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Immunisation

Annual report from the sentinel surveillance study of blood borne virus testing in England: data for January to December 2013

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 2013, sentinel surveillance captured front-line testing for hepatitis A, B, C and HIV among 13 out of 15 PHECs in England, covering approximately 40% of the population, and over 80% of the population from all 15 PHECs tested for hepatitis D, E and HTLV (*supplementary figure 1*).

This report provides summary data for individuals who were first reported to the sentinel surveillance programme during 2013. Sections 1 to 7 describes testing and demographic information for individuals tested by venepuncture for hepatitis A to E, HIV, and HTLV. Section 8 describes dried blood spot testing [1] of hepatitis B, C and HIV, and section 9 describes oral fluid testing of hepatitis B, C and HIV.

The supplementary tables referred to in this report will be available on the sentinel surveillance website (http://www.hpa.org.uk/ssbbv) in due course.

1. Hepatitis A IgM testing

In 2013, 22 participating centres supplied hepatitis A-specific IgM antibody (anti-HAV IgM) testing data (a marker of acute infection). Overall 29,085 individuals were tested for anti-HAV IgM, of whom 124 (0.4) tested positive (*supplementary table 1*). The age and gender of individuals tested was well reported (>99.7% complete). Where known, more males (55.4%) were tested than females. Just over half of all individuals tested and one-third of those who tested positive were aged between 25 and 54 years old (*supplementary table 2*). The median age of individuals undergoing testing was 46.1 years (IQR 30.9 – 61.6) whereas the median age of individuals testing positive was 32.8 years (IQR 20.6 – 66.5). As seen in previous years, the greatest proportion positive was among children aged 1-14 years (3.6%).

The type of service which requested the hepatitis test was identified using the record location of the requestor (table 1). Where known (n=29,059), general practice tested the greatest proportion of individuals for anti-HAV IgM (54.5%), with a further 17.5% tested in other known hospital wards, and 11.0% tested in general medical surgical wards. The highest proportion of positive tested were from occupational health services (3.8%), and paediatric services (2.1%).

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=28,280) (*supplementary table 3*). Where known, the majority of individuals were classified as being of white or white British ethnic origin (83.2%), a further 12.4% were classified as Asian or Asian British origin, 2.7% were classified as other and/or mixed ethnic origin, and 1.7% were classified as black or black British origin. The greatest proportion positive was among individuals of Asian or Asian British origin (1.1%).

Table 1. Number of individuals tested, and testing positive for anti-HAV IgM in participating centres by service type, January – December 2013*

Service type	Number tested	Number positive (%)
Primary Care		
Accident and emergency	922	17 (1.8)
Drug dependency services	40	0 (0.0)
General practitioner	15,828	43 (0.3)
GUM clinic	372	0 (0.0)
Occupational health	26	1 (3.8)
Prison services	566	3 (0.5)
Total primary care	17,754	64 (0.4)
Secondary Care		
Antenatal	462	0 (0.0)
Fertility services	15	0 (0.0)
General medical / surgical departments	3,192	21 (0.7)
Obstetrics and gynaecology	265	1 (0.4)
Other ward type (known service)†	5,099	15 (0.3)
Paediatric services	776	16 (2.1)
Renal	220	1 (0.5)
HIV	72	0 (0.0)
Specialist infectious disease services	971	2 (0.2)
Unspecified ward§	233	4 (1.7)
Total secondary care	11,305	60 (0.5)
Unknown#	26	0 (0.0)
Total	**29,085**	**124 (0.4)**

* 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.

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 2013, 72,832 women aged between 12 and 49 years old were identified as undergoing antenatal screening for HBsAg, representing 25.0% of all individuals tested for HBsAg in participating sentinel centres *(supplementary table 4)*. Overall 267 (0.4%) of these women tested positive. The median age of women tested was 29.2 years (IQR 24.7– 33.2) and the median age of women testing positive was 29.0 years (IQR 25.3 – 32.2).

