



# Health Protection Report

weekly report

Volume 6 Number 6 Published on: 10 February 2012

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## News

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### New research funding announced on antibiotic resistance

The government has invited proposals for research into extended-spectrum  $\beta$ -lactamases (ESBLs), a category of enzymes that cause resistance to important antibiotics – penicillins and cephalosporins – in Gram-negative bacteria. These antibiotics are used in the treatment of severe infections in humans and, to a lesser extent, in animals [1]. The international spread of ESBLs is recognized as a significant, long-term global public health problem.

The call for research applications follows publication of a Department of Health-sponsored “state of knowledge” report jointly produced by its Advisory Committee on Antimicrobial Resistance and Healthcare Associated Infection (ARHAI) and Defra’s Antimicrobial Resistance Coordinating (DARC) Committee.

A summary of the report, *ESBLs – a threat to animal and human health?* [2], will be published in the next week’s issue of HPR.

#### References

1. DH press release, 7 February 2012. DH website: <http://www.dh.gov.uk/health/2012/02/research-esbl-producing-bacteria/>.
  2. DH website: [http://www.dh.gov.uk/prod\\_consum\\_dh/groups/dh\\_digitalassets/@dh/@en/documents/digitalasset/dh\\_132534.pdf](http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_132534.pdf).
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### DH guidance on preventing and controlling contamination by *Pseudomonas aeruginosa* bacteria

The Department of Health for England, in collaboration with the HPA, has issued updated advice to healthcare providers to assist in the control of potential *Pseudomonas aeruginosa* infection from taps and water systems – in augmented care units in particular (ie high dependency, adult, paediatric and neonatal critical care, renal, transplant, haemato-oncology and burns units ) [1,2].

The updated summary guidance follows a review of previous advice given by the Department. It reminds healthcare providers of the need to carry out regular and thorough risk assessments, in particular in augmented care units, to establish if water that may have direct or indirect patient contact is contaminated with *Pseudomonas aeruginosa* and to minimise any risks that are identified.

The guidance comprises a number of key risk reduction measures for handwash station generally (eg restricting of the use of hand wash stations for any other purpose than hand washing, use of pre-filled single-use bottles for alcohol-based handrubs and cleaning solutions, etc) and, in respect of augmented care units in particular (eg ensuring that only water that has been demonstrated to be safe is used for the washing of neonates, establishing management systems and risk assessment procedures, etc).

#### References

1. “Best practice for hand wash stations to minimise the risk of *Pseudomonas aeruginosa* contamination” and “Best practice for assessing and managing the risks in augmented care units to minimise the risk of *Pseudomonas aeruginosa* contamination”, 7 February 2012. Downloadable from DH website: Home > Chief Professional Officers > Chief Medical Officer > [Infection control advice](#).
  2. CMO letter, 7 February 2012. *Pseudomonas aeruginosa* bacteria – preventing and controlling contamination. DH website: Home >> Publications >> Letters and circulars >> [Dear colleague letters](#).
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## **Infection reports**

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### **Enteric**

- ▶ **Enteric fever surveillance quarterly report (England, Wales and Northern Ireland): fourth quarter 2011**
- ▶ **General outbreaks of foodborne illness in humans (England and Wales): weeks 01-04/2012**
- ▶ **Common gastrointestinal infection laboratory reports (England and Wales, laboratory reports): weeks 01-04/2012**
- ▶ **Salmonella infections (faecal specimens) (England and Wales): reports to the HPA (Salmonella data set), December 2011**
- ▶ **Hospital norovirus outbreaks (England and Wales, weeks 01-04/2012) and seasonal comparisons of norovirus laboratory reports**

### **Zoonoses**

- ▶ **Common animal associated infections (England and Wales): 2011**

### **CJD**

- ▶ **Creutzfeldt-Jakob disease (CJD) biannual update (2012/1)**
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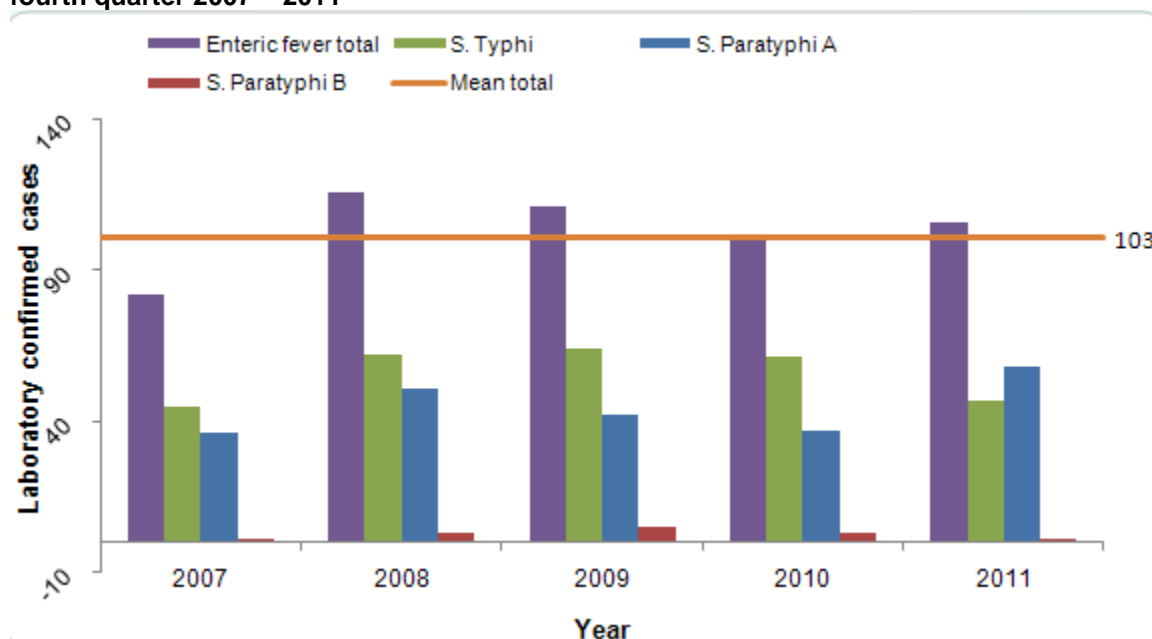
## Enteric fever surveillance quarterly report (England, Wales and Northern Ireland): fourth quarter 2011

This quarterly report summarises the epidemiology of laboratory confirmed cases of typhoid and paratyphoid reported in England, Wales and Northern Ireland between October and December 2011. It includes both reference laboratory and enhanced enteric fever surveillance data. All data are provisional; final and more detailed reports will be produced on an annual basis. More information about enteric fever surveillance, including previous reports, is available on the enhanced enteric fever surveillance page of the HPA website [1].

### National summary

In the fourth quarter of 2011, 106 laboratory confirmed cases of enteric fever were reported in England, Wales and Northern Ireland (table 1), 5% higher than the fourth quarter of 2010 and 3% above the mean (103) for the fourth quarters of 2007 to 2011 (figure 1). This higher number is mainly explained by a larger number of cases of *S. Paratyphi A* reported (58 in 2011 compared with 37 in 2010, 57% higher) while lower case numbers have been reported for *S. Typhi* and *S. Paratyphi B*. 23% fewer cases were caused by *S. Typhi* 2011 (47) compared to 2010 (61) (table 1).

