

Annual Epidemiological Report

September 2023

Viral Meningitis, not otherwise specified, in Ireland, 2022

Key Facts

In 2022, 319 cases of viral meningitis (NOS) (VM) were notified in Ireland (6.65/100,000 population) compared to 131 (2.75/100,000) in 2021, 142 (2.98/100,000) in 2020 and 326 (6.84/100,000) in 2019

The median age of cases in 2022 was 0.17 years/8.9 weeks (range 1 week to 91 years), compared to a median of 1.14 years for cases between 2019 to 2021 inclusive (range 3 days to 88 years)

The causative pathogen was identified for 248 (77.7%) cases in 2022: Enterovirus (n=173; 54.2%), Varicella zoster virus (n=22; 6.9%), herpes simplex virus (HSV) types 1 and 2 (n=15; 4.7%) and other including Human Herpes Virus type 6 (HHV 6) (n=24, 7.5%) and parechovirus (n=14; 4.4%)

In comparison, between 2019 to 2021, the causative pathogen was identified for 566 (94.5%) out of 599 cases: Enterovirus (n=335; 55.9%), Varicella zoster virus (n=68; 11.4%), herpes simplex virus types 1 and 2 (HSV) (n=26; 4.3%), and others including human herpes virus type 6 (n=130; 21.7%) and parechovirus (n=7; 1.2%)

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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. There is no enhanced surveillance for viral meningitis NOS.

In 2022, 319 cases of viral meningitis (NOS) (VM) were notified in Ireland (6.65/100,000 population) compared to 131 (2.75/100,000) in 2021, 142 (2.98/100,000) in 2020 and 326 (6.84/100,000) in 2019. One explanation for decline in numbers in 2020 and 2021 can be attributable to the COVID-19 pandemic and control measures put in place which could have mitigated the seasonal summer peak during this time (Figures 1-3 and Table 1).

There were more VM cases among males (n=176) than among females (n=143) in 2022, an M:F ratio of 1:0.81, which was lower to that in 2020 to 2021 and in 2014-2019 with a M:F ratio of 1:0.86 in each period.

In 2022, the median age of cases was 0.17 years (or 8.9 weeks) (range 1 week to 91 years): of the 319 cases, 209 (65.5%) were aged between 0-4 years of age, and 200 (62.7%) were aged <1 year. In comparison, 599 cases were reported between 2019 and 2021 (median age 1.14 years), of which 351 (58.6%) were aged between 0-4 years of age, and 292 (48.7%) were aged <1 year (Table 1).

All but two of the 319 VM cases in 2022 were case classified as confirmed. All but 71 (22.3%) had a causative pathogen identified: Enterovirus (n=173, 54.2%), varicella zoster virus (VZV) (n=22; 6.9%), herpes simplex virus (HSV) (n=15; 4.7%) and other including Human Herpes Virus type 6 (HHV 6) (n=24, 7.5%) and parechovirus (n=14; 4.4%). In comparison, among the 599 VM cases between 2019 and 2021, all but 33 (5.5%) had a causative pathogen identified: 335 cases of Enterovirus (55.9%), 68 (11.4%) cases of VZV, 26 (4.3%) HSV (14 type 1 and 12 type 2) and other including 130 HHV 6 (21.7%) and seven parechovirus cases (1.2%) (Table 1).

Caution is advised regarding the detection of HHV 6 DNA in cerebral spinal fluid (CSF) specimens, especially in those cases aged less than three months as HHV 6 DNA can be chromosomally integrated and therefore it may not be clinically relevant. Of the 154 cases of HHV 6-related encephalitis in 2019 to 2022 however, 57 (37.0%) occurred in patients less than three months of age.

In 2017, the National Virus Reference Laboratory (NVRL) introduced enterovirus typing, but one of the consequences of the COVID-19 pandemic was that routine typing was suspended in early 2020. This is reflected in the enterovirus results between 2019 and 2022: In 2019, all but 79 (30.8%) of the 256 enterovirus-related VM cases were typed, but between 2020 and 2022, 245 (97.2%) of 252 cases were not.

