corresponding to an incidence rate of 775.7 per 100,000 pop. and a case fatality rate of 0.12% (n= 1,786 deaths). Of the total number of suspected cases, 2.2% were severe dengue cases (n= 35,976) (1). During 2025, four dengue virus serotypes (DENV-1, DENV-2, DENV-3, and DENV-4) were identified as circulating, with a predominance of DENV-2. An increase in the proportion of DENV-3 was observed during the first half of 2025 (9).

⁴ This subregion includes Argentina, Brazil, Chile, Paraguay, and Uruguay.

During 2026, 62,707 suspected dengue cases were reported (between EW 1 and EW 5). Of the total number of reported cases, 21,671 were confirmed, corresponding to an incidence rate of 29.4 cases per 100,000 pop. 8 deaths were confirmed up to EW 5. Of the reported cases, 1.2% corresponded to severe dengue (n= 739 cases) (9).

Regarding the trend in 2025, the usual pattern was observed, with an increase in cases during the first half of the year and a peak in EW 12, similar to that recorded in non-epidemic years (**Figure 10**) (1, 9). In the last weeks of 2025 and the first weeks of 2026, there was a slight upward trend, consistent with the expected behavior for this time of year (1).

Figure 10. Number of dengue notified cases in Brazil by epidemiological week and year, between EW 1 of 2025 and EW 4 of 2026.



Source: Adapted from the Pan American Health Organization. PLISA Health Information Platform for the Americas, Dengue Indicators Portal. Washington, DC: PAHO; 2026 [cited 10 February 2026]. Available from: <https://www.paho.org/en/arbo-portal/dengue-data-and-analysis> (1).

In **Paraguay**, between EW 1 and EW 53 of 2025, 31,656 suspected dengue cases were reported. Of the total number of reported cases, 1,374 were confirmed and one death was recorded, with an incidence rate of 451 cases per 100,000 pop. and a fatality rate of 0.003% (1). During 2025, three dengue virus serotypes (DENV-1, DENV-2, and DENV-3) were identified, with DENV-1 predominating (1).

During 2026, 2,412 suspected dengue cases have been reported, of which 16 are confirmed cases (between EW 1 and EW 4). No deaths have been recorded as of the date of publication of this update (10). The trend in 2025 was consistent with the usual pattern, with an increase in notified cases during the first half of the year and a peak in EW 10, similar to that observed in non-epidemic years. In the last weeks of 2025 and the first weeks of 2026, an upward trend was observed, consistent with the expected pattern for this time of year (1, 10).

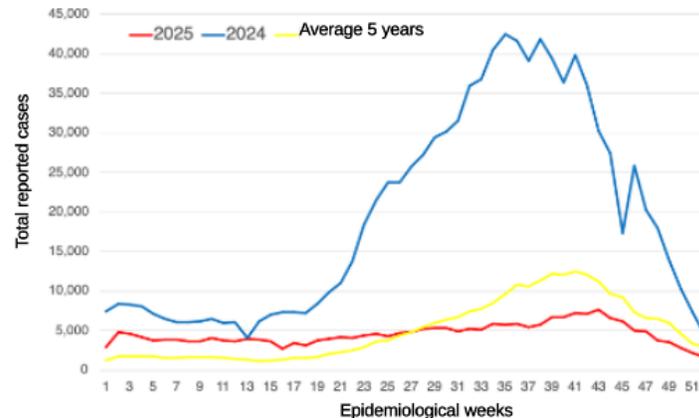
In **Uruguay**, between EW 1 and EW 53 of 2025, seven confirmed dengue cases were reported, corresponding to an incidence rate of 0.21 confirmed cases per 100,000 pop. No cases of severe dengue were reported, and no deaths were recorded (1).

During 2026, no dengue cases have been reported. Regarding the trend in 2025, the usual pattern was observed, with an increase in notified cases during the first half of the year and a peak in EW 20. In the last weeks of 2025 and the first weeks of 2026, an upward trend was observed, consistent with the expected pattern for this time of year (1, 11).

