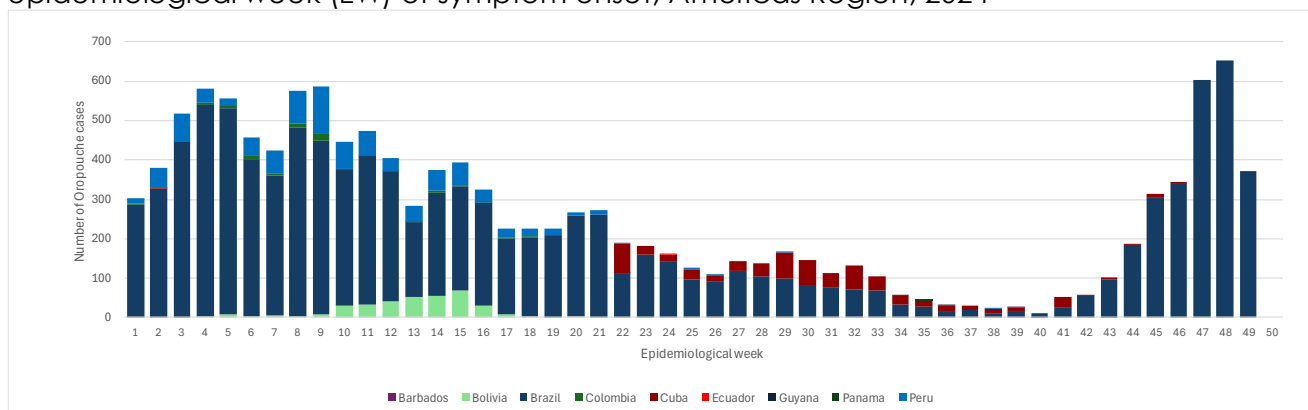


Considering the beginning of the season of increased circulation of arbovirolosis in the Southern Hemisphere and the increase in cases of Oropouche in some countries of the Americas Region, including areas where no cases had been historically recorded, the Pan American Health Organization/World Health Organization (PAHO/WHO) recommends that Member States maintain surveillance, early diagnosis, and timely treatment of cases of Oropouche and other arbovirolosis, in order to prevent complications and deaths associated with these diseases. At the same time, it calls for intensified preparedness actions by health care services to facilitate access and proper management of patients.

### Summary of the situation

Between epidemiological week (EW) 1 and EW 48 of 2024, 13,014 confirmed cases of Oropouche, including two deaths, were reported in the Americas Region. Confirmed cases were reported from 11 countries and one territory in the Americas Region: Barbados (n= 2 cases), Bolivia (Plurinational State of) (n= 356 cases), Brazil<sup>1</sup> (n=10.940 cases, including 2 deaths), Canada (n= 2 imported cases), Colombia (n= 74 cases), Cuba (n= 603 cases), Ecuador (n= 3 cases), the United States of America (n= 94 imported cases), Guyana (n= 2 cases), the Cayman Islands (n= 1 imported case), Panama (n= 1 case), and Peru<sup>2</sup> (n= 936 cases) (**Figure 1**) (1-17). Additionally, imported cases of Oropouche have been reported in countries of the European Region (n= 30 cases) (18-21).

**Figure 1.** Number of confirmed autochthonous cases of Oropouche by country and epidemiological week (EW) of symptom onset, Americas Region, 2024



**Source:** Adapted from data provided by the respective countries and reproduced by PAHO/WHO (1-6, 8-11, 14, 16, 17).

<sup>1</sup> The information for Brazil is current through epidemiological week (EW) 49 of 2024.

<sup>2</sup> The information for Peru is current as of epidemiological week (EW) 40 of 2024.

**Suggested citation:** Pan American Health Organization / World Health Organization. Epidemiological Alert - Oropouche in the Americas Region, 13 December 2024. Washington, D.C.: PAHO/WHO; 2024

Since the Pan American Health Organization/World Health Organization (PAHO/WHO) Oropouche Epidemiological Update published on 15 October 2024 (22), 2,739 additional Oropouche cases were reported in seven countries and one territory in the Region: Barbados (n= 2 cases), Brazil (n= 2,682 cases), Cuba (n= 48 cases), the United States (n= 4 imported cases), Ecuador (1= case), the Cayman Islands (n= 1 imported case) y Panama (n= 1 case) (1-17). Two new countries and one territory in the Americas Region reported cases for the first time: Barbados, the Cayman Islands, and Panama (1, 15, 16).

Regarding cases under investigation of vertical transmission of Oropouche virus (OROV) infection and its consequences, cases have been reported in Brazil. Brazil has confirmed three cases of vertical transmission (two cases of fetal death and one case of congenital anomaly) and has reported that 15 fetal deaths, five miscarriages, and four cases of congenital anomalies are under investigation (4).

The following is a summary of the situation in countries that have reported confirmed cases of Oropouche in the Americas Region during 2024.

### **Summary of confirmed autochthonous cases of Oropouche in the Americas Region**

In **Barbados** in EW 47 of 2024, two laboratory-confirmed cases of Oropouche were reported. The cases correspond to a male and female, aged 42 and 32 years, respectively, with no history of travel. The cases presented symptoms on 3 and 26 October 2024. The first case is a resident of Saint Lucy and the second is a resident of Saint Thomas. The samples were confirmed positive for Oropouche virus (OROV) by RT-PCR testing on 3 December by the Barbados Public Health Laboratory. Neither case required hospitalization, and both have fully recovered since (1).

