

Chikungunya Information Sheet

Overview & Current Outbreak

Chikungunya virus is transmitted to people by mosquitoes. The most common symptoms of Chikungunya virus infection are fever and joint pain. Other symptoms may include headache, muscle pain, joint swelling, or rash.

Outbreaks have occurred in countries in Africa, Asia, Europe, and the Indian and Pacific Oceans. In late 2013, chikungunya virus was found for the first time in the Americas on islands in the Caribbean. There is a risk that the virus will be imported to new areas by infected travelers.

There is no vaccine to prevent or medicine to treat chikungunya virus infection. Travelers can protect themselves by preventing mosquito bites. When traveling to countries with chikungunya virus, use insect repellent, wear long sleeves and pants, and stay in places with air conditioning or that use window and door screens.

Beginning in 2014, Chikungunya virus disease cases were reported among U.S. travelers returning from affected areas in the Americas and local transmission was identified in Florida, Puerto Rico, and the U.S. Virgin Islands.



Chikungunya virus.

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About Chikungunya

Chikungunya is a mosquito-borne alphavirus of the *Togaviridae* family endemic in sub-Saharan Africa, Southeast Asia, Indonesia, the Philippines and India, with the first local transmission in the Americas being reported in late 2013 on islands in the Caribbean. Many cases have since been reported in the Caribbean, especially the Dominican Republic. The typical clinical presentation is fever and joint pain.

The incubation period of chikungunya is 1-12 days (usually 2-3 days). The initial symptoms consist of the abrupt onset of 3-10 days of flu-like illness with fever, chills, arthralgias, rash, myalgias, severe headache, retro-orbital pain, and photophobia. The fever is high and remitting (a fever that goes up and down without ever returning to normal). Pruritus may be noted. Per the CDC, approximately 3% to 28% of people infected with the virus will remain asymptomatic.

The arthralgias are typically polyarticular and migratory, primarily affecting the small joints of the hands, wrists, ankles and feet, and may last for weeks to months. Flushing of the face and trunk is seen and then macules and papules develop on the trunk and

extremities and, occasionally, the palms, soles, and face. Buccal and palatal exanthems may be present. Lymphadenopathy and sore throat may be seen in some patients. Rarely, mucosal and gastrointestinal hemorrhage may occur. Mucosal involvement is more likely in children. Neonates, elderly individuals, and those with underlying medical conditions are at higher risk for severe or atypical disease.

Chikungunya is transmitted by the bite of infected mosquitoes, primarily *Aedes aegypti* and *Aedes albopictus* (which can also transmit dengue virus). Natural reservoirs include humans, primates, other mammals, and birds, but humans are the primary amplifying host (ie, can infect mosquitoes that bite them during the first week of illness). Person-to-person transmission of chikungunya has not been documented. An experimental vaccine exists but is not yet available. There is no specific antiviral therapy; treatment is supportive.

Travelers to endemic areas are at higher risk for contracting chikungunya. As of February 10 2015, over 2,481 travel-associated cases, and 11 locally-transmitted cases were reported throughout the United States. Travelers to areas with known ongoing outbreaks, such as the Caribbean, should use mosquito repellents, long sleeve shirts, long pants, etc, to help prevent bites from these aggressive day-biting mosquitoes.

What to Look For

Arthralgias, usually bilateral and symmetrical, of the small joints (wrists, ankles, phalanges) and acute fever.

The rash begins as flushing of the face and trunk and then progresses to macules and then erythematous papules on the trunk and extremities. The rash is associated with painful small joint polyarticular arthralgias. Occasionally, the rash may also appear on the face, palms and soles. The lesions may include petechiae or vesicles.

There is a potential for chronic arthritis persisting beyond the febrile period of the illness. Similarly, fatigue and malaise may also persist. The duration of symptoms can range from weeks all the way to persistent/chronic.

Dark Skin Patient Considerations:

The rash can be difficult to identify in patients with deeply pigmented skin.

