

# Annual Epidemiological Report

September 2018

## Viral Meningitis, not otherwise specified, in Ireland, 2017

### Key Facts

In 2017, 259 cases of viral meningitis (NOS) (VM) were notified in Ireland (5.4/100,000 population) compared to 299 (6.3/100,000) in 2016

The median age of cases was 7.6 months (range one week to 76 years)

All but 12 (95.3%) had a causative pathogen identified: enterovirus (n=198; 76.4%), human herpes virus type 6 (HHV 6) (n=31; 12.0%); herpes simplex virus (HSV) (n=7 ; 2.7%), varicella/herpes zoster virus (VZV) (n=6; 2.3%) and parechovirus (n=5 ;1.9%)

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## Epidemiology

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 annual reports by HPSC.

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 in 2016, before falling back to 259 in 2017 (Figure 1). It should be noted that the very high number of cases reported in 2014 included the late notification of seven cases from 2013 (based on their specimen dates) reported during weeks 5 and 6 of 2014.

Three enterovirus-related family clusters were reported in 2017, one each in HSE South, South-East and West, each involving two cases. Of the cluster in HSE South, the causative organism was identified as echovirus B30.

Since 1997, eight deaths have been reported with cases of viral meningitis (NOS), one of which was attributable to an enterovirus infection. None were reported in 2017.

Of the 259 cases notified in 2017, 256 (98.8%) were classified as confirmed, two (0.8%) probable and one (0.4%) not specified. There were more cases among males (n=138) than in females (n=120), giving a male to female ratio of 1.15:1. One case was reported with unknown gender details in 2017.

The national crude incidence rate in 2017 was 5.4 (95% CI 4.8–6.1) cases per 100,000 population, a 13.4% decrease compared with the previous year when 299 cases were notified (6.3/100,000). The highest age specific incidence rate (ASIR) in 2017 was in infants <1 year of age (215.2/100,000; n=134), followed by the 15-19 year age group (6.9/100,000; n=21). The lowest ASIR was in the 55-64 year age group (ASIR 0.2/100,000 (n=1)) (Table 1).

In 2017 the highest frequency of cases was in children aged 1 to 2 months (n=84) and in those aged between 15 to 39 years (n=82) with an overall median age of 228 days (7.6 months) (range one week to 76 years) (Figure 2). Almost 73% of cases (n=188/259) occurred in those under 25 years of age (Figure 3, Table 1).

By HSE region, the highest rate was in HSE NE at 7.2/100,000 (95%CI 4.7–9.6) and lowest in HSE MW at 3.1/100,000 (95%CI 1.4-4.9) (Figure 4).

In 2017, enteroviruses were the most common pathogen associated with viral meningitis, accounting for 76.4% (n=198/259) of all notifications (Figure 3, Table 1). Among the enterovirus-related cases were 13 enterovirus A (6.6%), 128 enterovirus B (64.6%), one rhinovirus A (0.5%) and 56 (28.3%) which were not grouped or whose genotype could not be generated.

Enterovirus was also the most common pathogen in infants under one year of age with viral meningitis (NOS) in 2017: 102 out of a total of 134 cases in that age group (76.1%) were reported to have this virus. Between 2006 and 2017 enteroviruses accounted for 75% (n=1943/2590) of all viral meningitis (NOS) cases, with typical summer peaks observed each year (Figure 5). The enterovirus typing service provided by the National Virus Reference Laboratory (NVRL) identified the species of virus in 71.2% (n=141/198) of enterovirus-related meningitis cases notified in 2017.

In 2017, human herpes virus (type 6) (HHV 6) was the causative pathogen for 12.0% (n=31) of notifications, herpes simplex virus (HSV) for 2.7% (n=7), varicella/herpes zoster virus (VZV) for 2.3% (n=6), parechovirus for 1.9% (n=5) and was not specified for 4.6% (n=12) (Figure 3, Table 1). Caution is recommended regarding the detection of HHV 6 DNA in cerebral spinal fluid (CSF) specimens, especially in those cases aged less than three months (n=13/31; 41.9%) 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 25<sup>th</sup> September, 2017. No enhanced surveillance is currently in place on CIDR for viral meningitis (NOS). However, the increase in the number of cases observed in recent years is probably more a reflection of better surveillance reporting rather than an increase in the burden of this disease in the general population. The figures in this report will differ from those published previously due to on-going updating of notification data in CIDR.

