

# BACTERIAL & VIRAL MENINGITIS IN IRELAND

A REPORT BY THE HEALTH PROTECTION SURVEILLANCE CENTRE IN COLLABORATION WITH THE  
IRISH MENINGOCOCCAL AND MENINGITIS REFERENCE LABORATORY



Quarter 4, 2010

Provisional Figures

17<sup>th</sup> February 2011

## Summary

### Q4-2010

Twenty-four cases of invasive meningococcal disease (IMD) were notified in Q4-2010. This compares to an average of 38.7 cases in the same quarter for the years 2007, 2008 and 2009. There were no IMD related deaths reported in Q4-2010. This compares to two IMD deaths reported in the same quarter in 2009 and one death each in Q4 of 2008 and 2007.

## Introduction

Meningococcal disease became a notifiable disease on the 1<sup>st</sup> January 2004 with the implementation of the Infectious Disease (Amendment) (No. 3) Regulations 2003 (SI No. 707 of 2003). Prior to this, it was notifiable under the category bacterial meningitis (including meningococcal septicaemia). Most forms of bacterial meningitis are now notifiable under the specific disease pathogen name as listed in the legislation. For bacterial meningitis pathogens not listed, these forms of meningitis are notifiable under the disease termed 'bacterial meningitis (not otherwise specified)'. The case definitions used are described in the NDSC Case Definitions for Notifiable Diseases booklet.

An enhanced surveillance system is in place for invasive meningococcal disease and other forms of bacterial meningitis. Details of this surveillance system are described in the meningococcal disease chapter of the HPSC Annual Report 2005.

Data on invasive meningococcal disease notifications and on bacterial and viral meningitis notifications for Q4-2010 are presented in this report. The figures presented in this report are based on data extracted from the CIDR system on the 17<sup>th</sup> of February 2011. **These figures are provisional.** Incidence rates were calculated using 2006 Census of Population as denominator data.

## Acknowledgements

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## Results

### Meningococcal Disease Cases

In Q4-2010, 24 cases of invasive meningococcal disease (IMD) were notified: 21 serogroup B, one serogroup W135 and two where no organism was detected. In contrast, there were 31 cases notified during Q4-2009 and 48 cases during Q4-2008. No imported cases were reported in Q4-2010. Of the 24 cases notified in Q4-2010, 22 were classified as definite, none as presumed and two as possible (Table 1).

Table 1. Classification of IMD cases notified in Q4-2010

Classification	Invasive Meningococcal Disease					Total IMD
	Grp. B	Grp. C	Grp. W135	Grp. Y	No organism/serogroup detected	
Definite	21	0	1	0	0	22
Presumed	0	0	0	0	0	0
Possible	0	0	0	0	2	2
Not specified	0	0	0	0	0	0
<b>Total</b>	<b>21</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>24</b>

In comparison, in Q4-2009, 31 cases of IMD were reported, including 25 serogroup B cases, two serogroup C and four where no organism was detected. In the same quarter in 2008, there were 48 IMD notifications with 43 attributable to serogroup B, one case each of serogroup C and Y and three where no organism was detected (Figure 1; Appendix 1).

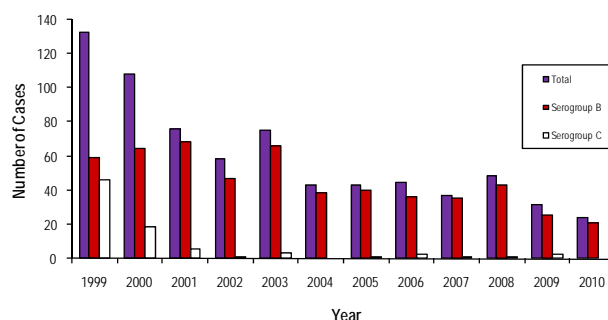
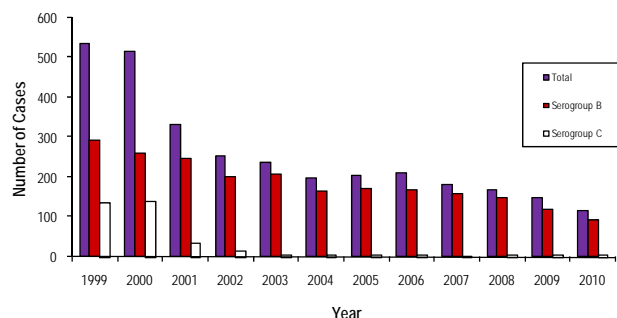


Figure 1. Number of invasive meningococcal disease cases notified in Ireland in the fourth quarters of 1999-2010.