**Figure 1. Laboratory confirmed cases of enteric fever by organism, England, Wales and Northern Ireland: fourth quarter 2007 – 2011**



**Table 1. Laboratory confirmed cases of enteric fever, England, Wales and Northern Ireland: fourth quarter 2007 – 2011**

Organism	Laboratory confirmed cases				
	Q4 2011	Q4 2010	Q4 2009	Q 2008	Q4 2007
<i>Salmonella Typhi</i>	47	61	64	62	45
<i>Salmonella Paratyphi A</i>	58	37	42	51	36
<i>Salmonella Paratyphi B</i>	1	3	5	3	1
<b>Enteric fever total</b>	<b>106</b>	<b>101</b>	<b>111</b>	<b>116</b>	<b>82</b>

**Table 2. Laboratory confirmed cases of enteric fever by organism and phage type, England, Wales and Northern Ireland: fourth quarter 2011**

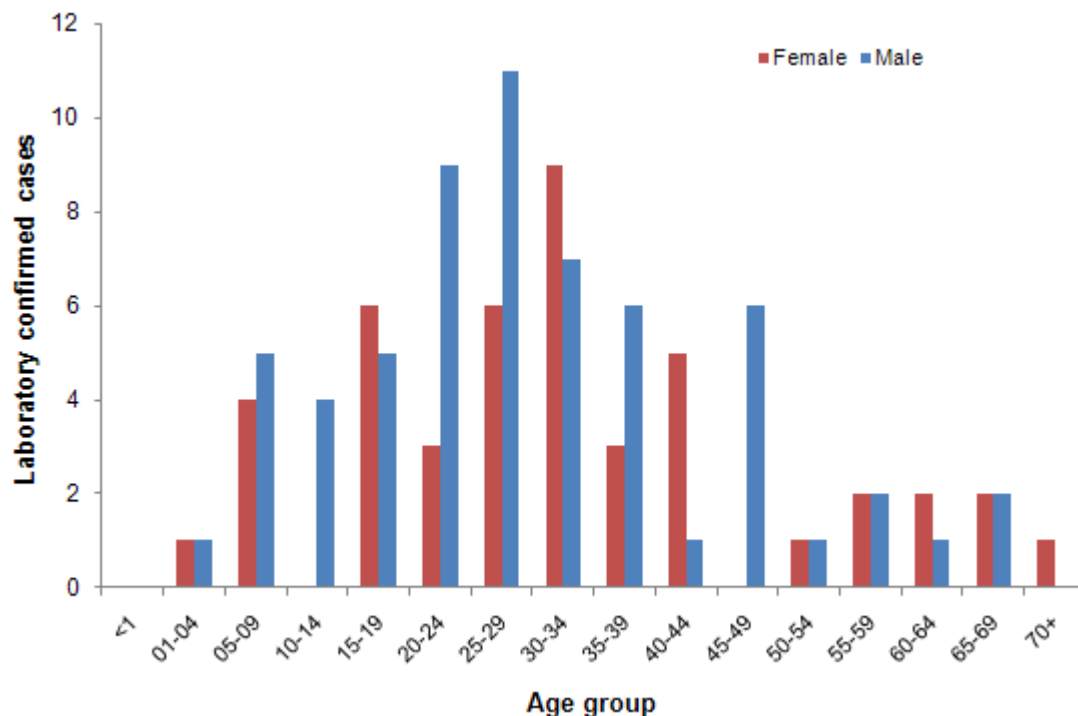
Phage type	S. Typhi		Phage type	S. Paratyphi A
			PT 13	21
PT E9 Var.	15		PT 4	12
PT E1	14		PT 1	9
Degr.VI	6		PT 1a	7
Untyp.VI 2	5		PT 6a	4
Untyp.VI	3		PT 2	3
PT 40	1		PT 3	1
PT A	1		Untypable	1
PT J1	1		<b>Total</b>	<b>58</b>
Untyp.VI 1	1			
			Phage type	S. Paratyphi B
<b>Total</b>	<b>47</b>		Taunton	1
			<b>Total</b>	<b>1</b>

In general, *S. Typhi* phage types E9 var and E1 and *S. Paratyphi A* phage types 13, 4, and 1 occur most frequently [2].

## Age/sex distribution

In the fourth quarter of 2011, the median age of cases was 29 years and 16% (17% for females and 19% for males) were aged 16 years and under. Males represented 57% of all cases (figure 2).

Figure 2. Laboratory confirmed cases of enteric fever by age and sex (n=106): fourth quarter 2011



## Regional distribution

London reported 42% of the total cases during the fourth quarter of 2011, followed by the West Midlands (12%) and the North West and South East (10% each) (table 3).

Table 3. Laboratory confirmed cases of enteric fever by region: fourth quarter 2011

HPA Region	Q4 2011	Q4 2010	% change
London	44	49	-10.2%
West Midlands	13	11	18.2%
North West	11	11	0.0%
South East	11	8	37.5%
Yorkshire and Humber	9	6	50.0%
East	8	2	300.0%
East Midlands	6	5	20.0%
South West	4	6	-33.3%
North East	–	3	–
Wales	–	–	–
Northern Ireland	–	–	–
<b>Total</b>	<b>106</b>	<b>101</b>	<b>-5.0%</b>

## Enhanced surveillance

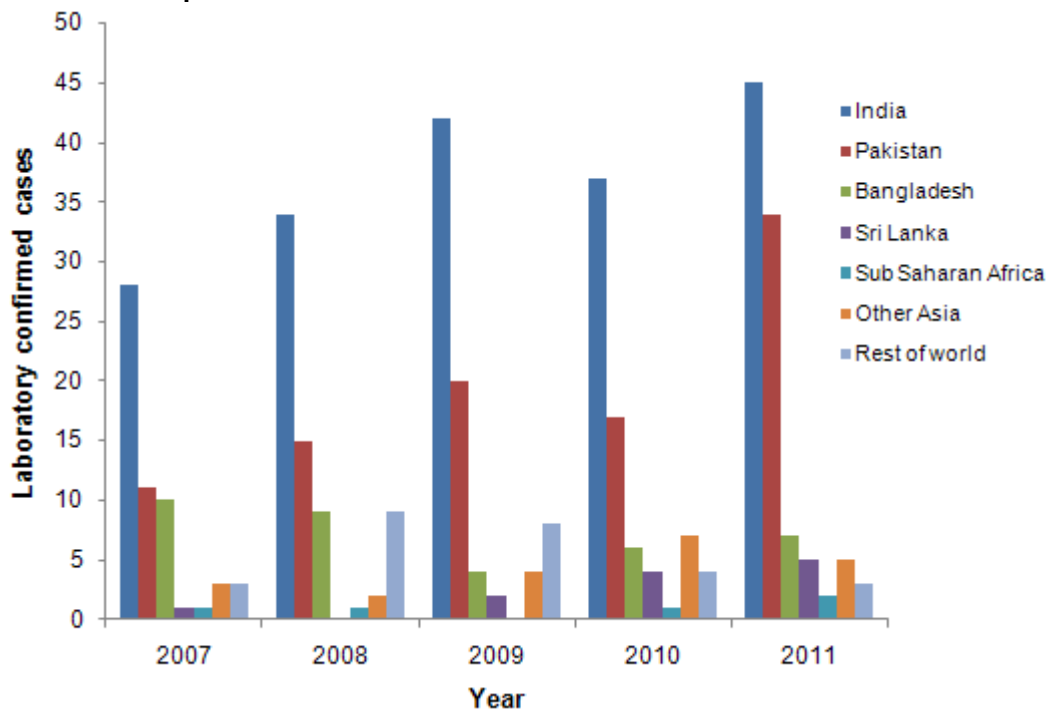
Of 106 laboratory confirmed infections of enteric fever, 105 enhanced surveillance forms were received. One of these cases was identified as a carrier and is excluded from further analysis in this report.

