

# Annual Epidemiological Report

August 2018

## Vectorborne disease in Ireland, 2017

### Key Facts

#### 2017:

- 10 cases of dengue were notified, corresponding to a crude incidence rate (CIR) of 0.2 per 100,000 population
- 12 cases of Lyme neuroborreliosis were notified, corresponding to a crude incidence rate (CIR) of 0.3 per 100,000 population
- No cases of chikungunya, tularemia, typhus, tickborne encephalitis (TBE), West Nile fever, yellow fever and zika virus infection were reported during 2017.

## Background

There are 10 notifiable vectorborne diseases in Ireland, chikungunya, dengue, Lyme neuroborreliosis, malaria, tularemia, typhus, tickborne encephalitis (TBE), West Nile fever, yellow fever and zika virus infection.

## Methods

The vectorborne diseases listed above are notifiable diseases under the Infectious Disease Regulations and cases should be notified to the Medical Officer of Health. The [case definitions](#) for these diseases are outlined on the HPSC website.

Notifications are reported using the Computerised Infectious Disease Reporting system (CIDR) which is described [here](#).

Further information on the process of reporting notifiable infectious diseases is available [here](#).

All crude incidence rates were calculated using the 2016 Census unless otherwise specified.

## Epidemiology

A summary of vectorborne diseases other than malaria which were notified during 2017 is reported below. Malaria notifications are described in a separate [annual report](#). Table 1 displays the number of cases of vectorborne diseases by HSE area, table 2 displays cases by sex and age group in years while table 3 displays cases by probable country of infection.

**Table 1: Number of vectorborne notifications in Ireland by HSE area, 2017**

HSE area	Dengue fever	Lyme disease
HSE-E	3	1
HSE-M		2
HSE-MW		
HSE-NE		1
HSE-NW		1
HSE-SE	3	1
HSE-S	3	3
HSE-W	1	3
<b>Total</b>	<b>10</b>	<b>12</b>

**Table 2: Number of vectorborne notifications in Ireland by age group and sex, 2017**

Age group	Dengue fever		Lyme disease	
	Female	Male	Female	Male
10-14 yrs			1	
15-19 yrs		1		
20-24 yrs	1	1		
25-34 yrs	1			
35-44 yrs		3	2	
45-54 yrs		1	1	2
55-64 yrs		1	2	2
65+ yrs	1		2	
<b>Total</b>	<b>3</b>	<b>7</b>	<b>8</b>	<b>4</b>

**Table 3: Number of vectorborne notifications in Ireland by country of infection, 2017**

Country of Infection	Dengue fever	Lyme disease
Ireland		2
Malaysia	1	
Thailand	1	
United Kingdom		1
United States		1
Unknown	2	2
Not specified	6	6
<b>Total</b>	<b>10</b>	<b>12</b>

## Dengue Fever

Dengue is a mosquito-borne viral infection that can cause flu-like illness and occasionally develops potentially lethal complications. Dengue is found in tropical and sub-tropical climates worldwide, mostly in urban and semi-urban areas.

Dengvaxia (CYD-TDV)<sup>®</sup> is the first dengue vaccine to be licensed in December 2015 for use in individuals 9-45 years of age living in endemic areas and is now licensed in 20 countries. Approximately five additional dengue vaccine candidates are in clinical development, with two candidates (developed by NIH/Butantan and Takeda) now in Phase III trials.

Ten confirmed cases of dengue fever were notified in Ireland during 2017. Two cases were reported as GP patients, two were admitted to hospital, one case each attended a hospital out-patient service and a hospital emergency department. The remaining four cases did not have patient type reported. Country of infection was reported for two cases (16.7%). One case each reported probable country of infection as Malaysia and Thailand (table 3). The remaining eight cases (66.7%) did not have a country of infection specified. Seven cases were male and three were female.

## Lyme neuroborreliosis

Lyme neuroborreliosis is an infection caused by a spiral-shaped bacterium called *Borrelia burgdorferi* that is transmitted to humans by bites from infected ticks, generally hard-bodied ticks (Ixodidae). Lyme disease can affect anyone but is commonest among people whose leisure or work activities takes place in heathland, light woodland and other grassy areas or brings them in contact with certain animals e.g. deer and sheep.

