



Infection report

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Invasive meningococcal disease (laboratory reports in England): 2015/2016 annual data by epidemiological year

This report presents data on laboratory-confirmed invasive meningococcal disease (IMD) for the last complete epidemiological year, 2015/2016 [1]. Epidemiological years run from week 27 in one year (beginning of July) to week 26 the following year (end of June). When most cases of a disease arise in the winter months, as for IMD, epidemiological year is the most consistent way to present the data as the peak incidence may be reached before or after the year end. Using epidemiological year avoids the situations where a calendar year does not include the seasonal peak or where two seasonal peaks are captured in a single calendar year.

In England, the national Public Health England (PHE) Meningococcal Reference Unit (MRU) confirmed 805 cases of IMD during 2015/2016 – an 11% increase from the 724 cases reported in 2014/2015 (table 1). In England, there has been an overall decline in confirmed IMD cases from 2,595 cases in 1999/2000. A large decline in incidence occurred in England following the introduction of immunisation against group C (MenC) disease in 1999 which reduced MenC cases by approximately 96% (to around 30-40 cases each year). The overall incidence of total IMD has continued to decrease over the past decade from two per 100,000 in 2006/2007 to one per 100,000 since 2011/2012 [2]; this latter decline was mainly due to secular changes in MenB cases (figure 1).

Compared to 2014/2015, overall IMD incidence in 2015/2016 has remained stable at one per 100,000. However, small increases have been seen in toddlers (1-4 year-olds) and adolescents (15-24 year-olds) while the number of cases in infants (aged <1 year) has decreased (figure 2). In 2015/2016, the highest incidence was in infants, who accounted for 14% of all IMD cases with an incidence of 17 per 100,000, followed by toddlers (22%; 6/100,000) and adolescents (15%; 2/100,000). A third (33%; 269/805) of all cases in 2015/2016 were reported between January and March 2016 (Q1).

The distribution of capsular groups causing IMD by age group is summarised in Table 2, with MenB accounting for 55% (444/805) of all cases, followed by MenW (n=210, 26%), MenY (n=101, 13%) and MenC (n=42, 5%). This compares with 58% (418/724), 24% (176/724), 13% (93/724) and 4% (29/724), respectively in 2014/15. The increase in 2015/16 has been observed across all capsular groups. The number of MenC cases reported in 2015/2016 was 45% (n=42) higher than the previous epidemiological year (n=29) and the highest in over a decade (61 cases in 2003/2004). The increase in MenW cases continued into 2015/2016 increasing by 19% from 176 in 2014/2015 to 210 cases (prior to 2014/2015 the highest number of cases reported was 125 in 2000/2001 due to an outbreak linked to pilgrims returning from the Hajj) and MenY cases increased by 9% (from 93 to 101 cases; prior to 2014/2015 the highest was 84 cases reported in 2010/2011). Numbers of both MenW and MenY cases reported in 2015/2016 were the highest since the start of IMD surveillance in England in the late 1990's.

In 2015/2016, MenB was responsible for the majority of IMD cases in infants (72%) and toddlers (81%) but contributed to a lower proportion of cases in older age groups, where other capsular groups were more prevalent. The introduction of a routine national MenB immunisation programme for infants was announced in June 2015 [3] with immunisation of infants starting from 1 September 2015. Preliminary vaccine coverage estimates for those eligible for infant MenB immunisation are 94.3% for one dose and 91.5% for two doses by 52 weeks of age (evaluated to the end of August 2016) [4].

Of the 42 MenC cases in 2015/2016, 69% (29/42) were aged 25 years or older and four cases (10%) were reported in adolescents. Children aged between 5-9 years accounted for 10% (n=4) of cases, with three (7%) cases in children aged between 10 and 14 years and two in infants.

More than half of MenW cases were in adults aged 25 years or older (58%; 121/210), although a substantial proportion were diagnosed in children younger than 5 years (23%, 48/210). Total cases in adolescents accounted for 17% of MenW disease, increasing from 31 in 2014/15 to 35 in 2015/16. Adults aged 25 years and older accounted for most MenY cases (66%; 67/101) followed by the adolescent age group (16%, 16/101).

