



Public Health
England

Protecting and improving the nation's health

Hepatitis C in the East of England

2017 data

About Public Health England

Public Health England exists to protect and improve the nation's health and wellbeing and reduce health inequalities. We do this through world-leading science, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. We are an executive agency of the Department of Health and Social Care, and a distinct delivery organisation with operational autonomy. We provide government, local government, the NHS, Parliament, industry and the public with evidence-based professional, scientific and delivery expertise and support.

Public Health England
Wellington House
133-155 Waterloo Road
London SE1 8UG
Tel: 020 7654 8000
www.gov.uk/phe
Twitter: [@PHE_uk](https://twitter.com/PHE_uk)
Facebook: www.facebook.com/PublicHealthEngland

Prepared by: Eleanor Blakey and Lynsey Emmett, East of England Field Epidemiology Service

For queries relating to this document, please contact: lynsey.emmett@phe.gov.uk



© Crown copyright 2018

You may re-use this information (excluding logos) free of charge in any format or medium, under the terms of the Open Government Licence v3.0. To view this licence, visit [OGL](https://www.ogilive.com/). Where we have identified any third party copyright information you will need to obtain permission from the copyright holders concerned.

Published July 2019
PHE publications
gateway number: GW-539

PHE supports the UN
Sustainable Development Goals



Contents

About Public Health England	2
Contents	3
Executive summary	4
Introduction and background	6
Testing and diagnosis of HCV	7
Laboratory reports	7
Data quality	7
General population	13
Black and minority ethnic populations	17
People who inject drugs	19
HCV prevalence among PWID	19
Needle and syringe sharing and use of needle and syringe programmes among PWID	20
HCV testing uptake among PWID	21
New and repeat blood donors	22
Secondary care and outcomes	24
Hospital admissions and deaths for HCV-related end-stage liver disease/hepatocellular carcinoma	24
Registrations and liver transplants undertaken	27
Increasing the numbers accessing hepatitis C treatment	29
Acknowledgements	30
Appendices	31
ODN Data	31
Glossary of abbreviations	36

Executive summary

Hepatitis C (HCV) is a viral blood-borne infection that is often asymptomatic in the early stages of infection. Consequently, many individuals with chronic HCV infection remain undiagnosed and fail to access treatment. Over time, the infection causes progressive liver damage and individuals often present late with complications that have poor survival rates.

In recent years, new direct acting antiviral (DAA) drugs have revolutionised HCV treatment. These new drugs are effective, easy to take and do not make people unwell in the way that earlier treatments did. NHS England is responsible for commissioning and funding access to these drugs via Operational Delivery Networks.

In 2017, in the East of England, there were 1,027 laboratory reports of individuals testing positive for antibodies to HCV and/or HCV RNA reported. The number of reports in the East of England increased steadily between 2013 and 2016 but decreased slightly from 2016 to 2017.

From 2013 to 2015, hospital admissions from HCV related end-stage liver disease (ESLD) and hepatocellular carcinoma (HCC) in the East of England remained relatively stable but declined sharply into 2016. This is probably due to reporting delay.

HCV was the primary indication for 12% of liver transplants in the East of England from 2013 to 2017. East of England has one of the lowest death rates in England from ESLD or HCC in individuals who have HCV mentioned on their death certificate. Data for hospital admissions for 2017 are not currently available.

Injecting drug use remains the most important risk factor for HCV infection. In the East of England, PHE's Unlinked Anonymous Monitoring (UAM) Survey estimated the prevalence of hepatitis C in persons who inject drugs (PWID) to be 45% in 2017. Individuals of South Asian and Eastern European origin, where the prevalence of HCV is high, are groups at high risk of infection. The greatest proportion of individuals testing positive for anti-HCV are males with the peak age group being 45 to 54 years.

Prevention is primarily focused on PWID, and there has been some success in reducing the sharing of injecting equipment. However, over the past 5 years the proportion has started to rise in the East of England with the proportion of current injectors reporting direct and indirect sharing in the past month was 47%.

Raising awareness, leading to increased (and where appropriate repeat) testing is important to identify undiagnosed cases, as in 2016 around a third of those ever infected with hepatitis C, are unaware that they ever contracted the virus and thus remain undiagnosed.

Public Health England and NHS England estimate that there are tens of thousands of people currently living with diagnosed hepatitis C infection who are not in contact with treatment services. To enable people previously diagnosed with hepatitis C to be treated for their infection, NHS England and Public Health England are undertaking a national 'patient re-engagement exercise, to help find and treat people with hepatitis C infection.

With the advances in treatment, reductions in HCV morbidity and mortality should be possible. However, reducing the number of new infections among those most at risk is likely to prove more challenging. Tackling HCV infection among PWID is vital to achieving this.

Introduction and background

The latest Public Health England (PHE) report on HCV in England estimated that 200,000 people were chronically infected with the majority from marginalised and underserved groups in society.¹

Early diagnosis and management of an infected person may prevent hospital admissions due to end-stage liver disease (ESLD) and hepatocellular carcinoma (HCC) due to HCV. It has been estimated that the cost saved per case of ESLD/HCC averted in England is between £100,000 and £150,000.² Treatment of a mild case of (early diagnosed) HCV is between £10,000 and £20,000.²

In recent years, new direct acting antiviral (DAA) drugs have revolutionised HCV treatment. These new drugs are effective, easy to take and do not make people unwell in the way that earlier treatments did. These well tolerated drugs, which will cure patients of HCV infection, are now offered without any restriction to all patients testing positive for HCV infection. NHS England is responsible for commissioning and funding access to these drugs via Operational Delivery Networks.

In May 2016, the UK signed up to the World Health Organization (WHO) Global Health Sector Strategy (GHSS) on Viral Hepatitis which commits participating countries to the elimination of HCV as a major public health threat by 2030.³ As part of this the UK has committed to meeting targets of an 80% reduction in incidence of HCV infection and a 65% reduction in mortality from HCV by 2030. The focus of the PHE vision is captured in the following statement:

Vision statement

All people at risk of hepatitis C virus infection should have access to testing and once tested, action should be taken to either reduce their risk of infection, prevent further transmission of the virus, or if they are infected – to place the patient on a treatment pathway.

This report summarises the scale of the HCV problem in the East of England in 2017.

¹ Public Health England. Hepatitis C in England 2018 report. PHE; 2018.

² Harris RJ et al. 2014. Increased uptake and new therapies are needed to avert rising hepatitis C related end stage liver disease in England: modelling the predicted impact of treatment under different scenarios. *Journal of Hepatology*. 61;3:530-537.

³ WHO. Global Health Sector Strategy on Viral Hepatitis 2016-2022. Towards ending viral hepatitis.

Testing and diagnosis of HCV

This section provides an overview of the testing and diagnosis of HCV across the East of England.

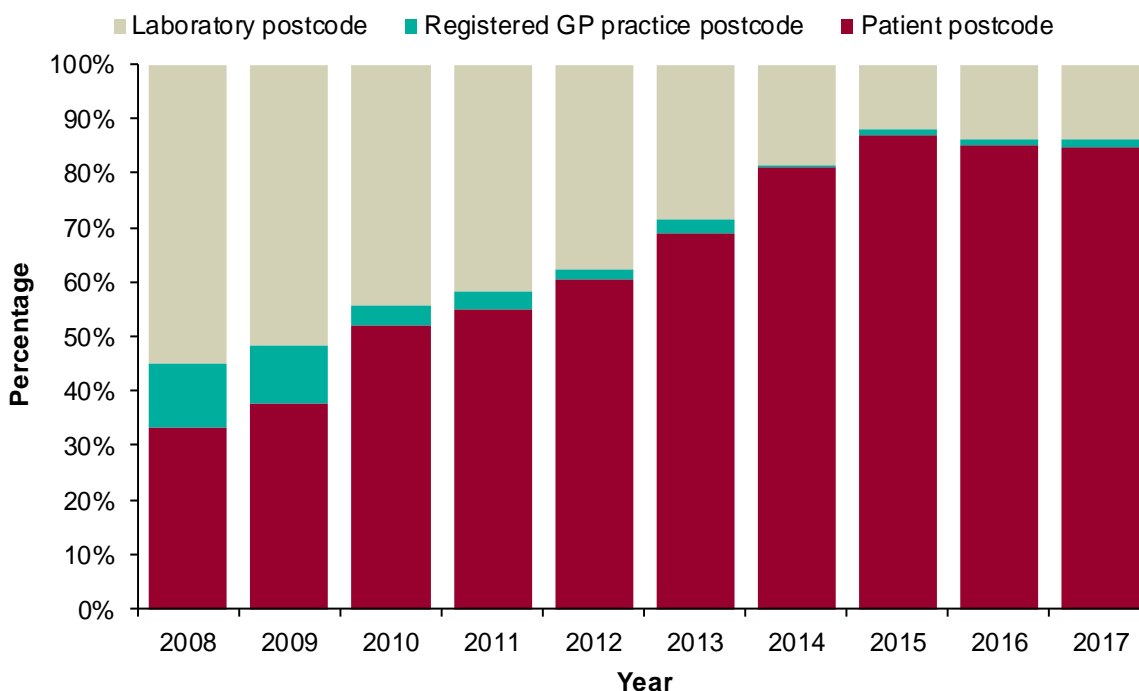
Laboratory reports

Data quality

Where possible, patients are assigned to a PHE centre using their postcode of residence. Where this is not possible, data is assigned using registered GP practice. If both patient postcode and registered GP practice are unknown data are assigned using laboratory postcode.

Over the past 10 years, the availability of patient postcode has improved considerably, from 33% in 2008 to 85% in 2017 (Figure 1).

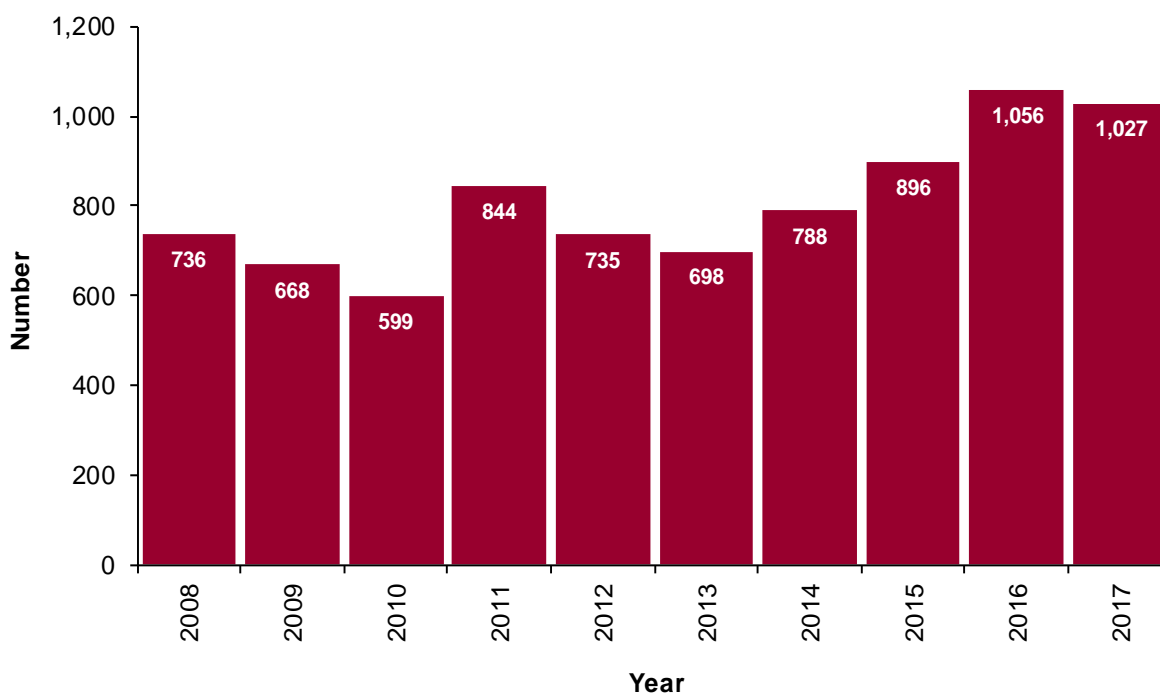
Figure 1: Laboratory reports of hepatitis C by derivation of residence, residents of East of England PHE Centre, 2008 to 2017⁴



⁴ Includes individuals with a positive test for hepatitis C antibody and/or detection of hepatitis C RNA. Due to the variability in the quality of laboratory reports and the inability of current serological assays to differentiate acute from persistent infections we are unable to estimate the actual proportion of cases with evidence of past infection or persistent infection.

