

# Quarterly Update on Invasive Meningococcal Disease and Other forms of Bacterial Meningitis Notifications

The Health Protection Surveillance Centre in Collaboration with the Irish Meningococcal and Meningitis Reference Laboratory

Quarter 1 – 2006 Provisional Figures  
14<sup>th</sup> June 2006

## Summary

Seventy-two cases of meningococcal disease were notified in Q1-2006. This compares to an average of 70.3 cases in the same quarter for the years 2003, 2004 and 2005. There were two meningococcal disease related deaths in Q1-2006, compared to an average of four deaths in Q1 for the previous three years.

## Introduction

An enhanced surveillance system for Bacterial Meningitis (including meningococcal septicaemia) commenced in Ireland in 1997. On the 1<sup>st</sup> January 2004 the Infectious Disease (Amendment) (No.3) Regulations 2003 (SI No. 707 of 2003) were implemented in Ireland and under these amendments invasive meningococcal disease was made a notifiable disease in its own right. Prior to this, it had been notifiable since 1982 under the category bacterial meningitis (including meningococcal septicaemia), when the 1981 Infectious Disease Regulations came into force.

Cases are notified daily to HPSC since 1999 and all these notifications have been transferred to the Computerised Infectious Disease Reporting (CIDR) system. During 2005 the regions “live” on CIDR entered meningococcal disease notifications directly to the system. For the regions not yet using the system, notifications were faxed to HPSC and inputted to CIDR from there. The meningococcal disease notifications on CIDR are reconciled monthly with the Irish Meningococcal and Meningitis Reference Laboratory (IMMRL) database and throughout the year with the Departments of Public Health records. For surveillance purposes cases of invasive meningococcal disease are classified as ‘definite’, ‘presumed’ and ‘possible’ cases depending on the laboratory results and clinical presentation. (See case definitions booklet, available at <http://www.hpsc.ie/NotifiableDiseases/CaseDefinitions/>).

National data on meningococcal disease notifications for Quarter 1, 2006 are presented in this report.

The figures presented in this report are based on data extracted from the CIDR system on 14<sup>th</sup> June 2006.

These figures are provisional.

## Results

### *Meningococcal disease cases*

In Q1-2006, 72 cases of meningococcal disease were notified – 57 serogroup B, 2 serogroup Y, 1 non-groupable and 12 where no organism was detected (Table 1). There were no serogroup C or W135 cases in Q1-2006. No cases were imported in this quarter either. There was no change in the number of meningococcal disease notifications compared to the same quarter last year. In Q1-2004 and Q1-2003 the numbers of cases were 66 and 73, respectively (Table 1). The average number of reported cases in the first quarters between 1999 and 2002 (544/4=136) was substantially higher than that reported in the first quarters between 2003 and 2006 (349/4=87.3).

**Table 1.** Quarter 1 Meningococcal Disease Notifications, 1999 to 2006

Serogroup	Q1-1999	Q1-2000	Q1-2001	Q1-2002	Q1-2003	Q1-2004	Q1-2005	Q1-2006
<b>Group B</b>	106	89	75	63	65	55	59	57
<b>Group C</b>	35	54	21	7	1	4	1	0
<b>Group W135</b>	1	0	0	2	2	0	1	0
<b>Group Y</b>	0	1	1	0	1	0	1	2
<b>Non-groupable</b>	4	1	3	0	1	0	1	1
<b>No organism</b>	28	30	14	10	3	7	9	12
<b>Total</b>	<b>174</b>	<b>175</b>	<b>114</b>	<b>82</b>	<b>73</b>	<b>66</b>	<b>72</b>	<b>72</b>

