



# Health Protection Report

weekly report

Volume 2 Number 17 Published on: 25 April 2008

## Current News

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- ▶ **Malaria imported into the United Kingdom in 2007: Implications for those advising travellers**
- ▶ **France declares loss of rabies free status: implications for British travellers**
- ▶ **Mandatory MRSA bacteraemia and *C. difficile* infection data published**

## Infection Reports

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### Immunisation

- ▶ **Laboratory reports of *Haemophilus influenzae* by age group and serotype, England and Wales: January to March 2008 (2007)**
- ▶ **Laboratory reports of hepatitis A and C infection in England and Wales: October to December 2007 (*revised 25 July 2008*)**
- ▶ **Quarterly report from the sentinel surveillance study of hepatitis testing in England: data for October to December 2007 (quarter 4)**

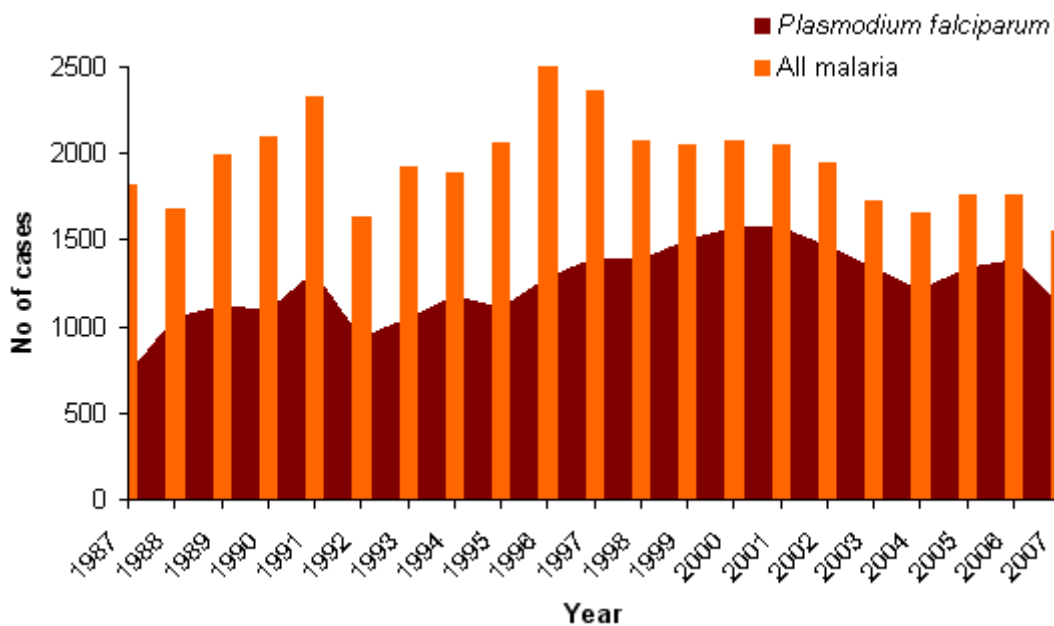
- ▶ **Malaria imported into the United Kingdom in 2007: Implications for those advising travellers**
- ▶ **France declares loss of rabies free status: implications for British travellers**
- ▶ **Mandatory MRSA bacteraemia and *C. difficile* infection data published**

### Malaria imported into the United Kingdom in 2007: implications for those advising travellers

Latest data on malaria imported into the United Kingdom (UK), based on figures for 2007 reported to the Health Protection Agency (HPA) Malaria Reference Laboratory, indicate that a significant cause of infections is UK travellers' failure to take prophylaxis. There was, nevertheless, a small fall in reported cases in 2007 compared with the previous year.

A full, more-detailed analysis of the data will be provided in the biennial travel report, to be published later in the year. (Details of methods of data collection for malaria are presented in the HPA 2002 baseline report [1]).

**Figure 1. Imported malaria cases (with *P. falciparum* cases) in the UK: 1987- 2007**



There were 1548 cases of malaria reported in 2007, a slight decline on the 1758 cases of malaria reported by this stage in 2006. (It is possible that a few cases have still to be reported).

This may be random variation, but there is evidence of a recent decline in malaria transmission in some malaria-endemic countries visited by travellers, especially in East Africa, which could have an impact on UK imported cases [2]. Over 70% of malaria cases are caused by (the potentially fatal) *Plasmodium falciparum* and the high proportion of falciparum malaria has been sustained over many years, reflecting the fact most malaria imported to the UK is acquired in Africa. The overall trend towards an increase in malaria numbers over the last 20 years is likely to be due mainly to a steady increase in travel to malaria-endemic countries over this period rather than increased risk per travel episode. The breakdown of malaria cases reported by region of travel and parasite species is shown in table 1.

**Table 1. Cases of malaria by species of parasite and primary region of travel, United Kingdom: 2007**

Geographic Area	P.falciparum.	P.vivax	P.malariae	P.ovale	Pf/Pv	Pf/Pm	Pf/Po	Pm/Pv	Total
North Africa	-	-	-	-	-	-	-	-	0
Central Africa	23	-	2	2	-	-	-	-	27
East Africa	92	8	10	11	-	1	-	1	123
Southern Africa	31	1	1	1	-	-	-	-	34
West Africa	719	2	11	67	1	3	5	-	808
Africa - unspec.	12	1	-	1	-	-	-	-	14
Middle East	1	-	-	-	-	-	-	-	1
Asia	22	168	-	1	2	-	-	-	193
Asia - unspecified	-	1	-	-	-	-	-	-	1
Far East/SE Asia	1	3	-	-	-	-	-	-	4
Far East - unspec.	-	1	-	-	-	-	-	-	1
Central/S. America	2	11	-	1	-	-	-	-	14
Oceania	1	14	-	-	-	-	-	-	15
Not given	235	46	6	24	1	1	-	-	313
<b>Total</b>	<b>1139</b>	<b>256</b>	<b>30</b>	<b>108</b>	<b>4</b>	<b>5</b>	<b>5</b>	<b>1</b>	<b>1548</b>

Five deaths from malaria in 2007 have been reported to date, one from India, the rest from Africa. Vivax malaria deaths are rare, and are often associated with co-morbidity. There is a small variation in the number of deaths from malaria in the UK every year but the number for 2007 is broadly similar to the annual average since 2000.