## Travel history

Travel history information is derived from enhanced surveillance, and where missing, supplemented by available information from laboratory forms.

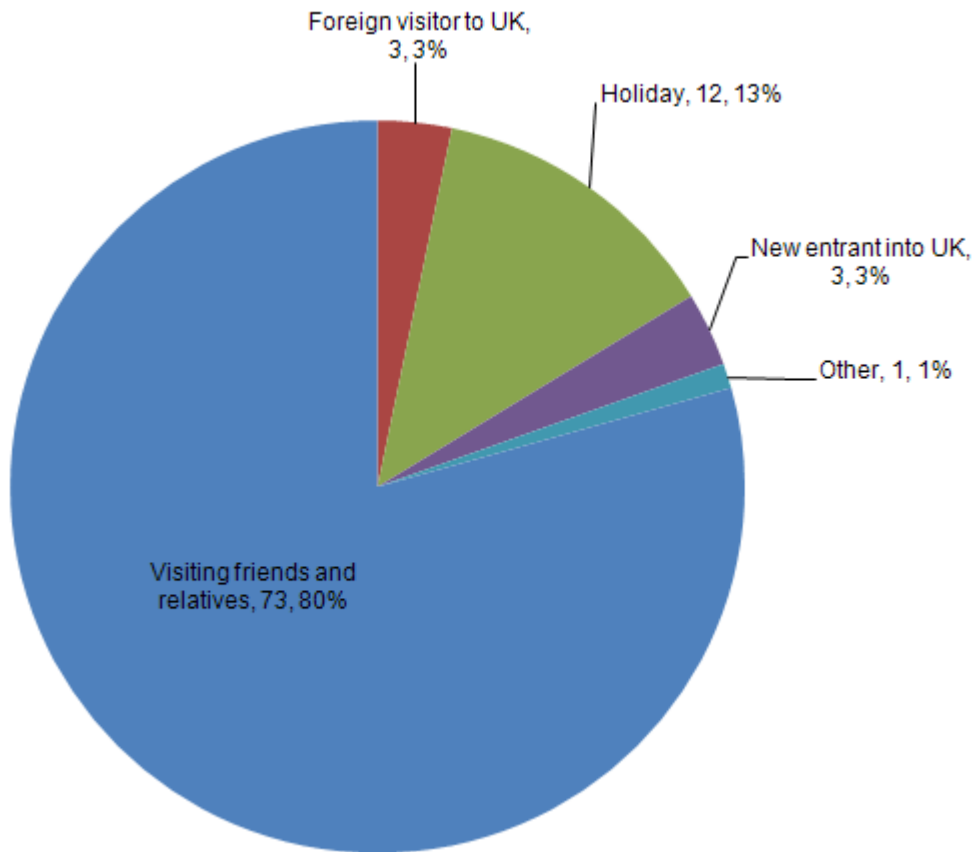
In the fourth quarter, travel history was known for 104 cases (all from enhanced surveillance forms); 94/104 (90%) cases had travelled abroad and ten had not travelled. Travel-associated cases were likely to have acquired their infection in: India (45), Pakistan (34), Bangladesh (seven), Sri Lanka (five), Thailand (three), and Nepal, Bolivia, China (Tibet), Zimbabwe, Afghanistan, United Arab Emirates and Tanzania (one each). Some cases travelled to more than one country so totals above will not equal the number of total cases that travelled. Where multiple countries of travel have been stated by the case, only risk countries, as identified by the National Travel Health Network and Centre [3], were included for analysis. If a case has travelled to multiple risk countries each country is counted individually. India and Pakistan continue to be the most frequently reported countries of travel throughout the year (figure 3).

**Figure 3. Laboratory-confirmed cases of enteric fever, England, Wales and Northern Ireland by country of travel: fourth quarter 2007 – 2011**



## Reason for travel

Figure 4. Laboratory-confirmed cases of enteric fever that have travelled abroad (n=92) by reason for travel: fourth quarter 2011



Of the 94 cases that had travelled abroad, reason for travel was known for 92; 80% of cases travelled to visit friends and relatives mainly in the Indian sub continent, 13% travelled abroad for a holiday and 3% were foreign visitors to the UK (figure 4).

## Non-travel-associated cases

Ten cases in the fourth quarter had not travelled abroad within 28 days of developing symptoms. Three of these cases were associated with three different clusters. The first of these cases had contact with a family member who had travelled to Bangladesh and was confirmed to have *S. Typhi*, PT E9 Var; the same organism was confirmed in the non-travel case. The second was an acquainted contact of a confirmed case that had travelled to Pakistan. The third had a family link with another case that also had no travel history. The other seven cases had no links to known cases or travellers from endemic countries. A definite source was not identified for any of these cases.

## Data sources and acknowledgements

Data were collated and analysed by the Travel and Migrant Health Section, Health Protection Services, Colindale. Laboratory data were provided by Laboratory of Gastrointestinal Pathogens, Microbiology Services, Colindale. Other surveillance data were provided by Environmental Health Officers and local health protection colleagues in the HPA through enteric fever enhanced surveillance.

## References

1. HPA website. Enhanced surveillance of enteric fever. Available at: <http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/TravelHealth/GeneralInformation/trav30Enhancedsurveillanceofentericfever/>
2. Health Protection Report. Archived enteric routine data reports. Available online at: <http://www.hpa.org.uk/hpr/archives/Infections/2011/enteric11.htm>
3. National Travel Health Network and Centre (NaTHNaC) website. Available at: <http://www.nathnac.org/>

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## General outbreaks of foodborne illness in humans (England and Wales, 01-04/2012)

Preliminary information has been received about the following outbreaks.

Health Protection Unit	Organism	Location of food prepared or served	Month of outbreak	Number ill	Cases positive	Suspect vehicle	Evidence
West Midlands North	Campylobacter	Restaurant	Jan-12	20	2	Not known	n/a
National outbreak	Salmonella Newport	National	Jan-12	42	30	Water melon	D and M

**D = Descriptive epidemiological evidence:** suspicion of a food vehicle in an outbreak based on the identification of common food exposures, from the systematic evaluation of cases and their characteristics and food histories over the likely incubation period by standardised means (such as standard questionnaires) from all, or an appropriate subset of, cases.

**M = Microbiological evidence:** detection of a causative agent in a food vehicle or its component or in the food chain or its environment combined with detection in human cases, or clinical symptoms and an onset of illness in outbreak cases compatible with / pathognomonic to the causative agent identified in the food vehicle or its component or in the food chain or its environment.

## Common gastrointestinal infection laboratory reports (England and Wales, weeks 01-04/2012)

Laboratory reports	Number of reports received				Total reports	Cumulative total to	
	1/12	2/12	3/12	4/12		1-4/12	4/12
<i>Campylobacter</i>	803	889	892	815	3399	3399	3426
<i>Escherichia coli</i> O157 *	6	7	7	6	26	26	41
<i>Salmonella</i> †	92	103	57	8	260	260	454
<i>Shigella sonnei</i>	17	16	19	3	55	55	86
Rotavirus	139	184	238	303	864	864	839
Norovirus	270	325	272	234	1101	1101	993
<i>Cryptosporidium</i>	38	37	27	32	134	134	140
<i>Giardia</i>	74	79	74	70	297	297	250

\*Vero cytotoxin-producing isolates (data from the HPA Laboratory of Gastrointestinal Pathogens (LGP)).

