6.2 Viral Meningitis

Summary

Number of cases, 2016: 299
Number of cases, 2015: 261
Number of cases, 2014: 435
Crude incidence rate, 2016: 6.3/100,0

Meningitis due to viruses not otherwise specified (NOS) are notifiable under the disease category 'viral meningitis'. Details of viral meningitis caused by other specified notifiable diseases (such as mumps and influenza viruses, if any) are presented in other chapters in this report.

The steady increase in annual notifications, which started back in 2007 and continued up until 2014, fell sharply in 2015 when 261 were reported, only to increase again to 299 (Figure 1). It should be noted that the very high number of cases reported in 2014 include the late notification of seven cases from 2013 (based on their specimen dates) reported during weeks 5 and 6 of 2014. No viral meningitis, NOS-related outbreaks were reported in 2016.

Since 1997, eight deaths have been reported with cases of viral meningitis (NOS), one of which was attributable to the enterovirus infection itself. None were reported in 2016.

Of the 299 cases notified in 2016, 297 (99.3%) were classified as confirmed and one each that was probable and possible (0.3% each). There were more cases among males (n=162) than in females (n=132), giving a male to female ratio of 1.23:1. Five cases were reported with unknown gender details in 2016.

The national crude incidence rate in 2016 was 6.3 (95% CI 5.6–7.0) cases per 100,000 population, a 14.6% increase compared with the previous year when 261 cases were notified (5.5/100,000). The highest age specific incidence rate (ASIR) in 2016 was in infants <1 year of age (308.4/100,000; n=192), followed by the 25-34 year age group (5.3/100,000; n=35). The lowest ASIR was in the 55-64 year age group (ASIR 0.6/100,000 (n=3)) (Table 1).

In 2016 the highest frequency of cases was in children aged 1 to 2 months (n=81) and in those aged between 15 to 39 years (n=78) with an overall median age of 89 days (range one week to 85 years) (Figure 2). Seventy-seven percent of cases (n=231) occurred in those under 25 years of age (Figure 3, Table 1).

By HSE region, the highest rate was in HSE E at 8.7/100,000 (95%CI 7.3–10.1) and lowest in HSE S at 3.9/100,000 (95%CI 2.4-5.4), with the latter rate significantly below the national rate (Figure 4).

In 2016, enteroviruses were the most common pathogen associated with viral meningitis, accounting for 81.3% (n=243/299) of all notifications (Figure 3, Table 1). It is only

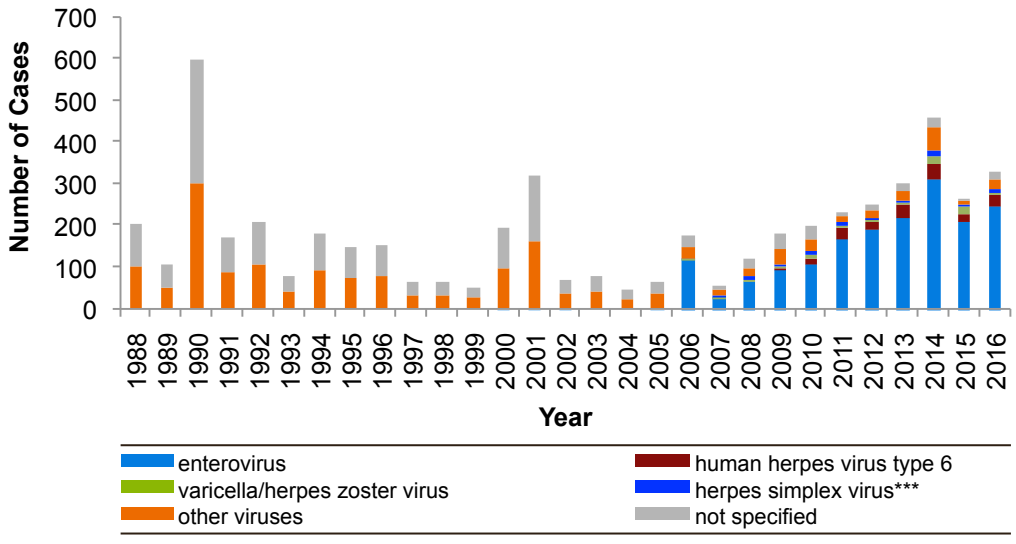

*Figure 1. Number of viral meningitis (NOS) cases by organism type and year, Ireland, 1988-2016**
** includes the late notification of seven cases in 2013 reported in early 2014*

erratum: category of 'not specified' should not be included in figure 1

since 2017 have enterovirus types been routinely linked to events on CIDR because of the enterovirus typing service in the NVRL, but one enterovirus-related VM case in 2016 was linked to a coxsackie virus infection.