Central American Isthmus and Mexico Subregion⁵

Between EW 1 and EW 53 of 2025, 251,057 suspected dengue cases were reported, representing a decrease of 77% compared to 2024 (n= 1,094,852) and 9% compared to the average for the years 2019–2023 in the subregion (**Figure 11**) (1).

Figure 11. Suspected dengue cases in 2024–2025 (as of EW 53 of 2025) and 5-year average (2023–2019). Central American Isthmus and Mexico.



Source: Adapted from the Pan American Health Organization. PLISA Health Information Platform for the Americas, Dengue Indicators Portal. Washington, DC: PAHO; 2026 [cited 10 February 2026]. Available from: <https://www.paho.org/en/arbo-portal/dengue-data-and-analysis> (1).

The situation in selected countries is detailed below, listed in alphabetical order:

In **Guatemala**, between EW 1 and EW 53 of 2025, 48,278 suspected dengue cases were reported. Of the total number of reported cases, 1,002 were confirmed, including six deaths, corresponding to an incidence rate of 258 per 100,000 pop. and a case fatality rate of 0.01%. Of the total number of reported cases, 0.3% were severe dengue cases (n= 6) (12). During 2025, three dengue virus serotypes (DENV-1, DENV-2, DENV-3) were identified, with DENV-3 predominating (12).

During 2026, 337 dengue cases have been reported (between EW 1 and EW 2), corresponding to an incidence rate of 1.86 cases per 100,000 pop. No cases of severe dengue have been reported so far (12).

In **Mexico**, between EW 1 and EW 53 of 2025, 145,251 suspected dengue cases were reported. Of the total number of reported cases, 22,001 were laboratory confirmed, including 84 deaths. The incidence rate was 110 per 100,000 pop. and the case fatality rate was 0.058% (1). Of the total number of reported cases, 0.5% were severe dengue cases (n=772) (1). Since the beginning of 2025, all dengue virus serotypes (DENV-1, DENV-2, DENV-3, and DENV-4) have been identified (1, 13).

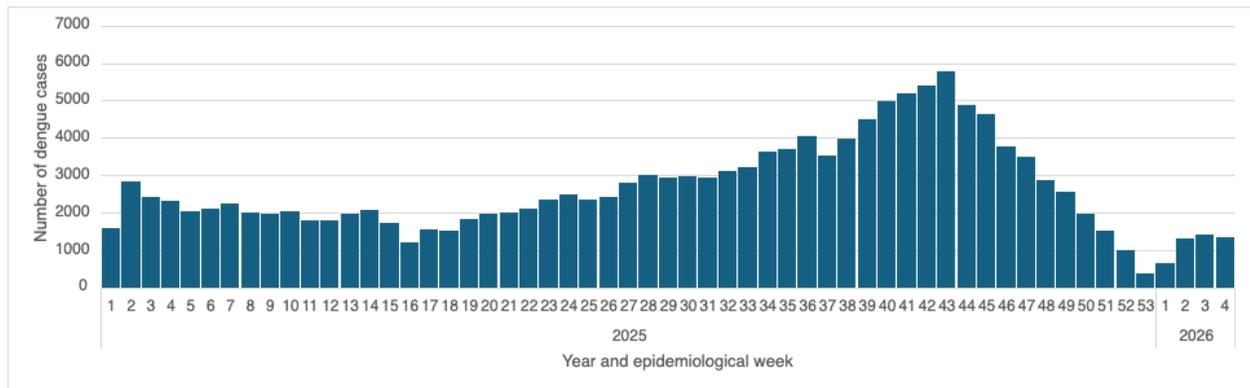
In 2026, as of EW 4 of 2026, 4,700 dengue cases have been reported, with no deaths recorded. Of the total number of reported cases, 552 have been confirmed, corresponding to an

⁵ This subregion includes Belize, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, and Panama.

incidence rate of 3.5 cases per 100,000 pop. A total of 11.7% corresponded to severe dengue (n= 21 cases) (1).