Among patients with malaria where the history of prophylaxis was obtained, 704/844 (83%) had not taken prophylaxis, and a high proportion of the remainder took prophylaxis not recommended for their travel destination by the HPA Advisory Committee on Malaria Prevention in UK Travellers (ACMP) [3]. This high proportion is similar to recent years. It is clear that some groups are at particular risk of acquiring malaria and are not being reached by health messages about the importance of antimalarial prophylaxis. The burden of falciparum malaria falls heavily on those of African and south Asian ethnicity [4]. Of those who had malaria diagnosed in the UK, where ethnicity was known, 144 were reported as white British, compared with 1001 who were reported as African or of African descent and 190 reported as south Asian or of south

Asian decent. The overall trend has been for the proportion of malaria both in those of south Asian descent and travelling to south Asia to decrease, whilst the proportion in those of African descent to increase over time.

Among those who were travellers from the UK (rather than normally resident in an endemic area) where reason for travel was known, 549/770 (72%) were visiting friends and relatives (table 2). The ratio of malaria in UK residents visiting friends and relatives compared with malaria cases acquired in holiday travellers was 5.1:1. As with all routinely collected data, exact figures should be treated with caution. It seems likely that those travelling to visit friends and relatives are either not seeking or able to access medical advice on malaria prevention before they travel, or they are not being given good advice, or are not adhering to it as they do not perceive the risk to be as great to them as to the holidaying public; probably all these contribute. Targeting these groups, and their healthcare providers, should be considered a priority for health promotion and education.

**Table 2. Cases of malaria by stated reason for travel, UK: 2007**

Population group	P.f.	P.v.	P.m.	P.o.	Pf/Pv	Pf/Pm	Pf/Po	Pm/Pv	Total
New entrant	40	25	2	10	-	-	-	1	78
Visiting family in country of origin	455	51	10	29	-	1	3	-	549
UK citizen living abroad	14	4	-	1	1	-	-	-	20
Civilian sea/air crew	2	-	-	-	-	-	-	-	2
British armed services	-	4	-	1	-	-	-	-	5
Business/professional travel	35	8	2	5	-	-	-	-	50
Foreign student studying in UK	24	6	1	3	-	-	1	-	35
Holiday travel	58	41	2	7	-	-	-	-	108
Foreign visitor ill while in UK	56	27	4	7	1	1	-	-	96
Children visiting parents living abroad	-	-	-	1	-	-	-	-	1
Not stated	455	90	9	44	2	3	1	-	604

Malaria, an almost completely preventable disease but one which can be fatal, remains a significant issue UK travellers. Failure to take prophylaxis is associated with most cases of malaria in UK residents travelling to malarial areas. There is continuing evidence that those of African or Asian ethnicity going to visit friends and relatives are at increased risk and those providing advice should engage with these travellers wherever possible. Recently updated guidelines [5] should assist clinicians in helping travellers to make rational decisions about protection against malaria.

#### References

1. Health Protection Agency (HPA). *Illness in England, Wales, and Northern Ireland associated with foreign travel – a baseline report to 2002*. London: HPA; 2004. Available at: [http://www.hpa.org.uk/webw/HPAweb&HPAwebStandard/HPAweb\\_C/1203496904956?p=1158945066450](http://www.hpa.org.uk/webw/HPAweb&HPAwebStandard/HPAweb_C/1203496904956?p=1158945066450).
2. Bhattarai A, Ali AS, Kachur SP et al. Impact of artemisinin-based combination therapy and insecticide-treated nets on malaria burden in Zanzibar. *PLoS Med*. 2007 Nov 6;4(11):e309.
3. See [http://www.hpa.org.uk/web/HPAweb&HPAwebStandard/HPAweb\\_C/1195733830209](http://www.hpa.org.uk/web/HPAweb&HPAwebStandard/HPAweb_C/1195733830209).

4. Health Protection Agency. Migrant Health: *Infectious diseases in non-UK born populations in England, Wales and Northern Ireland. A baseline report 2006*. London: Health Protection Agency Centre for Infections. 2006.

5. Chiodini P, Hill D, Laloo D, Lea G, Walker E, Whitty C and Bannister B. *Guidelines for malaria prevention in travellers from the United Kingdom*. London, Health Protection Agency, January 2007. Available at [http://www.hpa.org.uk/webw/HPAweb&HPAwebStandard/HPAweb\\_C/1195733823080?p=1191942128258](http://www.hpa.org.uk/webw/HPAweb&HPAwebStandard/HPAweb_C/1195733823080?p=1191942128258).

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## France declares loss of rabies free status: implications for British travellers

Following the recent rabies incident in France [1] involving an illegally imported dog, with transmission to two indigenous dogs, the French Ministry of Agriculture has declared that France has lost its rabies-free status.

