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# Annual report from the sentinel surveillance study of blood borne virus testing in England: data for January to December 2016

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# Annual report from the sentinel surveillance study of blood borne virus testing in England: data for January to December 2016

This report provides summary data for individuals who were first reported to the sentinel surveillance programme during 2016. Sections 1 to 7 describes testing and demographic information for individuals tested by venepuncture for hepatitis A to E, HIV, and HTLV.

The sentinel surveillance of blood borne virus testing began in 2002, with the aim of supplementing the routine surveillance of hepatitis. Information on the testing carried out in participating centres is collected irrespective of test result and can therefore also be used as a basis for estimating prevalence among those tested. These data have enhanced our knowledge and understanding of hepatitis testing, in terms of who is being tested and from which service types individuals are accessing testing, and also in interpreting trends in the number of positive individuals identified over time. In 2016, sentinel surveillance captured front-line testing for hepatitis A, B, C and HIV, covering approximately 40% of the population, and over 80% of the population from all 9 PHECs tested for hepatitis D, E and HTLV (*Supplementary Figure 1*).

The supplementary tables referred to in this report are available on the GOV.UK website page "Sentinel surveillance of blood borne virus testing in England: 2016".

## 1. Hepatitis A IgM testing

In 2016, 21 participating centres supplied hepatitis A-specific IgM antibody (anti-HAV IgM) testing data (a marker of acute infection). Overall 32,480 individuals were tested for anti-HAV IgM, of whom 176 (0.54%) tested positive (*Supplementary Table 1*). The age and gender of individuals tested was well reported (>99.5% complete). Where known, more males (53.9%) were tested than females. Almost half of all individuals tested and of those who tested positive were aged between 25 and 54 years old (43.5%) (*Supplementary Table 2*). The median age of individuals undergoing testing was 46 years (IQR 31 – 62) whereas the median age of individuals testing positive was 35 years (IQR 20– 55). As seen in previous years, the greatest proportion positive was among children aged 1-14 years (4.8%).

The type of service which requested the hepatitis test was identified using the record location of the requestor (table 1). Where known (n=32,411), general practice tested the greatest proportion of individuals for anti-HAV IgM (54.0%), with a further 17.5% tested in other known hospital wards, and 8.9% tested in general medical surgical wards. The highest proportion of positive tests were from GUM services (2.1%), paediatric services (1.9%), and accident and emergency (1.8%).

**Table 1**. **Number of individuals tested, and testing positive for anti-HAV IgM in participating centres by service type, January – December 2016***

| Service type | Number tested | Number positive (%) |
|---|---|---|
| **Primary Care** | | |
| Accident and emergency | 2,159 | 39 (1.8) |
| Drug dependency services | 83 | 0 (0.0) |
| General practitioner | 17,493 | 60 (0.3) |
| GUM clinic | 287 | 6 (2.1) |
| Occupational health | 46 | 0 (0.0) |
| Prison services | 110 | 0 (0.0) |
| Pharmacy | 1 | 0 (0.0) |
| Total primary care | 20,179 | 105 (0.5) |
| **Secondary Care** | | |
| Antenatal | 589 | 0 (0.0) |
| Fertility services | 67 | 0 (0.0) |
| General medical / surgical departments | 2,890 | 22 (0.8) |
| Obstetrics and gynaecology | 332 | 1 (0.3) |
| Other ward type (known service)† | 5,678 | 18 (0.3) |
| Paediatric services | 745 | 14 (1.9) |
| Renal | 243 | 1 (0.4) |
| HIV | 39 | 0 (0.0) |
| Specialist infectious disease services | 1,233 | 7 (0.6) |
| Unspecified ward§ | 416 | 7 (1.7) |
| Total secondary care | 12,232 | 70 (0.6) |
| **Unknown#** | 69 | 1 (1.4) |
| **Total** | **32,480** | **176 (0.5)** |

* Excludes 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.

† Other ward types includes cardiology, coroner, dermatology, haematology, ultrasound, x-ray.

§ These are hospital services which are currently being investigated to identify specific service type, and may include any of the secondary care services mentioned above.

# These services are currently being investigated to identify specific service type, where possible.

A combination of self-reported ethnicity and name analysis software was used to classify most individuals tested for anti-HAV IgM as belonging to one of four broad ethnic groups (n=31,386) (*Supplementary table 3*). Where known, the majority of individuals were classified as being of white or white British ethnic origin (80.6%), a further 12.7% were classified as Asian or Asian British origin,

3.4% were classified as other and/or mixed ethnic origin, and 3.3% were classified as black or black British origin. The greatest proportion positive was among individuals of Asian or Asian British origin (1.0%).

