

Europe is facing a growing threat of tropical disease outbreaks, as rising temperatures linked to climate change cause illnesses brought by travellers to spread more easily, health experts warned.

This summer has seen a sharp spike in West Nile virus infections in Europe, following soaring temperatures, compared with the past four years. Until the middle of August, 400 cases of the disease, which is carried by mosquitos, were recorded in Europe, with 22 fatalities, according to the European Centre for Disease Prevention and Control . Countries affected include Italy, Greece, Hungary, Serbia and Romania, all of which have recorded cases of the tropical infection in the past.

The spike was due to an early start to the transmission season, caused by high temperatures followed by wet weather, conditions ideally suited to mosquito breeding, according to the World Health Organization's regional office for Europe.

"We are all a bit taken aback about how fast these change are coming down the pipeline," said Prof Jan Semenza, who leads on scientific assessment for the ECDC. "We are seeing more and more of these extreme weather events."

Semenza, who studies how climate change and other global environmental changes, such as the rise in international travel, affect public health, said higher temperatures make it easier for disease-carrying vectors, such as mosquitos, to transmit disease.

"Mosquitos and ticks are cold-blooded and are affected by higher temperatures. At higher temperatures, mosquitos replicate faster. Pathogens in the mosquito also replicate faster. Everything is speeded up and you get higher turnover, bigger populations of mosquitoes and a growing epidemic potential for viruses."

This year, which has seen extreme weather and wildfires create havoc in Europe and beyond, has also seen increased numbers of tick-borne encephalitis in central and southern Europe. Last year, the Centers for Disease Control and Prevention found rising temperatures, a rise in international travel and more people living near wildlife were linked to a rise in illness from mosquitos, ticks and flea bites in the US, including West Nile and dengue.

Researchers predict the risk for transmission of dengue fever, Chikungunya and the Zika virus, could also rise in Europe as a result of climate change. All three, normally carried by *Aedes aegypti* mosquito, can also be transmitted by a different species, such as the Tiger mosquito, increasingly found in European countries, including Italy and Spain and other Mediterranean nations.

The increasing prevalence of the Tiger mosquito allows for the possibility of local infection from unknown pathogens brought into Europe by travellers.

Semenza said he was concerned about the spike of West Nile fever and its implications for local transmission of other vector-borne diseases. “We have never seen so many cases of West Nile fever so early in the season. This is a dramatic increase.”

“What it means in public health terms is we need to become more concerned about blood safety. If someone returns from abroad to Europe and has a virus in their blood, the *Aedes* mosquito can bite them, take up the pathogen and then bite someone else.”

“We can test the blood supply for West Nile fever but we cannot test the blood supply for a pathogen we don’t know of. If the blood supply is contaminated with a pathogen, it can’t be used and the blood supply system could be paralysed.”

Southern France and Italy experienced an outbreak of Chikungunya in 2017. Semenza said there was concern about the rapid spread of the disease at the time, as it had happened in Rome, but the outbreak was contained.

He and his team have developed models to predict the highest risk of imported diseases like dengue and to avoid “catastrophic” events or outbreaks where they are unprepared. They found the risk is worst in August, September and October, when many people travel, and that 50% of passengers from areas where dengue is prevalent travel through Rome and Milan airports.

Dr Diarmid Campbell-Lendrum, the WHO’s lead on climate change, said: “We wouldn’t say a particular outbreak is attributable to climate change. But we would say that climate change is making it easier to transmit these kinds of diseases.”

Asked if we may see diseases in Northern Europe that we have never seen before, Campbell Lendrum said: “It is perfectly possible, yes. That’s not to say we won’t be able to control it. But the conditions are becoming easier for transmission.”

Rachel Lowe, an assistant professor in infectious diseases at the London School of Hygiene and Tropical Medicine, who has studied the effect of climate change on disease transmission in mosquitos, has found unexpected effects.

“Mosquitos thrive in humid conditions and rainfall can increase breeding sites. But something we found is that drought conditions can also increase breeding, because of the ways people store water. We have this complicated, non-linear relationship.”

Source: theguardian.com