Society for Maternal-Fetal Medicine
High-risk pregnancy experts

SMFM Alert on Oropouche Virus Disease in Pregnancy
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This guidance was developed by the Society for Maternal-Fetal Medicine Committee on Infectious Diseases and Emerging Threats with the assistance of Naima Joseph MD, MPH, Brenna Hughes MD, MSc and Christina Megli, MD, PhD.

This document has been updated as follows:

- Includes an update of countries and regions with Level 1 and Level 2 Travel Health Notices for Oropouche.
- Includes additional recommendations for CLIA-approved testing for pregnant people and scheduled hospital delivery location selection based on facility capability for postnatal testing and treatment.
- Includes additional symptoms of possible cough and sore throat for OROV.
- Includes information about case-reporting using case codes 50290 or 50291, as well as a link to the new OROV data map (US) and OROV data map (global).
- Includes additional data about OROV cases reported in 2024 and 2025.
- Includes information about possible sexual transmission.
- Includes information about possible vertical transmission.

On August 16, 2024, the Centers for Disease Control and Prevention issued a Health Alert Network (HAN) Health Advisory to notify clinicians and public health authorities of an increase in Oropouche virus (OROV) disease, originating from endemic areas and in new areas in South America and the Caribbean.[1] OROV is usually transmitted through insect bites and causes a mild, self-limiting illness in most people. Vertical transmission of OROV is possible, and reported cases of OROV disease during pregnancy have been associated with pregnancy loss or congenital anomalies.[1] There are no currently available vaccines or curative treatments for OROV.[1] Due to the risk of perinatal transmission and possible adverse pregnancy outcomes, pregnant people are advised to avoid nonessential travel to high transmission and endemic areas or to deploy personal protective strategies if travel is warranted.[1]

The Society for Maternal-Fetal Medicine (SMFM) continues to monitor the outbreak closely and will provide updated guidance as necessary. The following are interim clinical considerations.

Key Highlights

- Outbreaks of OROV have been reported in endemic areas and regions in South America and the Caribbean.
    - The CDC has issued a Level 1 Travel Health Notice for Barbados, Bolivia, Brazil, Colombia, Cuba, Ecuador, Dominican Republic, Guyana, Peru, and Venezuela.

    - The CDC has issued a Level 2 Travel Health Notice for Espírito Santo, Brazil and Darién Province, Panama.
- OROV is spread through bites of infected midges and possibly mosquitos.
- OROV disease is usually symptomatic and recurrent and presents with fever, arthralgia, and myalgia. It rarely progresses to hemorrhagic or neuroinvasive disease. Treatment is supportive.
- Infection during pregnancy may be associated with vertical transmission, miscarriage, stillbirth, or congenital anomalies, such as microcephaly.
- Health providers concerned for possible infection of a patient must contact their state or local health departments to submit blood or other samples for OROV testing.

Summary of Recommendations

- In the setting of confirmed maternal infection during pregnancy, an early fetal anatomical survey and serial fetal growth surveillance should be considered when feasible.
- Pregnant people should be counseled to avoid nonessential travel to endemic areas or areas experiencing outbreaks. Personal protective strategies are advised for those who must travel, including wearing long-sleeved pants and shirts and using EPA-registered DEET-containing insect repellant, window and door screens, and outdoor fans.
- Pregnant people who meet the criteria of a suspected OROV case should undergo CLIA-approved testing for OROV, facilitated by the local health departments. Concomitant testing for dengue virus infection is also recommended.
- Pregnant patients with confirmed or suspected OROV disease should deliver at a hospital appropriate to facilitate postnatal evaluation.
- In an abundance of caution, clinicians may suggest that people abstain from sexual intercourse for six weeks or use barrier contraceptive methods if they or their partners are traveling to, or having traveled to, an area with a Level 1 or 2 Travel Health Notice.

Introduction

Arboviral infections have re-emerged in South America in the past decade, initially with the large Zika outbreaks in 2015 and 2016 and recurrent outbreaks of chikungunya and dengue.[1] Most recently, OROV has re-emerged at an unprecedented scale.

