Diseases spread by insects and ticks in Europe

Depending on destination, travellers may be at risk of a number of different diseases spread by insects or ticks in Europe

Key messages

- **A number of different diseases can be spread by insects and ticks that are found in Europe.**
- **Some insect and tick-borne diseases can cause severe, occasionally life threatening, illness.**
- **Travellers should follow** insect and tick bite avoidance advice **and get prompt medical help for any unusual symptoms – especially fever or a rash.**
- **Specific destination advice can be found on our** Country Information pages**.**

Overview

Europe has several local insects and tick species capable of spreading diseases. Mosquitoes (e.g. *Aedes*) have also become established, increasing the risk of locally acquired mosquito-borne diseases, which were previously rare in Europe [1].

As insect activity increases during the spring, summer and autumn in Europe, travellers may be at increased risk of insect or tick-borne infections. The most common insect and tick-borne diseases are highlighted below. However, this list does not cover every possible infection. It is important to remember that insect and tick bite avoidance measures help protect against any infections spread by insects or ticks. Diseases are listed alphabetically.

Insect and tick-borne illnesses can be mild and may not need treatment. However, some diseases can cause severe and occasionally life-threatening illness.

Chikungunya virus (CHIKV)

CHIK is a viral infection spread by the bite of an infected *Aedes* mosquito. The disease is found in tropical and sub-tropical parts of Africa, the Indian Ocean islands, South and Southeast Asia, South

and Central America and the Caribbean and Pacific regions. It is also a disease periodically reported in areas of mainland Europe.

The first locally acquired cases of CHIK reported in mainland Europe were in the summer of 2007 in northeast Italy. In 2010, locally acquired cases of CHIK were reported in southeastern France. Further locally acquired cases were reported in southern France in 2014 and 2017, with Italy reporting another locally acquired outbreak in 2017 [2].

The European Centre for Disease Prevention and Control (ECDC) advise there is a very low risk of CHIK in mainland Europe. This is because the environmental conditions are not favourable to mosquito activity and virus reproduction [3]. Small numbers of CHIK cases are reported every year in returned travellers to England, Wales and Northern Ireland (EWNI). However, for these travellers, Europe is not usually listed as the destination they visited [4].

Crimean Congo haemorrhagic fever (CCHF)

CCHF virus infects humans and a range of domestic and wild animals and is spread by infected *Hyalomma* ticks. Worldwide, the distribution of human cases corresponds to areas where these ticks are found. CCHF virus was first discovered in the Crimea in 1944. In 1969, it was recognised that the same virus had been isolated in the Congo in 1956. Currently the virus is found in Africa, Asia, the Middle East and Europe [5].

In mainland Europe, human cases have been reported in Albania, Armenia, Bulgaria, Kosovo, Russia, Serbia, Spain, Turkey and Ukraine. Human infections have also been reported from Kazakhstan, Tajikistan, Turkmenistan and Uzbekistan [5]. Greece reported a single case in 2008 [5, 6].

Spain first reported infected ticks in 2010 and in 2016, they reported their first confirmed locally acquired human CCHF cases [5]. A retrospective review revealed that another human case may have occurred earlier in 2013 [6] and human cases continue to be reported in Spain [6, 7].

Confirmed CCHF cases in returning travellers have been reported in the United Kingdom (UK). These include a traveller who visited Bulgaria in 2014 and one fatal infection in a traveller who visited Afghanistan in 2012 [5].

Dengue virus (DENV)

Dengue virus (DENV) is a mosquito-borne infection spread by the bite of an infected female *Aedes* mosquito [8, 9]. Most people infected with DENV have mild or no symptoms and will get better in one or two weeks. Symptoms can include fever, severe headache with pain behind the eyes, muscle and joint pains, nausea, vomiting, abdominal pain, loss of appetite and a rash. Rarely, DENV infection can develop into a very serious illness (severe dengue) which can be fatal, if supportive treatment is not available [8].

Dengue occurs typically in tropical and sub-tropical areas worldwide and is found in more than 100 countries in Africa, Asia, the Americas, the Caribbean, the Eastern Mediterranean and the Western Pacific. Current dengue reports indicate a rising number of cases worldwide. This is due to factors such as climate change, rising temperatures and flooding [8, 10].

Dengue is an emerging disease in parts of Europe. Locally acquired human dengue cases were first reported in mainland Europe in France and Croatia in 2010. In France, locally acquired cases have been reported annually since 2013. In 2018, the first locally acquired cases in Spain were confirmed and Italy reported their first locally acquired cases in 2020. Both Spain and Italy have continued to report sporadic local cases [9].

The island of Madeira (Autonomous Region of Portugal) reported their first outbreak of locally acquired DENV in 2012 [10].

DENV is a travel-associated infection in the UK, with most imported cases acquiring their infection outside Europe. However, a small number of cases have been reported in UK travellers who visited Europe [11].

