



UK Health  
Security  
Agency

# Acute hepatitis B: national enhanced surveillance report January to June 2020

Health Protection Report  
Volume 16 Number 1

## Background

The quarterly reporting of enhanced molecular surveillance of acute hepatitis B is based on clinical reports of acute cases to Public Health England (PHE) and UK Health Security Agency Health (UKHSA) health protection teams, which are entered on HPZone and corresponding samples submitted to UKHSA'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 genotyping of samples from patients diagnosed with acute hepatitis B – a service offered 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

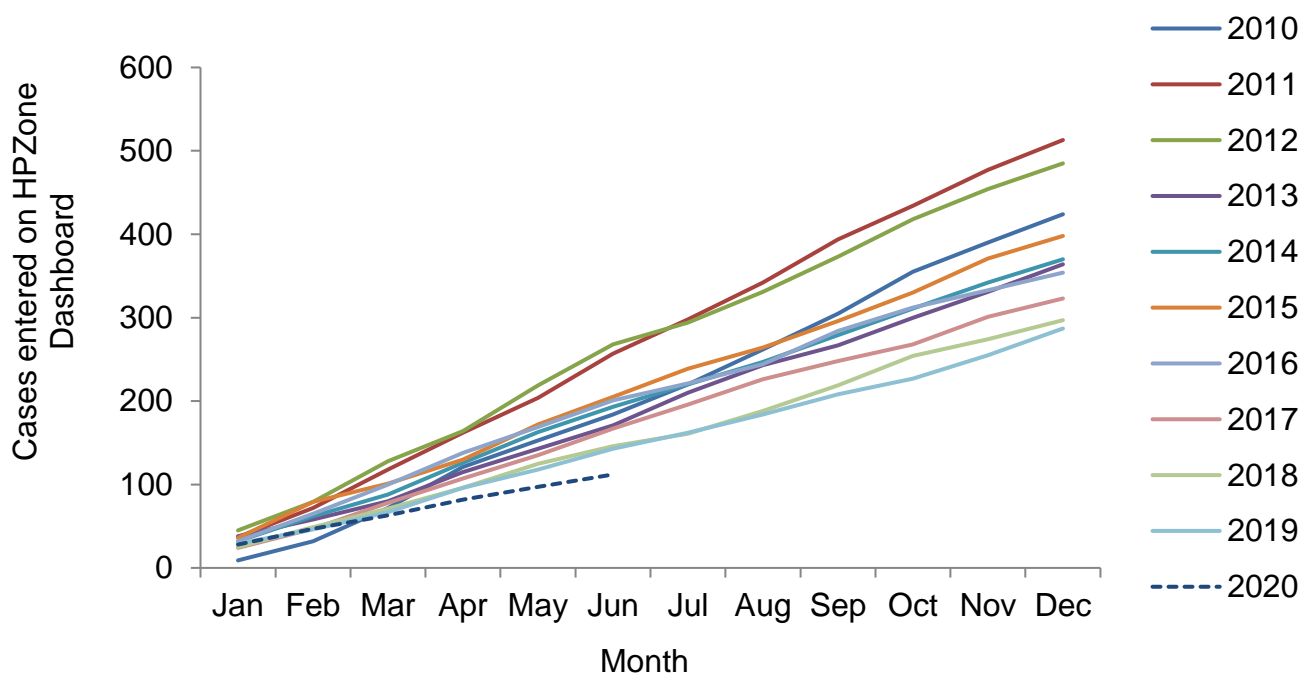
Acute hepatitis B cases recorded in 2 different ways and entered on HPZone between January 2020 and June 2020 were extracted. HPZone Context 'Acute Hepatitis B' data includes personally identifiable information, which therefore allows for the rapid identification of cases and request of samples directly 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