† Data from LGP.

## Salmonella infections (faecal specimens), England and Wales: reports to the HPA (Salmonella data set), December 2011

Details of 381 serotypes of salmonella infections recorded in December are given in the table below. In January 2012, 262 Salmonella infections were recorded.

Organism	Cases: December 2011
S. Enteritidis PT4	7
S. Enteritidis (other PTs)	63
S. Typhimurium	98
S. Virchow	4
Others (typed)	209
Total salmonella (provisional data)	381

Figures quoted from the Health Protection Agency salmonella data set are for isolates confirmed and typed by Laboratory of Gastrointestinal Pathogens (LGP).

## Hospital norovirus outbreaks (England and Wales, weeks 01-04/2012) and seasonal comparisons of norovirus laboratory reports

The norovirus outbreaks in hospitals reporting scheme recorded 172 outbreaks occurring between weeks 1 and 4 2012. Of these outbreaks 124 (72%) reported ward closures or restriction to admissions and 116 (67%) were reported as laboratory confirmed norovirus outbreaks. Last year from week 1 (January 2011) to week 52 (December 2012) 1286 outbreaks have been reported. Seventy-one percent (913) of reported outbreaks resulted in ward closures or restrictions to admissions and 62 percent (802) were laboratory confirmed as due to norovirus.

### Suspected and laboratory-confirmed reported norovirus outbreaks in hospitals, with regional breakdown: outbreaks occurring in weeks 1-4/2012

	Outbreaks between weeks 1-4/2012			Total outbreaks 01-52/11		
	Outbreaks	Ward closure	Lab-confirmed	Outbreaks	Ward closure	Lab-confirmed
East of England	–	–	–	20	20	19
East Midlands	20	9	11	82	69	64
London	9	9	8	38	30	28
North East	16	12	13	117	85	70
North West	25	20	19	150	82	86
South East	34	27	29	173	135	115
South West	32	27	26	340	287	229
West Midlands*	16	14	6	125	68	29
Yorkshire & Humberside	20	6	4	241	137	162
<b>Total</b>	<b>172</b>	<b>124</b>	<b>116</b>	<b>1286</b>	<b>913</b>	<b>802</b>

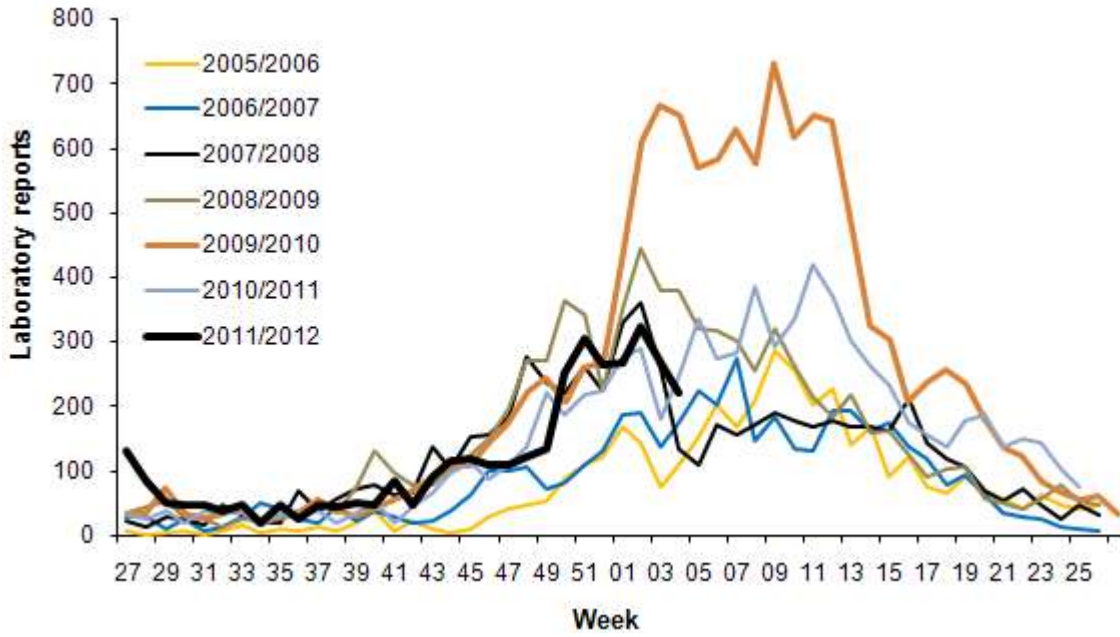
\* Information on hospital outbreaks in this region is now supplied from the West Midlands Region's own reporting scheme and is less complete for data on ward closures and lab confirmation.

### Seasonal comparison of laboratory reports of norovirus (England and Wales)

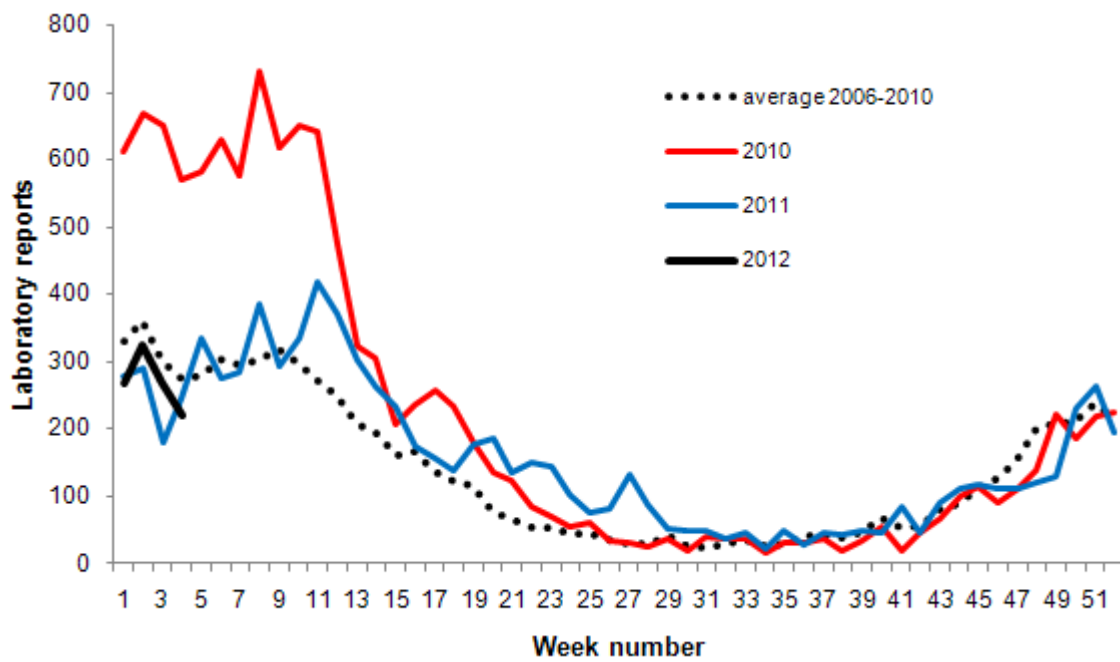
The number of laboratory reports of norovirus from week 27 2011 to week 04 2012 is 3569. The total number of laboratory reports for the same period in 2010/2011 was 2971, which is a 20 percent increase †. The number of laboratory reports is now around the average for this time of year. The number of laboratory reports in the most recent weeks will increase as further reports are received.

