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Hepatitis B in the South West

2017 data

October 2019

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Notes on the report

Intended audience

This report is aimed at healthcare professionals involved in the diagnosis and/or treatment of patients with hepatitis B, commissioners, providers and public health professionals involved in planning and provision of preventative and treatment services for hepatitis B services, and other stakeholders working in the field of hepatitis B.

Aim of report

The aim of this report is to describe the epidemiology of hepatitis B in the South West up to 2017. The report provides an update on trends, areas of high burden of disease and at-risk population groups, and identifies opportunities for interventions to reduce disease burden.

Data sources

This report presents data from a number of sources including: laboratory data and sentinel surveillance data collated by PHE's immunisation, hepatitis and blood safety department; data from the unlinked anonymous monitoring survey of HIV and hepatitis in people who inject drugs managed by PHE's HIV and STI department; hospital admission data from hospital episode statistics dataset, mortality data from the Office for National Statistics (ONS) and childhood vaccination coverage statistics from NHS digital.

Resources used in this report

Data tables of the Unlinked Anonymous Monitoring Survey of HIV and Hepatitis in People Who Inject Drugs available at: www.gov.uk/government/publications/people-who-inject-drugs-hiv-and-viral-hepatitis-monitoring

Public Health England Liver Disease Profiles available at: https://fingertips.phe.org.uk/profile/liver-disease

Childhood vaccination coverage statistics available at: https://digital.nhs.uk/data-and-information/publications/statistical/nhs-immunisation-statistics/england-2017-18

Other useful resources

The national report presenting recent epidemiology of hepatitis B in England is available at:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/736145/hpr3118_hepB.pdf

Public Health England. Shooting up: infections among people who inject drugs in the UK, 2017: an update, November 2018. Available at:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/756502/Shooting_up_2018.pdf

Executive summary

The number of laboratory reports of acute or chronic hepatitis B in South West residents increased from 405 in 2016 to 564 in 2017, a rate of 10.1/100,000 population. This was the highest rate reported over the period 2008-2017 for the South West, but lower than that reported for England in 2017 (17.8/100,000 population).

In the South West, 38 of the reported 564 cases (6.7%) were classified as either acute or probable acute cases which was greater than that reported in 2016, but not the highest rate reported between 2010 and 2017.

The incidence rate of acute or probable acute cases in the South West was lower than that for England in 2017 (0.80/100,000 population) but higher than several other PHE centres: the North East, North West, East of England and the South East.

In 2017, Bristol upper tier local authority (UTLA) had a rate of acute or chronic laboratory reports of hepatitis B was greater than any other UTLA in the South West. It was the only UTLA with a rate that was significantly higher than the rate for the South West and England in 2017.

The highest number of acute and chronic laboratory reported cases of hepatitis B were into those aged 25-34 years for both males and females. A slightly greater proportion of reports were in males (52.5%).

Risk factor information was not available for 33.7% of those tested for Hepatitis B surface antigen (HBsAg) in Sentinal Laboratories between 2013 and 2017 and similarly, for the majority of cases that tested positive for HBsAg.

Ever infection with hepatitis B virus (HBV) has declined in people who inject drugs (PWID) in the South West over the last decade.

There was a decrease in neonatal hepatitis B vaccine coverage of three doses at 12 months to 97.8% in 2017/18 from 100% in 2016/17 but an increase in coverage of four doses at 24 months to 93.2% in 2017/18 from 91.5% in 2016/17.

In PWID in the South West, self-reported uptake of at least one dose of the HBV vaccine has increased over the last decade, from 71% in 2008 to 78% in 2017.

1. Recommendations

1. Action to improve classification of acute and chronic cases.

Anti-HBc IgM, normally a marker of acute infection, may be detected during flares in chronic infections. Chronic cases misclassified as acute can substantially increase the estimated incidence of acute hepatitis B and confuse the attribution of exposures. Local laboratories are encouraged to send samples from IgM positive cases to the national virus reference laboratory at PHE Colindale where both genotyping and avidity testing (to confirm whether acute or chronic infection) is undertaken free of charge. Cases should also be followed up for six months. Clearance of infection in this time provides additional evidence of whether the case was acute.

2. Action to improve the collection of risk factor data.

Exposure/risk factor information was not available for 33.7% of individuals tested and 32.4% of individuals testing positive for HBsAg in sentinel laboratories in the South West, between 2013 and 2017. Improved reporting of risk factors associated with HBV acquisition will enable a more comprehensive interpretation of surveillance trends, help focus prevention interventions and appropriate response to clusters.

3. Actions to improve case finding amongst men who have sex with men (MSM).

The higher proportion of male cases is in part explained by cases in MSM. These cases are likely to attend Genito-Urinary Medicine (GUM) clinics and reinforces the role of GUM clinics in facilitating the completion of enhanced surveillance questionnaires. GUM clinics are asked to continue to report cases of acute infection to their local Heath Protection Team (HPT) as per the joint Public Health England (PHE) and British Association for Sexual Health and HIV (BASHH) standard form.

2. Background

HBV is a vaccine preventable infection and is an important cause of chronic liver disease and liver cancer (hepatocellular carcinoma, HCC). Globally, the primary transmission routes for hepatitis B infection are vertical (from infected mother to new-born) or through unsafe medical practices.

In the UK hepatitis B is mainly transmitted by contact with blood and other infected bodily fluids, particularly during sex or by needle sharing in PWIDs. The majority of chronic infections are acquired abroad in people who were born or have lived in endemic countries but are now resident in the UK. Prevention strategies in the UK include vaccination of all babies (born since August 2017) and individuals at an increased risk, along with interventions aimed at reducing sharing of needles and injecting equipment amongst PWIDs. PHE Health Protection Teams (HPTs) follow-up individuals with acute hepatitis B infection in order to promote vaccination of close contacts and prevent further transmission.

The prevalence of chronic infection in the UK estimated from the sentinel surveillance programme is 1.1%; this remains low by international standards (1, 2). Globally, estimated prevalence of chronic infection in the general population is 3.5%, and an estimated 257 million people are living with HBV. HBV prevalence is higher in the Western Pacific regions (6.2%), Africa region (6.1%), Eastern Mediterranean region (3.3%) and South-East Asia region (2.0%) (3). Annual deaths worldwide from hepatitis B was estimated to be 900,000 people in 2015 and were predominantly due long-term complications of hepatocellular carcinoma or cirrhosis (3).

Interventions to prevent transmission of hepatitis B include vaccination of at-risk groups, reducing sharing of needles and injecting equipment among PWID, health care infection control policies including vaccination of staff, identifying and removing common sources of infection, screening contacts and providing infection control information to newly diagnosed cases.

Since August 2017, the UK routine childhood immunisation programme includes hepatitis B to protect against future exposure risks. Hepatitis B vaccine is also offered to those at higher risk of contracting the virus and for those at risk of liver related complications (Table 1) (4).

PHE Health Protection Teams (HPTs) coordinate the public health response to newly reported cases of acute hepatitis B, as per the agreed standards for surveillance and follow-up (5). For acute infections, HPTs attempt to identify the most likely transmission route(s), provide infection control advice to the case and recommend appropriate

testing and vaccination of close contacts. HPTs support local partners in developing systems to improve detection and management of undiagnosed hepatitis B infection.

In line with the World Health Organisation (WHO) ambition to eliminate hepatitis B and C by 2030, efforts should be targeted on prevention through universal vaccination in the childhood programme and targeted vaccination of groups at higher risk as well as effective treatment of those infected with hepatitis B (6).

3. Burden of disease

Laboratory reports of acute and chronic hepatitis B

There were 564 laboratory reports of acute or chronic hepatitis B from South West residents in 2017, a rate of 10.1/100,000 population, increasing from that reported in 2016 (7.3/100,000) and the highest rate reported over the period 2008-2017 for the South West (Figure 1 and Figure 2).

This was lower than that reported for England in 2017 (17.8/100,000 population).

In the South West, 38 of the reported 564 cases (6.7%) were classified as either acute or probable acute cases, an incidence rate of 0.69/100,000 population. This was higher than that reported for the South West in 2016 (0.53 per 100,000 population) but not the highest rate reported between 2010 and 2017 (Figure 3).