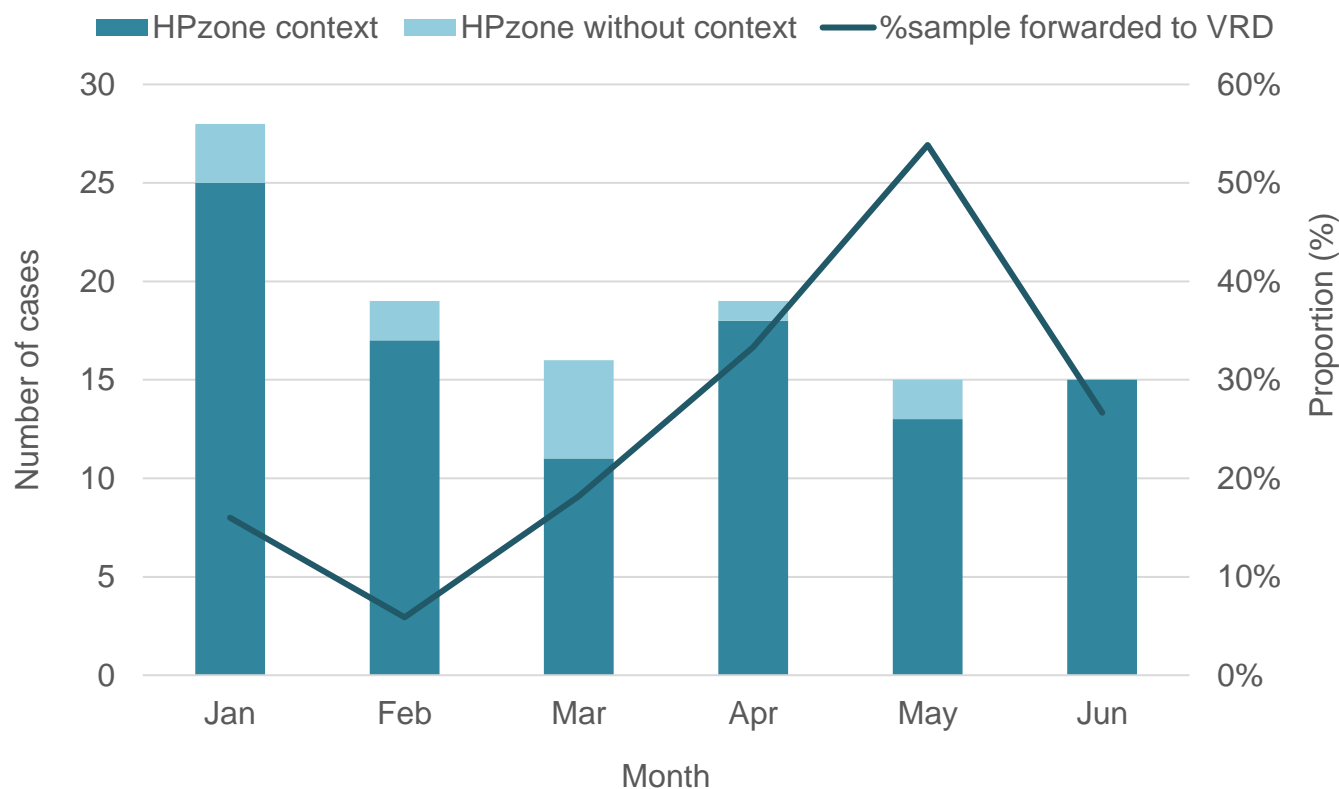
Between January and June 2020, 112 cases of acute hepatitis B were reported onto HPZone Dashboard across England (confirmed, probable and possible). Overall, the cases entered on HPZone Dashboard have been declining since 2011 from 513 compared to 287 in 2019. Monthly cases since 2010 in England are 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 who identify as heterosexual [\[2\]](#).