Among the 267 HBsAg positive women identified, 251 (94.0%) had HBeAg results available, 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= 71,476) (table 2). The majority of individuals were classified as being of white or white British ethnic origin (80.6%), a further 13.4% were classified as Asian or Asian British origin, 3.8% were classified as other and/or mixed ethnic origin, and 2.2% were classified as black or black British origin. The proportion testing positive was higher among women of black or black British origin and other and/or mixed origin (2.4% and 2.2% respectively) than women of Asian or Asian British origin and white or white British origin (0.5% and 0.2% respectively).

The proportion of HBeAg positive women also differed by ethnic group with 26.8% of other and/or mixed ethnic origin women testing positive compared to 5.4% of white or white British women, 5.3% of black or black British women and 6.4% of Asian or Asian British women.

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 2013*

Ethnic group	Number tested HBsAg	Number positive (%)	Number HBsAg positive tested for HBeAg	% HBsAg positive tested	Number HBeAg positive (%)
Asian or Asian British origin	9,591	49 (0.5)	47	95.9	3 (6.4)
Black or black British origin	1,581	38 (2.4)	38	100.0	2 (5.3)
Other and/or mixed origin	2,686	59 (2.2)	56	94.9	15 (26.8)
White or white British origin	57,618	103 (0.2)	93	90.3	5 (5.4)
Unknown ethnic origin	1,356	18 (1.3)	17	94.4	1 (5.9)
Total	**72,832**	**267 (0.4)**	**251**	**94.0**	**26 (9.7)**

* 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 2013, 218,554 individuals were tested at least once for HBsAg, excluding antenatal screening, in 22 participating sentinel centres. Overall, 2,491 (1.1%) of individuals tested positive, although this varied by PHEC with the highest proportion of positive tests in London (1.5%) *(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 (>98.9% complete). Where known, slightly more males (52.8%) were tested compared to females (*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 (1.5% vs 0.8% $p<0.001$). Almost half of all individuals tested and three fifths of individuals testing positive were aged between 25 and 44 years old. The median age of individuals tested was 34.6 years (IQR 26.2 – 49.2) whereas the median age of individuals testing positive was 35.2 years (IQR 27.7 – 44.9).

Where known (n=218,119), general practice tested the greatest proportion of individuals for HBsAg (29.8), with a further 25.4% tested in GUM clinics, and 14.9% tested in other known hospital wards (table 3). The highest proportion of positive tests were among specialist HIV services, unspecified ward and specialist liver services (2.2%, 1.8% and 1.8% respectively).

Three-quarters of individuals tested for HBsAg were classified as belonging to one of four broad ethnic groups (n=155,103) (table 4). The majority of individuals were classified as being of white or white British ethnic origin (76.6%), a further 16.6% were classified as Asian or Asian British origin, 4.1% were classified as other and/or mixed ethnic origin, and 2.7% were classified as black or black British origin. 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 proportion positive varied by ethnic group; 6.8% of individuals of other and/or mixed ethnicity tested positive compared to 4.8% 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 3. Number of individuals tested, and testing positive for HBsAg in participating centres by service type (excluding antenatal testing), January – December 2013*

Service type	Number tested	Number positive (%)
Primary Care		
Accident and emergency	3,227	38 (1.2)
Drug dependency services	1,506	8 (0.5)
General practitioner	64,984	922 (1.4)
GUM clinic	55,376	632 (1.1)
Occupational health	12,723	55 (0.4)
Prison services	3,477	51 (1.5)
Total primary care	141,293	1706 (1.2)
Secondary Care		
Fertility services	8,637	33 (0.4)
General medical / surgical departments	9,329	88 (0.9)
Obstetrics and gynaecology	8,502	38 (0.4)
Other ward type (known service)†	32,535	401 (1.2)
Paediatric services	3,420	24 (0.7)
Renal	5,537	37 (0.7)
Specialist HIV services	862	19 (2.2)
Specialist liver services	5,267	95 (1.8)
Unspecified ward§	2,737	49 (1.8)
Total secondary care	76,826	784 (1.0)
Unknown#	73	0 (0.0)
Total	**218,192**	**2490 (1.1)**

* 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

Table 4. Number of individuals tested, and testing positive for HBsAg in participating centres by ethnic group (excluding antenatal testing), January –December 2013*

Ethnic group	Number tested	Number positive (%)
Asian or Asian British origin	25,785	395 (1.5)
Black or black British origin	4,189	202 (4.8)
Other and/or mixed origin	6,326	432 (6.8)
White or white British origin	118,803	749 (0.6)
Unknown ethnic origin	63,451	713 (1.1)
Total	**218,554**	**2491 (1.1)**

* 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). 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 infections.

