



Public Health  
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Protecting and improving the nation's health

# Acute hepatitis B: national enhanced surveillance report January to June 2019

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# Acute hepatitis B: national enhanced surveillance report January to June 2019

## Background

Quarterly reporting of the enhanced molecular surveillance of acute hepatitis B is based on clinical reports of acute cases to PHE Health Protection Teams entered on HPZone\* and corresponding samples submitted to PHE's Blood Borne Virus Unit (BBVU) in the Virus Reference Department (VRD) at Colindale. In 2016, VRD reintroduced anti-hepatitis B core avidity testing alongside existing genotyping of samples from patients diagnosed with acute hepatitis B free of charge. Hospital microbiology / virology departments are requested to send samples to Colindale for confirmation, avidity testing and genotyping as part of the national enhanced surveillance of acute hepatitis B [1].

Following the reporting of clusters of acute hepatitis B in 2016, an HPZone context "**Acute Hepatitis B**" was added for monitoring of acute cases.

## Methods

Two forms of acute hepatitis B cases entered on HPZone between January 2019 and June 2019 were extracted. HPZone Context "Acute Hepatitis B" data includes personally identifiable information, which therefore allows for the rapid identification of cases and request of samples directly from laboratories for avidity and molecular characterisation at VRD, Colindale. HPZone data without personally identifiable information (HPZone Dashboard) on acute cases was matched to HPZone Context data using a unique identifier. The "Acute Hepatitis B" Context data was matched to laboratory testing data from the VRD using Microsoft Access algorithms comparing combinations of the following variables: Surname, First name, date of birth, sex, and NHS number.