† The norovirus season runs from July to June (week 27 in year one to week 26 in year two) in order to capture the winter peak in one season.

**Figure 1. Seasonal comparison of laboratory reports of norovirus (England and Wales)**



**Figure 2. Current weekly norovirus laboratory reports compared to weekly mean reports 2006-2010**



## Common animal associated infections (England and Wales): 2011

This report, produced by the Emerging Infections and Zoonoses (EIZ) section at HPA Colindale, presents data on confirmed cases of zoonoses reported in England and Wales between October and December 2011 (fourth quarter; weeks 40-52) and summary data for the year as a whole.

The EIZ section produces a regular newsletter with the aim of communicating current issues of interest in zoonoses, including topics that have been discussed by the multi-agency Human Animal Infection Risk Surveillance group (HAIRS) and items of local, regional, or national relevance, particular zoonotic incidents, and information relating to regional or national meetings. Newsletters can be found on the HPA website [1].

### Animal associated infections in England and Wales: laboratory reports to LabBase (unless otherwise specified) by specimen date, for 2011

Disease (Organism)	Reports for weeks 01-13	Reports for weeks 14-26	Reports for weeks 27-39	Reports for weeks 40-52	Total reports for weeks 01- 52	
	2011*	2011*	2011*	2011*	2011*	2010
Anthrax ( <i>Bacillus anthracis</i> )	–	–	–	–	–	5
Brucellosis ** ( <i>Brucella spp.</i> )	1	5	7	4	17	11
Hydatid ** ( <i>Echinococcus granulosus</i> )	–	2	2	2	6	7
Leptospirosis ** ( <i>Leptospira spp.</i> )	4	4	14	22	44	39
Lyme disease ** ( <i>Borrelia burgdorferi</i> )	93	215	594	217	1119	967
Pasteurellosis ( <i>Pasteurella spp.</i> )	119	154	150	112	535	466
Psittacosis ( <i>Chlamydia psittaci</i> )	20	7	7	7	41	50
Q-fever ( <i>Coxiella burnetii</i> )	11	9	10	5	35	23
Toxoplasmosis**# ( <i>Toxoplasma spp.</i> )	86	83	94	83	346	352

\* Provisional data;

\*\* Enhanced surveillance system (Toxoplasmosis data include confirmed and probable congenital cases – there were four probable congenital cases in 2010 and four in 2011);

† Data for Lyme borreliosis remains provisional and subject to further reconciliation and re-assessment. Total numbers for the year are likely to be revised downwards;

# Toxoplasmosis data based on date specimen received.

### Anthrax

No cases of anthrax were reported during the fourth quarter of 2011.

### Brucellosis

Four cases of brucellosis were identified in England and Wales during the fourth quarter of 2011, giving a total of 17 for the year. Ages ranged from 5 to 63 years with two infections identified as *Brucella melitensis* serovar 3, one as *B. melitensis* serovar 1 and one as *B. abortus* serovar 5. All three *B. melitensis* cases are believed to have had initial

exposures overseas: a 5 year old male with likely exposure in the Middle East; a 7 year old male had travelled from Turkey; and a 21 year old male had been previously diagnosed in Saudi. A 63 year old male with *B. abortus* is considered to have had a reactivation of a pre-existing infection as a result of childhood exposure when this serovar was more common in the UK.

### Hydatid disease (data from the Parasitology Reference Laboratory)

Two cases were reported during the fourth quarter of 2011; further details of both cases are awaited.

### Leptospirosis (data from the Leptospira Reference Unit)

Twenty-two cases of leptospirosis were diagnosed in the fourth quarter of 2011 (20 males and two females), giving a total of 44 cases reported during the year. Seventeen cases (15 males and two females), reported in this quarter, were acquired in England and Wales and five were acquired overseas; ages ranged from 18 to 68 years.

Of the five infections acquired overseas (age range 19-42 years) all had visited South East Asia where they are believed to have had contact with inland surface waters.

Of the 17 UK-acquired infections, 12 reported exposure to inland surface waters through a range of recreational and occupational activities, including canoeing and other water sports, fishing and ditching.

The most common clinical presentations were pyrexia of unknown origin (14/22), 'flu-like illness (11/22), myalgia (10/22) and headache (9/22).

Serovars identified in cases from England and Wales were *Leptospira icterohaemorrhagiae* (2); *L. sakkoebing* (2) and *L. australis* (1). Serovars identified in cases from overseas were *L. icterohaemorrhagiae* (1) and *L. autumnalis* (1). For the remaining cases, the serovar was not determined.

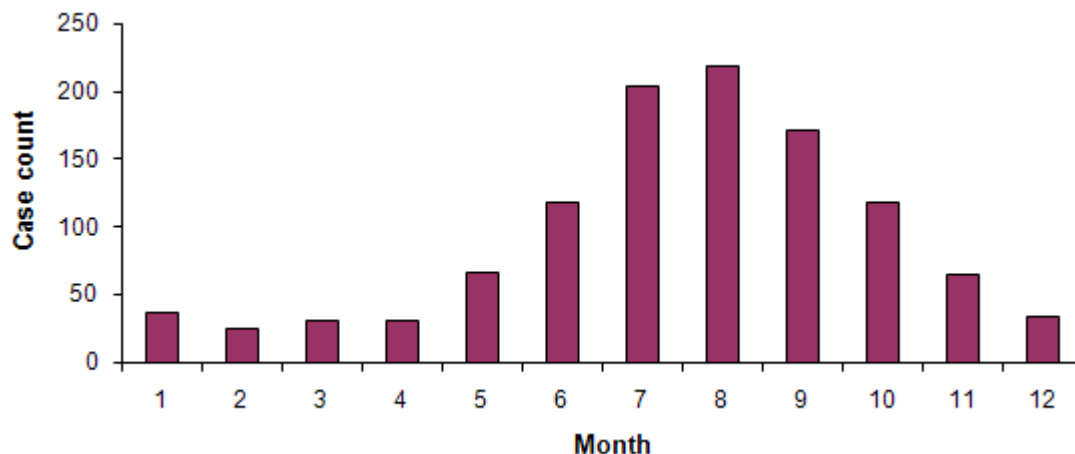
### Lyme disease (data from the Lyme Borreliosis Unit)

**Data for Lyme borreliosis remains provisional and subject to further reconciliation and re-assessment. Total numbers for the year are likely to be revised downwards.**

Two hundred and seventeen cases of Lyme borreliosis were diagnosed during the fourth quarter of 2011; 106 in males and 111 in females. Forty-four cases (20%) reported a history of overseas travel, primarily to northern European countries or to the east coast of the USA. The majority of cases were reported from the South East region (79), followed by the South West (60), London (27) and the East of England (23), and the remaining regions reported less than 10 cases each.

Number of cases of Lyme borreliosis	Weeks 40-52/11		Weeks 1-52/11	
	Male	Female	Male	Female
Age group				
0-14	11	10	80	60
15-29	16	14	70	86
30-39	18	14	79	85
40-49	20	12	93	64
50-59	16	20	86	91
60-79	21	29	144	154
80+	4	12	12	15
<b>Total</b>	<b>106</b>	<b>111</b>	<b>564</b>	<b>555</b>

## Lyme Borreliosis in England and Wales: 2011



## Pasteurellosis

One hundred and twelve cases of pasteurellosis were diagnosed in England and Wales during the fourth quarter of 2011: *Pasteurella multocida* (79 cases, 71%), *P. pneumotropica* (3), other named pasturella (3) and *Pasteurella* sp. (27). In comparison, 118 pasteurella infections were diagnosed in the fourth quarter of 2010.