In 2017, in the East of England, there were 1,027 laboratory reports of individuals testing positive for antibodies to HCV and/or HCV RNA reported. The number of reports in the East of England has been steadily increasing in recent years, though displayed a slight reduction in 2017. The latest data shows a 2.8% decrease in the past year (1,056 to 1,027) and a 40% increase over the past 10 years (736 to 1,027) (Figure 2).

Figure 2: Number of laboratory reports of hepatitis C, residents of East of England PHE Centre, 2008 to 2017^{5,6}



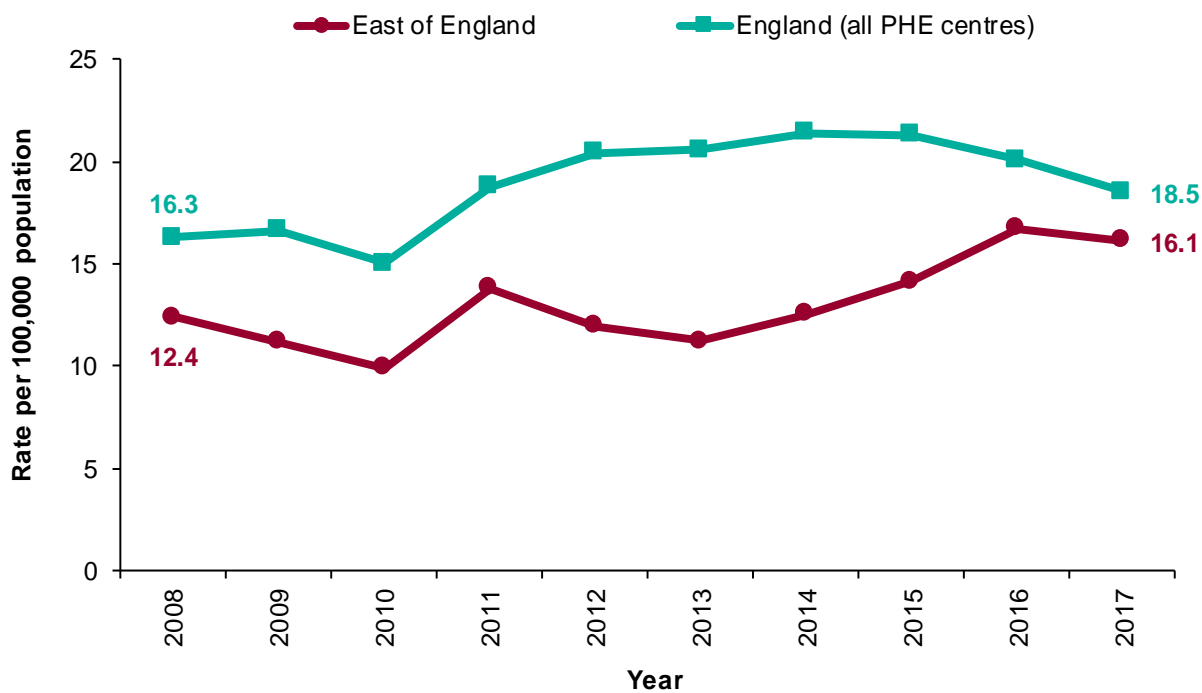
The rate of HCV reports for the East of England remains lower than for the whole of England, but the gap remains narrow as it was in 2016 (Figure 3). In 2017, the rate per 100,000 population was 18.5 and 16.1 in England and the East of England respectively.

In England in 2014 the rate of HCV reports for England was 21.4 per 100,000 dropping to 18.5 per 100,000 in 2017. This contrasts with the trends observed for the rate of HCV reports for the East of England, which until 2016 had been increasing. The rate then decreased slightly from 16.7 to 16.1 (2016 to 2017).

⁵ Includes individuals with a positive test for hepatitis C antibody and/or detection of hepatitis C RNA. Due to the variability in the quality of laboratory reports and the inability of current serological assays to differentiate acute from persistent infections we are unable to estimate the actual proportion of cases with evidence of past infection or persistent infection.

⁶ Mothers who are anti-HCV positive usually pass this maternal antibody to their newborns. However most of these newborns are not actually infected with the hepatitis C virus. The antibodies showing up in the newborn's blood are most often the mother's antibodies that were passed to the baby before birth. A baby born to a mother with hepatitis C will probably have maternal antibodies to the virus for the first 12 to 18 months of life. Therefore, the baby will have a positive anti-HCV test irrespective of whether the baby is infected. For this reason, tests in those aged under one are excluded from the dataset for 2016 and 2017.

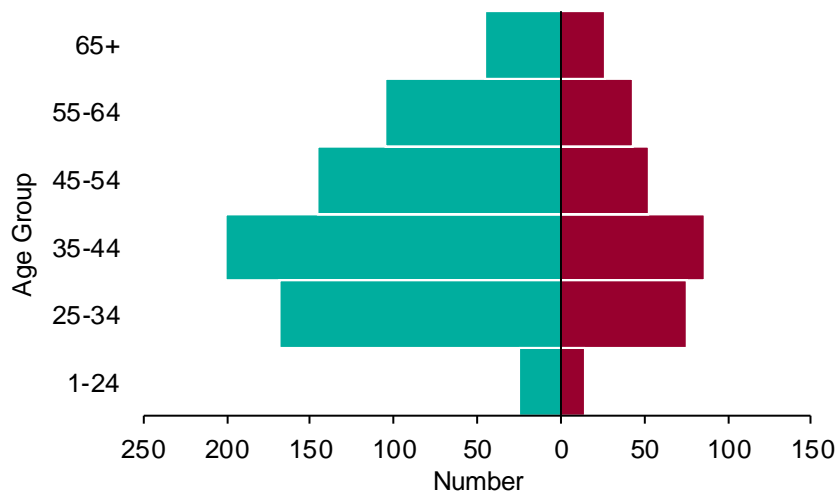
Figure 3: Laboratory reports of hepatitis C per 100,000 population, residents of East of England PHE Centre and England, 2008 to 2017⁷



⁷ Rates per 100,000 population have been calculated using mid-year population estimates supplied by the Office for National Statistics (ONS).

In 2017, over half of infections diagnosed were in males aged between 25 and 54 years old (Figure 4). The lowest number of cases was reported in those aged under 15 years, suggesting that vertical transmission of hepatitis C is rare (not shown due to small numbers).

Figure 4: Age group and gender of reported cases of hepatitis C, residents of East of England PHE Centre, 2017⁸



⁸ Chart excludes cases where gender and/or age are unknown

There was considerable variation in the rate of HCV reports by upper-tier local authorities across the East of England (Figure 5). The highest rates, in 2017, were observed in Peterborough (53.2 per 100,000) and lowest rates in Central Bedfordshire (8.6 per 100,000). Almost all local authorities observed a decrease between 2016 and 2017, the exception being Norfolk and Cambridgeshire, and Essex whose rates remained stable.

In 2017, the highest numbers of laboratory reports were seen in Norfolk (186), Cambridgeshire (149) and Essex (149) with the lowest in Thurrock (19), Central Bedfordshire (23) and Luton (30) (Table 1).

Figure 5: Laboratory reports of hepatitis C, directly standardised rate (DSR) per 100,000 population by upper tier local authority of residence, East of England PHE Centre, 2016 and 2017

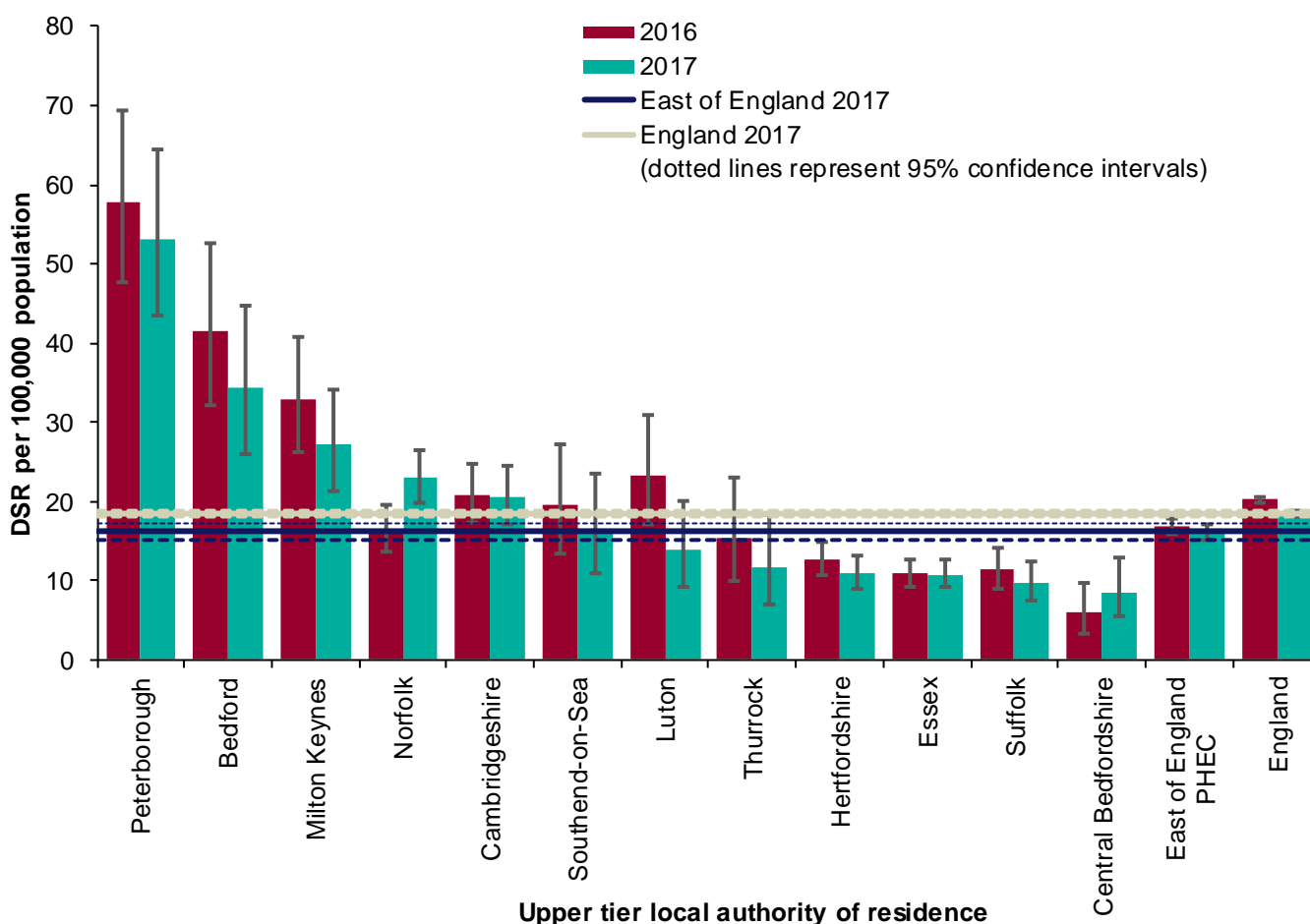


Table 1: Number of laboratory reports of hepatitis by upper tier local authority of residence, East of England PHE Centre, 2008 to 2017

