ASEAN BIODIASPORA VIRTUAL CENTER | DISEASE ALERT

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First alert: 29 July 2024 | Oropouche Virus in Brazil

SUB-LOCATIONS AFFECTED

Amazonas, Rondonia, Bahia, Espírito Santo, Acre, Roraima, Santa Catarina, Minas Gerais, Pará, Rio de Janeiro, Piauí, Mato Grosso, Pernambuco, Amapá, Ceará, Maranhão, Paraná, Mato Grosso do Sul, and Tocantins

Photo of midges or sand fly (*Culicoides sp.*), main vector of Oropouche virus transmission. Source: CSIRO, CC BY 3.0, https://commons.wikimedia.org/w/index.php?curid=35497011

Event Description

Brazil's Ministry of Health released an epidemiological bulletin in early July 2024 highlighting an increase in cases of Oropouche virus (OROV), with 6,973 infections reported since the beginning of the year, compared to 831 cases in 2023, bringing the total to 7,805 cases. The country has confirmed its first two deaths from Oropouche fever.

Case distribution

1. Amazonas (North): 3,228 cases
2. Rondonia (North): 1,713 cases
3. Bahia (Northeast): 790 cases (2 deaths)
4. Espírito Santo (Southeast): 374 cases
5. Acre (North): 263 cases
6. Roraima (North): 152 cases
7. Santa Catarina (South): 135 cases (1 death)
8. Minas Gerais (Southeast): 83 cases
9. Pará (Southeast): 74 cases
10. Rio de Janeiro (Southeast): 58 cases
11. Piauí (Northeast): 19 cases
12. Mato Grosso (Midwest): 16 cases
13. Pernambuco (Northeast): 9 cases
14. Amapá (North): 7 cases
15. Ceará (Northeast): 5 cases
16. Paraná (South): 3 cases
17. Maranhão (Northeast): 3 cases
18. Tocantins (North): 1 case
19. Mato Grosso do Sul (Midwest): 1 case

Epidemiological Information

- Most cases have been concentrated in the northern states of Amazonas and Rondônia, with over 3,500 and 1,700 cases, respectively. Other states have reported cases including Bahia, Acre, Espírito Santo, Pará, Rio de Janeiro, Piauí, Roraima, Santa Catarina, Amapá, and Maranhão. Cases recorded in Ceará, Paraná, and Mato Grosso do Sul are believed to have been acquired in Bolivia.
- The demographic most affected by OROV comprises individuals aged 20 to 29, followed by those aged 30 to 39, 40 to 49, and 10 to 19 years. Bahia reported the first death linked to the disease: a 24-year-old woman from Valença. A second death, involving a 21-year-old patient from Camamu, is currently under investigation.
- As of 2023, the detection of Oropouche Fever (FO) cases has increased because of the decentralization of biomolecular diagnosis to the country's Central Public Health Laboratories (Lacen) (Technical Note 6/2024-CGARB/Dedt/SVSA/MS). In 2023, 831 samples had detectable molecular biology laboratory diagnosis (RT-PCR) for the Oropouche virus (OROV). In 2024, up to epi-week 26, 6,976 samples had a detectable result for the virus.