Between January 1 – August 1, 2024, more than 8,000 cases of OROV disease were reported in Bolivia, Brazil, Columbia, and Peru, as well as for the first time in Cuba and Haiti.[1,2] By the end of 2024, a total of 16,239 confirmed cases of OROV disease were reported in the Americas region.[3] In the first four weeks of 2025, there have been 3,765 cases of OROV disease reported in the same region.[3]

OROV is a member of the Orthobunyavirus genus and was first identified in 1955. Since then, the virus has had limited circulation in parts of South America, with cases reported in settings close to forested areas. However, the current OROV outbreak has infected people living in regions far from forested areas. It is transmitted primarily through bites from small midges (*Culicoides paraensis*) as well as some mosquitoes, including the *Culex* and *Aedes* species.[1,2]

Clinical Presentation

Approximately 60% of persons infected with OROV become symptomatic. The incubation period is 3 to 10 days. Most cases of Oropouche disease are mild, with symptoms similar to dengue, including abrupt-onset fever, severe headache, myalgia, arthralgia, chills, rash, and nausea. Approximately 14% of persons infected with OROV have also reported cough and sore throat. Initial symptoms resolve within a few days; however, as many as 70% of patients will experience recurrent symptoms within days to weeks after resolution of their initial illness.[1]

Most people infected with OROV will have a mild illness. Up to 5% develop a hemorrhagic illness, characterized by gingival bleeding and petechial rash, or a neuroinvasive disease, such as meningitis or meningoencephalitis. Fatality is rare; the first two reported deaths were in young, nonpregnant women without medical comorbidities or risk factors.[1,2] It is unknown how the clinical presentation or severity of the disease differs during pregnancy or how the timing of infection during pregnancy impacts OROV disease outcomes.

Risk of Vertical Transmission

In July 2024, Brazilian authorities alerted the Pan American Health Organization regarding suspected vertical transmission and adverse pregnancy outcomes, specifically the risk of pregnancy loss and congenital anomalies in six pregnancies.[4]

In one case, a patient at 30 weeks of gestation developed symptoms and tested positive for OROV by real-time polymerase chain reaction (RT-PCR). The patient re-presented two weeks later with decreased fetal movement, and fetal demise was confirmed. Placental and fetal tissue samples were RT-PCR positive for OROV and negative for other arboviruses (ie, dengue, chikungunya). In a second case, a patient presented in the early first trimester with symptoms, and serum RT-PCR testing confirmed OROV disease. Spontaneous miscarriage occurred two weeks later, in the eighth week of gestation.[4] Pregnancy tissue was not available for testing.[4]

A retrospective study of unexplained microcephaly cases in Brazil reported that there were six infants with microcephaly with evidence of OROV IgM in serum or in cerebrospinal fluid. Maternal testing was positive for hemagglutination and/or IgM for 4/5 available specimens. Two of the 6 infants died and an autopsy was performed on one neonate with viral meningoencephalitis and extensive brain necrosis the RT-PCR positive for OROV in kidney, CSF, and lung. The mother-infant dyads were negative for toxoplasma, syphilis, rubella, CMV, dengue virus, zika virus and chikungunya virus.[5]

A recent case-series on the OROV outbreak in Espirito Santo included observation of 73 maternal infections. 15 women had delivered by the end of the study period. Of this group, RT-PCR tests of the placenta were conducted in 12 cases, and the placenta was positive for OROV in five of the cases. There was one report of a neonate with unilateral dysgenesis of the corpus callosum positive for OROV RT-PCR. There was evidence of vertical transmission in two cases based on RTC-PCR tests positive in the neonates. Of these two cases, possible intrapartum transmission was supported by a neonate with a clinical manifestations of OROV characterized by fever, exanthema and agitation.[6]

Also reported were four cases of infants with microcephaly who underwent testing after cerebrospinal fluid (CSF) returned negative for Zika, dengue, and chikungunya but positive for OROV immunoglobulin (IgM).[5]

Although these data are insufficient to establish a causal relationship between OROV infection and congenital anomalies, data suggest that perinatal transmission occurs. SMFM supports the CDC recommendation that pregnant people reconsider nonessential travel to areas with an Oropouche Level 2 Travel Health Notice. If travel must occur to areas with Level 1 or Level 2 Travel Health Notices, pregnant travelers should deploy personal protective strategies (See CDC Travel Health Notices).[1,7]

Risk of Sexual Transmission

A recent publication in the *Emerging Infectious Diseases* journal describes a patient who was diagnosed with OROV with bodily fluids positive for OROV and viral RNA including semen. There has been no known spread of OROV through sex to date. However, this report suggests possible sexual transmission, as virus in semen has been associated with sexual transmission of other viral pathogens. In an abundance of caution, the CDC recommends that clinician counsel people regarding abstinence from sexual intercourse for six weeks or use barrier contraceptive methods if they or their partners are traveling to, or having traveled to, an area with a Level 1 or 2 Travel Health Notice.

