

## 6.2 Viral Meningitis

### Summary

Number of cases, 2014: 435  
 Number of cases, 2013: 281  
 Number of cases, 2012: 235  
 Crude incidence rate, 2014: 9.5/100,000

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 sharp, steady increase in annual notifications, which started back in 2007 continued in 2014 when 435 were reported. The latter number is considerably higher than the 300 cases notified back in 1990, the highest previous ever recorded in a single year (figure 1). It should be noted that the total number of cases reported in 2014 includes the late notification of seven cases from 2013 (based on their specimen dates) reported during weeks 5 and 6 of 2014.

Since 1997, eight deaths have been reported with cases of viral meningitis (NOS), one of which was attributable to the infection itself. There were one reported in 2014, but the infection did not cause death.

Of the 435 cases notified in 2014, 428 were classified as confirmed (98.4%) and seven as probable (1.6%). There were slightly more cases among males (n=223) than in females (n=205), giving a male to female ratio of 1.09:1.0. Seven cases were reported with unknown gender details in 2014.

The national crude incidence rate in 2014 was 9.5 (95% CI 8.6–10.4) cases per 100,000 population, a 54.8% increase compared with the previous year when 281 cases were notified (6.1/100,000). The highest age specific incidence rate (ASIR) in 2014 was in infants <1 year of age (256.9/100,000; n=186), followed by the 15-19 year age group (13.8/100,000; n=39). The lowest ASIR was in the 55-64 year age group (ASIR 0.2/100,000 (n=1)) (table 1).

In 2014 the highest frequency of cases was in children aged 1 to 2 months (n=121) and in those aged between 15 to 39 years (n=184) with an overall median age of 11 years (range 6 days to 86 years) (figure 2). Sixty-eight percent of cases (n=296) occurred in those under 25 years of age (figure 3, table 1).

By HSE region, the highest rate was in HSE E at 13.5/100,000 (95%CI 11.7–15.2) and lowest in HSE MW at 4.2/100,000 (95%CI 2.2-6.3), with both rates significantly different from the national rate (figure 4).

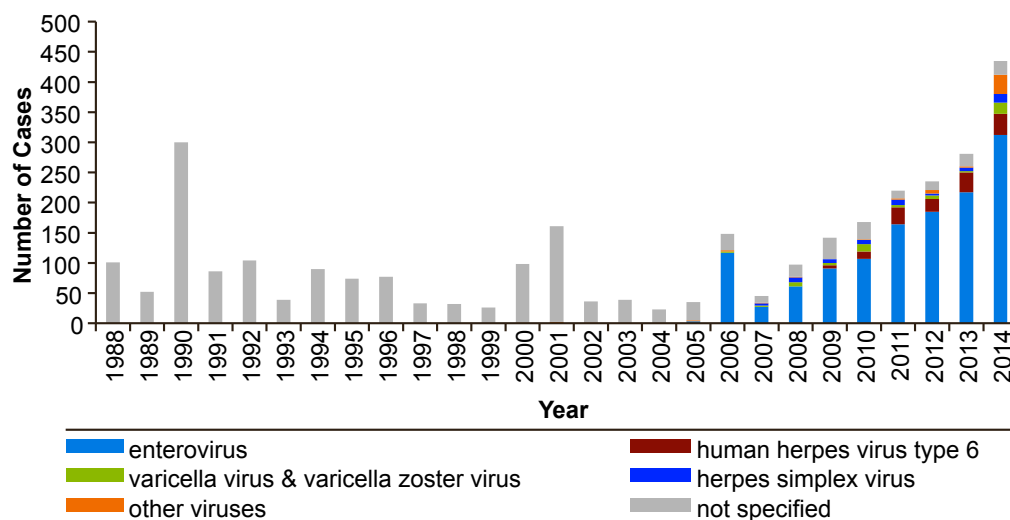


Figure 1. Number of viral meningitis (NOS) cases by organism type and year, Ireland, 1988-2014\*  
 \* includes the late notification of seven cases in 2013 reported in early 2014

In 2014, enteroviruses were the most common pathogen associated with viral meningitis, accounting for 71.7% (n=312/435) of all notifications (figure 3, table 1) and account for the marked increase in notifications in 2014 when compared to previous years. As a cause of viral meningitis, enteroviruses have accounted for 60% or more of all cases each year since 2006. Enteroviruses are not routinely specified on CIDR, so it is not possible to attribute which type of enterovirus, of which there are many, accounts for the majority of reported viral meningitis cases in recent years. It is hoped that an enterovirus typing service, currently in development in the NVRL, will in future years be able to routinely ascertain which type is circulating in the population.

