



Volume 10 Number 37 Published on: 28 October 2016

Current News

- ▶ **Impact of MenB infant vaccination programme in England**
- ▶ **Legionnaires' disease in England and Wales: annual report for 2015**
- ▶ **Mosquito finding underlines importance of UK surveillance systems**
- ▶ **New publication: *Health Protection: Principles and Practice***

Infection Reports

Immunisation

- ▶ **Invasive meningococcal disease (laboratory reports in England): 2015/2016 annual data by epidemiological year**
- ▶ **Laboratory reports of hepatitis A and C (England and Wales): April to June 2016**

Impact of MenB infant vaccination programme in England

At the end of the first season following the introduction of a multicomponent, group B meningococcal (MenB) vaccine into the UK infant immunisation programme, an assessment of vaccine effectiveness and impact on invasive disease in England has provided reassuring results.

In a *Lancet* paper presenting the results of a national cohort study of invasive meningococcal disease (IMD) diagnosed in England between September 2015 and June 2016, PHE scientists report a significant reduction in IMD cases among vaccine-eligible infants within 10 months of the vaccine's introduction [1]. Compared with the pre-vaccine period, the study suggests a 50% reduction in incidence of IMD was achieved in the vaccine-eligible cohort.

The UK was the first country to introduce the MenB vaccine into a publicly-funded programme in September 2015, ahead of the 2015/16 season. Infants were offered the 4CMenB vaccine at two and four months along with their other routine vaccinations, followed by a booster at 12 months. Infants attending their routine 3- and 4-month routine immunisations were also opportunistically offered the vaccine when it was first introduced. The two-dose infant schedule was found to be 83% effective against all MenB cases, irrespective of whether the responsible MenB strain was preventable by the vaccine.

The authors of the *Lancet* paper note that their findings should provide reassurance to clinicians, immunisers and policy makers that the vaccine is effective in infants.

Reference

1. "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.

Legionnaires' disease in England and Wales: annual report for 2015

The latest annual report on Legionnaires Disease in England and Wales describes the epidemiological features of microbiologically-confirmed, reported cases with symptom onset dates falling in 2015 [1].

A total of 382 confirmed cases of were reported in 2015, half of which were considered to have encountered the source of infection from within the community; a fall of 6.2% compared to 2014. There continues to be an increase in the proportion of cases associated with travel abroad: from 42.0% in 2014 to 46.3% in 2015. Although the highest number of travel-associated cases were

associated with travel to Spain during their incubation period, travel to Thailand and the United Arab Emirates accounted for the highest rates of infection at 41.7 and 41.0 cases per million visits, respectively.

The crude case fatality rate (CFR) for Legionnaires Disease in England and Wales in 2015 was 6.8%, the lowest rate ever recorded since records began in 1980. The crude CFR increases with age to a rate of 15.3% in those aged 70 years and over.

Reference

1. PHE (26 October 2016). [Legionnaires' disease in England and Wales: 2015](#).
-

Mosquito finding underlines importance of UK surveillance systems

The south-east Asian forest mosquito *Aedes albopictus* – whose presence in Europe was first reported in Albania in 1979 and subsequently in 28 other European countries – was detected for the first time in the UK in September [1]. Its detection by PHE routine surveillance procedures has significance in view of *Aedes albopictus* being a potential vector for transmission of infections – chikungunya and dengue fever in particular – prevalent only in semi-tropical or tropical climates [2].

Contrary to UK media reports circulating in recent weeks, there is no evidence to date that the species is a vector of Zika virus (ZIKV) and its detection has no immediate significance for the current UK ZIKV risk assessment.

Aedes albopictus is nevertheless a particular biting nuisance in many European countries – including Italy, southern France, Spain, and the Adriatic coasts of Croatia – and climate models have shown the UK is suitable for the development and maintenance of populations of this species [2]. The species also has medical significance as it is a proven vector of chikungunya virus (CHIKV) and has been the primary vector of cases on La Reunion Island, in Italy, and in France. It is also a vector of Dengue virus (DENV) and has been responsible for locally-acquired cases in Croatia and France.