## 2. Hepatitis B surface antigen testing

Sentinel surveillance collects data on testing for hepatitis B surface antigen (HBsAg). All pregnant women in the UK are offered hepatitis B screening as part of their antenatal care. Data from the test request location and freetext clinical details field accompanying the test request were reviewed to distinguish individuals tested for HBsAg as part of routine antenatal screening (section 2a) from those tested in other settings and for other reasons (section 2b). It is possible that some women undergoing antenatal screening may not be identified as such and may therefore be included in section 2b as non-antenatal testing.

### a. Antenatal HBsAg screening

In 2016, 91,225 women aged between 12 and 49 years old were identified as undergoing antenatal screening for HBsAg, representing 25.1% of all individuals tested for HBsAg in participating sentinel centres *(Supplementary Table 4)*. Overall 296 (0.3%) of these women tested positive. The median age of women tested was 29 years (IQR 25 – 33) and the median age of women testing positive was 29 years (IQR 26 – 33).

A HBeAg result was available for 97.3% (288) of HBsAg positive women, and of these, 10.4% were HBeAg positive (table 2). Most women who underwent antenatal screening were classified as belonging to one of four broad ethnic groups (n= 87,478) (table 2). Where known, the majority of individuals were classified as being of white or white British ethnic origin (76.8%), a further 15.6% were classified as Asian or Asian British origin, 4.1% were classified as other and/or mixed ethnic origin, and 3.5% were classified as black or black British origin. The proportion testing positive was higher among women of other and/or mixed origin and black or black British origin (1.7% and 1.1% respectively) than women of Asian or Asian British origin and white or white British origin (0.3% and 0.2% respectively).

The proportion of HBeAg positive women also differed by ethnic group with 19.7% of other and/or mixed ethnic origin women testing positive, 10.5% of Asian or Asian British women and 6.2% of white or white British women; there was one positive black or black British women (3.3%).

**Table 2. Number of antenatal women tested and testing positive for HBsAg, and number of HBsAg positive women tested and testing positive for HBeAg by ethnic group, January – December 2016***

| Ethnic group | Number tested HBsAg | Number positive (%) | Number HBsAg positive tested for HBeAg | % HBsAg positive tested | Number HBeAg positive (%) |
|---|---|---|---|---|---|
| Asian or Asian British origin | 13,673 | 39 (0.3) | 38 | 97.4 | 4 (10.5) |
| Black or black British origin | 3,044 | 32 (1.1) | 32 | 100.0 | 1 (3.1) |
| Other and/or mixed origin | 3,580 | 61 (1.7) | 61 | 100.0 | 12 (19.7) |
| White or white British origin | 67,181 | 136 (0.2) | 129 | 94.9 | 8 (6.2) |
| Unknown ethnic origin | 3,747 | 28 (0.7) | 28 | 100.0 | 5 (17.9) |
| **Total** | **91,225** | **296 (0.3)** | **288** | **97.3** | **30 (10.4)** |

* Excludes dried blood spot testing, oral fluid testing, reference testing and testing from hospitals referring all samples. Only women aged 12-49 years old are included. Data are de-duplicated subject to availability of date of birth, soundex and first initial. All data are provisional

### b. Non-antenatal HBsAg testing

In 2016, 271,218 individuals were tested at least once for HBsAg, excluding antenatal screening, in 21 participating sentinel centres. Overall, 2,830 (1.0%) individuals tested positive, with the highest proportion of positive tests in the West Midlands (1.9%) *(Supplementary Table 5)*. This may reflect more targeted testing of risk groups and/or genuinely higher prevalence of hepatitis B in people being tested in this PHEC.

The age and gender of individuals tested for HBsAg was well reported (>99.5% complete). Where known, almost the same number of females (50.3%) were tested as males (49.7%) (*Supplementary Table 6*). The number of females tested may include some undergoing routine antenatal screening who could not be identified as such from the information provided. Males had a greater proportion testing positive compared to females (1.4% vs 0.7% $p<0.001$). Almost half of all individuals tested (47.4%) and three fifths (59.0%) of individuals testing positive were aged between 25 and 44 years old. The median age of individuals tested and positive were similar with 36 years (IQR 27 – 52) and 36 years (IQR 29 – 47) respectively.