The incidence rate of acute or probable acute cases in the South West was lower than that for England in 2017 (0.80/100,000 population) as well as London, West Midlands, East Midlands and Yorkshire and Humber, but higher than the North East, North West, East of England and the South East (Figure 4).

In 2017, Bristol UTLA had a rate of acute or chronic laboratory reports of hepatitis B was greater than any other UTLAs in the South West. It was the only UTLA with a rate that was significantly higher than the rate for the South West and England in 2017 (Figure 5).

Figure 1: Number of laboratory reports of hepatitis B (acute and chronic), residents of South West PHE Centre, 2008-2017[1]

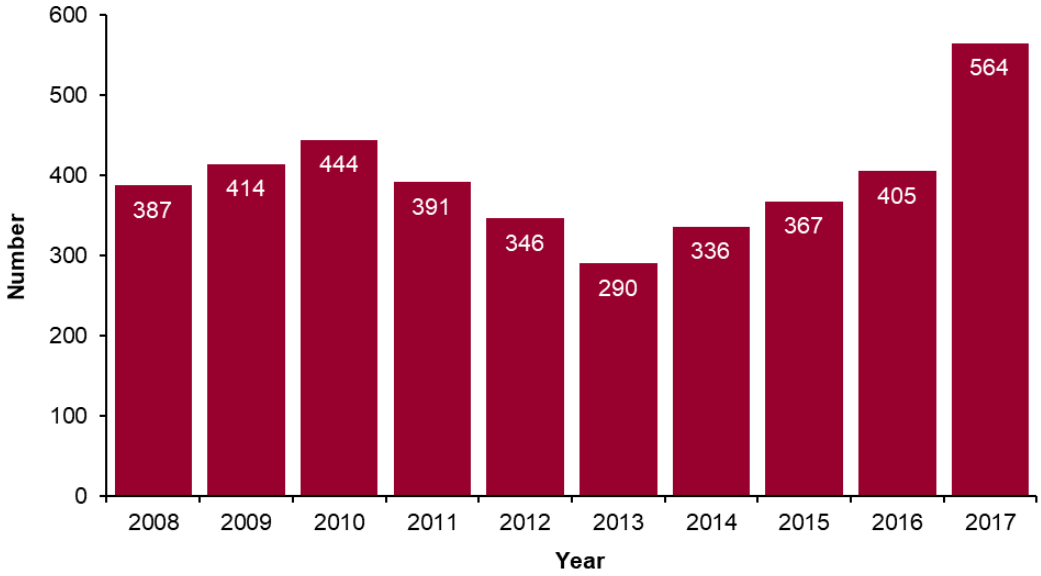
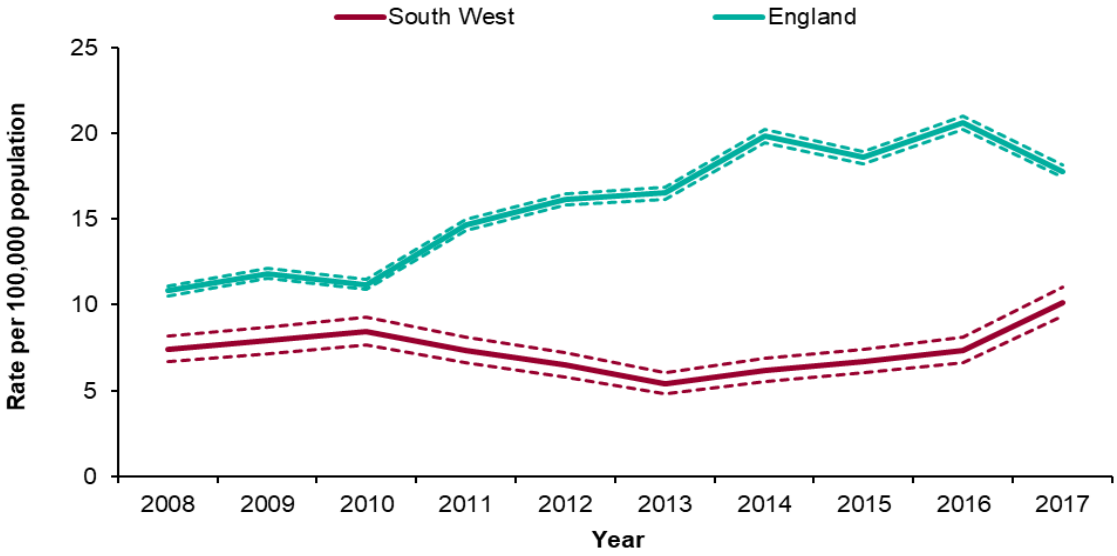


Figure 2: Laboratory reports of hepatitis B (acute and chronic) per 100,000 population, residents of South West PHE Centre and England, 2008-2017[1]



Source: Immunisation, Hepatitis and Blood Safety Department, Centre for Infectious Disease Surveillance and Control

[1] Data are summarised by PHE centre of residence, not PHE centre of laboratory. Data are assigned to PHE centre by patient postcode where present; if patient postcode is unknown, data are assigned to PHE centre of registered GP practice; where both patient postcode and registered GP practice are unknown data are assigned to PHE centre of laboratory. These data include laboratory reports for both acute and chronic hepatitis B infections and therefore cannot be used to estimate incidence. Due to improved matching and de-duplication of data, the annual number of cases and rates per 100,000 population for 2008 to 2016 may differ from the numbers and rates reported in previous reports.
Date extracted from CIDSC hepatitis database: 06/11/2018 (2017 data); 06/03/2019 (2008-2016 data).
Rates per 100,000 population have been calculated using mid-year population estimates supplied by the Office for National Statistics (ONS).

Figure 3: Incidence of acute or probable acute hepatitis B per 100,000 population, South West PHE Centre and England, 2010-2017[2]

Source: Immunisation, Hepatitis and Blood Safety Department, Centre for Infectious Disease Surveillance and Control

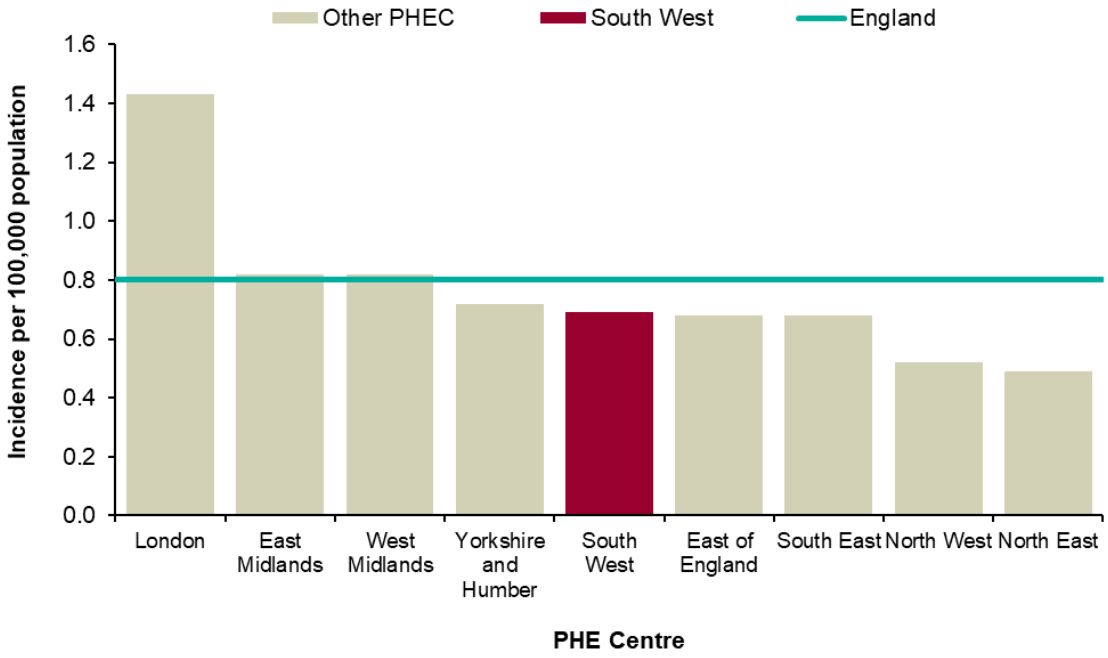
[2] The surveillance definition for acute hepatitis B is: "HBsAg positive and anti-HBc IgM positive and abnormal liver function tests with a pattern consistent with acute viral hepatitis."