Outcome was recorded for 7.2% of cases (n=23/319) in 2022 with no deaths. Similarly, outcome was recorded for 5.5% of cases (n=33/599) between 2019 and 2021. There were two reported deaths each in 2019 and in 2020: a 20-month-old died from an enterovirus (coxsackievirus A2) infection and another 3-month-old had an infection from an unspecified viral pathogen at the time of their death. There were no imported cases between 2019 and 2022.

The figures presented in this report are based on data extracted from the Computerised Infectious Disease Reporting (CIDR) system on 27th July 2023.

Further information available on HPSC website:

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

Acknowledgements

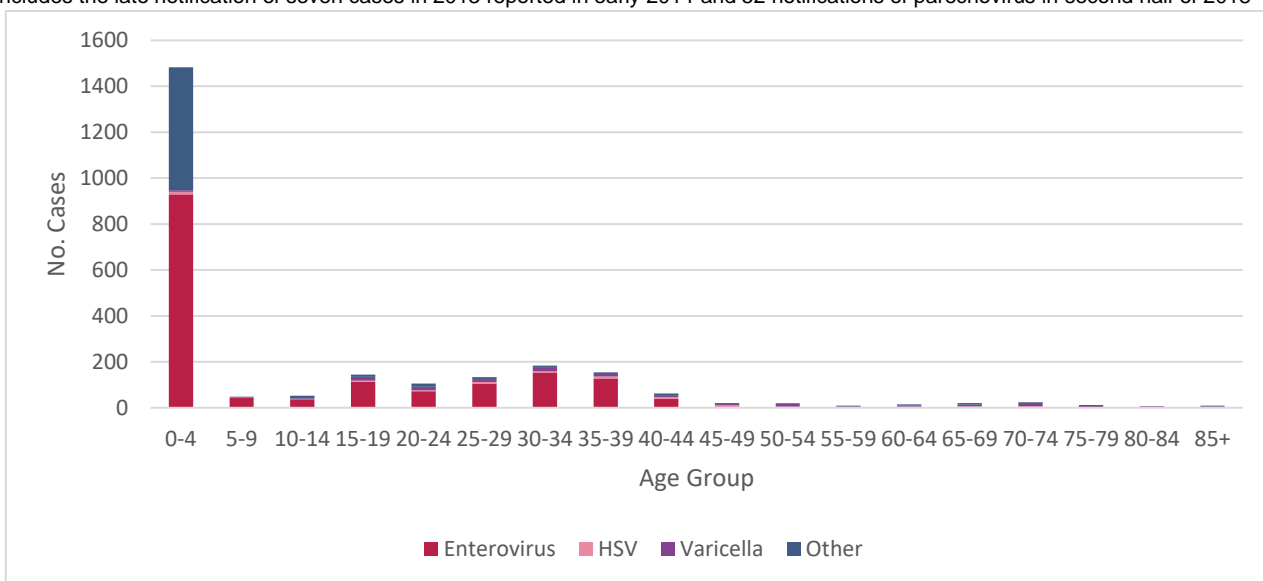
HPSC wishes to thank all who provided data for this report: Departments of Public Health, National Virus Reference Laboratory (NVRL) and other Microbiology Laboratories

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Figure 1. Number of viral meningitis (NOS) cases by age group and causative pathogen group, Ireland, 2014-2022*

*includes the late notification of seven cases in 2013 reported in early 2014 and 52 notifications of parechovirus in second half of 2018

