Chikungunya

This viral infection occurs in some tropical and subtropical regions of the world, predominantly transmitted through the bite of an infected *Aedes* mosquito

Key messages

- **Chikungunya is a viral infection transmitted through the bite of an infected *Aedes* mosquito.**
- **Chikungunya has spread significantly in recent decades and is now a major global health problem.**
- **Chikungunya is rarely fatal. Symptoms include fever, severe joint and muscle pains, headaches and skin rash which tend to resolve after 1-2 weeks; however long-term joint pain may persist for several months or years.**
- **Travellers should check if chikungunya is a risk at their destination and reduce their risk of exposure by taking mosquito bite prevention measures.**
- **There is no licensed vaccine available to prevent chikungunya and no anti-viral treatment.**

Overview

Chikungunya is a viral infection predominantly transmitted to humans through the bite of an infected *Aedes* mosquito. The disease occurs in some tropical and subtropical regions of the world and in recent decades has emerged as a major global health problem following increasing international spread. The chikungunya virus (CHIKV) is an alphavirus that was first isolated following an outbreak in Tanzania in the 1950s [1]. The term chikungunya is derived from the Makonde language of Tanzania and means, "that which bends up", referring to the severe joint pains that occur as part of the infection [2]. Typically symptoms include fever, joint pain, muscle pain, rash and headache. The disease usually resolves in one to two weeks and is rarely fatal; however, joint pain may persist for months or years [3].

Risk areas

In the latter half of the twentieth century, chikungunya predominantly occurred at relatively low levels in tropical and subtropical regions of Asia and Africa [3]. The mosquitoes responsible for the transmission of CHIKV (*Aedes aegypti* and *Aedes albopictus*) have a wide distribution particularly throughout tropical and subtropical areas. In recent years, they have also been found in parts of Europe and the USA.

Infected travellers have the potential to introduce CHIKV to new areas of the globe [4, 5], and in recent decades this potential has been realised with a number of very large international outbreaks affecting millions of people in areas not previously experiencing chikungunya. These outbreaks have occurred in the Indian Ocean islands, India, the Pacific islands, the Caribbean, Central America and South America [3, 6, 7].

Importantly a number of smaller outbreaks have also occurred in temperate Europe in France and Italy [8, 9]. Although these outbreaks were small, they highlight the potential for global spread outside the tropics and subtropics. The likelihood of CHIKV spreading in mainland Europe is high. This is due to importation of the virus via infected travellers returning from endemic countries, the presence of competent vectors in many European countries (particularly around the Mediterranean coast) and population susceptibility [10, 11].

As the risk areas are constantly evolving, travellers visiting countries where chikungunya is known to have occurred, or has the potential to occur, should check the latest information on outbreaks prior to travel. Outbreaks of chikungunya in new areas are recorded in the Outbreak Surveillance section of our website. Travellers can check a country's CHIKV status by looking at the 'Other Risks' section; 'Biting insects or ticks' section of our Country Information pages.

A record of countries where CHIKV has occurred is also available on the United States Centre for Disease Control (CDC) website.

Risk for travellers

Travellers visiting areas experiencing on-going outbreaks are at risk of acquiring chikungunya. Epidemics occur predominantly in the rainy season of tropical countries although seasons may vary in different regions. The mosquitoes responsible for transmission of CHIKV are predominantly day biting mosquitoes. The presence of natural and man-made containers that serve as breeding sites for *Aedes* mosquitoes around human habitation are a risk factor for chikungunya transmission [12, 13].

Chikungunya in United Kingdom (UK) travellers

In England, Wales and Northern Ireland (EWNI), a total of 295 individual cases of CHIKV infection were reported by Public Health England, now the UK Health Security Agency (UKHSA) in 2014, more than a 12-fold increase compared to 2013 (24 cases). In 2014, the majority of EWNI cases (when travel history was known) visited the Caribbean and South America, with most cases reported towards the end of the year, reflecting progress of an outbreak in this region. Eight cases were

linked to travel to Africa (compared to two in 2013). Before 2014, the majority of UK CHIKV cases were acquired in the Indian Ocean islands, South and Southeast Asia and Africa [14].