As information on liver function is usually not available to PHE, for the purpose of this analysis:

- cases classified as acute viral hepatitis B by the local PHE Centre or the laboratory and/or with a documented positive anti-HBc IgM were classified as acute cases
- cases classified as acute viral hepatitis B by the PHE Centre but without anti-HBc IgM test results, or not classified but with a positive anti-HBc IgM reported were assumed to be probable acute hepatitis B cases
- cases classified as acute by the PHE Centre but with contradictory evidence e.g. positive hepatitis serology results dated before July 2012 were reclassified as chronic infections
- cases classified as chronic persistent infections or those not classified where anti-HBc IgM was negative or equivocal were assumed to be chronic infections;
- PHE Centre cases with a date entered from 1 January 2017 to 31 December 2017 were extracted from HP Zone and matched to a laboratory dataset using Microsoft Access and algorithms comparing combinations of the following variables: surname, First name, date of birth, sex, clinic number and NHS number. The laboratory database contained all confirmed hepatitis B infections reported to PHE by laboratories in England and Wales (SGSS). A final reconciled dataset included cases classified as acute or probable acute and reported from the PHE Centre and/or from laboratories around the country to SGSS. After follow up with the clinician and/or the patient, PHE Centre staff assigned a probable route of exposure and collected information on other possible exposure routes. For the analysis, where the probable route of exposure had not been assigned due to more than one exposure, the most likely route was assigned hierarchically (people who inject drugs, followed by sex between men, then heterosexual exposure, etc.).

Also available in the Acute hepatitis B (England): annual report for 2017:
www.gov.uk/government/publications/hepatitis-b-annual-report-for-2013

Figure 4: Incidence of acute or probable acute hepatitis B per 100,000 population by PHE centre, 2017[3]



Source: Immunisation, Hepatitis and Blood Safety Department, Centre for Infectious Disease Surveillance and Control

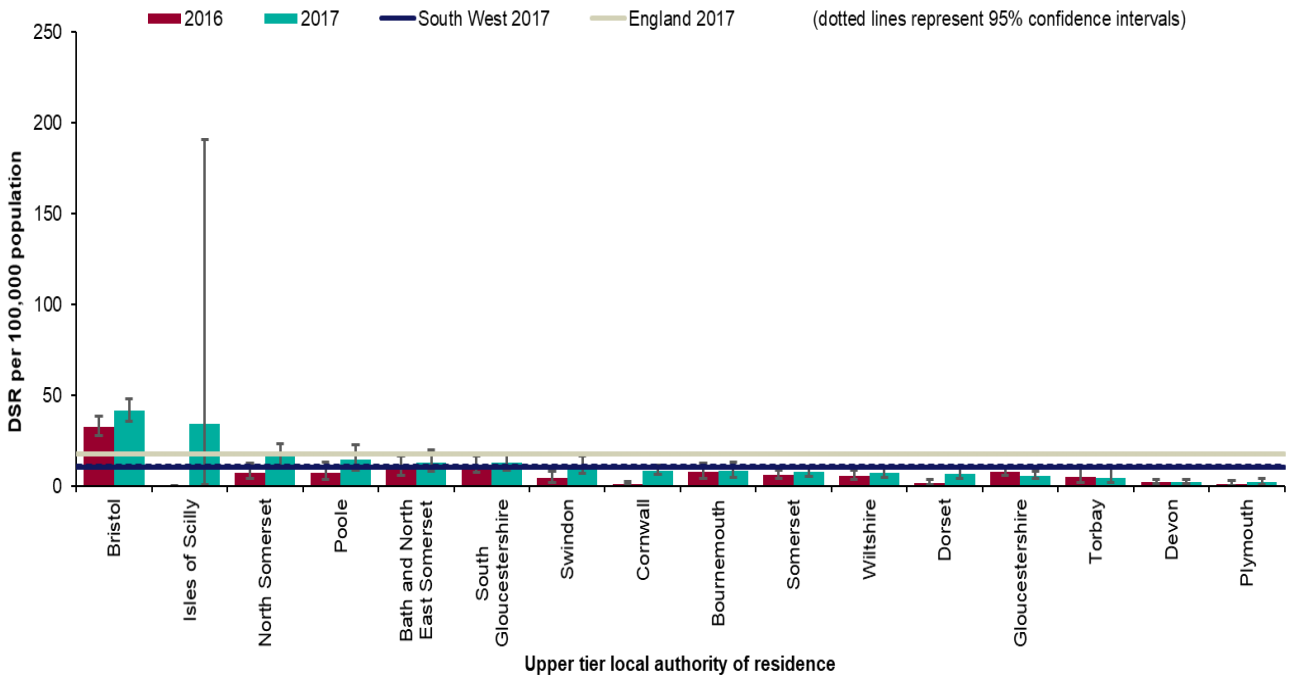
[3] The surveillance definition for acute hepatitis B is: "HBsAg positive and anti-HBc IgM positive and abnormal liver function tests with a pattern consistent with acute viral hepatitis."

As information on liver function is usually not available to PHE, for the purpose of this analysis:

- cases classified as acute viral hepatitis B by the local PHE Centre or the laboratory and/or with a documented positive anti-HBc IgM were classified as acute cases
- cases classified as acute viral hepatitis B by the PHE Centre but without anti-HBc IgM test results, or not classified but with a positive anti-HBc IgM reported were assumed to be probable acute hepatitis B cases
- cases classified as acute by the PHE Centre but with contradictory evidence e.g. positive hepatitis serology results dated before July 2012 were reclassified as chronic infections
- cases classified as chronic persistent infections or those not classified where anti-HBc IgM was negative or equivocal were assumed to be chronic infections;
- PHE Centre cases with a date entered from 1 January 2017 to 31 December 2017 were extracted from HP Zone and matched to a laboratory dataset using Microsoft Access and algorithms comparing combinations of the following variables: surname, First name, date of birth, sex, clinic number and NHS number. The laboratory database contained all confirmed hepatitis B infections reported to PHE by laboratories in England and Wales (SGSS). A final reconciled dataset included cases classified as acute or probable acute and reported from the PHE Centre and/or from laboratories around the country to SGSS. After follow up with the clinician and/or the patient, PHE Centre staff assigned a probable route of exposure and collected information on other possible exposure routes. For the analysis, where the probable route of exposure had not been assigned due to more than one exposure, the most likely route was assigned hierarchically (people who inject drugs, followed by sex between men, then heterosexual exposure, etc.).

Also available in the Acute hepatitis B (England): annual report for 2017:
www.gov.uk/government/publications/hepatitis-b-annual-report-for-2013

Figure 5: Laboratory reports of hepatitis B (acute and chronic), directly standardised rate (DSR) per 100,000 population by upper tier local authority of residence, South West PHE centre, 2016 and 2017[4]



Source: Immunisation, Hepatitis and Blood Safety Department, Centre for Infectious Disease Surveillance and Control

Data sources

Burden of disease data are from laboratory reports of Hepatitis B: Immunisation, Hepatitis and Blood Safety Department, Centre for Infectious Disease Surveillance and Control.

[4] Data are summarised by upper tier local authority of residence, not upper tier local authority of laboratory. Data are assigned to upper tier local authority by patient postcode where present; if patient postcode is unknown, data are assigned to upper tier local authority of registered GP practice; where both patient postcode and registered GP practice are unknown data are assigned to upper tier local authority of laboratory.

These data include laboratory reports for both acute and chronic hepatitis B infections and therefore cannot be used to estimate incidence.

Date extracted from CIDSC hepatitis database: 06/11/2018 (2017 data); 06/03/2019 (2008-2016 data).

Due to improved matching and de-duplication of data, the annual number of cases and DSRs for 2016 may differ from the numbers and DSRs reported in previous reports.

