

4.4 Other Vectorborne Diseases

In addition to malaria, there are nine further notifiable vectorborne diseases in Ireland, chikungunya, dengue, lyme neuroborreliosis, tularemia, typhus, tickborne encephalitis (TBE), West Nile fever, yellow fever and zika virus infection. The case definitions for these diseases are outlined on the HPSC website at:

<http://www.hpsc.ie/NotifiableDiseases/CaseDefinitions/>.

A summary of vectorborne diseases notified during 2016 is reported below. Table 1 displays the number of cases of vectorborne diseases by HSE area, Table 2 displays cases by age group in years while Table 3 displays cases by probable country of infection.

Chikungunya fever

Chikungunya is a mosquito-borne viral infection that causes fever and severe joint pain. Other symptoms include muscle pain, headache, nausea, fatigue and rash. The disease mostly occurs in Africa, Asia and the Indian subcontinent. However a major outbreak in 2015 affected several countries of the Region of the Americas.

One case of chikungunya was reported in Ireland during 2016, with a recent travel history to Kenya.

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. The global incidence of dengue has grown dramatically in recent decades with about half of the world's population now at risk. 2016 was characterized by large dengue outbreaks worldwide, with the WHO Region of the Americas region reporting more than 2.4 million cases, approximately 3 times higher than in 2014. During 2016, a dengue vaccine Dengvaxia (CYD-TDV)[®], was registered in several countries for use in individuals 9-45 years of age living in endemic areas.

Eighteen confirmed cases of dengue fever were notified in Ireland during 2016. Seven cases were reported as GP patients, two were admitted to hospital and one case each attended Emergency Department and hospital out-patient services. The remaining seven cases did not have patient type reported. Country of infection was reported for three cases (16.7%). One case each reported probable country of infection as Brazil, Malaysia and Philippines (table 3). The remaining 15 cases (66.7%) did not have a country of infection specified. Just over two thirds of cases were female.

Table 1: Vectorborne notifications by HSE area, 2016

HSE area	Chikungunya disease	Dengue fever	Lyme disease	Zika virus infection	Total
HSE-E		11	3	9	23
HSE-M		1	2		3
HSE-MW		1	5		6
HSE-NE		1		2	3
HSE-NW			1	1	2
HSE-SE		1			1
HSE-S	1	2	8		11
HSE-W		1	2	1	4
Total	1	18	21	13	53

Table 2: Vectorborne notifications by age group, 2016

Age group	Chikungunya disease	Dengue fever	Lyme disease	Zika virus infection	Total
0-4 yrs				1	1
5-9 yrs			4		4
10-14 yrs		1			1
15-19 yrs		2			2
20-24 yrs		2	1	1	4
25-34 yrs		6	2	4	12
35-44 yrs	1	2	5	6	14
45-54 yrs		5	3	1	9
55-64 yrs			3		3
65+ yrs			3		3
Total	1	18	21	13	53

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 2016, 21 cases of lyme neuroborreliosis were notified in Ireland, eight female (38.1%) and 13 male (61.9%). Cases were reported from six of the eight HSE areas (table 1). Nine patients were GP patients, six were hospital in-patients, four were reported as hospital out-patients and two were hospital day patients (table 2). Probable country of infection was reported as Ireland for four cases, Ecuador for one case and the United States for one case. The remaining 15 (71.4%) cases did not report country of infection (table 3).

West Nile virus

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 maintained in a cycle involving transmission between birds and mosquitoes. Humans, horses and other mammals can be infected. 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 virus were notified in Ireland in 2016.

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.

During 2016, 13 cases of zika virus infection were notified in Ireland, seven female (53.8%) and six male (46.2%). Cases were reported from four of the eight HSE areas (Table 1). Nine patients were GP patients, two were hospital out-patients, one was a hospital in-patient and one was reported as other unspecified patient type (Table 2).

Three cases reported probable country of infection as Brazil, three as Trinidad and Tobago, two as Mexico while one case each reported Bahamas, Costa Rica, Guatemala, Jamaica and Nicaragua (Table 3).

Twelve cases were due to mosquito-borne transmission and one case of congenital infection was reported. Microcephaly was subsequently detected in the infant with congenital zika virus infection.

Tickborne encephalitis

No cases of tickborne encephalitis were notified in Ireland in 2016.

Tularaemia

No cases of tularaemia were notified in Ireland in 2016.

Typhus

No cases of typhus were notified in Ireland in 2016.

Yellow fever

No cases of yellow fever were notified in Ireland in 2016.

Table 3: Vectorborne notifications by probable country of infection, 2016

Country of infection	Chikungunya disease	Dengue fever	Lyme disease	Zika virus infection	Total
Bahamas				1	1
Brazil		1		3	4
Costa Rica				1	1
Ecuador			1		1
Guatemala				1	1
Ireland			4		4
Jamaica				1	1
Kenya	1				1
Malaysia		1			1
Mexico				2	2
Nicaragua				1	1
Philippines		1			1
Trinidad and Tobago				3	3
United states			1		1
Unknown		15	15		30
Total	1	18	21	13	53