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Chikungunya **Fact Sheet**

Last update May 2025

History

Chikungunya is an arboviral disease transmitted by mosquitoes. It was first identified during an outbreak in southern Tanzania in 1953 and was later described by Marion Robinson and Lumsden in 1955, following an outbreak on the Makonde Plateau near the border of Tanganyika and Mozambique. The term "chikungunya," derived from East African languages, refers to the "bent-over" posture caused by the severe joint pain characteristic of the disease.

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The first Chikungunya epidemic in Sri Lanka was reported in the early 1960s, followed by decades of quiescence. The virus re-emerged in November 2006 after a 40-year absence, spreading across various parts of the island. Between 2006 and 2007, a significant number of individuals were affected, with a comparable number of cases recorded in 2008.

Transmission

Chikungunya spreads to humans through bites from infected female mosquitoes, primarily Aedes aegypti and Aedes albopictus. These mosquitoes are also vectors for other mosquito-borne illnesses, such as dengue. While they bite throughout the day, activity peaks in the early morning and late afternoon. Symptoms of chikungunya typically appear 4–8 days after being bitten by an infected mosquito, though the incubation period can range from 2 to 12 days.

Disease vector

The mosquitoes Aedes aegypti and Aedes albopictus are key vectors for chikungunya.

- Aedes aegypti: Found in tropical and subtropical areas, this species thrives near human settlements and prefers indoor breeding sites like flower vases, water storage containers and concrete tanks.
- Aedes albopictus: Found not only in tropical and subtropical areas but adaptable to a broader range of habitats, including temperate and cold temperate regions. In recent decades it has spread from Asia to parts of Africa, Europe and the Americas. This species breeds in many natural and artificial water-filled habitats such as tree holes, coconut husks, bamboo stumps, cocoa pods, rock pools and discarded tires. It is commonly found in rural and peri-urban areas, as well as shaded urban parks.

Reservoir

Humans act as reservoirs for the chikungunya virus during outbreaks. Outside of epidemics, other vertebrates, such as monkeys, rodents, birds and small mammals, serve as reservoirs. Outbreaks have been reported among monkeys when herd immunity is lower.

Infectious Agent

Virus causing chikungunya is an RNA virus belonging to the *alphavirus* genus of the *Togaviridae* family.

Symptoms

The disease is characterized by:

- A sudden onset of fever, often reaching 39°C, sometimes accompanied by chills or tremors.
- Joint pain (arthralgia) or swelling (arthritis), especially in small joints like the wrists, hands, ankles and feet, though larger joints may also be affected.
- A petechial or maculopapular rash, typically on the trunk and limbs but sometimes affecting the face, palms, and soles.
- Additional symptoms include muscle pain, headache, fatigue and nausea.

While most patients recover fully, some experience persistent joint pain lasting months or even years. Rarely, complications involving the eyes, nervous system, gastrointestinal tract, or heart occur. Deaths are uncommon but may occur in infants and children particularly with high fever, prolong convulsions and neurologic defects suggesting primary encephalitis.

Diagnosis of chikungunya

Due to the non–specific clinical features shared among Aedes-born arboviral infections such as dengue and Zika, laboratory confirmation is essential to accurately differentiate chikungunya from other similar illnesses.

Laboratory findings commonly observed in chikungunya infection include:

- 1. Mild leukopenia with relative lymphocytosis.
- 2. Elevated ESR, typically between 20–50 mm/h.
- 3. Positive C-Reactive Protein levels.
- 4. Decreased platelet count, often accompanied by hemorrhagic manifestations.
- 5. ECG changes indicative of myocarditis.

Differential diagnosis should consider conditions that may present similarly to chikungunya, such as Dengue and Rubella.

Specific Diagnostic Tests chikungunya

• Virological testing (RT-PCR)

•Detects viral RNA during the acute phase typically within the first 7 days of symptom onset, serving as the gold standard for early diagnosis.

•Preferred sample is serum. In cases of neurological involvement, cerebrospinal fluid (CSF) is used; in fatal cases, tissues are used.

• Serological Testing (ELISA for IgM and IgG)

•Detects antibodies in serum, generally after 7 days from symptom onset when viral RNA is typically undetectable.

•IgM suggests recent infection but is not conclusive alone; paired acute and convalescent serum samples are preferred for confirmation.

•IgG may indicate recent or past infection.

Chikungunya-specific antibody testing is available at the Medical Research Institute (MRI) in Colombo. Medical and field staff should send blood samples from all suspected cases. During an epidemic, confirmatory tests may not be required if an epidemiological link is established.

Management of patients with chikungunya

Clinical management

No specific antiviral treatment exists for chikungunya. Management focuses on alleviating symptoms.

• Fever and pain relief

• Administer paracetamol to manage fever and pain:

Adults (>50 kg): 500 mg every 4–6 hours (maximum daily dose: 4 g).

Children: 10–15 mg/kg every 6 hours (maximum daily dose: 60 mg/kg).

 Avoid non-steroidal anti-inflammatory drugs (NSAIDs, e.g., ibuprofen) during the acute febrile phase until dengue is excluded, as Chikungunya and dengue viruses may co-exist.

