

# Chikungunya Fever

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## Introduction

Chikungunya fever is a viral disease transmitted to humans by the bite of infected mosquitoes. Chikungunya virus (CHIKV) is a member of the genus Alphavirus, in the family Togaviridae. CHIKV was first isolated from the blood of a febrile patient in Tanzania in 1953, and has since been identified repeatedly in west, central and southern Africa and many areas of Asia, and has been cited as the cause of numerous human epidemics in those areas since that time. The virus circulates throughout much of Africa, with transmission thought to occur mainly between mosquitoes and monkeys. This disease is almost always self-limited and rarely fatal. In addition to ongoing outbreaks on the Indian Ocean islands of Mayotte, Mauritius, Riunion (territory of France), and the Seychelles, a chikungunya fever outbreak has been reported from three states in India (Karnataka, Maharashtra, and Andhra Pradesh). Travelers to all these areas are recommended to take precautions to avoid mosquito bites.

## What type of illness does chikungunya virus cause?

CHIKV infection can cause a debilitating illness, most often characterized by fever, headache, fatigue, nausea, vomiting, muscle pain, rash, and joint pain. The term 'chikungunya' is Swahili for 'that which bends up'. The incubation period (time from infection to illness) can be 2-12 days, but is usually 3-7 days. Silent CHIKV infections (infections without illness) do occur; but how commonly this happens is not yet known.

Acute chikungunya fever typically lasts a few days to a couple of weeks, but as with dengue, West Nile fever, o'nyong-nyong fever and other arboviral fevers, some patients have prolonged fatigue lasting several weeks. Additionally, some patients have reported incapacitating joint pain, or arthritis which may last for weeks or months. The prolonged joint pain associated with CHIKV is not typical of dengue. Co-circulation of dengue fever in many areas may mean that

chikungunya fever cases are sometimes clinically misdiagnosed as dengue infections, therefore the incidence of chikungunya fever could be much higher than what has been previously reported. No deaths, neuroinvasive cases, or hemorrhagic cases related to CHIKV infection have been conclusively documented in the scientific literature. CHIKV infection (whether clinical or silent) is thought to confer life-long immunity.

## How do humans become infected with chikungunya virus?

CHIKV is spread by the bite of an infected mosquito. Mosquitoes become infected when they feed on a person infected with CHIKV. Monkeys, and possibly other wild animals, may also serve as reservoirs of the virus. Infected mosquitoes can then spread the virus to other humans when they bite. *Aedes aegypti* (the yellow fever mosquito), a household container breeder and aggressive daytime biter which is attracted to humans, is the primary vector of CHIKV to humans. *Aedes albopictus* (the Asian tiger mosquito) may also play a role in human transmission in Asia, and various forest-dwelling mosquito species in Africa have been found to be infected with the virus.

## Where does chikungunya virus occur?

The geographic range of the virus is Africa and Asia. For information on current outbreaks, consult CDC's website below. Given the current large CHIKV epidemics and the world wide distribution of *Aedes aegypti*, there is a risk of importation of CHIKV into new areas by infected travelers.

## Preventive measures

There are no preventive medications or FDA-approved vaccines for chikungunya fever, but there are steps travelers can take to reduce their risk of being bitten by infected mosquitoes. Use insect repellent on exposed skin surfaces when outdoors, particularly during the day. Repellents containing

30% to 50% DEET (N,N-diethyl-m-toluamide) are recommended. Lower concentrations of DEET offer shorter-term protection requiring more frequent reapplication. Repellents containing picaridin are available in the U.S. only in low-concentration (7%) formulations, which require frequent reapplication. Repellents with higher concentration formulations of picaridin may be available in some regions outside the U.S.

Wear long-sleeved shirts and long pants when outdoors.

Clothing may also be sprayed with repellent containing permethrin or another EPA-registered repellent for greater protection. Stay in hotels or resorts that are well screened or air-conditioned and that take measures to reduce the mosquito population, where possible. Reduce *Aedes* breeding sites by emptying standing water that may have collected in containers (e.g., uncovered barrels, flower vases, or cisterns) and either overturning the vessels or covering the opening. If illness develops, stay under a mosquito net or indoors to limit mosquito bites and to avoid further spread of infection.

These preventive measures are the same steps that one would take to reduce the risk of other mosquito transmitted infectious diseases such as dengue and yellow fever.

## Treatment

No specific drug treatment against chikungunya virus is available; thus, treatment of chikungunya fever is supportive: bed rest, fluids, and mild pain medications such as ibuprofen, naproxen, acetaminophen, or paracetamol may relieve symptoms of fever and aching. Because aspirin can increase the risk of bleeding and possibly Reye syndrome, it should be avoided during the acute stages of the illness. Few cases are severe enough to warrant hospitalization. All persons with chikungunya fever should be protected against additional mosquito bites to reduce the risk of further transmission of the virus.

FOR MORE INFORMATION see <http://www.cdc.gov/ncidod/dvbid/Chikungunya/chickvfact.htm>