Differential Diagnosis

Dengue fever is clinically similar; dengue virus infection more often causes neutropenia, thrombocytopenia, and hemorrhage, while chikungunya more commonly presents with severe arthralgia, acute fever, lymphopenia, and rash.

Also consider:

- Gnathostomiasis
- Leptospirosis
- Influenza
- Measles
- Rubella
- Malaria
- Typhoid
- Meningococcemia
- Bacterial sepsis
- Rickettsialpox
- Parvovirus
- Hemorrhagic viral fevers
- Erythema infectiosum / parvovirus
- Enteroviruses
- Adenovirus
- Other alphavirus infections
- Ross River virus
- Alkhurma virus
- Postinfectious arthritis or other rheumatologic conditions

Treatment & Therapy

- Supportive care with IV fluids and whole blood.
- NSAIDs and rest for pain (do not use NSAIDs if hemorrhage occurs).
- Narcotic analgesics if needed.
- FFP, vitamin K and platelets to manage hemorrhage.
- There is no specific antiviral therapy.

Additional Information

There is no vaccine or medicine to prevent chikungunya. The only way to prevent chikungunya is to prevent mosquito bites. Preventing bites can be difficult, but it is important, as you can get sick after just one bite. Follow these steps to reduce the chances that you will be bitten by mosquitoes during your trip.

Prevent mosquito bites:

- Cover exposed skin by wearing long-sleeved shirts, long pants, and hats.
- Use an appropriate insect repellent as directed.
- Higher percentages of active ingredient provide longer protection. Use products with the following active ingredients:
 - DEET (Products containing DEET include Off!, Cutter, Sawyer, and Ultrathon)
 - Picaridin (also known as KBR 3023, Bayrepel, and icaridin products containing picaridin include Cutter Advanced, Skin So Soft Bug Guard Plus, and Autan [outside the US])
 - Oil of lemon eucalyptus (OLE) or PMD (Products containing OLE include Repel and Off! Botanicals)
 - IR3535 (Products containing IR3535 include Skin So Soft Bug Guard Plus Expedition and SkinSmart)
- Always follow product directions and reapply as directed:
 - If you are also using sunscreen, apply sunscreen first and insect repellent second.
 - Follow package directions when applying repellent on children. Avoid applying repellent to their hands, eyes, and mouth.
- Use permethrin-treated clothing and gear (such as boots, pants, socks, and tents). You can buy pre-treated clothing and gear or treat them yourself:
 - Treated clothing remains protective after multiple washings. See the product information to find out how long the protection will last.
 - If treating items yourself, follow the product instructions carefully.
 - Do not use permethrin directly on skin.
- Stay and sleep in screened or air conditioned rooms.
- Use a bed net if the area where you are sleeping is exposed to the outdoors

CDC Chikungunya NOWCAST: cdc.gov/chikungunya/modeling/index.html

CDC Chikungunya page: cdc.gov/chikungunya/

VisualDx information and images of Chikungunya: visualdx.com/public-health/chikungunya



About the
Webinar:
***Chikungunya
Bites: VisualDx
Clinical Education
Series***

To provide health care professionals and the general public with information about chikungunya, VisualDx, the world's leading clinical decision support system for physicians and front line health care professionals, hosted a free 35-minute webinar with infectious disease specialists Dr. Mukesh Patel and Dr. James Willig. The webinar presents a case study, the differential diagnosis, explains how to recognize and treat chikungunya. Dr. Patel and Dr. Willig also answered questions and offered visuals of the disease from VisualDx's curated image library.

[Click here to view the Chikungunya Bites: VisualDx Clinical Education Series Webinar.](#)



VisualDx Company Information

About VisualDx

VisualDx is an award-winning diagnostic clinical decision support system that has become the standard electronic resource at more than half of U.S. medical schools and more than 1,500 hospitals and institutions nationwide. VisualDx combines clinical search with the world's best medical image library, plus medical knowledge from experts to help with diagnosis, treatment, self-education, and patient communication. Expanding to provide diagnostic decision support across general medicine, the new VisualDx will bring increased speed and accuracy to the art of diagnosis. For more information, visit visualdx.com.



