

# Annual Epidemiological Report

September 2023

## Viral Encephalitis, Not Otherwise Specified (NOS), in Ireland, 2022

### Key Facts

In 2022, 37 cases of viral encephalitis (NOS) (VE) were notified in Ireland (0.77/100,000 population) compared to 64 (1.34/100,000) in 2021, 48 (1.01/100,000) in 2020 and 75 (1.58/100,000) in 2019

The median age of cases in 2022 was 72.2 years (range 21 to 90 years), compared to a median of 59.6 years for cases between 2019 to 2021 inclusive (range 1 month to 91 years)

The causative pathogen was identified for 28 (75.7%) cases in 2022: Varicella/herpes zoster virus (n=17; 49.9%) and herpes simplex virus (HSV) types 1 and 2 (n=11; 29.7%)

In comparison, between 2019 to 2021, the causative pathogen was identified for 163 (87.2%) out of 187 cases: Varicella/herpes zoster virus (n=103; 55.1%), herpes simplex virus types 1 and 2 (HSV) (n=52; 27.8%), and others including human herpes virus type 6 (n=6; 3.2%) and tick-borne encephalitis (n=1; 0.5%)

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## Epidemiology

Encephalitis caused by viruses are notifiable under the disease category 'viral encephalitis'. Details of viral encephalitis cases caused by other notifiable diseases, if any, are presented in other annual reports. There is no enhanced surveillance for encephalitis NOS.

In 2022, 37 cases of viral encephalitis (NOS) (VE) were notified in Ireland (0.77/100,000 population) compared to 64 (1.34/100,000) in 2021, 48 (1.01/100,000) in 2020 and 75 (1.58/100,000) in 2019. One contributing factor to the overall decline in numbers during this period of time can be attributable to measures put in place to control the COVID-19 pandemic, which began in early 2020 (Figures 1-3 and Table 1).

There were slightly more VE cases among males (n=20) than among females (n=17) in 2022, an M:F ratio of 1:0.85, which was very similar to that in 2019 to 2021 with a M:F ratio of 1:0.86 (when there was also one case with an unknown gender status).

In 2022, the median age of cases was 72.2 years (range 21 to 90 years): 23 (62.2%) cases occurred in those aged 65 or more years with no cases in children under 18 years of age. Between 2019 and 2021, the median age was 59.6 years: 70 (37.4%) cases in those aged 65 or more years and 17 (9.1%) cases in children under 18 years of age.

All of the 37 VE cases in 2022 were case classified as confirmed. All but nine (24.3%) had a causative pathogen identified: VZV (n=17; 45.9%) and herpes simplex virus (HSV) (n=11; 29.7%, nine type 1 and two type 2). Among the 187 VE cases between 2019 and 2021, all but 24 (12.8%) had a causative pathogen identified: 103 (55.1%) cases of VZV, 52 (27.8%) HSV (33 type 1, 16 type 2 and three untyped), and other including six human herpes virus type 6 (HHV 6) (3.2%) cases and one tick borne encephalitis case (0.5%) (Table 1).

Among the 23 VE cases aged  $\geq 65$  years in 2022, there were ten (43.5%) cases of VZV in 2022, seven (30.4%) HSV (type 1) and six (26.1%) with an unspecified causative organism (Table 1). In contrast, among the 70 VE cases aged  $\geq 65$  years between 2019 to 2021, there were 40 (57.1%) cases of VZV, 23 (32.9%) HSV (20 type 1, one type 1 and two type unspecified) and seven (10%) with an unspecified pathogen (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. Two of the six cases of HHV 6-related encephalitis in 2019 to 2021 however, occurred in patients less than three months of age.

Outcome was recorded for 21.6% of cases (n=8/37) in 2022 with no deaths. In sharp contrast, outcome was recorded for 5.9% of cases (n=11/187) between 2019 and 2021. There was one reported death in 2021: a 70–74-year-old with a HSV type 1 infection. There were no imported cases in 2022, but there were two between 2019 and 2021 (one VZV-related and one tick-borne related).