Serogroup B disease accounted for 87.5% (n=21/24) of the IMD notifications in Q4-2010 compared to 80.7% (n=25/31) in Q4-2009. Between January and December 2010, only one confirmed case reported on CIDR from HSE-NE was not included in the list of laboratory tested *N. meningitidis* isolates provided to the HPSC by the Irish Meningococcal Reference Laboratory.



**Figure 2.** Number of invasive meningococcal disease cases notified in Ireland between 1999-2010.

### IMD Cases by HSE Area and Age

In Q4-2010 the crude incidence rate was 0.6 cases per 100,000 population ranging from a high of 0.9/100,000 in HSE-E to a low of 0.0/100,000 in HSE-NE and HSE-W (Appendix 2).

In Q4-2010 the quarterly incidence rate of IMD cases reported by age was highest amongst infants <1 year of age (n=6; 9.8/100,000) followed by children aged 1-4 years (n=8; 3.3/100,000). In the 5-14 and 15-24 year age groups, two and five cases were reported with rates of 0.4/100,000 and 0.8/100,000, respectively. In addition, there were three cases (0.1/100,000) reported in the 25-years and older age group (Appendix 3).

### IMD Deaths by HSE Area and Age

No IMD death was notified in Q4-2010. In the fourth quarter in 2009, two IMD deaths were reported with one death each in 2008 and 2007, all attributable to serogroup B (Appendices 1, 2 and 3).

### Other forms of Bacterial meningitis

#### *Streptococcus pneumoniae* meningitis

In the fourth quarter of 2010, six cases of *Streptococcus pneumoniae* infection resulting in meningitis were notified. Four occurred in children aged <2 years: two were vaccinated, but were each infected with serotypes not covered by the PCV7 vaccine (6C and 15B); two others were infected with serotype 7F, which is also not covered by the PCV7 vaccine even though both were incompletely vaccinated. Another two cases occurred in adults (age range 30-69 years): one was infected with serotype 7F and the other with serotype 6A, neither of which are covered by the PCV7 vaccine; the former had no vaccination history reported while the latter was unvaccinated. No deaths were reported from *S. pneumoniae* meningitis in Q4-2010. In the same period in 2009 however, ten cases of pneumococcal meningitis were notified, three of whom were reported to have died; one of whom was an 18 year old infected with serotype 4, (covered by the PCV7 vaccine) but was not vaccinated.

There were 109 reported cases of invasive *S. pneumoniae* infection in Q4-2010. Apart from the six reported cases with meningitis (or meningitis with septicaemia), 19 had septicaemia, 16 had pneumonia, one had peritonitis and the clinical diagnoses of the remaining 67 cases were not reported. For further information on *Streptococcus pneumoniae* notifications please refer to the latest report available at <http://www.hpsc.ie/hpsc/A-Z/VaccinePreventable/PneumococcalDisease/SurveillanceReports>.

### *Haemophilus influenzae* meningitis

In Q4-2010, no cases of invasive *Haemophilus influenzae* causing meningitis were reported in Ireland. There were also zero reported cases in the same quarter of 2009. For further information on *H. influenzae* notifications, please refer to the quarterly reports available at <http://www.ndsc.ie/hpsc/A-Z/VaccinePreventable/Haemophilusinfluenzae/Publications>.

### *Listeria* meningitis

In Q4-2010 no case of *Listeria* meningitis was reported.

### *Leptospira* meningitis

There were no cases of *Leptospira* meningitis reported in Q4-2010.

### TB meningitis

Information on the number of TB meningitis cases occurring in Q4-2010 was unavailable at the time of writing.

### Streptococcus Group A meningitis

There were no notifications of Streptococcus Group A (*Streptococcus pyogenes*) meningitis in Q4-2010.

### Bacterial meningitis by other specified notifiable diseases

No cases of bacterial meningitis caused by other specified notifiable diseases were reported during Q4-2010.