French officials have confirmed that there is a low but increased risk of rabies in three previously identified areas of France (Gers, Grandpuits and Calvados) [2]. Elsewhere the risk of rabies is considered to be extremely small, but cannot be completely ruled out.

### Implications for British travellers to France

All travellers to France are reminded of the need to avoid contact with animals where possible.

### Implications for travellers to the affected regions

- *For travellers to Gers (Auch city and surroundings), Seine-et-Marne (environs of Grandpuits) and Calvados (Lisieux city and Thury Harcourt village and their surroundings)*  
There is a low but increased risk of exposure to rabies from animal exposures (bites, scratches and licks around the eyes, mouth or on open wounds) in these areas. Those individuals exposed as above should seek prompt medical assessment to determine whether post-exposure prophylaxis (PEP) is required, either from the local rabies clinic in France [3] or, in the case of British travellers, from their GP on their return to the UK .

- *For travellers to other parts of France*

The risk of rabies is considered to be extremely low however exposed travellers are advised to seek advice from the local rabies clinic as above, or, in the case of British travellers, if not possible from their GP on return to the UK .

### References

1. HPA. Canine rabies in France, *Health Protection Report* [serial online] 2008; 2 (10, 7): news. <http://www.hpa.org.uk/hpr/archives/2008/news1008.htm>

2 . French Ministry of Agriculture guidance for vets following the recent canine cases (in French), 19 March 2008 [accessed 24 April 2008], [http://agriculture.gouv.fr/sections/publications/bulletin-officiel/2008/bo-n-12-du-21-03-08/note-d-information-dgal6060/downloadFile/FichierAttache\\_1\\_f0/DGALO20088008Z.pdf?nocache=1206087673.53](http://agriculture.gouv.fr/sections/publications/bulletin-officiel/2008/bo-n-12-du-21-03-08/note-d-information-dgal6060/downloadFile/FichierAttache_1_f0/DGALO20088008Z.pdf?nocache=1206087673.53)

3. Addresses of French rabies clinics are available at: <http://cmip.pasteur.fr/cmed/voy/Car2007.pdf>

## Mandatory MRSA bacteraemia and *C. difficile* infection data published

The latest healthcare-associated infections quarterly report, for the final quarter of 2007, was published by the HPA on 24 April, suggesting a plateauing of case reports following steady falls achieved in the previous quarters of 2007 [1].

The new data comprises quarterly reports for both MRSA bacteraemia and *Clostridium difficile* infection collected through the mandatory surveillance systems [2].

### MRSA bacteraemia

There were 1,080 episodes of MRSA bacteraemia in July-September 2007 and 1,087 in October-December. This represents a levelling out against the significant decreases in numbers seen in recent quarters. The tables and commentary also indicate special circumstances, for instance cases which had been 'double counted' by different Trusts.

### *Clostridium difficile*

This week also saw the publication of the October-December 2007 figures for *C. difficile* infection. Over this period there were 9,872 episodes of *C. difficile* infection in patients aged 65 years and over and 2,211 episodes of infection in patients aged 2-64 years. This is only the third quarter in which *C. difficile* infections in the latter age group have been published. The number of infections in the 65 years and over age group represents an 8% decrease on the previous quarter and 23% decrease on the same period in 2006.

Trusts are required to report all *C. difficile* positive diarrhoeal specimens processed by their laboratories, including samples taken in the community (e.g. at GP surgeries, nursing homes and PCT hospitals). Data representing specimens taken in the reporting Trust and other settings are presented separately. This indicates the patient's location when the specimen was taken and does not necessarily reflect where the infection was acquired.

Recent changes to the Department of Health's surveillance requirements will have impacted on the accuracy of the published data for *C. difficile* infections as the data for this scheduled publication had to be extracted before Trusts had fully completed reviewing their data. Changes were identified in the Chief Medical Officer letter dated January 2008 [3] and include changes to the episode definition; Trusts were also encouraged to add NHS number and admission date to any incomplete records. Trusts were given until by 10 March 2008 to review all their data from April 2007 in the light of these changes, but data had to be extracted for this publication before 10 March. Consequently not all reviews would have been completed. The effects of this review on the data will be more accurately reflected in the next quarterly publication in July.

### References

1. Latest figures show MRSA bloodstream infections plateau, HPA press release, 24 April 2008, [http://www.hpa.org.uk/webw/HPAweb&HPAwebStandard/HPAweb\\_C/1209023435298?p=1204186170287](http://www.hpa.org.uk/webw/HPAweb&HPAwebStandard/HPAweb_C/1209023435298?p=1204186170287)
2. These data are available, together with commentaries and historical annual data for both organisms, and six-monthly data for MRSA bacteraemia at [http://www.hpa.org.uk/infections/topics\\_az/hai/Mandatory\\_Results.htm](http://www.hpa.org.uk/infections/topics_az/hai/Mandatory_Results.htm)
3. [http://www.dh.gov.uk/en/Publicationsandstatistics/Lettersandcirculars/Professionalletters/Chiefmedicalofficerletters/DH\\_082107](http://www.dh.gov.uk/en/Publicationsandstatistics/Lettersandcirculars/Professionalletters/Chiefmedicalofficerletters/DH_082107)

## Infection reports

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### Immunisation

- ▶ Laboratory reports of *Haemophilus influenzae* by age group and serotype, England and Wales: January to March 2008 (2007)
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### Laboratory reports of *Haemophilus influenzae* by age group and serotype, England and Wales: January to March 2008 (2007)