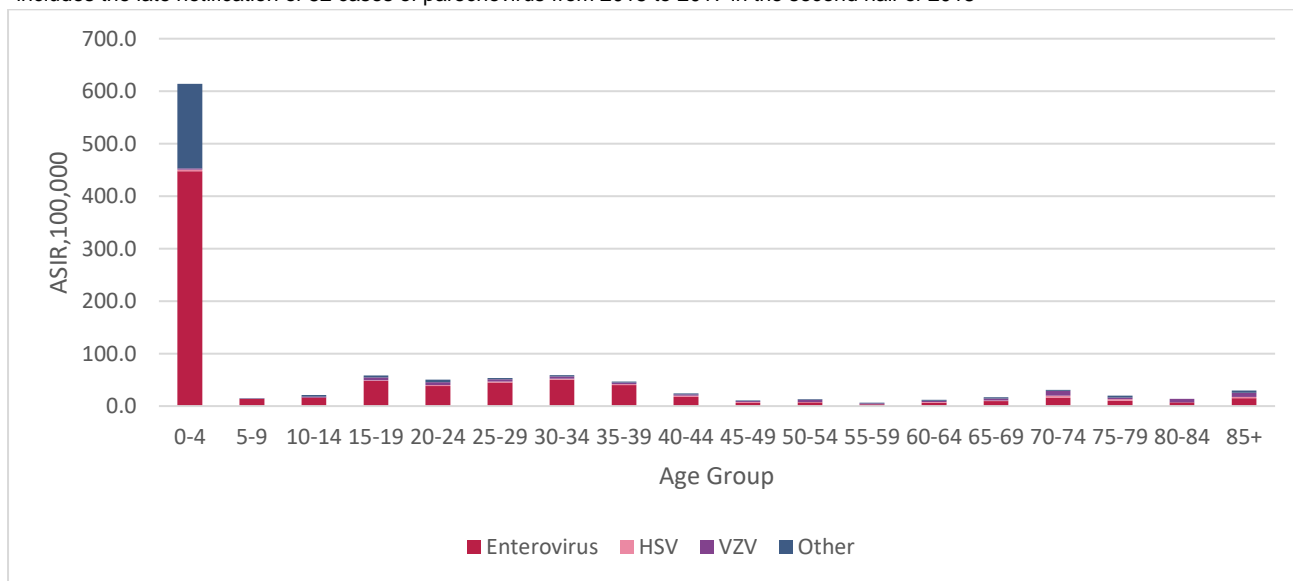


Other = includes human herpes virus type 6 (HHV 6), parechovirus and adenovirus related meningitis and viral meningitis attributable to unspecified viruses

HSV = Herpes simplex virus

Figure 2. Age-specific incidence rates of viral meningitis (NOS) cases by age group and causative pathogen, Ireland, 2014-2022*

*includes the late notification of 52 cases of parechovirus from 2015 to 2017 in the second half of 2018

