

INVASIVE MENINGOCOCCAL DISEASE AND OTHER FORMS OF BACTERIAL MENINGITIS IN IRELAND

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



Quarter 3, 2006

Provisional Figures

4th December 2006

Summary

Q3-2006

Thirty-nine cases of invasive meningococcal disease (IMD) were notified in Q3-2006. This compares to an average of 41 cases in the same quarter for the years 2003, 2004 and 2005. There were two IMD related deaths in Q3-2006. In contrast, there was one death reported from meningococcal disease during the same quarter last year.

Q1-Q3, 2006

In Q1-Q3 2006, the epidemiology of IMD remained similar to the same period last year with 166 and 160 IMD cases, being notified, respectively. There were five IMD related deaths over this nine-month period in 2006, while there were six in 2005.

Introduction

Meningococcal disease became a notifiable disease in its own right on the 1st 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 2004.

Data on invasive meningococcal disease notifications and bacterial meningitis notifications for Q3-2006 and Q1-Q3, 2006 are presented in this report. The figures presented in this report are based on data extracted from the CIDR system on 4th December 2006. **These figures are provisional.** Incidence rates were calculated using 2002 Census of Population as denominator data.

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Results

Meningococcal Disease Cases

In Q3-2006, 39 cases of invasive meningococcal disease (IMD) were notified: 35 serogroup B and four where no organism was detected. No imported cases were reported. This was higher than the number of cases notified in Q3-2005 (n=31) but very similar to Q3-2004 (n=42). Of the 39 cases notified, 34 were classified as definite, 1 as presumed and 4 as possible (Table 1).

Table 1. Classification of IMD cases notified in Q3-2006

Classification	Invasive Meningococcal Disease				Total IMD
	Group B	Group C	Other Groups	No organism	
Definite	34	0	0	0	34
Presumed	1	0	0	0	1
Possible	0	0	0	4	4
Total	35	0	0	4	39

In the first nine months of 2006 (Q1-Q3), 166 cases of IMD were reported, this includes 132 serogroup B cases, three serogroup Y, and one each of serogroups C, W135 and non-groupable. Twenty-eight cases where no organism was detected were also notified. Over the same period in 2005, there were 160 IMD notifications with serogroup B accounting for the majority of these (Figure 1).

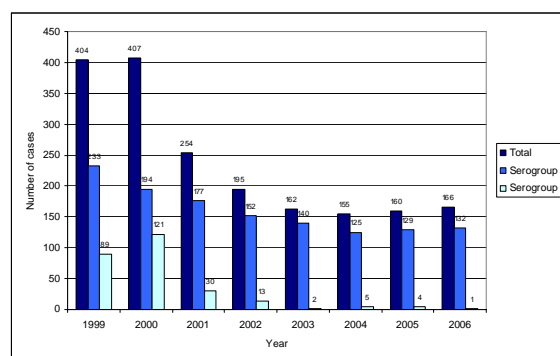


Figure 1. Number of invasive meningococcal disease cases notified in Ireland, in Q1-Q3 1999-2006

IMD Cases by HSE Area and Age

Serogroup B disease accounted for 90% of the IMD notifications in Q3-2006. The quarterly incidence rate for serogroup B ranged from a high of 1.5/100,000 in HSE-NE to a low of 0.0/100,000 in HSE-M. There were no cases of serogroup C meningococcal disease reported in Ireland in Q3-2006.

The number of IMD cases reported by age was highest amongst infants <1 year of age (n=15; 27.5/100,000) followed by children age 1-4 years (n=9; 4.0/100,000). In the 5-14 and 15-24 year age groups, three and nine cases, respectively, were reported. In addition, there were three cases reported in the over 25-year old age group.

Between Q1-Q3, 2006 with 166 IMD cases being notified, this gave an incidence rate for that period of 4.2 per 100,000. Incidence rates ranged from 3.2 per 100,000 in HSE-W to 4.9 per 100,000 in HSE-M; see Appendix 2 for more details.

Invasive Meningococcal Disease Deaths

Two IMD related deaths were notified in Q3-2006. The deaths were classified as definite meningococcal serogroup B cases. One occurred in a child aged 1-4 years and the second in a young adult. Overall, the case fatality ratio (CFR) in this quarter due to IMD was 5.0% (2 deaths / 40 cases). Between Q1-Q3, 2006, five IMD related deaths occurred, all due to serogroup B, which was an overall CFR of 3% (5 deaths / 166 cases). Using serogroup B cases alone as the denominator, the CFR was 3.7% (5 deaths / 132 cases). There were six deaths over the same nine-month period in 2005 (5 serogroup B and 1 serogroup Y).

Other forms of Bacterial meningitis

Streptococcus pneumoniae meningitis

In the third quarter of 2006, two cases of *Streptococcus pneumoniae* infection, resulting in meningitis were notified. These cases occurred in a one-month old infant and in an 18 year old. Both cases recovered. Over the same period in 2005, one case of pneumococcal meningitis was notified. The outcome for this case was not reported. A total of 61 cases of invasive *S. pneumoniae* infection were reported in Q3-2006. Apart from the two meningitis cases, two had septicaemia, another 10 had pneumonia and the clinical diagnoses on the remaining 47 cases were not reported.