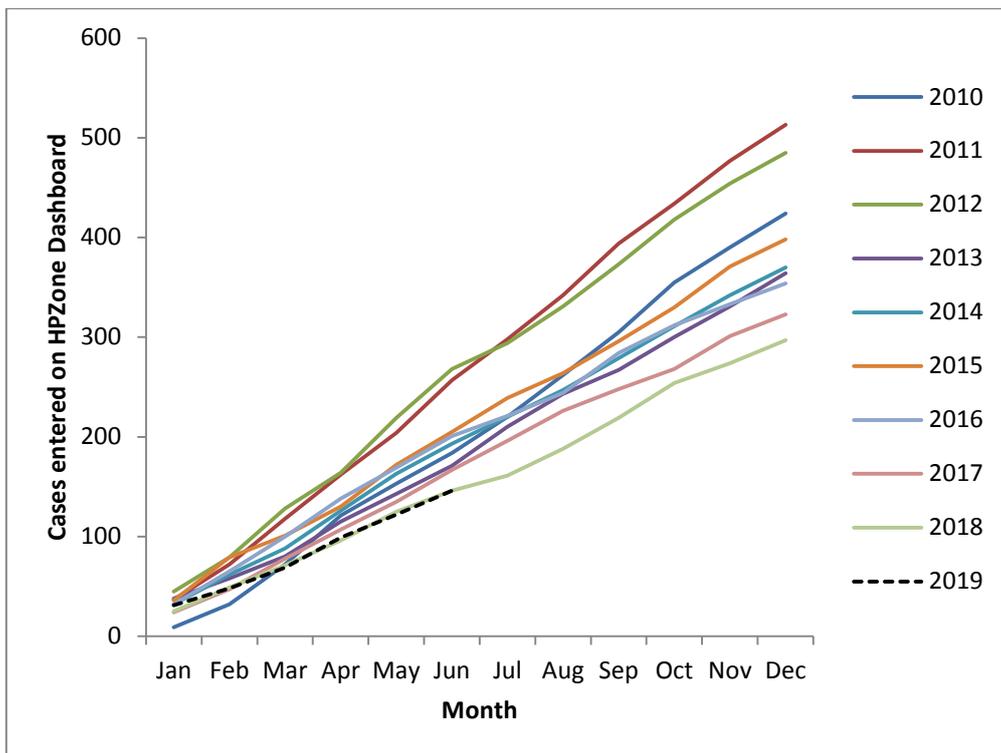
## Results

Between January and June 2019, 146 cases of acute hepatitis B were reported onto HPZone Dashboard across England (confirmed, probable and possible)\*\*. Overall, the cases entered on HPZone Dashboard have been declining since 2011 with 513 compared to 297 in 2018; monthly cases since 2010 in England are shown in figure 1. In 2015 there was a slight increase in cases likely caused by the outbreak of acute hepatitis B in men who have sex with men but identify as heterosexual [2].

\* HPZone is an information support tool designed to provide staff in the local Health Protection Teams with timely and comprehensive information on threats and incidents and information that enables the management of individuals with an infectious disease.

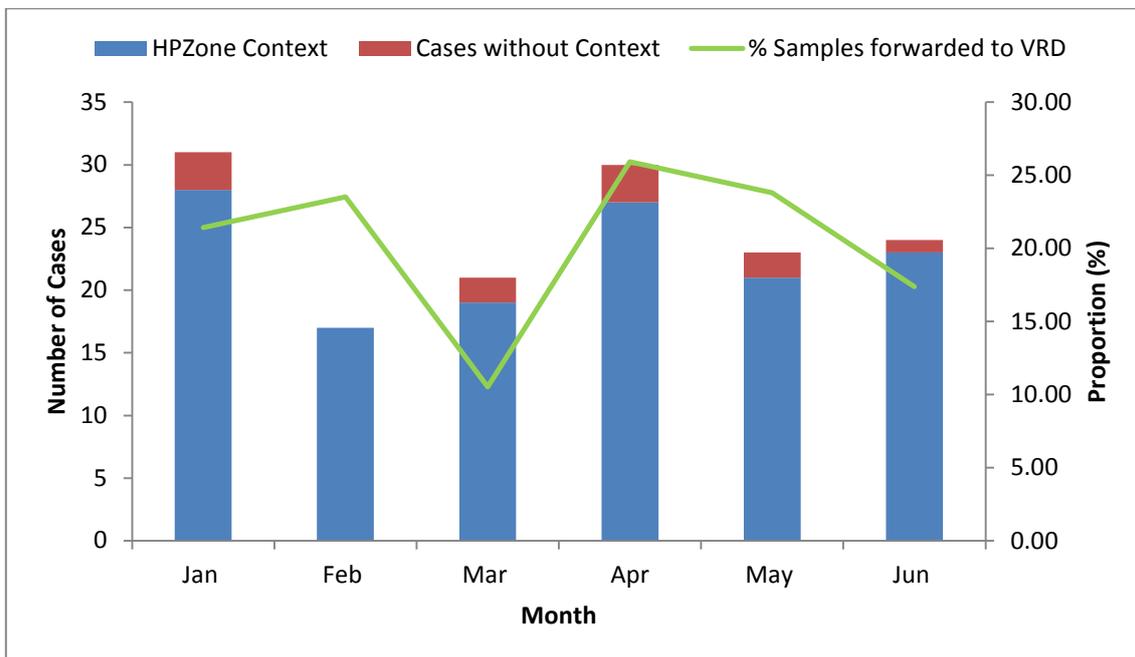
\*\* Classified according to HPZone case definitions

**Figure 1: Cumulative cases of acute hepatitis B in England entered on HPZone Dashboard 2010 – March 2019. Please be aware that 2019 data is provisional**