In **Bolivia**, between EW 1 and EW 48 of 2024, 356 laboratory-confirmed cases of Oropouche have been reported<sup>3</sup> using the molecular biology technique (RT-PCR) (2, 3). Transmission has been reported in three departments: La Paz with 75.3% of cases (n= 268), followed by Beni with 21.3% of cases (n= 76), and Pando with 3.4% of cases (n= 12). Cases are reported in 16 municipalities, which are considered endemic for this disease, with the highest proportion of cases reported in the municipalities of Irupana, La Paz, with 33% of cases, followed by La Asunta, La Paz, with 13% of cases, and Chulumani, La Paz, and Guayaramerín, Beni, with 12% each (2, 3).

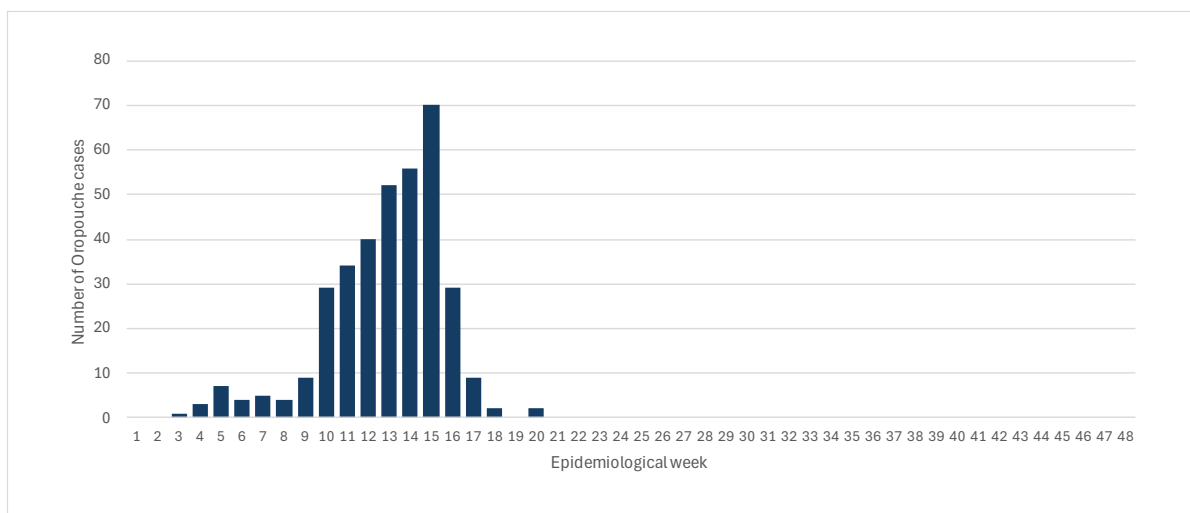
Fifty percent of the cases (n= 179) were female, and the highest proportion was found in the 30-39 age group with 20% (n= 70) of cases. No deaths that could be associated with OROV infection have been reported. In addition, between EW 12 and EW 15 of 2024, 10 cases of coinfection of Oropouche and dengue were reported in patients in three municipalities of the department of La Paz, which presented positive results for dengue (RT-PCR) with typing dengue virus DENV-1 (n= 2 cases) and DENV-2 (n= 8 cases) (2, 3).

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<sup>3</sup> The Plurinational State of Bolivia has a definition of suspected and confirmed case. The definition of a **suspected case of Oropouche** is as follows: Any person who resides in or has visited in the last 14 days areas of transmission or with a history of Oropouche outbreak and who presents at least one or more of the following signs and symptoms: fever greater than or equal to 38°C, intense headache, chills, arthralgias, lack of appetite, myalgias, photophobia, dizziness, lumbar pain, difficulty walking. The definition of a **confirmed case of Oropouche** is: any suspected case of Oropouche with a positive result for OROV in a real-time RT-PCR laboratory test (3).

Regarding the trend of confirmed cases of Oropouche by epidemiological week, an upward trend was observed between EW 10 and EW 15, which presented the highest number of cases (n= 70). After this, no new cases of Oropouche were observed after EW 20 in Bolivia (**Figure 2**) (2, 3).

**Figure 2.** Number of confirmed cases of Oropouche by epidemiological week (EW) of onset of symptoms, Bolivia, as of EW 48, 2024



**Source:** Adapted from data provided by the Ministry of Health and Sports Bolivia - National Surveillance Program for Endemic and Epidemic Diseases - Arbovirosis Component. Epidemiological Surveillance and Environmental Health Unit. La Paz; 2024. Unpublished (2, 3)