Haemophilus influenzae meningitis

In Q3-2006, a total of five cases of invasive *Haemophilus influenzae* were reported in Ireland. One case was associated with meningitis, which was due to *H. influenzae* type b (Hib) occurring in an elderly adult. However, this was an imported case, as it arose in a non-resident who had recently arrived on holiday. In Q3-2005, there were two cases of invasive *H. influenzae* causing meningitis, both in children <5 years. One was due to Hib the other due to a non-capsular strain. The latter case died. For further information on *H. influenzae* notifications in 2006, please refer to the reports available at <http://www.ndsc.ie/hpsc/A-Z/VaccinePreventable/Haemophilusinfluenzae/Publications>

Listeria meningitis

There were no cases of listeria meningitis notified in Q3-2006. Between Q1-Q3, 2006 just one listeria meningitis case has been notified. This occurred in a middle-aged adult. One listeria meningitis case also occurred over the same nine-month period in 2005. This case arose in an elderly adult.

TB meningitis

Details of number of TB meningitis cases in Q3-2006 were not available at the time of writing.

Bacterial meningitis (not otherwise specified)

In the third quarter of 2006, 16 cases of bacterial meningitis, due to pathogens not otherwise specified under the Infectious Disease (Amendment) (No. 3) Regulations (S.I. No. 707 of 2003), were notified. No deaths were reported from this disease. In two cases the causative pathogen was identified and both involved infants <1 year of age: *Escherichia coli* and *Staphylococcus capitis*. There were fourteen other bacterial meningitis cases of unknown aetiology (age range from 1 month to 61 years)

There has been an increase in bacterial meningitis (not otherwise specified) cases notified in Q3-2006 compared to the same quarter in 2005, when just nine cases were notified. Overall, the number of bacterial meningitis (not otherwise specified) notifications has increased in 2006 compared to 2005, with 38 and 16 cases, notified respectively, between Q1-Q3 of both years. Of the 38 notifications in 2006, the causative pathogen was identified in 10 – these were five *Streptococcus agalactiae* (group B streptococcus), two *Escherichia coli*, one *Staphylococcus aureus*, one *Klebsiella pneumoniae* and one *Staphylococcus capitis*. No organism was identified for the remaining 28 notifications. Of the 22 notifications made between Q1-Q3, 2005, the causative organism was identified for six (3 *S. agalactiae*, 1 group C streptococcus, 1 *S. aureus* and 1 *Pseudomonas aeruginosa*).

Therefore, based on these data no particular pathogen has been identified that can explain the increase in bacterial meningitis (not otherwise specified) to date in 2006.

Appendix 1

Meningococcal Disease Cases and Deaths by Serogroup and Quarter in 2006

Meningococcal Disease - Cases

	Q1 2006	Q2 2006	Q3 2006	Q1-Q3 2006	Q1-Q3 2005
Serogroup B	57	40	35	132	129
Serogroup C	0	1	0	1	4
Serogroup W135	0	1	0	1	3
Serogroup Y	2	1	0	3	3
Non-groupable (NG)	1	0	0	1	2
No organism detected	12	12	4	28	19
Total	72	55	39	166	160

Meningococcal Disease - Deaths

	Q1 2006	Q2 2006	Q3 2006	Q1-Q3 2006	Q1-Q3 2005
Serogroup B	2	1	2	5	5
Serogroup C	0	0	0	0	0
Serogroup W135	0	0	0	0	0
Serogroup Y	0	0	0	0	1
Non-groupable (NG)	0	0	0	0	0
No organism detected	0	0	0	0	0
Total	2	1	2	5	6

Appendix 2

Meningococcal Disease Cases and Deaths by HSE Area

Meningococcal Disease – Total Cases

	Q1 2006	Q2 2006	Q3 2006	Q1-Q3 2006	CIR*
HSE-E	33	19	15	67	4.8
HSE-M	4	7	0	11	4.9
HSE-MW	5	7	2	14	4.1
HSE-NE	4	5	5	14	4.1
HSE-NW	4	3	1	8	3.6
HSE-SE	9	2	5	16	3.8
HSE-S	11	7	6	24	4.1
HSE-W	2	5	5	12	3.2
Total	72	55	39	166	4.2

* CIR, crude incidence rate per 100,000 for Q1-Q3, 2006

Meningococcal Disease – Total Deaths

	Q1 2006	Q2 2006	Q3 2006	Q1-Q3 2006	CFR
HSE-E	2	1	2	5	7.5
HSE-M	0	0	0	0	0
HSE-MW	0	0	0	0	0
HSE-NE	0	0	0	0	0
HSE-NW	0	0	0	0	0
HSE-SE	0	0	0	0	0
HSE-S	0	0	0	0	0
HSE-W	0	0	0	0	0
Total	2	1	2	5	3.0

* CFR, Case fatality ratio (%) for Q1-Q3, 2006