Where known (n=270,902), general practice tested the greatest proportion of individuals for HBsAg (31.1%), with a further 16.9% tested in other known hospital wards and 14.0% tested in GUM clinics

(table 3). The highest proportion of positive tests were among specialist liver services, HIV services, and unspecified wards (2.7%, 2.2% and 1.8% respectively).

**Table 3. Number of individuals tested, and testing positive for HBsAg in participating centres by service type (excluding antenatal testing), January – December 2016***

| Service type | Number tested | Number positive (%) |
|---|---|---|
| **Primary Care** | | |
| Accident and emergency | 22,934 | 134 (0.6) |
| Drug dependency services | 662 | 5 (0.8) |
| General practitioner | 84,294 | 1,163 (1.4) |
| GUM clinic | 37,942 | 424 (1.1) |
| Occupational health | 12,410 | 47 (0.4) |
| Prison services | 3,107 | 44 (1.4) |
| Pharmacy | 1 | 0 (0.0) |
| Total primary care | 161,350 | 1,817 (1.1) |
| **Secondary Care** | | |
| Fertility services | 12,477 | 93 (0.7) |
| General medical / surgical departments | 9,978 | 114 (1.1) |
| Obstetrics and gynaecology | 17,938 | 61 (0.3) |
| Other ward type (known service)† | 46,024 | 362 (0.8) |
| Paediatric services | 3,609 | 32 (0.9) |
| Renal | 6,805 | 52 (0.8) |
| Specialist HIV services | 822 | 18 (2.2) |
| Specialist liver services | 6,923 | 189 (2.7) |
| Unspecified ward§ | 4,976 | 88 (1.8) |
| Total secondary care | 109,552 | 1,009 (0.9) |
| **Unknown#** | 316 | 4 (1.3) |
| **Total** | **271,218** | 2,830 (1.0) |

* 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.

† Other ward types includes cardiology, coroner, dermatology haematology, ultrasound, x-ray.

§ These are hospital services which are currently being investigated to identify specific service type, and may include any of the secondary care services mentioned above.

# These services are currently being investigated to identify specific service type, where possible

Three-quarters of individuals tested for HBsAg were classified as belonging to one of four broad ethnic groups (n=223,563) (table 4). Most individuals of unknown ethnic origin were tested by GUM clinics, from which only minimal demographic data are available, resulting in poor ethnic classification. The majority of individuals were classified as being of white or white British ethnic origin (76.1%), a further 15.2% were classified as Asian or Asian British origin, 4.6% were classified as black or black British origin and 4.1% were classified as other and/or mixed ethnic origin. The proportion positive varied by ethnic group; 4.9% of individuals of other and/or mixed ethnicity tested

positive compared to 3.5% of black or black British origin individuals, 1.5% of Asian or Asian British origin individuals and 0.6% of white or white British origin individuals.

**Table 4. Number of individuals tested, and testing positive for HBsAg in participating centres by ethnic group (excluding antenatal testing), January – December 2016***

| Ethnic group | Number tested | Number positive (%) |
|---|---|---|
| Asian or Asian British origin | 34,073 | 503 (1.5) |
| Black or black British origin | 10,196 | 356 (3.5) |
| Other and/or mixed origin | 9,114 | 449 (4.9) |
| White or white British origin | 170,180 | 948 (0.6) |
| Unknown ethnic origin | 47,655 | 574 (1.2) |
| **Total** | **271,218** | **2,830 (1.0)** |

* 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.

## 3. Hepatitis C antibody testing

Sentinel surveillance collects data on testing for hepatitis C-specific antibodies (anti-HCV), a marker of ever having a hepatitis C infection. It is important to note that no laboratory methods are currently available to distinguish between acute or chronic hepatitis C virus infections. Therefore, positive anti-HCV results do not therefore necessarily represent incident or current infections, with a HCV PCR test required to identify a current infection.

In 2016, 236,723 individuals were tested at least once for anti-HCV in 21 participating sentinel centres. Overall, 3,267 (1.4%) individuals tested positive. This varied by PHEC with the highest proportion of positive tests were from the South East (1.9%) (*Supplementary Table 7)*. This may reflect more targeted testing of risk groups and/or genuinely higher prevalence of hepatitis C in people being tested in this PHEC. Of those individuals testing positive for anti-HCV 70.1% (n=2,289) were tested for HCV RNA by PCR, of whom 64.7% tested positive (n=1,480). Of the PCR positive individuals 56.3% had a HCV genotype recorded; 50.1% were genotype 1, with a further 38.4% genotype 3.

