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Invasive meningococcal disease in England: annual laboratory confirmed reports for epidemiological year 2020 to 2021

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Laboratory confirmations

This report presents data on laboratory-confirmed invasive meningococcal disease (IMD) for the last complete epidemiological year, 2020 to 2021. Epidemiological years run from week 27 in one year (beginning of July) to week 26 the following year (end of June)¹.

In England, the national UK Health Security Agency (UKHSA) [Meningococcal Reference Unit \(MRU\)](#) confirmed 80 cases of IMD during 2020 to 2021, 83% lower than the 460 cases reported in 2019 to 2020 ([Table 1](#)).

The COVID-19 pandemic and the implementation of social distancing measures and lockdown periods across the UK from 23 March 2020 has had a significant impact on the spread and detection of other infections including IMD [[1](#)]. In England the majority of IMD cases are seen in the winter and in 2020 to 2021 31 cases were reported between November 2020 and March 2021, 90% lower than the previous winter (305 cases).

In England, there has been a marked overall decline in confirmed IMD cases over the last 2 decades from a peak of 2,595 cases in 1999 to 2000. The initial decline in IMD cases was driven by the introduction of immunisation against group C (MenC) disease in 1999 which reduced MenC cases by approximately 96% (to around 30 to 40 cases each year). The overall incidence of total IMD has continued to decrease over the past decade from 2 per 100,000 in 2006 to 2007 to 1 per 100,000 since 2011 to 2012; this latter decline was mainly due to secular changes in MenB cases ([Figure 1](#)). Overall IMD incidence in 2020 to 2021 has further declined at below 1 per 100,000 [[2](#)].

¹ 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 2 seasonal peaks are captured in a single calendar year

Incidence in infants increased slightly from 9 per 100,000 in 2018 to 2019 (55 cases) to 10 per 100,000 in 2019 to 2020 (62 cases) and decreased to 3 per 100,000 population in 2020 to 2021 (16 cases). Incidence in children aged 1 to 4 years continued to decrease from 2 per 100,000 in 2019 to 2020 to below 1 per 100,000 (10 cases) in 2020 to 2021 ([Figure 2](#)). Young adults aged between 15 and 24 years accounted for 13% (n=10; below 1 per 100,000) of all laboratory confirmed IMD in 2020 to 2021 and those aged 25 years or older comprised 40% of cases (n=32; below 1 per 100,000).

The distribution of IMD cases by capsular group is summarised in [Table 1](#), with MenB accounting for 76% (61/80) of all cases, followed by MenY (n=6, 8%), MenW (n=5), MenC (n=5) and 3 ungrouped/ungroupable.

In 2020 to 2021, 61 individuals were confirmed with MenB, compared to 305 cases in the previous year. MenB was responsible for the majority of IMD cases in individuals under 25 years of age: infants (88%; 14/16), toddlers (90%; 9/10) and pre-teens (100%; 11 cases). Contrary to previous years, MenB also contributed to the highest proportion (66%; 21/32) of cases in individuals aged 25+ years ([Table 2](#)) as disease covered by MenACWY vaccine has markedly reduced alongside with the impact of measures taken to help control the SARS-CoV-2 pandemic.

Annual MenW cases decreased by 94% from 78 cases in 2019 to 2020 to 5 cases in 2020 to 2021 after peaking at 225 cases in 2016 to 2017. The number of MenC cases in 2020 to 2021 were 81% lower compared with 2019 to 2020 (5 and 26 cases respectively). MenY cases decreased by 85% from 41 cases in 2019 to 2020 to 6 cases in 2020 to 2021 ([Table 1](#)). Adults aged 25 years and older accounted for most MenB (34%) MenC (40%), MenW (40%) and MenY cases (100%) ([Table 2](#)).

Deaths

The overall provisional IMD case fatality ratio (CFR) in England was 13% (10/80) during 2020 to 2021 based on ONS deaths with meningococcal disease as an underlying cause.²

² 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.