The figures presented in this report are based on data extracted from the Computerised Infectious Disease Reporting (CIDR) system on 27<sup>th</sup> July 2023. No enhanced surveillance is currently in place on CIDR for viral encephalitis (NOS). However, the overall decline in the annual number of reported cases since 2019 is largely due to a combination of the COVID-19 pandemic and infectious disease surveillance being redirected at addressing that public health crisis during that period. The figures in this report may 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/other/viralencephalitis/>

### **Acknowledgements**

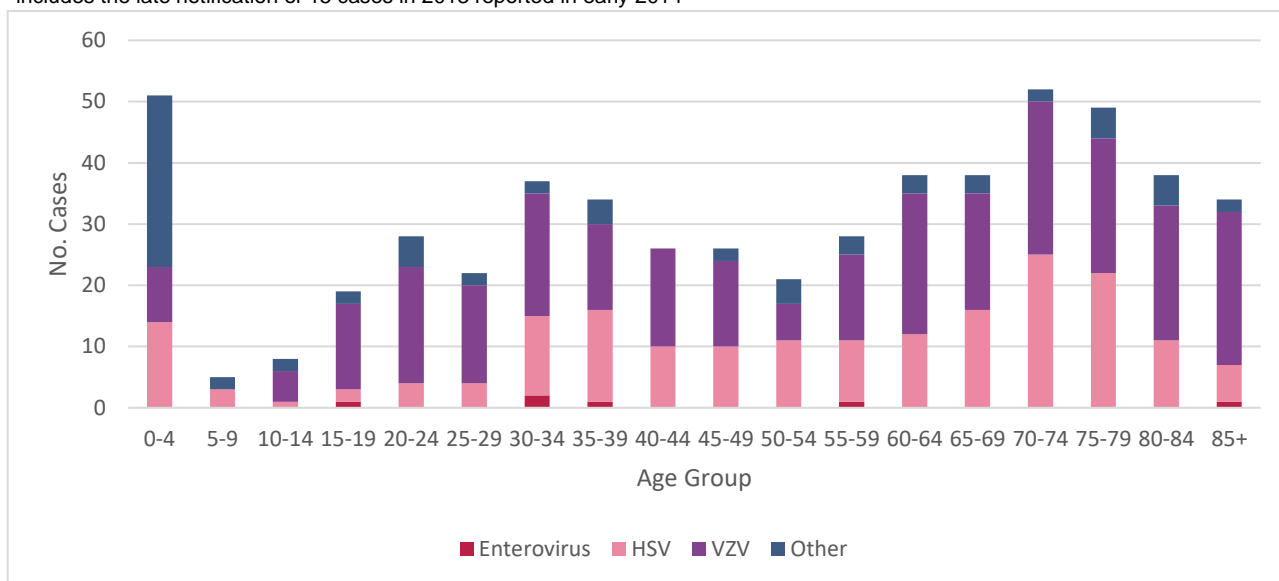
HPSC wishes to thank all who provided data for this report: Departments of Public Health, National Virus Reference Laboratory (NVRL) and other Microbiology Laboratories

