

# Diseases Transmitted 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 transmitted by insects and ticks are present in Europe.**

**Some insect and tick borne diseases can potentially cause severe, occasionally life threatening, illness.**

**Travellers should follow [insect and tick bite avoidance advice](#) and seek prompt advice for any unusual symptoms - especially fever.**

**Specific destination advice can be found on our [Country Information pages](#).**

## Overview

Europe has several native insects and tick species capable of transmitting diseases. Non-native mosquitoes (e.g. *Aedes* spp) have also become established, increasing the risk of locally acquired mosquito-borne diseases 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 diseases; this article highlights the most common but it is not exhaustive. It is important to note that the insect and tick avoidance measures will protect against any disease spread by the insect or tick. Diseases are listed alphabetically not according to severity or occurrence.

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

## Chikungunya (CHIKV)

[CHIKV](#) is a viral infection transmitted by infected *Aedes* species mosquitoes. The disease is found in tropical and sub-tropical parts of Africa, the Indian Ocean islands, South and South East Asia and has recently emerged in several countries in the Caribbean and Pacific regions. It is also a disease recently reported in parts of Europe [2].

The first locally acquired cases of CHIKV reported in Europe occurred in the summer of 2007 in north east Italy [3]. In 2010, two locally acquired cases of CHIKV were reported in the Provence-Alpes-Côte d'Azur region of south eastern France [4].

In October 2014, a total of 11 locally acquired CHIKV cases were identified in the Languedoc-Roussillon region of southern France [5].

In 2017, France reported two further CHIKV clusters, including 15 confirmed and two probable cases, again in the Provence-Alpes-Côte d'Azur region of south-eastern France. In the same year, Italy reported 277 confirmed and probable cases in the Lazio and Calabria regions [6].

Small numbers of cases are reported every year in returned travellers to England, Wales and Northern Ireland (EWNI); in these travellers, Europe is not usually the world region visited [7].

## **Crimean Congo haemorrhagic fever (CCHF)**

[CCHF](#) is a viral infection transmitted by infected Hyalomma ticks 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 it is found in Africa, Asia, the Middle East and Eastern Europe. Outbreaks have been recorded in Albania, Iran, Kazakhstan, Kosovo, Mauritania, Pakistan, Russia, Turkey and southern Africa in recent years. Greece reported a single case in 2008 [8].

In 2016, Spain reported a locally acquired CCHF case and confirmed that the virus is present in ticks [9].

As of August 2019, two imported cases have been confirmed in EWNI: one fatal case from Afghanistan in 2012 and one from Bulgaria that survived in 2014 [8].

## **Dengue**

[Dengue](#) is a mosquito-borne infection transmitted by the bite of an infected female

*Aedes* species mosquito. It is caused by a virus. Illness is usually characterised by an abrupt onset of fever often accompanied by severe headache and pain behind the eyes, muscle pain, joint pains, nausea, vomiting, abdominal pain and loss of appetite; however, symptoms can range from mild or non-existent to severe. 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 regions [10].

Dengue is a travel-associated infection in the UK. The majority of cases reported acquire their infection in Asia, the Americas and the Caribbean. In EWNI, a total of 347 individual cases of dengue were reported in 2014 [11].

The first reported locally acquired cases of dengue in Europe were in France and Croatia in 2010. In France, sporadic locally acquired cases have been reported annually since that time. The Autonomous Region of Madeira, Portugal reported their first outbreak of locally acquired dengue cases in 2012 [10]. In October 2018, the first locally acquired cases in Spain were confirmed [12].

## Leishmaniasis

[Leishmaniasis](#) is an infection caused by a protozoan parasite of the genus *Leishmania* and is transmitted 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 [13]. Both types occur throughout the Mediterranean; CL has been reported in Albania, Croatia, Cyprus, France, Greece, Italy and Turkey [14].

Every year, a small number of cases of both forms are reported in UK travellers returning from mainland Europe. Countries visited include Cyprus, Greece, Malta, Portugal, Spain and Turkey [15].

## 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 transmitted 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 [16].

Lyme Disease is the most common tick borne disease in Europe and in the UK. Of the cases diagnosed in EWNI only a small proportion are travel associated (between 5-10%) with Africa, Europe and sporadic cases to North America, Asia, South America and the Caribbean [17].

## Malaria

[Malaria](#) is caused by *Plasmodium* parasites and is spread to humans through the bite of by infected *Anopheles* species mosquitoes. Transmission is occasionally reported in Europe.

Infrequent locally acquired malaria cases have been reported in Greece since 2009 [18]. Between 2009 and 2017, a total of 95 locally acquired malaria cases were reported in Greece, with a peak in local transmission in 2011/2012. Since then, the number of locally acquired malaria cases has declined steadily [19]. There is currently a very low risk of malaria in Greece; awareness of risk and bite avoidance are recommended for UK travellers [18].

France, Italy and Northern Cyprus have very rarely reported sporadic malaria cases without recent travel history. 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 transmitted to humans by the bite of infected *Ixodes ricinus* ticks or through ingestion of unpasteurised dairy products from infected animals. *Ixodes* ticks can be found in regions stretching from mainland Europe to Japan [21].