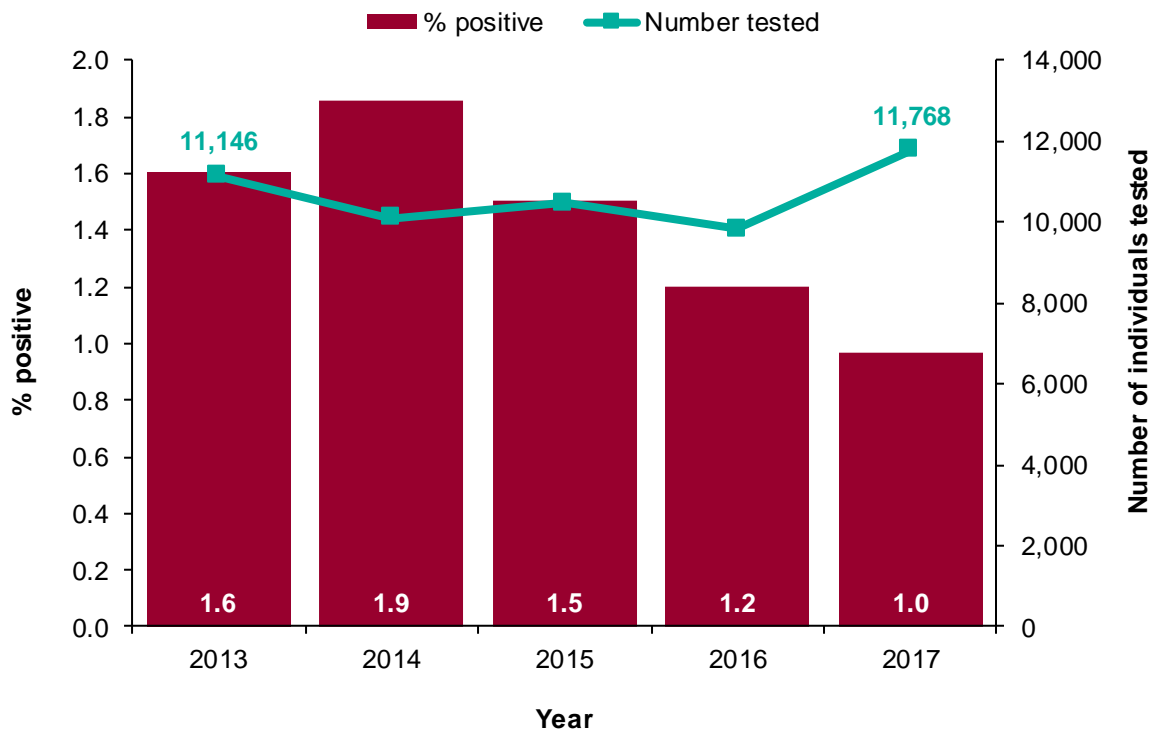
Upper tier local authority of residence	Number of laboratory reports									
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Bedford	13	16	18	74	36	19	39	40	70	55
Cambridgeshire	48	50	64	67	56	43	70	141	131	149
Central Bedfordshire	11	11	9	8	10	1	13	15	16	23
Essex	127	98	63	130	114	115	113	101	149	149
Hertfordshire	44	62	59	191	135	143	154	158	144	123
Luton	49	36	25	19	19	12	15	30	51	30
Milton Keynes	51	42	41	17	13	15	21	69	98	80
Norfolk	173	162	120	116	130	129	140	121	141	186
Peterborough	93	73	115	104	125	128	132	138	118	108
Southend-on-Sea	47	42	34	50	38	47	33	21	35	37
Suffolk	79	75	51	67	58	42	56	55	78	68
Thurrock	1	1	0	1	1	4	2	7	25	19
Total	736	668	599	844	735	698	788	896	1,056	1,027

General population

The national sentinel surveillance of blood-borne virus testing began in 2002, with the aim of supplementing the routine surveillance of hepatitis. One laboratory in the East of England participates in the sentinel surveillance scheme.

In 2017, a total of 11,768 individuals were tested for anti-HCV in the sentinel laboratory in the East of England (Figure 6). This represents an increase of 5.6% from the number reported to have been tested in 2013. The proportion of tests identified as HCV-positive has declined since 2015 from 1.5% to 1.0% in 2017.

Figure 6: Number of individuals tested and per cent testing positive for anti-HCV in sentinel laboratories in East of England PHE Centre, 2013 to 2017^{9,10}

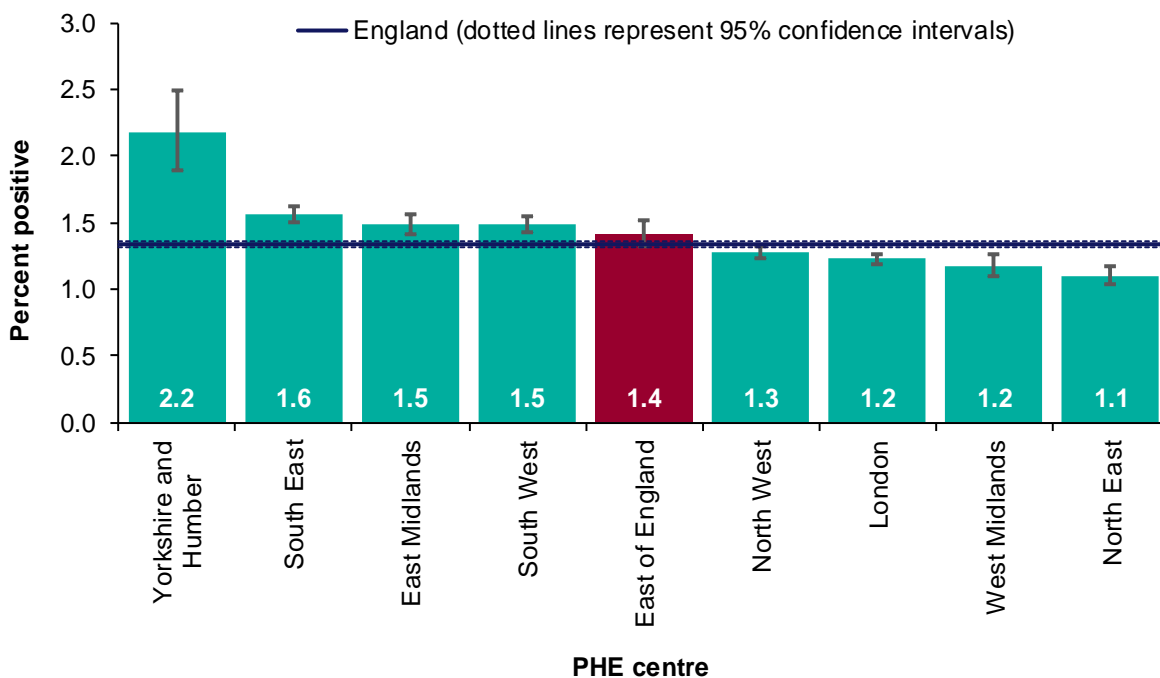


⁹ Excludes dried blood spot, oral fluid, reference testing and testing from hospitals referring all samples. Data are de-duplicated subject to availability of date of birth, soundex and first initial. Excludes individuals aged less than one year, in whom positive tests may reflect the presence of passively-acquired maternal antibody rather than true infection. All data are provisional.

¹⁰ Trend data will not necessarily balance back to cumulative data because only locations that have been consistently reported in each of the five years can be included in trend data.

Compared to other areas in England, the East of England has the fifth highest percentage of individuals testing positive for anti-HCV between 2013 and 2017 (Figure 7). Yorkshire and the Humber reported the highest per cent positive (2.5%) with the North East the lowest (1.1%).

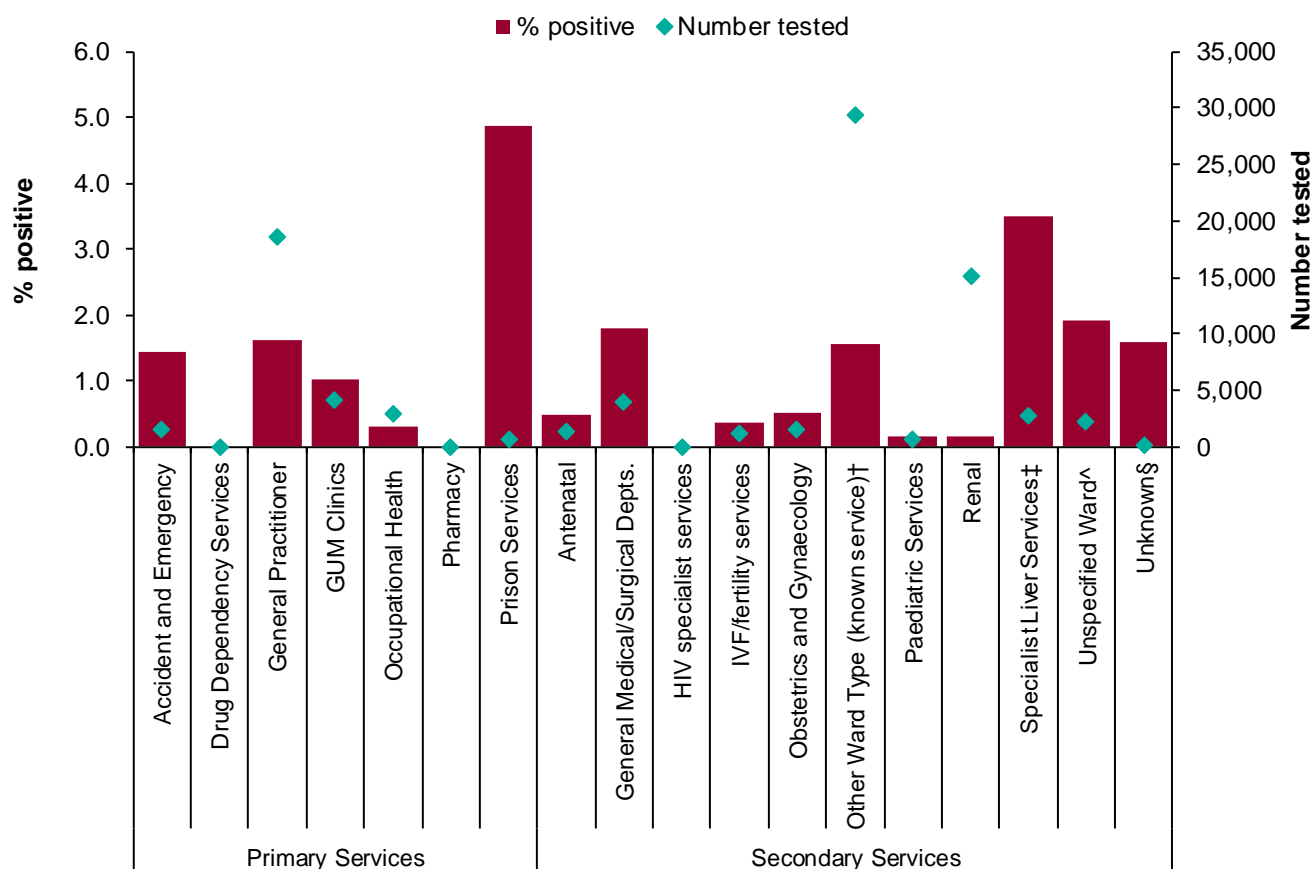
Figure 7: Percentage of individuals testing positive for anti-HCV in sentinel laboratories by PHE centre of laboratory, 2013 to 2017



For the period 2013 and 2017 the highest number of tests were conducted in known services (other ward types) (29,367) followed by tests conducted in a general practice (18,579) (Figure 8). From January 2015 GUM services were retendered and the main sentinel laboratory in the East of England no longer tests GUM samples as a result. This has resulted in lower numbers being reported for this setting for 2015 to 2017.