In 2013, 188,364 individuals were tested at least once for anti-HCV in 22 participating sentinel centres. Overall, 3,431 (1.8%) of individuals tested positive. This varied by PHEC with the highest proportion of positive tests were from Cumbria and Lancashire (3.0%) (*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 73.2% were tested for HCV RNA by PCR, of whom 65.3% tested positive (n=1,640). Of the PCR positive individuals 47.5% had a HCV genotype recorded; 44.7% of whom were genotype 1 with a further 43.9% genotype 3.

Age and gender were well reported (>99.0% complete). Where known, slightly more males (55.0%) were tested than females (*supplementary table 8*). Just over half of all individuals tested and testing positive were aged between 25 and 54 years old (61.0%). A greater proportion of males tested positive compared to females (2.3% vs 1.2% respectively, $p<0.001$). The median age of those tested was 36.8 years (IQR 27.6 – 51.5 years), whereas the median age of those tested positive was 41.7 years (IQR 32.9 – 51.8 years).

Where known (n=188,296), general practice tested the greatest proportion of individuals for anti-HCV (29.9%), with a further 18.4% tested in GUM clinics and 17.1% tested in other known hospital wards (table 5). The highest proportion of positive tests were among specialist drug (10.1%) and prison services (9.4%).

Table 5. Number of individuals tested, and testing positive for anti-HCV in participating centres by service type, January – December 2013*

Service type	Number tested	Number positive (%)
Primary Care		
Accident and emergency	3,263	85 (2.6)
Drug dependency services	1,536	155 (10.1)
General practitioner	56,318	1,162 (2.1)
GUM clinic	34,613	586 (1.7)
Occupational health	11,094	24 (0.2)
Prison services	4,242	400 (9.4)
Total primary care	111,066	2,412 (2.2)
Secondary Care		
Antenatal	4,678	35 (0.7)
Fertility services	9,913	38 (0.4)
General medical / surgical departments	9,009	184 (2.0)
Obstetrics and gynaecology	3,551	19 (0.5)
Other ward type (known service)†	32,149	468 (1.5)
Paediatric services	2,679	10 (0.4)
Renal	5,676	39 (0.7)
Specialist HIV services	1,516	46 (3.0)
Specialist liver services	5,418	133 (2.5)
Unspecified ward§	2,641	45 (1.7)
Total secondary care	77,230	1,017 (1.3)
Unknown#	68	2 (2.9)
Total	**188,364**	**3,431 (1.8)**

* 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=146,526) (table 6). The majority of individuals were classified as being of white or white British ethnic origin (78.0%), a further 15.8% were classified as Asian or Asian British origin, 3.7% were classified as other and/or mixed ethnic origin, and 2.6% were classified as black or black British origin. The proportion positive varied slightly by ethnic group: 1.8% of individuals of white or white British ethnic origin tested positive compared to 1.8% of Asian or Asian British origin individuals, 1.1% of other or mixed ethnic origin individuals and 0.8% of 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 2013*

Ethnic group	Number tested	Number positive (%)
Asian or Asian British origin	23,086	410 (1.8)
Black or black British origin	3,794	32 (0.8)
Other and/or mixed origin	5,428	57 (1.1)
White or white British origin	114,218	2,107 (1.8)
Unknown ethnic origin	41,838	825 (2.0)
Total	**188,364**	**3,431 (1.8)**

* 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-HAV 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 2013, 2,104 individuals were tested at least once for HDV TA and/or HDV IgM in six participation sentinel centres (*supplementary table 9*). Overall 97 (4.6%) of individuals tested positive, although this varied by PHEC with the highest proportion of positive tests in Cheshire and Merseyside (10.0%) and Devon, Cornwall and Somerset (10.0%) although few individuals were tested from this PHEC.