In 2016, a total of 169 cases in returning travellers were reported in the whole of the UK, with 104 UK cases reported in 2017 and 59 UK cases in 2018 [15]. In EWNI 2019 a total of 100 cases were reported in returned travellers, with 33 cases in 2020, 17 cases in 2021, 31 cases in 2022 and 45 cases in 2023 [16].

In 2023, travel history was known for 43 cases, with most reporting travel to South Asia and Southeast Asia. One case reported visiting Argentina, making this the first EWNI CHIKV case report after travel to Argentina since 2008. The most frequently reported country of travel was India, followed by Brazil and Nigeria. Infected travellers who visited India reported travelling to a number of regions including, Delhi, Maharashtra, the Punjab and Uttar Pradesh [16].

Transmission

CHIKV is mainly spread by the bite of an infected *Aedes aegypti* or *Aedes albopictus* mosquito. These mosquitoes are active throughout the day, especially during the hours of highest activity: mid-morning and late afternoon to twilight [11]. *Aedes aegypti* tend to reside in close proximity to human dwellings in urban areas and often bite indoors [12, 13]; they tend to bite humans rather than animals [5]. *Aedes albopictus* are active in urban, peri-urban and rural areas, as well as near to forested areas; they bite both indoors and outdoors, but prefer outdoors [12, 13]. *Aedes albopictus* bite humans and a wide variety of animals, allowing the mosquito to transmit CHIKV between animals and humans.

In Africa, CHIKV is transmitted between *Aedes* mosquitoes and non-human primates or small mammals in forested areas, creating an animal reservoir [3]. Outbreaks in Africa are frequently associated with heavy rainfall, when mosquito populations increase and spread of CHIKV from animals in forested areas to humans in nearby dwellings is more likely [3, 5]. During epidemics, CHIKV can circulate between human beings and mosquitoes without the need for an animal reservoir. In contrast, transmission in Asia seems to occur predominantly between humans and *Aedes* mosquitoes in urban locations [3].

Signs and symptoms

It may take between four and eight days for the first symptoms of chikungunya to develop; it can be shorter or longer in some people. Onset of the disease is characterised by sudden onset of high fever, severe arthralgia (joint pains) and myalgia (muscle pains), with associated headaches, photophobia (sensitivity to light) and skin rashes [3]. Some people can be infected with CHIKV without developing symptoms, although this appears to be relatively rare.

Jont pain is commonly the most disabling symptom and tends to affect multiple joints, particularly the extremities (ankles, wrists and hands) [3, 17]. The infection usually resolves after one to two weeks, however in some patients, joint pains may persist for months or even years causing long-

term disability [3]. Up to 12 percent of individuals have persistent joint pains after three years [16]. Occasional cases of eye, neurological and heart complications have been reported, as well as gastrointestinal complaints. Serious complications are rare, as are fatalities (approximately one in every 1000 cases). Those at highest risk of dying include young babies, the elderly and adults with underlying health problems [3].

Diagnosis and treatment

CHIKV infection is suspected when typical clinical symptoms occur in a person who has visited or resided in a known risk area, particularly when an outbreak is on-going. The diagnosis can be confirmed by detecting the presence of the virus or antibodies to the virus in the patient's blood. In the UK, appropriate samples from suspected cases should be sent, along with a full clinical and travel history with relevant dates, to the UK Health Security Agency Rare and Imported Pathogens Laboratory.

No specific antiviral treatment is currently recommended and patients are treated with rest, hydration and medications for pain and fever. Nonsteroidal anti-inflammatory drugs may be helpful in alleviating symptoms.

Preventing chikungunya

Health professionals should be aware of where CHIKV outbreaks are occurring to enable appropriate pre-travel counselling. Travellers should seek advice from a health professional prior to travel and may reduce the risk of acquiring chikungunya by taking bite prevention measures. Particular vigilance with bite precautions should be taken around dawn and dusk. If possible natural or man-made water filled containers, which may act as mosquito-breeding sites, should be removed. There is no vaccine currently available in the UK to prevent chikungunya. A CHIK vaccine (Ixchiq) has been developed and is approved for use in the USA and the European Union. This vaccine is not licensed for use in the UK.

Resources

- European Centre for Disease Prevention and Control: Chikungunya worldwide overview
- UK Health Security Agency (formerly Public Health England): Chikungunya
- World Health Organization: Chikungunya fact sheet

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