

Preparing for Zika in the EU

Summary

The Zika epidemic is continuing to spread in the Americas and the Caribbean with many countries currently affected worldwide. There is now evidence of an association between being infected with the virus during pregnancy and congenital malformations of the brain of the developing foetus. There is also an association between Zika virus infection and Guillain-Barré syndrome, which is characterised by paralysis and other neurological symptoms in adults and, less commonly, also in children.

Locally acquired cases of Zika virus infection are possible in Europe this summer in countries which have a large *Aedes albopictus* mosquito population (a mosquito capable of transmitting Zika), and where the ecological and climatic factors favour transmission.

In the Autonomous Region of Madeira (Portugal), there is a higher probability of locally acquired cases of Zika than in continental Europe. The main mosquito capable of transmitting Zika, *Aedes aegypti*, is present in Madeira whereas only the less efficient *Aedes albopictus* mosquito has been found in continental Europe.

Imported cases of Zika virus are being seen in Europe and are expected to continue, given the high number of people travelling between the most affected regions and Europe. Sexual transmission of Zika is also expected from travellers returning from affected areas, and is already being reported in some countries.

It is important that EU countries are prepared for this threat. This requires operational plans for response measures, including the capability to detect and diagnose cases early and perform surveillance, and the provision of adequate resources to sustain enhanced mosquito control. Failure to do so could lead to the disease spreading more widely, resulting in greater costs for mosquito control and care for affected people, and greater concern among the general public.

An integrated response is required and countries can consolidate their plans around:

- clinical awareness to enable early diagnosis
- laboratory capacity for Zika detection
- surveillance
- mosquito control measures
- public communication.

The issue

This document highlights preparedness measures that can minimise the risk of Zika virus spreading in continental Europe, primarily to protect pregnant women and women who wish to become pregnant, considering the evidence of the association between Zika virus and congenital malformations of the brain of the developing foetus.

Given the high number of people travelling between Zika-affected regions and Europe it is possible that the virus might be introduced to Europe.

Mosquitos that are capable of transmitting Zika virus are present in certain parts of Europe, especially southern Europe (see Figure 1). This means that cases of Zika virus infection could occur as a result of being bitten in the EU by an infected mosquito, as well as cases acquired in the EU through sexual transmission.

Zika cases in returning travellers are already being recorded in EU countries as well as imported cases of congenital malformations of the brains of developing fetuses. Sexual transmission of Zika virus has also been documented and could occur in Europe from travellers returning from affected areas.

Implications of inaction

Early detection of cases might be missed if there is a lack of awareness among clinicians of Zika symptoms, or if there is limited laboratory capacity. In addition, a lack of appropriate and timely mosquito control measures, a lack of information to the public about the risks around sexual transmission and inadequate mosquito bite prevention could also increase the likelihood of the virus spreading.

The possible economic burden of Zika cases in the EU could be significant, arising from:

- **Extra clinical surveillance needed for pregnant women in and returning from affected areas:** pregnant women are encouraged to be regularly monitored and followed up if they have been exposed to Zika virus.
- **Long-term consequences of caring for babies born with microcephaly:** microcephaly is a lifelong condition with no known cure or standard treatment. Babies born with the condition will need regular check-ups and medical assistance to monitor and support their growth and development.
- **Healthcare costs of managing cases of Guillain–Barré syndrome:** cases often require care with mechanical ventilation in intensive care units.

The benefits of long-term investment in preparedness are clear. New importations can be expected in the future, with similar problems, and establishing good preparedness practices will enable countries to cope better with Zika and other *Aedes*-borne viruses such as dengue and chikungunya.

What can be done?

What can be done to ensure early detection and rapid response to reduce the risk of transmission in the EU?

Healthcare workers can be trained on the importance of early detection of Zika virus. Guidelines and procedures can be put in place for clinicians on how to handle patients under suspicion of Zika (including taking measures to reduce the risk of human cases introducing the virus into the local mosquito population), how to confirm Zika infection and how to report mosquito-borne diseases.