Enterovirus was also the most common pathogen in infants under one year of age with viral meningitis (NOS) in 2016; 159 out of total of 192 cases in that age group (82.8%) were reported to have this virus. Between 2006 and 2016 enteroviruses accounted for 74.9% (n=1745/2331) of all viral meningitis (NOS) cases, with typical summer peaks observed each year (Figure 5). The large number of enterovirus-related viral meningitis cases observed in recent years is likely due in part to improved notification and investigation with laboratory confirmation.

In 2016, human herpes virus (type 6) (HHV 6) was the causative pathogen for 9.4% (n=28) notifications, varicella/herpes zoster virus (VZV) for 3.0% (n=9), parechovirus for 2.3% (n=7) and herpes simplex virus (HSV) for 2.0% (n=6)(Figure 3, Table 1). There were 2.0% (n=6) cases with no viral pathogen specified. Caution is recommended regarding the detection of HHV 6 DNA in cerebral spinal fluid (CSF) specimens, especially in those cases aged less than 3 months (n=14/28; 50%) as HHV 6 DNA can be chromosomally integrated. When this occurs the HHV 6 DNA can be inherited through the germ line and therefore when it is detected, it may not be clinically relevant.

The figures presented in this report are based on data extracted from the Computerised Infectious Disease Reporting (CIDR) system on 9th November, 2017. These figures will differ from those published previously due to on-going updating of notification data in CIDR.

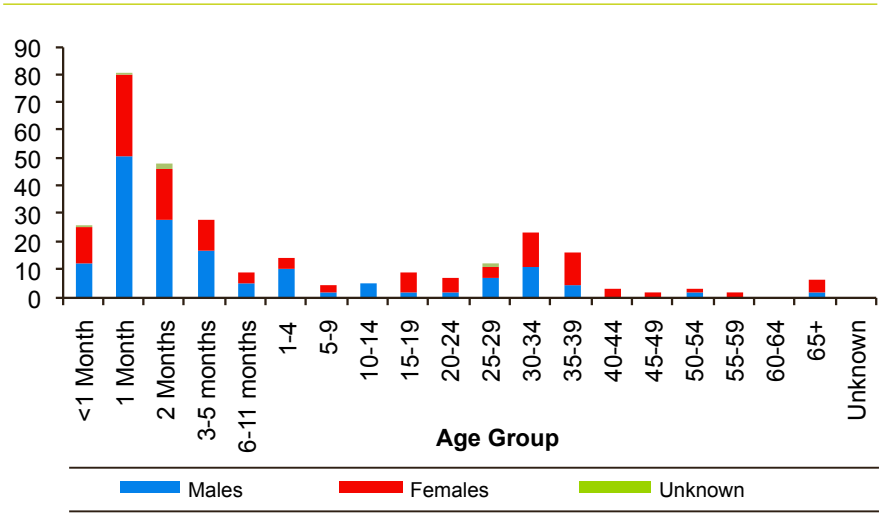

Figure 2. Number of viral meningitis (NOS) cases by age group and sex, Ireland, 2016

Table 1. Number, age-specific incidence rates and proportion of viral meningitis (NOS) notifications by age group and causative pathogen, Ireland, 2016

Age Group	Causative pathogen						Total	ASIR	% Proportion
	enterovirus	varicella/herpes zoster virus	human herpes virus type 6	herpes simplex virus	coxsackievirus	parecho-virus			
<1	159	24	0	0	7	2	192	308.4	64.2
1-4	10	4	0	0	0	0	14	5.2	4.7
5-9	4	0	0	0	0	0	4	1.1	1.3
10-14	4	0	0	0	0	1	5	1.6	1.7
15-19	5	0	2	1	0	1	9	3.0	3.0
20-24	6	0	0	0	0	1	7	2.6	2.3
25-34	33	0	2	0	0	0	35	5.3	11.7
35-44	17	0	0	2	0	0	19	2.5	6.4
45-54	2	0	3	0	0	0	5	0.8	1.7
55-64	2	0	0	0	0	1	3	0.6	1.0
65+	1	0	2	3	0	0	6	0.9	2.0
All Ages	243	28	9	6	7	6	299	6.3	100
% Total	81.3	9.4	3.0	2.0	2.3	2.0	100.0		

ASIR, age specific incidence rate per 100,000 population of total cases; based on census 2016 data

