

1.3 Meningococcal Disease

Summary

Number of cases, 2010: 114
 Number of cases, 2009: 147
 Number of cases, 2008: 168
 Crude incidence rate, 2010: 2.7/100,000

In 2010, 114 cases (2.7/100,000) cases of invasive meningococcal disease (IMD) were notified in Ireland. This continues the downward trend from the previous two years when 147 cases (3.5/100,000) and 168 cases (4.0/100,000), were reported in 2009 and 2008, 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 current meningococcal disease case definition, 98 of the 114 cases (86.0%) notified in 2010 were case classified as definite, none (0.0%) as presumed and 16 (14.0%) as possible. The vast majority of the cases (86.0%; n=98/114) were laboratory confirmed by means of blood/CSF culture testing, PCR testing, blood serology, detection of gram negative diplococci in skin lesions/culture or in CSF specimens, and by screening of nasal, throat and eye swabs. Over half of all definite cases were confirmed by PCR alone (57.1%, n=56/98). Confirmation of the remaining 42 definite cases was by blood or CSF culture only (7.1%;

n=7/98); by blood or CSF PCR and/or culture (42.8%; n=42/98). None were confirmed by detection of Gram negative diplococci in skin lesion microscopy exclusively or by serology exclusively.

In 2010, male cases (n=68) exceeded female cases (n=46), resulting in a male to female ratio of 1.47:1.0. Cases ranged in age from two months to 82 years (median age of 2.2 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 (49.1/100,000), followed by children in the 1-4 year age group (18.2/100,000), and the 15-19 year age group (4.1/100,000) (table 1).

In 2010 the overall incidence of IMD in Ireland was highest in the HSE-NW area (4.6/100,000) with the lowest in the HSE-W area (1.0/100,000) (table 2). There were no imported cases in 2010.

Neisseria meningitidis serogroup B was the pathogen most commonly associated with IMD in 2010 and accounted for 93 (81.6%) of the 114 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 eight years with no more than five cases occurring annually. In 2010, four (0.09/100,000)

Table 1. Number of cases, deaths, age-group specific incidence rates per 1000,000 population and case fatality ratios of IMD in Ireland, 2010

Age Group	No. Cases	ASIR	No. Deaths	CFR (%)
<1	30	49.1	2	6.7%
1-4	44	18.2	1	2.3%
5-9	8	2.8	1	12.5%
10-14	4	1.5	0	0.0%
15-19	12	4.1	0	0.0%
20-24	1	0.3	0	0.0%
25+	15	0.5	1	6.7%
All ages	114	2.7	5	4.4%

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

serogroup C cases occurred, none of whom were reported to have died (figure 1). Two of these four cases were aged 5-9 years, one was aged 15-19 years and the remaining case was aged 65 years or more. Three of these cases were unvaccinated, but the fourth, aged 5-9 years, who had been in Poland where the Men C vaccine is not on national vaccination schedule, only ever received one dose. In contrast, three MenC vaccine failures occurred in 2009 whilst there was one each in 2008, 2007, 2006 and 2005, with no failures arising in either 2004 or 2003.

The presence of small numbers of MenC vaccine failures in recent years 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. 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 recommended a booster dose of the MenC vaccine for close contacts of cases that 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 five IMD related notified deaths in 2010 (case fatality ratio (CFR) of 4.4%) compared to an average of 6.4 deaths between 2005 and 2009. In 2010, the CFR was highest amongst cases 5-9 years of age (12.5%) as a result of one death among eight cases (table 1). The next highest CFR occurred in children aged <1 year and adults aged 25 years or more (6.7% in each age group) (table 1).

Four of the five IMD deaths in 2010 were due to serogroup B disease (age range two months to 82 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 less than 25 years of age, with no deaths being reported during this period of time (table 3).

Table 2. Number of cases and age specific incidence rates per 100,000 population of IMD by HSE area, 2010

HSE area	<1	1-4	5-9	10-14	15-19	20-24	25+	Total
E	51.4	19.4	3.2	0.0	7.1	0.0	0.5	2.8
M	52.8	6.3	5.3	0.0	0.0	0.0	0.0	1.6
MW	19.6	19.9	4.0	4.2	3.9	3.5	0.4	2.8
NE	62.9	15.8	0.0	3.7	0.0	0.0	0.4	2.5
NW	59.4	51.2	0.0	5.9	5.8	0.0	0.0	4.6
SE	74.1	29.6	6.1	0.0	0.0	0.0	1.0	3.9
S	46.6	8.9	2.4	2.5	4.7	0.0	1.0	2.4
W	17.4	4.4	0.0	0.0	3.4	0.0	0.4	1.0
Ireland	49.1	18.2	2.8	1.5	4.1	0.3	0.5	2.7

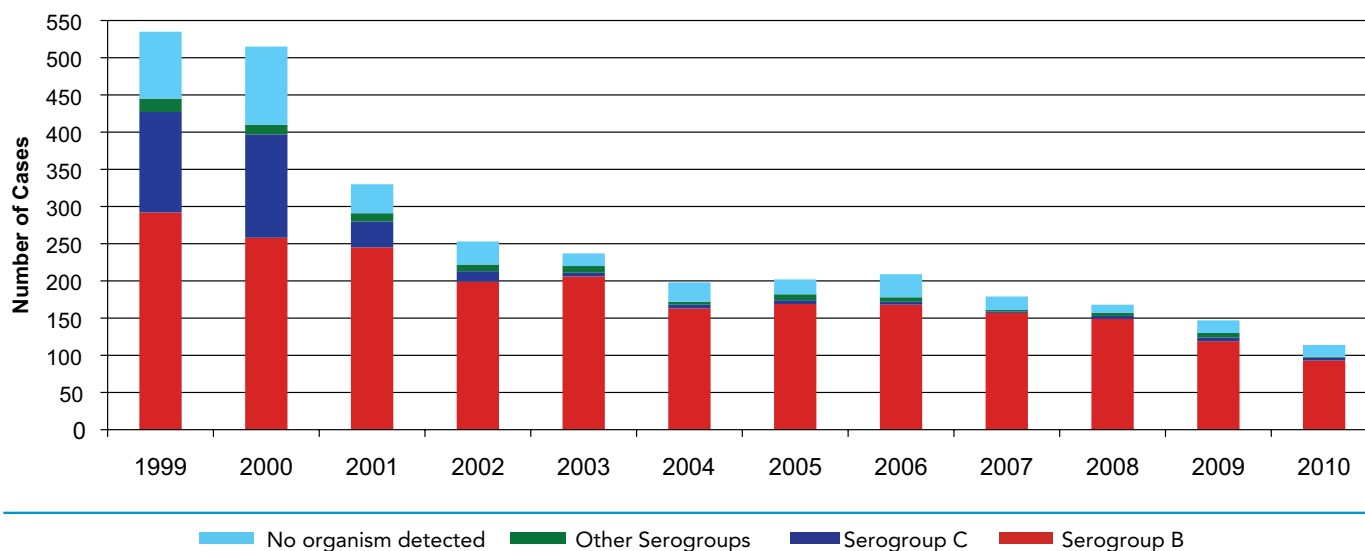


Figure 1. Number of invasive meningococcal disease (IMD) notifications in Ireland by serogroup, 1999-2010

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 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 4th August 2011. 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, 1999-2010

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%
2010	93	4	4.3%	4	0	0.0%