**Figure 1. Cumulative cases of acute hepatitis B in England entered on HPZone Dashboard 2010 to June 2020**



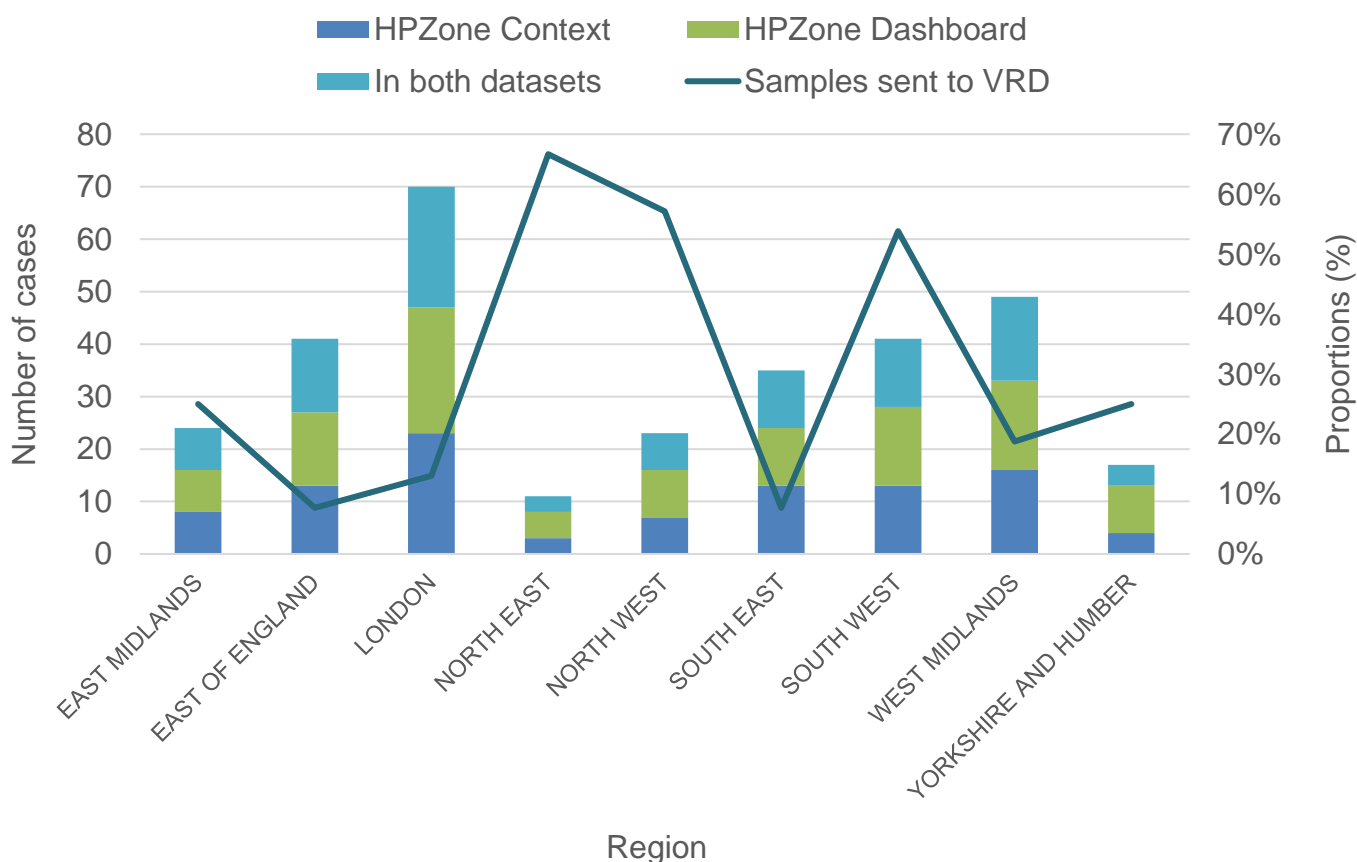
Note. Please be aware that 2020 data is provisional.

**Figure 2. January to June 2020 cases entered onto HPZone dashboard**



Note. 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 2020 cases entered onto HPZone Context and/or entered onto HPZone Dashboard by PHE regions**



Note. The line graph (right axis) shows the proportion of HPZone Context cases that had a sample forwarded to the VRD.

For the 2020 January to June HPZone Context dataset and 2020 January to June HPZone Dashboard dataset, age and sex was well reported (>99.1%). Where sex was known males accounted for 70% of cases (78 out of 112). The median age of persons with acute HBV was 39 years old (IQR: 27 to 53), 42 (IQR: 29 to 56) for males and 34 (IQR: 24 to 50) for females. The age distribution by sex is presented in [Table 1](#). The highest proportion of cases was in the 25 to 34 age group. The highest proportion in males was 35 to 44 groups, whilst in females the highest proportion was in the 25 to 34 age group.

**Table 1. Number and proportion of acute HBV cases from HPZone Dashboard by sex and age group during January to June 2020**

Age group	Female	Male	Unknown	Total
Under 15	1 (3.0)	4 (5.1)	0 (0)	5 (4.5)
15 to 24	8 (24.2)	9 (11.5)	0 (0)	17 (15.2)
25 to 34	9 (27.3)	15 (19.2)	1 (100)	25 (22.3)
35 to 44	5 (15.2)	16(20.5)	0 (0)	21 (18.8)
45 to 54	7 (21.2)	12 (15.4)	0 (0)	19 (17)
55 to 64	2 (6.1)	11 (14.1)	0 (0)	13 (11.6)
Over 65	1 (3.0)	11 (14.1)	0 (0)	12 (10.7)
Total	33	78	1 (100)	112

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.