**Further information available on HPSC website:**

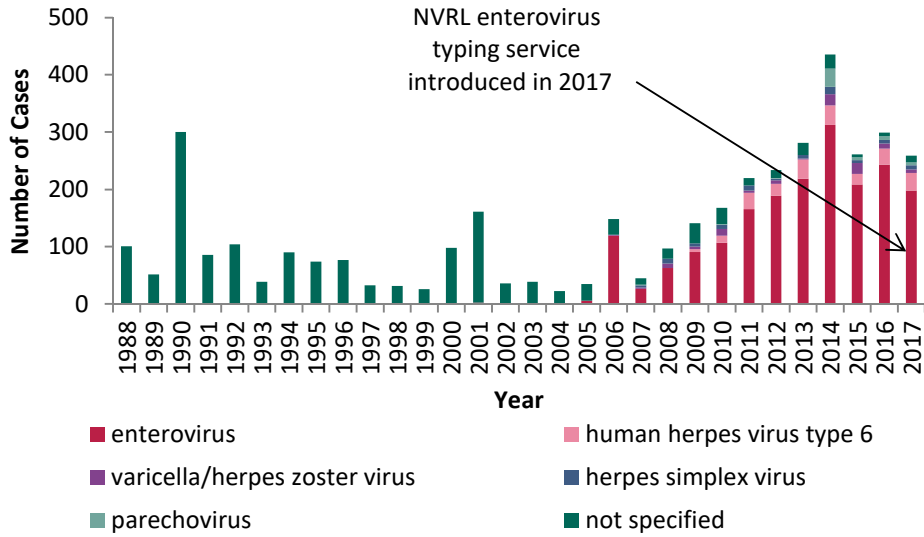
<http://www.hpsc.ie/a-z/respiratory/viralmeningitis/>

## **Acknowledgements**

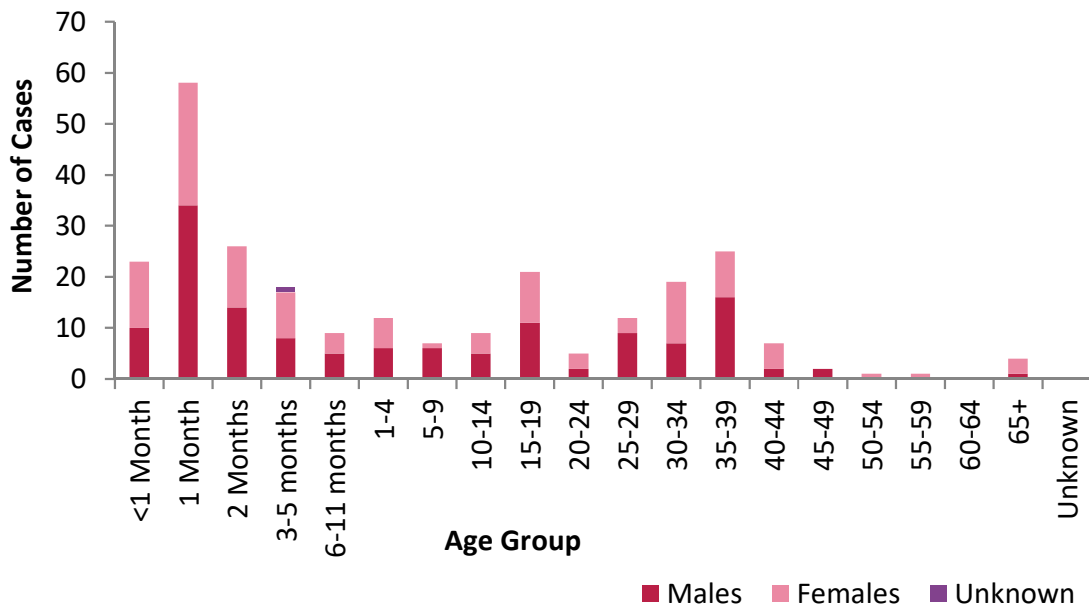
HPSC wishes to thank all who provided data for this report: Departments of Public Health, National Virus Reference Laboratory (NVRL) and other Microbiology Laboratories

