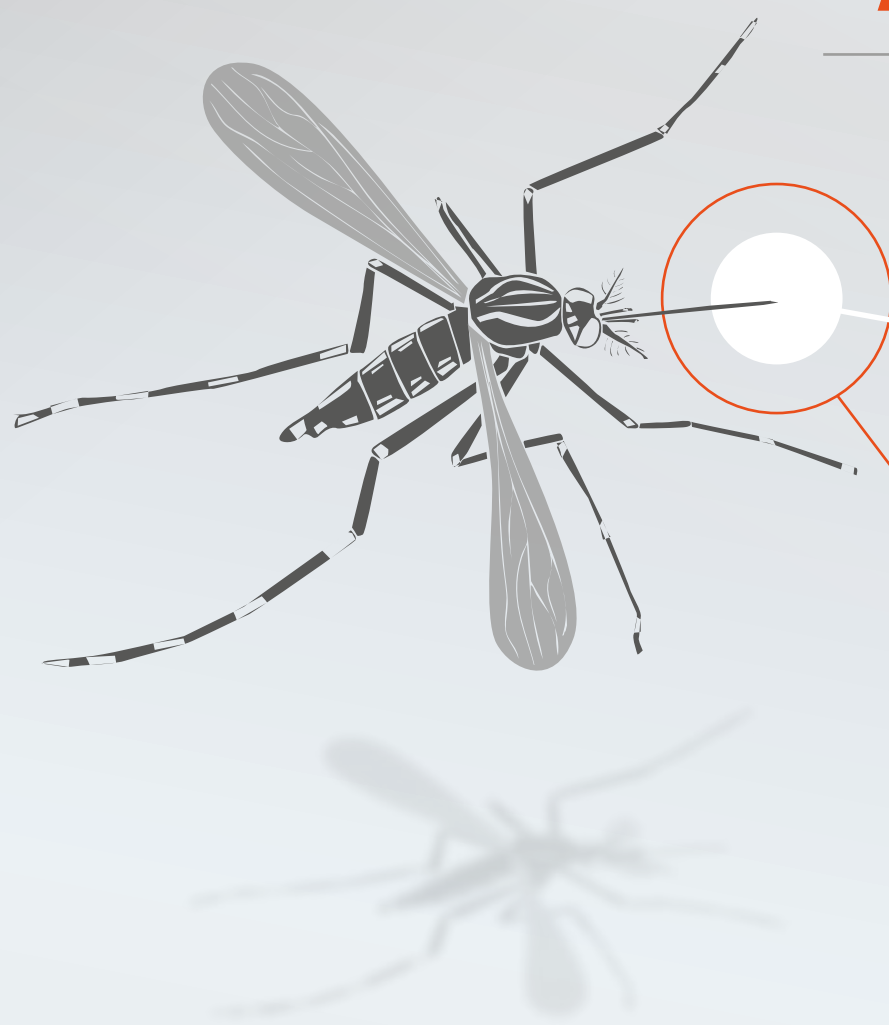


An emerging threat

Mosquito-borne diseases in Europe



Mosquitoes can carry infectious diseases from person to person and from place to place.

Tropical mosquito-borne diseases are originally prevalent in tropical and subtropical regions. Some are especially endemic in regions of Africa, Asia, and the Americas and cause substantial illness for more than one billion people globally.

An emerging (or re-emerging) infectious disease is often a disease already known but spreading to new geographic areas, new populations, or reappearing after having been eradicated.