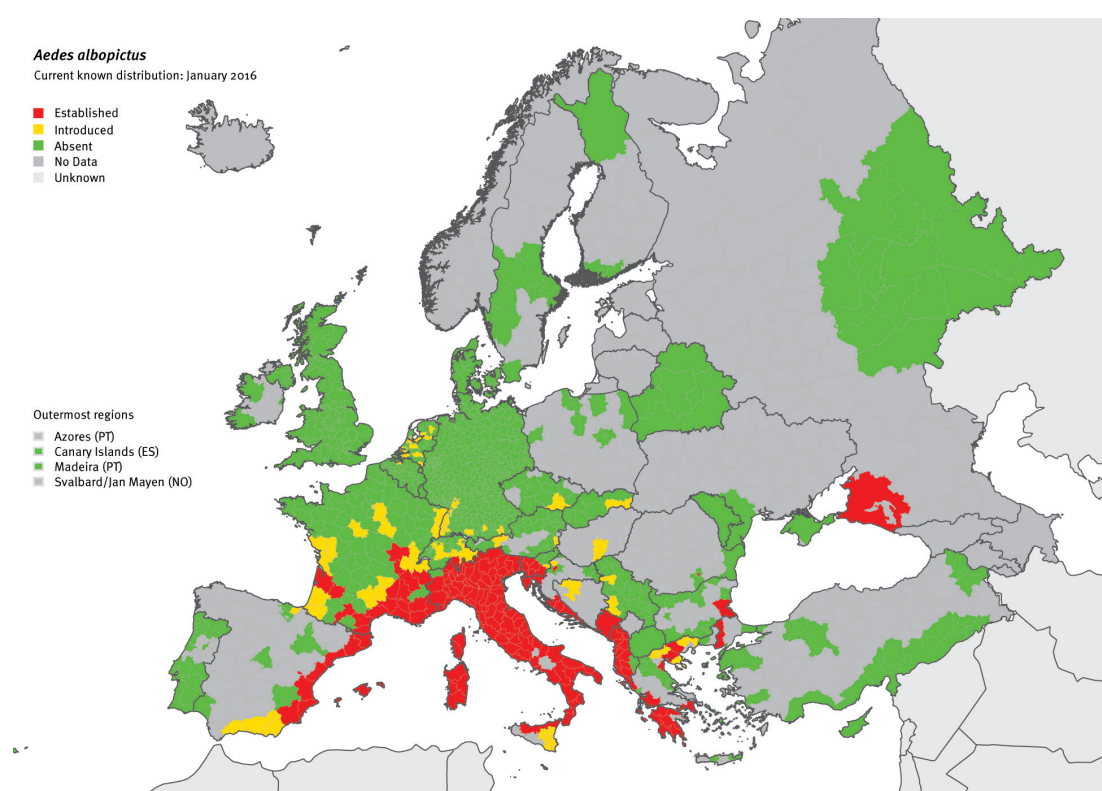
In case of a public health alert, after the occurrence of local cases for example, if information can be immediately circulated to all health professionals, public health services and other sectors such as environment, transport and tourism, it will enable the swift identification of cases.

It is important that national authorities ensure sufficient and validated laboratory capacity for virus detection, virus identification and serological testing. Strong collaboration and communication between local laboratories and reference laboratories for additional testing should be encouraged.

Systematically and regularly share surveillance and monitoring data between all sectors and at all levels (local, regional and national levels). Countries have also been asked to report cases to the European Surveillance System (TESSy).

Useful ECDC resources

- An [Algorithm for the public health management of cases under investigation for Zika virus infection](#) is available and can be used for symptomatic patients.
- [Guidelines for the surveillance of invasive mosquitoes in Europe](#) provides a useful overview of entomological surveillance at the national and subnational levels.
- [Interim guidance for healthcare providers and Zika virus laboratory diagnosis](#) is available online and can be used to guide the laboratory diagnosis of samples.
- [Zika virus disease epidemic: Preparedness planning guide for diseases transmitted by *Aedes aegypti* and *Aedes albopictus*](#) highlights measures that can effectively reduce the risk of importation and local transmission of diseases transmitted by *Ae. aegypti* and *Ae. albopictus*.
- [Zika outbreak page](#) has all content produced by ECDC on the current Zika outbreak

Figure 1. Areas in Europe where *Aedes albopictus* is present, January 2016

Source: European Centre for Disease Prevention and Control, VectorNet. Stockholm: 2016.

Community involvement in the control of mosquito populations through both individual and collective preventive measures can be promoted.

What control measures are available in the event of local transmission?

It is important to plan and prepare mosquito control measures so that they can be activated immediately as soon as imported cases are detected. The absence of early recognition of local cases of chikungunya in northern Italy in 2007 resulted in the spread of the disease to more than 200 cases in the region [Rezza, et al. 2007].

Measures that can be taken by the authorities during an outbreak include reducing the number of adult mosquitoes through aerial spraying with insecticides in accordance with the EU Biocidal Product Regulation (Regulation (EU) 528/2012). General policies for use of biocidal products at institutional or local community level could be implemented for vector control at the national level.