The previously reported increase in MenW cases [5,6] has continued and led to the introduction of MenACWY conjugate vaccine to the national immunisation programme in England [7,8]. MenACWY vaccine replaced the existing time-limited 'freshers' programme from August 2015 and was directly substituted for MenC vaccine in the routine adolescent schools programme (school year 9 or 10) from Autumn 2015. In addition a GP-based catch-up campaign was implemented in 2015 for school leavers (aged 18 on 31 August 2015) who were prioritised for the first phase of the GP-based catch-up that began in August 2015. Cumulative vaccine coverage was 36.6% when evaluated at the end of July 2016, compared to 35.2% at the end of March 2016 [9]. A second GP-based catch-up campaign started in April 2016, targeting school leavers in 2016. The early vaccine coverage estimates for the second MenACWY catch-up programme (individuals aged 18 on 31 August 2016) and evaluated from April 2016 to the end of August 2016 was 17.4%, compared to 11.1% to the end of July 2016 [10]. It is important that these teenagers continue to be encouraged to be immunised, particularly if they have entered Higher Educations Institutions.

The impact of the MenACWY teenage vaccination programme is being assessed. A first assessment of the infant MenB programme has been reported [11].

The overall provisional IMD case fatality ratio (CFR) in England was 5% (43/805) during 2015/2016 [12].

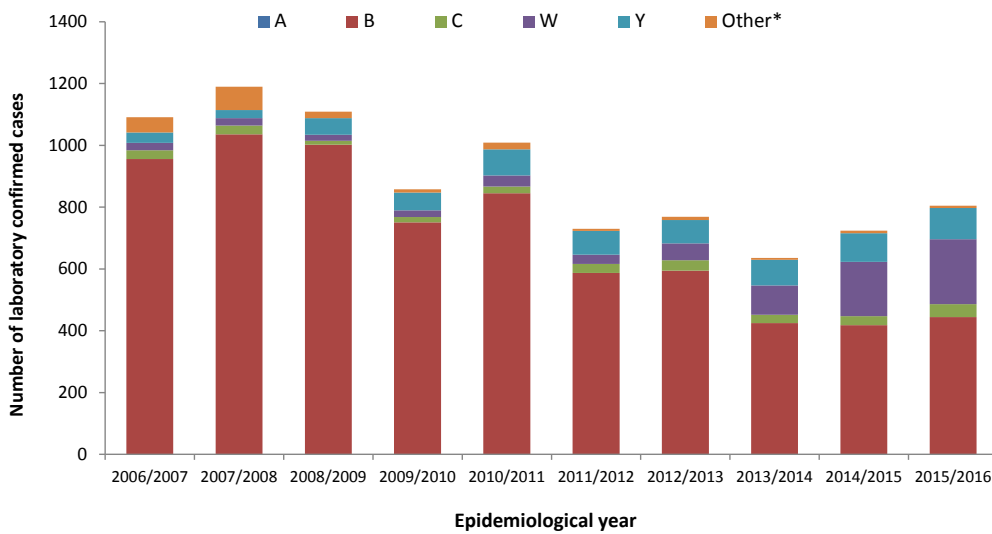
Table 1. Invasive meningococcal disease in England by capsular group and laboratory testing method: 2014/2015 and 2015/2016.

Capsular groups*	CULTURE AND PCR		CULTURE ONLY		PCR ONLY		Annual total	
	2014/2015	2015/2016	2014/2015	2015/2016	2014/2015	2015/2016	2014/2015	2015/2016
B	116	110	113	80	189	254	418	444
C	6	9	12	21	11	12	29	42
W	19	35	125	141	32	34	176	210
Y	11	22	70	65	12	14	93	101
Ungrouped	0	0	0	0	4	6	4	6
Ungroupable**	0	0	4	2	0	0	4	2
Total	152	176	324	309	248	320	724	805

* No cases of A,X or Z/E were reported in the time period shown.

** Ungroupable refers to invasive clinical meningococcal isolates that were non-groupable, while ungrouped cases refers to culture-negative but PCR screen (*ctrA*) positive and negative for the four genogroups [B, C, W and Y] routinely tested for.

Figure 1. Invasive meningococcal disease in England by capsular group: 2006/2007 to 2015/2016



*Other includes capsular groups: X,Z,E, ungrouped and ungroupable. Ungroupable refers to invasive clinical meningococcal isolates that were non-groupable, while ungrouped cases refers to culture-negative but PCR screen (ctrA) positive and negative for the four genogroups [B, C, W and Y] routinely tested for.