Just one bite away from infection

Different species of mosquitos can carry different diseases

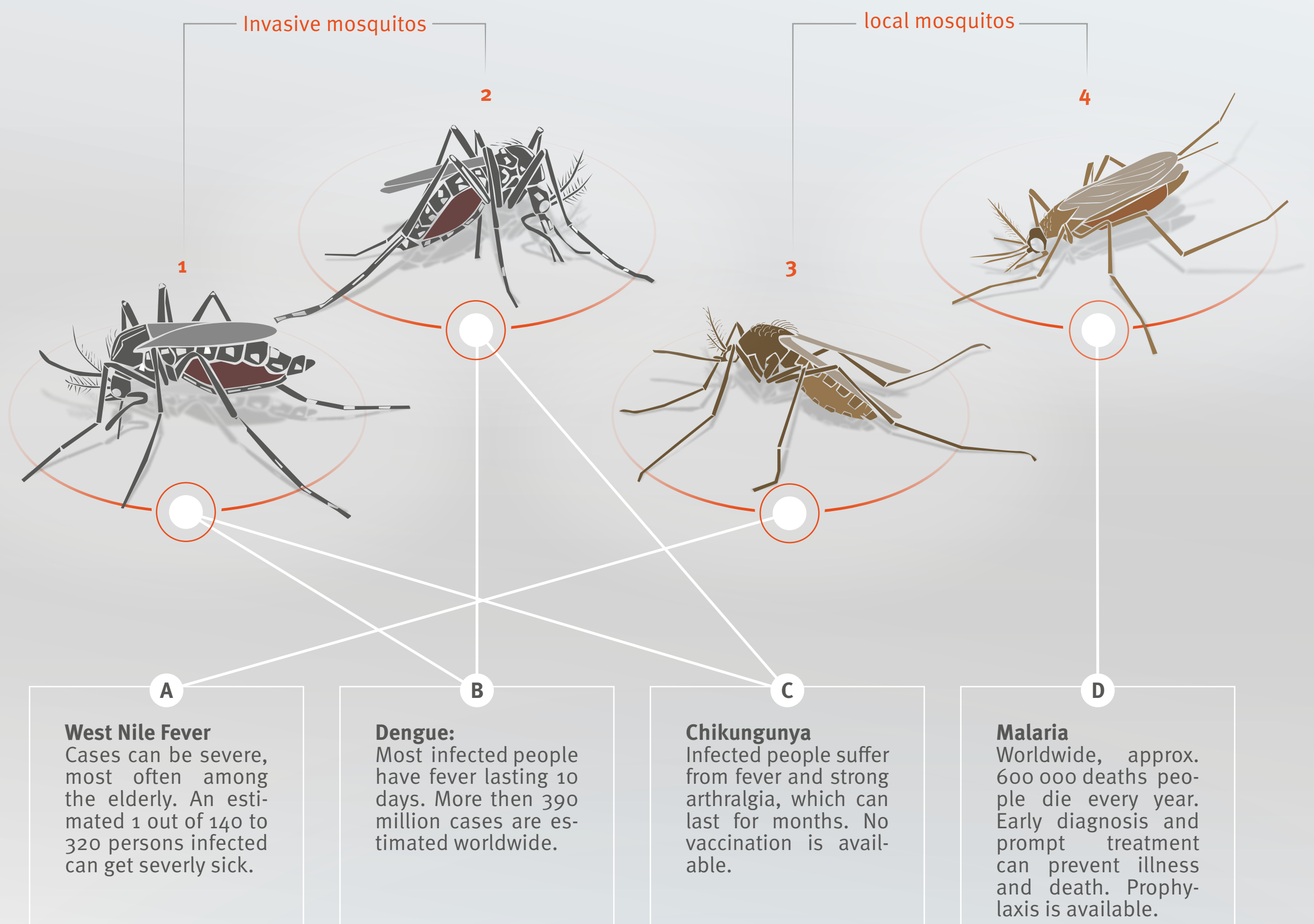
Invasive mosquitoes are determined by their ability to colonise new territories. A considerable increase in the spread of invasive mosquitoes has been observed in Europe since the late 1990s.

1. After disappearance in the 20th century *Aedes aegypti* has recently established in Madeira. It is also present around the Black Sea coast, Russia and Georgia.

2. *Aedes albopictus* is considered to be the most invasive mosquito species in the world.

3. *Culex pipiens* is the most widespread mosquito in Europe.

4. The *Anopheles* mosquito can be found from south-eastern Sweden to Portugal.



Climate and transportation

Travel, trade and climate change influence mosquito and disease distribution

99% of all malaria cases in Europe are travel related.

More than 5.8 million travellers entered Europe from dengue-affected areas in 2010.

It is predicted that future **climate trends** will increase the risk of establishment of *Aedes albopictus* in northern Europe, due to wetter and warmer conditions.

Rising temperatures in the summer months contributed to West Nile fever affecting new areas in Southern Eastern Europe.

Ae. albopictus has moved from continent to continent via trade.

Recent outbreaks

Mosquito-borne disease outbreaks in Europe

West Nile Fever, 2010 to present **A**

Culex pipiens (local)

West Nile

In 2010, Europe witnessed an unprecedented upsurge in the numbers of West Nile fever cases. Human cases of West Nile fever were detected in several south-eastern EU countries. There have been recent outbreaks since then.

Dengue, 2012 **B**

Aedes aegypti (invasive)

Dengue - imported through travel

From 2012 to January 2013, the autonomous province of Madeira, Portugal, reported its first dengue outbreak, with 2 168 dengue cases. 87 patients returning from Madeira were diagnosed in other European countries with dengue infection.

Chikungunya, 2007 **C**

Aedes albopictus (invasive) – Imported in Italy in the 90s through international trade: in car tyres from the US into Genova and spreading from there.

Chikungunya – imported through travel, after an infected traveller returned from India

It was the first autochthonous chikungunya outbreak in Europe, with over 200 individuals affected. Since then it is acknowledged that Europe is vulnerable for transmission of ‘tropical arboviruses’, particularly in areas where *Aedes albopictus* is present.



ECDC, Stockholm, 2014.
To evaluate the risk of emerging vector-borne diseases to the EU, ECDC issues risk assessments on outbreaks occurring in Europe or EU overseas territories. ECDC collects environmental and climatic data through the E3 Network to support predicting the environmental suitability for vector-borne disease transmission in Europe. Jointly, EFSA and ECDC collect data on vectors and vector-borne diseases and analyse their spread in the European Union.