The behavior observed during 2025 was similar to previous years. Starting in EW 19, there was a gradual increase in notified case reporting until EW 43, when the highest number of cases was reported (Figure 12) (1, 13).

Figure 12. Number of dengue notified cases in Mexico by epidemiological week and year, between EW 1 of 2025 and EW 4 of 2026.



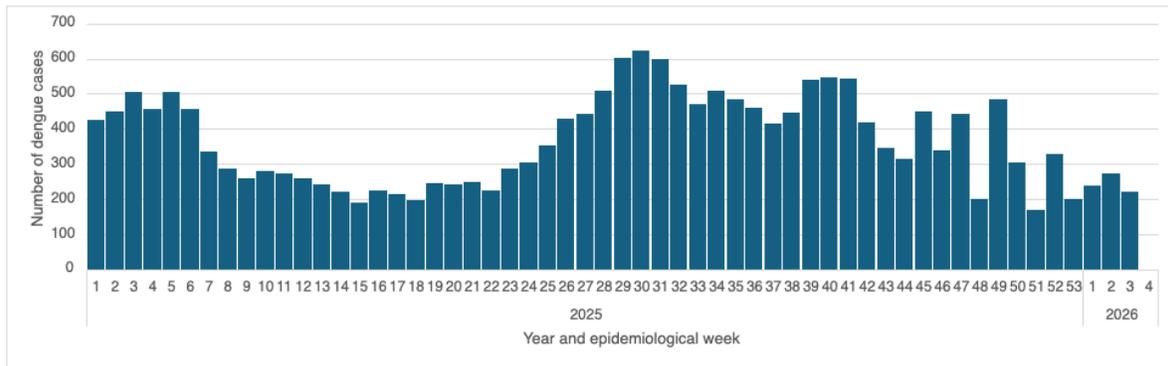
Source: Pan American Health Organization. PLISA Health Information Platform for the Americas, Dengue Indicators Portal. Washington, D.C.: PAHO/WHO; 2026 [cited 10 February 2026]. Available from: <https://www.paho.org/en/arbo-portal/dengue-data-and-analysis>.

In **Panama**, between EW 1 and EW 53 of 2025, 19,809 suspected dengue cases were reported. Of the total number of cases reported, 16,262 were confirmed, including 28 deaths, corresponding to an incidence rate of 444 per 100,000 pop. and a case fatality rate of 0.141%. Of the total number of reported cases, 0.6% were severe dengue cases (n=122) (1). During 2025, the circulation of all four dengue virus serotypes was identified, with a predominance of DENV-3. An increase in the proportion of DENV-3 was observed during the first and third quarters (14).

During 2026, 732 suspected dengue cases were reported (between EW 1 and EW 3). Of the total number of reported cases, 475 were confirmed, including two deaths, corresponding to an incidence rate of 15.8 cases per 100,000 pop. and a case fatality rate of 0.27%. Thirty-three cases of severe dengue (0.48%) were reported (1).

With regard to the trend in 2025, the usual pattern was observed, with an increase in notified cases during the first weeks of the year and a peak in EW 30 (n= 571 cases), similar to that recorded in non-epidemic years (Figure 13). In the last weeks of 2025 and the first weeks of 2026, an upward trend was observed, consistent with the expected behavior for this time of year (1, 14).

Figure 13. Number of notified dengue cases in Panama by epidemiological week, between EW 1 of 2025 and EW 3 of 2026



Source: Pan American Health Organization. PLISA Health Information Platform for the Americas, Dengue Indicators Portal. Washington, D.C.: PAHO/WHO; 2026 [cited 10 February 2026]. Available from: <https://www.paho.org/en/arbo-portal/dengue-data-and-analysis>.