DSRs per 100,000 population have been calculated using mid-year population estimates supplied by the Office for National Statistics (ONS).

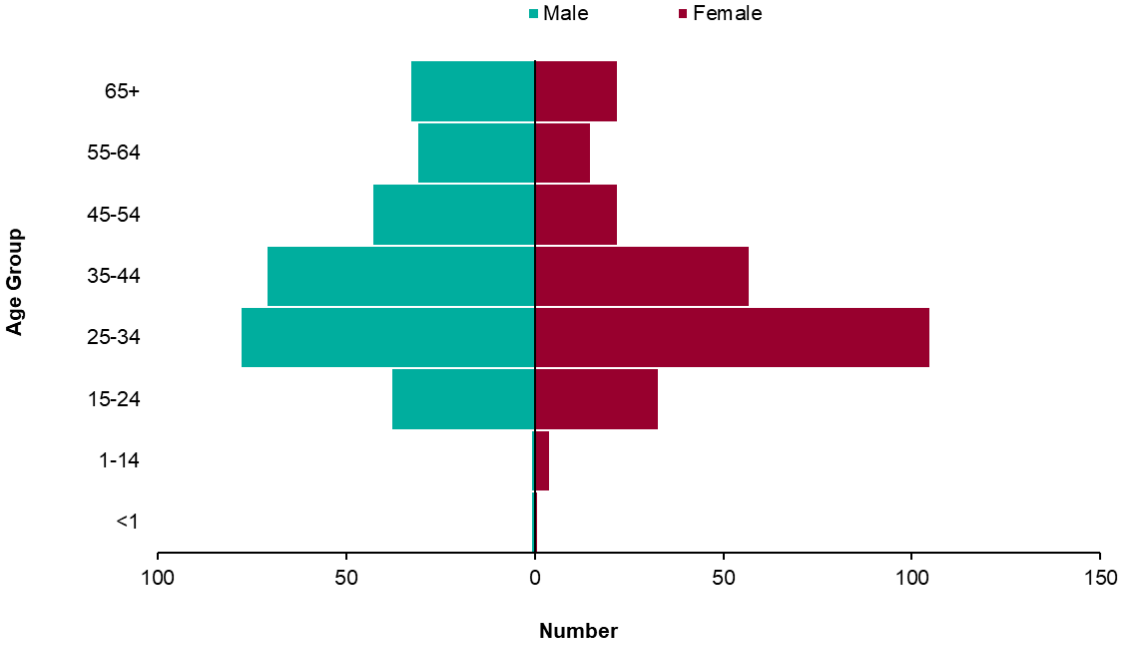
2. Case characteristics: age, gender and ethnicity

Laboratory reports: Age and gender

Of 564 acute and chronic laboratory reported cases of hepatitis B in the South West, more were reported for males (296, 52.5%) compared to females (259, 45.9%) (Figure 6) with the rest reported as unknown.

For both males and females, 25-34-year olds had the highest number of acute and chronic laboratory reported cases of hepatitis B followed by 35-44 year olds (Figure 6).

Figure 6: Age group and gender of laboratory reported cases of hepatitis B (acute and chronic), residents of South West PHE Centre, 2017[5]



Source: Immunisation, Hepatitis and Blood Safety Department, Centre for Infectious Disease Surveillance and Control

[5] Data are summarised by PHE centre of residence, not PHE centre of laboratory. Data are assigned to PHE centre by patient postcode where present; if patient postcode is unknown, data are assigned to PHE centre of registered GP practice; where both patient postcode and registered GP practice are unknown data are assigned to PHE centre of laboratory.

These data include laboratory reports for both acute and chronic hepatitis B infections and therefore cannot be used to estimate incidence.

Date extracted from CIDSC hepatitis database: 06/11/2018.

Sentinel surveillance programme for blood borne viruses (BBV): ethnicity

The number of individuals tested for HBsAg in sentinel laboratories in 2017 was highest for those of White ethnicity and lowest for those of Black ethnicity (Table 1).

The greatest proportion of Other/Mixed ethnicity individuals tested positive for HBsAg (7.8%), followed by Black (6.1%), Asian (2.4%), Unknown (0.8%) and White (0.4%) ethnicities (Table 1).

Table 1: Number of individuals tested and testing positive for HBsAg in sentinel laboratories by ethnic group (excluding antenatal testing), 2017[6]

Ethnic group	Number individuals tested (N)	Number positive (N)	Proportion positive (%)
Asian	1,196	29	2.4
Black	212	13	6.1
Other/Mixed	372	29	7.8
White	19,656	78	0.4
Unknown	4,440	37	0.8
Total	25,876	186	0.7

Data sources

Age and gender data are from laboratory reports of Hepatitis B: Immunisation, Hepatitis and Blood Safety Department, Centre for Infectious Disease Surveillance and Control.

Ethnicity data are from the Sentinel Surveillance programme for Blood Borne Viruses: Immunisation, Hepatitis and Blood Safety Department, National Infection Service.

[6] These sentinel surveillance data exclude dried blood spot, oral fluid, reference testing and testing from hospitals referring all samples. Data are de-duplicated subject to availability of date of birth, soundex and first initial. All data are provisional.

A combination of self-reported ethnicity, and OnoMap and NamPehchan name analyses software were used to classify individuals according to broad ethnic group.

3. Exposure route

Sentinel surveillance programme for BBV: Risk exposure [7]

Exposure/risk factor information was not available for 33.7% of individuals tested for HBsAg in sentinel laboratories in the South West, between 2013 and 2017.

In the same time period:

- for those individuals testing positive for HBsAg, 5.9% had sexual exposure and 3.8% had travel exposure
- risk of infection not specified was identified for 5.9% of HBsAg positive cases
- risk factor information was not available for the majority of cases which tested positive for HBsAg (32.4%)

Data sources

Exposure/risk factor data are from the Sentinel Surveillance programme for Blood Borne Viruses: Immunisation, Hepatitis and Blood Safety Department, National Infection Service.

[7] These sentinel surveillance data exclude dried blood spot, oral fluid, reference testing and testing from hospitals referring all samples. Data are de-duplicated subject to availability of date of birth, soundex and first initial. All data are provisional.

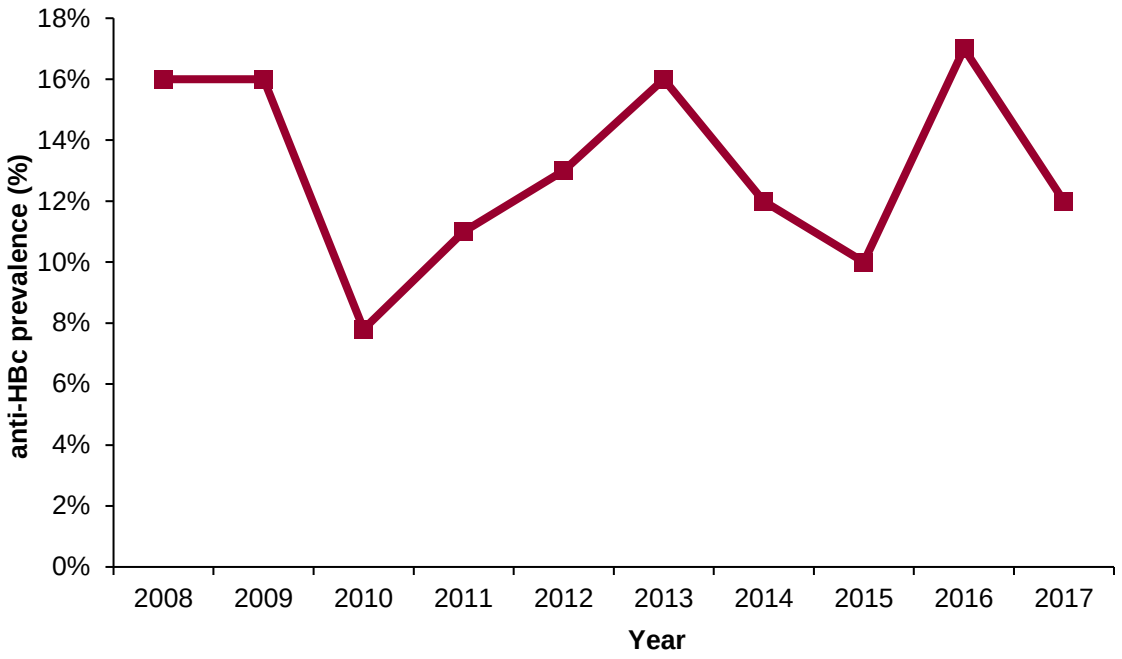
4. Hepatitis in People Who Inject Drugs (PWID)

PWID: prevalence

Hepatitis B can be transmitted through the sharing of needles, syringes and other injecting equipment among PWID. The proportion of PWID who have ever been infected with HBV in England, Wales and Northern Ireland has declined over the past 10 years, falling from 20% in 2007 to 16% in 2017 (7). During 2017, 0.19% of the Unlinked Anonymous Monitoring Survey of HIV and Hepatitis in People Who Inject Drugs (UAM) participants had a current hepatitis B infection (7), a portion which has remained stable in recent years. This suggests that around 1 in every 500 PWID is currently living with an HBV infection.