Ae. albopictus eggs have been moved around the world primarily in shipments of used tyres; once established in a new locality, adult mosquitoes are moved along highway systems in vehicles.

Surveillance for invasive mosquitoes is conducted by PHE's Medical Entomology group, in collaboration with Port and Environmental Health Officers, and Edge Hill University [1]. Traps are run at 31 ports and airports, including British forces bases in Cyprus and Gibraltar. Early detection of this species allows control strategies to be implemented, with the aim of preventing

the establishment of exotic mosquito vectors. PHE also monitors traps at service stations in south-east England, with the aim of detecting mosquitoes brought in via vehicles arriving at ferry and Eurotunnel ports, and at used tyre importers.

In September 2016, PHE detected 37 eggs at one trap in a service station in south-east England, evidence that at least one female mosquito was imported, probably via vehicular traffic from the continent. PHE conducted enhanced surveillance in the locality, which included the service station, the M20, high-speed rail link, a farm and associated arable fields, and small number of residential properties. No further evidence of the species has so far been found. The local authority implemented a control strategy targeting all container habitats with 300 metres. PHE will conduct further enhanced surveillance in the spring at the site.

The finding of *Ae. albopictus* in the UK underlines the importance of a comprehensive surveillance system. In addition to active surveillance, PHE runs a mosquito reporting scheme, and this “passive” surveillance will be crucial to identify further occurrences of this species in years to come. As it moves northward in France, more frequent incursions of *Ae. albopictus* are to be expected, particularly in relation to vehicle movements from the continent. The recent finding also identifies the need for a robust control strategy that can be implemented within hours of a finding, to ensure the species does not spread further.

References

1. PHE webpages. [Mosquito: nationwide surveillance](#).
 2. PHE Public Health Matters blog (8 January 2016). [Vector-borne diseases in the 21st century](#).
-

New publication: *Health Protection: Principles and Practice*

A new, multi-author practical guide and textbook, *Health Protection: Principles and Practice*, covering the principles of health protection and adopting a modern, all-hazards approach, has been published by OUP [1].

After introducing the essential principles of health protection work, and reviewing emerging health protection issues, the book considers responses to real incidents through a combination of case studies and checklists (in appendices) covering more than 180 common or important topics in health protection practice. The target audience is health protection practitioners, other public health professionals and postgraduate students. No prior medical or clinical knowledge is assumed in any chapter.

The 38 contributors are all UK-based practitioners active in the field, or in closely related fields, the majority currently working within Public Health England's health protection directorate: either as medical consultants, field epidemiology specialists, or Health Protection Centre staff, or working within CRCE or in emergency preparedness functions.

Although the textbook's scope mirrors exactly the range of responsibilities of PHE's health protection directorate, it is likely to be of value to a wider, global audience because of its "all-hazards" scope: it covers communicable disease surveillance/control, emergency preparedness, resilience and response, and environmental public health – activities that in many countries are the responsibility of different organisations (as was the case in England prior to the creation of the Health Protection Agency in 2003).

In a foreword, Professor Paul Cosford, PHE director of health protection and medical director, has welcomed the publication: "This book is the first to describe the [health protection] functions in a single dedicated textbook ... taking an inclusive, all-hazards approach.... [and] recognition of health protection as a distinct discipline".

Reference

1. *Health Protection: Principles and Practice*, edited by Sam Ghebrehewet, Alex G. Stewart, David Baxter, Paul Shears, David Conrad and Merav Kliner (450 pages), ISBN-978-0-19-874547-1, RRP £34.99), is published by Oxford University Press.



Public Health
England

Health Protection Report

weekly report

Volume 10 Number 37 Published on: 28 October 2016

Infection Reports

Vaccine preventable disease

- ▶ **Invasive meningococcal disease (laboratory reports in England): 2015/2016 annual data by epidemiological year**
- ▶ **Laboratory reports of hepatitis A and C (England and Wales): April to June 2016**

Infection report

Volume 10 Number 37 Published on: 28 October 2016

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).

