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**CDC Health Advisory**

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## **Increased Chikungunya Virus Activity in Paraguay and Associated Risk to Travelers**

### **Summary**

The Centers for Disease Control and Prevention (CDC) is issuing this Health Alert Network (HAN) Health Advisory to notify clinicians and public health authorities of an increase in the number of cases of chikungunya reported in Paraguay. Most cases have been reported in the capital district of Asunción and the neighboring Central department. As of February 24, 2023, the Ministry of Health in Paraguay reported a total of 71,478 suspect chikungunya cases in Paraguay, with 29,362 of those being probable or confirmed cases since the outbreak began in October 2022 [1]. Further spread of the outbreak in Paraguay and to surrounding countries is possible.

This Health Advisory provides information on the current status of the chikungunya outbreak in Paraguay and advises on evaluating and testing travelers returning from Paraguay with signs and symptoms consistent with chikungunya virus infection. It also highlights those at increased risk for severe disease and prevention measures to mitigate additional spread of the virus and potential importation into unaffected areas, including the United States.

### **Background**

[Chikungunya virus](#) is a mosquito-borne alphavirus transmitted by infected mosquitoes, primarily *Aedes aegypti* and *Aedes Albopictus* [2]. Humans are the primary reservoir during epidemics. Before 2013, outbreaks had been described in Africa, Southern Europe, Asia, and islands in the Indian and Pacific Oceans [3]. In late 2013, local transmission of chikungunya virus was first detected in Caribbean countries and then quickly spread, causing large outbreaks throughout the Americas over the next several years [4-5]. Following these large outbreaks, cases continued to be reported from countries in the Americas at lower levels [6-7].

In 2022, the number of chikungunya cases (n=273,685) reported to the Pan American Health Organization more than doubled the average annual number of cases reported during 2018-2021 [7]. Beginning in late 2022, Paraguay reported an increasing number of chikungunya cases, with more than 70,000 suspect and confirmed cases reported as of February 24, 2023 [1]. Most cases are currently being reported from the capital district of Asunción and neighboring Central department. Further increases in case counts are expected, including from other areas in Paraguay and surrounding countries (e.g., Brazil, Argentina, and Bolivia).

Most people infected with chikungunya virus become symptomatic. The incubation period is typically 3–7 days (range 1–12 days). The most common clinical findings are acute onset of fever and polyarthralgia. Joint pains are usually bilateral, symmetric, and often severe and debilitating [8-9]. Other symptoms can include headache, myalgia, arthritis, conjunctivitis, nausea, vomiting, or maculopapular rash. Clinical laboratory findings can include lymphopenia, thrombocytopenia, and elevated creatinine. Rare complications include uveitis, retinitis, myocarditis, hepatitis, nephritis, bullous skin lesions, hemorrhage, meningoencephalitis, myelitis, Guillain-Barré syndrome, and cranial nerve palsies. People at risk for more severe disease include neonates exposed intrapartum, older adults (e.g. age > 65 years), and people with underlying medical conditions (e.g., hypertension, diabetes, or cardiovascular disease) [9].

Chikungunya and [dengue](#) viruses cocirculate in Paraguay and surrounding countries, are transmitted by the same species of mosquitoes, and have similar clinical presentations during acute illness. For patients with suspected chikungunya disease, it is important to rule out dengue virus infection because proper clinical management of dengue can improve the outcome. [Zika virus](#) also has similar clinical features and transmission patterns as chikungunya and dengue viruses. Paraguay has not reported any Zika cases in 2023 and although the risk of Zika virus infection is currently low, clinicians should consider Zika as part of the differential diagnosis for anyone who tests negative for these other pathogens. In addition to dengue and Zika, other diagnostic considerations might include leptospirosis, malaria, infections caused by various bacterial or viral pathogens (e.g., rickettsia, group A streptococcus, rubella, measles, parvovirus, enteroviruses, adenovirus, Mayaro virus), post-infection arthritis, and rheumatologic conditions.

Laboratory diagnosis is generally accomplished by testing serum or plasma. Cerebrospinal fluid can also be tested in patients with signs and symptoms of neuroinvasive disease.

