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Maine Health Alert Network (HAN) System

PUBLIC HEALTH ADVISORY

To:	Health Care Providers
From:	Dr. Isaac Benowitz, State Epidemiologist
Subject:	**U.S. CDC: Increased Chikungunya Virus Activity in Paraguay and Associated Risk to Travelers**
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Please review this advisory on the potential for chikungunya infection after travel to Paraguay. Consider testing for chikungunya in patients with unexplained encephalitis, meningitis, fever, or polyarthralgia. Chikungunya is a serious arboviral infection transmitted from the bite of an infected mosquito. Maine does not have mosquitoes that transmit this virus and there is no risk of local transmission. Most people are infected while travelling abroad to an area with known chikungunya activity. This disease has potentially severe and even fatal consequences for those who contract it. Maine's Health and Environmental Testing Laboratory (HETL) can test for chikungunya. If you suspect chikungunya infection, you may submit serum and CSF samples to HETL for arboviral testing. Chikungunya is a reportable disease. All suspect cases and positive lab reports should be reported to Maine CDC by phone to the 24/7 disease reporting and consultation line at 1-800-821-5821 or by fax to 1-800-293-7534.

Increased Chikungunya Virus Activity in Paraguay and Associated Risk to Travelers

Summary
The U.S. Centers for Disease Control and Prevention (U.S. 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.

Diagnostic Tests for Chikungunya Infections

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 U.S. CDC. Contact your state, territorial, or local health department for more information and to facilitate testing.

Maine's Health and Environmental Testing Laboratory (HETL) can test for Chikungunya, Dengue, and Zika. If providers suspect Chikungunya or another arboviral infection based on clinical evidence, they should submit serum samples and CSF for arboviral testing. All CSF samples submitted to HETL should be accompanied by a serum sample. Ideally, providers should submit an acute and a convalescent serum sample for each patient. Both the HETL requisition and arboviral submission form are required. When suspicion is high, IgM testing on serum may be sent to U.S. CDC for confirmation based on patient symptoms. Providers may also submit CSF samples for viral metagenomics for patients with encephalitis of unknown etiology.

- **Acute serum samples should be collected within 14 days of onset of symptoms**
- **Convalescent serum samples should be collected 10 days to 4 weeks following the acute specimen**

Treatment

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.

Reporting:
Arboviral illness is reportable in Maine. All suspect cases and positive laboratory reports should be reported by phone to the 24/7 disease reporting and consultation line at 1-800-821-5821 or by fax to 1-800-293-7534.

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 Maine CDC 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 Maine CDC to facilitate diagnosis and mitigate risk of local transmission. **All suspect cases and positive laboratory reports should be reported to Maine CDC by phone to the 24/7 disease reporting and consultation line at 1-800-821-5821 or by fax to 1-800-293-7534**

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

Additional Resources

- **Arboviral testing in Maine for healthcare providers**
- **How to submit human arboviral specimens to HETL**
- **Maine CDC arboviral diseases website**
- **U.S. CDC: Zika and Dengue testing guidance**
- **Detection of Chikungunya by Real Time RT PCR Laboratory Submission Information Sheet**
- **HETL Requestion Form**
- **HETL Human Arbovirus Specimen Submission Form**
- **Maine CDC disease reporting and consultation line: 1-800-821-5821 (available 24/7)**

References

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