## **Report prepared by:**

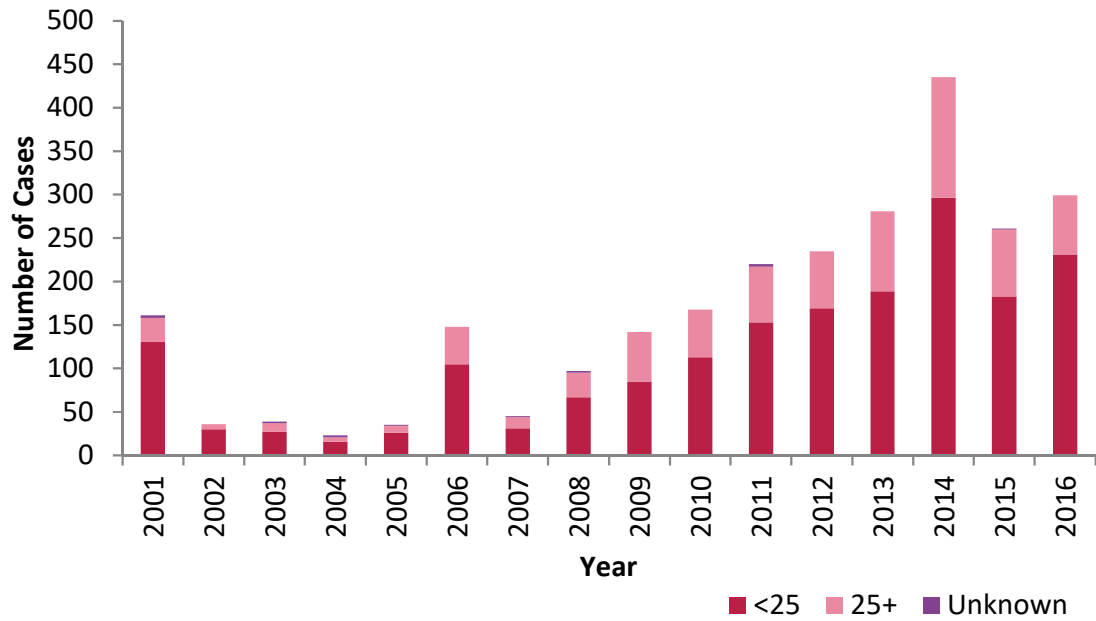
**Piaras O’Lorcain, Suzanne Cotter**



**Figure 1. Number of viral meningitis (NOS) cases by organism type and year, Ireland, 1988-2017\***  
 \*includes the late notification of seven cases in 2013 reported in early 2014