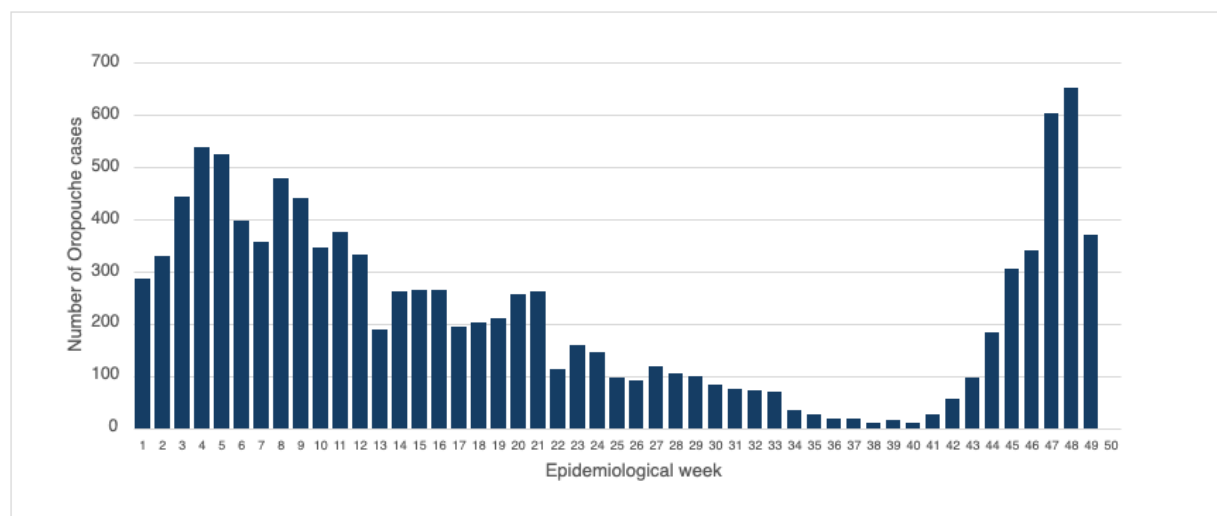
In **Brazil**, between EW 1 and EW 49 of 2024, 10,940 laboratory-confirmed cases of Oropouche were reported<sup>4</sup> in 22 of the country's 27 states, including two deaths. The Amazon region, considered endemic for Oropouche, concentrates 52.9% of the cases reported in the country with all seven states reporting cases: Amazonas (n= 3,231), Rondônia (n= 1,711), Acre (n= 273), Roraima (n= 277), Pará (n= 170), Amapá (n= 128), and Tocantins (n= 8) (4-5)

Additionally, autochthonous transmission has been documented in 15 non-Amazonian states: Espírito Santo (n= 3,112), Bahia (n= 890), Ceará (n= 255), Minas Gerais (n= 195), Santa Catarina (n= 179), Pernambuco (n= 145), Rio de Janeiro (n= 118), Alagoas (n= 120), Sergipe (n= 34), Maranhão (n= 33), Piauí (n= 30), Mato Grosso (n= 18), São Paulo (n= 8), Paraíba (n= 5), and Mato Grosso do Sul (n=1). Regarding the distribution of cases by sex and age group, 52.6% (n= 5,750) correspond to males and the highest proportion of cases is registered in the 20-29 years age group with 19.8% (n= 2,167) of the reported cases (4.5).

<sup>4</sup> Brazil has a confirmed case definition. The definition of a **confirmed case of Oropouche** is as follows: any case with laboratory diagnosis of OROV infection. Laboratory diagnosis of OROV infection, preferably by direct testing (molecular biology or viral isolation), and whose clinical and epidemiological aspects (i.e. exposure in an endemic region or with an outbreak/epidemic or exposure to risk situations in peri-urban, forest, rural or wild areas) are compatible with the occurrence of the disease. Serological detections (IgM ELISA) should be carefully evaluated, especially in areas with isolated detections and high incidence and prevalence of other arboviruses (4).

Regarding the trend of Oropouche cases by EW, in Brazil, it is observed that the highest proportion of Oropouche cases was recorded during the first two months of 2024, with the highest number of cases in EW 4, with 538 cases, followed by a gradual decrease that continued until EW 40, with an increase in the number of Oropouche cases between EW 43 and 48, mainly in the state of Espírito Santo. Of the 2,682 cases reported nationally, since the last update published by PAHO/WHO on 15 October, 2,608 correspond to this state (**Figure 3**) (4,5).

**Figure 3.** Number of confirmed cases of Oropouche by epidemiological week of onset of symptoms, Brazil, as of EW 49 of 2024.



**Source:** Adapted from data provided Brazil International Health Regulations National Focal Point (IHR NFP). Communication received on 10 December 2024 via e-mail. Brasília; 2024. Unpublished (4, 5).

Regarding deaths associated with Oropouche, Brazil International Health Regulations National Focal Point (IHR NFP) reported two deaths associated with OROV infection in the state of Bahia<sup>5</sup>, and seven that are under investigation, one in the state of Paraná, with probable site of infection in the state of Santa Catarina<sup>3</sup>, three in Espírito Santo, one in Acre, one in Alagoas, and one in Mato Grosso (4-6, 23, 24, 25).

Additionally, on 12 August 2024, Brazil reported a case of OROV-associated encephalitis in a male resident of the state of Piauí<sup>6</sup> (4, 26).

Regarding cases of vertical transmission and its consequences<sup>7</sup> as of EW 47 of 2024, three cases of vertical transmission have been confirmed: two cases of fetal death in Pernambuco (n= 1) and Ceará (n=1); and one case of congenital anomaly in Acre. Cases under investigation in the country include 15 cases of fetal death in Pernambuco (n= 15), four cases of congenital anomaly in Acre (n= 2), Bahia (n= 1), and Espírito Santo (n= 1); and five abortions in Pernambuco (n= 5) (4, 26).