Vaccine coverage

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. In England the latest annual vaccine coverage estimates (1 April 2020 to 31 March 2021), for those eligible for infant MenB immunisation were 92.1% for 2 doses by 12 months of age and 89.0% for the booster dose by 24 months of age [4]. The 2 dose infant MenB schedule has been shown to be highly effective in preventing MenB disease in infants [5].

The previously reported increase in MenW cases [6, 7] led to the introduction of MenACWY conjugate vaccine to the national immunisation programme in England [8]. Targeted catch-up with MenACWY vaccine began in August 2015 at which time it also replaced the existing time-limited MenC ‘freshers’ vaccination programme. MenC vaccine was also directly substituted with MenACWY vaccine in the routine adolescent school programme (school year 9 or 10) from autumn 2015.

Coverage for the first cohorts to be routinely offered MenACWY vaccine in schools from September 2015 and evaluated up to the end August 2020 was 58.3% (Year 9 in 2019 to 2020) and 87.0% (Year 10) [9]. Local arrangements are being made to catchup cohorts who missed vaccination at school.

In October 2018 the Joint Committee on Vaccination and Immunisation (JCVI) released a statement advising that the Department of Health and Social Care, the then Public Health England and the Chief Medical Officer would be supporting efforts to improve MenACWY vaccine coverage in young adults aged 18 to less than 25 years who are eligible for vaccination. It is anticipated that efforts to improve MenACWY vaccine coverage in this age group will lead to a reduction in cases of MenC and MenW disease across the population [10].

The impact of the MenACWY teenage vaccination and the MenB infant programme continues to be monitored. A first assessment of the infant MenB programme [11] and MenACWY vaccination in the 2015 school leaver cohort have been published [12].

All teenage cohorts remain eligible for opportunistic MenACWY vaccination until their 25th birthday and it is important that these teenagers continue to be encouraged to be immunised, particularly if they are entering higher education institutions where their risk of disease is known to be substantially higher than that of their peers [13].

Whilst overall IMD cases have declined since measures to control the spread of COVID19 were introduced earlier this year, it continues to be important to encourage parents of eligible children to ensure their children are up to date with their vaccinations according to the vaccination schedule.

Table 1. Invasive meningococcal disease in England by capsular group and laboratory testing method: 2019 to 2020 and 2020 to 2021

Capsular groups*	Culture and PCR		Culture only		PCR only		Annual total	
	2019/2020	2020/2021	2019/2020	2020/2021	2019/2020	2020/2021	2019/2020	2020/2021
B	67	12	79	18	159	31	305	61
C	5	0	15	3	6	2	26	5
W	9	0	55	3	14	2	78	5
X	1	0	0	0	0	0	1	0
Y	9	1	26	4	6	1	41	6
29E	0	0	2	0	0	0	2	0
Ungrouped/ ungroupable~	0	0	3	2	4	1	7	3
Total	91	13	180	30	189	37	460	80

* No cases of group A and Z were reported in the time period shown.