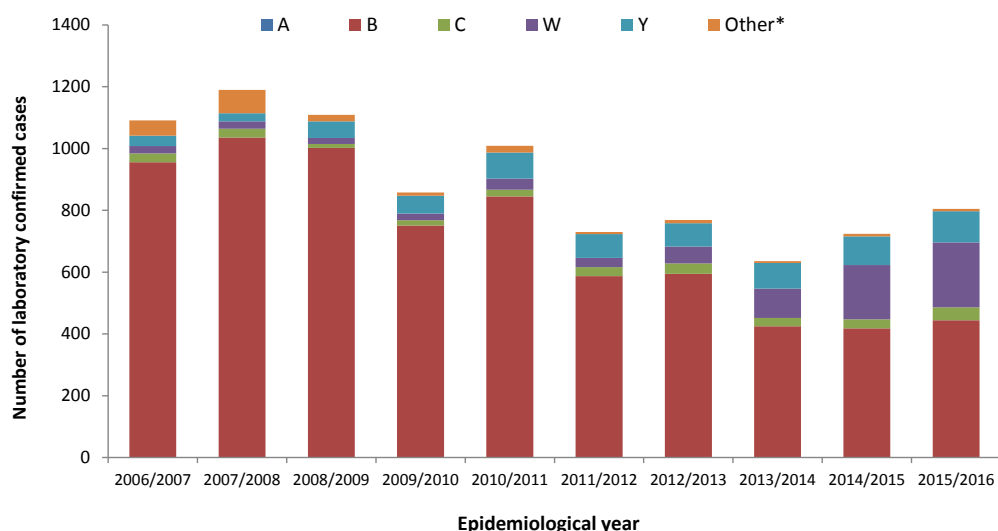
Table 1. Invasive meningococcal disease in England by capsular group and laboratory testing method: 2014/2015 and 2015/2016.

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.

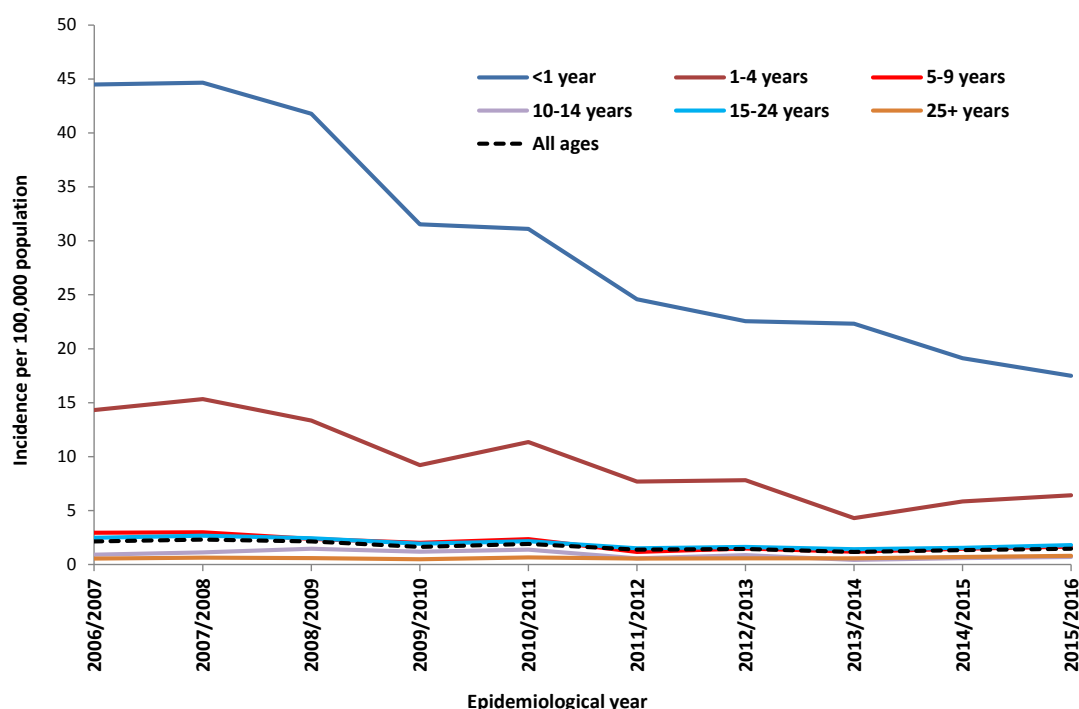
Figure 1. Invasive meningococcal disease in England by capsular group: 2006/2007 to 2015/2016



*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.