Type	Age					Total
	<1y	1-4y	5-14y	15+	nk	
b	4 (5)	1 (6)	2 (1)	19 (16)	0 (0)	26 (28)
nc	15 (7)	4 (3)	1 (1)	68 (81)	3 (0)	91 (93)
a,e,f	3 (3)	1 (0)	3 (1)	11 (9)	0 (0)	18 (13)
not typed	2 (3)	2 (2)	2 (1)	102 (61)	1 (1)	109 (67)
<b>Total</b>	<b>24 (18)</b>	<b>8 (11)</b>	<b>8 (4)</b>	<b>200 (167)</b>	<b>4 (1)</b>	<b>244 (201)</b>

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### Laboratory reports of hepatitis A and C infection in England and Wales: October to December 2007

#### Laboratory reports of hepatitis A infection in England and Wales (*revised 25 July 2008*)

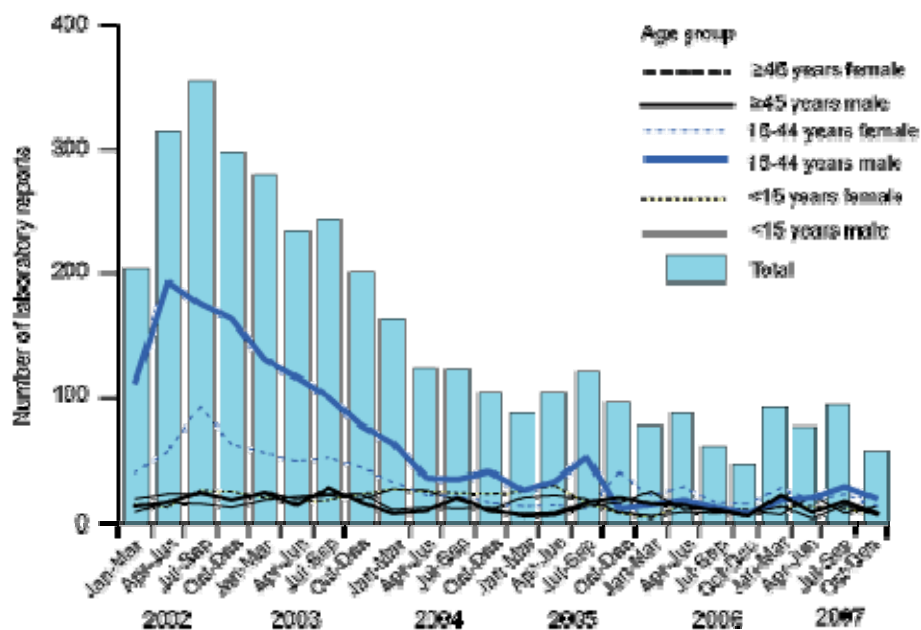
During the fourth quarter of 2007, 58 cases of hepatitis A were reported to the HPA Centre for Infections, lower than in any previous quarter of the year. In the fourth quarter, 62% of cases were men aged between 15 and 44 (table 1), females accounting for 43% of cases in this age group. Of those aged 45 years or more, 17% of cases were males and 43% females. Males and females under 15 accounted for 21% and 14%, respectively, of cases. The decline in the

number of hepatitis A cases reflects an overall decline in the number of reports in all age groups (figure 1).

**Table 1. Laboratory reports of hepatitis A infection in England and Wales: October to December 2007** (revised 25 July 2008)

Age group	Male	Female	Unknown	Total
<1 year	–	–	–	–
1-4 years	2	1	–	3
5-9 years	4	3	–	7
10-14 years	1	–	–	1
15-24 years	8	5	–	13
25-34 years	11	4	–	15
35-44 years	5	4	–	9
45-54 years	2	3	1	6
55-64 years	2	6	–	8
≥65 years	5	6	1	12
Unknown	–	–	–	–
<b>Total</b>	<b>40</b>	<b>32</b>	<b>2</b>	<b>74</b>

**Figure 1. Laboratory reports of hepatitis A infection in England and Wales by age group and sex: 2002 to December 2007**



#### Laboratory reports of hepatitis C infection in England and Wales

A total of 2,058 cases of hepatitis C infection were reported to the in the fourth quarter (table 2). The majority of reports were among those aged 25-44 years, as in previous quarters. Sixty four per cent (1318/2058) of cases were in this age group. The ratio of males to females was 2.3:1.

**Table 3. Laboratory reports of hepatitis C infection in England and Wales: October to December 2007**

Age group	Male	Female	Unknown	Total
1-4 years	4	2	–	6
5-9 years	2	–	1	3
10-14 years	3	–	–	3
15-24 years	69	62	5	136
25-34 years	424	182	24	630
35-44 years	497	172	19	688
45-54 years	259	104	14	377
55-64 years	92	43	3	138
≥65 years	38	32	1	71
Unknown	3	1	2	6
<b>Total</b>	<b>1391</b>	<b>598</b>	<b>69</b>	<b>2058</b>

**Corrigendum: Laboratory reports of hepatitis C infection, July –September, 2007**

Hepatitis C figures for the third quarter of 2007 – first reported in the Health Protection Report Volume 2, Number 4, 25 January 2008 - have been amended (see below). A substantial number of laboratory reports had loaded incorrectly into the national surveillance database. This has since been addressed. It should also be noted that totals for hepatitis C and many other infections are prone to late and incomplete reporting and are therefore subject to revision.

**Laboratory reports of hepatitis C infection, July –September 2007 (revised)**

A total of 2,161 cases of hepatitis C infection were reported to the HPA Centre for Infections in the third quarter of 2007 (table 3) compared to 2188 and 2305 laboratory cases reported in the first and second quarters of 2007, respectively. In the third quarter, 61% (1317/2161) of cases occurred in 25-44 year olds compared to 63% and 62% in the first and second quarter of 2007, respectively. The ratio of males to females was 2.3:1.