Leishmaniasis

Leishmaniasis is an infection caused by a parasite (Leishmania) and is spread to humans by a bite from an infected phlebotomine sandfly. The parasite is found in many tropical/sub-tropical regions of the world, including parts of Europe. There are different clinical forms of the disease including cutaneous (CL) and visceral (VL) leishmaniasis [12].

Leishmaniasis is re-emerging in Europe and the wider Mediterranean region [13] and both CL and VL are endemic in the European region [12, 14]

Every year, a small number of cases are reported in UK travellers returning from Mediterranean areas of mainland Europe [15, 16], including Spain [16].

Lyme disease

Lyme disease is a bacterial infection caused by a bacterium of the genus Borrelia (*B. garinii* and *B. burgdorferi* in Europe). It is spread to humans by a bite from an infected *Ixodes* tick. Lyme disease is endemic in parts of the UK. Central Europe is the region with the highest tick infection rates in Europe, specifically in Austria, the Czech Republic, southern Germany, Switzerland, Slovakia and Slovenia [17].

Lyme Disease is the most common tick-borne disease in Europe and in the UK. Of the cases diagnosed in EWNI, only a small number are travel associated (between 5-10%) and most travel-related cases reported international travel outside Europe [18].

Malaria

Malaria is caused by Plasmodium parasites and is spread to humans through the bite of by infected *Anopheles* species mosquitoes. Local transmission is occasionally reported in European Union countries. These reports indicate local transmission of malaria remains possible in Europe [19].

There is currently a very low risk of malaria in Turkey: awareness of risk and bite avoidance are recommended for UK travellers [20].

Tick-borne encephalitis (TBE)

TBE is a viral infection that is spread to humans by the bite of infected *Ixodes* ricinus ticks or by eating or drinking unpasteurised dairy products from infected animals, including cows, goats and sheep. *Ixodes* ticks can be found in regions stretching from mainland Europe to Japan [21].

In mainland Europe, TBE risk areas were traditionally in central and Eastern Europe, and the Baltic/Nordic regions. However, a significant increase in TBE cases were reported in European Union and European Economic Area countries from 2012 to 2020 [22]. Locally acquired TBE is now being reported in areas of Northern Europe not previously thought to be infected, including occasional cases in the UK [21]. The TBE risk season varies. However, ticks are most active during early spring to late autumn in Europe [21, 22].

As of June 2024, a total of seven confirmed travel-related TBE cases were reported in UK residents who visited TBE risk areas between 2014 and 2018 [21].

West Nile virus (WNV)

WNV is an infection of humans and birds transmitted by *Culex* species mosquitoes. Most people infected with WNV (approximately 80 percent) will not develop symptoms. Those with symptoms can experience a mild, self-limiting flu-like illness with fever, headache, muscle pain and rash. About one in every 150 cases progresses to a more serious neurological illness.

Serological surveys have demonstrated WNV circulation in Europe since the 1950s. The first recognised outbreak in humans in Europe occurred in 1962-1963 in southern France. In 1996, the first major WNV infection epidemic occurred in Europe. Since then, cases and outbreaks have been reported in south, east and west European countries [23, 24].

WNV activity in Europe is monitored during the risk season: more information is available on the European Centre for Disease Prevention and Control website.

There have been occasional cases of travel associated WNV reported in UK travellers [24].

Advice for travellers

Insects and ticks are more active in Europe during warm spring, summer and early autumn months

(typically May to November). In sub-tropical regions, they will be active all year round.

Check our Country Information pages for destination specific recommendations and reduce your risk of illness by following insect and tick bite avoidance advice.

Aedes mosquitoes bite during the day.

Anopheles and *Culex* mosquitoes bite in the evening and at night.

Sandflies bite at dusk and after dark and will bite during the day if disturbed.

Ticks do not jump or fly, but opportunistically grab, drop or brush onto to passing humans. They then either attach quickly or crawl to a suitable feeding place, often the armpit, groin or neck where the skin is thinner.

Remove ticks carefully or get medical help to remove them as soon as possible.

Carry a first aid kit, with appropriate over the counter medicines/cream to treat insect and tick bites.

There is an effective vaccine to protect against TBE for those visiting risk areas. See our tick-borne encephalitis factsheet for more detailed vaccine advice.

See your GP/doctor if you experienced symptoms such as fever or rash after travelling in Europe and remember to tell them all the countries/regions you visited.

Advice for health professionals – the returned traveller

Health professionals should be alert to the possibility of insect or tick-borne disease when consulting with an ill-returned traveller from Europe or neighbouring countries.

Health professionals who suspect a case of insect or tick-borne disease in a traveller should liaise with their local infectious disease physician, microbiologist or virologist.

The UK Health Security Agency Imported Fever Service is available to local infectious disease physicians or microbiologists. If specialist advice is needed, phone 0844 7788990.

Resources

- European Centre for Disease Prevention and Control: Disease vectors
- European Centre for Disease Prevention and Control: Mosquito maps
- European Centre for Disease Prevention and Control: Tick maps
- Insect and tick bite avoidance

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