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).

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



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.

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.

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 Education 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].

Infection report

Volume 10 Number 37 Published on: 28 October 2016

Laboratory reports of hepatitis A and C (England and Wales): April to June 2016

Laboratory reports of hepatitis A in England and Wales (April-June 2016)

There were a total of 57 laboratory reports of hepatitis A reported to Public Health England (PHE) during the second quarter of 2016 (April-June 2016). This was a 49.6% decrease in the number of reports since the first quarter of 2016 (n=113) and a 27.8% decrease on the April to June quarter in 2015 (n=79).

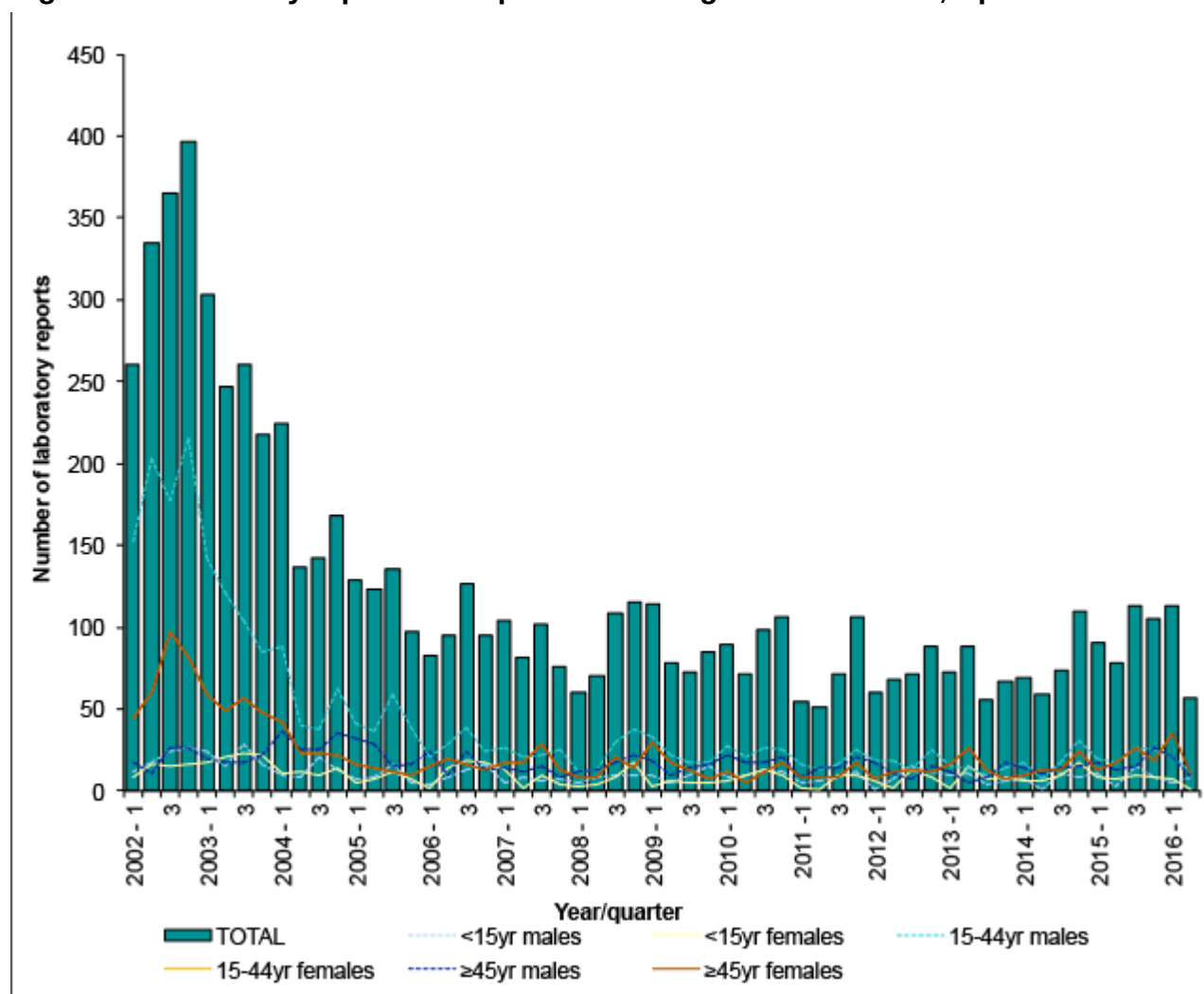
Age-group and sex were well reported (96.5% complete). Twenty three (41.8%) reports were among those aged 15-44 years, a further 23 (41.8%) reports were among the 45 years and over old-age group and 9 (16.4%) reports were from the under 15 year age-group.