In the South West, the prevalence of ever infection with HBV as measured by the prevalence of the antibody Anti-HBc, has decreased over the last decade (16% in 2008 to 12% in 2017) (Figure 7) and in 2017 was lower than that seen in England overall (17%).

Figure 7: Anti-HBc prevalence among PWID, South West, 2008-2017[8]



Source: HIV & STI Department, National Infection Service (data from Unlinked Anonymous Monitoring Survey of HIV and Hepatitis in People Who Inject Drugs)

Data sources

Data for Hepatitis in People Who Inject Drugs (PWID) are from the Unlinked Anonymous Monitoring Survey (UAMS) of HIV and Hepatitis in People Who Inject Drugs: HIV & STI Department, National Infection Service.

[8] Data from the Unlinked Anonymous Monitoring Survey of people who inject drugs in contact with specialist services. During 2009-2010 the biological sample collected by UAM survey changed from an oral fluid sample to a dried blood spot (DBS). From 2011 onwards, only DBS samples have been collected. The sensitivity of testing for hepatitis B core antigen in each sample type differ, being close to 100% in DBS samples and around 75% in oral fluid samples. Data prior to 2011 have been adjusted to account for the lower sensitivity of oral fluid samples allowing for comparison of trends over time.

5. Infectious diseases in pregnancy screening (IDPS) programme

From 1 April 2016 to 30 March 2017, 42,406 pregnant women were tested for hepatitis B within the IDPS in the South West (8).

Of these, 75 were screen positive, a rate of 1.77 per 1,000 women tested which includes women newly diagnosed and those previously diagnosed. Eighteen were newly diagnosed with hepatitis B, a rate of 0.42 per 1,000 women tested. These rates were lower than that seen for England: 3.79 per 1,000 women tested and 0.89 per 1,000 women tested for screen positive and newly diagnosed women respectively (8).

Data sources

Hepatitis in pregnancy data are from the Infectious diseases in pregnancy screening (IDPS) programme: Infectious Diseases in Pregnancy Screening: Standards data report April 2016 to March 2017 (8).

6. Outcomes

Hospital admissions

Data on number of hospitals admissions for people with diagnosis code for acute or chronic hepatitis B, HBV-related end-stage liver disease (ESLD) and for HBV-related hepatocellular carcinoma (HCC), is not yet available for 2017. Hospital admission rates for the South West in 2012/13 – 14/15 can be seen in Fingertips liver disease profiles for hospital admissions, Figure 8.

Figure 8: Crude rate of hospital admissions due to hepatitis B related end-stage liver disease/hepatocellular carcinoma per 100,000 population, 2012/13 – 14/15

Area	Recent Trend	Count	Value	95% Lower CI	95% Upper CI
England		1,848	1.14	1.09	1.20
South West region		77	0.48	0.38	0.60
Bath and North East Somerset		-	*	-	-
Bournemouth		-	*	-	-
Bristol		17	1.30	0.75	2.07
Cornwall		8	0.49*	0.21	0.97
Devon		7	0.31	0.12	0.63
Dorset (Cty)		-	*	-	-
Gloucestershire		6	0.33	0.12	0.72
Isles of Scilly		-	*	-	-
North Somerset		-	*	-	-
Plymouth		7	0.90	0.36	1.85
Poole		-	*	-	-
Somerset		-	*	-	-
South Gloucestershire		-	*	-	-
Swindon		-	*	-	-
Torbay		-	*	-	-
Wiltshire		-	*	-	-

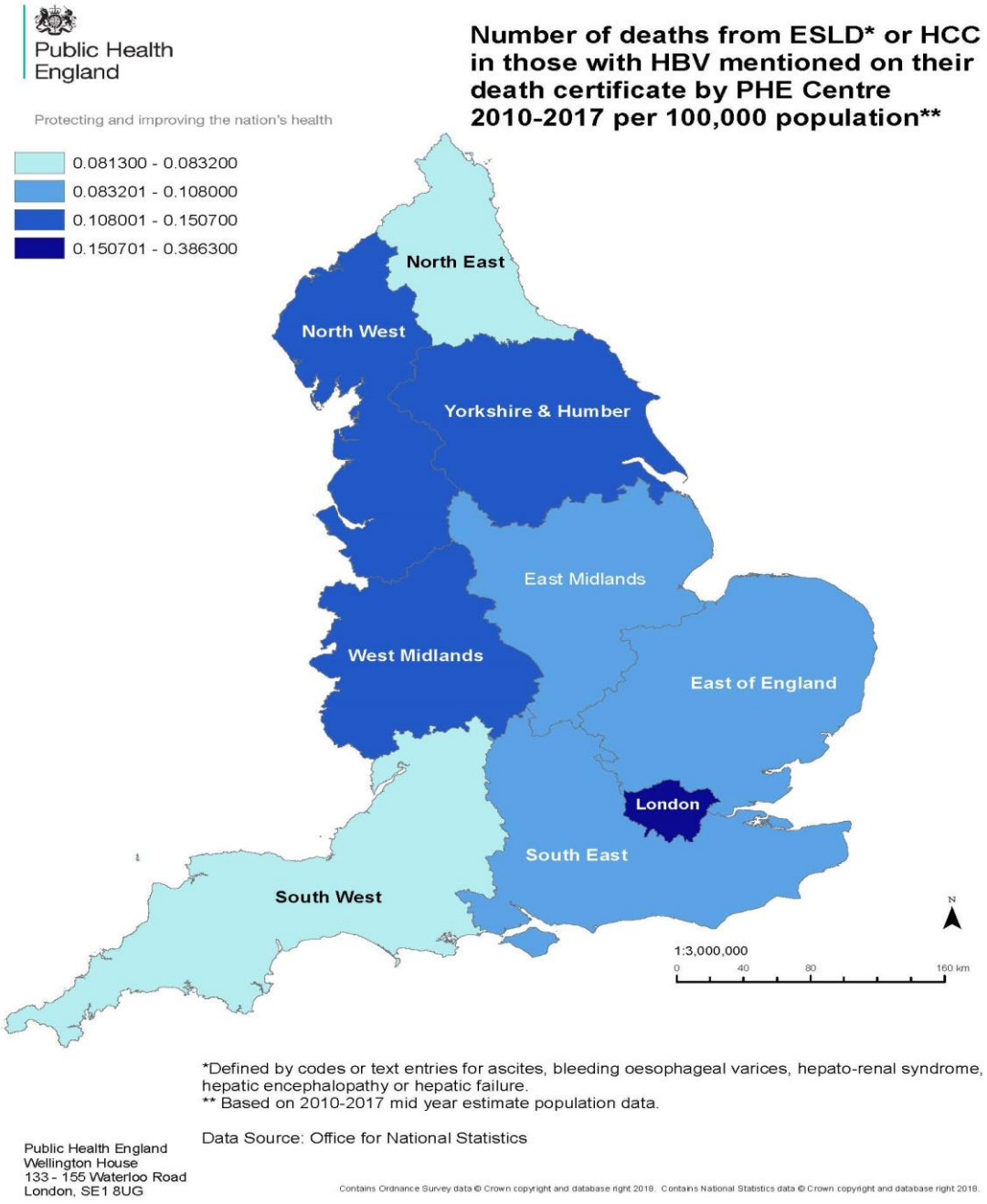
Source: Fingertips liver disease profiles for hospital admissions. Calculated by Public Health England: Clinical Epidemiology Knowledge and Intelligence from data from NHS Digital, formally the Health and Social Care Information Centre (HSCIC) - Hospital Episode Statistics (HES) and Office for National Statistics (ONS) - Mid Year Population Estimates

Mortality

The number of deaths from ESLD or HCC in those with HBV as mentioned on their death certificate by PHE Centre, 2010-2017, per 100,000 population was lower in the South West and the North East compared to other PHE Centres (East Midlands, East of England, South East, West Midlands, North West, Yorkshire & Humber and London) (Figure 9).