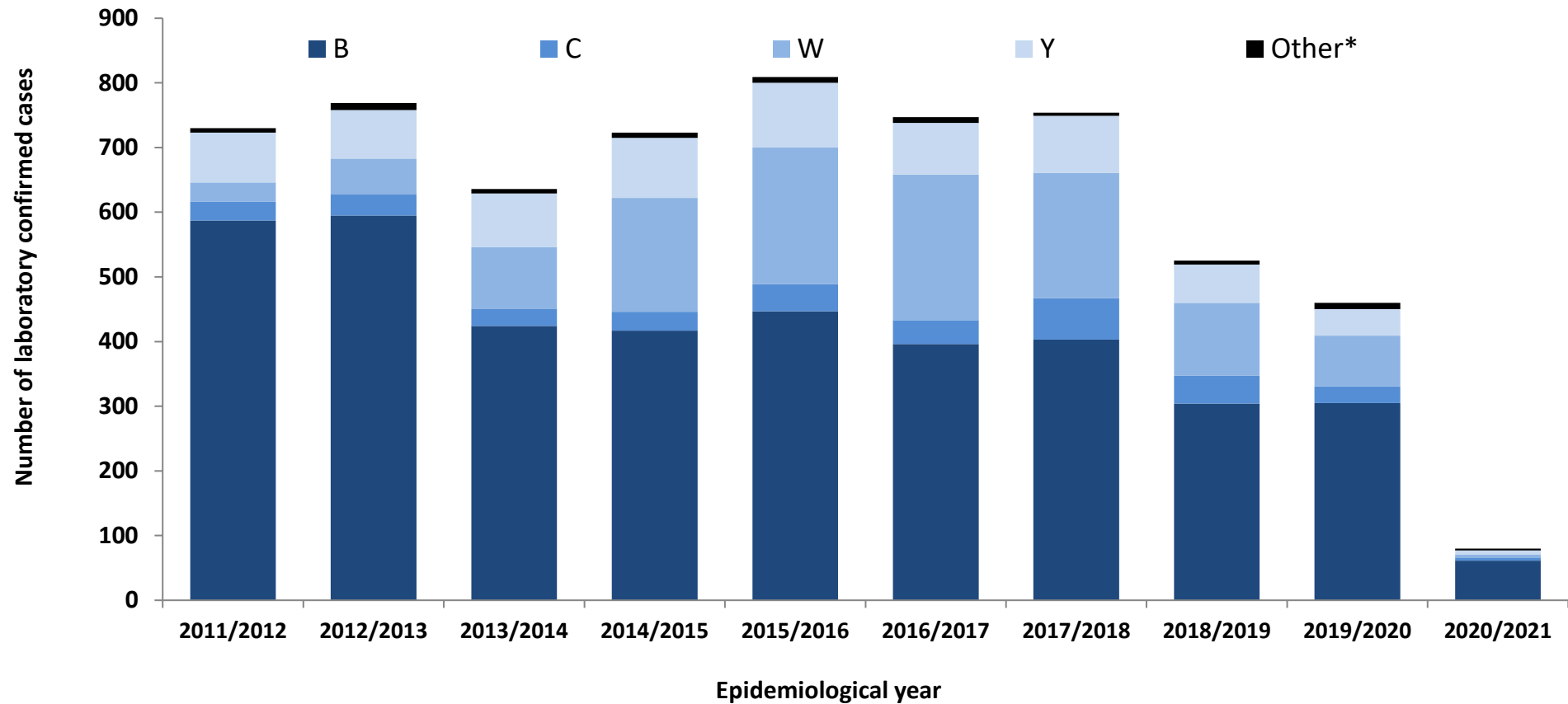
~Ungroupable refers to invasive clinical meningococcal isolates that were non-groupable, while ungrouped cases refers to culture-negative but PCR screen (ctrA) positive and negative for the 4 genogroups [B, C, W and Y] routinely tested for.

Table 2. Invasive meningococcal disease in England by capsular group and age group at diagnosis: 2020 to 2021

Age groups	Capsular Group										Annual total	
	B		C		W		Y		Other*			
	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%
Under1 year	14	23	1	20	1	20	0	0	0	0	16	20
1 to 4 years	9	15	0	0	1	20	0	0	0	0	10	13
5 to 9 years	11	18	0	0	0	0	0	0	0	0	11	14
10 to 14 years	0	0	1	20	0	0	0	0	0	0	1	1
15 to 19 years	6	10	0	0	0	0	0	0	1	33	7	9
20 to 24 years	0	0	1	20	1	20	0	0	1	33	3	4
Over 25 years	21	34	2	40	2	40	6	100	1	33	32	40
Total	61		5		5		6		3		80	

