

Mosquito transmitted viral diseases

An update on Europe and the Mediterranean Basin

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Mosquitoes are insects that have a particular importance in public health as they are vectors of major viral diseases like Dengue, Chikungunya and West Nile fever and can constitute a nuisance to the population.

Dengue and Chikungunya viruses are endemic in tropical countries and are transmitted by infected *Aedes* mosquitoes. During recent years, the incidence of both Dengue and Chikungunya fever has risen worldwide. There is no vaccine available for either of them and prevention relies entirely on mosquito control and personal protection. Besides the international concern over the rising worldwide incidence, there is a specific concern regarding the spread of both diseases within the European Union due to the presence in some of the Member States of the competent vector, *Aedes albopictus*.

Any cases reported from the EU up till the end of September 2010 were related to imported cases from infected travellers returning from endemic countries outside Europe such as

- All South East Asia, except Korea;
- Western Pacific Region and Pacific Islands (like Philippines, Malaysia, Vietnam, Cambodia);
- South America and the Caribbean;
- Sub-Saharan Africa.

The *Aedes albopictus* (Asian Tiger) mosquito has already been introduced into several European countries, including Belgium, Bosnia and Herzegovina, Croatia, France, Greece, the Netherlands, Serbia and Montenegro, Slovenia, Spain, Italy and Switzerland. It is thought to have occurred through the trade of used tyres (the mosquito lays eggs in pools of water in the tyres) and ornamental plants which are transported in water, such as the 'Lucky bamboo'.



The southern part of Europe is most favourable to climate and ecological conditions for the local establishment of *Aedes albopictus* and that is why since its first sighting on our islands in September 2009, over the past summer

months we have seen its presence in a number of towns. The mosquito normally emerges between May and October and it is during this time that mating and proliferation occurs. Mapping of its distribution is being monitored in Malta and Gozo. The general public is also helping the IDCU by providing IDCU with mosquito samples which are being verified by an entomologist. So far the mosquito has been found in Melleha, Bugibba, Qawra, St. Paul's Bay, Bahar ic-caghaq, Pembrole, Swieqi, Sliema, Mosta, Bumarrad, Attard, Balzan, San Gwann, Kappara, Floriana, Valletta, St. Venera, M'scala and Kalkara.

Outbreaks of Chikungunya have occurred in Europe in the island of La Reunion (South East region of France) in 2006 which resulted in 255,000 cases and 213 deaths over a 10-month period, and in Italy in 2007 which caused 300 cases and 2 deaths over 3 months.

Till the end of September 2010, the Institut de Veille Sanitaire in France reported the first two confirmed cases of locally acquired Chikungunya on the French mainland in two 12 year old girls. This is the first time that a case has been discovered that was not imported.

Since 2005 there have also been reported imported cases of Chikungunya in Germany, UK, Belgium, Czech Republic and Norway.

No Dengue outbreaks have been reported in Europe so far but imported cases have been reported by France, UK, Italy, Spain, Greece and Slovenia. Dengue is being considered as one of the world's major emerging infectious diseases since it has become the most rapid spreading mosquito-borne viral disease in the world with a 30 fold increase in cases over the last 50 years.

In mid-September of this year, the Ministry for Health of France reported a locally acquired case of Dengue fever in Nice. This is the first locally-acquired case of Dengue fever to be reported in mainland Europe since 1928 when outbreaks were reported in Greece.

Another disease, the West Nile fever is transmitted by another mosquito vector, the *Culex pipiens* which is abundant on our island. The primary hosts are bird and horses. Outbreaks of West Nile fever has been recorded in Italy (1998, 2008, 2009) and this year in Hungary, Romania and Greece. Cases have also been reported in Portugal, France, Spain, Austria, Croatia, Czech Republic, Poland, Russia, Morocco, Tunisia and Israel.

West Nile fever is an emerging disease in southern Europe and is endemic in other parts of Europe and the Mediterranean region. The majority of West Nile fever infections (around 80%) are asymptomatic and only 20% of infected persons will develop mild symptoms with less than 1 % developing a severe neurological syndrome of meningitis and/or encephalitis.