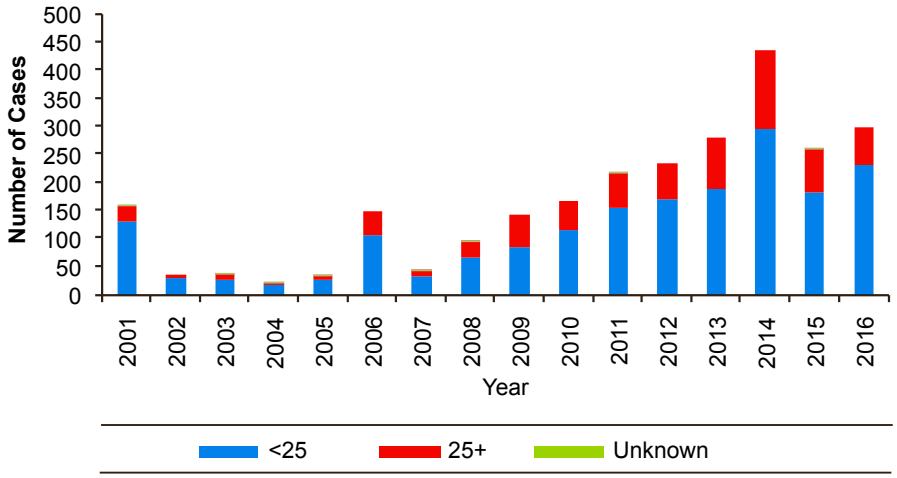

*Figure 3. Number of viral meningitis (NOS) cases by age group (<25, >25 years of age) and year, Ireland, 2001-2016**
** includes the late notification of seven cases in 2013 reported in early 2014*

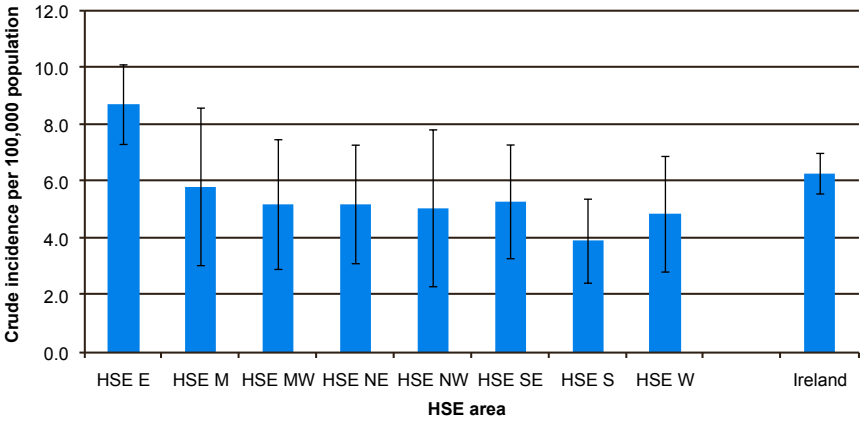

Figure 4. Crude incidence rates per 100,000 population with 95% confidence intervals for viral meningitis (NOS) cases by HSE area, Ireland, 2016

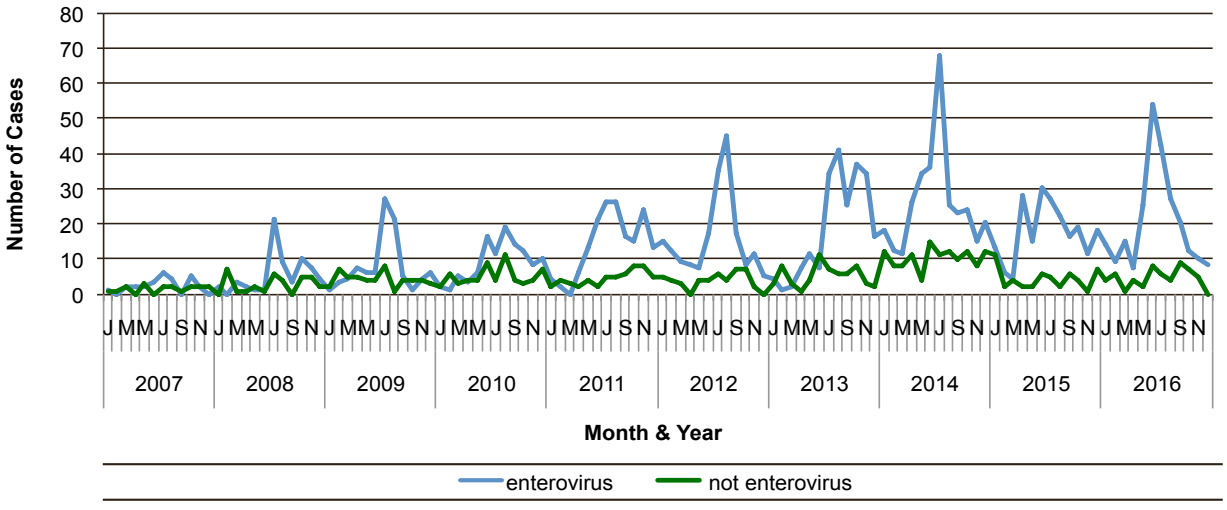

*Figure 5. Monthly number of enterovirus-related and non-enterovirus related cases of viral meningitis, NOS notifications, 2007-2016**
** includes the late notification of seven cases in 2013 reported in early 2014*