

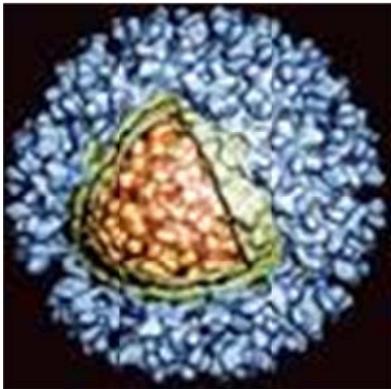
Chikungunya

Chikungunya is a non-reportable disease: cases are of interest to the state.

Chikungunya is caused by a mosquito-borne alphavirus indigenous to tropical Africa and Asia, where it causes endemic and epidemic chikungunya fever. Chikungunya is a Makonde word (one of the local languages in Tanzania) meaning ‘that which bends up’, and describes the symptoms caused by the severe joint pains that usually accompany the infection. Diseases range from silent asymptomatic infections to undifferentiated febrile illness and to devastating encephalitis. Deaths are rare. Fatal cases have not been documented conclusively.

Chikungunya belongs to the Arbovirus group; it is transmitted by Aedes mosquitoes. The virus multiplies in a mosquito within eight to ten days. The mosquito remains infective for life. Viremic humans are the main reservoir for the virus. The mosquito becomes infected by feeding on viremic patients from one day before, to the last day of the febrile period. The virus is transmitted during probing and blood feeding. There is no person-to-person transmission. Vertical transmission from mother to fetus is rare; transplacental chikungunya transmission and severe congenital chikungunya has been described.

In Africa, the virus is maintained in the sylvatic cycle between wild primates and forest-dwelling Aedes. Serological studies have found antibodies in humans and wild primates in the moist forests and semi-arid savannas of Africa.



There are 27 alphaviruses able to infect vertebrates (humans, rodents, birds, horses) larger mammals and invertebrates. The virus has a single-stranded, positive-sense RNA genome. It is enveloped (70nm Ø), spherical and has a 40nm nucleocapsid.

Historical evidence has the virus originating in Africa. The chikungunya virus was first isolated from the serum of a febrile human in Tanganyika (Tanzania) on the east coast of Africa in 1953. In the 1960s to 1980s, the virus was isolated from countries in western Africa (Senegal & Nigeria), central, southern Africa and in many areas of Asia.

Since 1953, there have been numerous outbreaks and epidemics in both Africa and Southeast Asia, involving hundreds of thousands of people. Chikungunya is probably more common than suspected as its clinical symptoms mimic dengue fever and the virus circulates same regions as dengue. Many chikungunya cases are probably attributed to dengue.

Clinical: Patients exhibit life-long immunity after having the fever. Serious complications, such as neuroinvasive disease, are rare. The treatment of the fever is supportive. No licensed chikungunya vaccine exists.

Most chikungunya patients are symptomatic. The incubation period is from two to four days (range of one to 12 days). The sudden onset is followed by fever (39°C-40°C), and chills which may subside and then return. There may be arthralgias, myalgias, low back pain and headache. The arthralgia can be characterized as polyarticular and migratory, and may be severe. The hand, wrist, ankle and feet joints are usually involved. Pain on movement is worse in the morning, improved by mild exercise and exacerbated by strenuous exercise. Generalized myalgia, as well as back and shoulder pain is common.

A skin rash occurs in 50% of cases; the patient becomes flush over the face and trunk followed by a maculopapular type rash. The trunk and limbs are commonly involved; the face, palms and soles may also show lesions. Pruritis or irritation may accompany the eruption. There may be mild headache, mild pho-

tophobia and retroorbital pain, but rare conjunctival injection and rare sore throat and pharyngitis on examination

In younger patients the fever lasts from three to seven days with a full recovery usual. The arthralgia is less prominent and short, and a rash less frequent. Infants and younger children show prominent flushing, and early maculopapular or urticarial eruption.

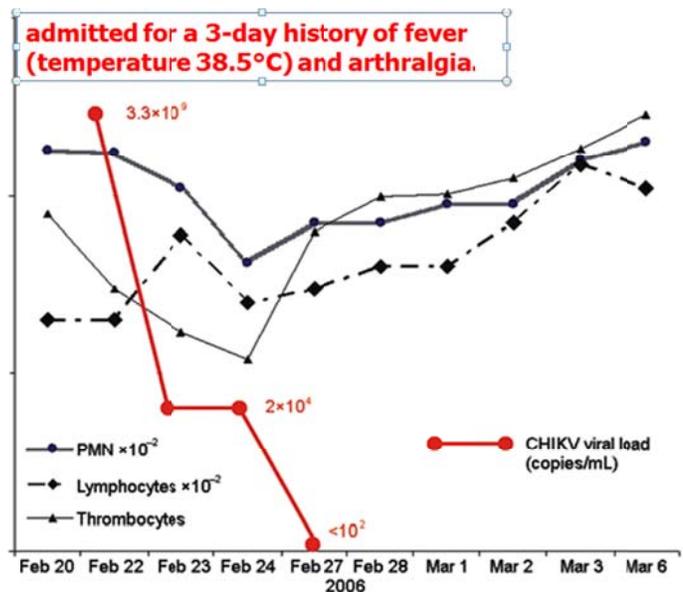
In Asia, the virus has caused a rare haemorrhagic fever, similar to dengue hemorrhagic fever. Some patients have had persistent joint or symptoms for weeks or a month.

Cases: During the period from 1991 to 2005, only seven patients had chikungunya detected by tests at the Centers for Disease Control and Prevention (CDC); three of these were returning U.S. travelers. In 2006, there were 37 imported cases of chikungunya fever in the United States.

Case Study: Imported Case Report - Louisiana

On January 15, 2006, an adult female resident of India had onset of an illness characterized by fever, joint pain (in the knees, wrists, hands, and feet), and muscle pain (in the thighs and neck). In March 2006, she traveled to Louisiana, where she sought medical attention for persistent joint pain. At the CDC, tests of a single serum sample collected on March 30 (74 days after illness onset) were positive for IgM and neutralizing antibodies to the chikungunya virus. The patient was subsequently lost to follow-up.

In the U.S., diagnostic tests for chikungunya infection not available commercially but available at the CDC by special arrangement through state health departments.



Prevention of chikungunya hinges on vector control such as community-based clean-up campaigns to remove breeding sites and the application of insecticides with attention to seaports, airports and ports of entry.

Precautions for Travelers include wearing protective clothing, using mosquito repellents during daylight hours and choosing accommodations with adequate screening and free of mosquitoes.