Females accounted for 46.4% of all reports. The majority of reports in the under 15s were in males (14.5%). In the 15-44 years age-group females and males accounted for 20.0% and 21.8% of the cases respectively. Females accounted for the majority of reports (25.5%) in the over 45 years age-group.

Laboratory reports of hepatitis A in England and Wales, April-June 2016

Age group	Male	Female	Unknown	Total
<1 year	0	0	0	0
1-4 years	4	0	0	4
5-9 years	1	1	0	2
10-14 years	3	0	0	3
15-24 years	2	1	0	3
25-34 years	5	5	0	10
35-44 years	5	5	0	10
45-54 years	3	4	0	7
55-64 years	1	2	0	3
>65 years	5	8	0	2
Unknown	1	0	1	0
Total	30	26	1	57

Figure 1. Laboratory reports of hepatitis A in England and Wales, April-June 2016

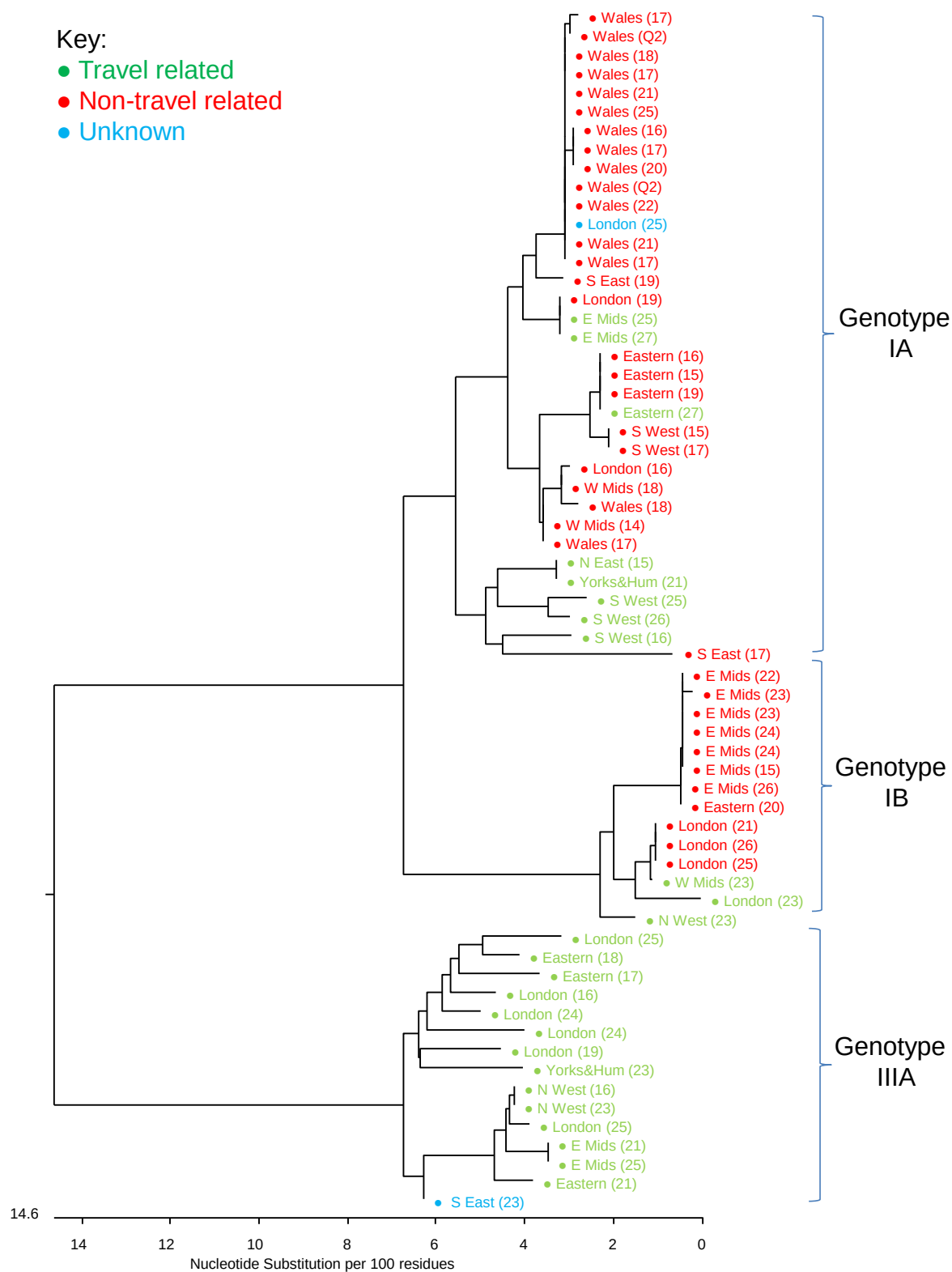


Reference laboratory confirmation and phylogeny of hepatitis A infection

Of the 57 patients reported as having acute HAV infection during the second quarter of 2016, 28 had samples forwarded to the Virus Reference Department for confirmation. Eight of the patients were not confirmed to have acute HAV infection. The remaining 20 patients were confirmed to have acute HAV infection. In addition 44 patients were confirmed to have acute HAV infection that had not been reported through the laboratory reporting system. Of these 44 cases, 29 were recorded in HPzone and the remaining 15 cases, all from Wales, were not recorded in HPzone.