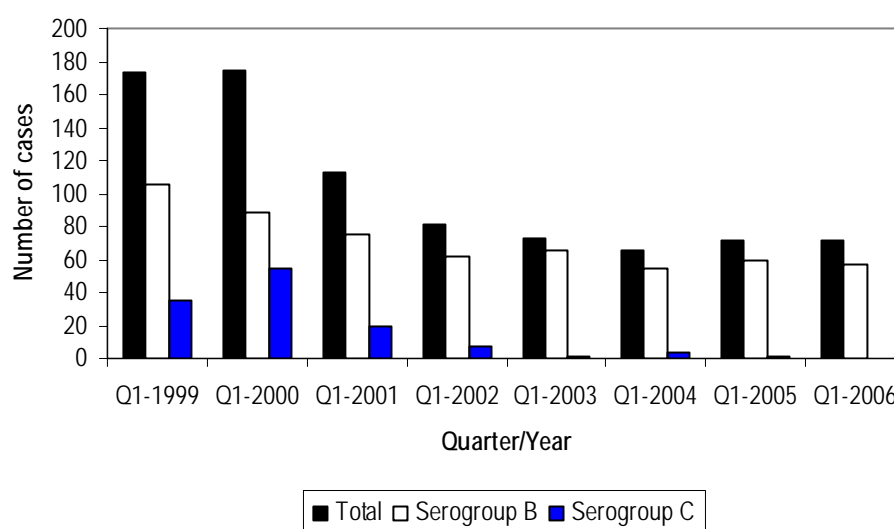
Of the 72 meningococcal disease notifications in Q1-2006, the breakdown by case classification was as follows: 58 definite cases, two presumed cases, 11 possible cases and one case classification not specified (Table 2). The numbers of meningococcal disease notifications in Q1-2006 by serogroup and case classification are presented in Table 2.

**Table 2.** Classification of Meningococcal Disease Notifications, Q1-2006

Serogroup	Definite	Presumed	Possible	Not Specified	Total
Group B	55	2	0	0	57
Group C	0	0	0	0	0
Group W135	0	0	0	0	0
Group Y	2	0	0	0	2
Non-groupable	1	0	0	0	1
No organism	0	0	11	1	12
<b>Total</b>	<b>58</b>	<b>2</b>	<b>11</b>	<b>1</b>	<b>72</b>

In October 2000 the Department of Health and Children introduced a National Immunisation Programme against serogroup C meningococcal disease. The decline in the number of meningococcal serogroup C notifications is evident from Figure 1 in each of the first quarters between 1999 and 2006. No notifications of meningococcal serogroup C were reported in Q1-2006. During these same quarters the overall numbers of meningococcal notifications reported also fell sharply from a peak of 175 cases in Q1-2000 to 72 cases in Q1-2006 (Figure 1).

**Fig. 1.** Number of serogroup B and C meningococcal disease cases notified in Ireland in the first quarter of each year between 1999-2006 (excluding three imported cases)



### ***Incidence rates of Meningococcal disease***

A breakdown by HSE area per 100,000 population for serogroups B and C meningococcal diseases, for the first quarters of each year between 1999 and 2006 are presented in Tables 3 and 4 respectively. Incidence rates were calculated using census 1996 denominators for 1999 data and census 2002 denominators for 2000 to 2006 data.

There were three imported cases of invasive meningococcal disease (IMD) reported in the first quarters of each year between 1999 and 2006: two serogroup B and one serogroup C. Of the three imported cases reported, one was in HSE-NE in 2002; one in the HSE-W in 2004 and another (a serogroup C case) was reported in the HSE-NW in 2001.

Excluding the three imported cases, the highest first quarterly incidence rate for total meningococcal disease since 1999 occurred in Q1-2000 and the lowest was in Q1-2004.

For serogroup B meningococcal disease, the incidence rate for Q1-2006 ranged from 2.0/100,000 in HSE-ER to 0.5/100,000 in HSE-W (Table 3). In contrast, the range across HSE Areas in Q1-1999 ranged from a maximum of 4.2/100,000 in HSE-ER to a minimum of 0.9/100,000 in HSE-W. The introduction of a National Immunisation Programme against serogroup C meningococcal disease in October 2000 has substantially reduced the rate from 0.5/100,000 in Q1-2001 to nil in Q1-2006 (Table 4).

**Table 3.** Rates per 100,000 of meningococcal disease serogroup B by HSE Area in the first quarter of each year between 1999-2006 (excluding two imported cases)

Qr/Yr	HSE-ER	HSE-M	HSE-MW	HSE-NE	HSE-NW	HSE-SE	HSE-S	HSE-W	Total
<b>Q1-1999</b>	4.24	3.89	1.58	2.61	1.90	2.55	2.38	0.85	2.92
<b>Q1-2000</b>	2.71	3.11	0.88	3.48	2.26	2.36	1.21	1.84	2.27
<b>Q1-2001</b>	2.14	3.11	2.06	1.74	0.90	1.89	1.38	1.84	1.91
<b>Q1-2002</b>	1.43	1.77	1.18	2.32	0.90	1.18	2.24	1.58	1.58
<b>Q1-2003</b>	1.50	3.99	1.77	1.45	0.45	2.12	2.07	0.53	1.66
<b>Q1-2004</b>	1.36	1.77	0.88	1.74	2.26	0.94	1.21	1.58	1.38
<b>Q1-2005</b>	1.50	1.77	1.77	1.74	1.35	1.18	1.55	1.31	1.51
<b>Q1-2006</b>	2.00	1.33	1.18	1.16	1.35	1.18	1.38	0.53	1.46