<sup>5</sup> Detailed information on these cases is available in the PAHO/WHO Oropouche Epidemiological Alert in the Americas Region of 1 August 2024 (24).

<sup>6</sup> Detailed information on this case is available in the 6 October 2024 PAHO/WHO Oropouche Epidemiological Update on the Americas Region (25).

<sup>7</sup> Detailed information on previously reported cases is available in the Epidemiological Alert on Oropouche in the Americas Region: vertical transmission event under investigation in Brazil of 17 July 2024 published by PAHO/WHO (26).

In **Colombia**, between EW 1 and EW 40 of 2024, 74 confirmed cases of Oropouche<sup>8</sup> have been reported in three departments of the country: Amazonas (n= 70), Caquetá (n= 1), and Meta (n= 1), in addition to the identification of two cases from Tabatinga, Brazil. The cases were identified through a retrospective laboratory search strategy implemented by the National Institute of Health of Colombia (INS per its acronym in Spanish) based on dengue surveillance (n= 38) and investigation of febrile syndromes (n= 36). Regarding the distribution of cases by sex and age group, 51.4% (n= 38) were female cases and the highest proportion of cases was recorded in the 10-19 age group with 36.5% (n= 27) of cases. No deaths that could be associated with OROV infection have been reported (8, 9)

Six cases of coinfection with dengue were recorded: in the department of Amazonas, four in the municipality of Leticia (two with DENV-1 and two with DENV-2), one in the municipality of Puerto Nariño (DENV-3), and one in the department of Meta, in the municipality of Guamal (DENV-4) (8, 9).

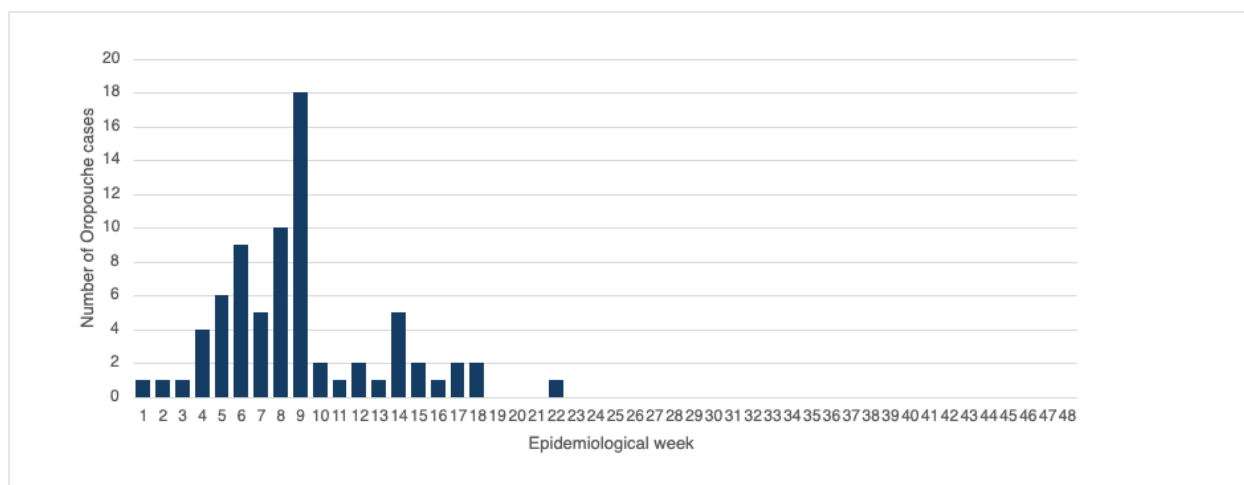
With respect to the surveillance of cases of vertical transmission and its consequences as of 3 October 2024, two cases of Oropouche have been identified in pregnant women, both from Leticia, aged 18 years (onset of symptoms at 29 weeks of gestation) and 22 years (onset of symptoms at 34 weeks of gestation). Both evolved favorably and their children were born without complications. To date, none of the infants show evidence of congenital anomalies, neurological syndromes or neurodevelopmental disorders (8, 9).

Regarding the trend of Oropouche cases by epidemiological week of symptom onset, the number of cases increased starting in EW 4 of 2024, reaching the highest number in EW 9 with 18 cases; 57% of the cases occurred between EW 6 and EW 9. The last case detected was during EW 22. Subsequently, no new cases have been confirmed by the retrospective surveillance strategy of the National Reference Laboratory or through the report of investigative work (**Figure 4**) (8, 9).

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<sup>8</sup> Colombia has a confirmed case definition only. The definition of a confirmed case of Oropouche is the following: Patient with acute febrile illness of 2 to 7 days of evolution accompanied by any of the following manifestations: headache, retro-ocular pain, myalgias, arthralgias, rash, exanthema, with positive PCR for OROV (6).

**Figure 4.** Number of confirmed cases of Oropouche by epidemiological week of onset of symptoms, Colombia, as of EW 48 of 2024.