A total of 64 patients could be genotyped over this period; 35 were genotype IA (54.7%), 14 were genotype IB (21.9%) and 15 were genotype IIIA (23.4%). Of these samples 25 were associated with travel (39.1%), 37 had no travel history (57.8%) and 2 had no information (3.1%). This information is presented as a phylogenetic tree. Each sequence is represented by a dot with the patient region and the week of sampling in brackets.

Figure 2. Phylogenetic tree of genotype IA, IB, and IIIA sequences April-June 2016 (n=64)



Laboratory reports of hepatitis C in England and Wales (April-June 2016)

Between April and June 2016 there were a total of 1,746 laboratory reports of hepatitis C reported to PHE. This was a 40.2% decrease in the number of reported cases compared to the first quarter of 2016 (n=2,918), and a 36.7% decrease on the April to June quarter in 2015 (n=2,758).

Age-group and sex were well reported (98.6% complete). Where known, males accounted for 69.0% (1,195/1,733) of reports which is consistent with previous quarters. Adults aged 25-44 years accounted for 50.1% of the total number of hepatitis C reports.

Laboratory reports of hepatitis C in England and Wales, April-June 2016

Age group	Male	Female	Unknown	Total
<1 year	2	0	0	2
1-4 years	1	0	0	1
5-9 years	0	1	0	1
10-14 years	1	2	0	3
15-24 years	34	16	1	51
25-34 years	252	115	3	370
35-44 years	360	146	5	511
45-54 years	311	122	2	435
55-64 years	173	86	1	260
>65 years	54	45	1	100
Unknown	7	5	0	12
Total	1,195	538	13	1746