Age and gender were well reported (>99.4% complete). Where known, slightly more males (55.2%) were tested than females (*Supplementary Table 8*). Over half (59.1%) of all individuals tested and almost three quarters (71.9%) testing positive were aged between 25 and 54 years old. A greater proportion of males tested positive compared to females (1.7% vs 1.0% respectively, $p<0.001$). The

median age of those tested was 38 years (IQR 28 – 55 years), whereas the median age of those tested positive was 43 years (IQR 34 – 54 years).

Where known (n=236,507), general practice tested the greatest proportion of individuals for anti-HCV (28.2%), with a further 18.9% tested in other known hospital wards and 15.2% tested in GUM clinics (table 5). The highest proportion of positive tests were among specialist drug (7.3%) and prison services (5.4%).

**Table 5. Number of individuals tested, and testing positive for anti-HCV in participating centres by service type, January – December 2016***

| Service type | Number tested | Number positive (%) |
|---|---|---|
| **Primary Care** | | |
| Accident and emergency | 23,038 | 307 (1.3) |
| Drug dependency services | 668 | 49 (7.3) |
| General practitioner | 66,736 | 1,082 (1.6) |
| GUM clinic | 36,001 | 557 (1.5) |
| Occupational health | 10,918 | 23 (0.2) |
| Prison services | 3,664 | 199 (5.4) |
| Pharmacy | 1 | 0 (0.0) |
| Total primary care | 141,026 | 2217 (1.6) |
| **Secondary Care** | | |
| Antenatal | 2,061 | 20 (1.0) |
| Fertility services | 10,965 | 45 (0.4) |
| General medical / surgical departments | 9,520 | 144 (1.5) |
| Obstetrics and gynaecology | 6,034 | 26 (0.4) |
| Other ward type (known service)† | 44,734 | 437 (1.0) |
| Paediatric services | 2,617 | 13 (0.5) |
| Renal | 6,713 | 44 (0.7) |
| Specialist HIV services | 1,192 | 53 (4.4) |
| Specialist liver services | 6,778 | 141 (2.1) |
| Unspecified ward§ | 4,867 | 119 (2.4) |
| Total secondary care | 95,481 | 1042 (1.1) |
| **Unknown#** | 216 | 8 (3.7) |
| **Total** | **236,723** | **3,267 (1.4)** |

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

† Other ward types includes cardiology, coroner, dermatology haematology, ultrasound, x-ray

§ These are hospital services which are currently being investigated to identify specific service type, and may include any of the secondary care services mentioned above.

# These services are currently being investigated to identify specific service type, where possible

Most individuals tested for anti-HCV were classified as belonging to one of four broad ethnic groups (n=193,271) (table 6). The majority of individuals were classified as being of white or white British ethnic origin (77.2 %), a further 14.5% were classified as Asian or Asian British origin, 4.5% were classified as black or black British origin and 3.8% were classified as other and/or mixed ethnic origin. The proportion positive varied slightly by ethnic group: 1.4% in white or white British origin individuals, 1.3% in individuals of Asian or Asian British ethnic origin tested positive, 0.9% in other or mixed ethnic origin individuals and 0.6% in black or black British origin individuals.

**Table 6. Number of individuals tested, and testing positive for anti-HCV in participating centres by ethnic group, January – December 2016***

| Ethnic group | Number tested | Number positive (%) |
|---|---|---|
| Asian or Asian British origin | 27,934 | 375 (1.3) |
| Black or black British origin | 8,730 | 54 (0.6) |
| Other and/or mixed origin | 7,344 | 65 (0.9) |
| White or white British origin | 149,263 | 2,060 (1.4) |
| Unknown ethnic origin | 43,452 | 713 (1.6) |
| **Total** | **236,723** | **3,267 (1.4)** |

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

## 4. Hepatitis D total antibody testing

Sentinel surveillance collects data on testing for hepatitis D-specific total antibody (HDV TA) and A-specific IgM antibody (anti-HDV IgM), a marker of acute hepatitis D infection. Six sentinel laboratories provide hepatitis D testing facilities. Given the small number of tests individuals tested for HDV TA and/or HDV IgM are aggregated, and therefore do not necessarily represent incident infections, and be interpreted accordingly. Data are shown by region of the requesting service.