**Source:** Adapted from data provided by the Colombia International Health Regulations National Focal Point (IHR NFP). Communication received on 10 October 2024 via e-mail. Bogotá; 2024. Unpublished (8, 9)

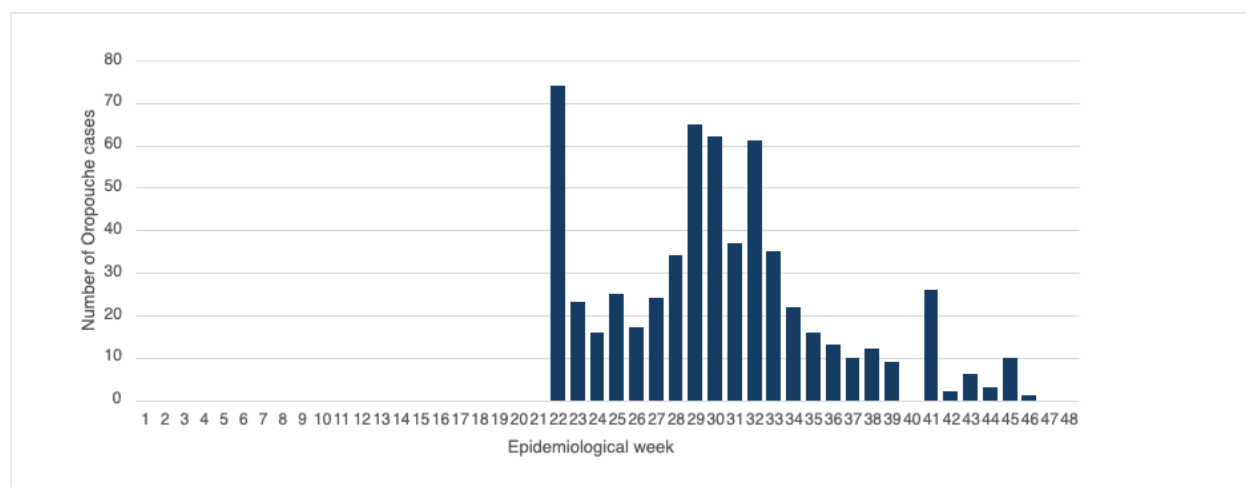
In **Cuba**, since May 2024 and as of EW 48, 603 confirmed cases<sup>9</sup> of Oropouche were reported. Cases continue to be identified through the surveillance of non-specific febrile syndrome (IFS), registering cases in 109 municipalities in the 15 provinces of the country. The provinces of Havana (n= 174), Santiago de Cuba (n= 75), Pinar del Rio (n= 47), and Cienfuegos (n= 39) accounted for 55% of confirmed cases (10, 27). Regarding the distribution of confirmed cases by sex and age group, 55% (n= 331) were female and the highest proportion of cases was recorded in the 19-54 age group with 53% (n= 320) of cases (10).

On 19 September 2024, Cuba reported three cases of Guillain-Barré syndrome (GBS) linked to OROV. The cases involved two females and one male, aged 51, 53, and 64 years, who experienced symptom onset in June. All three are residents of Santiago de Cuba province, with one from San Luis municipality and two from Santiago de Cuba municipality. Samples of serum, cerebrospinal fluid (CSF), and urine were collected from two cases, while only serum and CSF samples were obtained from the third case. Bacterial and mycological cultures were performed from the serum and CSF samples and were negative in all cases. The three types of samples were processed for multiple RT-PCR DENV/ZIKV/CHIKV and additionally RT-PCR OROV; in all three cases, serum and CSF samples were positive for OROV (10, 28).

Regarding the trend of Oropouche cases by epidemiological week of onset of symptoms, it is observed that after the detection of cases in EW 22 of 2024, the highest number of cases was recorded between EW 29 and EW 32 (n= 225 cases) and subsequently a decrease that has been maintained until EW 39 (**Figure 5**) (10).

<sup>9</sup> **Cuba** has a **definition of suspected and confirmed case**. The definition of a **suspected case of Oropouche** is as follows: any case presenting fever of 38 or more and headache with one or more of the following symptoms: myalgias, arthralgias, chills, lumbago, photophobia, with resolution of the symptoms in two to four days, negative IgM laboratory report for dengue, with a history of having been in an endemic area or where an unusual increase of SFI has been recorded. The definition of a **confirmed case of Oropouche** is as follows: any case with laboratory diagnosis of OROV infection (10)

**Figure 5.** Number of confirmed cases of Oropouche by epidemiological week of onset of symptoms, Cuba, as of EW 48 of 2024.



**Source:** Adapted from data provided by the Cuba International Health Regulations National Focal Point (IHR NFP). Communication received 25 November 2024 via e-mail. Havana; 2024. Unpublished (10).

In **Ecuador**, as of EW 48 of 2024, three laboratory-confirmed cases of Oropouche were reported, which were detected based on retrospective analysis of dengue-negative samples by the National Institute of Public Health Research (INSPI per its acronym in Spanish). The cases correspond to two males aged 45 and 62 years and a female aged 36 years, with no history of travel. The cases had onset of symptoms on 5 January, 11 June, and 17 July 2024, respectively. The first case is a resident of Thasisha canton in the province of Morona Santiago, the second in Caluma canton in the province of Bolivar and the third is a resident of Urdaneta canton, province of Los Rios. None of the cases required hospitalization and have fully recovered since (10).