**Table 4.** Rates per 100,000 of meningococcal disease serogroup C by HSE Area in the first quarter of each year between 1999-2006 (excluding one imported case)

Qr/Yr	HSE-ER	HSE-M	HSE-MW	HSE-NE	HSE-NW	HSE-SE	HSE-S	HSE-W	Total
<b>Q1-1999</b>	0.77	1.46	1.58	0.98	0.95	1.28	0.91	0.57	0.97
<b>Q1-2000</b>	1.28	1.33	0.88	1.45	1.35	2.60	1.72	0.26	1.38
<b>Q1-2001</b>	0.29	0.44	0.29	0.58	0.45	0.94	1.03	0.26	0.51
<b>Q1-2002</b>	0.29	0.89	0.00	0.29	0.00	0.00	0.00	0.00	0.18
<b>Q1-2003</b>	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
<b>Q1-2004</b>	0.00	0.00	0.00	0.87	0.00	0.00	0.17	0.00	0.10
<b>Q1-2005</b>	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
<b>Q1-2006</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

In Q1-2006, the number of meningococcal cases reported by age was highest among children under 5 years (n=44), followed by the 5-14 and 15-24 age groups with 11 cases each and 6 other cases were reported in the over 25 year old group.

The highest first quarterly age specific incidence rates for serogroup B meningococcal disease in Q1-2006, was in the <1 age group (22.0/100,000) but this was substantially less than that which was recorded for the same age group in Q1-2000 when the rate peaked at 44.0/100,000 (Table 5). For the 1-4 age group the age specific incidence rate was 10.3/100,000 in Q1-2006, down from 13.0/100,000 in Q1-2005, but still greater than that which was recorded in each of the first quarters in 2002, 2003 and 2004 (Table 5). Similarly, for the 5-9 age group, the Q1-2006 age specific incidence rate was 3.0/100,000, the highest rate recorded since 2001 (Table 5).

For serogroup C meningococcal disease the highest first quarterly age specific incidence rate recorded between 1999 and 2006 was in the 1-4 year old age group (8.1/100,000) in Q1-2000 (Table 5). No cases occurred in this age group in Q1-2006.

**Table 5.** Age specific incidence rates per 100,000 of meningococcal disease serogroups B and C in the first quarter of each year between 1999-2006 (excluding three imported cases)

	AgeGrp (yrs)	Q1-1999	Q1-2000	Q1-2001	Q1-2002	Q1-2003	Q1-2004	Q1-2005	Q1-2006
Serogroup B	<1	42.99	44.04	27.52	34.86	23.85	23.85	31.19	22.02
	1-4	18.85	13.00	14.34	8.96	9.41	8.07	13.00	10.31
	5-9	4.95	2.27	3.03	1.89	2.27	2.65	1.51	3.03
	10-14	3.68	2.80	2.10	1.40	2.80	1.40	0.35	0.70
	15-19	3.53	3.51	2.87	1.92	1.92	1.28	0.96	2.24
	20-24	1.36	1.22	0.61	0.61	0.00	1.22	0.61	0.30
	25+	0.23	0.29	0.12	0.25	0.45	0.16	0.12	0.16
Serogroup C	<1	6.14	3.67	0.00	0.00	0.00	0.00	0.00	0.00
	1-4	6.95	8.07	3.14	1.34	0.00	0.00	0.00	0.00
	5-9	1.77	2.27	0.38	0.00	0.00	0.00	0.00	0.00
	10-14	0.92	2.45	1.40	0.35	0.00	0.00	0.00	0.00
	15-19	1.18	3.51	1.28	0.32	0.32	0.32	0.00	0.00
	20-24	1.02	1.52	0.00	0.30	0.00	0.30	0.30	0.00
	25+	0.14	0.20	0.16	0.04	0.00	0.08	0.00	0.00

### ***Meningococcal disease deaths***

Two meningococcal disease deaths were notified in Q1-2006. Both were due to serogroup B and both were classified as definite meningococcal disease cases. These deaths occurred in children under five years of age. Overall, the case fatality ratio due to meningococcal disease was 2.8% (2 deaths / 18 cases) (Table 6). The lowest

Q1 case fatality ratio occurred in 2002 with a value of 1.2% (1 death / 82 cases) (Table 6). In Q1-2006 the case fatality ratio was highest in the <1 year old group, at 5.6% (1 death / 18 cases) (Table 6). Over the same period in 2005, a case fatality ratio of 5.6% was reported (4 deaths / 72 cases) (Table 6). These four deaths were all due to serogroup B.