Of the 112 cases diagnosed in the fourth quarter of 2011, 49 were male and 63 were female. Cases ranged in age from less than one year to 91 years (median 54 years). No deaths were reported. The South West (21) region reported the most cases, and the North East (2) reported the fewest. Of the 15 reports giving an animal exposure, nine cases reported dog bites, five reported cat bites and one case reported cat scratch.

Number of cases of pasteurella	Weeks 40-52/11	
	Male	Female
Age group		
0-14	4	2
15-29	3	3
30-39	6	5
40-49	4	7
50-59	15	11
60-79	14	26
80+	3	9
<b>Total</b>	<b>49</b>	<b>63</b>

## Psittacosis

Seven cases of psittacosis were diagnosed in the fourth quarter of 2011, compared with five during the fourth quarter of 2010. Four cases were in males and three cases were in females (18-75 years, median 55 years). One case had travelled to Nepal. Cases were reported by South West (2), North West (1), South East (1), Wales (1), West Midlands (1) and Yorkshire and Humber (1).

Note: Serological tests for respiratory chlamydia infections cannot consistently distinguish psittacosis. The cases reported above have been identified by reporting laboratories as infection with *Chlamydia psittaci*.

## Q fever

Five cases of Q fever were diagnosed in the fourth quarter of 2011, four males and one female (age range 22-68 years, median 50 years). The cases were reported by the South West (3), East of England (1), and South East (1). In comparison, four cases were reported in the fourth quarter of 2010.

## Toxoplasma (data from the Toxoplasma Reference Unit)

The tables below show *Toxoplasma gondii* diagnoses by age group and status for the fourth quarter of 2011. Note that the classification of these data has undergone an extensive review this year, and the categories shown below are not necessarily comparable with data presented in previous HPR reports.

There were 83 laboratory-confirmed reports of *Toxoplasma* infection in the fourth quarter of 2012. Six cases reported ocular symptoms. Five cases occurred in pregnant women and there was one probable congenital case of toxoplasmosis in a foetal death where the mother had laboratory-confirmed infection and the foetus had clinical features compatible with toxoplasmosis, but where there was no laboratory evidence to confirm infection.

A total of 346 confirmed cases were reported in 2011 compared to 348 in 2010.

### Laboratory confirmed and probable congenital cases of toxoplasma infection (week 40-52, 2011)

Age group	Male	Female	Unknown	Total
Foetus	–	–	1*	1
0	–	–	–	–
1-9	–	–	–	–
10-14	1	–	1	2
15-24	3	5	2	10
25-44	16	22	14	52
45-64	9	4	2	15
>64	2	1	–	3
<b>Total</b>	<b>31</b>	<b>32</b>	<b>20</b>	<b>83</b>

\* Probable congenital case.

Age group	Con-genital	Preg-nant	HIV	Organ donor	Organ recipient	Other (immuno-competent)	Other (immuno-suppressed)	Unknown**	Total
Foetus	1*	–	–	–	–	–	–	–	1
0	–	–	–	–	–	–	–	–	–
1-9	–	–	–	–	–	–	–	–	–
10-14	–	–	1	–	–	1	–	–	2
15-24	–	1	–	–	–	7	–	2	10
25-44	–	4	5	–	1	35	1	6	52
45-64	–	–	1	–	2	10	2	–	15
>64	–	–	–	–	–	3	–	–	3
<b>Total</b>	<b>1</b>	<b>5</b>	<b>7</b>	<b>–</b>	<b>3</b>	<b>56</b>	<b>3</b>	<b>8</b>	<b>83</b>

\* Probable congenital case.

\*\* No clinical details or information given.

## Other zoonotic infections

Other zoonotic infections of interest diagnosed in the fourth quarter of 2011 were as follows:

- two cases of *Capnocytophaga* sp. bacteraemia – in a 12 year old female and a 42 year old male - were reported from the East and the East Midlands regions;
- two cases of *Erysipelothrix rhusiopathiae*: one from the South West (isolated from the blood culture of a 29 year old male), one from the East (isolated from the pleural fluid of a female aged 88 years).

Further exposure information was not available for these cases.

## Reference

1. [www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/Zoonoses/ZoonosesNewsletters/](http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/Zoonoses/ZoonosesNewsletters/)

## Creutzfeldt-Jakob disease (CJD) biannual update (2012/1)

This six-monthly report provides an update on reports of incidents of potential iatrogenic (healthcare-acquired) exposure to CJD, and on the National Anonymous Tonsil Archive. The data are correct as of 3 February 2012.

For numbers of CJD case reports, readers should consult data provided by the National CJD Research and Surveillance Unit (NCJDRSU), Edinburgh [1]. The latest yearly analysis of vCJD reports (onsets and deaths) is also available from the NCJDRSU website [2].

### Reports of incidents of potential iatrogenic exposure to CJD via surgery: 2000 to 31 December 2011.

A surgical incident occurs when a patient with or at increased risk of CJD has undergone surgery without the appropriate infection control guidance being followed [3]. This could happen if a patient undergoes surgery during the incubation period of CJD, or because information about CJD risk factors is not available at the time of surgery. If this happens, surgical instruments that may be contaminated with the infectious agent that causes CJD, could pose a transmission risk when they are re-used on other patients.

In June 2010 the CJD Incidents Panel changed its protocol for reporting surgical incidents, and a new reporting algorithm was published on the HPA CJD Section website. Under the new protocol only CJD cases (or patients at increased risk of CJD) who have undergone surgical procedures which are thought to pose a possible transmission risk (ie within the likely infectious incubation period, and involving medium or high risk procedures) are categorised as 'surgical incidents'. Other procedures, either earlier in the incubation period, or involving low infectivity tissues, are categorised as 'CJD reports'.

Table 1 shows the number of CJD surgical incidents reported to the CJD Incidents Panel from 2000 to 31 December 2011 by the diagnosis of the index patient. Advice has been issued for five surgical incidents and 37 CJD reports that were reported to the CJD Incidents Panel in 2011.

Information about the CJD Incidents Panel can be found on the HPA website [4].

**Table 1: CJD surgical incidents (n=437) reported to the CJD Incidents Panel (which have been closed, or where advice has been issued) by diagnosis of index patient: 2000 to 30 June 2011**

Index patient status	'00	'01	'02	'03	'04	'05	'06	'07	'08	'09	'10		'11		Total incidents (% of total)	Total CJD reports
											Incid'ts	Rep'ts	Incid'ts	Rep'ts		
Sporadic (possible, probable or definite)	7	19	22	24	16	18	31	17	21	15	5	4	1	22	196 (44%)	26 (63%)

vCJD (possible, probable or definite)	6	14	22	5	4	1	2	-	1	1	-	-	-	1	56 (13%)	1 (2%)
Familial including 'at risk' familial	-	2	2	7	1	3	7	-	2	3	2	-	-	1	29 (7%)	1 (2%)
'At risk' vCJD blood component recipient	-	-	-	-	4	10	5	1	-	-	2	-	-	-	22 (5%)	-
'At risk' - vCJD plasma product recipient	-	1	2	-	10	18	9	8	6	9	3	-	4	2	70 (16%)	2 (5%)
'At risk' - other	-	-	2	2	1	2	5	-	-	1	7	-	-	9	20 (5%)	9 (22%)
CJD type unclear/ CJD unlikely	1	1	-	4	1	1	2	-	-	-	-	-	-	1	10 (2%)	1 (2%)
Not CJD	2	1	4	7	7	1	1	-	3	-	1	-	-	-	27 (6%)	-
Other	-	-	1	1	1	2	1	-	-	-	1	-	-	1	7 (2%)	1 (2%)
No longer considered 'at-risk'	-	-	1	-	-	-	-	1	-	-	2	-	-	-	4 (1%)	-
<b>Total -</b>	<b>16</b>	<b>38</b>	<b>56</b>	<b>50</b>	<b>45</b>	<b>56</b>	<b>63</b>	<b>27</b>	<b>33</b>	<b>29</b>	<b>23</b>	<b>4</b>	<b>5</b>	<b>37</b>	<b>441</b>	<b>41</b>

\* Some percentages do not total 100 due to rounding. Prior to 2010, all reports were recorded as incidents.