In **Guyana**, in EW 37 of 2024, two laboratory-confirmed cases of Oropouche were reported, being the first detection of this disease in the country. The cases corresponded to two females aged 47 and 42 years, with no history of travel, who presented symptoms on 21 August and 2 September 2024, respectively. Both cases had resided in the same geographical area in the Mahaica-Berbice region (Region No. 5), near the Atlantic Ocean, for at least 14 days prior to onset of symptoms. The cases sought medical attention at Fort Wellington Regional Hospital (Region No. 5), the first on 24 August 2024, and the second on 3 September 2024. Blood samples were collected on the same dates the cases sought care and sent to the National Public Health Reference Laboratory (NPHRL) for testing in accordance with national diagnostic guidelines. RT-PCR tests performed on 3 and 7 September confirmed positive results for OROV and negative results for dengue, Zika, chikungunya, and Mayaro viruses. (14).

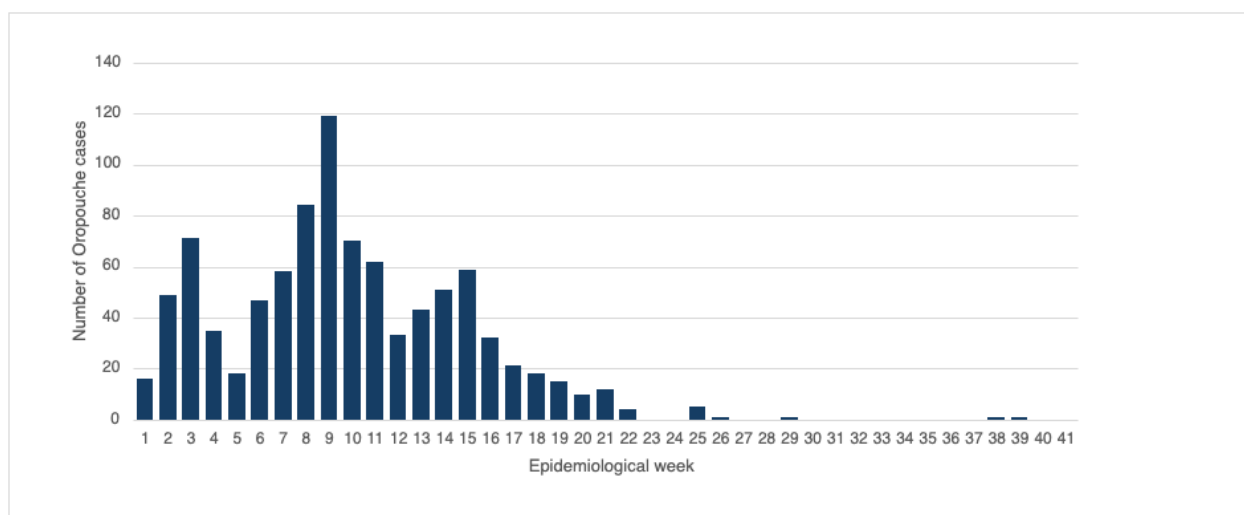
In **Panama**, the first confirmed case of Oropouche virus disease in 2024 was reported on 15 November 2024. The case was confirmed by the laboratory of the Instituto Conmemorativo Gorgas de Estudios en Salud (ICGES per its acronym in Spanish) in Panama. The case corresponds to a male between 30 and 35 years of age, resident of the province of Coclé, with a history of recent travel within the country. The case had onset of symptoms on 27 August 2024, and was diagnosed with suspected dengue, did not require hospitalization and recovered at home. This case was detected through the laboratory surveillance strategy, which involved testing a specimen from a patient with dengue-like symptoms who initially

tested negative for DENV. On 15 November, the presence of OROV was confirmed by RT-PCR. As of the date of preparation of this alert, no new cases of Oropouche have been identified in the country (16).

In **Peru**, between EW 1 and EW 40 of 2024, 936 confirmed cases of Oropouche have been reported<sup>10</sup> in eight departments of the country. The departments where confirmed cases were reported are: Loreto (n= 466), Madre de Dios (n= 312), Ucayali (n= 138), Huanuco (n= 15), Junin (n= 2), Tumbes (n= 1), San Martin (n= 1), and Puno (n= 1). Regarding the distribution of cases by sex and age group, 51% (n= 476) were male, with the highest proportion of cases in the 30-39 age group with 37% (n= 348) of cases. No deaths have been reported that could be associated with OROV infection. There are no reports of possible vertical transmission of OROV (17).

Regarding the trend of Oropouche cases by epidemiological week, it can be observed that Oropouche cases showed the highest number of cases in EW 9 with 119 cases, after which there was a progressive decrease in the number of cases (**Figure 6**) (17).

**Figure 6.** Number of confirmed cases of Oropouche by epidemiological week of onset of symptoms, Peru, as of EW 40 of 2024.