Positivity varied by setting type with the highest percentage positive seen in prison services (4.9%) and the lowest in paediatrics and renal (0.2%) and HIV specialist clinics (0%).

Figure 8: Number of individuals tested for anti-HCV and per cent positive by service type in sentinel laboratories in East of England PHE centre, 2013 to 2017^{11,12,13,14}



Where reported, 55% of these tests were in males (47,904) (Figure 9). Overall, the proportion of tests identified as anti-HCV positive was 1.3% with a lower proportion in females (1.0%) than males (1.6%). The highest number of tests identified as anti-HCV positive was in males aged 45-54 years (211).

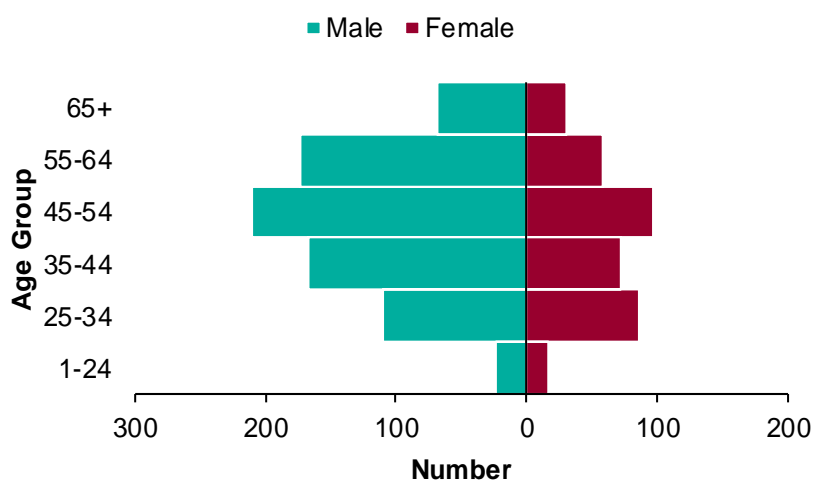
¹¹ Other ward types include cardiology, dermatology, haematology, ultrasound and X-ray

¹² Unknown service types are being investigated to identify specific service type, where possible

¹³ No specialist drugs and services send samples to the sentinel laboratory in the East of England

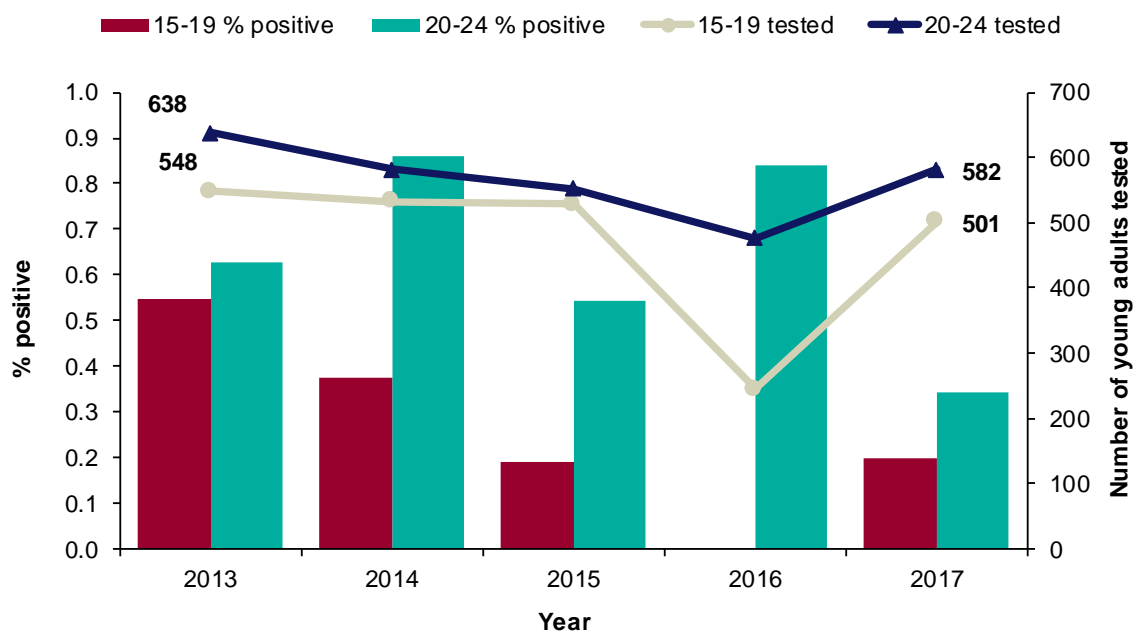
¹⁴ Unspecified ward refers to hospital services which are being investigated to identify specific service type and may include any of the secondary care services

Figure 9: Age group and gender of individuals testing positive for anti-HCV in sentinel laboratories in the East of England PHE Centre, 2013 to 2017^{15,16}



The number of young adults (aged under 25 years) tested has increased since 2016 (Figure 10). The steep decline observed in 2016 is likely attributed to a testing drive at the start of each academic year being stopped.

Figure 10: Number of young adults tested and testing positive for anti-HCV in sentinel laboratories in East of England PHE centre, 2013 to 2017¹⁷



¹⁵ 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. Excludes individuals aged less than one year, in whom positive tests may reflect the presence of passively-acquired maternal antibody rather than true infection. All data are provisional.

¹⁶ Chart excludes cases of unknown gender and/or age.

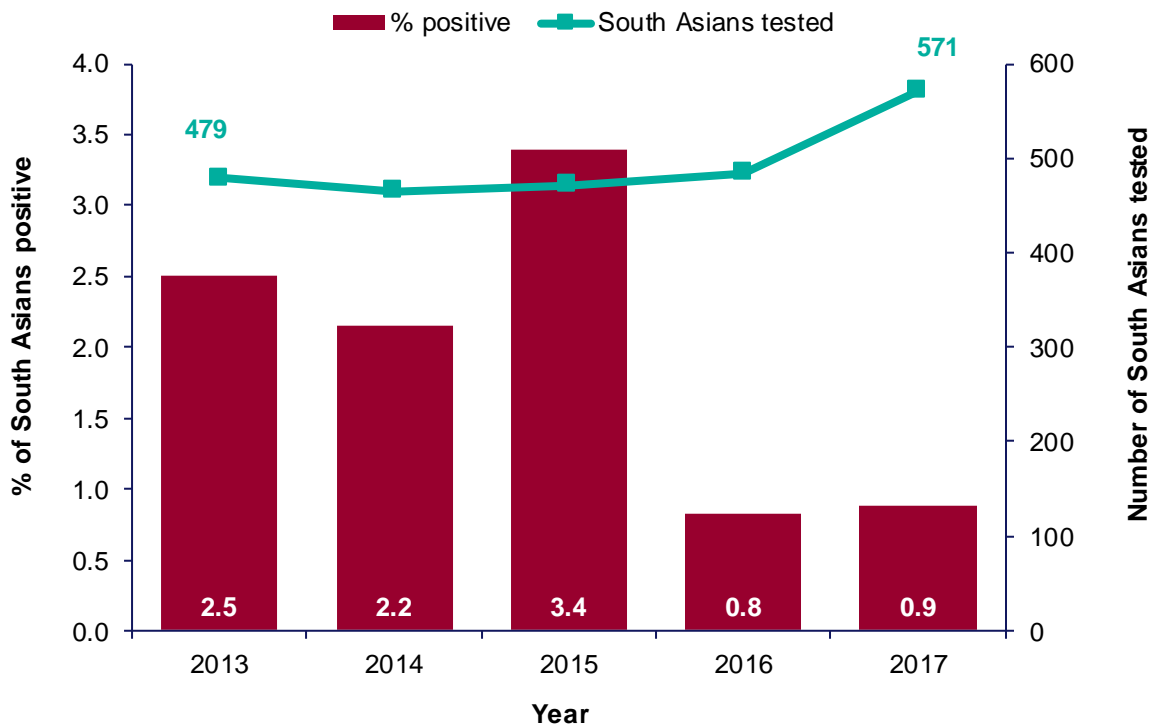
¹⁷ Excludes dried blood spot, oral fluid, reference testing and testing from hospitals referring all samples. Data are de-duplicated subject to availability of date of birth, soundex and first initial. Excludes individuals aged less than one year, in whom positive tests may reflect the presence of passively-acquired maternal antibody rather than true infection. All data are provisional.

Black and minority ethnic populations

Individuals of South Asian origin are one of the groups at highest risk of infection. In sentinel surveillance ethnicity is assigned using information from laboratory reports and supplemented using name analysis software.

The number of anti-HCV tests undertaken among the South Asian population in the East of England has remained relatively stable over the past 4 years and has, in 2017, increased to 571 tested individuals (Figure 11). Over this period (2013 to 2017), 1.4% of tests among people of South Asian origin were anti-HCV positive, increasing from 2.5% in 2013 to 3.4% in 2015 before declining to 0.9% in 2017.

Figure 11: Number of South Asian individual’s tests and testing positive for anti-HCV by ethnicity in sentinel laboratories in East of England PHE centre, 2013 to 2017^{18,19,20}



Sentinel surveillance data indicates that the number of tests among people identified as being of Eastern European origin (using laboratory reported ethnicity and name analysis

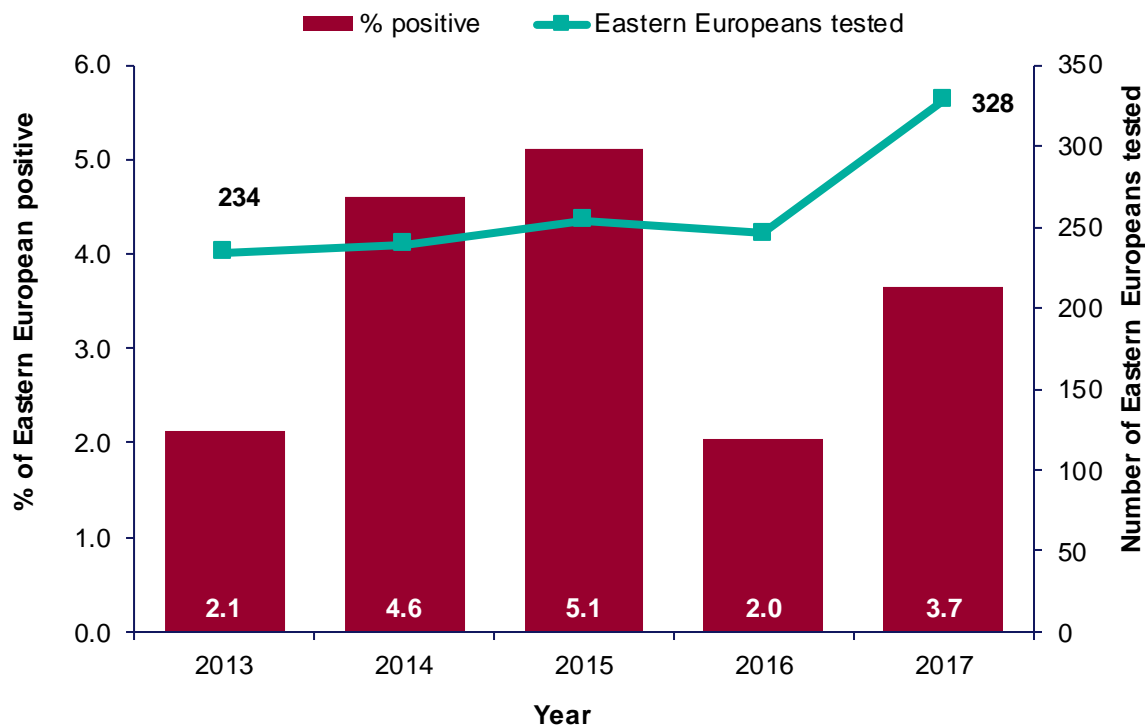
¹⁸ NamPehchan was used to identify individuals of South Asian origin as ethnicity is not routinely available from the participating laboratory information systems.