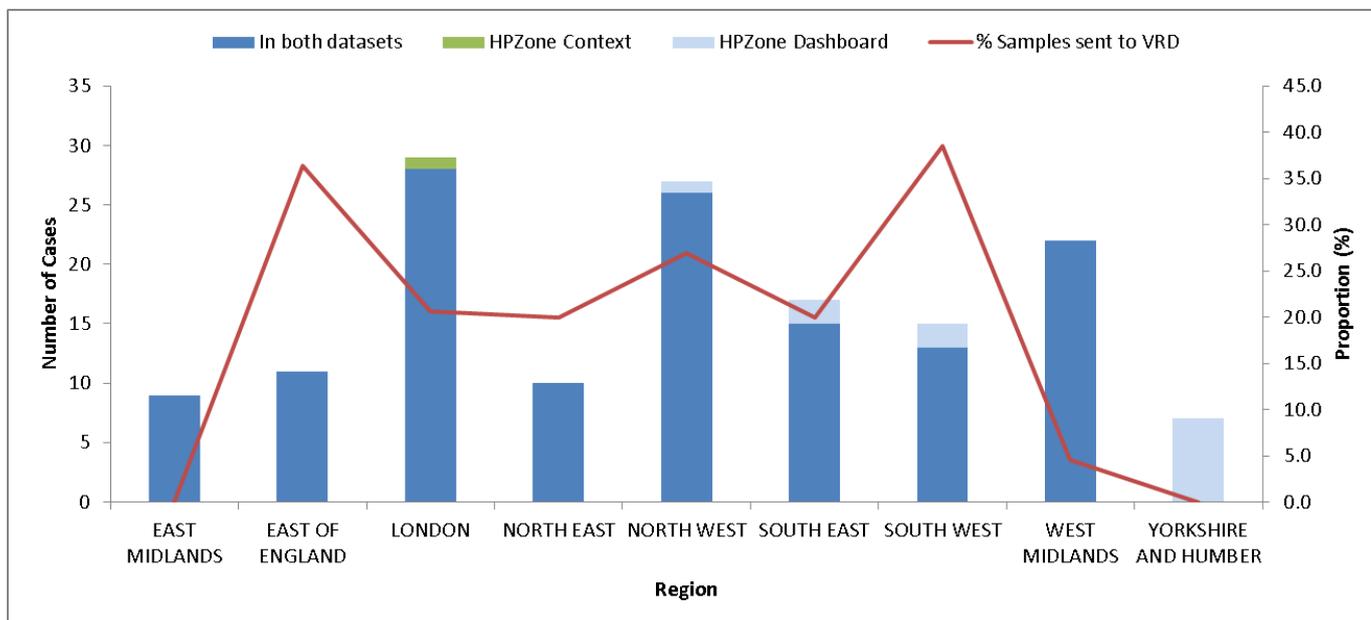


Since 2016, acute hepatitis B cases entered on HPZone have been assigned to an acute hepatitis B Context (which includes personally identifiable information). Between January and June 2019, 135 cases of acute hepatitis B were reported onto HPZone Context across England (confirmed, probable and possible). On linking the 2019 January to June HPZone Context dataset and 2019 January to June HPZone Dashboard datasets, 134/146 (91.8%) of the cases were found in both datasets (figure 2). Of the cases with HPZone Context, 28/135 (20.7%) of cases had a sample forwarded to the VRD. A breakdown of cases by PHE region is shown in figure 3.

**Figure 2: January to June 2019 cases entered onto HPZone Dashboard. The line graph (right axis) shows the proportion of HPZone Context cases that had a sample forwarded to the VRD**



**Figure 3: January to June 2019 cases entered onto HPZone Context and / or HPZone Dashboard by PHE regions. The line graph (right axis) shows the proportion of HPZone Context cases that had a sample forwarded to the VRD**



For the 2019 January to June HPZone Context dataset and 2019 January to June HPZone Dashboard dataset, age and sex was well reported (>99.3%). Where sex was known males accounted for 62.8% of cases (91/145). The median age of persons with acute HBV was 40 years old (IQR: 30-55), 43 (IQR: 31-55) for males and 36 (IQR: 25-47) for females. The age distribution by sex is presented in table 1; the highest proportion of cases was in the 35-44 age group. The highest proportion in males was 35-44 groups, whilst in females the highest proportion was in the 25-34 and 35-44 age groups.

