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[Home](#) | [Viral infections](#) |  [Chikungunya fever: PDF 80 KB](#)

Chikungunya fever

What is chikungunya fever?

Chikungunya fever is a re-emerging viral illness that is spread from human-to-human by the bite of virus-carrying mosquitoes. The disease is mostly confined to people living in tropical Africa and Asia and is characterised by a sudden and severe fever, skin rash and joint and muscle pain.

Where does chikungunya fever come from and how is it spread?

The chikungunya virus (CHIK V) is a RNA virus belonging to family Togaviridae, genus Alphavirus. It was first discovered in Africa in 1952–1953 and later introduced into Asia.

The African and Asian strains of CHIK V differ biologically and spread of the virus occurs differently. In Asia, the mosquitoes *Aedes aegypti* and *Aedes albopictus* are the two main species involved in transmitting the virus from infected individuals to healthy contacts. In particular, *Aedes aegypti* breed in and around where humans live and usually bite during daylight hours. In Africa, CHIK V appears to be maintained in a cycle involving wild primates such as monkeys and baboons and forest dwelling species of *Aedes* mosquitoes.

Major epidemics or outbreaks of chikungunya fever occur cyclically, a disease-free period of several years or decades may exist between the outbreaks. For example, a well-documented outbreak of the disease occurred in parts of India in 1963, 1964 and 1973. For the last 30 years there have been few reported cases, however, in 2005 several states in India have reported outbreaks of the disease and the outbreak is still continuing.

What are the signs and symptoms of chikungunya fever?

Infection with the CHIK virus begins with a short incubation period of 2–4 days. At about 48 hours after being bitten by a virus-carrying mosquito, patients will experience sudden high fever with shaking chills. Some patients also get a maculopapular rash (red flat patches that may contain small raised spots) over the trunk, limbs and face. Commonly patients will experience severe myalgia (muscle pain) and arthralgia (joint pain). Joint pain initially starts in the small joints of the hands and feet, wrists and ankles, and later the larger joints. Other non-specific symptoms may include headache, slight photophobia and insomnia.

Cutaneous manifestations of chikungunya fever

With the current outbreak in India several studies have been conducted on chikungunya fever. One study observed 145 “suspect cases” of chikungunya fever over a 3-month period and focused on the skin manifestations of the disease (Inamadar et al). Some of their findings are listed below:

- In the majority of cases skin problems developed in the very early stages of the illness. Approximately 73% of patients developed skin lesions during the acute phase of the illness (within 7 days), accompanying high fever and severe muscle and joint pain. 32% developed skin problems after the fever had gone but muscle and joint pain were still present (within 1 month), and a handful of patients (8%) developed skin problems more than 1 month after the acute illness.
- The most common skin problem was a brownish-black colouring over the centre of the face. This appeared as freckle-like spots or as a diffuse, slate-coloured pigmentation. Sometimes skin discolouration would also extend to the trunk, limbs, hands and feet.

- In 24% of patients, all of whom were male, multiple aphthous-like ulcers developed in the groin area. These occurred during the acute illness and were preceded by redness, swelling and pain of the scrotum and groin region.
- A few infant patients developed vesiculobullous lesions (large blister-like sores) in association with high fever. These ruptured easily but healed without any problems.
- Flare-ups of existing skin problems such as psoriasis occurred in a few patients following the acute illness.

What is the treatment of chikungunya fever?

There is no vaccine or specific treatment available against CHIK V infection. Fortunately, the illness is usually self-limiting and resolves with time. Supportive therapy with antipyretics and nonsteroidal anti-inflammatory drugs (NSAIDs) are used to control fever and joint pain. Fever usually disappears after 2–3 days. Muscle and joint pain, which can be very severe usually lasts for about 5–7 days but in some cases may linger for much longer periods. Elderly patients in particular may suffer muscle and joint pain for several months.

Skin discolouration and rash can be treated with sunscreens and topical corticosteroids. Skin rash on the face appears to resolve completely within about 3 weeks, whilst resolution is a little longer when other parts of the body are affected. Ulcers should be cleaned and treated with topical antimicrobials to prevent secondary infections. These usually heal within 7–10 days. More severe lesions may require systemic steroid treatment.

How to prevent chikungunya fever

The best way to prevent chikungunya fever is by preventing spread of the virus by vector control. This means eliminating or controlling mosquito breeding sites. The CHIK V-carrying mosquito likes to breed in artificial containers and receptacles containing water. The following measures can be taken to reduce the breeding of mosquitoes.

- Cover tightly with a lid all water tanks, cisterns, barrels, rubbish containers, etc.
- Remove or empty water in old tyres, tin cans, bottles, trays, etc.
- Check and clean out clogged gutters and flat roofs where water may have settled.
- Change water regularly in pet water dishes, birdbaths and plant trays.
- Introduce larvivorous fish (e.g. guppy) to ornamental water features as these eat the mosquito larvae.
- Trim weeds and tall grasses as adult mosquitoes seek these for shade on hot days.

People can do the following to prevent themselves from being bitten by mosquitoes.

- Wear long sleeves and pants.
- Install secure screens to windows and doors to keep mosquitoes out.
- Use an insect repellent such as DEET.
- Sleep under mosquito curtains or nets, this is particularly important when children are sleeping or resting during daylight hours.
- In high-risk areas insecticide sprays may be used to kill mosquitoes.

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Related information

References:

- Chhabra M, Mittal V, Bhattacharya D, et al. Chikungunya fever: A re-emerging viral infection. *Indian Journal of Medical Microbiology* 2008, 26(1), 5–12. [Medline](#).
- Inamadar AC, Palit A, Sampagavi V, et al. Cutaneous manifestations of chikungunya fever: observations made during a recent outbreak in south India. *International Journal of Dermatology* 2008, 47, 154–9. [Medline](#).

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Other websites:

- [Chikungunya](#) – World Health Organization (WHO)
- [Chikungunya](#) – from Centers for Disease Control and Prevention

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