In 2014, human herpes virus (type 6) (HHV 6) was the causative pathogen for 8.0% (n=35) notifications, parechovirus for 7.4% (n=32), varicella virus/varicella zoster virus for 4.4% (n=19) and herpes simplex virus (HSV) accounting for 3.2% (n=14) of all cases (figure

3, table 1). There were 5.3% (n=23) 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=17/35; 48.6%) 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.

Enterovirus was also the most common pathogen in infants under one year of age with viral meningitis (NOS) in 2014 in 111 out of total of 186 cases in that age group (59.7%). Between 2007 and 2014 enteroviruses accounted for 71.7% (n=1164/1623) 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.

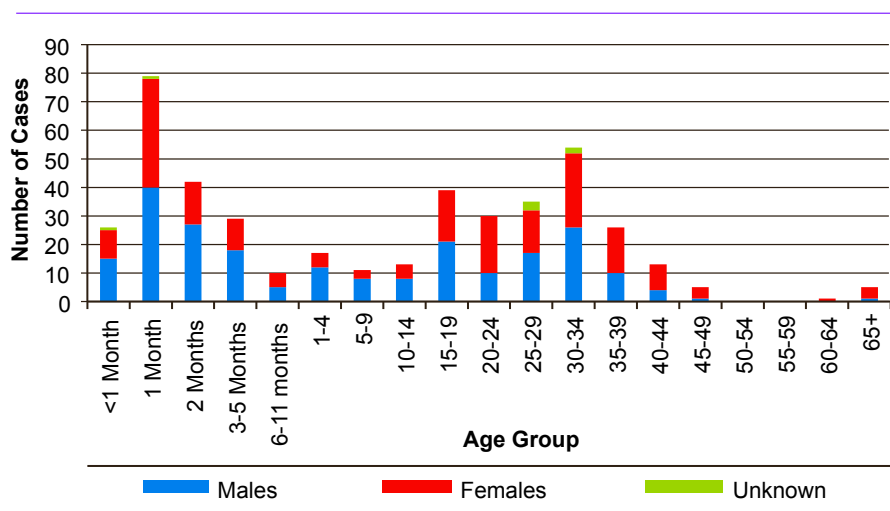


Figure 2. Number of viral meningitis (NOS) cases by age group and gender, Ireland, 2014\*

\* includes the late notification of seven cases in 2013 reported in early 2014

Table 1. Number, age-specific incidence rates and proportion of viral meningitis (NOS) notifications by age group and causative pathogen, Ireland, 2014\*

\* includes the late notification of seven cases in 2013 reported in early 2014

Age Group	Causative pathogen						Total	ASIR	% Proportion
	entero-virus	human herpes virus	herpes simplex virus	varicella virus & varicella zoster virus	echo-virus	not specified			
<1	111	29	2	1	32	11	186	256.9	42.8
1-4	9	5	2	0	0	1	17	6.0	3.9
5-9	11	0	0	0	0	0	11	3.4	2.5
10-14	12	0	0	1	0	0	13	4.3	3.0
15-19	33	0	1	3	0	2	39	13.8	9.0
20-24	23	0	0	3	0	4	30	10.1	6.9
25-34	79	1	2	4	0	3	89	11.8	20.5
35-44	32	0	2	4	0	1	39	5.6	9.0
45-54	2	0	2	1	0	0	5	0.9	1.1
55-64	0	0	1	0	0	0	1	0.2	0.2
65+	0	0	2	2	0	1	5	0.9	1.1
All Ages	312	35	14	19	32	23	435	9.5	100
% Total	71.7	8.0	3.2	4.4	7.4	5.3	100.0		

ASIR, age specific incidence rate per 100,000 population of total cases

The figures presented in this report are based on data extracted from the Computerised Infectious Disease Reporting (CIDR) system on 13<sup>th</sup> August, 2015. These figures may differ from those published previously due to on-going updating of notification data in CIDR.