¹⁹ Excludes dried blood spot, oral fluid, reference testing and testing from hospitals and testing from hospitals referring all samples. Data are de-duplicated subject to availability of date of birth, soundex and first initial. Excludes individuals aged less than one year, in whom positive tests may reflect the presence of passively acquired maternal antibody rather than true infection. All data are provisional.

²⁰ Trend data will not necessarily balance back to cumulative data because only locations that have been consistently reported in each of the five years can be included in trend data.

software), remained relatively stable between 2013 and 2016 with a slight drop between 2015 and 2016 (Figure 12). From 2016 to 2017, the number of people of Eastern European origin tested increased by 33% to a total of 328 tested. Between 2013 to 2017, 3.5% of tests among people of Eastern European origin were anti-HCV positive.

Figure 12: Number of Eastern European individuals tested and testing positive for anti-HCV in sentinel laboratories in East of England PHE centre, 2013 to 2017^{21,22}



²¹ Excludes dried blood spot, oral fluid, reference testing and testing from hospitals and testing from hospitals referring all samples. Data are de-duplicated subject to availability of date of birth, soundex and first initial. Excludes individuals aged less than one year, in whom positive tests may reflect the presence of passively acquired maternal antibody rather than true infection. All data are provisional.

²² Trend data will not necessarily balance back to cumulative data because only locations that have been consistently reported in each of the five years can be included in trend data.

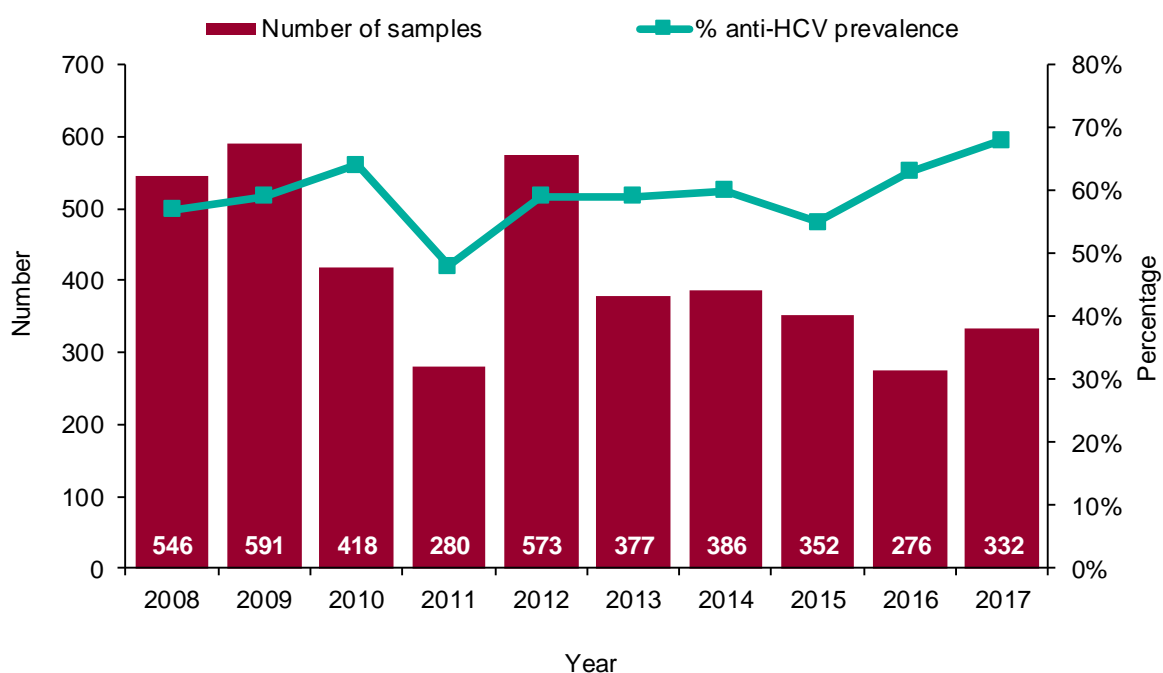
People who inject drugs

HCV prevalence among PWID

In the UK, it is thought that around 210,000 people are living with chronic hepatitis C with PWID the group most affected²³. Of the diagnosed hepatitis C infections in England where exposure data was known, around 90% are thought to have been acquired through injecting drug use²⁴.

PHE’s Unlinked Anonymous Monitoring (UAM) Survey of PWID measures prevalence of hepatitis C in current and former PWID in England, Wales and Northern Ireland²⁵. In the East of England, this survey estimated the prevalence of hepatitis C in PWID to be 45% in 2017, which is higher than levels recorded in 2008 (34%) (Figure 13) and lower than the prevalence in England overall (52%)²³.

Figure 13: Number of samples and per cent anti-HCV prevalence, PWID, East of England region, 2008 to 2017²⁶



²³ Public Health England. Hepatitis C in the UK 2018 report. PHE; 2018.

²⁴ Public Health England, Health Protection Scotland, Public Health Wales, and Public Health Agency Northern Ireland. Shooting Up: Infections among people who inject drugs in the UK, 2017. London: Public Health England, November 2018.

²⁵ Public Health England, National Infection Service. Unlinked Anonymous Monitoring Survey of People Who Inject Drugs: data tables. July 2018. London, Public Health England.

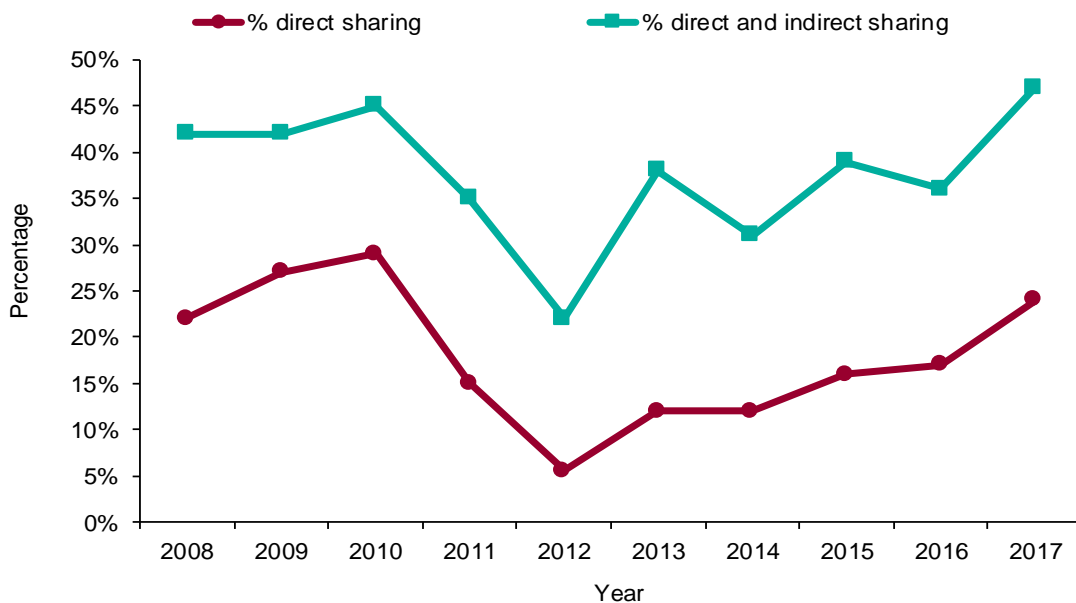
²⁶ Source: Unlinked Anonymous Monitoring Survey of HIV and Hepatitis in People Who Inject Drugs.

Needle and syringe sharing and use of needle and syringe programmes among PWID

Overall, the level of needle and syringe sharing (either receiving or passing on a used needle or syringe) reported by those currently injecting psychoactive drugs has fallen across the UK in the past decade. In England, Wales and Northern Ireland, sharing of needles and syringes (“direct sharing”) in the past month fell from 23% of current injectors in 2007 to 18% in 2017²⁷. When including the sharing of mixing containers or filters (“indirect sharing”) as well as needles and syringes, the proportion of current injectors reporting sharing in the past month was 36% in 2017 in England, Wales and Northern Ireland, which is a decrease from 45% in 2007²⁵.

In the East of England, the proportion of current injectors reporting direct sharing in the past month was 24% in 2017 and the proportion of current injectors reporting direct and indirect sharing in the past month was 47%. Both of these proportions for the East of England are lower than those in England overall (18% direct, 36% direct and indirect)

Figure 14: Level of direct²⁹ and indirect³⁰ sharing of injecting equipment among people who inject drugs in the East of England region, 2008 to 2017³¹



In 2017, in England, Wales and Northern Ireland 91% of people who have ever injected drugs reported using needle and syringe programmes (NSP)²⁶. Adequate provision of

²⁷ Public Health England, Health Protection Scotland, Public Health Wales, and Public Health Agency Northern Ireland. Shooting Up: Infections among people who inject drugs in the UK, 2017. London: Public Health England, November 2018.

²⁹ Sharing of needles and syringes among those who had last injected during the four weeks preceding participation in the survey.

³⁰ Sharing of needles and syringes, mixing containers, or filters among those who had last injected during the four weeks preceding participation in the survey.

³¹ Data source: Unlinked Anonymous Monitoring Survey of HIV and Hepatitis in People Who Inject Drugs.

injecting equipment is important, to reduce sharing and re-use of injecting equipment³². Needle and syringe provision is considered 'adequate' when the reported number of needles and syringes received met or exceeded the number of times the individual injected. In 2017, the proportion of PWID in the UK reporting adequate needle/syringe provision was sub-optimal; around two-thirds (61%) of PWID who had injected during the preceding month reported adequate needle/syringe provision in England, Wales and Northern Ireland³³.

HCV testing uptake among PWID

Recently updated UK clinical guidelines recommend that all PWID accessing treatment services are tested for HCV and HIV at first assessment, and that repeat testing should be considered when the risk of exposure continues. When risk is assessed as high, testing may need to be carried out up to once or twice a year³⁴.

The proportion of PWID who report uptake of voluntary confidential testing for hepatitis C has increased across the UK in the last decade³¹. Whilst Scotland has seen a sustained increase, England, Wales and Northern Ireland have seen a more gradual increase in testing which has possibly plateaued over the last 7 years³¹.

