

Swedish researchers map the risks of new virus epidemic in Europe

April 8 2014

The risk of dengue fever beginning to spread in Europe is imminent. According to researchers from Umeå University, this is no longer just an issue for the scientific community but also for politicians and policy makers, who need to be prepared and develop preventive measures.

With a changing climate and rising temperatures in Europe, the incidence of the *Aedes aegypti* mosquito has also increased. The mosquito is the main vector of dengue that can cause [haemorrhagic fever](#). Although no outbreak of the disease has not yet occurred in Europe, researchers at the Epidemiology and Global Health unit at Umeå University claim that there is now good [living conditions](#) for the mosquito in Europe and that it is therefore only a matter of time before we see an epidemic here. The *Aedes albopictus* mosquito has already established itself in large parts of Europe. Even though it is not as competent a vector as *Aedes aegypti*, several domestic cases of the disease have been observed in countries such as France and Croatia.

"The last outbreak of dengue in Portuguese Madeira when several thousand became ill, shows that it is no longer a theoretical possibility that the disease can take hold in Europe. It is a reality that can strike at any time," says Raman Preet, researcher and scientific project manager of the Dengue Tools project at the Department of Epidemiology and Global Health, Umeå University. "When the disease shows up in Europe it has probably accompanied travellers in areas in the world where the disease is established. Then it will be spread with the help of the *Aedes* mosquito".

The risk for Swedish travellers to be infected by dengue is highest when going to Sri Lanka and Bangladesh, while most cases in Sweden stems from trips to Thailand. There is currently no vaccine that can protect against dengue, nor is there any treatment when the illness strikes. Symptoms are similar to those of severe cold with fever, headache, muscle and joint pain, or upset stomach. The disease can be life threatening when it affects children, the elderly and chronically ill. In severe cases it can develop into a haemorrhagic fever.

The previous models used to study the spread of dengue and especially the living conditions for the Aedes mosquito has taken up the average temperature in different areas. Jing Helmersson, PhD student within the EU-funded DT project at Umeå University, demonstrates in her studies that it is not enough. These calculations must also include the diurnal temperature distribution in different areas, and temporal trends when assessing the potential for an epidemic caused by dengue. Therefore, Jing Helmersson has developed a climate model with historical data from 1901 to the present day, whose projections extends to 2099. The results show a strong link between climate change and increased ability for mosquitos to spread the disease in Europe.

"In our analyses, we can see that climate change, including the extreme weather with large daily temperature fluctuations in different areas of Europe, causes a large relative increase in the potential for epidemic spread of [dengue fever](#)," says Jing Helmersson. "It mainly concerns areas in southern and central Europe where the potential for proliferation previously has been small. At the same time we see that the spread potential will decrease in warm areas of the world, because the temperatures get too high."

Following the results of the research project, Jing Helmersson believes that it is important to continue with the mapping of future risks of [dengue infection](#), especially in temperate regions of the Northern

Hemisphere. Increased globalization and the influx of viruses carried by flight passengers further heightens the risks.

"Perhaps the most important of these studies is that they give us a better understanding of the risks of a future epidemic of dengue fever," says Jing Helmersson. "This type of modelling where we use weather and climate data makes it possible to forewarn the authorities in countries that are at risk of [dengue](#) epidemics, so that they in turn can prepare and start to act."

Provided by Umea University

Citation: Swedish researchers map the risks of new virus epidemic in Europe (2014, April 8) retrieved 12 July 2023 from <https://medicalxpress.com/news/2014-04-swedish-virus-epidemic-europe.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.