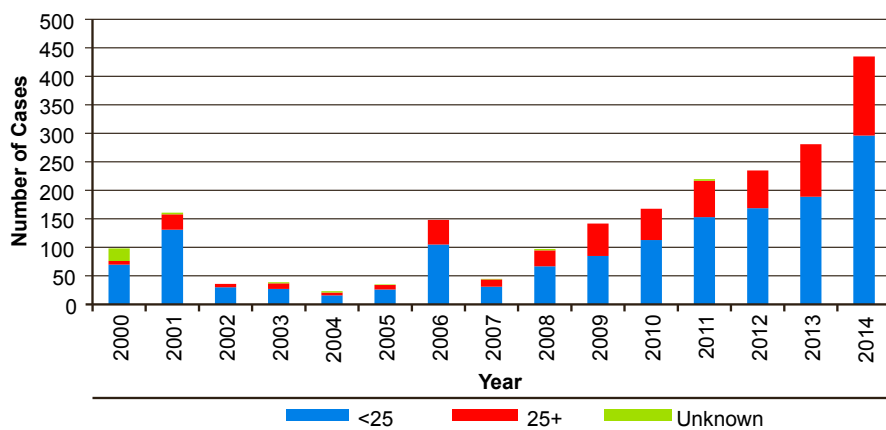


Figure 3. Number of viral meningitis (NOS) cases by age group (<25, >25 years of age) and year, Ireland, 2000-2014\*

\* includes the late notification of seven cases in 2013 reported in early 2014

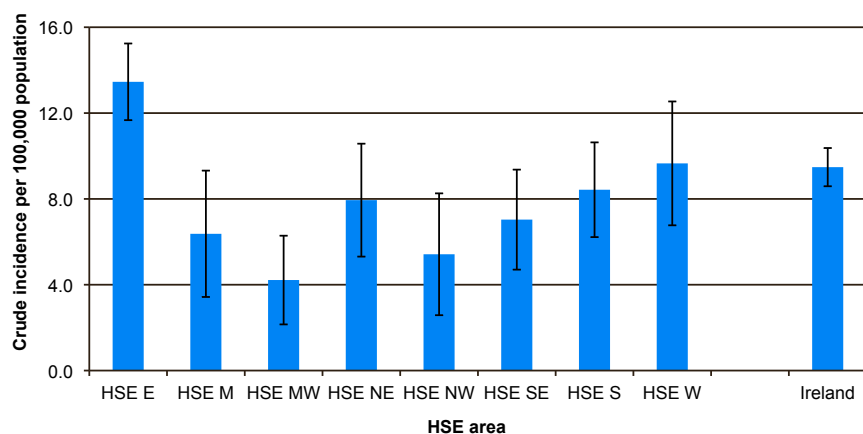


Figure 4. Crude incidence rates per 100,000 population with 95% confidence intervals for viral meningitis (NOS) cases by HSE area, Ireland, 2014\*

\* includes the late notification of seven cases in 2013 reported in early 2014

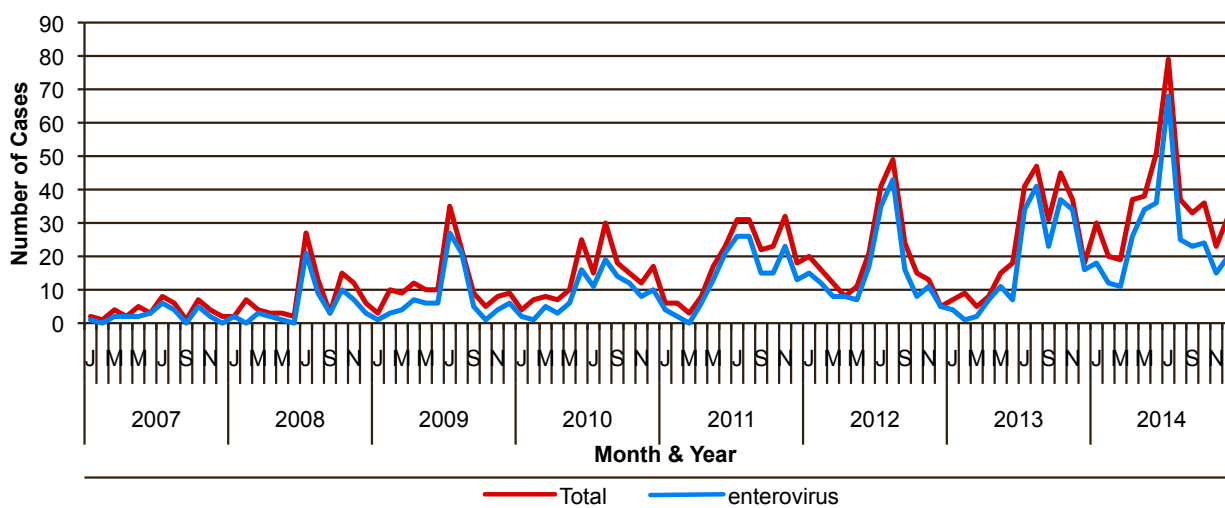


Figure 5. Monthly number of viral meningitis, NOS and enterovirus-related meningitis notifications, 2007-2014\*

\* includes the late notification of seven cases in 2013 reported in early 2014