- For acute samples obtained within the first week of illness, reverse-transcription polymerase chain reaction (RT-PCR) testing for chikungunya viral RNA should be ordered.
- Immunoglobulin M (IgM) enzyme immunoassay (EIA) testing should be considered for specimens testing negative for viral RNA and those obtained toward the end of the first week of illness; IgM usually remains detectable until at least three months after illness onset.
- Plaque reduction neutralization test can be used to confirm antibodies detected on EIA, particularly for patients with severe disease, atypical clinical features, or an exposure history inconsistent with known circulation of the virus.

Diagnostic testing is available through commercial laboratories, some state health departments, and CDC. Contact your state, territorial, or local health department for more information and to facilitate testing.

No specific antiviral treatments or vaccines are available for chikungunya. Treatment for symptoms can include rest, fluids, and use of analgesics and antipyretics. Acetaminophen is the preferred first-line treatment for fever and joint pain in travelers returning from or persons living in dengue-endemic areas. Aspirin and other non-steroidal anti-inflammatory drugs (NSAIDs) should not be used until dengue can be ruled out to reduce the risk of hemorrhage. For patients with persistent joint pain, use of NSAIDs, corticosteroids including topical preparations, and physical therapy may help lessen the symptoms.

Returning travelers infected with chikungunya virus should avoid further mosquito exposure during the first week of illness to mitigate additional spread of the virus and potential importation into unaffected areas in the United States. Chikungunya virus disease is a [notifiable disease](#) in the United States, and cases should be reported to state, territorial, and local health authorities.

## Recommendations

### *Recommendations for Healthcare Providers*

- Consider chikungunya virus infection in travelers returning from Paraguay and surrounding countries with acute onset of fever and polyarthralgia.

- Contact your state health department to facilitate diagnostic testing (see paragraph about laboratory diagnosis in the section above for more information on appropriate testing).
- [Rule out dengue virus infection](#) in travelers with suspect chikungunya virus infection as these viruses often cocirculate and have similar clinical presentations during acute illness. Early clinical management of dengue can improve patient outcome.
- Consider other etiologies in the differential for patients testing negative for chikungunya and dengue infection (e.g., Zika, leptospirosis, malaria, infections caused by various bacterial or viral pathogens [e.g., rickettsia, group A streptococcus, rubella, measles, parvovirus, enteroviruses, adenovirus, Mayaro virus], post-infection arthritis, and rheumatologic conditions).
- Manage travelers with suspect chikungunya with acetaminophen as the preferred first-line treatment for fever and joint pain in travelers returning from Paraguay and surrounding areas. Aspirin and other NSAIDS should not be used until dengue can be ruled out to reduce the risk of hemorrhage.
- Be aware that people at risk for more severe disease include neonates exposed intrapartum, older adults (e.g., age >65 years), and people with underlying medical conditions (e.g., hypertension, diabetes, or cardiovascular disease).
- Provide travelers to Paraguay and surrounding areas information on the risk of chikungunya and dengue and how to [prevent these mosquito-borne infections](#).
- Inform returning travelers suspected to have chikungunya of the need to protect themselves from mosquito exposure during the first week of illness to prevent further transmission in communities where the vector is present ([Range of Ae. aegypti and Ae. albopictus in the United States](#)).
- Report suspected chikungunya cases to state or local health department to facilitate diagnosis and mitigate risk of local transmission.

#### *Recommendations for State, Territorial, and Local Health Departments*

- Perform surveillance for chikungunya cases in returning travelers and be aware of risk of possible local transmission in areas where *Aedes* species mosquitoes are currently active.
- Assist healthcare providers with obtaining appropriate testing for diagnosing chikungunya virus infection.
- Report confirmed chikungunya virus infections to CDC via [ArboNET](#), the national surveillance system for arthropod-borne viruses.