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 (57.8% male). The proportion of females testing positive was slightly greater when compared to males (5.3% vs 4.2%). Three-fifths of all individuals tested and testing positive were aged between 25 and 44 years old. The median age of individuals tested was 34.8 years (IQR 28.2 – 44.6) and the median age of individuals testing positive was 35.8 years (IQR 28.2 – 42.9).

Where known (n=2,104), over half of individuals were tested by a hospital which referred all hepatitis D samples to a sentinel centre (63.6%). In these cases the original service that initially 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=1,694). Two-fifths of individuals were classified as being of white or white British ethnic origin (44.5%), a further 24.1% were classified as other and/or mixed ethnic origin, 21.1% were classified as Asian or Asian British origin, and 10.2% were classified as black or black British origin (table 7). The proportion positive varied by ethnic group; 4.6% of black or black British origin tested positive compared to 4.5% of individuals of Asian or Asian British ethnic origin individuals, 4.4% of white or white British origin individuals and 2.2% 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 2013*

Ethnic group	Number tested	Number positive (%)
Asian or Asian British origin	358	16 (4.5)
Black or black British origin	173	8 (4.6)
Other and/or mixed origin	409	9 (2.2)
White or white British origin	754	33 (4.4)
Unknown ethnic origin	410	31 (7.6)
Total	**2,104**	**97 (4.6)**

* 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 A infection. Six sentinel laboratories provide anti-HEV IgM testing facilities.

In 2013, 8,117 individuals were tested at least once for anti-HEV IgM in six participating sentinel centres (*supplementary table 10*). This represents a 36% increase in the number of individuals tested in 2013 compared to that reported in 2012. This increase in testing is likely to reflect a substantial increase in confirmed HEV cases since 2010. Overall, *523* (6.4%) of individuals tested positive, although this varied by PHEC with the highest proportion of positive tests in the Avon and Gloucestershire (43.3%), although few individuals were tested from this PHEC.

The age and gender of individuals tested for anti-HEV IgM was well reported (>97.0% complete). Where known, slightly more males were tested than females (52.9% male). A greater proportion of males tested positive compared to females (7.8% vs. 4.1% respectively, $p<0.001$). Almost half of all individuals tested and two-fifths of individuals testing positive were aged between 25 and 54 years old. The median age of individuals tested was 49.4 years (IQR 33.6 – 64.3) and the median age of individuals testing positive was 56.7 years (IQR 46.5 – 67.9).

Overall 11% (234/2118) of males aged 50 or over tested positive for HEV, compared to 4.4% (91/2047) among those under the age of 50. A similar pattern was seen among females, where 5.3% (94/1758) of females aged 50 or over tested positive compared to 3.0% (59/1952) among those under the age of 50.

Where known (n=8,116), most individuals were tested by a hospital which referred all anti-HEV IgM samples to a sentinel centre (75.5%). In these cases the original service that initially requested the test could not be determined. The highest proportion of positive tested through general medical surgical (9.7%) and GP services (9.5%).

Most individuals tested for anti-HEV IgM were classified as belonging to one of four broad ethnic groups (n=7,562). The majority of individuals were classified as being of white or white British ethnic origin (08.4%), a further 14.9% were classified as Asian or Asian British origin, 3.0% 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; 6.2% of individuals of white or white British origin tested positive compared to 5.0% of Asian or Asian British origin individuals, 2.6% of other or mixed ethnic origin individuals and 0.8% of black or black British origin individuals.