Diagnostic Testing

The CDC has recently updated its guidance regarding clinical testing.[8]

A suspected case of OROV is defined as a patient who has been in an area with documented or suspected OROV circulation within two weeks of **initial** symptom onset (as the patient may experience recurrent symptoms), and the following:

- Acute onset of reported fever or chills or two or more of the following: headache, myalgia, arthralgia, retroorbital/eye pain, or signs and symptoms of neurological involvement (eg, stiff neck, altered mental status, seizures, limb weakness, or cerebrospinal fluid pleocytosis); AND
- Tested negative for other possible diseases, especially dengue; AND
- Absence of a more likely clinical explanation.

Pregnant people who meet the criteria of a suspected OROV case should undergo CLIA-approved testing for OROV, facilitated by the local health departments. Concomitant testing for dengue virus infection is also recommended. The CDC can perform CLIA-validated OROV testing using real-time transcription-polymerase chain reaction (RT-PCR) to detect viral RNA and/or plaque-reduction neutralization test (PRNT) to detect neutralizing antibodies on serum and/or CSF specimens, and are usually present after the first week of infection.

Diagnostic Testing Algorithm

Days post symptom onset	**Assay/Test to be performed**
0 – 7	RT – PCR
6 – 7	PRNT, if RT – PCR is negative

> 7	PRNT

Diagnostic testing in **pregnant persons** differs in that if the patient is positive by PRNT only, acute (collected within two weeks of symptom onset) and convalescent (collected at least two weeks later) serum must be collected and must demonstrate a ≥ four-fold change in neutralizing antibodies to be considered positive.

Health providers must contact their state or local health departments to submit blood or other samples for OROV testing.[8] Notably, any initially positive testing requires confirmatory evaluation, and final test reports may take three weeks.

In many countries, outbreaks of dengue are also occurring in areas with reported OROV transmission.[1] Patients with suspected OROV disease should concomitantly undergo testing for other arbovirus infections, including dengue virus infection.[1] Other diagnostic considerations include chikungunya, Zika, leptospirosis, malaria, or infections caused by various other bacterial or viral pathogens native to OROV-endemic regions.[1]

Case Reporting

The CDC encourages voluntary reporting of OROV cases to ArboNET, the national arboviral surveillance system, using the following two new condition (event) codes for reporting:

- 50290: Oropouche virus disease, non-congenital
- 50291: Oropouche virus disease, congenital

See CDC's OROV data map (US) and OROV data map (global) for more information on current data.

Treatment

Currently, there are no available curative OROV treatments.[1,9] Supportive treatment includes rest, fluids, analgesia, and antipyretic medications. Clinicians should be on high alert for patients who develop obstetric symptoms, neurologic symptoms, or a new rash and consider inpatient observation in these cases or patients at high risk for adverse outcomes (eg, medical comorbidity such as hypertension, diabetes, chronic pulmonary disease, immunosuppressed state, hemoglobinopathy).[1]

Fetal Surveillance

Currently, there is no role for prenatal diagnostic testing. The data to guide fetal surveillance are currently insufficient. The timing of infection during pregnancy and co-existing risks for adverse outcomes inform the potential risk to the fetus. There is insufficient data on timing of infection and risks of vertical transmission. In the setting of confirmed maternal infection during pregnancy, an early fetal anatomic ultrasound and serial fetal growth surveillance could be considered when feasible.[1,10] Evaluation of fetal neuroanatomy should be performed during sonographic surveillance.[1,10]SMFM will continue to monitor cases of vertical transmission and update its recommendations for fetal surveillance as indicated.

To facilitate postnatal testing and treatment, obstetric care clinicians should alert the appropriate neonatal care team with clinical concerns. Pregnant patients with confirmed or suspected OROV disease should deliver at a hospital appropriate to facilitate postnatal evaluation.

Prevention

There are no vaccines available to prevent OROV disease.[1,9] Pregnant people should be counseled to avoid nonessential travel to endemic areas or areas experiencing outbreaks.[1,7] Personal protective strategies are advised for those who must travel, including wearing long-sleeved pants and shirts and using EPA-registered DEET-containing insect repellant, window and door screens, and outdoor fans.[1,9] Pregnant persons can be counseled that DEET is safe to use during pregnancy.[11]

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