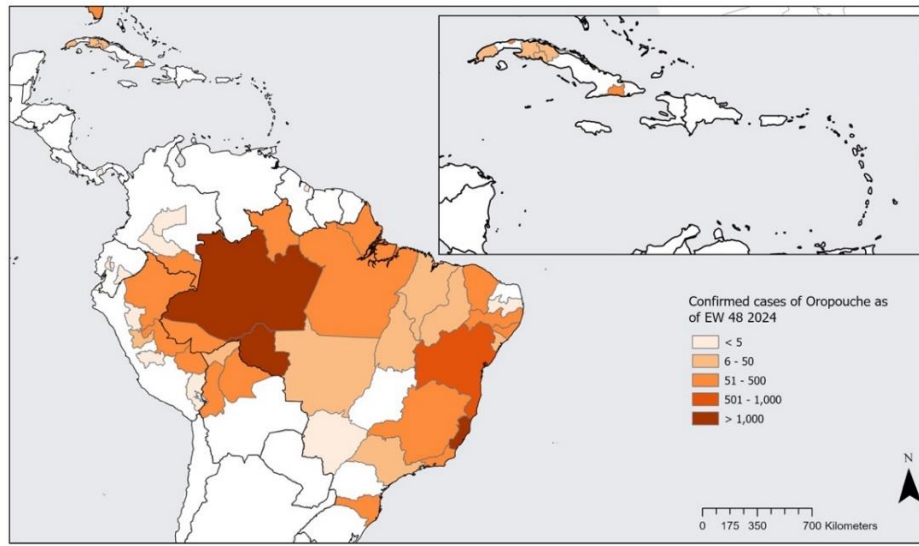


**Source:** Adapted from Oropouche data provided by the Peru International Health Regulations National Focal Point (IHR NFP). Communication received 10 October 2024 via email. Lima; 2024. Unpublished (17).

<sup>10</sup> Under the Oropouche Epidemiological Alert in the Americas Region published by PAHO/WHO on 1 August 2024. As an epidemiological surveillance strategy, the Peruvian Ministry of Health has conducted an active search for Oropouche through differential diagnosis of dengue cases with negative results during the year.



**Figure 7.** Geographical distribution of cumulative confirmed cases\* of autochthonous transmission of Oropouche in the Americas Region, 2024.

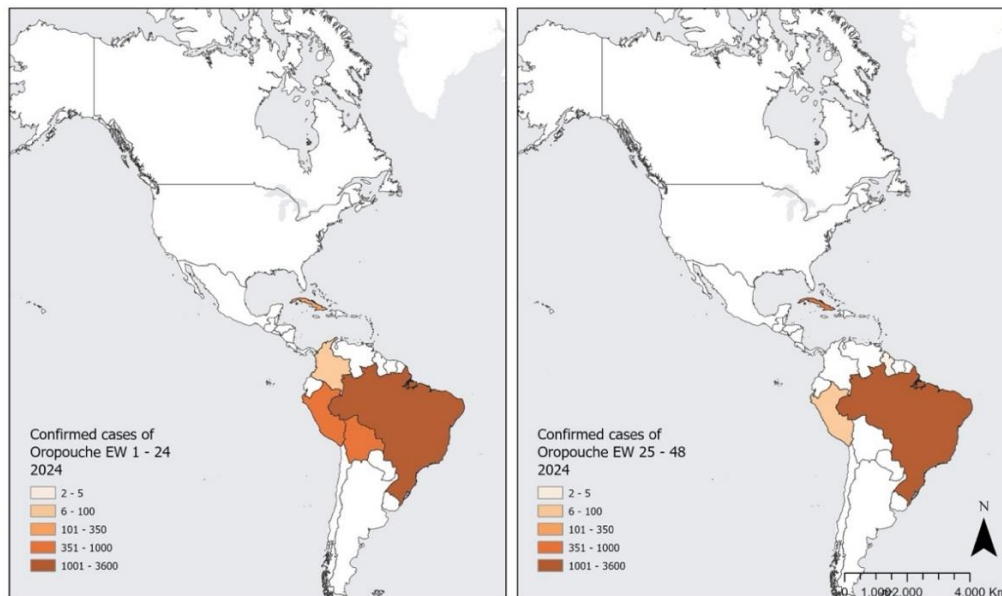


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 Map production: PAHO Health Emergencies Department, Health Emergency Information and Risk Assessment Unit, GIS Team.

**\*Note:** The information for Brazil is current through epidemiological week (EW) 49 of 2024.

**Source:** Adapted from data provided by the respective countries and reproduced by PAHO/WHO (1-6, 8-11,14,16, 17).

**Figure 8.** Geographic distribution of Oropouche cases\* in the Americas Region EW 1-17 and EW 18-36, 2024.



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 Map production: PAHO Health Emergencies Department, Health Emergency Information and Risk Assessment Unit, GIS Team.

**\*Note:** The information for Brazil is current through epidemiological week (EW) 49 of 2024.

**Source:** Adapted from data provided by the respective countries and reproduced by PAHO/WHO (1-6, 8-11,14,16, 17).

## Imported cases in countries and territories in the Americas Region

In 2024, in the Americas Region, the situation in countries and territories that have reported only imported cases of Oropouche is provided below.

**Canada** has reported two confirmed cases of Oropouche in EW 33 and EW 38 of 2024, both with a history of travel to Cuba (7).

In the **United States** as of 9 December 2024, 94 imported cases of Oropouche were reported in the states of Florida (n= 90), California (n= 1), Colorado (n= 1), Kentucky (n= 1), and New York (n= 1). The median age of the cases was 52 years (range = 6 to 94 years) and 48% were female. In total, 14 cases were hospitalized and two of the cases had presented with neuroinvasive disease. All cases had a history of travel to Cuba (12, 13).

In the **Cayman Islands**, an imported case of Oropouche virus was reported in an adult Caymanian woman who had traveled to Cuba, confirmed by the Caribbean Public Health Agency (CARPHA) on 16 September 2024. The case had onset of symptoms on 10 August, after their return, including fever, and muscle pain. Initial testing for Oropouche virus in the Cayman Islands on 12 August was positive and confirmed at the CARPHA reference laboratory from a specimen collected on August 15 (15).