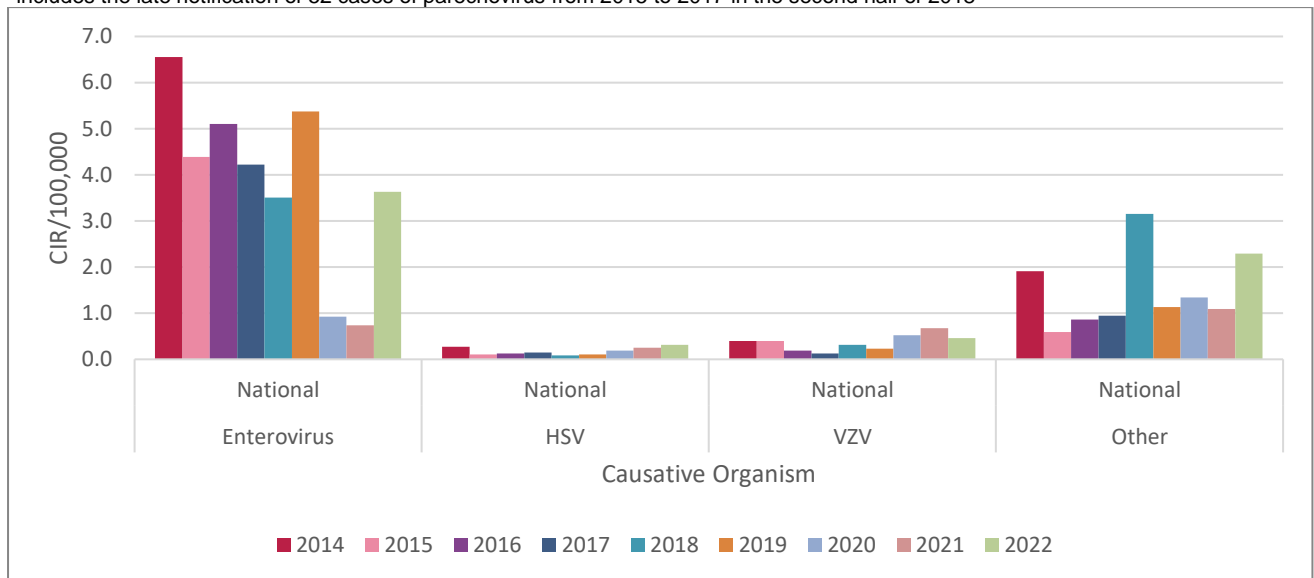


Other = includes human herpes virus type 6 (HHV 6), parechovirus and adenovirus related meningitis and viral meningitis attributable to unspecified viruses

HSV = Herpes simplex virus

Figure 3. Crude incidence (national) rates of viral meningitis (NOS) cases by causative pathogen, Ireland, 2014-2022*

*includes the late notification of 52 cases of parechovirus from 2015 to 2017 in the second half of 2018

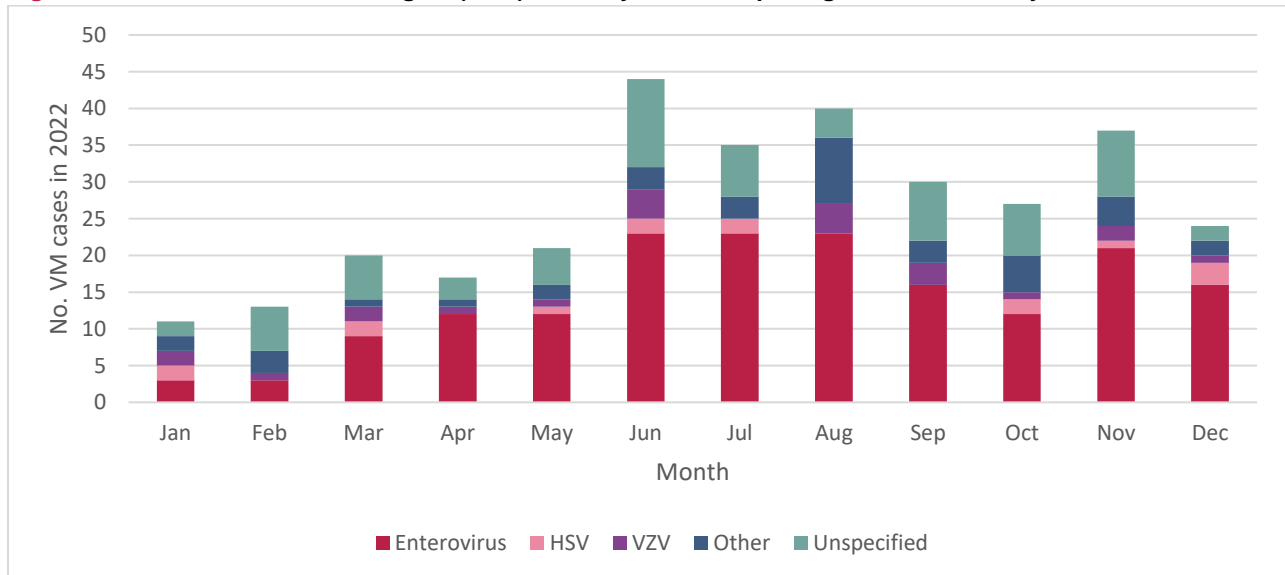


Other = includes human herpes virus type 6 (HHV 6), parechovirus and adenovirus related meningitis and viral meningitis attributable to unspecified viruses