**Table 3. Laboratory reports of hepatitis C infection in England and Wales: July to September 2007 (revised)**

Age group	Male	Female	Unknown	Total
1-4 years	1	2	–	3
5-9 years	–	2	–	2
10-14 years	71	68	2	141
15-24 years	411	219	11	641
25-34 years	501	166	9	676
35-44 years	318	101	5	424
45-54 years	117	41	3	161
55-64 years	1	1	–	2
≥65 years	49	37	2	88
Unknown	5	2	16	23
<b>Total</b>	<b>1474</b>	<b>639</b>	<b>48</b>	<b>2161</b>

## Quarterly report from the sentinel surveillance study of hepatitis testing in England: data for October to December 2007 (quarter 4)

The sentinel surveillance study of hepatitis testing, which began in 2002, aims to supplement routine surveillance of hepatitis A, B and C infections in England by providing information on trends in testing, individual risk exposures and clinical symptoms.

The study collects information on hepatitis A, B and C testing carried out in participating centres regardless of test result and therefore can also be used to estimate prevalence in those individuals tested.

This report includes, for the first time:

- ▶ Data on hepatitis A-specific IgM testing
- ▶ Data on hepatitis B surface antigen (HBsAg) testing are included for the first time this quarter: these are shown in sections 2a (antenatal testing) and 2b (non-antenatal testing).

In addition, the following changes to the content and presentation of this report should be noted:

- ▶ Region is now based on the Strategic Health Authority (SHA) of the test request location, in contrast to previous reports, in which region was assigned based on the location of the sentinel centre;
- ▶ In contrast to previous reports, individuals less than one year of age at first test are excluded from all data on anti-HCV testing. Please note, however, that such individuals are included in data on HBsAg testing.

Work is underway on the classification of individuals with evolving hepatitis B infections: these data will be presented in future reports.

## Hepatitis A IgM testing

The sentinel surveillance study also collects data on testing for hepatitis A-specific IgM antibody (anti-HAV IgM), a marker of acute hepatitis A infection. Table 1 shows the number of individuals tested, and testing positive, for anti-HAV IgM in sentinel laboratories between October and December 2007.

**Table 1. Number of individuals tested, and testing positive, for anti-HAV IgM in participating centres, October – December 2007.**

Region (number of centres)	Number tested	Number positive
East Midlands (1)	956	1
East of England (1)	403	–
London (5)	876	8
North East* (1)	3	–
North West (5)	1,050	1
South Central (1)	235	–
South East Coast (1)	331	–
South West (1)	759	7
Wales *	13	–
West Midlands (1)	364	–
Yorkshire & the Humber (2)	726	2
<b>Total, all regions (19)</b>	<b>5,716</b>	<b>19</b>

\*Although there are no sentinel centres outside England, limited first-line testing from general practices in Wales is carried out by sentinel centres in the North West and is therefore included here.

Excludes reference and confirmatory testing. Individuals aged less than one year are included. Some duplication of individual patients may occur due to limitations of the information supplied. All data are provisional.

Table 2 shows the age and sex of individuals tested, and testing positive, for anti-HAV IgM in sentinel laboratories between October and December 2007. Similar numbers of male and female anti-HAV IgM-positive individuals were identified: reports from routine surveillance suggest a male to female ratio of cases of hepatitis A infection of 1.3:1 [1]. Unfortunately no information was available on potential risk exposures in these individuals.

**Table 2. Number of individuals tested, and testing positive, for anti-HAV IgM in participating centres, October – December 2007.**

Age group	Female		Male		Unknown		Total	
	Number tested	Number positive (%)	Number tested	Number positive (%)	Number tested	Number positive (%)	Number tested	Number positive (%)
Under 1 year	29	0 (0.0)	43	0 (0.0)	2	0 (0.0)	74	0 (0.0)
1-14 years	64	0 (0.0)	80	4 (5.0)	1	0 (0.0)	145	4 (2.8)
15-24 years	322	3 (0.9)	262	0 (0.0)	17	0 (0.0)	601	3 (0.5)
25-34 years	373	2 (0.5)	542	2 (0.4)	33	0 (0.0)	948	4 (0.4)
35-44 years	399	1 (0.3)	650	1 (0.2)	25	0 (0.0)	1,074	2 (0.2)
45-54 years	437	1 (0.2)	540	0 (0.0)	22	0 (0.0)	999	1 (0.1)
55-64 years	414	1 (0.2)	448	1 (0.2)	16	0 (0.0)	878	2 (0.2)
≥65 years	470	2 (0.4)	493	0 (0.0)	17	0 (0.0)	980	2 (0.2)
Unknown	4	0 (0.0)	11	1 (9.1)	2	0 (0.0)	17	1 (5.9)
<b>Total, all age groups</b>	<b>2,483</b>	<b>10 (0.4)</b>	<b>3,026</b>	<b>9 (0.3)</b>	<b>133</b>	<b>0 (0.0)</b>	<b>5,642</b>	<b>19 (0.3)</b>

Excludes reference and confirmatory testing. Individuals aged less than one year are included. Some duplication of individual patients may occur due to limitations of the information supplied. All data are provisional.

## Hepatitis B surface antigen (HBsAg) testing

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 individuals undergoing antenatal screening may not be identified as such and may therefore be included in Section 2b as non-antenatal testing.