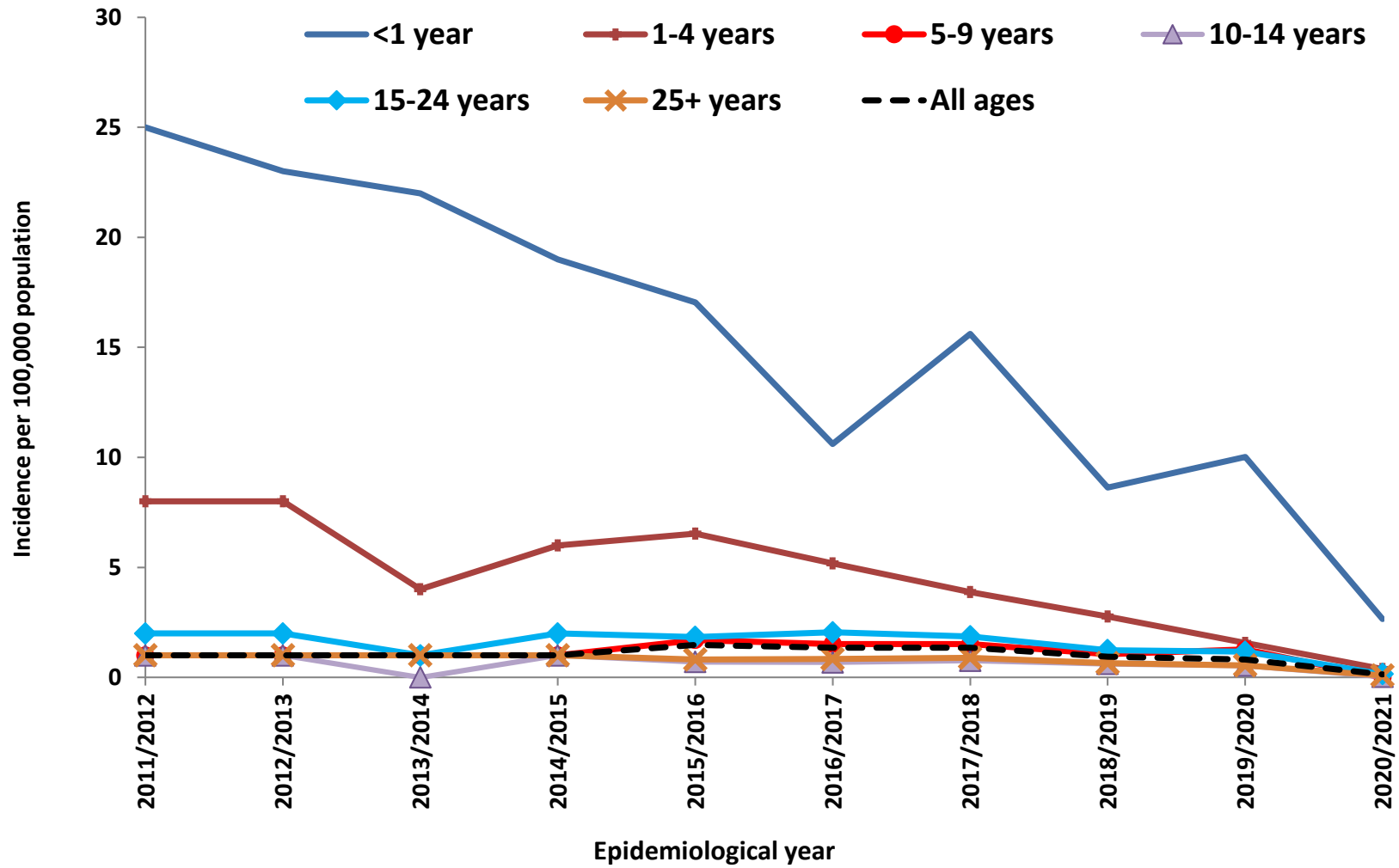
* Other includes ungrouped and ungroupable. Ungroupable refers to invasive clinical meningococcal isolates that were non-groupable, while ungrouped cases refers to culture-negative but PCR screen (ctrA) positive and negative for the 4 genogroups [B, C, W and Y] routinely tested for.

Figure 1. Invasive meningococcal disease in England by capsular group: 2011/2012 to 2020/2021



*Other includes capsular groups: X, 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 4 genogroups [B, C, W and Y] routinely tested for.

Figure 2. Incidence of invasive meningococcal disease in England: 2011 to 2012 to 2020 to 2021



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