Mortality rates in the South West as well as England overall, can be seen in Fingertips liver disease profiles for mortality (Figure 10).

Figure 9: Deaths from ESLD or HCC by PHE Centre, 2010-2017, per 100,000 population[9]



Source: Office for National Statistics (ONS). ONS carried out the original collection and collation of the data but bear no responsibility for their future analysis or interpretation.

[9] Data is for both acute and chronic hepatitis B.

Figure 10: Crude rate of mortality from hepatitis B related end-stage liver disease/hepatocellular carcinoma in persons less than 75 years per 100,000 population, 2015-2017

Area	Recent Trend	Count	Value	95% Lower CI	95% Upper CI
England		199	0.13	0.11	0.15
South West region		16	0.11	0.06	0.17
Bath and North East Somerset		0	0.00	0.00	0.72
Bournemouth		1	0.19	0.00	1.05
Bristol		3	0.23	0.05	0.68
Cornwall		1	0.07*	0.00	0.37
Devon		2	0.10	0.01	0.35
Dorset (Cty)		2	0.18	0.02	0.66
Gloucestershire		0	0.00	0.00	0.22
Isles of Scilly		-	*	-	-
North Somerset		0	0.00	0.00	0.65
Plymouth		1	0.14	0.00	0.77
Poole		1	0.25	0.01	1.38
Somerset		0	0.00	0.00	0.25
South Gloucestershire		3	0.40	0.08	1.16
Swindon		1	0.16	0.00	0.91
Torbay		1	0.28	0.01	1.57
Wiltshire		0	0.00	0.00	0.28

Source: Fingertips liver disease profiles for mortality. Public Health England (based on ONS source data).

Data sources

Fingertips liver disease profiles for hospital admissions. Calculated by Public Health England: Clinical Epidemiology Knowledge and Intelligence from data from NHS Digital, formally the Health and Social Care Information Centre (HSCIC) - Hospital Episode Statistics (HES) and Office for National Statistics (ONS) - Mid Year Population Estimates Office for National Statistics (ONS).

Deaths from End Stage Liver Disease (ESLD) and Hepatocellular Carcinoma (HCC): Office of National Statistics (ONS). (Please note ONS carried out the original collection and collation of the data but bear no responsibility for their future analysis or interpretation).

Fingertips liver disease profiles for mortality*:* Calculated by Public Health England using ONS source data.

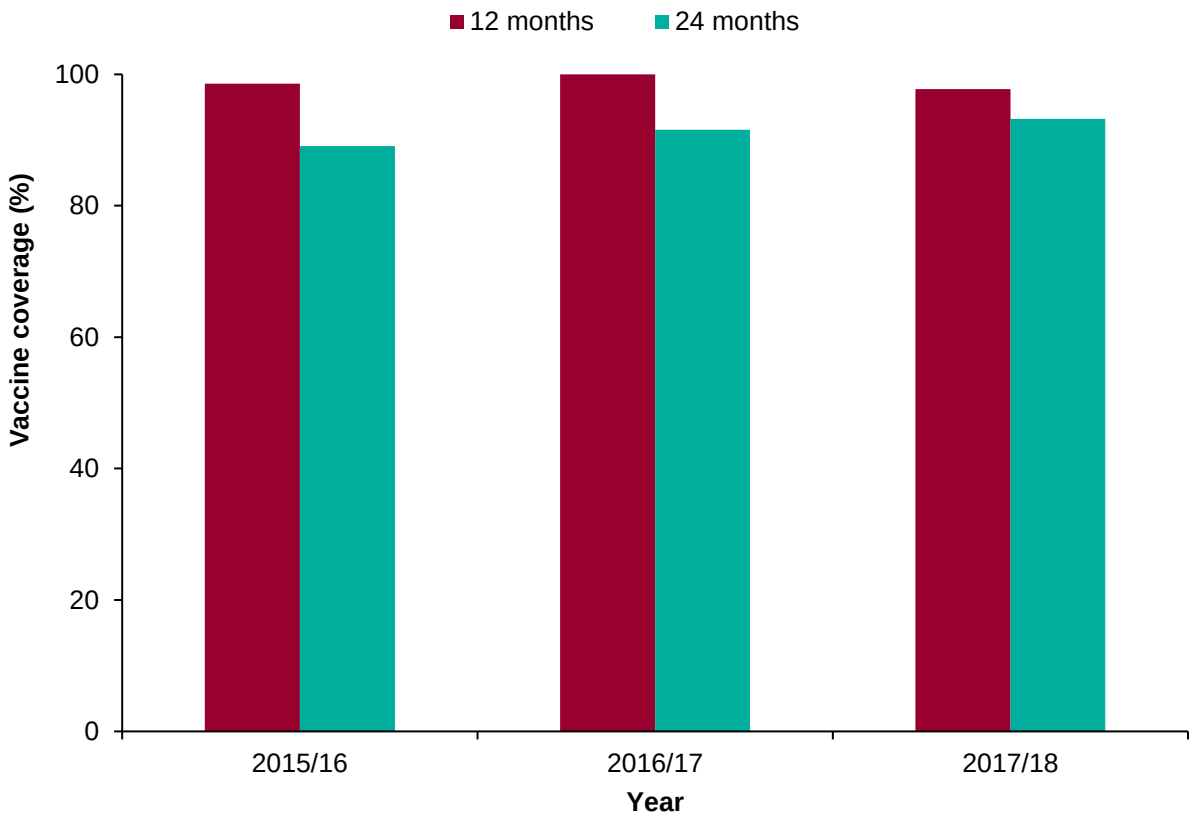
7. Prevention

Neonatal vaccination

Neonatal vaccination data pre-dates the inclusion of the hepatitis B virus vaccination within the routine childhood immunisation programme in late 2017, and therefore, reflects uptake during the selective neonatal immunisation programme prior to this (4).

Neonatal hepatitis B vaccine coverage of three doses at 12 months in the South West PHE Centre, decreased to 97.8% in 2017/18 from 100% in 2016/17 (Figure 11). Neonatal hepatitis B vaccine coverage of four doses at 24 months in the South West PHE Centre increased to 93.2% in 2017/18 from 91.5% in 2016/2017 (Figure 11).