### a) Antenatal HBsAg testing

During the last quarter of 2007, a total of 17,252 individuals were identified as undergoing antenatal testing for HBsAg in 19 participating sentinel centres (table 3). Of these, 0.6% (n=104) were positive. This is the first time these individuals had been reported to the sentinel surveillance scheme.

Variation in levels of testing by region will reflect local antenatal testing arrangements in each area; for example, in some areas the majority of antenatal screening is carried out by National Blood Service laboratories which do not participate in sentinel surveillance.

Individuals identified as undergoing antenatal testing comprised 29.8% of all individuals tested for HBsAg in participating laboratories during the last quarter of 2007.

**Table 3. Number of individuals tested, and testing positive, for HBsAg through antenatal screening in participating laboratories, October – December 2007.**

Region (number of centres)	Number tested	Number positive (%)
East Midlands (1)	13	0 (0.0)
East of England (1)	840	1 (0.1)
London (5)	3,409	39 (1.1)
North East* (1)	1	0 (0.0)
North West (5)	4,328	22 (0.5)
South Central (1)	914	1 (0.1)
South East Coast (1)	1,527	5 (0.3)
South West (1)	3,042	14 (0.5)
West Midlands (1)	69	1 (1.4)
Yorkshire & the Humber (2)	3,109	21 (0.7)
<b>Total, all regions (19)</b>	<b>17,252</b>	<b>104 (0.6)</b>

\*As noted above, changes in sample referral patterns in this region mean that a large proportion of hepatitis testing is now carried out by local hospitals rather than the sentinel laboratory, which may account for the low level of testing seen here.

Excludes reference and confirmatory testing. Some duplication of individual patients may occur due to limitations of the information supplied. All data are provisional.

#### *b) Non-antenatal HBsAg testing*

This includes all individuals tested for HBsAg at participating centres who are not identified from the test request location or the clinical details accompanying the test request as undergoing antenatal screening.

During the last quarter of 2007, a total of 40,612 individuals were tested for HBsAg in 19 participating sentinel centres, excluding antenatal testing (table 4). Of these, 2.2% (n=889) were positive. This is the first time these individuals had been reported to the sentinel surveillance scheme.

The proportion of individuals testing positive was highest in London: this may reflect more targeted testing of risk groups and/or genuinely higher prevalence in people being tested in this region.

**Table 4. Number of individuals tested, and testing positive, for HBsAg in participating centres (excluding antenatal testing), October - December 2007.**

<b>Region (number of centres)</b>	<b>Number tested</b>	<b>Number positive (%)</b>
East Midlands (1)	3,753	45 (1.2)
East of England (1)	2,338	22 (0.9)
London (5)	11,909	397 (3.3)
North East (1)	455	1 (0.2)
North West (5)	7,625	187 (2.5)
South Central (1)	1,300	15 (1.2)
South East Coast (1)	2,739	28 (1.0)
South West (1)	4,233	67 (1.6)
Wales*	17	0 (0.0)
West Midlands (1)	1,809	24 (1.3)
Yorkshire & the Humber (2)	4,434	103 (2.3)
<b>Total, all regions (19)</b>	<b>40,612</b>	<b>889 (2.2)</b>

\*Although there are no sentinel centres outside England, limited first-line testing from general practices in Wales is carried out by sentinel centres in the North West and is therefore included here. Excludes reference and confirmatory testing. Individuals aged less than one year are included. Some duplication of individual patients may occur due to limitations of the information supplied. All data are provisional.

Excluding individuals identified from the test request location or clinical details as undergoing antenatal testing, slightly more women than men were tested for HBsAg during the final quarter of 2007 (table 5). This may represent antenatal testing that cannot be identified as such from the information provided, or may reflect genuinely higher levels of testing among women.

The proportion testing positive for HBsAg was higher among men than women (2.7% against 1.6%). The relatively high prevalence of HBsAg among tested individuals of unknown sex may reflect testing of individuals in settings such as prisons, drug services and GUM clinics where few demographic details on patients (such as sex) were available and where service users may be at high risk of hepatitis B infection.

**Table 5. Age and sex of individuals tested for HBsAg in participating centres (excluding antenatal testing), October – December 2007**