Figure 2. Incidence of invasive meningococcal disease in England: 2006/2007 to 2015/2016

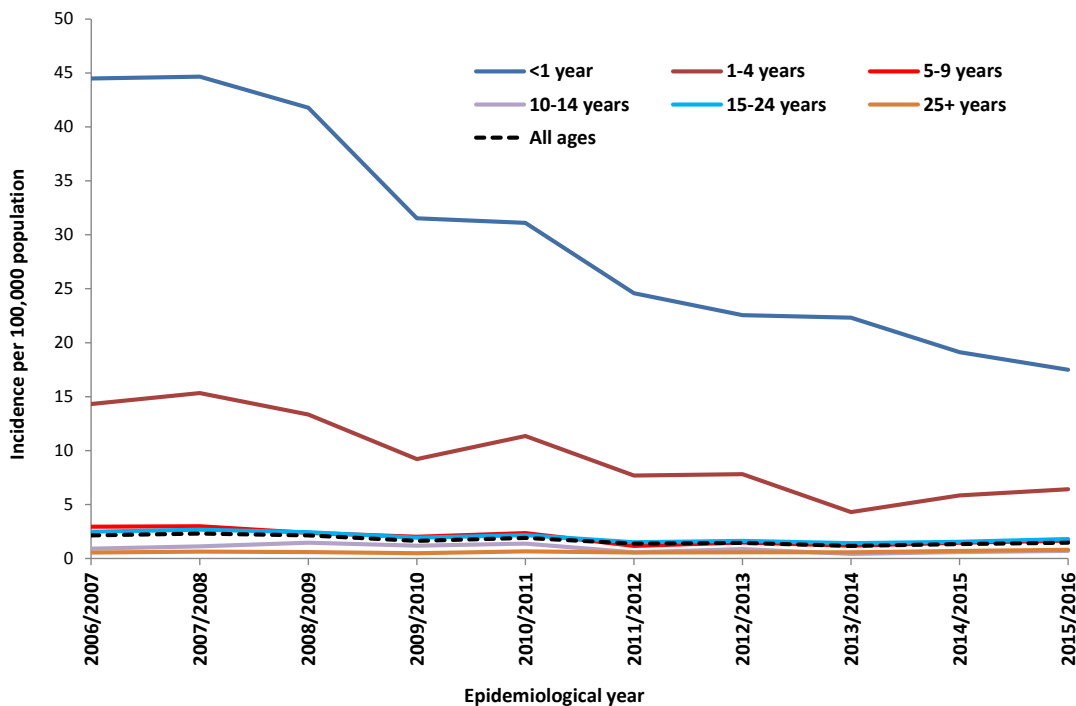


Table 2. Invasive meningococcal disease in England by capsular group and age group at diagnosis: 2015/2016

Age groups	Capsular Group										Annual total	
	B		C		W		Y		Other*			
	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%
<1 year	83	19	1	2	22	10	7	7	3	38	116	14
1-4 years	144	32	1	2	26	12	4	4	3	38	178	22
5-9 years	42	9	4	10	5	2	5	5	0	0	56	7
10-14 years	14	3	3	7	1	0	2	2	1	13	21	3
15-19 years	42	9	3	7	20	10	11	11	0	0	76	9
20-24 years	26	6	1	2	15	7	5	5	0	0	47	6
25+ years	93	21	29	69	121	58	67	66	1	13	311	39
Total	444		42		210		101		8		805	

*Other includes ungrouped and ungroupable.

References

1. Data source: PHE Meningococcal Reference Unit, Manchester.
2. Office of National Statistics. [Mid-year 2015 population estimates](#)
3. Public Health England and NHS England (22 June 2015). [Introduction of Men B immunisation for infants](#). (Bipartite letter)
4. PHE (2016). [Meningococcal B immunisation programme: vaccine coverage estimates: report to end of August 2016](#). *HPR* 10(32), 23 September 2016
5. Public Health England (2015). [Continuing increase in meningococcal group W \(MenW\) disease in England](#). *HPR* 9(7): news.
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7. Public Health England and NHS England (22 June 2015). [Meningococcal ACWY conjugate vaccination \(MenACWY\)](#). (Bipartite letter)
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9. PHE (2016). [Vaccine coverage estimate for the GP based catch-up meningococcal ACWY \(MenACWY\) immunisation programme for school leavers \(becoming 18 or 19 before 31 August 2016\) in England, cumulative data to end-July 2016](#). *HPR* 10(28), 26 August 2016.
10. PHE (2016). [Vaccine coverage estimate for the GP based catch-up meningococcal ACWY \(MenACWY\) immunisation programme for school leavers \(becoming 18 before 31 August 2016\) in England, cumulative data to end-August 2016](#). *HPR* 10(32), 19 September 2016.
11. [“Effectiveness and impact of a reduced infant schedule of 4CmenB vaccine against group B meningococcal disease in England: a national cohort study”](#), *Lancet* online, 27 October 2016.
12. Death data from the Office of National Statistics includes all deaths coded to meningitis or meningococcal infection as a cause of death and linked to a laboratory-confirmed case.