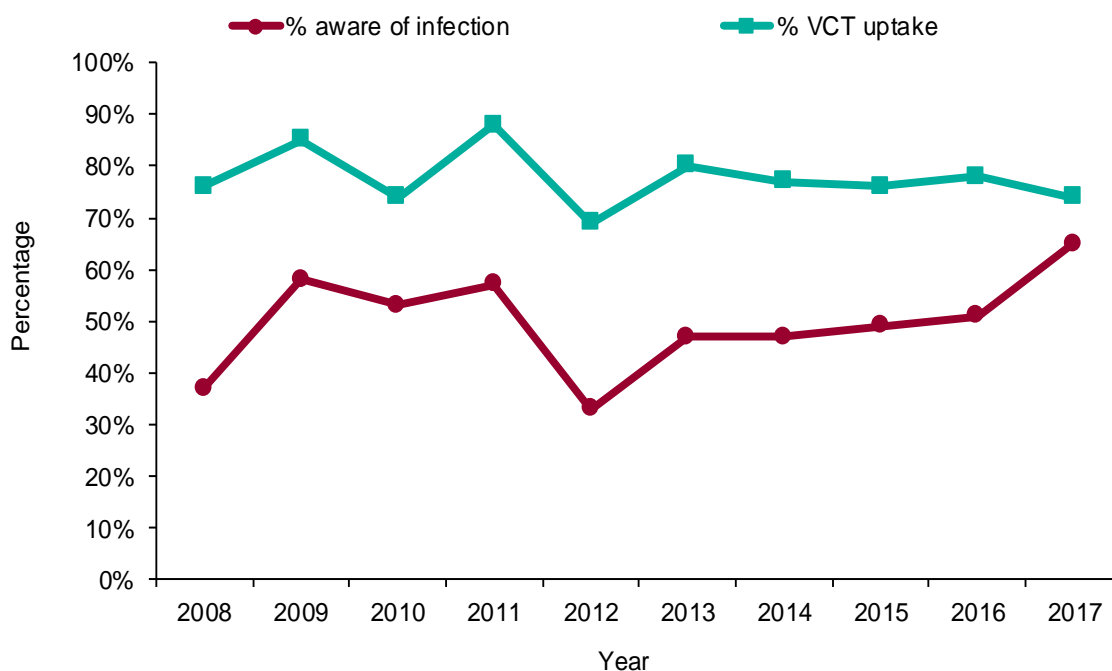
The proportion of the UAM participants in the East of England with anti-HCV, who reported that they were aware of their hepatitis C infection was 65% in 2017 (Figure 15). This indicates that around a third of those ever infected with hepatitis C, are unaware that they ever contracted the virus and thus remain undiagnosed. While hepatitis C testing uptake has been shown to be acceptable, this reflects the need for more frequent testing. Results for 2017 should be interpreted with caution as changes in the 2017 UAM survey, introduced to differentiate between past and current HCV infection, have resulted in increased levels of non-response to this question. This is likely to account for some of the changes observed in these figures compared to previous years.

³² Scottish Government. Effective Interventions Unit Examining the injecting practices of injecting drug users in Scotland - Summary 2004.

³³ Public Health England, Health Protection Scotland, Public Health Wales, and Public Health Agency Northern Ireland. Shooting Up: Infections among people who inject drugs in the UK, 2017. London: Public Health England, November 2018.

³⁴ Clinical Guidelines on Drug Misuse and Dependence Update 2017 Independent Expert Working Group. Drug misuse and dependence: UK guidelines on clinical management. London: Department of Health; 2017.

Figure 15: Hepatitis C test uptake among people who inject drugs and their awareness of infection, East of England region, 2008 to 2017³⁵



New and repeat blood donors

Blood donors are generally at low risk of blood-borne viruses. Monitoring HCV in blood donors is useful for identifying new groups of individuals who may be at risk of infection. NHS Blood and Transport currently collects blood donations from donors in England; all donations are screened for HCV antibody and nucleic acid while repeat reactive donations undergo confirmatory testing.

In 2017, the rate of confirmed HCV-positive cases (including resolved infection) in the East of England was 12.3 per 100,000 donations in new donors and 0.5 per 100,000 in repeat donors (Figure 16). Differences in the rate over time should be interpreted with caution as the number of confirmed HCV cases are small and include resolved infections.

³⁵ Data Source: Unlinked Anonymous Monitoring Survey of HIV and Hepatitis in People Who Inject Drugs

Figure 16: Rate of confirmed HCV positive cases (including resolved infection) among new and repeat blood donors East of England PHE Centre, 2010 to 2017³⁶



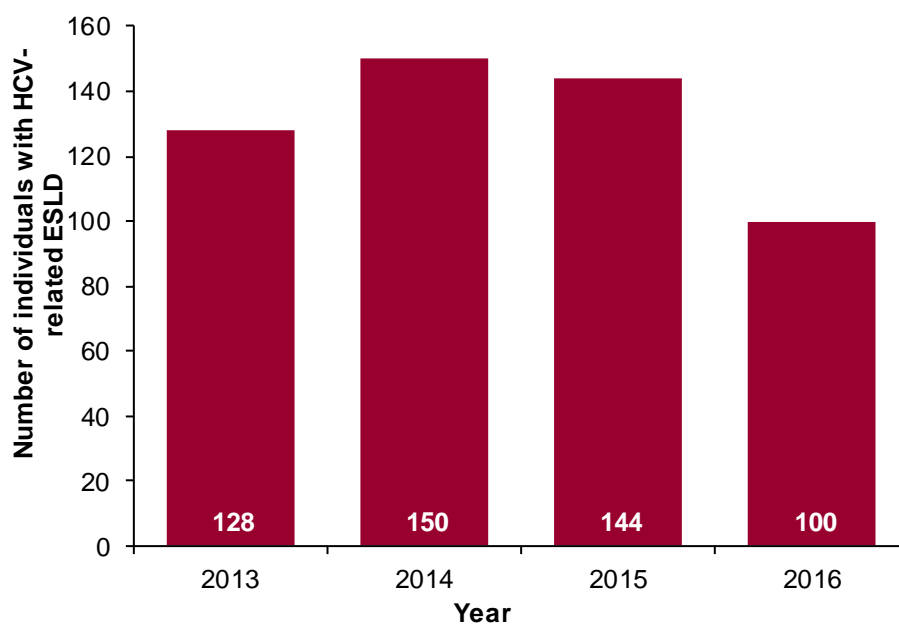
³⁶ Blood donors are volunteers over 17 years, selected to be at low risk of HCV

Secondary care and outcomes

Hospital admissions and deaths for HCV-related end-stage liver disease/hepatocellular carcinoma

Hospital admissions for HCV-related end-stage liver disease (ESLD) have remained relatively stable over the past 4 years in the East of England (Figure 17). As there is a long incubation time between infection and severe liver disease, genuine changes in ESLD incidence will tend to occur over the course of several years.

Figure 17: Hospital admissions for individuals with a diagnosis code for HCV related end stage liver disease (ESLD), residents of East of England government office region, 2013 to 2016^{37,38,39}



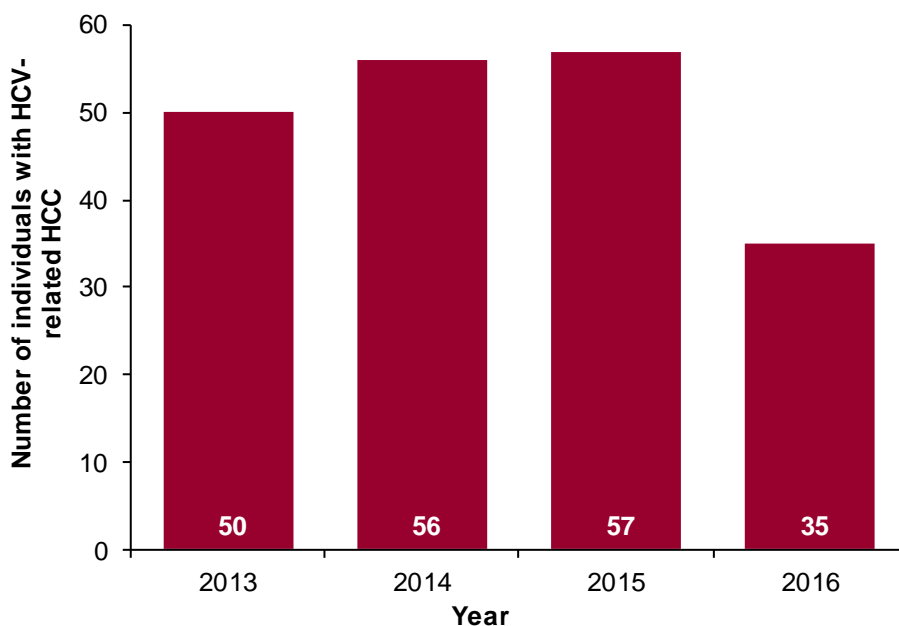
³⁷ Patient counts are based on the unique patient identifier, HESID. This identifier is derived from a patient's date of birth, postcode, sex, local patient identifier and NHS number, using a standard algorithm. Where data are incomplete, HESID might wrongly link episodes or fail to recognise episodes for the same patient. Care is therefore needed, especially where the data includes duplicate records. Patient counts must not be summed across a table where patients may have episodes in more than one cell.

³⁸ HES data for 2017 on admissions are not available for inclusion in this report.

³⁹ Data source: Hospital Episode Statistics (HES), NHS Digital (NHS Digital is the trading name of the Health and Social Care Information Centre. Copyright © 2019, Re-used with the permission of NHS Digital. All rights reserved). Produced by Public Health England.

Hospital admissions for HCV-related hepatocellular carcinoma remained relatively stable between 2013 and 2015, but there was a sharp decline into 2016 (Figure 18).

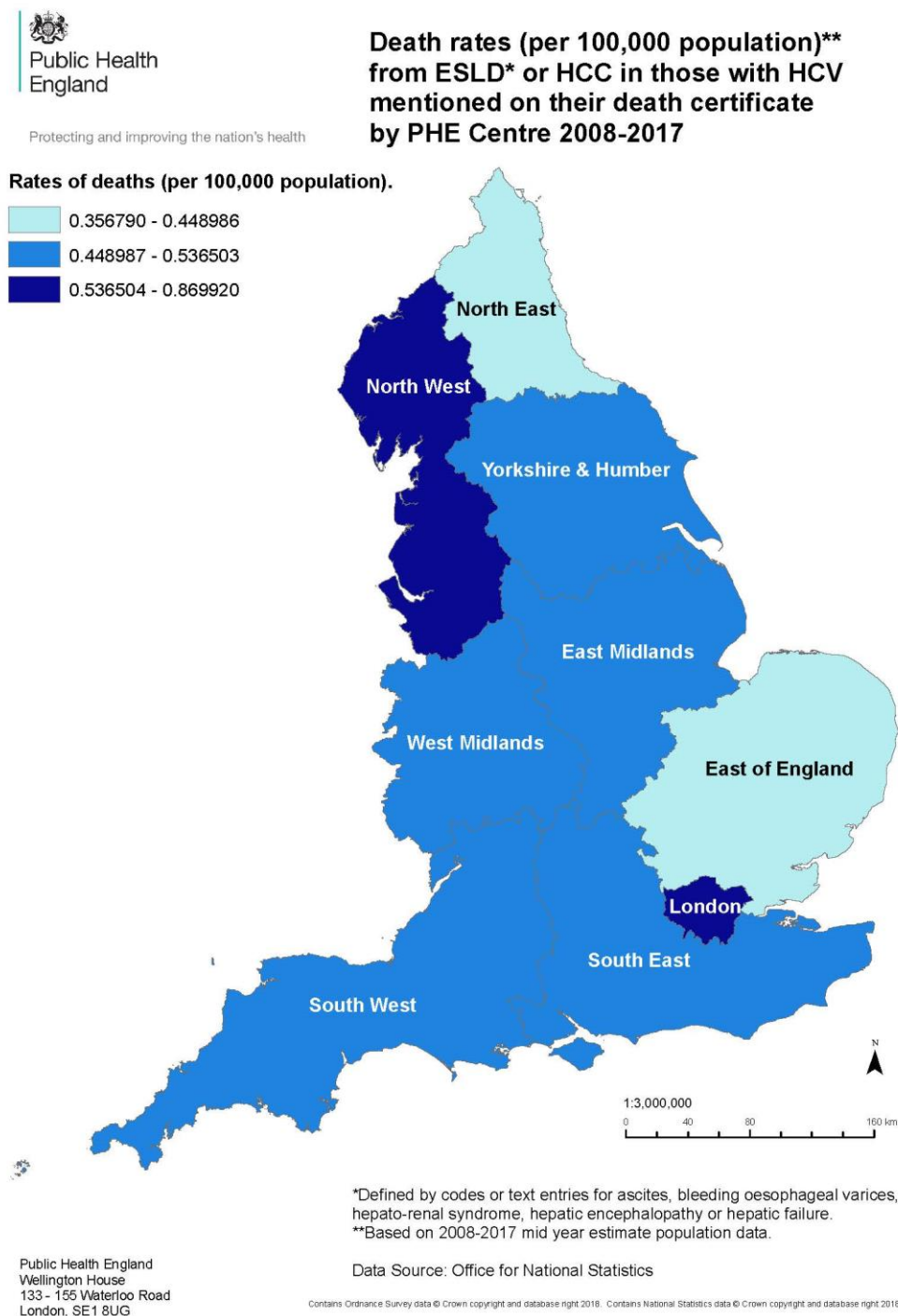
Figure 18: Hospital admissions for individuals with a diagnosis code for HCV-related hepatocellular carcinoma (HCC), residents of East of England government office region, 2013 to 2016⁴⁰



The rate of deaths from ESLD or hepatocellular carcinoma (HCC) in those with HCV mentioned on their death certificate in the East of England is among the lowest in England (Figure 19).