Figure 11: Neonatal hepatitis B vaccine coverage of three doses at 12 months and four doses at 24 months, South West PHE Centre, 2015/16 – 2017/18[10]

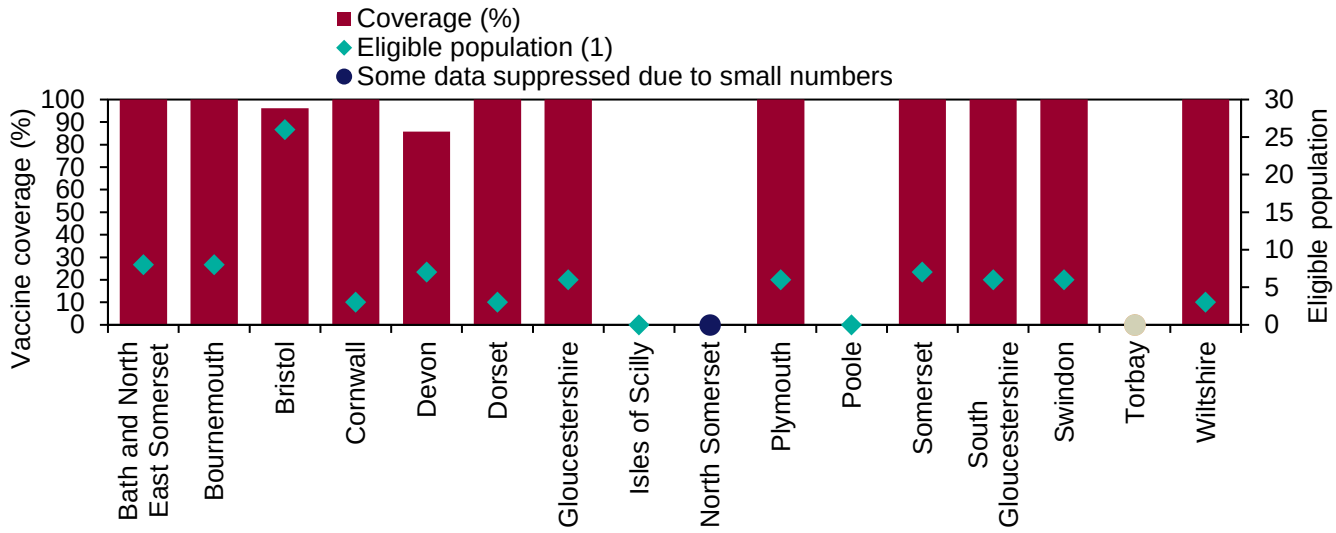


Source: COVER, National Infection Service

[10] Data should be interpreted with caution due to variability in the number of local authorities (LAs) reporting from year to year.

Neonatal vaccination by first birthday, UTLA

Figure 12: Children vaccinated against hepatitis B by their first birthday by upper tier local authority: vaccine coverage and eligible population, South West PHE Centre, 2017/18[11]



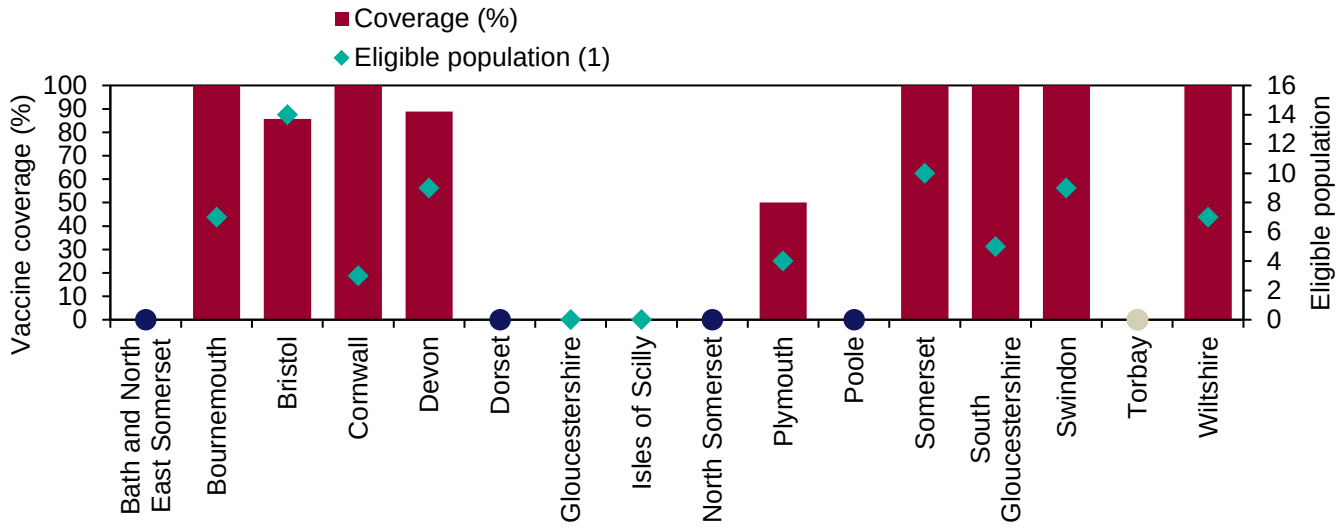
Source: Childhood Vaccination Coverage Statistics, England, 2017-18 Copyright © 2018. NHS Digital. Also available at: http://digital.nhs.uk/pubs/childvaccstats1718

[11] (1) Total number of children reaching their first/second birthday during the specified evaluation period with maternal Hep B positive status.
(2) Percentage of children from eligible receiving 3 doses of vaccine before their first birthday / 4 doses of vaccine before their second birthday.

Small number suppression is carried out using the following methodology:
a. Suppress all data (i.e. eligible population, number vaccinated and coverage) where the eligible population is 1 or 2. b. Where the eligible population is greater than 2 and the number of children vaccinated is 0 or 1, suppress the number of children vaccinated and the coverage.

Neonatal vaccination by second birthday, UTLA

Figure 13: Children vaccinated against hepatitis B by their second birthday by upper tier local authority: vaccine coverage and eligible population, South West PHE Centre, 2017/18[12]



Source: Childhood Vaccination Coverage Statistics, England, 2017-18 Copyright © 2018. NHS Digital. Also available at: http://digital.nhs.uk/pubs/childvaccstats1718

PWID: Vaccination

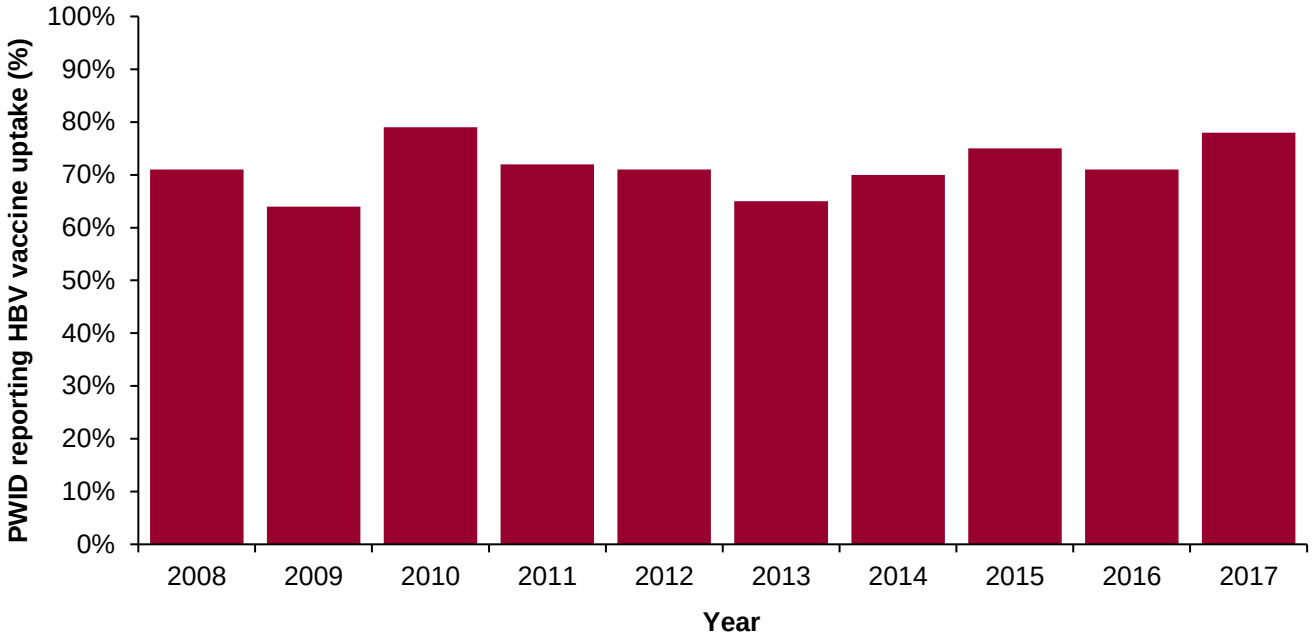
PWID are a priority group for HBV vaccination, this includes those who inject intermittently and those who are likely to 'progress' to injecting, for example those who currently smoke heroin and/or crack (9). A course of 3 doses is recommended, with vaccine given at 0, 1 and 2 months, although an accelerated course may be appropriate for those exhibiting chaotic lifestyles or those who have difficulty engaging with services (10).