In Europe TBE risk areas are mainly in central and Eastern Europe, and Baltic/Nordic regions. Between 2000 and 2010, the annual number of TBE cases reported in European Union and European Economic Area countries fluctuated between 2,000–3,500 cases. [20]. Transmission season varies. However, ticks are most active during early spring to late autumn

As of December 2016, six confirmed cases of TBE have been reported in UK travellers since 2011. All had history of travel to one or more TBE risk country in Europe: countries included the Czech Republic, Estonia, Latvia, Lithuania and Sweden [22].

## **West Nile virus (WNV)**

**WNV** is a viral illness 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 1 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 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]

WNV activity in Europe is monitored during the transmission season: a map of reported cases 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 October). 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, but 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 information sheet](#) 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 which country/region 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 Imported Fever Service: Public Health England 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: Vector-borne diseases](#)
- [Insect and tick bite avoidance](#)

## **REFERENCES**

1. Medlock J, Hansford K, Schaffner F et al. A review of the invasive mosquitoes in Europe: ecology, public health risks, and control options. *Vector-borne Zoonotic Dis* 2012; 12(6): 435-447.
2. Burt F, Rolph M, Rulli N et al. Chikungunya: a re-emerging virus. *Lancet* 2012; 379:662-3
3. Rezza G, Nicoletti L, Angelini R et al. Infection with chikungunya virus in Italy: an outbreak in a temperate region. *Lancet* 2007; 370: 1840-46
4. [Grandadam M, Caro V, Plumet S et al. Chikungunya virus, south-eastern France. \*Emerg Infect Dis.\* 2011 May; 17\(5\): 910-3. \[Accessed 12 August 2019\]](#)
5. Institut De Veille Sanitaire. Chikungunya et dengue - Données de la surveillance renforcée en France métropolitaine en 2014. 3 November 2014.
6. [European Centre for Disease Prevention and Control. Chikungunya virus disease. \*Annual epidemiological report for 2017.\* 3 April 2019. \[Accessed 12 August 2019\]](#)

7. [Public Health England. Chikungunya in England, Wales and Northern Ireland: 2014. 20 March 2015. \[Accessed 12 August 2019\]](#)
8. [Public Health England. Crimean-Congo haemorrhagic fever: origins, reservoirs, transmission and guidelines. 20 September 2016. \[Accessed 12 August 2019\]](#)
9. [National Travel Health Network and Centre. Crimean-Congo haemorrhagic fever \(CCHF\) in ticks in Spain. 26 May 2017. \[Accessed 8 August 2019\]](#)
10. [National Travel Health Network and Centre. Dengue. 19 February 2019. \[Accessed 12 August 2019\]](#)
11. [Public Health England. Dengue reported in England, Wales and Northern Ireland: 2014. 26 November 2015. \[Accessed 12 August 2019\]](#)
12. [European Centre for Disease Prevention and Control. Rapid Risk Assessment. Local transmission of dengue fever in France and Spain - 2018. 22 October 2018. \[Accessed 12 August 2019\]](#)
13. [European Centre for Disease Prevention and Control. Facts about Leishmaniasis. 2019. \[Accessed 12 August 2019\]](#)
14. [Alvar J, Velez I, Bern C et al. Leishmaniasis Worldwide and Global Estimates of its Incidence. May 2012. PLoS ONE 7\(5\). \[Accessed 12 August 2019\]](#)
15. [Changing Pattern of Visceral Leishmaniasis, United Kingdom, 1985-2004. Malik A, Lawrence J, Bryceson A et al. Aug 2006. Emerg Infect Dis; 12\(8\): 1257- 59. \[Accessed 12 August 2019\]](#)
16. [European Centre for Disease Prevention and Control. Factsheet about Borreliosis. 6 March 2016. \[Accessed 12 August 2019\]](#)
17. [Public Health England. Health Protection Report, Vol 13 \(28\). Common animal associated infections quarterly report \(England and Wales\): second quarter 2019 \[Accessed 12 August 2019\]](#)
18. [TravelHealthPro. Greece Country Information Page: Malaria. 12 August 2019. \[Accessed 12 August 2019\]](#)
19. [European Centre for Disease Prevention and Control. Rapid risk assessment: Multiple reports of locally-acquired malaria infections in the EU. 20 September 2017. \[Accessed 12 August 2019\]](#)
20. [TravelHealthPro. Turkey Country Information Page: Malaria. 12 August 2019. \[Accessed 12 August 2019\]](#)
21. [European Centre for Disease Prevention and Control/Eurosurveillance. Tick-borne encephalitis in Europe, 2012 to 2016. Euro Surveill November 2018;3\(45\). \[Accessed 12 August 2019\]](#)
22. [TravelHealthPro. Tick-borne encephalitis. 27 April 2017. \[Accessed 12 August 2019\]](#)
23. [European Centre for Disease Prevention and Control. Factsheet about West Nile virus infection. 28 November 2018. \[Accessed 12 August 2019\]](#)
24. [Public Health England. West Nile virus: epidemiology, diagnosis and prevention. 20 August 2018. \[Accessed 12 August 2019\]](#)

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