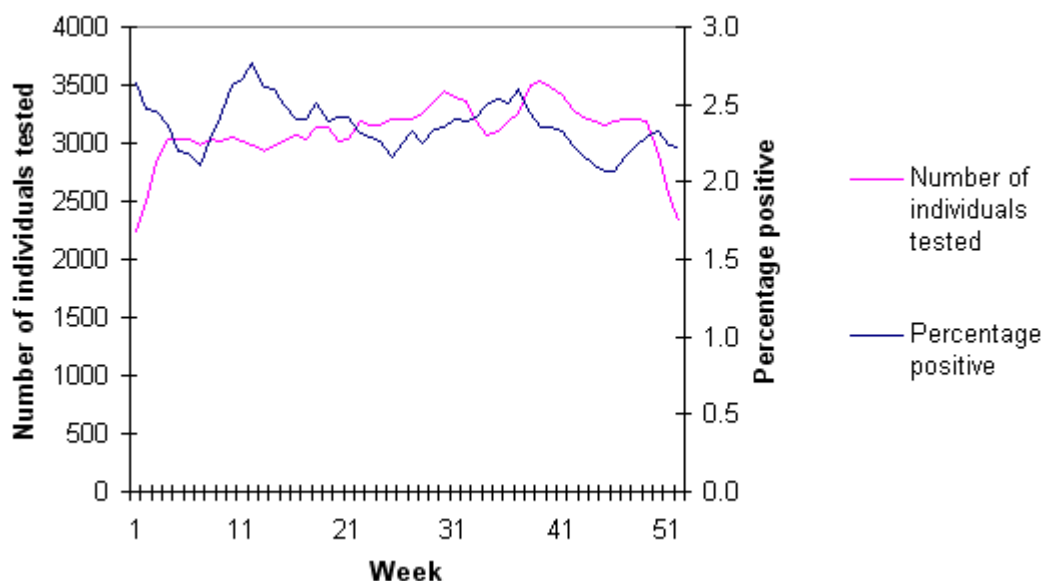
Age group	Female		Male		Unknown		Total	
	Number tested	Number positive (%)	Number tested	Number positive (%)	Number tested	Number positive (%)	Number tested	Number positive (%)
Under 1 year	61	1 (1.6)	80	1 (1.2)	7	0 (0.0)	148	2 (1.4)
1-14 years	276	7 (2.5)	294	5 (1.7)	9	0 (0.0)	579	12 (2.1)
15-24 years	5,586	56 (1.0)	3,394	68 (2.0)	173	2 (1.2)	9,153	126 (1.4)
25-34 years	6,260	126 (2.0)	4,525	151 (3.3)	262	13 (5.0)	1,1047	290 (2.6)
35-44 years	3,601	65 (1.8)	4,134	136 (3.3)	212	15 (7.1)	7,947	216 (2.7)
45-54 years	1,886	42 (2.2)	2,444	80 (3.3)	108	3 (2.8)	4,438	125 (2.8)
55-64 years	1,390	25 (1.8)	1,744	37 (2.1)	47	1 (2.1)	3,181	63 (2.0)
≥65 years	1,798	15 (0.8)	2,072	36 (1.7)	46	0 (0.0)	3,916	51 (1.3)
Unknown	59	1 (1.7)	56	1 (1.8)	88	2 (2.3)	203	4 (2.0)
<b>Total, all age groups</b>	<b>20,917</b>	<b>338 (1.6)</b>	<b>18,743</b>	<b>515 (2.7)</b>	<b>952</b>	<b>36 (3.8)</b>	<b>40,612</b>	<b>889 (2.2)</b>

Table excludes reference and confirmatory testing data. Individuals aged less than one year are included. Some duplication of individual patients may occur due to limitations of the information supplied. All data are provisional.

To provide an indication of trends in testing, data from the 19 sentinel centres from which full data were available were compared for the final quarters of 2006 and 2007. In the period October to December 2007, 889 of 40,612 (2.2%) people tested positive for HBsAg (excluding antenatal testing), compared to 977 of 40,731 (2.4%) for the same period in 2006.

Figure 1 shows the five-weekly moving average for number of people tested for HBsAg and percentage positive over the last year (excluding antenatal testing; January 2007 to December 2007) for the 19 centres from which full data were available.

**Figure 1. Five-weekly moving average of number of people tested, and percentage positive, for HBsAg between January 2007 and December 2007 (excluding antenatal testing).**



### Hepatitis C testing

During the last quarter of 2007, a total of 32,761 individuals were tested at least once for hepatitis C-specific antibodies (anti-HCV) in 19 participating sentinel centres (Table 6). This is the first time these individuals had been reported to the sentinel surveillance scheme.

Overall, 4.3% of individuals tested for anti-HCV were positive, though this varied by region (table 6). The high proportion of positives observed among individuals tested in the North East is likely to be due to changes in sample referral patterns: many hospitals in this area have started carrying out their own hepatitis testing rather than sending samples to the sentinel laboratory. The services to which the sentinel laboratory continues to provide testing include those accessed by individuals at high risk of hepatitis C infection, which may explain the high percentage positive seen here. For example, 59 of the 264 individuals tested at the laboratory during this quarter were tested in prison health services, 21 of whom were positive.

It is important to note that no laboratory methods are currently available to distinguish between acute, chronic or resolved hepatitis C virus infections. Positive anti-HCV results do not therefore necessarily represent incident infections and the data presented here should be interpreted with care.

**Table 6. Number of individuals tested, and testing positive, for anti-HCV in participating centres, October – December 2007**

Region (number of centres)	Number tested	Number positive (%)
East Midlands (1)	3,274	76 (2.3)
East of England (1)	1,258	53 (4.2)
London (5)	8,435	341 (4.0)
North East (1)	264	25 (9.5)
North West (5)	7,287	385 (5.3)
South Central (1)	888	38 (4.3)
South East Coast (1)	2,771	40 (1.4)
South West (1)	3,633	244 (6.7)
Wales*	15	0 (0.0)
West Midlands (1)	1,360	51 (3.8)
Yorkshire and Humberside (2)	3,576	151 (4.2)
<b>Total, all regions (19)</b>	<b>32,761</b>	<b>1,404 (4.3)</b>

\* Although all sentinel centres are in England, a small amount of first-line testing from general practices in Wales is carried out by laboratories in the North West and West Midlands.

Table excludes reference and confirmatory testing data. Excludes individuals aged less than one year, in whom positive tests may reflect the presence of passively-acquired maternal antibody rather than true infection. Some duplication of individual patients may occur due to limitations of the information supplied. All data are provisional.

Of the 1,404 individuals testing positive for anti-HCV during the last quarter of 2007, 649 (46.2%) were also tested for HCV RNA by PCR, of whom 431 were PCR-positive (66.4%).