HSV = Herpes simplex virus

Rates calculated using Census 2016 data

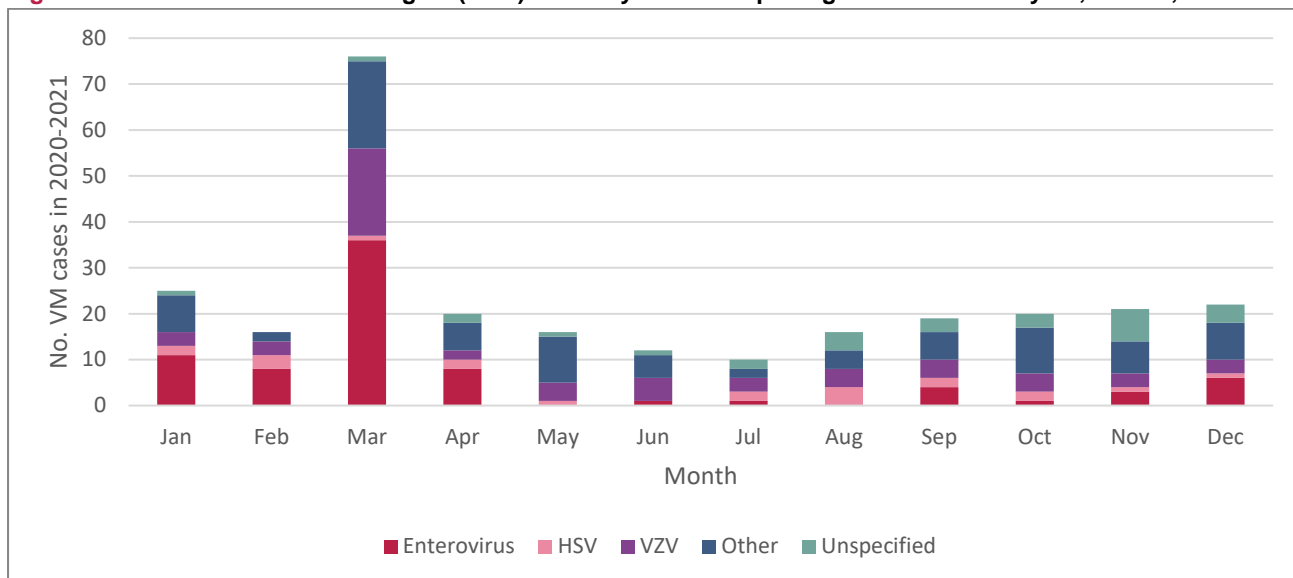
Figure 4.1. Numbers of viral meningitis (NOS) cases by causative pathogen and month of year, Ireland, 2022



Other = includes human herpes virus type 6 (HHV 6), parechovirus and adenovirus related meningitis and viral meningitis attributable to unspecified viruses

HSV = Herpes simplex virus

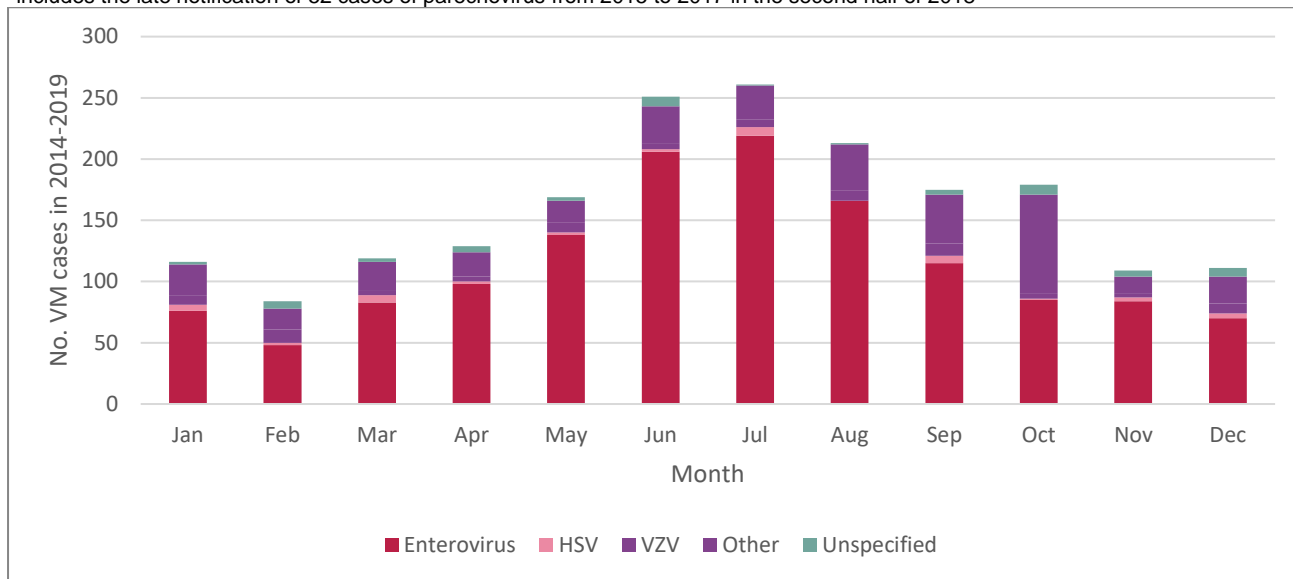
Figure 4.2. Numbers of viral meningitis (NOS) cases by causative pathogen and month of year, Ireland, 2020-2021