Table 8. Number of individuals tested, and testing positive, HEV IgM in participating centres by ethnic group, January – December 2013*

Ethnic group	Number tested	Number positive (%)
Asian or Asian British origin	1130	56 (5.0)
Black or black British origin	120	1 (0.8)
Other and/or mixed origin	230	6 (2.6)
White or white British origin	6,082	378 (6.2)
Unknown ethnic origin	555	82 (14.8)
Total	**8,117**	**523 (6.4)**

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 2013, 60,141 women aged between 16 and 49 years old were identified as undergoing antenatal screening for HIV, representing 15.9% of all individuals tested for HIV in participating sentinel centres *(supplementary table 11)*. Overall, 68 (0.1%) of these women tested positive. The median age of women tested was 29.7 years (IQR 25.3 – 33.7) and the median age of women testing positive was 31.3 years (IQR 26.8 – 35.6).

b. Non-antenatal HIV testing

In 2013, 319,242 adults aged 16 and over years old were tested at least once for HIV, excluding antenatal screening, in 14 participating sentinel centres. Overall, 2,528 (0.8%) of individuals tested positive, although this varied by PHEC with the highest proportion of positive tests in Avon, Gloucestershire (7.1%) *(supplementary table 12)*, although few individuals were tested from this PHEC

The age and gender of adults tested for HIV was well reported (>98.8% complete). Where known, similar numbers of females (51.0%) 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 (1.2% vs 0.4% $p<0.001$). A third of all individuals tested and testing positive were aged between 25 and 34 years old. The median age of individuals tested was 29.6 years (IQR 23.6 – 39.3) and the median age of individuals testing positive was 36.7 years (IQR 29.1 – 45.3).

Where known (n=319,180), GUM clinics tested the greatest proportion of individuals for HIV (59.8%), with a further 13.6% tested in general practice, and 9.6% tested in other known hospital wards (table 9). The highest proportion of positive tests were among specialist HIV, liver services and paediatric services (34.2%, 1.9% and 1.5% 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 2013*†.

Service type	Number tested	Number positive (%)
Primary Care		
Accident and emergency	8,009	83 (1.0)
Drug dependency services	587	1 (0.2)
General practitioner	43,529	178 (0.4)
GUM clinic	190,787	1,649 (0.9)
Occupational health	7,957	10 (0.1)
Prison services	3,627	19 (0.5)
Total primary care	254,496	1,940 (0.8)
Secondary Care		
Pharmacy	12	0 (0.0)
Antenatal	216	0 (0.0)
Fertility services	9,608	13 (0.1)
General medical / surgical departments	7,091	68 (1.0)
Obstetrics and gynaecology	5,060	17 (0.3)
Other ward type (known service)†	30,746	178 (0.6)
Paediatric services	1,300	20 (1.5)
Renal	3,744	14 (0.4)
Specialist HIV services	520	178 (34.2)
Specialist liver services	4,095	78 (1.9)
Unspecified ward§	2,292	39 (1.7)
Total secondary care	64,684	605 (0.9)
Unknown#	62	0 (0.0)
Total	**319,242**	**2,545 (0.8)**

* 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.

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

Two-fifths of adults tested for HIV were classified as belonging to one of four broad ethnic groups (n=120,650) (table 10). Where known, the majority of individuals were classified as being of white or white British ethnic origin (80.6%), a further 12.5% were classified as Asian or Asian British origin, 3.7% were classified as other and/or mixed ethnic origin, and 3.1% were classified as black or black British 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; 3.1% of individuals of black or black British origin tested positive compared to 0.9% of individuals of white or white British origin, 0.9% of Asian or Asian British origin individuals and 0.8% of other and/or mixed 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 2013*

Ethnic group	Number tested	Number positive (%)
Asian or Asian British origin	15,127	129 (0.9)
Black or black British origin	3,718	114 (3.1)
Other and/or mixed origin	4,521	37 (0.8)
White or white British origin	97,284	850 (0.9)
Unknown ethnic origin	198,592	1,415 (0.7)
Total	**319,242**	**2,545 (0.8)**

* 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 2013, 6.863 individuals were tested at least once for HTLV-1 specific antibodies in 11 participating sentinel centres (*supplementary table 14*). Overall, 99 (1.4%) of individuals tested positive, although this varied by PHEC with the highest proportion of positive tests in the East Midlands, (9.1%), although few individuals were tested from this region.