Sex was reported for the majority of people tested. As in previous quarters, similar numbers of males and females were tested (table 7); the ratio of males to females tested was 1.0:1. The ratio of males to females testing positive was 2.1:1. The majority (64.9%) of people tested were aged 15-44 years. Excluding individuals for whom age is unknown, the percentage of individuals overall testing positive was highest among people aged 35-54 years. However, this varied slightly by sex, with the highest prevalence in women observed among those aged between 25-44 years but in men among those aged between 35-55 years.

**Table 7. Age and sex of individuals tested for anti-HCV in participating centres, October – December 2007\***

Age group	Female		Male		Unknown		Total	
	Number tested	Number positive (%)	Number tested	Number positive (%)	Number tested	Number positive (%)	Number tested	Number positive (%)
1-14	223	2 (0.9)	237	3(1.3)	5	0 (0.0)	465	5 (1.1)
15-24	3,602	40 (1.1)	2,506	40 (1.6)	119	0 (0.0)	6,227	80 (1.3)
25-34	3,822	153 (4.0)	3,972	227 (5.7)	250	5 (2.0)	8,044	385 (4.8)
35-44	2,887	119 (4.1)	3,879	346 (8.9)	215	11 (5.1)	6,981	476 (6.8)
45-54	1,825	70 (3.8)	2,163	196 (9.1)	108	5 (4.6)	4,096	271 (6.6)
55-64	1,422	42 (3.0)	1,562	86 (5.5)	49	3 (6.1)	3,033	131 (4.3)
≥65	1,763	19 (1.1)	1,942	28 (1.4)	52	0 (0.0)	3,757	47 (1.3)
Unknown	34	1 (2.9)	47	4 (8.5)	77	4 (5.2)	158	9 (5.7)
<b>Total, all ages</b>	<b>15,578</b>	<b>446 (2.9)</b>	<b>16,308</b>	<b>930 (5.7)</b>	<b>875</b>	<b>28 (3.2)</b>	<b>32,761</b>	<b>1,404 (4.3)</b>

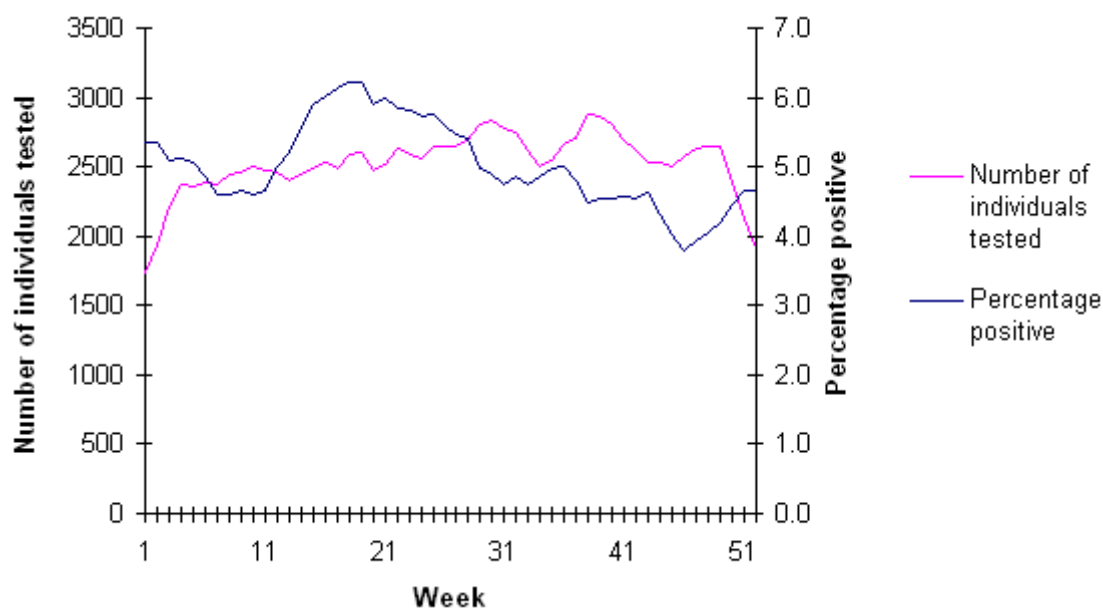
Excludes reference and confirmatory testing data. Individuals aged less than one year are excluded since positive tests in this age group may reflect the presence of passively-acquired maternal antibody rather than true infection. Some duplication of individual patients may occur due to limitations of the information supplied. All data are provisional.

To provide an indication of trends in testing, data from the 19 sentinel centres from which full data were available were compared for the final quarters of 2006 and 2007. In the period October to December 2007, 1,404 of 32,761 (4.3%) people tested were positive for anti-HCV, compared to 1,622 of 29,766 (5.4%) for the same period in 2006. This suggests increased testing of people at lower risk of infection.

It should be noted that these data relate to different sentinel centres to those for whom trends data were presented in the last quarterly report and therefore comparisons should not be made between reports. However, figure 2 shows the five-weekly moving average for number of people tested for anti-HCV and percentage positive over the last year (January 2007 to December 2007) for the 19 centres from which full data were available.

Apart from troughs during the Christmas and New Year holiday period, levels of anti-HCV testing appear to remain fairly steady over the course of the year. Interestingly, the three peaks in testing in the second half of the year correspond to simultaneous troughs in the percentage positive, perhaps suggesting increased testing of people at low risk of infection.

**Figure 2. Five-weekly moving average of number of people tested, and percentage positive, for anti-HCV between January 2007 and December 2007. (Note difference in scales to Figure 1.)**



### References

1 Health Protection Agency. *Health Protection Report* [serial online] 2006; **1** (33): Immunisation. Available at: <http://www.hpa.org.uk/hpr/archives/2007/hpr3407.pdf>