#### *Recommendations for Travelers*

- Travelers can protect themselves from chikungunya by [preventing mosquito bites](#), including using an [Environmental Protection Agency \(EPA\)-registered insect repellent](#); wearing long-sleeved shirts and pants; and staying in places with air conditioning or that use window and door screens.
- Pregnant people considering travel to Paraguay and surrounding countries should discuss their travel plans and potential risks with their healthcare provider before travel.
- Travelers should be aware that the [most common symptoms of chikungunya](#) are fever and joint pain and that symptoms usually begin 3-7 days after being bitten by an infected mosquito. Most people with chikungunya feel better within a week, but in some joint pain can be severe and disabling and may persist for months.
- Travelers to Paraguay and surrounding countries who develop fever, joint pain, headache, muscle pain, joint swelling, or rash should:
  - Seek medical care and tell your healthcare provider when and where you traveled.
  - Do not take aspirin and other NSAIDS (e.g., ibuprofen) until dengue can be ruled out to reduce the risk of bleeding.
  - [Prevent mosquito bites](#) during the first week of illness to avoid further spread in areas where mosquitoes are active.

#### **For More Information**

- [CDC Chikungunya Virus](#)
- [CDC Chikungunya Virus Information for Healthcare Providers](#)

- [CDC Factsheet Chikungunya information for healthcare providers](#)
- [CDC Travel Health Notices](#)
- [CDC Yellow Book, Chikungunya](#)
- [Pan American Health Organization, 2023. PLISA Health Information Platform for the Americas](#)
- [EPA Find the Repellent that is Right for You](#)
- [WHO Dengue Guidelines for Diagnosis, Treatment, Prevention and Control](#)

## References

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7. Pan American Health Organization, 2023. Chikungunya. [https://www.paho.org/hq/index.php?option=com\\_topics&view=article&id=343&Itemid=40931&lang=en](https://www.paho.org/hq/index.php?option=com_topics&view=article&id=343&Itemid=40931&lang=en) Last accessed on 23 February 2023.
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## DHEC contact information for reportable diseases and reporting requirements

Reporting of **Chikungunya** is consistent with South Carolina Law requiring the reporting of diseases and conditions to your state or local public health department. (State Law # 44-29-10 and Regulation # 61-20) as per the DHEC 2023 List of Reportable Conditions available at:

<https://www.scdhec.gov/sites/default/files/Library/CR-009025.pdf>

Federal HIPAA legislation allows disclosure of protected health information, without consent of the individual, to public health authorities to collect and receive such information for the purpose of preventing or controlling disease. (HIPAA 45 CFR §164.512).

<b>Regional Public Health Offices – 2023</b>			
Mail or call reports to the Epidemiology Office in each Public Health Region			
<b>MAIL TO:</b>			
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<b>Lowcountry</b> Allendale, Bamberg, Beaufort, Berkeley, Calhoun, Charleston, Colleton, Dorchester, Hampton, Jasper, Orangeburg  Office: (843) 441-1091 Nights/Weekends: (843) 441-1091	<b>Midlands</b> Aiken, Barnwell, Chester, Edgefield, Fairfield, Kershaw, Lancaster, Lexington, Newberry, Richland, Saluda, York  Office: (888) 801-1046 Nights/Weekends: (888) 801-1046	<b>Pee Dee</b> Clarendon, Chesterfield, Darlington, Dillon, Florence, Georgetown, Horry, Lee, Marion, Marlboro, Sumter, Williamsburg  Office: (843) 915-8886 Nights/Weekends: (843) 409-0695	<b>Upstate</b> Abbeville, Anderson, Cherokee, Greenville, Greenwood, Laurens, McCormick, Oconee, Pickens, Spartanburg, Union  Office: (864) 372-3133 Nights/Weekends: (864) 423-6648
<b>For information on reportable conditions, see</b> <a href="https://www.scdhec.gov/ReportableConditions">https://www.scdhec.gov/ReportableConditions</a>		<b>DHEC Bureau of Communicable Disease Prevention &amp; Control</b> <b>Division of Acute Disease Epidemiology</b> 2100 Bull St • Columbia, SC 29201 Phone: (803) 898-0861 • Fax: (803) 898-0897 Nights / Weekends: 1-888-847-0902	

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