During 2017, 12 cases of Lyme neuroborreliosis were notified in Ireland, eight female (38.1%) and four males (61.9%). Cases were reported from seven of the eight HSE areas (table 1). Four patients were GP patients, four were hospital in-patients, three were reported as hospital out-patients and one attended a hospital emergency department. Probable country of infection was reported as Ireland for two cases, United Kingdom for one case and the United States for one case. The remaining eight cases did not report country of infection (table 3).

## Chikungunya

Chikungunya is a viral infection caused by the Chikungunya virus, an Alphavirus and member of the *Togaviridae* family. Chikungunya fever is transmitted to humans by biting *Aedes* mosquitoes, such as *A. aegypti*, *A. albopictus* and *A. polynesiensis*. These are tropical and subtropical mosquitoes found in the warmer parts of the world, especially Asia, the United States and the Mediterranean Basin.

No cases of Chikungunya were notified in Ireland in 2017.

## Tickborne-encephalitis

Tick-borne encephalitis (TBE) is a human viral infectious disease involving the central nervous system which occurs in many parts of Europe and Asia. The virus is transmitted by the bite of infected ticks primarily *I. ricinus* (European subtype) or *I. persulcatus* (Siberian and Far Eastern subtypes), found in woodland habitats. TBE can also be acquired by eating or drinking unpasteurized dairy products (such as milk and cheese) from infected goats, sheep, or cows. TBE virus transmission has infrequently been reported through laboratory exposure and slaughtering viremic animals. Direct person-to-person spread of TBE virus occurs only rarely, through blood transfusion or breastfeeding.

No cases of tickborne-encephalitis were notified in Ireland in 2017.

## Tularemia

Tularemia is a potentially serious illness caused by the bacterium *Francisella tularensis*. Human infection can occur through bites of infected insects (ticks, mosquitoes and flies). Less commonly, inhaling contaminated dust or ingesting contaminated food or water can also produce clinical disease.

No cases of tularaemia were notified in Ireland in 2017.

## Typhus

Typhus is one a range of infectious diseases produced by a family of small bacteria known as Rickettsiae. These bacteria live naturally in a range of hosts (typically rats and dogs in temperate countries). The disease is spread by ticks, mites, fleas, or lice, each agent having a distinct way of spreading, but all causing a disease with a very similar clinical picture.

No cases of typhus were notified in Ireland in 2017.

## West Nile fever

West Nile virus (WNV) is a mosquito-borne viral infection transmitted primarily by *Culex* mosquitoes. WNV can cause a fatal neurological disease in humans but approximately 80% of people who are infected will not show any symptoms. In addition to vector-borne transmission, the virus may also be transmitted through contact with other infected animals, their blood, or other tissues. WNV is commonly found in Africa, Europe, the Middle East, North America and West Asia. Vaccines are available for use in horses but not yet available for people.

No cases of West Nile fever were notified in Ireland in 2017.

## Yellow fever

Yellow fever is caused by infection with yellow fever virus. It is one of the most lethal viral diseases. It is spread to humans from the bite of infected mosquitoes. Yellow fever virus is spread to humans from the bite of infected mosquitoes. Infected female mosquitoes of *Aedes* or *Haemogogus* species (South America only) can spread the virus.

No cases of yellow fever were notified in Ireland in 2017

### Zika virus infection:

Zika virus infection is a mosquito-borne viral infection transmitted primarily by *Aedes* mosquitoes. People with zika virus infection can have symptoms including mild fever, skin rash, conjunctivitis, muscle and joint pain, malaise or headache, which normally last for two to seven days. There is scientific consensus that zika virus is a cause of microcephaly and Guillain-Barré syndrome.

No cases of zika virus infection were notified in Ireland in 2017.

### Further information available on HPSC website

- Information on [vectorborne diseases](#)
- Protect yourself against [mosquitos](#)
- Lyme disease [leaflet](#)

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