

# 1.3 Meningococcal Disease

## Summary

Number of cases, 2009: 147  
 Number of cases, 2008: 168  
 Number of cases, 2007: 179  
 Crude incidence rate, 2009: 3.5/100,000

In 2009, 147 cases (3.5/100,000) cases of invasive meningococcal disease (IMD) were notified in Ireland. This continues the downward trend from the previous two years when 168 cases (4.0/100,000) and 179 cases (4.2/100,000), were reported in 2008 and 2007, respectively (figure 1). When compared with rates reported in 1999 and 2000, incidence rates have substantially declined in recent years (figure 1).

Based on the meningococcal disease case definition, 130 of the 147 cases (88.4%) notified in 2009 were case classified as definite, four (2.7%) as presumed and 13 (8.8%) as possible. The vast majority of the cases (90.4%; n=133/147) were laboratory confirmed by means of blood or CSF culture or PCR testing, blood serology, detection of gram negative diplococci in skin lesions and skin culture or in CSF specimens, and by screening of nasal, throat and eye swabs. Most cases were confirmed by PCR alone (52.6%, 70/133). Confirmation of the remaining 63 cases was by blood or CSF culture only (n=11; 17.5%), by blood or CSF PCR and/or culture (n=60; 95.5%). Two were confirmed by detection of Gram negative diplococci in skin lesion microscopy exclusively. None were confirmed by serology exclusively.

Table 1. Number of cases, deaths, age-group specific incidence rates per 1000,000 population and case fatality ratios of IMD in Ireland, 2009

Age Group	No. Cases	ASIR	No. Deaths	CFR (%)
<1	41	67.1	0	0.0%
1-4	40	16.6	2	5.0%
5-9	11	3.8	1	9.1%
10-14	6	2.2	0	0.0%
15-19	21	7.2	2	9.5%
20-24	9	2.6	0	0.0%
25+	19	0.7	1	5.3%
All ages	147	3.5	6	4.1%

ASIR, age specific incidence rate per 100,000 population  
 CFR, case fatality ratio

In 2009, male cases (n=82) exceeded female cases (n=64), resulting in a male to female ratio of 1.31:1.0. Cases ranged in age from one month to 89 years (median age of three years). The incidence of IMD was highest in infants and young children. Age specific incidence rate (ASIR) was highest among infants <1 year of age (67.1/100,000), followed by children in the 1-4 year age group (16.6/100,000), and the 15-19 year age group (7.2/100,000) (table 1).

In 2009 the overall incidence of IMD in Ireland was highest in the HSE-MW area (4.4/100,000) with the lowest in the HSE-W area (2.7/100,000) (table 2).

*Neisseria meningitidis* serogroup B was the pathogen most commonly associated with IMD in 2009 and accounted for 119 (81%) of the 147 notifications (figure 1). Since 2003 serogroup B has accounted for 80% or more of annual IMD notifications (figure 1).

IMD due to serogroup C has remained at very low levels over the last seven years with no more than five cases occurring annually. In 2009, five (0.11/100,000) serogroup C cases arose (figure 1). All five cases occurred in individuals aged 20 years or less (age range

8 months-20 years), three of whom were completely vaccinated and all recovered. One MenC vaccine failure also occurred in 2008, 2007, 2006 and again in 2005, while no failures arising in either 2004 or 2003.

The recent increase in the number of MenC vaccine failures is a reminder of the need for vigilance and monitoring of IMD due to serogroup C following the introduction of the MenC conjugate vaccine back in October 2000 (figure 1). Prior to the introduction of this vaccine, the serogroup C incidence rate in 1999 was 3.7 per 100,000 total population. The National Immunisation Advisory Committee (NIAC) has recently recommended a booster dose of the MenC vaccine for close contacts of cases who have completed a course more than one year before, details of which are available at <http://www.ndsc.ie/hpsc/A-Z/VaccinePreventable/Vaccination/Guidance/>

There were six IMD related notified deaths in 2009 (case fatality ratio of 4.1%) compared to an average of 5.5 deaths between 2005 and 2008. In 2009, the case fatality ratio (CFR) was highest amongst cases 15-19 years of age (9.5%) as a result of two deaths among 21 cases (table 1). The next highest CFR occurred in children aged 5-9 years (9.1%) and adults aged 25 years or more (5.3%) (table 1).

All six of the IMD deaths in 2009 were due to serogroup B disease (age range two years to 71 years). This is in marked contrast to the 25 deaths reported in 2000 due to serogroup B. In the same year, 11 deaths were due to serogroup C disease (out of a total of 139 cases). In 2001, three deaths from serogroup C disease were reported, one in a child <15 years of age and two in adults aged between 20 and 64 years. One death from serogroup C disease occurred in 2003, 2004 and again in 2008, all in adults over 45 year of age. Since 2001 however, the decline in the annual number of serogroup C deaths has been quite significant, especially in those aged under 25 years of age, with no deaths in this age group being reported during this period of time (table 3).

Despite a reduction in the overall incidence in recent years, IMD continues to be treated as a serious public health concern due to its associated severity, high mortality rate and serious adverse sequelae.