### Bacterial meningitis (not otherwise specified)

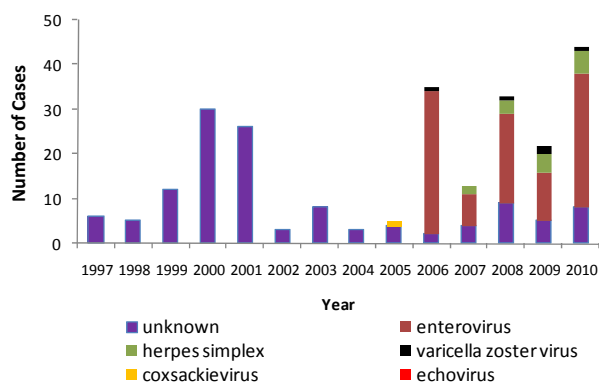
In the fourth quarter of 2010, 13 cases of bacterial meningitis due to pathogens not otherwise specified (NOS) under the Infectious Disease (Amendment) (No. 3) Regulations (S.I. No. 707 of 2003) were notified. One death in a 60-64 year old adult was reported from this disease. Of the seven cases that were case classified as confirmed, three were attributable to *Streptococcus agalactiae* (age range ≤ 1 month), two to *Escherichia coli* (age range 1 week to 61 years), one to *Staphylococcus aureus* (age 3 years) and one with no organism detected (age 4 weeks). In addition there were four probable bacterial meningitis (one of which was attributable to *Mycoplasma pneumoniae*) and two possible meningitis cases reported in Q4-2010.

In comparison, eight cases of bacterial meningitis (NOS) cases were notified in Q4-2009, the causative pathogens being identified in three of the cases: one case of *Streptococcus agalactiae*, and two *Escherichia coli*.

### Viral meningitis

#### (caused by non-notifiable organisms)

Forty-four viral meningitis notifications (age range 1 month to 54 years) were reported in Q4-2010 compared to 22 in Q4-2009 and 33 in Q4-2008 (Figure 2). In Q4-2010, 36 of the 44 cases had their causative organism identified: 30 enterovirus (serotypes not determined), five herpes simplex virus (three of which were type 6) and one varicella zoster virus.



**Figure 3.** Number of viral meningitis cases notified in Ireland in the fourth quarters of 1997-2010

## Appendix 1

### Meningococcal Disease Cases and Deaths by Serogroup in Quarter 4, between 1999 and 2010

#### Meningococcal Disease - Cases

Serogroup	Q4 1999	Q4 2000	Q4 2001	Q4 2002	Q4 2003	Q4 2004	Q4 2005	Q4 2006	Q4 2007	Q4 2008	Q4 2009	Q4 2010
Serogroup B	59	64	68	47	66	38	40	36	35	43	25	21
Serogroup C	46	18	5	1	3	0	1	2	1	1	2	0
Serogroup W135	1	1	0	0	1	1	0	0	1	0	0	1
Serogroup Y	0	2	0	1	1	1	0	1	0	1	0	0
Non-groupable (NG)	3	3	0	1	2	1	0	0	0	0	0	0
No organism detected	22	20	3	8	2	2	1	5	0	3	4	2
<b>Total</b>	<b>131</b>	<b>108</b>	<b>76</b>	<b>58</b>	<b>75</b>	<b>43</b>	<b>42</b>	<b>44</b>	<b>37</b>	<b>48</b>	<b>31</b>	<b>24</b>

#### Meningococcal Disease - Deaths

Serogroup	Q4 1999	Q4 2000	Q4 2001	Q4 2002	Q4 2003	Q4 2004	Q4 2005	Q4 2006	Q4 2007	Q4 2008	Q4 2009	Q4 2010
Serogroup B	4	1	2	2	3	1	0	0	1	1	2	0
Serogroup C	0	2	1	0	0	0	0	0	0	0	0	0
Serogroup W135	0	0	0	0	0	0	0	0	0	0	0	0
Serogroup Y	0	1	0	0	0	0	0	0	0	0	0	0
Non-groupable (NG)	0	0	0	0	0	0	0	0	0	0	0	0
No organism detected	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>4</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>0</b>