⁴⁰ As Figure 17

Figure 19: Rate of deaths from ESLD⁴¹ or HCC in those with HCV mentioned on their death certificate by PHE Centre 2008 to 2017 per 100,000 population^{42,43}



⁴¹ Defined by codes or text entries for ascites, bleeding oesophageal varices, hepato-renal syndrome, hepatitis encephalopathy or hepatic failure

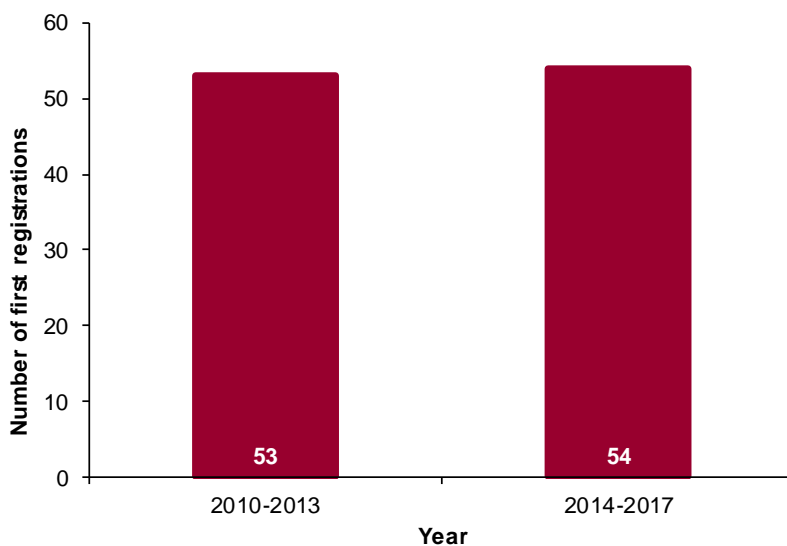
⁴² 2016 data are provisional

⁴³ Data source: Office for National Statistics

Registrations and liver transplants undertaken

Another marker of HCV-related morbidity is the number of residents with post-hepatitis C cirrhosis registering at the NHS Blood and Transplant service for a liver transplant. Comparing two 4-year periods, 2010 to 2013 and 2014 to 2017, registrations have remained stable with only a 2% increase (53-54) (Figure 20).

Figure 20: Number⁴⁴ of first registrations for a liver transplant in England where post-hepatitis C cirrhosis was the primary, secondary or tertiary indication for transplant, residents of the East of England PHE centre, 2010 to 2013 and 2014 to 2017⁴⁵

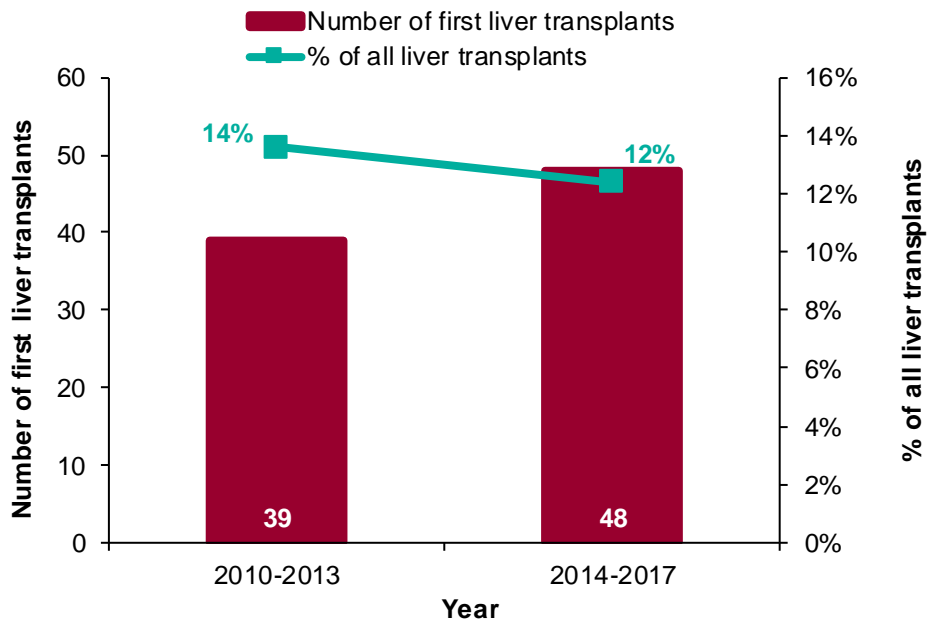


⁴⁴ These figures are based on registry data as at 12 June 2017 and include both elective and super urgent registrations

⁴⁵ Data source: NHS Blood and Transplant UK Transplant Registry

Likewise, liver transplants undertaken for this indication have also increased from 39 in 2010-2013 to 48 in 2014-2017 (Figure 21). However, of all liver transplants carried out in residents in East of England, the percentage carried out in patients with hepatitis C disease decreased slightly from 14% in 2010-2013 to 12% in 2014-2017.

Figure 21: Number of first liver transplants with post-hepatitis C cirrhosis as primary, secondary or tertiary indication for transplant at registration or patient who were HCV positive at registration or transplant and per cent of all liver transplants, residents of East of England PHE centre, 2010 to 2013 and 2014 to 2017⁴⁶



⁴⁶ As Figure 20

Increasing the numbers accessing hepatitis C treatment

The new generation of DAA drugs offer considerable advantages over previous HCV treatments: all-oral, short treatment durations and improved safety profiles. These medicines are now being rolled out in England in accordance with national recommendations.

Public Health England and NHS England estimate that there are tens of thousands of people currently living with diagnosed hepatitis C infection who are not in contact with treatment services. To enable people previously diagnosed with hepatitis C to be treated for their infection, NHS England and Public Health England are undertaking a national **patient re-engagement exercise** to help find and treat people with hepatitis C infection.

Acknowledgements

Public Health England, Centre for Infections, Disease Surveillance and Control

Dr Koye Balogun and Reisha Simmonds (Laboratory reports of hepatitis C).

Georgina Ireland, Celia Penman, Reisha Simmonds and Ruth Simmons (Sentinel Surveillance of Hepatitis Testing).

Stephanie Migchelsen and Claire Edmundson - HIV & STI Department, National Infection Service (data from Unlinked Anonymous Monitoring Survey of HIV and Hepatitis in People Who Inject Drugs).

Annastella Costella, National Infection Service, and Rhiannon Taylor, NHS Blood and Transplant (Transplants).

External bodies

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

Hospital Episode Statistics (HES), NHS Digital (NHS Digital is the trading name of the Health and Social Care Information Centre. Copyright © 2019, Re-used with the permission of NHS Digital. All rights reserved). Analysis undertaken by Annastella Costella, National Infection Service. Produced by Public Health England.

Callum Pearson, Bhavita Vishram and Claire Reynolds, NHS Blood and Transplant / PHE Epidemiology Unit (Blood donor data).

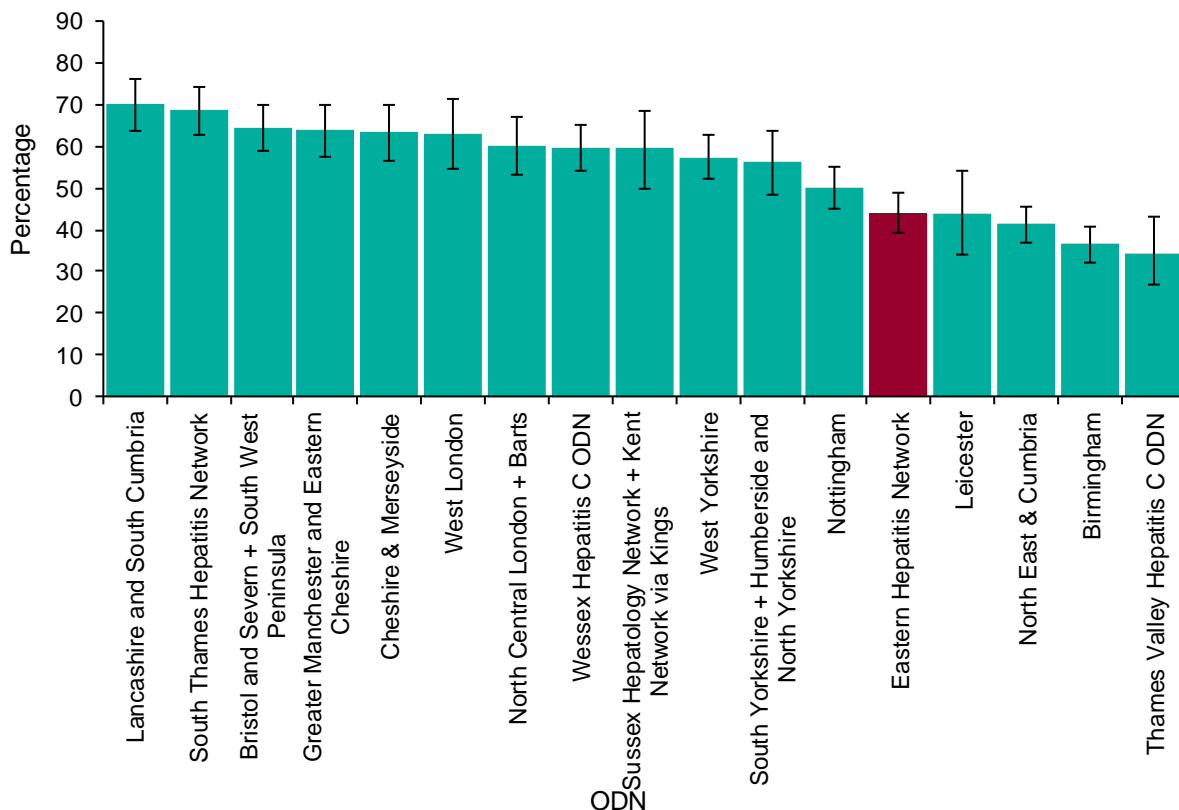
Appendices

Operational Delivery Network Data

Operational Delivery Networks (ODNs) are the structures through which hepatitis C treatment in England is being delivered. The Eastern Delivery Network covers East Anglia specifically: Bedfordshire, Cambridgeshire, Norfolk, Suffolk and parts of Essex. The area covered by the East of England ODN are not coterminous with the PHE East of England geography used within the rest of this report.

In 2017, there were 874 laboratories reported cases of HCV within the Eastern Hepatitis Network ODN. HCV prevalence data from the UAM survey by ODN is available for 2016/2017 (Figure 1). Anti-HCV prevalence was estimated to be 43.9% (95% CI 39.1%-48.8%) for the Eastern Hepatitis Network. Please note that differences in HCV prevalence by ODN may be reflective of differences in recruitment for the UAM survey and that data availability was high for the Eastern Hepatitis Network, with 427 samples available. The Eastern hepatitis Network has the fifth lowest percentage prevalence, though due to overlapping confidence intervals this is uncertain.