If the investigation of a surgical incident identifies any instruments that are considered to be potentially contaminated with the infectious agent, and that could still pose an infection risk to other patients, the Panel advises that these instruments should be removed from general use or refurbished. These instruments may be quarantined, kept for exclusive use on the index patient, refurbished (endoscopes only) or destroyed.

Since 2000 there have been 86 incidents in which instruments have been permanently removed from general use or refurbished (endoscopes only).

### Surgical incidents resulting in 'at risk' patients

The Panel may advise contacting and informing patients of their possible exposure to CJD following a surgical incident. These patients should be considered 'at-risk of CJD for public health purposes' and are asked to take certain precautions (ie not to donate blood, other tissues or organs, and to inform their medical and dental carers prior to any invasive procedures) in order to reduce the risk of transmitting the CJD agent.

The diagnosis of the index patient; the timing of the procedure relative to the development of clinical CJD; the tissue that instruments were in contact with during the procedure on the index patient; and the number of cycles of re-use and decontamination the instruments have been through following the procedure on the index case – all influence the possible risk to subsequent patients.

The threshold level of risk at which patients are considered to be 'at increased risk' of CJD is 1%, in addition to the background risk in the UK population. This risk threshold is based on risk assessment models, using precautionary assumptions. The 1% threshold level is used as a cut off for implementing public health precautions and is not intended to be a precise measure of an individual patient's risk. A similar threshold is used for identifying other patients who have been exposed to possible CJD risks following surgical, blood, plasma and tissue incidents.

From 2000 to 31 December 2011, there have been 26 surgical incidents in which the Panel has advised that 190 patients should be considered to have an increased risk of CJD.

### Patient denotifications

Following changes in the assessment of tissue infectivity, the Panel has advised that 38 patients in 14 surgical incidents who were originally considered (and notified) as being 'at risk' of CJD should no longer be considered 'at risk', and should be denotified. In November 2005, gastrointestinal endoscopies without invasive procedures were reclassified as low risk procedures, and advice was issued to denotify two patients in one surgical incident. In 2006, anterior eye was reclassified as a 'medium low' infectivity tissue. This led to a change in advice as only the first patient on whom instruments were used following an anterior eye procedure was to be considered as having an increased risk of CJD. Previously this had applied to the first *two* patients exposed to such instruments. This resulted in the Panel advising that 16 patients in seven incidents should be denotified. In 2009, the anterior eye was further reclassified as a low infectivity tissue. Following this change, the Panel advised that 20 patients should be denotified.

As of 31 December 2011, the Panel has received confirmation that of the 33 patients originally notified of their exposure (out of the 38 originally considered to be 'at risk'), 25 patients have been informed that they are no longer considered 'at risk' and eight patients died before they could be denotified.

### Current 'at risk' patients resulting from surgical instruments

There are 13 surgical incidents in which 152 patients are still considered to be at increased risk of CJD. Currently, 119 of these 'at risk' patients have been notified that they are at increased risk of CJD. Local decisions have been taken not to notify four patients in these incidents.

**Table 2: Surgical 'at risk' patients still identified as being 'at increased risk of CJD' by the Panel by procedure on the index patient**

Diagnosis of index patient	Procedure on index patient	Number of incidents	Patients identified as 'at risk'	Patients who died before being notified	Local decision not to notify patient	Notified patients
Sporadic	Brain biopsy	2	28	2	1	25
Variant	Appendectomy	1	2	–	2	–
Variant	Endoscopy	1	1	–	1	–
Asymptomatic infected vCJD	Endoscopy	1	4	1	–	3
At risk variant	Endoscopy	5	36	4	–	32
At risk familial	Neurosurgery	1	31	10	–	21
At risk familial	Ophthalmic surgery	1	39	1	–	38
At risk sporadic	Ophthalmic surgery	1	11*	2	–	–
<b>Total</b>		<b>13</b>	<b>152</b>	<b>20</b>	<b>4</b>	<b>119</b>

\* Notification of nine patients was pending at the time of this reporting period.

### Monitoring of patients 'at increased risk' of CJD

The CJD Incidents Panel and the Advisory Committee on Dangerous Pathogens Transmissible Spongiform Encephalopathy Risk Management Subgroup (formerly the ACDP TSE Working Group) have identified a range of individuals and groups who may have been exposed to an increased risk of CJD as a consequence of their medical

care (see table 3 below). The risks of iatrogenic CJD transmission to these different individuals are very uncertain, but potentially devastating. The CJD Incidents Panel has advised that these individuals should be informed of their risk and asked to follow public health precautions to avoid transmitting the infection to others.

It is important to follow up these individuals to help determine the risks of CJD spreading to patients through different routes. Follow up involves a range of activities and is carried out by different organisations. At core, follow up aims to ascertain whether any people who may have been exposed to increased CJD risks go on to develop CJD.

**Table 3. Individuals at increased risk of CJD up to 31 December 2011**

'At risk' Group	Identified as 'at risk'	Ever notified as being 'at risk'	Alive and Notified	Cases	Asymptomatic infections
Recipients of blood from vCJD cases	67	27	18	3	1
Blood donors to vCJD cases	112	107	104	–	–
Other recipients from blood donors to vCJD cases	34	32	23	–	–
Plasma product recipients (all except one have non-bleeding disorders)	11	10	4	–	–
Surgical contacts of all CJD cases	141	119	110	–	–
Highly transfused patients (recipients of blood from ≥80 donors identified at pre-surgical assessment)	9	7	6	–	–
Total for at risk groups where HPA holds data	374	302	265	3	1
Patients with bleeding disorders who received UK sourced plasma products [a]	3,868	n/k	n/k	–	1
Recipients of human derived growth hormone [b]	1,883	1,883	1,521	67	–
Total for all 'at risk' groups [c]	6,125	At least 2,184	At least 1,786	70	2

a. Data provided by the UK Haemophilia Centre Doctors' Organisation (UKHCDO). These are minimum figures. Central reporting for bleeding disorder patients is incomplete, and some patients have opted out of the central UKHCDO database. Individual haemophilia centres were asked to send out standardised letters of notification to all their 'at risk' patients, but the exact number of patients who received these letters and are therefore aware of their risk is not known.

b. Data provided by the Institute for Child Health. A small number of 'at risk' growth hormone recipients are not included in the Institute of Child Health study so the true number 'at risk' will be greater. The exact number of growth hormone recipients in the ICH study currently aware of their risk is not known, as given their age at the original notification many were informed indirectly, by their parents.

c. These are minimum figures given the comments made above.