Guidance for national authorities

PAHO/WHO reminds Member States that the same guidelines published in the Epidemiological Update of 10 June 2020, on Dengue and other Arboviruses, Available from: <https://www.paho.org/en/documents/epidemiological-update-dengue-and-other-arboviruses-10-june-2020>. (15), which are summarized below:

Integrated Surveillance

PAHO/WHO encourages continued epidemiological surveillance and reporting of suspected and confirmed dengue, chikungunya, and Zika cases.

Given the risk of increased prevalence of DENV-3 in the Andean and Southern Cone subregions, with the potential for outbreaks, severe forms, and deaths, integrated surveillance (epidemiological, clinical, laboratory, and entomological) should be strengthened.

Since clustering of cases is common in these diseases (dengue, chikungunya, and Zika), efforts should be made to analyze the spatial distribution of cases to enable a rapid response at the local level in the most affected areas. Information on hotspots for the three diseases should be targeted for intensive vector control.

Sentinel entomological surveillance will help assess changes in the risk of vector-borne diseases and the impact of vector control measures.

Case management

Measures to ensure the proper clinical management of suspected dengue cases should be a priority.

Capacities at the primary health care level should be strengthened to prevent progression to severe forms of dengue and deaths. This requires health workers to make an early clinical diagnosis and recognize warning signs of dengue (such as severe and sustained abdominal pain or pain on palpation of the abdomen, persistent vomiting, clinical fluid accumulation,

mucosal bleeding, lethargy, restlessness, liver enlargement > 2 cm below the costal margin, and progressive increase in hematocrit) in order to initiate appropriate management in accordance with the recommendations published in PAHO's clinical guidelines. In cases where dengue is suspected, health workers should provide clear guidance to patients and/or families to monitor for warning signs and seek immediate medical attention if they occur. These measures will also help reduce the number of patients who need to be referred to hospitals, thus avoiding overcrowding in these facilities and intensive care units.

At the same time, all second- and third-level hospitals should be prepared to manage dengue cases with warning signs and severe dengue cases.

More information on the clinical management of dengue cases is available in the Guidelines for the Clinical Diagnosis and Treatment of Dengue, Chikungunya, and Zika (16), in the Tool for the Diagnosis and Care of Patients with Suspected Arbovirus Infection (17), both published by PAHO, and in the Guidelines for the Management of Severe Dengue in Intensive Care Units (18).

PAHO reiterates the recommendations for technical teams in charge of malaria control, which also apply to personnel involved in the care of arboviral diseases, Available from: <https://iris.paho.org/items/8f20b9fe-b892-400f-9ad2-c6d454a81e6f> (19).

Adaptation of health care services

Given the current increase in the incidence of dengue in the Region, Member States are urged to adapt their health services to provide a timely and appropriate response to the pop. at all levels of care.

- Organize screening, patient flow, and clinical care and hospitalization areas in each institution, at different levels of care.
- Reorganize health services in outbreak/epidemic situations at different levels of patient care.
- Strengthen patient care networks in clinical diagnosis, management, follow-up, and referral and counter-referral of patients with suspected dengue, chikungunya, or Zika.

Laboratory confirmation

It is important to note that the initial diagnosis of DENV infection is clinical, and appropriate suspicion can guide the confirmation protocol. Laboratory results should be analyzed with clinical information and according to the epidemiological context, for surveillance purposes and not for clinical decision-making.

Laboratory confirmation of dengue infection is based on virological tests (RT-PCR, NS1 antigen detection by ELISA, and in some cases viral isolation in culture for further characterization) and serological tests (IgM detection). However, for case confirmation, priority should be given to virological tests that demonstrate the presence of the complete virus, its genetic material, or its proteins. Virological tests for dengue are performed on serum samples taken during the first 5 days after the onset of symptoms (acute phase) (**Figure 14**).