**Lowell A.
Goldsmith, MD,
MPH**
Editor-in-Chief

Dr. Goldsmith is Dean emeritus of the University of Rochester School of Medicine and Dentistry and Professor emeritus of dermatology at the University of North Carolina. He chairs the VisualDx editorial board and recruits expert physicians for both authoring and editorial contribution. Dr. Goldsmith is Editor-in-Chief emeritus of both the *Journal of Investigative Dermatology* and *Journal Watch Dermatology*, and he is an editor of the definitive dermatology text *Fitzpatrick's Dermatology in General Medicine*.

Dr. Goldsmith is one of the Masters of Dermatology in the American Academy of Dermatology and has received multiple honors, such as the Distinguished Service Award and Distinguished Presidential Citation from the American Academy of Dermatology and the Stephen Rothman Memorial Service Award from the Society for Investigative Dermatology. He has been President of the Association of Professors of Dermatology, Society for Investigative Dermatology, and the American Dermatology Association. Dr. Goldsmith has headed many professional committees and served on multiple medical advisory boards. He is an honorary member of the British, Japanese, and Polish Societies of Dermatology. He holds a US patent and has written over 160 publications and book chapters.



Art Papier, MD
Chief Executive Officer

Dr. Papier is the co-founder of VisualDx and Chief Executive Officer. A thought leader in clinical informatics, Dr. Papier maintains the overall vision for the VisualDx product, with a keen focus on software integration and impacting costs in healthcare through clinical accuracy. His entrepreneurial drive, years of clinical experience, and passion for delivering true healthcare solutions have propelled VisualDx clinical decision support to the top in quality and innovation.

A dermatologist and medical informatics expert, Dr. Papier has a particular interest in designing clinical decision support systems based on visually rich knowledge areas to reduce diagnostic error at the point of care. In line with this goal, he is focused on transforming medical education to include training in cognitive error and the use of information technology. Dr. Papier also focuses on consumer health, developing tools to educate and empower patients.

A graduate of Wesleyan University, Dr. Papier completed his premed studies at Columbia University, received his MD from the University of Vermont College of Medicine, and completed his graduate medical training at the University of Rochester Medical Center. He is an Associate Professor of Dermatology and Medical Informatics at the University of Rochester School of Medicine and Dentistry.



**William F.
Bria, MD**
Chief Medical
Information Officer

Dr. William F. Bria is a Pulmonary/Critical Care physician and currently the Chief Medical Information Officer for VisualDx. He is also President of the Association of Medical Directors of Information Systems (AMDIS). He served as the Chief Medical Information Officer for the 22-hospital Shriners Hospitals for Children System from 2006 through 2012. He is an Adjunct Clinical Associate Professor of Medicine at the University of Michigan and University of South Florida. Dr. Bria has been a leader in Applied Medical Informatics for over 25 years. He has authored numerous articles and books on informatics and most recently, *The CMIO Survival Guide* (HIMSS).

Dr. Bria is the past president of the Medical Information Systems Physicians Association, and the Chair of the HIMSS Physicians Community.

Over the past 16 years he was Medical Director of Clinical Information Systems at the University of Michigan and Medical Director of the Critical Care Medical Unit. Dr. Bria is a Fellow in the American College of Chest Physicians.

Dr. Bria has been a consultant for the Institute of Medicine on the Computerized Patient Record and to the United States Congress on matters of the application of information technology to the practice of medicine. He has served as an advisor to the National Center for Research Resources (NCRR). He has lectured on medical informatics throughout the U.S. and around the world.

He is currently engaged in research in applied medical informatics and recently published a book entitled *Digital Communication in Medical Practice*. He was named to the Most Influential 50 Physician Executives in Healthcare in 2013.

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