Figure 1: Percent anti-HCV prevalence in people who inject drugs by ODN, 2016/17^{47,48}

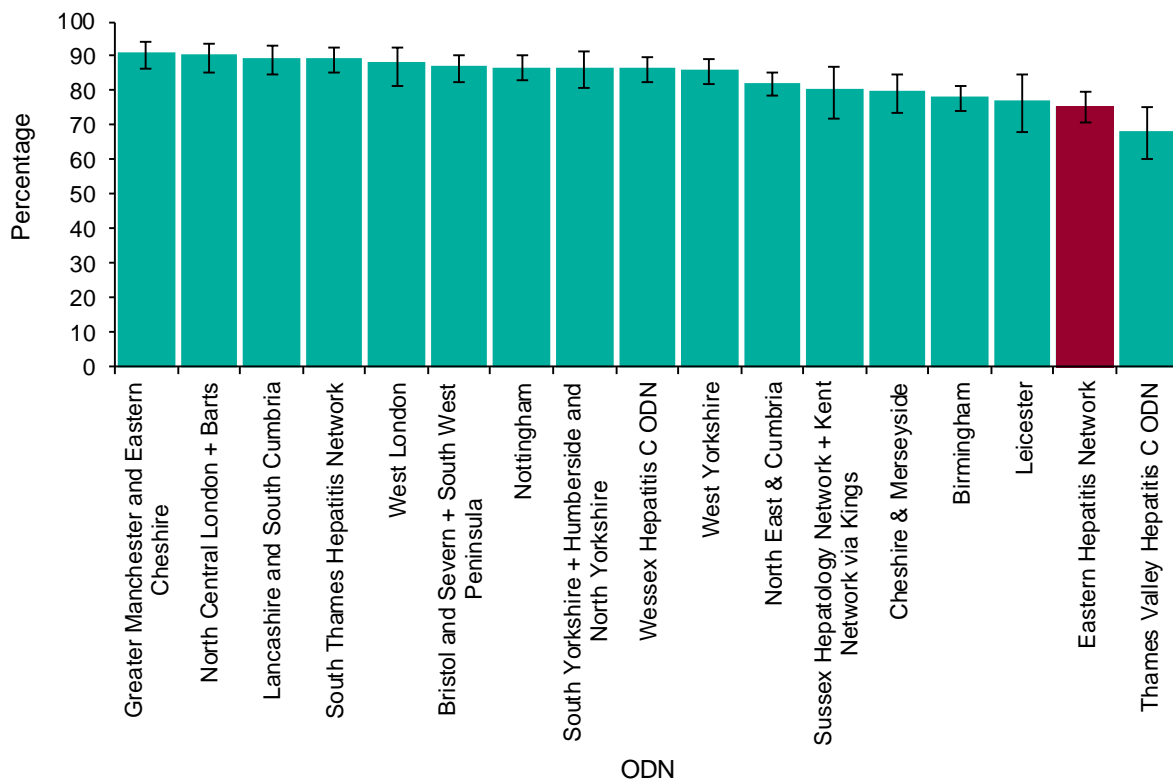


In 2016/17, the percentage of HCV test uptake was 75.5% (95% CI 71.0%-79.5%) for the Eastern Hepatitis Network. The Eastern Hepatitis Network appears to have the second lowest percentage of HCV uptake for this period.

⁴⁷ Data are not available for Surrey Hepatitis Services ODN.

⁴⁸ Data from the Unlinked Anonymous Monitoring Survey of people who inject drugs in contact with specialist services. The Unlinked Anonymous survey of PWID is an annual cross-sectional survey of individuals who currently or previously inject psychoactive drugs who are in contact with specialist services. Those who agree to take part provide a biological specimen that is tested anonymously for HIV, hepatitis C and hepatitis B. Behavioural and limited demographic information is collected through a brief anonymous subject-completed questionnaire linked to the specimen but unlinked from any client identifying information.

Figure 2: Percent HCV test uptake in people who inject drugs by ODN, 2016/17^{49,50}

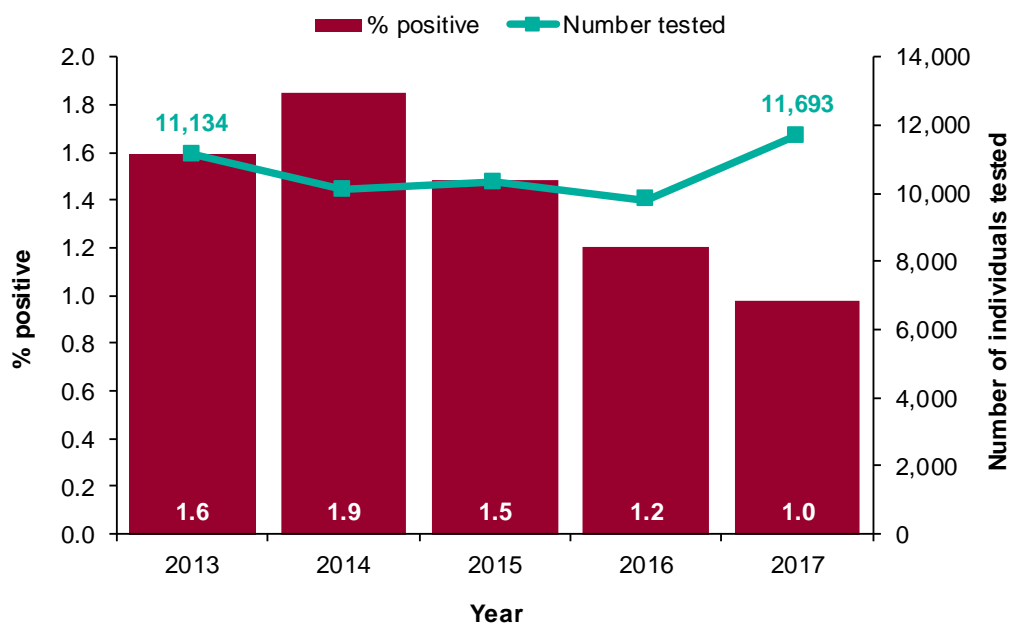


⁴⁹ Data are not available for Surrey Hepatitis Services ODN.

⁵⁰ Data from the Unlinked Anonymous Monitoring Survey of people who inject drugs in contact with specialist services. The Unlinked Anonymous survey of PWID is an annual cross-sectional survey of individuals who currently or previously inject psychoactive drugs who are in contact with specialist services. Those who agree to take part provide a biological specimen that is tested anonymously for HIV, hepatitis C and hepatitis B. Behavioural and limited demographic information is collected through a brief anonymous subject-completed questionnaire linked to the specimen but unlinked from any client identifying information

The Eastern Hepatitis Network saw an increase in the number of tested individuals from 2016 to 2017 (9,816 to 11,693) and a decrease in the percentage of positive individuals tested (1.2% to 1.0%) for the same period.

Figure 3: Number of individuals tested and % testing positive for anti-HCV in sentinel laboratories, Eastern Hepatitis Network ODN, 2013-2017^{51,52}

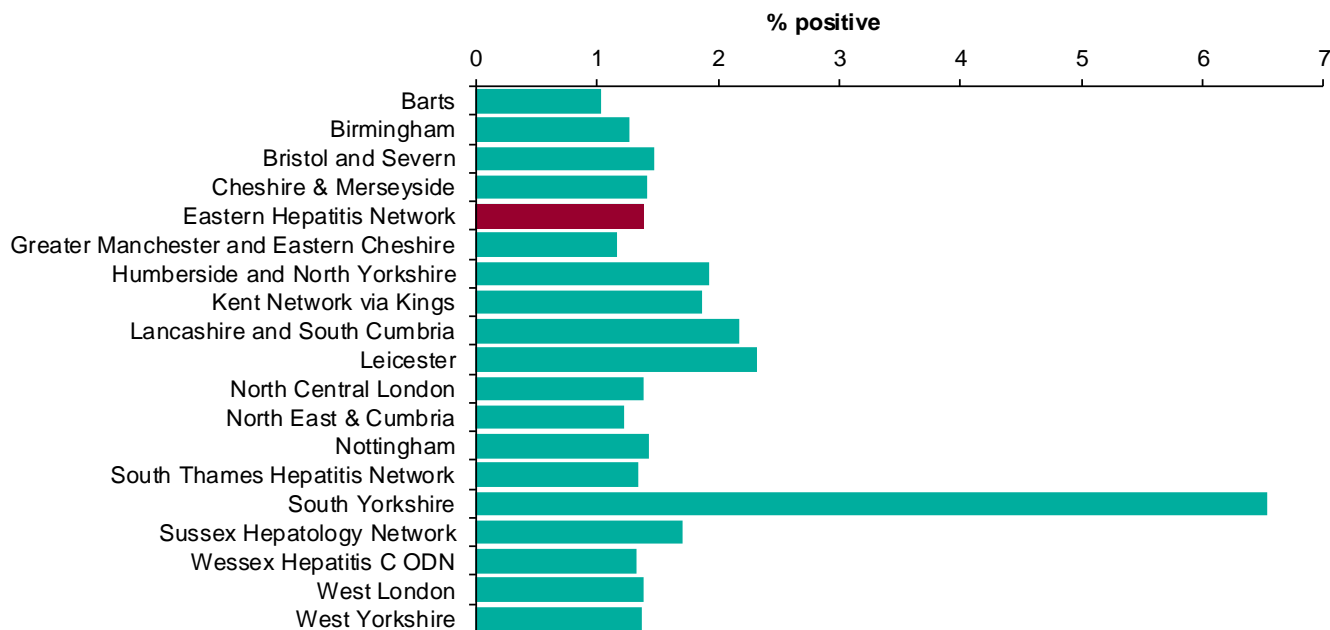


⁵¹ Excludes dried blood spot, oral fluid, reference testing and testing from hospitals referring all samples. Data are de-duplicated subject to availability of date of birth, soundex and first initial. Excludes individuals aged less than one year, in whom positive tests may reflect the presence of passively-acquired maternal antibody rather than true infection. All data are provisional.

⁵² Trend data will not necessarily balance back to cumulative data because only locations that have been consistently reported in each of the five years can be included in trend data.

Sentinel laboratories within the Eastern Hepatitis Network reported 1.4% of individuals testing positive for anti-HCV in 2017. This is from a total number of 68,301 tested individuals.

Figure 4: Percentage of individuals testing positive for anti-HCV in sentinel laboratories by ODN, 2013-2017^{53,54,55}



⁵³ 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. Excludes individuals aged less than one year, in whom positive tests may reflect the presence of passively-acquired maternal antibody rather than true infection. All data are provisional.

⁵⁴ Cumulative data will not necessarily balance back to trend data because only locations that have been consistently reported in each of the five years can be included in trend data.

⁵⁵ Excludes the following ODNs for whom data are not available: South West Peninsula, Surrey Hepatitis Services, Thames Valley Hepatitis C ODN

Glossary of abbreviations

Anti-HBc	Antibodies to Hepatitis B core antigen
Anti-HCV	Antibodies to Hepatitis C virus
Anti-HIV	Antibodies to Human Immunodeficiency Virus
DAT	Drug Action Team
DBS	Dried Blood Spot
DSR	Directly Standardised Rate
ESLD	End Stage Liver Disease
ESP	European Standard Population
GUM	Genitourinary Medicine
HBV	Hepatitis B virus
HCC	Hepatocellular Carcinoma
HCV	Hepatitis C Virus
HIV	Human Immunodeficiency Virus
MSM	Men who have Sex with Men
ODN	Operational Delivery Network
PCT	Primary Care Trust
PHE	Public Health England
PWID	Persons who inject drugs
RNA	Ribonucleic Acid
UAM	Unlinked Anonymous Monitoring
UTLA	Upper Tier Local Authority
VCT	Voluntary confidential test