

# 1.3 Meningococcal Disease

## Summary

Number of cases, 2011: 94  
 Number of cases, 2010: 114  
 Number of cases, 2009: 147  
 Crude incidence rate, 2011: 2.0/100,000

In 2011, 94 cases (2.0/100,000) cases of invasive meningococcal disease (IMD) were notified in Ireland. This continues a downward trend observed over the past decade since 1999, when the rate was 14.8/100,000 population, a decline of more than 86%.

Based on the current meningococcal disease case definition, 88 of the 94 cases (93.6%) notified in 2011 were case classified as definite, one (1.1%) as presumed and five (5.3%) as possible. Laboratory confirmation of cases has improved with time. In 2011 93.6% (n=88/94) of cases were laboratory confirmed in comparison to 78.7% (n=422/536) in 1999.

Typically, most cases are laboratory confirmed (93.6%; n=88/94) 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. In 2011, fifty-nine percent of all confirmed cases (n=52/88) were laboratory tested by PCR testing alone of specimens from sterile sites. Confirmation of the remaining 36 cases was by culture of sterile specimens only (10.2%; n=9/88); culture and PCR testing of sterile specimens (27.3%; n=24/88); by CSF microscopy,

but not exclusively (1.1%; n=1/88); and by culture of specimens from non-sterile sites such as the eye, nose and throat, but not exclusively (4.5%; n=4/88). None were laboratory confirmed by detection of Gram negative diplococci in skin lesion microscopy or by serology exclusively.

In 2011, male cases (n=57) exceeded female cases (n=37), resulting in a male to female ratio of 1.54:1.0.

Cases ranged in age from one month to 83 years (median age of 2.1 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 (41.4/100,000; n=30), followed by children in the 1-4 year (9.5/100,000; n=27), and 5-9 year age groups (2.8/100,000; n=9) (table 1).

In 2011 the overall incidence of IMD in Ireland was highest in the HSE-NW area (3.1/100,000) with the lowest in the HSE-W area (1.3/100,000) (table 2). There were no imported cases in 2011.

*Neisseria meningitidis* serogroup B was the pathogen most commonly associated with IMD in 2011 and accounted for 84 (89.4%) of the 94 notifications (figure 1). Since 2003 serogroup B has accounted for more than 80% of annual IMD notifications (figure 1).

IMD due to serogroup C has remained at very low levels over the last nine years with no more than five cases occurring annually. In 2011, only two (0.04/100,000) serogroup C cases were notified, neither of which were

Table 1. Number of cases, deaths, age-group specific incidence rates per 1000,000 population and case fatality ratios of IMD in Ireland, 2011

Age Group	No. Cases	ASIR	No. Deaths	%CFR
<1	30	41.4	0	0.0%
1-4	27	9.5	1	3.7%
5-9	9	2.8	0	0.0%
10-14	4	1.3	0	0.0%
15-19	7	2.5	0	0.0%
20-24	4	1.3	0	0.0%
25+	13	0.4	1	7.7%
All ages	94	2.0	2	2.1%

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

reported to be fatal (figure 1). These two cases occurred in patients aged between 50 and 64 years, one of whom was unvaccinated and had chronic meningococcaemia (a rare, low grade bloodstream infection), the vaccination status of the other was unknown. As in 2011 there were no true vaccine failures in 2010, 2004 and 2003, but there were three failures in 2009 and one each in 2008, 2007, 2006 and 2005.

The absence of MenC vaccine failures in the past two years is a measure of the positive impact with which the MenC conjugate vaccine continues to have since first introduced 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 two IMD related notified deaths in 2011 (case fatality ratio (%CFR) of 2.1%), the fewest number on record compared to an average of 6.2 deaths

between 2005 and 2010. In 2011, the %CFR was highest amongst cases 25+ years of age (7.7%) as a result of one death among 13 cases (table 1). The next highest %CFR at 3.7% in children aged 1-4 years (table 1).

Both IMD deaths in 2011 were due to serogroup B disease (age range 18 months to 40 years). This is in marked contrast to the 13 deaths due to serogroup B out of all 25 deaths reported in 2000. In the same year, 11 deaths were due to serogroup C disease. The decline in deaths associated with meningococcal disease since 2000 has been significant, due in part to the decline in MenC as a result of the vaccination programme and also in part due to decline in meningococcal B disease (table 3).

Despite a marked decline in the overall incidence over the past decade, IMD is still an important 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