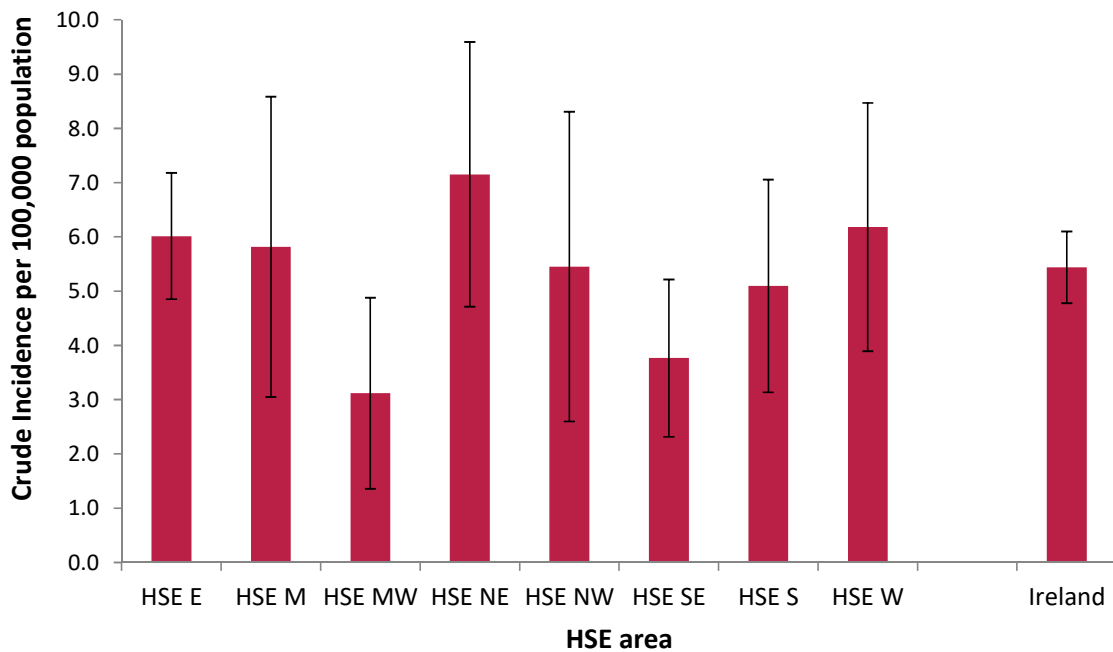


**Figure 2. Number of viral meningitis (NOS) cases by age group and gender, Ireland, 2017**

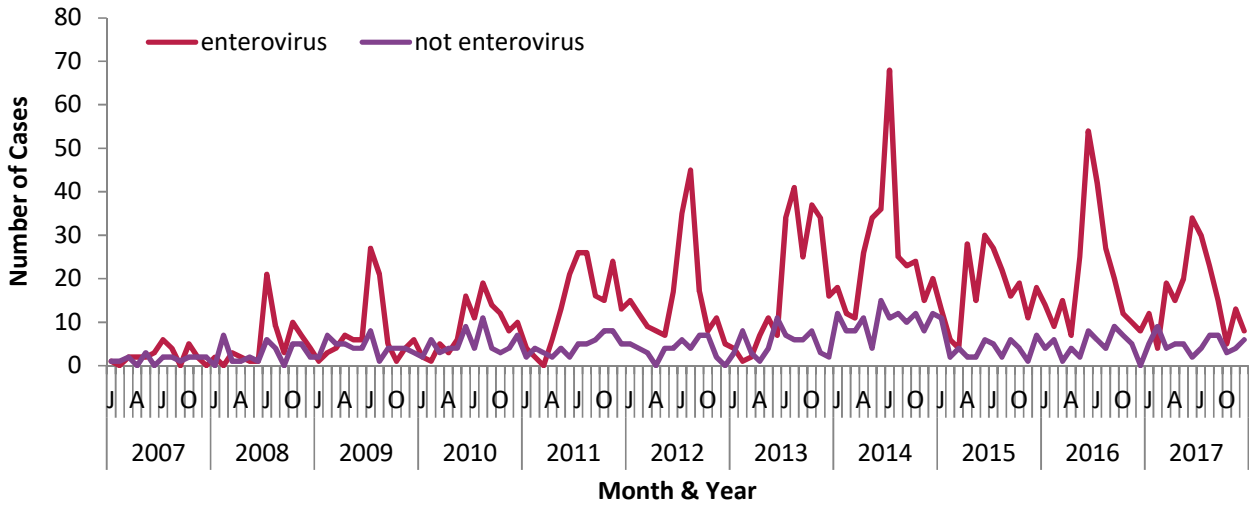


**Figure 3. Number of viral meningitis (NOS) cases by age group (<25, >25 years of age) and year, Ireland, 2001-2017\***

\*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, 2017**



**Figure 5. Monthly number of enterovirus-related and non-enterovirus related cases of viral meningitis, NOS notifications, in Ireland, 2007-2017\***

\*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, 2017**

Age Group	Causative pathogen						Total	ASIR	Proportion %
	enterovirus	human herpes virus type 6	varicella/ herpes zoster virus	herpes simplex virus	parecho -virus	not specified			
<1	102	23	0	0	5	4	134	215.2	51.7
1-4	5	6	0	0	0	1	12	4.5	4.6
5-9	6	0	0	0	0	1	7	2.0	2.7
10-14	7	0	1	0	0	1	9	2.8	3.5
15-19	19	0	1	0	0	1	21	6.9	8.1
20-24	4	1	0	0	0	0	5	1.8	1.9
25-34	28	0	1	2	0	0	31	4.7	12.0
35-44	25	0	1	3	0	3	32	4.3	12.4
45-54	1	1	0	0	0	1	3	0.5	1.2
55-64	0	0	1	0	0	0	1	0.2	0.4
65+	1	0	1	2	0	0	4	0.6	1.5
<b>Total</b>	<b>198</b>	<b>31</b>	<b>6</b>	<b>7</b>	<b>5</b>	<b>12</b>	<b>259</b>	<b>5.4</b>	<b>100</b>
% Total	76.4	12.0	2.3	2.7	1.9	4.6	100.0		

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