In 2016, 2,673 individuals were tested at least once for HDV TA and/or HDV IgM, and 90 (3.4%) individuals tested positive, although this varied by PHEC with the highest proportion of positive tests in the East Midlands (7.9%) (*Supplementary table 9)*.

The age and gender of individuals tested for hepatitis D was well reported (>98.1% complete). Where known, slightly more males were tested than females (56.9% male). The proportion of males and females testing positive was similar (3.1% and 2.6% respectively, p=0.43). Three-fifths of all individuals tested (60.3%) and three-quarters of individuals positive (74.5%) were aged between 25

and 44 years old. The median age of individuals tested was 36 years (IQR 29 – 47) and the median age of individuals testing positive was 34 years (IQR 30 – 44).

Where known (n=1,670), almost two-thirds of individuals were tested by a hospital which referred all hepatitis D samples to a sentinel centre (61.2%). In these cases the service that originally requested the test could not be determined.

Most individuals tested for hepatitis D were classified as belonging to one of four broad ethnic groups (n=2,257). Almost half of individuals were classified as being of white or white British ethnic origin (49.3%), a further 22.5% were classified as Asian or Asian British ethnic origin, 16.5% were classified as other and/or mixed origin, and 11.7% were classified as black or black British origin (table 7). The proportion positive varied by ethnic group; 3.1% of Asian or Asian British origin tested positive compared to 2.3% of individuals of black or black British ethnic origin individuals, 3.3% of white or white British origin individuals and 0.8% of other or mixed ethnic origin individuals.

**Table 7. Number of individuals tested, and testing positive, for HDV-TA and/or HDV IgM in participating centres by ethnic group, January – December 2016***

| Ethnic group | Number tested | Number positive (%) |
|---|---|---|
| Asian or Asian British origin | 508 | 16 (3.1) |
| Black or black British origin | 264 | 6 (2.3) |
| Other and/or mixed origin | 373 | 3 (0.8) |
| White or white British origin | 1,112 | 37 (3.3) |
| Unknown ethnic origin | 416 | 28 (6.7) |
| **Total** | **2,673** | **90 (3.4)** |

* Excludes reference testing. Data are de-duplicated subject to availability of date of birth, soundex and first initial. All data are provisional.

## 5. Hepatitis E IgM testing

Sentinel surveillance collects data on testing for hepatitis E-specific IgM antibody (anti-HEV IgM), a marker of acute hepatitis E infection. Recent HEV testing guidelines and increased disease awareness have resulted in more sentinel laboratories testing for HEV.

In 2016, 17,565 individuals were tested at least once for anti-HEV IgM. Overall, 796 (4.5%) individuals tested positive, although this varied by PHEC with the highest proportion of positive tests in the North West (27.6%)(*Supplementary Table 10)*.

The age and gender of individuals tested for anti-HEV IgM was well reported (>99.6% complete). Where known, a similar number of males and females were tested (52.4% male). A greater proportion of males tested positive compared to females (5.3 % vs. 3.6% respectively, $p<0.001$). Over two-fifths of all individuals tested and one third of individuals testing positive were aged between 25 and 54 years old. The median age of individuals tested was 51 years (IQR 34 – 66) and the median age of individuals testing positive was 60 years (IQR 48 – 71).

Overall 7.5% (361/4,804) of males aged 50 or over tested positive for HEV, compared to 3.0% (129/4,371) among those under the age of 50. A similar pattern was seen among females, where 4.7% (205/4,336) of females aged 50 or over tested positive compared to 2.4% (95/3,988) among those under the age of 50.

Where known (n=9,808), most individuals were tested by a hospital which referred all anti-HEV IgM samples to a sentinel centre (55.9%). In these cases the original service that initially requested the test could not be determined. The highest proportion of positive tests were among accident and emergency and renal services (both 5.9%).

Most individuals tested for anti-HEV IgM were classified as belonging to one of four broad ethnic groups (n=16,861). The majority of individuals were classified as being of white or white British ethnic origin (84.9%), a further 11.6% were classified as Asian or Asian British origin, 1.9% were classified as other and/or mixed ethnic origin, and 1.6% were classified as black or black British origin (table 8). The proportion positive varied by ethnic group; 4.8% of individuals of white or white British origin tested positive compared to 3.2% of Asian or Asian British origin individuals, 2.5% of other or mixed ethnic origin and 1.9% of black or black British origin.