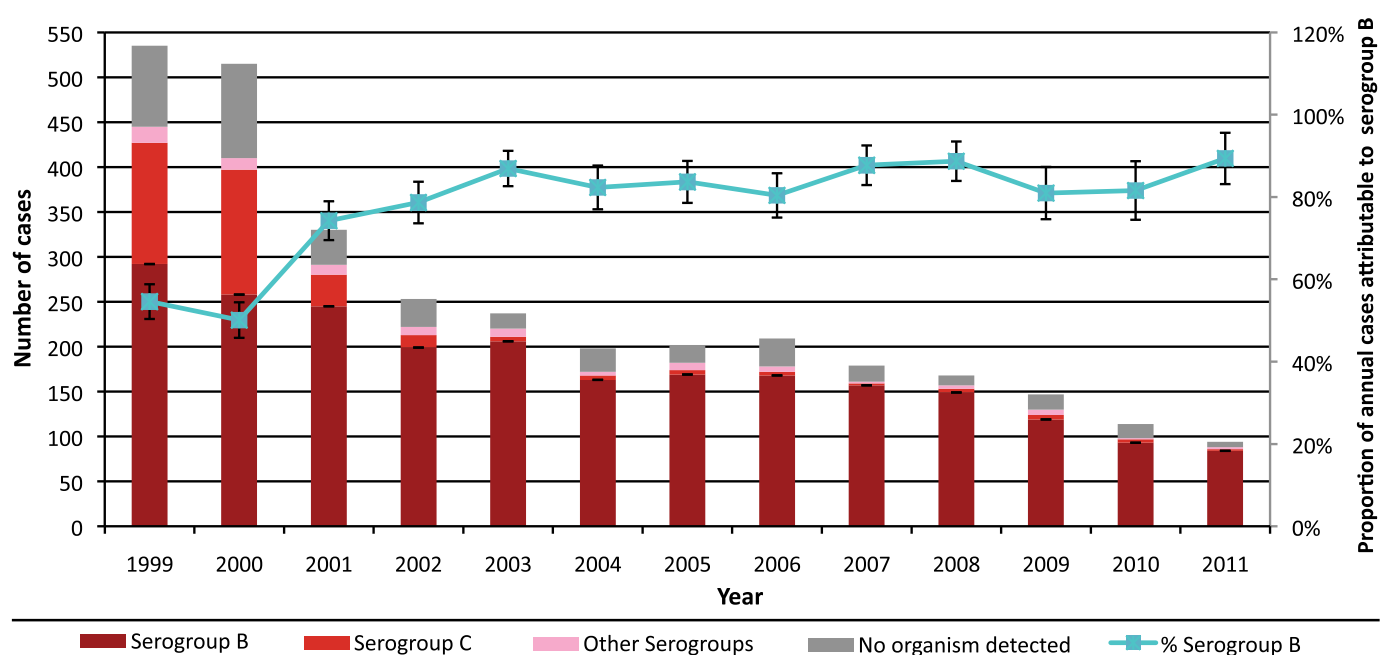


Figure 1. Number of invasive meningococcal disease (IMD) notifications in Ireland by serogroup and proportion of cases attributable to serogroup B with 95% confidence intervals, 1999-2011

Table 2. Age specific incidence rates per 100,000 population of IMD by HSE area and age group, 2011

HSE area	<1	1-4	5-9	10-14	15-19	20-24	25+	Total
E	46.2	4.1	1.9	2.0	3.1	2.5	0.6	2.0
M	20.7	15.7	13.6	0.0	0.0	0.0	0.6	2.6
MW	87.7	8.8	3.8	0.0	4.1	0.0	0.4	2.7
NE	52.0	16.0	0.0	0.0	0.0	0.0	0.0	1.8
NW	51.4	25.2	5.3	0.0	0.0	0.0	0.6	3.1
SE	39.2	9.7	2.8	0.0	6.4	0.0	0.3	1.7
S	10.0	10.0	2.2	2.3	2.5	2.4	0.5	2.0
W	30.2	7.6	0.0	3.4	0.0	0.0	0.3	1.4
Ireland	41.4	9.5	2.8	1.3	2.5	1.3	0.4	2.0

serogroup B disease, the most common form of IMD in Ireland, is not yet available although developmental work is ongoing.

The figures presented in this summary are based on data extracted from the Computerised Infectious Disease Reporting (CIDR) system on 29<sup>th</sup> August, 2012. 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 (%CFR) by year of meningococcal serogroups B and C disease in Ireland, 1999-2011

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%
2011	84	2	2.4%	2	0	0.0%

% CFR, case fatality ratio

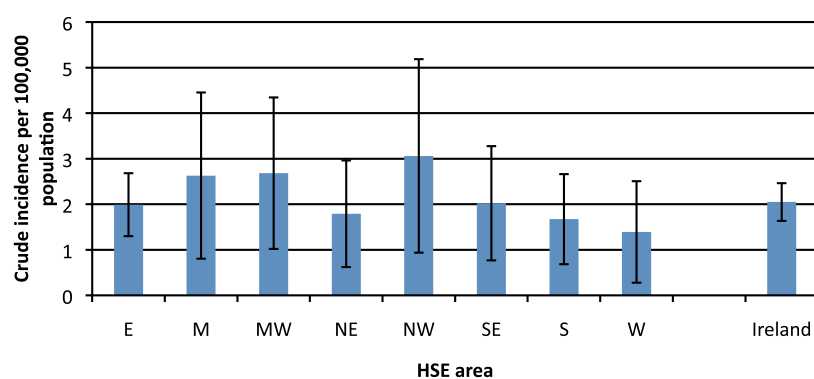


Figure 2. Crude incidence rates per 100,000 population with 95% confidence intervals for IMD notifications by HSE area, 2011