## Cases imported into countries outside the Americas Region

Additionally, between EW 23 and EW 39 of 2024, 30 imported cases of Oropouche have been identified in three countries of the WHO European Region: Germany (n= 3), Spain (n= 21), and Italy (n=6); 20 of these cases had a history of travel to Cuba and one to Brazil. These cases correspond to the first cases reported in this region (18-21).

## Guidance to Member States

The Pan American Health Organization / World Health Organization (PAHO / WHO) reiterates to Member States the recommendations on diagnosis and clinical management, laboratory diagnosis, prevention and vector control of Oropouche virus disease; as well as specific recommendations related to cases of vertical infection, congenital malformation or fetal death associated with OROV infection.

The current outbreak highlights the need to strengthen epidemiological and entomological surveillance measures and to reinforce preventive measures in the population.

Likewise, in order to contribute to the generation of knowledge about this disease, Member States are requested to report any unusual event related to it, including deaths associated with OROV infection, as well as cases of possible vertical transmission and its consequences (29).

## Diagnosis and clinical management

After an incubation period of 4 to 8 days, patients present high fever, intense headache (usually located in the nape), myalgia, arthralgia, extreme weakness (prostration) and, in some cases, photophobia, dizziness, persistent nausea or vomiting and low back pain may occur. Fever usually lasts up to 5 days. In some patients, symptoms may include vomiting, diarrhea and bleeding, manifesting as petechiae, epistaxis and gingival bleeding. The infection usually resolves within 2 to 3 weeks (31).

In rare situations, OROV can cause meningitis or encephalitis. In these cases, patients show neurological symptoms and signs such as vertigo, lethargy, nystagmus and nuchal rigidity. The virus can be detected in cerebrospinal fluid (CSF) (31).

During the first week of illness, the main differential diagnosis is dengue infection. In the second week of illness, the clinical differential diagnosis should consider the possibility of meningitis and encephalitis (31). It is reported that up to 60% of cases present relapses of symptoms in the weeks following recovery (31).

Currently, no specific vaccines or antiviral drugs are available to prevent or treat OROV infection. The treatment approach is symptomatic, focused on relieving pain and fever, hydrating or rehydrating the patient and controlling vomiting. In situations where the disease manifests in a neuroinvasive form, the patient should be admitted to specialized units that allow constant monitoring (31).

## Diagnosis and laboratory surveillance

Guidance on laboratory diagnosis and surveillance of emerging arboviruses, including OROV, is detailed in the "**Guidelines for the Detection and Surveillance of Emerging Arboviruses in the Context of Other Arbovirus Circulation**" and "**Guidelines for the Detection and Surveillance of Oropouche in Potential Cases of Vertical Infection, Congenital Malformation, or Fetal Death**" (32, 33).

## Prevention and vector control

OROV is transmitted to humans mainly through the bite of the midge *Culicoides paraensis*, which is widely distributed in the Americas Region. Other vectors such as the mosquito *Culex quinquefasciatus* can transmit OROV but are considered of secondary importance (34).

The proximity of vector breeding sites to human habitation is an important risk factor for OROV infection. Vector control measures focus on reducing vector populations by identifying and eliminating vector breeding and resting sites. These measures include (35-37):

- Strengthen entomological surveillance for the detection of species with potential vector capacity.
- Map urban, peri-urban and rural areas with conditions for the development of potential vectors.
- The promotion of good agricultural practices to avoid the accumulation of residues that serve as breeding and resting sites.

- The filling or draining of water collections, ponds or temporary waterlogging sites that may serve as oviposition sites for females and breeding sites for vector larvae.
- Elimination of weeds around the premises to reduce resting and shelter sites for vectors.

Additional information on vector control measures can be found in the document "**Interim guidelines for entomological surveillance and prevention measures for Oropouche virus vectors**" (38).

In addition, measures should be taken to prevent vector bites, which are reinforced in the case of pregnant women. These measures, which are also useful for preventing other arboviruses, include (35, 36)

- Protection of homes with fine mesh screens on doors and windows.<sup>11</sup>
- Use of clothing that covers the legs and arms, especially in homes where there is someone sick.
- Use of repellents containing DEET, IR3535 or icaridin, which may be applied to exposed skin or clothing, and their use must be in strict accordance with product label instructions.
- Use of insecticide-impregnated or non-insecticide-treated mosquito nets for daytime sleepers (e.g., pregnant women, infants, sick or bedridden people, the elderly).
- In outbreak situations, outdoor activities should be avoided during the period of peak vector activity (dawn and dusk).
- In the case of people with a higher risk of being bitten, such as forestry workers, agricultural workers, etc. The use of clothing that covers the exposed parts of the body is recommended, as well as the use of the previously mentioned repellents.

Finally, considering the ecological characteristics of the main vectors of OROV, it is important to consider that the decision to carry out vector control activities with insecticides depends on entomological surveillance data and the variables that may condition an increase in the risk of transmission. In areas of transmission, insecticide spraying may be an additional measure, especially in urban and peri-urban areas, when technically advisable and feasible.

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<sup>11</sup> It is recommended that the mesh holes be smaller than 1.0 mm because the average size of the female *Culicoides paraensis*, considered to be the main vector involved in OROV transmission, is 1 to 1.5 mm.

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