



MISSISSIPPI STATE DEPARTMENT OF HEALTH

**This is an official  
MS Health Alert Network (HAN) – Advisory**

**MESSAGE ID:** CDCHAN-20230303-00487-ADV (Health Advisory)  
**RECIPIENTS:** All Physicians, Hospitals, ERs, ICPs, NPs, PAs, and  
Healthcare Providers – Statewide  
Friday, March 3, 2023  
**SUBJECT:** Increased Chikungunya Virus Activity in Paraguay

Dear Colleagues,

The Centers for Disease Control and Prevention (CDC) has issued a Health Alert Message to provide notification of an increase in the number of cases of chikungunya reported in Paraguay and an associated risk to travelers.

**Recommendations for Mississippi Physicians and Providers:**

- Consider chikungunya virus infection in travelers returning from Paraguay and surrounding countries with acute onset of fever and polyarthralgia.
- Report suspected chikungunya cases to t MSDH to facilitate diagnostic testing and mitigate risk of local transmission at 601-576-7725.
- [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](#)).

See the CDC Health Alert for full details.

Regards,

Paul Byers, MD State  
Epidemiologist



MISSISSIPPI STATE DEPARTMENT OF HEALTH

This is an official  
**CDC HEALTH ADVISORY**

Distributed via the CDC Health Alert Network  
March 2, 2023, 12:15 PM ET  
CDCHAN-00487

## 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].



## MISSISSIPPI STATE DEPARTMENT OF HEALTH

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.



MISSISSIPPI STATE DEPARTMENT OF HEALTH

- 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**

1. Salud Pública y Bienestar Social, Arbovirosis. <https://dgvs.mspbs.gov.py/page/#arbovirosis.html> Last accessed on 24 February 2023. (Page in Spanish)
2. Burt FJ, Chen W, Miner JJ, Lenschow DJ, Merits A, Schnettler E, et al. [Chikungunya virus: an update on the biology and pathogenesis of this emerging pathogen](#). *Lancet Infect Dis*. 2017;17:e107-e17.



MISSISSIPPI STATE DEPARTMENT OF HEALTH

3. Staples JE, Breiman RF, Powers AM. [Chikungunya fever: an epidemiological review of a re-emerging infectious disease](#). *Clin Infect Dis*. 2009;49:942-8.
4. Yactayo S, Staples JE, Millot V, Cibrelus L, Ramon-Pardo P. [Epidemiology of Chikungunya in the Americas](#). *J Infect Dis*. 2016;214:S441-S5.
5. Fischer M, Staples JE. [Notes from the field: chikungunya virus spreads in the Americas - Caribbean and South America, 2013-2014](#). *MMWR Morb Mortal Wkly Rep*. 2014;63:500-1.
6. Adams LE, Martin SW, Lindsey NP, Lehman JA, Rivera A, Kolsin J, et al. [Epidemiology of Dengue, Chikungunya, and Zika Virus Disease in U.S. States and Territories, 2017](#). *Am J Trop Med Hyg*. 2019;101:884-90.
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.
8. Lindsey NP, Staples JE, Fischer M. [Chikungunya Virus Disease among Travelers-United States, 2014-2016](#). *Am J Trop Med Hyg*. 2018;98:192-7.
9. Hsu CH, Cruz-Lopez F, Vargas Torres D, Perez-Padilla J, Lorenzi OD, Rivera A, et al. [Risk factors for hospitalization of patients with chikungunya virus infection at sentinel hospitals in Puerto Rico](#). *PLoS Negl Trop Dis*. 2019;13:e0007084.

*The Centers for Disease Control and Prevention (CDC) protects people's health and safety by preventing and controlling diseases and injuries; enhances health decisions by providing credible information on critical health issues; and promotes healthy living through strong partnerships with local, national, and international organizations.*

---

**Categories of Health Alert Network messages**

- Health Alert** Requires immediate action or attention. Conveys the highest level of importance about a public health event.  
**Health Advisory** Requires immediate action. Provides important information about a public health event.  
**Health Update** May require immediate action. Provides updated information about a public health event.  
**HAN Info Service** Does not require immediate action. Provides general information about a public health event.

##This message was distributed to state and local health officers, state and local epidemiologists, state and local laboratory directors, public information officers, HAN coordinators, and clinician organizations##



*Alerting Message Specification Settings*

**Originating Agency:** Mississippi State Department of Health  
**Alerting Program:** **MS Health Alert Network (MS HAN)**  
**Message Identifier:** CDCHAN-20230303-00487-**ADV**  
**Program (HAN) Type:** **Health Alert Advisory**  
**Status (Type):** Actual ()  
**Message Type:** Advisory  
**Reference:** CDCHAN-00487  
**Severity:** Unknown  
**Acknowledgement:** No  
**Sensitive:** Not Sensitive  
**Message Expiration:** Undetermined  
**Urgency:** Undetermined  
**Delivery Time:** 600 minutes

*Definition of Alerting Vocabulary and Message Specification Settings*

**Originating Agency:** A unique identifier for the agency originating the alert.

**Alerting Program:** The program sending the alert or engaging in alerts and communications using PHIN Communication and Alerting (PCA) as a vehicle for their delivery.

**Message Identifier:** A unique alert identifier that is generated upon alert activation (MSHAN-yyymmdd-hhmm-**TTT (ALT=Health Alert, ADV=Health Advisory, UPD=Health Update, MSG/INFO=Message/Info Service)**).

**Program (HAN) Type:** Categories of Health Alert Messages.

**Health Alert:** Conveys the highest level of importance; warrants immediate action or attention.

**Health Advisory:** Provides important information for a specific incident or situation; may not require immediate action.

**Health Update:** Provides updated information regarding an incident or situation; unlikely to require immediate action.

**Health Info Service:** Provides Message / Notification of general public health information; unlikely to require immediate action.

**Status (Type):**

- Actual: Communication or alert refers to a live event
- Exercise: Designated recipients must respond to the communication or alert
- Test: Communication or alert is related to a technical, system test and should be disregarded

**Message Type:**

- Alert: Indicates an original Alert
- Update: Indicates prior alert has been Updated and/or superseded
- Cancel: Indicates prior alert has been cancelled



MISSISSIPPI STATE DEPARTMENT OF HEALTH

**Reference:** For a communication or alert with a Message Type of “Update” or “Cancel”, this attribute contains the unique Message Identifier of the original communication or alert being updated or cancelled. “n/a” = Not Applicable.

**Severity:**

Extreme:	Extraordinary threat to life or property
Severe:	Significant threat to life or property
Moderate:	Possible threat to life or property
Minor:	Minimal threat to life or property
Unknown:	Unknown threat to life or property

**Acknowledgement:** Indicates whether an acknowledgement on the part of the recipient is required to confirm that the alert was received, and the timeframe in which a response is required (Yes or No).

**Sensitive:**

Sensitive:	Indicates the alert contains sensitive content
Not Sensitive:	Indicates non-sensitive content

**Message Expiration:**

Undetermined.

**Urgency:**

Undetermined. Responsive action should be taken immediately.

**Delivery Time:**

Indicates the timeframe for delivery of the alert (15, 60, 1440, 4320 minutes (.25, 1, 24, 72 hours)).