### **Report prepared by:**

**Piaras O’Lorcain, Geraldine Casey, Niamh Lynch, Vaccine Preventable Disease (VPD) team**

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

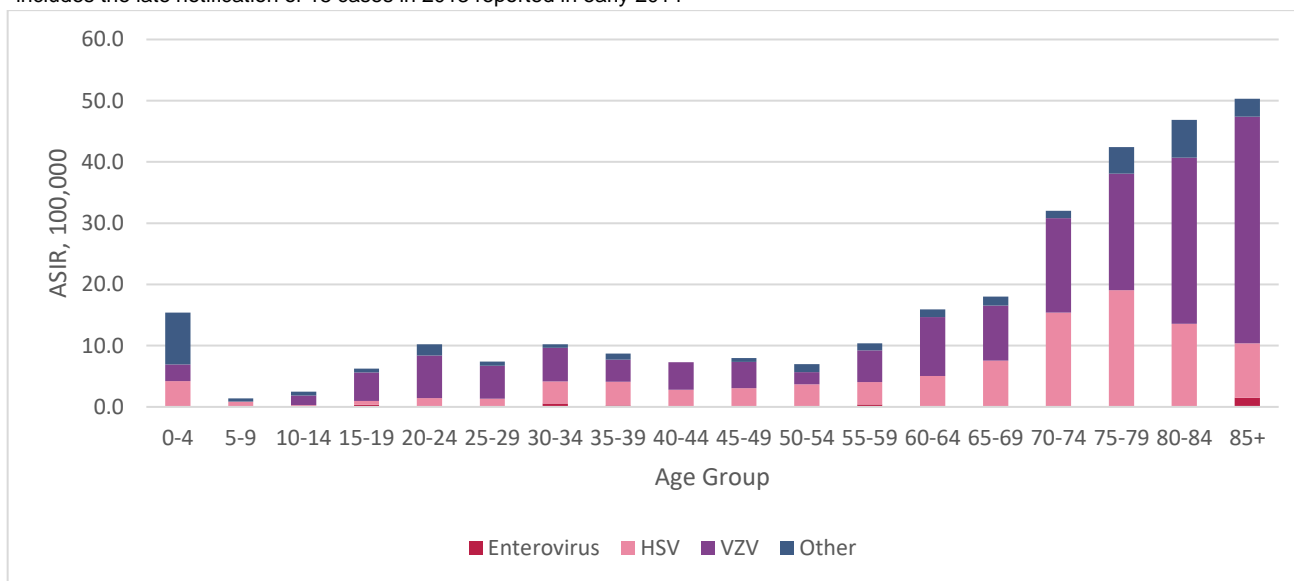
\*includes the late notification of 15 cases in 2013 reported in early 2014



Other = includes human herpes virus type 6 (HHV 6) and tick-borne related encephalitis and encephalitis attributable to unspecified viruses  
 HSV = Herpes simplex virus

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

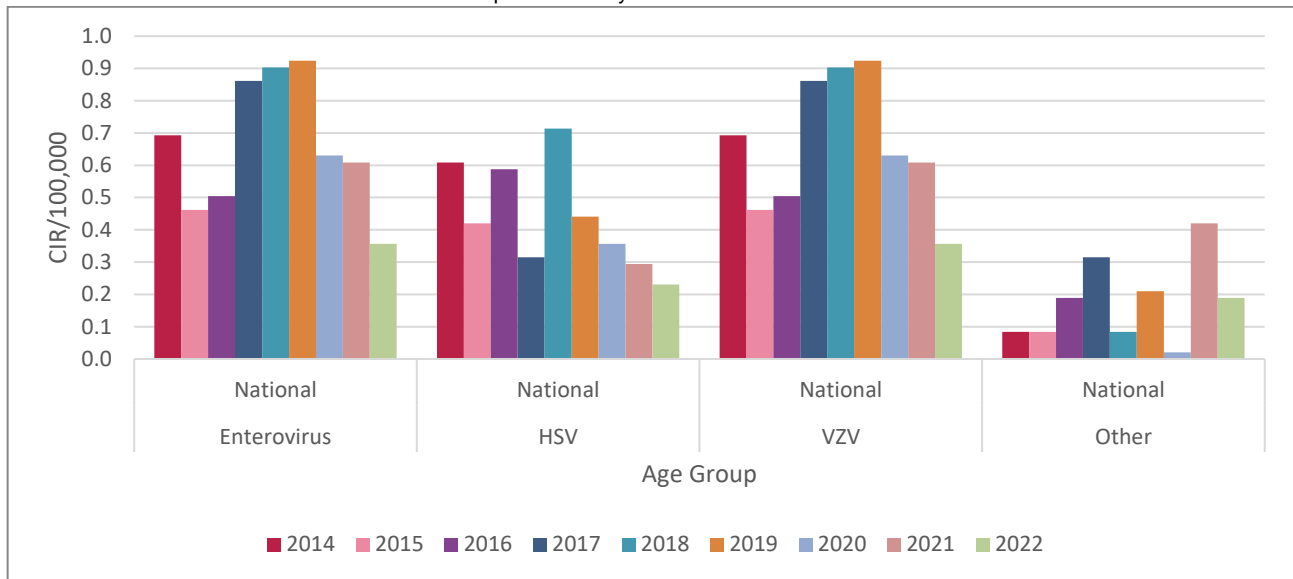
\*includes the late notification of 15 cases in 2013 reported in early 2014