• Hydration

Encourage oral rehydration solution (ORS) and increased oral fluid intake to prevent dehydration.

- Joint Symptoms
 - In the post-acute phase (beyond 10 days and fever free) NSAIDs can be considered for persistent inflammatory arthralgia, provided dengue is ruled out. Chikungunya often causes inflammatory arthritis or joint pain, which may improve with a short course of NSAIDs.
 - Use dengue diagnostic tests (e.g., Full Blood Count, NS1 antigen, IgM/IgG antibody testing) where available to exclude dengue before NSAID administration.
 - For chronic arthritis, physiotherapy and referral to a specialist for sustained pain management may be beneficial.

Criteria for hospitalization

- Severe dehydration or persistent vomiting.
- Severe arthralgia restricting mobility.
- Suspected co-infection with dengue or presence of other complications/comorbidities.
- High-risk groups, including pregnant women, neonates, infants, elderly individuals (>65 years), and those with comorbidities

Patient Follow-Up

Follow-up visits should be arranged for patients with chronic symptoms, such as joint pain and stiffness, which may persist for weeks to months, to enable specialist review and management.

Patient Education

- Advise patients with suspected Chikungunya and fever to use only paracetamol for symptom relief and seek further medical care if joint pain persists.
- Promote community efforts to eliminate mosquito breeding sites.
- Educate patients on breeding sites and feeding habits of the Aedes mosquito

Chikungunya outbreak management: Surveillance, Preparedness and Response

Case definition

Healthcare staff should be familiar with standardized case definitions for chikungunya:

Suspected case:

A patient presenting with acute onset fever (lasting 3–5 days), often with chills/rigors, and accompanied by multiple joint pains or swelling, which may persist for weeks to months

Probable case

A suspected case with any of the following:

- a) History of travel to or residence in areas with reported chikungunya outbreaks.
- b) Exclusion of malaria, dengue, or other known causes of fever with joint pains
- c) Presence of post-infection hyperpigmented rash.

Confirmed case

A patient with one or more of the following findings, regardless of clinical presentation:

- a) Virus isolation in cell culture or animal inoculations from acute-phase serum.
- b) Detection of viral RNA in acute-phase serum within first 7 days from the onset of illness
- c) Seroconversion to virus-specific antibodies in paired samples collected 1–3 weeks apart.

d) Detection of virus-specific IgM antibodies in a single serum sample collected after 7 days of illness onset.

Hospital-based surveillance and notification

- Chikungunya is not routinely notifiable; however, clustering of suspected cases should trigger immediate notification.
- Surveillance should be strengthened for early case detection, reporting, outbreak detection & tracking of disease trends & mortality.
- Fever surveillance should be initiated in the hospital OPD.
- All healthcare providers should notify suspected cases using Form H544 to the relevant MOH office until further notice to facilitate prompt preventive & control measures.
- Laboratories are required to report positive test results.
- A special case investigation form for chikungunya must be completed for all clinically diagnosed and/or serologically confirmed cases and sent to the Epidemiology Unit. The Infection Control Nursing Officer in the hospital should assist with this activity.

Field-based preventive measures pre-outbreak preparedness

- Preventive health sectors should begin preparedness activities 2–3 months before the rainy season, focusing on:
- Convening District Health Committees to plan response strategies.
- Strengthening entomological surveillance to monitor vector density as an early warning.
- Establishing rapid response teams for outbreak investigations.
- Engaging community leaders, representatives, and NGOs to promote social mobilization.
- Assessing hospital disaster preparedness, including resources for manpower, insecticides and fogging equipment.
- Preparing and distributing educational materials (IEC) to raise public awareness.

Actions during an outbreak

- The MOH must initiate preventive measures and supervise field investigations and preventive actions by the Public Health Inspector (PHI).
- The PHI should conduct field investigations for notified cases, identify potential mosquito breeding sites, educate patient and the community and implement mosquito population control measures.
- Effective outbreak response includes daily case reporting, investigation of deaths, regular media briefings and mobilizing resources to match epidemic trends.

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Community role in outbreak control

Community involvement is critical for chikungunya control and prevention:

- Household level: Eliminate mosquito breeding sites, use mosquito repellents (use of chemical repellents to protects infants and children < 2 years of age is not advisable), wear protective clothing, use bed nets, apply pyrethroid-based aerosols during peak mosquito activity, equip accommodations with screens or nets to block mosquitoes and avoid mosquito bites during the first week of illness to prevent virus spread
- **Institutional level:** Schools, hospitals, and workplaces should educate on prevention adopt household-level measures and ensure compliance
- **Community level:** Mobilize groups for sanitation drives, conduct house-to-house inspections and advocate for civic authority action on environmental management

Key Interventions

- Vector control: Source reduction, fogging, ULV spraying, larvicides and larvivorous fish.
- Social mobilization: Promote sanitation and vector control by engaging local communities.
- Surveillance: Monitor and report cases, investigate trends and track deaths during outbreaks.
- Communication: Use media to raise public awareness and provide accurate information.

Effective community involvement, robust surveillance and proactive vector control are crucial to containing chikungunya outbreaks.