## Appendix 2

### Meningococcal Disease Cases and Deaths by HSE Area in Quarter 4, between 1999 and 2010

#### Meningococcal Disease – Cases

HSE Area	Q4 1999	Q4 2000	Q4 2001	Q4 2002	Q4 2003	Q4 2004	Q4 2005	Q4 2006	Q4 2007	Q4 2008	Q4 2009	Q4 2010	Q4-2010 CIR*
HSE-E	54	37	27	15	29	16	11	11	16	12	11	13	0.9
HSE-M	3	8	6	3	5	1	3	1	5	2	1	1	0.4
HSE-MW	13	5	7	12	6	4	3	7	4	2	2	2	0.6
HSE-NE	16	13	5	6	4	3	7	5	4	5	3	0	0.0
HSE-NW	5	5	6	3	2	6	3	3	0	2	4	2	0.8
HSE-SE	10	18	4	5	6	4	2	8	3	9	3	3	0.7
HSE-S	21	19	14	11	16	7	8	8	3	11	3	3	0.5
HSE-W	9	3	7	3	7	2	5	1	2	5	4	0	0.0
<b>Total</b>	<b>131</b>	<b>108</b>	<b>76</b>	<b>58</b>	<b>75</b>	<b>43</b>	<b>42</b>	<b>44</b>	<b>37</b>	<b>48</b>	<b>31</b>	<b>24</b>	<b>0.6</b>

\* CIR, crude incidence rate per 100,000

#### Meningococcal Disease – Deaths

HSE Area	Q4 1999	Q4 2000	Q4 2001	Q4 2002	Q4 2003	Q4 2004	Q4 2005	Q4 2006	Q4 2007	Q4 2008	Q4 2009	Q4 2010	Q4-2010 CFR*
HSE-E	1	1	0	1	1	0	0	0	1	0	0	0	0.0%
HSE-M	0	1	0	1	0	0	0	0	0	0	0	0	0.0%
HSE-MW	0	0	0	0	0	0	0	0	0	0	0	0	0.0%
HSE-NE	1	0	0	0	0	0	0	0	0	0	0	0	0.0%
HSE-NW	1	1	1	0	0	1	0	0	0	0	1	0	0.0%
HSE-SE	1	1	0	0	0	0	0	0	0	0	1	0	0.0%
HSE-S	0	0	1	0	2	0	0	0	0	1	0	0	0.0%
HSE-W	0	0	1	0	0	0	0	0	0	0	0	0	0.0%
<b>Total</b>	<b>4</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>0.0%</b>

\* CFR, Case fatality ratio (%)

## Appendix 3

### Meningococcal Disease Cases and Deaths by Age Group in Quarter 4, between 1999 and 2010

#### Meningococcal Disease – Cases

AgeGrp (yrs)	Q4 1999	Q4 2000	Q4 2001	Q4 2002	Q4 2003	Q4 2004	Q4 2005	Q4 2006	Q4 2007	Q4 2008	Q4 2009	Q4 2010	Q4-2010 CIR*
<1	30	20	23	13	19	9	10	11	6	9	8	6	9.8
1-4	43	33	17	18	25	21	12	8	11	21	9	8	3.3
5-9	14	11	11	7	7	3	4	0	7	1	3	1	0.3
10-14	8	16	7	4	1	1	3	4	2	3	1	1	0.4
15-19	16	17	9	7	12	6	7	10	3	6	4	5	1.7
20-24	8	4	2	1	6	2	2	3	3	5	2	0	0.0
25+	12	7	7	8	5	1	4	8	5	3	4	3	0.1
<b>Total</b>	<b>131</b>	<b>108</b>	<b>76</b>	<b>58</b>	<b>75</b>	<b>43</b>	<b>42</b>	<b>44</b>	<b>37</b>	<b>48</b>	<b>31</b>	<b>24</b>	<b>0.6</b>

\* CIR, crude incidence rate per 100,000

#### Meningococcal Disease – Deaths

AgeGrp (yrs)	Q4 1999	Q4 2000	Q4 2001	Q4 2002	Q4 2003	Q4 2004	Q4 2005	Q4 2006	Q4 2007	Q4 2008	Q4 2009	Q4 2010	Q4-2010 CMR*
<1	0	0	1	1	2	0	0	0	0	0	0	0	0.0
1-4	3	0	1	1	0	1	0	0	0	1	0	0	0.0
5-9	0	0	0	0	0	0	0	0	0	0	0	0	0.0
10-14	0	1	0	0	1	0	0	0	0	0	0	0	0.0
15-19	0	1	0	0	0	0	0	0	0	0	1	0	0.0
20-24	0	1	1	0	0	0	0	0	0	0	0	0	0.0
25+	1	1	0	0	0	0	0	0	1	0	1	0	0.0
<b>Total</b>	<b>4</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>0.0</b>

\* CMR, crude mortality rate per 100,000