Other = includes human herpes virus type 6 (HHV 6) and tick-borne related encephalitis and encephalitis attributable to unspecified viruses  
 HSV = Herpes simplex virus

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

\*includes the late notification of 15 cases in 2013 reported in early 2014



Rates calculated using Census 2016 data

Other = includes human herpes virus type 6 (HHV 6) and tick-borne related encephalitis and encephalitis attributable to unspecified viruses

HSV = Herpes simplex virus

**Table 1. Number of viral encephalitis (NOS) cases by age group and causative pathogen, 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	0	0	0	0	0	0	0.0	0	0	3	5	0	8	4.3
5-9	0	0	0	0	0	0	0.0	0	0	0	0	1	1	0.5
10-14	0	0	0	0	0	0	0.0	0	0	2	0	0	2	1.1
15-19	0	0	0	0	0	0	0.0	0	1	6	0	1	8	4.3
20-24	0	0	1	0	0	1	2.7	0	2	5	0	3	10	5.3
25-29	0	0	1	0	1	2	5.4	0	1	3	0	1	5	2.7
30-34	0	1	0	0	0	1	2.7	0	4	6	0	2	12	6.4
35-39	0	2	2	0	1	5	13.5	0	4	6	0	3	13	7.0
40-44	0	1	0	0	0	1	2.7	0	3	6	0	0	9	4.8
45-49	0	0	1	0	0	1	2.7	0	4	6	0	2	12	6.4
50-54	0	0	0	0	1	1	2.7	0	3	2	1	1	7	3.7
55-59	0	0	1	0	0	1	2.7	1	4	6	1	1	13	7.0
60-64	0	0	1	0	0	1	2.7	0	3	12	0	2	17	9.1
65-69	0	0	2	0	1	3	8.1	0	4	4	0	1	9	4.8
70-74	0	1	2	0	1	4	10.8	0	8	8	0	1	17	9.1
75-79	0	3	1	0	1	5	13.5	0	5	7	0	2	14	7.5
80-84	0	2	2	0	2	6	16.2	0	4	10	0	2	16	8.6
85+	0	1	3	0	1	5	13.5	0	2	11	0	1	14	7.5
Unknown	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0.0
<b>Total</b>	<b>0</b>	<b>11</b>	<b>17</b>	<b>0</b>	<b>9</b>	<b>37</b>	<b>100</b>	<b>1</b>	<b>52</b>	<b>103</b>	<b>7</b>	<b>24</b>	<b>187</b>	<b>100</b>
<b>% Total</b>	<b>0.0</b>	<b>29.7</b>	<b>45.9</b>	<b>0.0</b>	<b>24.3</b>	<b>100</b>		<b>0.5</b>	<b>27.8</b>	<b>55.1</b>	<b>3.7</b>	<b>12.8</b>	<b>100.0</b>	

HSV= Herpes simplex virus (types 1, 2 and unspecified)

Other = includes human herpes virus type 6 (HHV 6) and tick-borne related encephalitis and encephalitis attributable to unspecified viruses