In England, Wales and Northern Ireland, self-reported uptake of at least one dose of the hepatitis B vaccine has plateaued at around 72% between 2008 and 2017. In 2017, self-reported HBV vaccine uptake was particularly low in the under-25 age group (64%) and those who began injecting less than 3 years ago (57%).

[12] (1) Total number of children reaching their first/second birthday during the specified evaluation period with maternal Hep B positive status.
(2) Percentage of children from eligible receiving 3 doses of vaccine before their first birthday / 4 doses of vaccine before their second birthday.
Small number suppression is carried out using the following methodology:
a. Suppress all data (i.e. eligible population, number vaccinated and coverage) where the eligible population is 1 or 2.
b. Where the eligible population is greater than 2 and the number of children vaccinated is 0 or 1, suppress the number of children vaccinated and the coverage.

In the South West, self-reported uptake of at least one dose of the HBV vaccine has increased over the last decade, from 71% in 2008 to 78% in 2017 (Figure 14) which is higher than that seen in England overall (73%).

Figure 14: Reported level of hepatitis B vaccine uptake among PWID, South West, 2008-2017[13]



Source: HIV & STI Department, National Infection Service (data from Unlinked Anonymous Monitoring Survey of HIV and Hepatitis in People Who Inject Drugs)

Data sources

Vaccine coverage of neonates by PHE Centre: COVER, National Infection Service

Neonatal vaccination by first and second birthday: NHS Digital, Copyright © 2018

Vaccination in People Who Inject Drugs (PWID): Unlinked Anonymous Monitoring Survey (UAMS) of HIV and Hepatitis in People Who Inject Drugs - HIV & STI Department, National Infection Service (data from Unlinked Anonymous Monitoring Survey of HIV and Hepatitis in People Who Inject Drugs)

[13] Data from the Unlinked Anonymous Monitoring Survey of people who inject drugs in contact with specialist services.

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Data sources: notes

Laboratory reports

These data include laboratory reports for both acute and chronic hepatitis B infections and therefore cannot be used to estimate incidence.

Acute incidence

The surveillance definition for acute hepatitis B is:

“HBsAg positive and anti-HBc IgM positive and abnormal liver function tests with a pattern consistent with acute viral hepatitis.”

As information on liver function is usually not available to PHE, for the purpose of this analysis, cases classified as:

- acute viral hepatitis B by the local PHE Centre or the laboratory and/or with a documented positive anti-HBc IgM were classified as acute cases
- acute viral hepatitis B by the PHE Centre but without anti-HBc IgM test results, or not classified but with a positive anti-HBc IgM reported were assumed to be probable acute hepatitis B cases
- acute by the PHE Centre but with contradictory evidence e.g. positive hepatitis serology results dated before July 2012 were reclassified as chronic infections
- chronic persistent infections or those not classified where antiHBc IgM was negative or equivocal were assumed to be chronic persistent infections

PHE Centre cases with a date entered from 1 January 2017 to 31 December 2017 were extracted from HP Zone and matched to a laboratory dataset using Microsoft Access and algorithms comparing combinations of the following variables: Surname, First name, date of birth, sex, clinic number and NHS number. The laboratory database contained all confirmed hepatitis B infections reported to PHE by laboratories in England and Wales (Second Generation Surveillance System, SGSS). A final reconciled dataset included cases classified as acute or probable acute and reported from the PHE Centre and/or from laboratories around the country to SGSS. After follow-up with the clinician and/or the patient, PHE Centre staff assigned a probable route of exposure and collected information on other possible exposure routes. For the analysis, where the probable route of exposure had not been assigned due to more than one exposure, the most likely route was assigned hierarchically (people who inject drugs, followed by sex between men, then heterosexual exposure, etc.).

Sentinel testing

Excludes dried blood spot, oral fluid, reference testing and testing from hospitals referring all samples. Data are de-duplicated subject to availability of date of birth, soundex and first initial. All data are provisional.

Abbreviations

Anti-HBc	Hepatitis B core antibody - appears at onset of symptoms in acute hepatitis B and persists for life; presence indicates resolving or resolved infection if the individual is HBsAg negative.
Anti-HBc IgM	Antibody that is produced in response to hepatitis B virus infection
BASHH	British Association for Sexual Health and HIV
BBV	Blood Borne Virus
COVER	Cover of Vaccination Evaluated Rapidly
ESLD	End Stage Liver Disease
GUM	Genito-Urinary Medicine
HBsAg	Hepatitis B surface Antigen (a protein on the surface of the hepatitis B virus) - detected during acute or chronic hepatitis B virus infection.
HBV	Hepatitis B Virus
HCC	Hepatocellular Carcinoma
HES	Hospital Episode Statistics
HPT	Health Protection Team
HSCIC	Health and Social Care Information Centre
IDPS	Infectious Disease in Pregnancy Screening programme
LA	Local authority
ONS	Office for National Statistics
PHE	Public Health England
PWID	Persons who inject drugs
SGSS	Second Generation Surveillance System
UAM	Unlinked Anonymous Monitoring Survey of HIV and Hepatitis in People Who Inject Drugs
UTLA	Upper Tier Local Authority
WHO	World Health Organisation

Acknowledgments

The authors would like to thank everyone involved in the collation and provision of data used within this report.

Appendix 1: Information sources

This report uses several data sources to describe the epidemiology of hepatitis B. These are summarised below.

Clinical hepatitis notifications

Acute viral hepatitis is a statutorily notifiable disease in the UK. Clinicians are required to report cases of acute viral hepatitis based on clinical suspicion to Public Health England (PHE): www.gov.uk/government/publications/hepatitis-b-annual-report-for-2013

Laboratory notifications of hepatitis B

Since 2010 laboratories have a statutory requirement to report all diagnoses of hepatitis B, both chronic and acute, to PHE. They usually differentiate between acute and chronic cases.

Sentinel Surveillance of Blood-borne Virus testing

Three laboratories in the South East region collected additional information on all hepatitis B testing in 2016 (Ashford laboratory, Brighton laboratory and Portsmouth laboratory): www.gov.uk/government/publications/sentinel-surveillance-of-blood-borne-virus-testingin-england-2017

Antenatal infection surveillance

The National Antenatal Infections Screening Monitoring (NAISM) programme monitored the uptake and test results of antenatal screening for hepatitis B susceptibility in England: www.gov.uk/government/publications/nationalantenatal-infections-screening-monitoring-annual-data-tables

The Unlinked Anonymous Monitoring Survey of HIV and Hepatitis in people who inject drugs (PWID) aims to measure the changing prevalence of HIV, hepatitis B and hepatitis C in PWID who are in contact with specialist drug agencies (e.g. needle exchange services and treatment centres). The programme also monitors levels of risk and protective behaviours among PWID. The data are used to assess and develop appropriate preventative and health education campaigns, evaluate the impact of such interventions, and to assist in the provision of services for PWID in the United Kingdom: www.gov.uk/government/publications/people-who-inject-drugs-hiv-and-viral-hepatitismonitoring

Infants born to hepatitis B positive mothers

Information on childhood immunisation coverage at ages 1, 2 and 5 years is collected through the Cover of Vaccination Evaluated Rapidly (COVER) data collection for Upper Tier Local Authorities (UTLAs): https://digital.nhs.uk/data-and-information/publications/statistical/nhs-immunisationstatistics/childhood-vaccination-coverage-statistics-england-2016-17

Liver Disease Profiles

The website contains data health indicators relating to hepatitis B for Upper Tier Local Authorities. This includes hospital admission and mortality data from the Hospital Episode Statistics (HES) and Office for National Statistics (ONS). Data from the National Drug Treatment Monitoring System are also included. Further details on each data source can be found on the website: https://fingertips.phe.org.uk/profile/liver-disease

Due to a lack of routinely collected data sources, no information is available on the prevalence of hepatitis B in the general population and the proportion of infected persons who are receiving treatment for hepatitis B. Antenatal testing of pregnant women provides a good estimate of prevalence in women of childbearing age.