The age and gender of individuals tested for HTLV-1 was well reported (>93.5% complete) (*supplementary table* 15). Where known, slightly more males were tested than females (53.2% male), with a higher proportion of females testing positive compared to males (1.8% vs. 1.3% respectively, *p*=0.117). Half of all individuals tested and two-thirds of those testing positive, were aged 45 years and older. The median age of individuals tested was 46.7 years (IQR 31.2 – 60.4) and the median age of individuals testing positive was 51.3 years (IQR 33.7 – 60.4).

Where known (n=6,863), a quarter of individuals were tested by a hospital which referred all HTLV-1 samples to a sentinel centre (25.0%). 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=6,015) (table 11). The majority of individuals were classified as being of white or white British ethnic origin (87.0%), a further 8.4% were classified as Asian or Asian British origin, 2.6% were classified as black or black British origin, and 1.7% were classified as other and/or mixed ethnic origin (table 11). The proportion positive varied by ethnic group; 3.8% of individuals of black or black British origin tested positive compared to 1.7% of other and/or mixed origin individuals, 1.4% of individuals of white or white British origin and 1.4% of Asian or Asian British origin individuals.

Table 11. Number of individuals tested, and testing positive for HTLV in participating centres by ethnic group, January – December 2013*

Ethnic group	Number tested	Number positive (%)
Asian or Asian British origin	506	7 (1.4)
Black or black British origin	156	6 (3.8)
Other and/or mixed origin	118	2 (1.7)
White or white British origin	5,235	72 (1.4)
Unknown ethnic origin	848	12 (1.4)
Total	**6,863**	**99 (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

Three sentinel laboratories provide dried blood spot (DBS) testing facilities. Aggregate HBsAg, anti-HCV, and HIV DBS testing data have also been made available by Alere Toxicology Plc. Data are shown by region of the requesting clinician.

a. HBsAg testing

During 2013, a total of 11,695 individuals were tested at least once for HBsAg by DBS testing, 218 (1.9%) of whom had a reactive test result *(supplementary Table 16)*. This included 6961 individuals tested by Alere Toxicology Plc from drug action teams (DATs) of whom 2.7% has a reactive test result, and 4,734 individuals tested through sentinel laboratories, of whom 0.7% tested positive.

b. Anti-HCV testing

During 2013, a total of 10,590 individuals were tested at least once for anti-HCV by DBS testing, 2,378 (22.5%) of whom had a reactive test result *(supplementary table 17*). This included 5,910 individuals tested by Alere Toxicology Plc from drug action teams (DATs) of whom 27.9% has a reactive test result and 4,680 individuals tested through sentinel laboratories, of whom 15.6% tested positive. The comparatively lower proportion of positive test results among individuals who were tested by sentinel laboratories may reflect differences in testing; for example DBS testing has been trialled in pharmacies and other primary care settings as well as by specialist drug services, where as all samples tested by DBS by Alere Toxicology Plc. were taken in/by drug action teams.

c. HIV testing

During 2013, a total of 4,165 individuals were tested at least once for HIV by DBS testing, 0.3% of which had a reactive result *(supplementary table 18)*.

9. Oral fluid testing

Aggregate HBsAg, anti-HCV, and HIV oral fluid testing data have been provided by Concateno Plc. Data are shown by region of the requesting clinician.

a. HBsAg testing

During 2013, a total of 1,381 individuals were tested at least once for HBsAg by oral fluid testing, 2.6% of which had a reactive result *(supplementary table 19)*.

b. Anti-HCV testing

During 2013, a total of 1,291 individuals were tested at least once for anti-HCV by oral fluid testing, of which 14.1% had a reactive result *(supplementary table 20)*.

c. HIV testing

During 2013, a total of 1,265 individuals were tested at least once for HIV by oral fluid testing, none of which had a reactive result *(supplementary table 21)*.

References

1. Judd A, *et al.* Evaluation of a modified commercial assay in detecting antibody to hepatitis C virus in oral fluids and dried blood spots. *J Med Virol.* 2003; 71: 49-55.