**Table 8**. **Number of individuals tested, and testing positive, HEV IgM in participating centres by ethnic group, January – December 2016**

| Ethnic group | Number tested | Number positive (%) |
|---|---|---|
| Asian or Asian British origin | 1,957 | 63 (3.2) |
| Black or black British origin | 270 | 5 (1.9) |
| Other and/or mixed origin | 317 | 8 (2.5) |
| White or white British origin | 14,317 | 682 (4.7) |
| Unknown ethnic origin | 704 | 38 (5.4) |
| **Total** | **17,565** | **796 (4.5)** |

## 6. HIV testing

Sentinel surveillance collects data on testing for HIV. All pregnant women in the UK are offered HIV screening as part of their antenatal care. Data from the test request location and free-text clinical details field accompanying the test request were reviewed to distinguish individuals tested for HIV as part of routine antenatal screening (section 6a) from those tested in other settings and for other reasons (section 6b). It is possible that some women undergoing antenatal screening may not be identified as such and may therefore be included in section 6b as non-antenatal testing.

### a. Antenatal HIV screening

In 2016, 76,399 women aged between 16 and 49 years old were identified as undergoing antenatal screening for HIV, representing 16.1% of all individuals tested for HIV in participating sentinel centres *(Supplementary Table 11)*. Overall, 75 (0.1%) of these women tested positive. The median age of women tested was 30 years (IQR 25– 33) and the median age of women testing positive was 32 years (IQR 27 – 36).

### b. Non-antenatal HIV screening

In 2016, 399,269 adults aged 16 and over years old were tested at least once for HIV, excluding antenatal screening, in 19 participating sentinel centres. Overall, 2,586 (0.6%) individuals tested positive, although this varied by PHEC with the highest proportion of positive tests in the South East (1.0%) *(Supplementary Table 12)*. The age and gender of adults tested for HIV was well reported (>99.5% complete). Where known, similar numbers of females (51.5%) were tested compared to males (*Supplementary Table 13*). The number of females tested may include some undergoing routine antenatal screening who could not be identified as such from the information provided. A greater proportion of males tested positive compared to females (1.0% vs 0.3% $p<0.001$). A third of all individuals tested and over one quarter of individuals testing positive were aged between 25 and 34 years old. The median age of individuals tested was 31 years (IQR 24 – 43) and the median age of individuals testing positive was 38 years (IQR 30 – 47).

Where known (n=398,737), the greatest proportion of individuals were tested for HIV in GUM clinics (42.1%), with a further 17.5% tested in general practice, and 10.2% tested in other known hospital wards (table 9). The highest proportion of positive tests were among specialist HIV services, unspecified wards and specialist liver services (40.6%, 2.0% and 1.7% respectively).

**Table 9. Number of adults (16+ years old) tested and testing positive for HIV in participating centres by service type (excluding antenatal testing), January – December 2016 *†**

| Service type | Number tested | Number positive (%) |
|---|---|---|
| **Primary Care** | | |
| Accident and emergency | 41,197 | 253 (0.6) |
| Drug dependency services | 546 | 1 (0.2) |
| General practitioner | 69,646 | 228 (0.3) |
| GUM clinic | 167,738 | 1,182 (0.7) |
| Occupational health | 9,889 | 9 (0.1) |
| Prison services | 3,218 | 13 (0.4) |
| Total primary care | 292,234 | 1,686 (0.6) |
| **Secondary Care** | | |
| Fertility services | 20,348 | 83 (0.4) |
| General medical / surgical departments | 10,204 | 64 (0.6) |
| Obstetrics and gynaecology | 14,617 | 14 (0.1) |
| Other ward type (known service)† | 40,689 | 173 (0.4) |
| Paediatric services | 1,732 | 2 (0.1) |
| Renal | 5,308 | 20 (0.4) |
| Specialist HIV services | 737 | 299 (40.6) |
| Specialist liver services | 5,128 | 87 (1.7) |
| Unspecified ward§ | 7,740 | 154 (2.0) |
| Total secondary care | 106,503 | 896 (0.8) |
| **Unknown#** | 532 | 4 (0.8) |
| **Total** | **399,269** | **2,586 (0.6)** |

* Excludes individuals aged under 16, antenatal screening, dried blood spot testing, oral fluid testing, 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.