On the other hand, serological tests based on IgM detection should be analyzed with caution, taking into account the time that antibodies circulate in the blood after infection, as well as the possibility of cross-reaction with other flaviviruses (including Zika, yellow fever, and others) and nonspecific detection. Thus, a single IgM result in a patient only indicates contact with the virus,

with these cases being defined as a probable case of dengue. A second sample taken at least one week apart, processed in parallel with the first and using a quantitative serological assay (PRNT, for example) to demonstrate seroconversion or an increase in antibody titer, may be useful in clarifying the diagnosis (**Figure 15**).

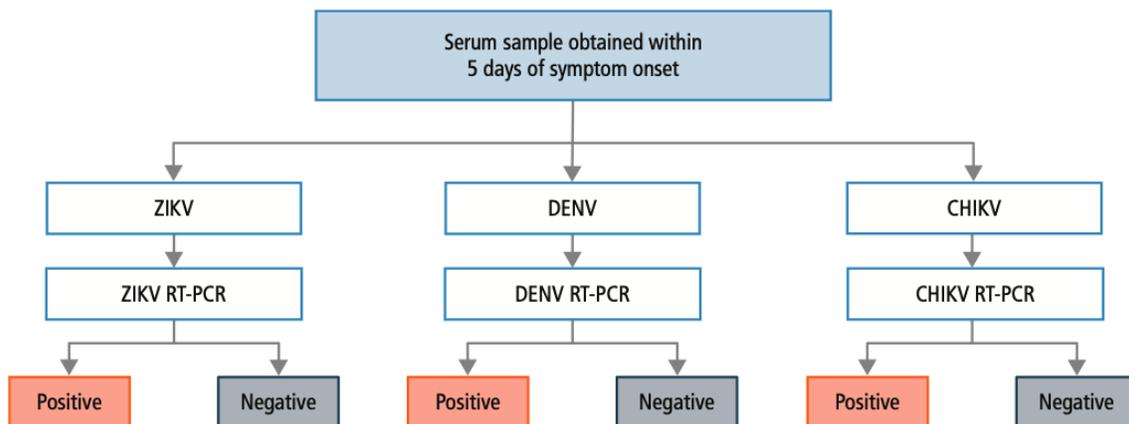
It is important to have a clear laboratory algorithm that allows for early detection. Although multiple molecular methodologies (*multiplex PCR*) are useful when there is no clear clinical suspicion, in dengue cases that meet the established definitions and where the clinical picture is compatible, it is suggested that protocols for specific (*singleplex*) detection of the virus be prioritized (20).

In fatal cases, tissue samples (liver, spleen, kidney) should be considered for both genetic material detection (RT-PCR) and histopathological and immunohistochemical study. Biopsies are completely contraindicated in patients with suspected dengue.

On the other hand, the use of immunochromatographic or rapid tests (NS1 and/or antibodies) is not recommended because their low sensitivity can lead to false negative results; their use should be limited to community studies under established protocols, but in no case to rule out infection or to implement medical interventions.