**Table 6.** Number of deaths from meningococcal disease by age group (years) in the first quarter of each year between 1999-2006

Qr/Yr	<1	1-4	10-14	15-19	20-24	25+	Total Deaths	Total Cases	Case Fatality
Q1-1999	1	2	0	0	2	2	7	174	4.0%
Q1-2000	3	3	0	2	2	0	10	175	5.7%
Q1-2001	2	0	1	1	0	0	4	114	3.5%
Q1-2002	1	0	0	0	0	0	1	82	1.2%
Q1-2003	1	0	1	1	0	0	3	73	4.1%
Q1-2004	0	4	0	0	0	1	5	66	7.6%
Q1-2005	2	1	0	0	1	0	4	72	5.6%
Q1-2006	1	1	0	0	0	0	2	72	2.8%
<b>Total</b>	<b>11</b>	<b>11</b>	<b>2</b>	<b>4</b>	<b>5</b>	<b>3</b>	<b>36</b>	<b>828</b>	<b>4.3%</b>

#### **Update on other forms of Bacterial Meningitis Q1, 2006**

Since the introduction of the Infectious Disease (Amendment) (No. 3) Regulations (S.I. No. 707 of 2003) in January 2004, forms of bacterial meningitis, including meningococcal disease, that would have previously been notified as Bacterial Meningitis (including meningococcal septicaemia) are now notifiable under the specific disease/causative pathogen such as meningococcal disease, *Haemophilus influenzae* (invasive), *Streptococcus pneumoniae* infection (invasive), listeriosis etc. Forms of bacterial meningitis due to a pathogen not listed as a notifiable infectious disease, or where the pathogen is unknown, are now notified as Bacterial meningitis (not otherwise specified).

This section of the report focuses on bacterial meningitis cases notified in Q1-2006 other than meningococcal disease.

#### ***Haemophilus influenzae* disease (invasive)**

In the first three months of 2006, a total of 14 cases of invasive *Haemophilus influenzae* were reported in Ireland, two of which were associated with meningitis. The latter both occurred in HSE-S and were type b. The two meningitis cases reported occurred in children less than five months of age, both had received one of three doses as of the HiB vaccine and therefore incompletely immunised. In Q1-2005 there were, in contrast, four cases of invasive *Haemophilus influenzae* causing meningitis, only one of which had not been vaccinated, whereas three had been fully vaccinated. For further information details on invasive *H. Influenzae* notifications in Q1-2006 please refer to the report <http://www.hpsc.ie/A-Z/VaccinePreventable/Haemophilusinfluenzae/Publications>

#### ***Streptococcus pneumoniae* infection (invasive)**

In the first quarter of 2006, eight cases of invasive *Streptococcus pneumoniae* infection causing meningitis were notified. Two of these cases occurred in HSE-S, one each in the HSE-M and HSE-MW and the remaining four in the HSE-ER. Apart from two other cases (with septicaemia only) reported through the enhanced meningitis surveillance system, the clinical diagnoses on the remaining 101 invasive pneumococcal cases are not available. One of the eight meningitis cases died, this was in a middle aged adult. The remaining seven cases were five adults, and two children <1 year of age. Over the same time period in 2005, ten cases of pneumococcal meningitis were notified and there were two related deaths. The pneumococcal vaccination status for two cases in Q1-2006 was reported as 'unvaccinated'.

#### **Tuberculosis meningitis**

There was one case of TB meningitis reported in Q1 2006 from HSE-W. This case was in the 15-24 year age group and was culture positive. BCG status was not reported.

#### **Bacterial meningitis (not otherwise specified)**

In the three months of 2006 13 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. These cases consisted of two streptococcus group B meningitis cases (one newborn infant and one 40-year old adult), one *Escherichia coli* meningitis case in a seven-month old baby, one *Klebsiella pneumoniae* case in a one-month old baby and nine bacterial meningitis cases of unknown aetiology (age range from 4 months to 86 years), one of which died.

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