Other = includes human herpes virus type 6 (HHV 6), parechovirus and adenovirus related meningitis and viral meningitis attributable to unspecified viruses
 HSV = Herpes simplex virus

Figure 4.3. Numbers of viral meningitis (NOS) cases by causative pathogen and month of year, Ireland, 2014-2019*

*includes the late notification of 52 cases of parechovirus from 2015 to 2017 in the second half of 2018



Other = includes human herpes virus type 6 (HHV 6), parechovirus and adenovirus related meningitis and viral meningitis attributable to unspecified viruses
 HSV = Herpes simplex virus

Table 1. Number of viral meningitis (NOS) cases by age group and causative pathogen group, Ireland, 2022, 2019-2021

Age Class	2022							2019-2021						
	Enterovirus	HSV	VZV	Other	Unspecified	Total	% Total	Enterovirus	HSV	VZV	Other	Unspecified	Total	% Total
0-4	130	1	2	26	50	209	65.5	206	6	1	117	21	351	58.6
5-9	1	0	1	0	1	3	0.9	8	0	0	1	1	10	1.7
10-14	1	0	0	2	0	3	0.9	2	0	1	4	1	8	1.3
15-19	5	1	0	0	1	7	2.2	11	1	7	2	2	23	3.8
20-24	5	1	1	1	3	11	3.4	18	2	10	1	0	31	5.2
25-29	4	1	1	2	2	10	3.1	25	4	6	0	1	36	6.0
30-34	14	0	0	0	4	18	5.6	19	3	10	0	2	34	5.7
35-39	8	3	2	1	4	18	5.6	31	2	5	0	1	39	6.5
40-44	4	1	4	1	2	12	3.8	13	2	2	2	0	19	3.2
45-49	0	2	1	1	1	5	1.6	0	1	0	0	1	2	0.3
50-54	0	0	1	1	0	2	0.6	0	2	6	0	0	8	1.3
55-59	0	0	1	1	0	2	0.6	0	0	1	1	1	3	0.5
60-64	0	1	0	0	1	2	0.6	0	0	3	2	0	5	0.8
65-69	1	1	2	0	1	5	1.6	1	1	4	4	1	11	1.8
70-74	0	1	2	1	0	4	1.3	0	1	7	0	1	9	1.5
75-79	0	1	2	0	1	4	1.3	1	0	1	3	0	5	0.8
80-84	0	0	0	0	0	0	0.0	0	0	3	0	0	3	0.5
85+	0	1	2	1	0	4	1.3	0	1	1	0	0	2	0.3
Unknown	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0.0
Total	173	15	22	38	71	319	100	335	26	68	137	33	599	100
% Total	54.2	4.7	6.9	11.9	22.3	100		55.9	4.3	11.4	22.9	5.5	100.0	

Other = includes human herpes virus type 6 (HHV 6) and parechovirus related encephalitis

HSV = Herpes simplex virus