Effective vaccination is necessary for the complete prevention and control of IMD. Although effective vaccines are available against serogroups A, C, W135 and Y forms of the disease, a suitable vaccine against serogroup B disease, the most common form of IMD in Ireland, is not yet available. Until such time that an effective meningococcal serogroup B vaccine, suitable

Table 2. Number of cases and age specific incidence rates per 100,000 population of IMD by HSE area, 2009

HSE area	<1	1-4	5-9	10-14	15-19	20-24	25+	Total
E	74.8	16.9	5.3	1.1	4.0	3.6	0.4	3.3
M	105.7	6.3	0.0	5.6	5.7	5.5	0.0	3.2
MW	117.6	19.9	4.0	0.0	3.9	0.0	1.7	4.4
NE	62.9	31.6	6.7	3.7	0.0	3.6	0.4	4.3
NW	29.7	21.9	5.8	0.0	5.8	0.0	1.3	3.4
SE	59.3	18.5	0.0	0.0	12.4	0.0	0.7	3.3
S	69.9	8.9	4.8	5.0	11.9	2.1	1.0	3.7
W	0.0	8.8	0.0	3.7	17.0	3.1	0.7	2.7
Ireland	67.1	16.6	3.8	2.2	7.2	2.6	0.7	3.5

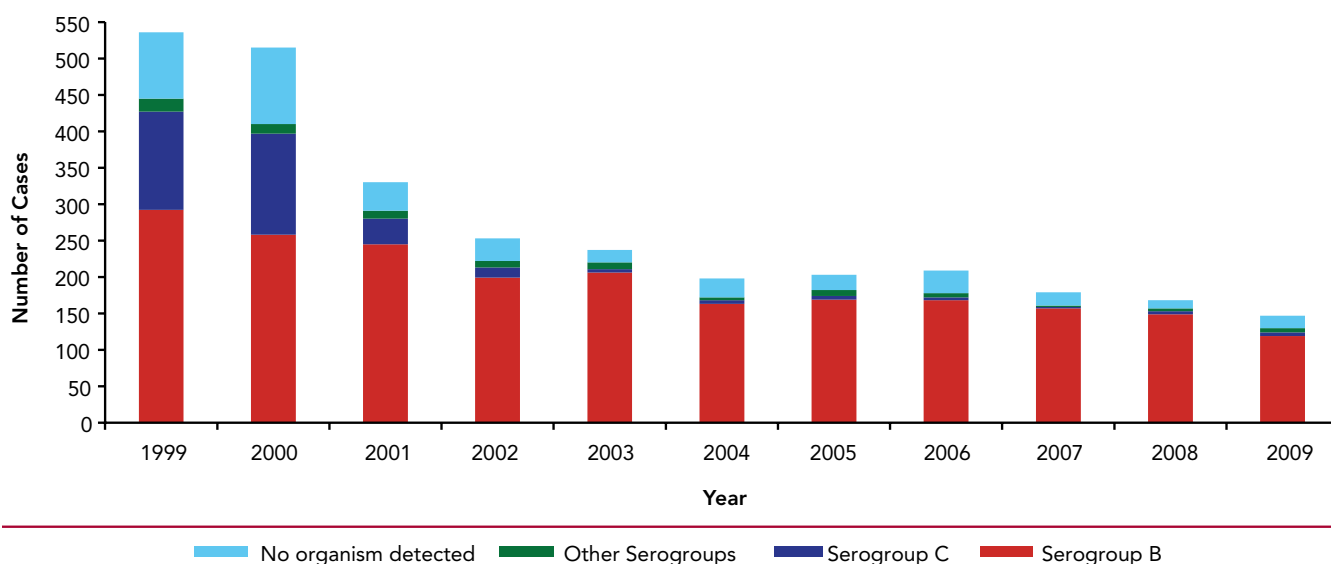


Figure 1. Number of invasive meningococcal disease (IMD) notifications in Ireland by serogroup, 1999-2009

for use in infants, is on the market, IMD will remain a significant cause of morbidity and mortality in children and young adults in Ireland.

The figures presented in this summary are based on data extracted from the Computerised Infectious Disease Reporting (CIDR) system on 7<sup>th</sup> July 2010. These figures may differ from those published previously due to ongoing updating of notification data on CIDR.

Table 3. Number of cases, deaths and case fatality ratios by year of meningococcal serogroups B and C disease in Ireland, 1999-2009

Year	Meningococcal B			Meningococcal C		
	No. Cases	No. Deaths	CFR%	No. Cases	No. Deaths	CFR%
1999	292	12	4.1%	135	5	3.7%
2000	258	13	5.0%	139	11	7.9%
2001	245	8	3.3%	35	3	8.6%
2002	199	8	4.0%	14	0	0.0%
2003	206	11	5.3%	5	1	20.0%
2004	163	7	4.3%	5	1	20.0%
2005	169	5	3.0%	5	0	0.0%
2006	168	5	3.0%	4	0	0.0%
2007	157	6	3.8%	2	0	0.0%
2008	149	6	4.0%	4	1	25.0%
2009	119	6	5.0%	5	0	0.0%