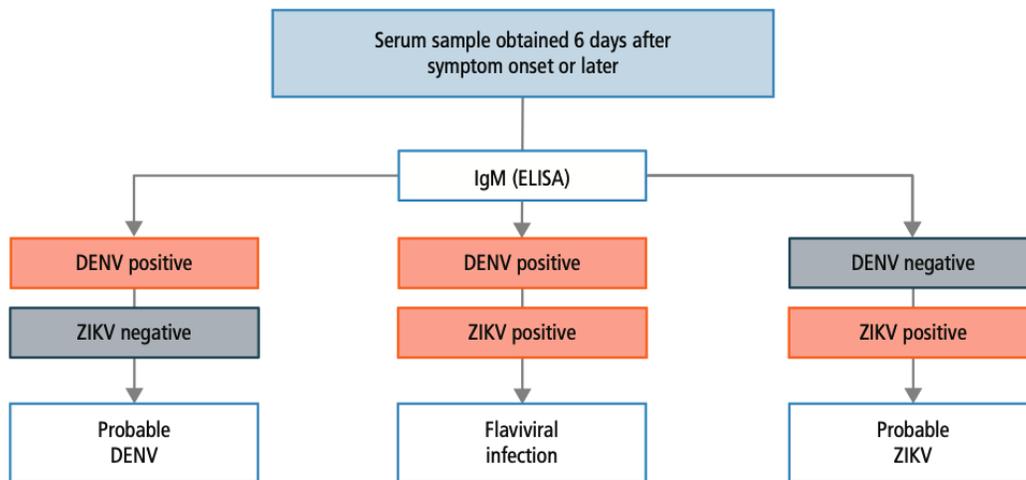
Given that laboratory services are a key component of epidemiological and virological surveillance of dengue, timely detection and characterization in appropriate samples should be maintained. Where possible and depending on the capabilities of each laboratory, it is recommended that samples be taken from 100% of severe and fatal dengue cases, while only a proportion (10-30% or a maximum number of samples depending on installed capacity) of those cases without warning signs will be necessary for surveillance.

Figure 14. Algorithm for virological testing in suspected dengue cases, chikungunya, and Zika.



Source: PAHO/WHO. Recommendations for the detection and laboratory diagnosis of arbovirus infections in the Americas Region. 29 August 2022. Available from: <https://iris.paho.org/items/810bf92c-a06a-44e6-8561-5b2a97f3e670>.

Figure 15. Algorithm for serological testing in suspected dengue cases and Zika.



Source: PAHO/WHO. Recommendations for the detection and laboratory diagnosis of arbovirus infections in the Americas Region. 29 August 2022. Available from: <https://iris.paho.org/items/810bf92c-a06a-44e6-8561-5b2a97f3e670>.

Aedes prevention and control measures

PAHO/WHO urges Member States to make effective use of available resources to prevent and/or control vector infestation in affected areas and in health services. This will be achieved through the implementation of integrated vector control strategies in emergencies, which include the following processes:

- Selection of control methods based on knowledge of vector biology, disease transmission, and morbidity.
- Use of multiple interventions, often in combination and in a synergistic manner.
- Collaboration between the health sector and public and private sectors involved in environmental management whose work has an impact on vector reduction.
- Active participation of individuals, families, and other key partners (education, finance, tourism, water and sanitation, and others) in prevention and control activities.
- Strengthening of the legal framework to enable an integrated and intersectoral approach.

Given the high infestation by *Aedes aegypti* and the presence of *Aedes albopictus* in the Region, it is recommended that prevention and control measures be aimed at reducing vector density and have the acceptance and active participation of the local population. Prevention and control measures to be implemented by national and local authorities should include the following:

- Strengthen environmental management actions, mainly the elimination of vector breeding sites in homes, surrounding areas, and common areas (parks, schools, cemeteries, etc.).
- Reorganize solid waste collection services to support actions to eliminate breeding sites in areas of highest transmission and, if necessary, plan intensive actions in specific areas

where regular garbage collection has been interrupted or additional collections are needed.