† Other ward types includes cardiology, coroner, dermatology haematology, ultrasound, x-ray.

§ These are hospital services which are currently being investigated to identify specific service type, and may include any of the secondary care services mentioned above.

# These services are currently being investigated to identify specific service type, where possible

Almost three fifths of adults tested for HIV were classified as belonging to one of four broad ethnic groups (n=229,435) (table 10). Where known, the majority of individuals were classified as being of white or white British ethnic origin (77.8%), a further 11.7% were classified as Asian or Asian British origin, 6.7% were classified as black or black British origin and 3.8% were classified as other and/or mixed ethnic origin. Most individuals of unknown ethnic origin were tested in GUM clinics, hence the lack of demographic information. The proportion positive varied by ethnic group; 1.5% of individuals of black or black British origin tested positive compared to 0.6% of individuals of white or white British origin, 0.5% of other and/or mixed origin individuals and 0.4% of Asian or Asian British origin individuals.

**Table 10**. **Number of adults (16+ years old) tested, and testing positive for HIV in participating centres by ethnic group (excluding antenatal testing), January – December 2016 ***

| Ethnic group | Number tested | Number positive (%) |
|---|---|---|
| Asian or Asian British origin | 26,820 | 97 (0.4) |
| Black or black British origin | 15,409 | 228 (1.5) |
| Other and/or mixed origin | 8,820 | 41 (0.5) |
| White or white British origin | 178,386 | 1,010 (0.6) |
| Unknown ethnic origin | 169,834 | 1,210 (0.7) |
| **Total** | **399,269** | **2,586 (0.6)** |

* Excludes individuals aged under 16, antenatal screening, dried blood spot testing, oral fluid testing, 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.

## 7. HTLV testing

In 2016, 7,006 individuals were tested at least once for HTLV-1 specific antibodies in 11 participating sentinel centres. Overall, 100 (1.4%) individuals tested positive, although this varied by PHEC with the highest proportion of positive tests in the South West (12.8%), although very few individuals were tested from this region, it is likely they tested due to the presentation of HTLV-like symptoms (*Supplementary Table 14*).

The age and gender of individuals tested for HTLV-1 was well reported (>95.2% complete) (*Supplementary Table* 15). Where known, slightly more males were tested than females (54.6% male), with no significant difference in the proportion of females testing positive compared to males (18% vs. 1.2% respectively, $p$=0.07). More than three-fifths of those testing, and testing positive, were aged 45 years and older. The median age of individuals tested was 51 years (IQR 34 – 63) and the median age of individuals testing positive was 56 years (IQR 40 – 64).

Where known (n=2,066), a quarter of individuals were tested by a hospital which referred all HTLV-1 samples to a sentinel centre (29.5%). In these cases the original service that initially requested the test could not be determined.

Most individuals tested for HTLV-1 were classified as belonging to one of four broad ethnic groups (n=6,246) (table 11). The majority of individuals were classified as being of white or white British ethnic origin (88.1%), a further 7.6% were classified as Asian or Asian British origin, 2.6% were classified as black or black British origin, and 1.6% were classified as other and/or mixed ethnic origin (table 11). The proportion positive varied by ethnic group; 5.5% of individuals of black or black British origin tested positive compared to 1.7% of Asian or Asian British origin individuals, 1.3% of individuals of white or white British origin, with no positive other and/or mixed origin individuals.

**Table 11. Number of individuals tested, and testing positive for HTLV in participating centres by ethnic group, January – December 2016 ***

| Ethnic group | Number tested | Number positive (%) |
|---|---|---|
| Asian or Asian British origin | 477 | 8 (1.7) |
| Black or black British origin | 163 | 9 (5.5) |
| Other and/or mixed origin | 101 | 0 (0.0) |
| White or white British origin | 5,505 | 71 (1.3) |
| Unknown ethnic origin | 760 | 12 (1.6) |
| **Total** | **7,006** | **100 (1.4)** |

* Excludes reference testing. Data are de-duplicated subject to availability of date of birth, soundex and first initial. All data are provisional.

## 8. Dried blood spot testing

Sentinel surveillance data on DBS testing are not presented this year due to the expansion of DBS testing in private laboratories. Until 2015, these data were collected at an aggregate level by region, however, work is currently underway to determine whether additional information on testing facility can be collated and used to help understand recent changes in testing.

# About Public Health England

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