**Table 1: Number and proportion of acute HBV cases from HPZone Dashboard by sex and age group during January to June 2019**

Age group (years)	Sex		Total
	Female	Male	
Under 15	0 (0.0)	0 (0.0)	0 (0.0)
15-24	11 (20.4)	13 (14.3)	24 (16.6)
25-34	13 (24.1)	17 (18.7)	30 (20.7)
35-44	13 (24.1)	19 (20.9)	32 (22.1)
45-54	5 (9.3)	17 (18.7)	22 (15.2)
55-64	8 (14.8)	18 (19.8)	26 (17.9)
65+	4 (7.4)	7 (7.7)	11 (7.6)
<b>Total</b>	<b>54</b>	<b>91</b>	<b>145</b>

Avidity testing and molecular characterisation investigations were undertaken on samples linked to cases to confirm the acute hepatitis B diagnosis with additional genotyping and phylogenetic analysis to inform on the diversity of the circulating viruses.

Of the 44 samples submitted to the VRD as part of the Enhanced surveillance programme, 7 (15.9%) samples were confirmed to be from individuals with chronic hepatitis B and 33 (75.0%) were confirmed to be from individuals with acute hepatitis B infection. The avidity testing in the remaining 4 samples was classified as undetermined where it was not possible to confidently assign an HBV infection status.

A total of 33 confirmed acute cases could be genotyped during January to June 2019; the distribution of genotypes is shown in table 2. Consistent with trends seen in 2017 and 2018, genotype A was the most commonly reported genotype with 51.5% of cases [3]. Additional sub genotype analysis of the A viruses indicated 82.4% to be A2. The distribution of genotypes seen in PHE regions is shown in figure 4.

**Table 2: Genotype distribution and proportions of acute hepatitis B cases tested at VRD in January to June 2019**

Genotype	Cases 2019	Proportion of cases 2019
<b>A</b>	17	51.5%
<b>C</b>	2	6.1%
<b>D</b>	8	24.2%
<b>E</b>	5	15.2%
<b>F</b>	1	3.0%
<b>Total</b>	<b>33</b>	

**Figure 4: Genotypes of acute samples sent to VRD by PHE region**



## Discussion

Quarterly publication of enhanced molecular surveillance using matched HPZone and reference laboratory confirmatory and typing data with a regional breakdown allows real-time monitoring of acute hepatitis B transmission. The number of acute hepatitis B cases in January to June 2019 remains low and consistent with annual trends for the same timeframe. Molecular analysis provides insight into the current hepatitis B genotypes circulating in England, although interpretation is limited by the small proportion of samples submitted to VRD. The A2 “prisoner variant” is the most common strain and is known to be well-established in the UK MSM population; other genotypes can indicate a geographical origin which can help provide an understanding of sources of infection and transmission routes, e.g. genotype D is associated with South Asia.

Timely assignment of cases to the HPZone Context and improved submission of samples for molecular characterisation will allow for more comprehensive monitoring of acute hepatitis B infection in England.

## References

1. Acute Hepatitis B: Guide to national Enhanced Surveillance, 2016. PHE. Available from <https://www.gov.uk/government/publications/acute-hepatitis-b-guide-to-national-enhanced-surveillance/acute-hepatitis-b-guide-to-national-enhanced-surveillance>
2. Shankar AG, Mandal S, Ijaz S An outbreak of hepatitis B in men who have sex with men but identify as heterosexual. *BMJ Sexually Transmitted Infections* 2016; 92:227.
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## *About Health Protection Report*

*Health Protection Report* is a national public health bulletin for England and Wales, published by Public Health England. It is PHE's principal channel for the dissemination of laboratory data relating to pathogens and infections/communicable diseases of public health significance and of reports on outbreaks, incidents and ongoing investigations.

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