Mobilising the general public to implement vector control measures in their own environment (reduction of breeding sites, personal protection measures) is also important. During the dengue outbreak in Madeira in 2012, door-to-door information campaigns were carried out as well as community-based activities involving

different sectors of society alongside postings on social media [Sousa, et al. 2012].

What can be done to reduce the risk of Zika-related harm to pregnant women?

Due to the evidence of an association between being infected with Zika virus during pregnancy and congenital malformations of the brain of the developing foetus, action can be taken to inform pregnant women and women who are planning to become pregnant of the risk of Zika infection, and the best ways to prevent mosquito bites.

Clear advice can be given to pregnant women and women wishing to become pregnant when travelling to and from areas with active transmission of the virus as well as women resident in at-risk areas.

Enhanced surveillance and follow-up (with appropriate clinical advice, diagnostic services, and care) of pregnant women who return from areas with active transmission, may need to be considered, in accordance with national guidelines.

Increased awareness among obstetricians and neurologists on the symptoms of Zika virus infection will enable early detection of cases.

There have been a number of documented cases of sexual transmission of Zika virus from men to women. Countries might consider providing clear guidance on the precautions men and women may need to take on returning from areas with active transmission, with regards to the length of time after return they should practice safe sex.

What can be done to reduce the risks of transmission through transfusions and transplants?

Donations from blood donors and living donors of cells and tissues (such as semen) who are at risk of having been infected by Zika virus can be deferred temporarily. ECDC produces weekly maps showing areas of local mosquito-borne Zika transmission in Europe. This information can be used by national authorities to identify areas of transmission and safety measures for substances of human origin (SoHO) that could be applied, similar to those already in place for West Nile fever. The laboratory screening of donated blood using a nucleic acid RNA test may be used to maintain a sustainable blood supply.

Preparedness plans on SoHO safety in areas that report cases should be ready to be activated. Such plans include actions to be implemented by national authorities, SoHO establishments and other actors responsible for the safety and quality of SoHO products.

The plan can also consider preventive measures to be applied at every critical step of the SoHO supply chain. Depending on the actual epidemiological situation, the preparedness plan could also establish methods to continuously assess the risk.

Evidence

Successful integrated prevention and response to a chikungunya outbreak in Montpellier, France

The following is an example of a successful integrated prevention and response programme in France to contain an outbreak of chikungunya – another virus transmitted by *Aedes albopictus*.

An outbreak of 12 locally transmitted cases of chikungunya occurred in Montpellier in 2014, spread by the *Aedes albopictus* mosquito, the same mosquito that is also able to spread Zika [Delisle, et al. 2015]. The first case was a traveller returning from Cameroon.

The authors state that the absence of immediate vector control treatment around the primary case's residence and a lack of awareness of chikungunya among health professionals facilitated the spread of the virus. However, a good preparedness plan by the French authorities that focused on epidemiological investigations and repeated mosquito control treatments played a part in quickly containing the outbreak.

The plan also allowed for the anticipation of necessary resources that would be required in the event of an outbreak and provided regulatory tools, such as describing in detail who was responsible for what, and how to communicate information for different levels of risk.

Actions that were taken after the identification of the primary case were: surveillance of mosquitos in the neighbourhood, repeated mosquito control treatment soon after the identification of the primary case and an aggressive information campaign.

The involvement of the local population and health-care workers was a key factor in the successful containment of the outbreak. The authors suggest preparedness planning before the occurrence of cases by national and local authorities, mosquito control professionals and national laboratories to improve the public health response to, in this case, a chikungunya outbreak.

Sources

This paper drew from the following reports, articles and literature:

1. European Centre for Disease Prevention and Control. Rapid Risk Assessment. Zika virus disease epidemic: Sixth update, 20 May 2016. Stockholm: ECDC; 2016.
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6. Centers for Disease Control and Prevention: Facts about microcephaly <http://www.cdc.gov/ncbddd/birthdefects/microcephaly.html>.

Under EU legislation on serious cross-border threats to health, the European Commission co-ordinates with EU Member States through the Health Security Committee to ensure exchange of information and secure the synchronisation of measures across Europe. ECDC's role lies in risk assessment and providing support to the European Commission and the EU Member States.

ECDC policy briefings are short papers that highlight a particular public health problem and offer evidence-based ideas on what can be done to address it for the attention of policy makers and influencers at European, national and regional level.

The design files are published along with the PDF so that the document can be adapted for use at national level, for example by translating the text into other languages.

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