- Implement measures to control (21) breeding sites through the use of physical, biological, and/or chemical methods that actively involve individuals, families, and the community.
- Define areas of high transmission risk (risk stratification) (22) and prioritize those where there are concentrations of people (schools, terminals, hospitals, health centers, etc.). In these facilities, the presence of mosquitoes should be eliminated within a radius of at least 400 meters. Special attention should be paid to health facilities to ensure that they are free of the vector and its breeding sites and do not become sources of virus transmission.
- In areas where active transmission is detected, it is recommended to implement measures aimed at eliminating infected adult mosquitoes (mainly through the use of insecticides) in order to stop and interrupt transmission. This action is exceptional and is only effective when carried out by properly trained personnel under internationally accepted technical guidelines and when performed in conjunction with the other proposed actions. The main action to interrupt transmission when it occurs intensively is the elimination of adult mosquitoes infected with the dengue virus (active transmission) through indoor fumigation, using individual equipment or space fumigation using heavy equipment mounted on vehicles, in addition to the destruction and/or control of vector breeding sites inside and around homes (23).
- An effective method of adult control that can be used, considering the available operational capacities, is indoor residual spraying, which should be applied selectively to the resting places of *Aedes aegypti*, taking care not to contaminate food, drinking water storage containers, or those used for cooking. This intervention in treated areas is effective for up to four months and can be used in shelters, homes, health services, schools, and other settings. For more information, consult PAHO's Manual for Applying Indoor Residual Spraying in Urban Areas for the Control of *Aedes aegypti* (24) and the document *Control of Aedes aegypti in the Context of Simultaneous Transmission of COVID-19* (25).
- Choose the appropriate insecticide to be used (following PAHO recommendations), its formulation, and be aware of the susceptibility of *Aedes* populations to that insecticide (26).
- Ensure the proper functioning and maintenance of fumigation equipment. Ensure reserves of strategic supplies, such as insecticides (larvicides and adulticides), personal protective equipment, spare parts for fumigation equipment, and fuel, among others.
- Intensify supervision (quality control and coverage) of field work by operators, both for indoor fumigation with individual equipment and for outdoor fumigation with heavy equipment mounted on vehicles, ensuring compliance with personal protection measures.

Personal prevention measures

Patients infected with dengue, chikungunya, and/or Zika viruses are the reservoir of infection for other people both in their homes and in the community. It is necessary to inform patients, their families, and the affected community about the risk of transmission and ways to prevent infection by reducing the vector pop. and contact between the vector and people.

To minimize contact between the vector and the patient, it is recommended that:

- The patient should rest under mosquito nets, whether or not they are impregnated with insecticide.
- Sick individuals, as well as other members of the household, should wear long sleeves to cover their limbs.
- Repellents containing DEET, IR3535, or Icaridin can be applied to exposed skin or clothing, and their use must be in strict accordance with the product label instructions. Use wire mesh/mosquito nets on doors and windows.

Community communication and participation

It is recommended to establish and implement a rapid communication action plan focused on:

- Measures to prevent the formation of vector breeding sites and their elimination to prevent transmission, and
- Information on dengue symptoms and warning signs when the epidemiological situation in the country requires it, such as an increase in cases or deaths from dengue.

It is recommended to consider the following as the main audiences: individuals, communities, neighborhood committees, municipalities, public and private sectors: messages on measures to prevent the formation of vector breeding sites and their elimination to prevent arbovirus transmission.

Audiences:

- Individuals, communities, neighborhood committees, municipalities, public and private sectors: messages on measures to prevent the formation of vector breeding sites and eliminate them to prevent the transmission of dengue and other arboviruses. In addition, information on warning signs of dengue to seek immediate medical attention.
- Health workers (including nurses, doctors, and primary care and hospital staff) and vector control program technicians: information on dengue symptoms and warning signs that are present or increasing in the country.

Every effort should be made to obtain community support for dengue prevention. Simple Information, Education, and Communication (IEC) materials can be disseminated through various media (including social media or closed-circuit television in primary care health facilities).

The pop. and household members should be encouraged to eliminate mosquito breeding sites, both indoors and outdoors. This is a task for everyone: the family, the community, and the public and private sectors.

Highly productive mosquito breeding sites, such as water storage containers (drums, elevated tanks, clay pots, etc.), should be targeted for vector prevention measures. Other breeding sites, such as roof gutters and other water retention containers, should also be cleaned regularly.

Health care personnel and affected communities should be encouraged to learn about the symptoms of dengue, as well as its warning signs and how to respond when these symptoms appear.

Working with local teams is encouraged, as they know how to make this information most effective, and in many cases national campaigns and messages are not as effective as local initiatives (21).

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Additional resources

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