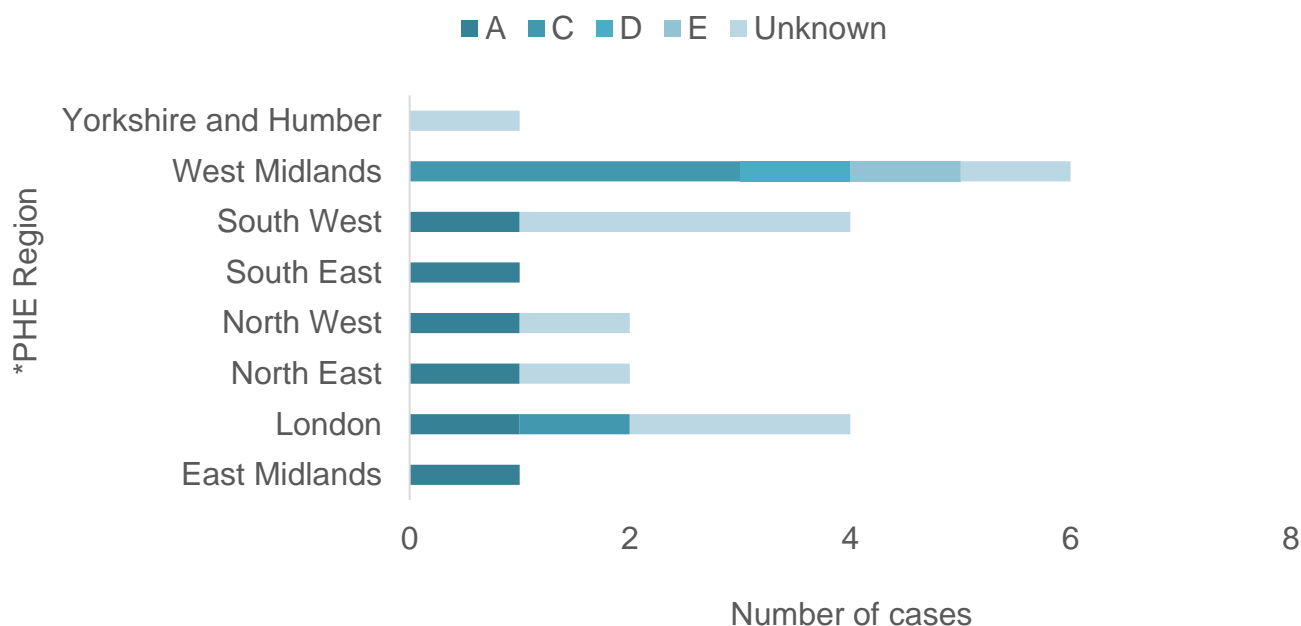
Of the 40 samples submitted to the VRD as part of the Enhanced surveillance programme, 11 (28%) samples were confirmed to be from individuals with chronic hepatitis B and 19 (48%) were confirmed to be from individuals with acute hepatitis B infection. The avidity testing in the remaining 9 samples was classified as undetermined where it was not possible to confidently assign an HBV infection status and one sample not tested.

A total of 24 confirmed acute cases could be genotyped during January to June 2020, the distribution of genotypes is shown in [Table 2](#). Genotype C was the most commonly reported genotype with 29.2% of cases [3]. Additional sub genotype analysis of the A viruses indicated 3 to be A1 and 3 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 2020**

Acute genotype	Cases	Proportion of cases
A	6	25.0
B	0	0.0
C	7	29.2
D	2	8.3
E	2	8.3
F	0	0.0
Unknown	7	29.2
Total	24	-

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



\* Excludes unknown regions with genotype (A=1,D=1,E=1)

## 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 2020 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 one of the most common strains 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, for example, 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'](#). Public Health England
2. Shankar AG, Mandal S, Ijaz S (2016). ['An outbreak of hepatitis B in men who have sex with men but identify as heterosexual'](#). British Medical Journal Sexually Transmitted Infections, volume 92 issue 3: page 227
3. Public Health England (2020). ['Acute Hepatitis B \(England\): annual report for 2018'](#)

# About the UK Health Security Agency

The [UK Health Security Agency](#) is an executive agency, sponsored by the [Department of Health and Social Care](#).

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