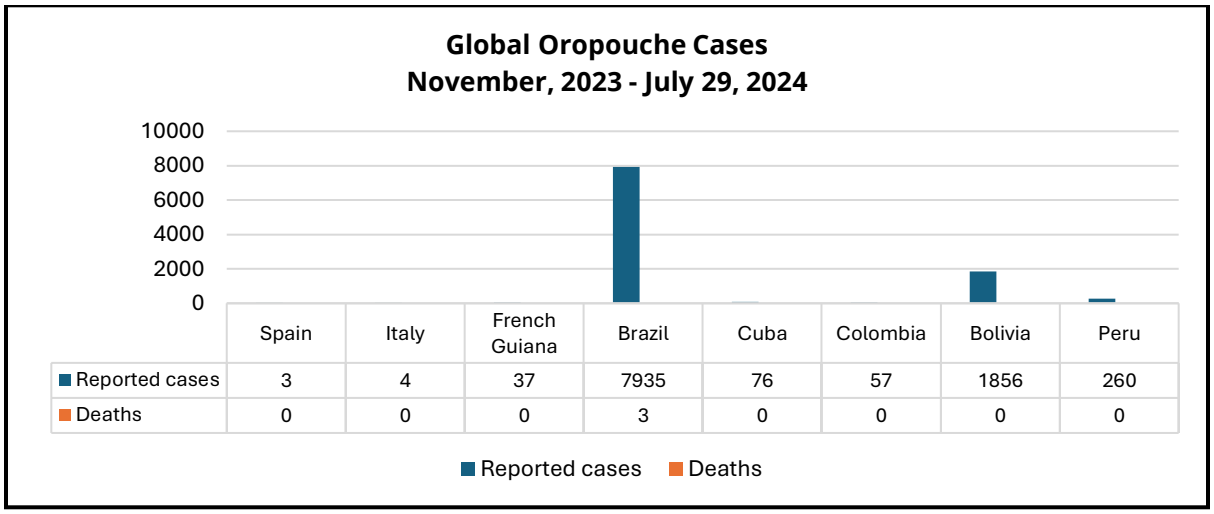

Figure 1. Global distribution of oropouche cases, November 2023 – July 29, 2024

Additional Context

- Brazil has confirmed the first two deaths of Oropouche fever. The victims were two women aged 22 and 24 who lived in Bahia state and had no comorbidities. Their symptoms were similar to those of severe dengue fever.
- The first death occurred on March 27 in Valença. The patient began experiencing symptoms on March 23, including fever, headache, muscle pain, intense abdominal pain, diarrhea, nausea, retro-orbital pain, and vomiting.
- The second death occurred in Santa Catarina. According to the ministry, the case was identified by the Paraná State Health Department and the patient was treated by local health services in Paraná, where the death occurred in April.
- The third patient developed symptoms on June 5, including fever, myalgia, headache, retro-orbital pain, lower limb pain, asthenia, and joint pain. Four days later, she developed a red rash, purple spots on her body, and bleeding from the nose, gums, and vagina.

Response Measures:

The Ministry of Health expanded case detection nationwide beginning in 2023 by providing diagnostic tests for the first time to the entire network of Central Public Health Laboratories (Lacen). In response to the detected cases, the Bahia State Department of Health conducted investigations and recorded the deaths.

On July 17, 2024, PAHO issued guidelines to assist countries in detecting and surveilling Oropouche virus, including potential cases of mother-to-child transmission, congenital malformations, or fetal deaths. The organization is collaborating with countries where cases have been confirmed to share knowledge and experiences. Recommended measures include:

- Protecting homes with fine mesh mosquito nets on doors and windows.
- Wearing clothing that covers arms and legs, especially in homes with sick individuals.
- Applying repellents containing DEET, IR3535, or icaridin.
- Using mosquito nets around beds or furniture where people rest.

Etiology and Clinical Features

Oropouche virus, part of the Simbu serogroup of Orthobunyavirus in the Peribunyaviridae family, was first detected in 1955 in Trinidad and Tobago. Endemic to the Amazon basin, outbreaks were reported in Brazil, Panama, and Peru before 2000, with evidence of animal infections in Colombia and Trinidad. Oropouche virus is endemic to the Amazon basin.

The incubation period for Oropouche virus disease is 3–10 days; typically begins with abrupt fever (38-40°C), severe headache, chills, myalgia, and arthralgia. Other symptoms include photophobia, dizziness, retro-orbital pain, nausea, vomiting, and a maculopapular rash starting on the trunk. Less common symptoms are conjunctival injection, diarrhea, severe abdominal pain, and hemorrhagic symptoms (e.g., epistaxis, gingival bleeding, melena, menorrhagia, petechiae).

Symptoms usually last 2–7 days but can recur in up to 60% of patients. Oropouche virus symptoms can resemble those of dengue, chikungunya, Zika, or malaria.

Clinical Diagnosis

Preliminary diagnosis of Oropouche virus disease is based on clinical symptoms, infection location (including travel history), and exposure risk activities. Virus evidence can be detected in serum samples during the first week. The virus is easily cultured in the first few days but is usually undetectable after day 5, though viral RNA can be detected longer. IgM antibodies form by the end of the first week, followed by IgG antibodies.

For neuroinvasive disease, viral RNA may not be present in CSF, making serologic testing the preferred method. Viral RNA has been found in saliva and urine 5 days into illness, but testing these samples is not validated in the U.S. The CDC can perform plaque reduction neutralization tests (PRNTs) to detect virus-specific neutralizing antibodies in serum and CSF. Confirming a recent infection requires both acute and convalescent samples to show a 4-fold or greater change in antibody titers.

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