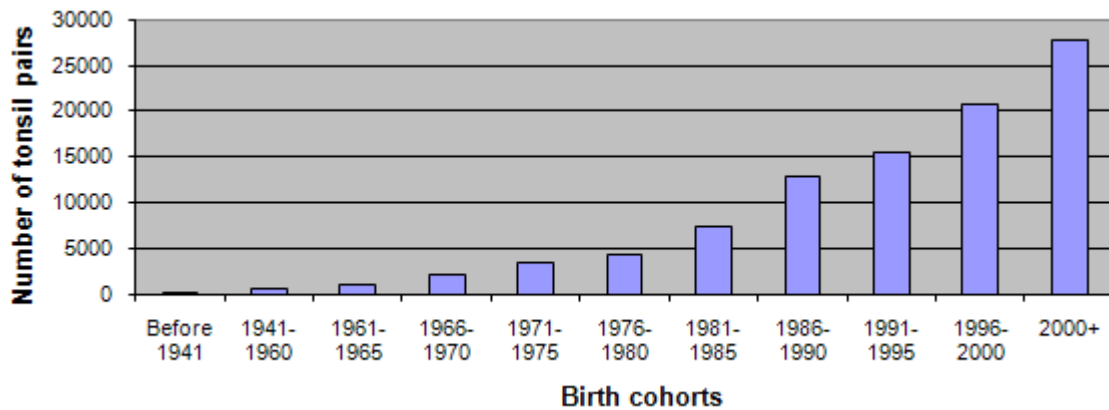
### Update on summary of abnormal prion prevalence

The National Anonymous Tonsil Archive (NATA) was set up in 2004 to prospectively collect 100,000 tonsils pairs obtained after routine tonsillectomies in England and Scotland and to test these samples for abnormal prion protein. Only tissues not required for patient care, which would normally be discarded, were collected.

The NATA work is now finished with recruitment and testing of specimens stopped. Up to the end of September 2011, NATA received a total of 95,672 tonsil pairs from hospitals in England and Scotland, about 18,003 of which are from the birth cohort in which most vCJD cases have arisen (1961-1985) (figure 1). A further 3,010 tonsil pairs were received from the Medical Research Council Prion Unit at the UCL Institute for Neurology, National Hospital for Neurology and Neurosurgery. Therefore **the total number of tonsil pairs in the archive is 98,682**. The number of

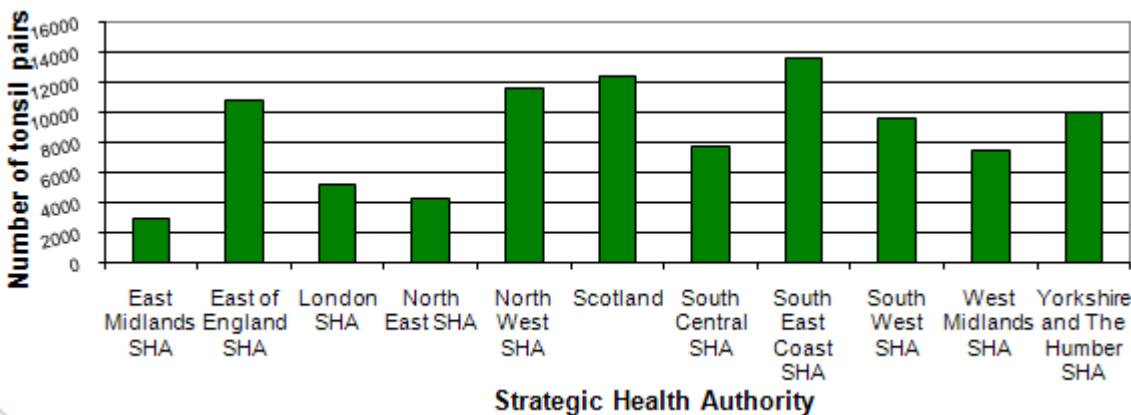
collection forms that were completed but where no tonsil tissue was collected was 2,557 (1,671 due to patient objection and 886 due to clinical pathology being requested for the sample).

**Figure 1. Number of tonsil pairs collected by birth cohort: January 2004 to September 2011**



Of the 100 NHS Hospital Trusts that perform over 200 tonsillectomies per year in England, 91 were recruited into the study and sent tonsil pairs to NATA on a regular basis. There were 120 hospital sites within these trusts taking part in NATA. During the seven year period, approximately 50,000 tonsillectomies were performed annually in England. Figure 2 shows the number of tonsil pairs received from each Strategic Health Authority area.

**Figure 2. Tonsil pairs collected by Strategic Health Authority: January 2004 to September 2011 3. NHS Trusts and Scottish hospitals currently collecting and sending tonsil tissue to the archive July 2011**



The tonsils have been screened for abnormal prion protein by two enzyme immunoassays (EIAs) and a small proportion selected for additional investigative analytical tests such as immunohistochemical testing (IHC) and Western blot tests. No positives were found.

An earlier study of appendix and some tonsil tissue, from operations conducted between 1995 and 1999, found three positive samples out of 12,674 screened for abnormal prion protein using the IHC method [5]. The prevalence estimate calculated from this study was 237 per million overall (95% CI: 49-692 per million) – or 380 per million (95% CI=80-1120 per million) in those born between 1961 and 1985. This prevalence estimate equals to one infection per 4,000 of the population in the 1961 to 1985 birth cohort, the cohort in which most vCJD cases have arisen.

In 2008, the Spongiform Encephalopathy Advisory Committee (SEAC) considered the available NATA data [6]. At that time no abnormal prion protein positive samples had been found in nearly 55,000 samples, analysed by the high throughput dual EIA screening technique, including about 11,000 samples from the 1961 to 1985 birth cohort [7]. This translated to a prevalence estimate of zero per million (95% CI=0-324 per million) in this birth cohort. Statistical analysis of the data from the previous appendix survey and NATA showed the prevalence rates were consistent with each other.

To further investigate the prevalence of abnormal prion protein in the NATA samples from patients in the 1961 to 1985 birth cohort, the IHC technique was applied to screen 9,160 samples within that cohort; these samples which had

already been shown to be negative when screened by the dual EIA technique [8]. One specimen showed a single strongly positive follicle. The specimen was negative when further investigated by EIA, IHC, and immunoblotting. This finding of 1 in 9,160 gives a prevalence estimate of 109 infections per million (95% CI: 3-608 per million) in those born between 1961 and 1985 which is not statistically different from the prevalence estimate based on the previous appendix study (exact  $p=0.64$ ).

The results of NATA and the "IHC screening" sub-study were considered by SEAC in 2010 [9]. The committee agreed that "even though the positive sample suggested a possible prevalence of 1:10,000, the result from the Hilton data of 1:4,000 would still remain the most precautionary figure for risk management purposes".

The Health Protection Agency is also coordinating a second Appendix Survey in order to test for abnormal prion protein in archived appendix tissues in two birth cohorts of individuals[10]. The study is an unlinked anonymous survey testing approximately 20,000 samples from individuals born between 1961 and 1985 and 10,000 from those born between 1941 and 1960. The study is continuing but the interim data shows that four out of 13,878 suitable samples across both birth cohorts have tested positive for disease associated prion protein (PrP CJD ). This translates to a prevalence estimate of 288 per million (95% CI=79-738 per million). Two of the four positive samples were from the 1941-1960 birth cohort resulting in a prevalence estimate of 641 per million (95% CI=78-2314 per million) compared to 186 per million (95% CI=23-671 per million) in the younger cohort of individuals. The interim data has been reviewed by the ACDP TSE Risk Assessment Sub-Group [11].

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