



Health Protection Report

weekly report

Volume 2 Number 19 Published on: 9 May 2008

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Death in a child infected with toxigenic *Corynebacterium diphtheriae* in London

On 2 May 2008 an isolate of *Corynebacterium diphtheriae var mitis*, from a school age child, was reported to the Health Protection Agency in London. The child had died on 30 April. The isolate was confirmed as toxigenic on 4 May by the HPA's Respiratory and Systemic Infection Laboratory.

The child had been admitted to hospital on 27 April after a three to four day illness and did not have a classical presentation of diphtheria. A diagnostic bronchoalveolar lavage was carried out from which *C. diphtheriae* was grown, the result being known only after the death of the child. The most likely explanation for the child's death is the infection with diphtheria.

The child was not immunised against diphtheria and had moved to the UK from Europe in late 2007. One family member had travelled to Africa earlier this year, returning to the UK about one month before the child was unwell. There was no other history of travel since late 2007.

The full public health investigation was initiated on the afternoon of 4 May, although preliminary information was available from a public health assessment conducted following the original report two days earlier.

Close contacts were identified and included:

- family contacts;
- a small number of school classmates and teachers with very close contact;
- hospital staff with prolonged close contact, or undertaking droplet-producing procedures;
- other inpatients with prolonged close contact, for example sharing the same hospital bay for several hours or overnight.

In line with current guidance, all close contacts had nasal and pharyngeal swabs, were offered erythromycin chemoprophylaxis and diphtheria immunisation. Swabs, received to date, from family and hospital contacts are negative.

Diphtheria became rare in England and Wales following the introduction of mass immunisation in 1942 when the average number of notifications of diphtheria was about 60,000 with 4,000 deaths. Between 1986 and 1997 there were eight cases of classical respiratory diphtheria caused by toxigenic *C. diphtheriae*, all of whom had a history of travel to endemic countries, and none since caused by this organism. The last death from *C. diphtheriae* in 1994 was in a child who became infected in Pakistan [1].

Classical respiratory diphtheria can also be caused by *Corynebacterium ulcerans* and cases which have occurred in England and Wales since 1997 have all been due to this organism rather than *C. diphtheriae*. There were two deaths from respiratory diphtheria caused by *C. ulcerans*; one in 2000 and one in 2006 [2,3].

Primary immunisation coverage (three doses) in the UK for children aged two has been 94% since 2001, just below the World Health Organization target of 95%. However, there is regional variation and coverage in London is lower than elsewhere in the UK with 86% coverage for 2006/07.

References

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Further information

[Diphtheria Q&As on HPA website](#)

Update on the investigation of Hepatitis E on a cruise ship

The occurrence of four cases of hepatitis E on a cruise ship was reported previously [1]. This is a very unusual event and a cross-Agency investigation led by Cfl and coordinated through the regional hepatitis leads is underway to identify additional cases of hepatitis E.

Letters were sent to all passengers who were on the cruise asking them to participate in the investigation whether they were ill or not. Those who agreed to participate were asked to give a sample of blood and to complete a questionnaire. There was an overwhelming response with more than 1100 passengers volunteering to participate before recruitment was closed. Time was limited because blood samples had to be taken within a few weeks of exposure in order to reliably detect specific IgM. Blood samples and questionnaires are currently being analysed at Cfl.

To date seven cases (the four original cases and three others through case finding) of hepatitis E have been identified. All these are in older patients (aged 68-81 years) with onset dates between 8 and 23 March 2008. All were serologically confirmed by the laboratory at Cfl as acute Hepatitis E. Viral RNA was recovered from three cases and all were genotype 3. This virus clusters with European strains and is distinguishable from the majority of isolates from indigenously acquired infections and from UK pigs.

1. <http://www.hpa.org.uk/hpr/archives/2008/news1408.htm#hepE>

Reminder on vaccination requirements for those working with imported animals

Following the incident of rabies in an imported puppy held in a UK quarantine centre reported here last week [1], the HPA has taken the opportunity to remind animal rescue charity, quarantine and animal reception centre workers of the importance of immunisation.

The Agency has written to all quarantine centres, border inspection posts, live animal reception centres and animal rescue charities in England reminding them of the need for their workers to be immunised against rabies.

The HPA letter [2] stresses the need for those working in these areas to receive public health education and be made aware of the risks associated with this type of work. It sets out details of the immunisation schedule which should be followed by those at regular risk of exposure to rabies and which has been contained for many years in the Department of Health's immunisation guide, the Green Book [3].

1. [An imported case of canine rabies in a quarantine centre in London: immediate public health management of the incident, April 2008](#)
2. [HPA letter to quarantine centres](#)
3. [Immunisation against infectious disease - "The Green Book"](#)

Infection reports

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Enteric

- ▶ General outbreaks of foodborne illness in humans, England and Wales: weeks 14-17/2008
 - ▶ Salmonella infections (faecal specimens), England and Wales: reports to the HPA (Salmonella data set), March 2008
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General outbreaks of foodborne illness in humans, England and Wales: weeks 14-17/2008

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
East Midlands North	Campylobacter	Hotel	March	3	3	Pate	D
County Durham & Tees	Clostridium Perfringens	Public house	March	>1	>1		
National	Escherichia coli O157	National	April	12	12		

Salmonella infections (faecal specimens), England and Wales: reports to the HPA (Salmonella data set), March 2008

Details of serotypes of 569 Salmonella infections recorded in March 2008 are given in the table below. In April 2008, 476 Salmonella infections were recorded.

Organism	Cases March 2008
S. Enteritidis PT4	45
S. Enteritidis (other PTs)	117
S. Typhimurium	186
S. Virchow	15
Others (typed)	206
Total Salmonella (provisional data)	569

Common gastrointestinal infections, England and Wales: laboratory reports, weeks 14-17/08

Laboratory reports	Number of reports received				Total reports 14-17/08	Cumulative total	
	14/08	15/08	16/08	17/08		01-17/08	01-17/07
<i>Campylobacter</i>	688	661	672	551	2572	10526	11262
<i>Escherichia coli</i> O157*	-	-	-	-	-	-	-
<i>Salmonella</i> †	138	112	123	80	453	2130	3014
<i>Shigella sonnei</i>	11	7	14	7	39	129	274
Rotavirus	963	812	683	595	3053	9811	9569
Norovirus	158	127	187	97	569	3110	2960
Cryptosporidium	32	63	64	59	218	615	711
Giardia	56	40	41	57	194	837	815

*Vero cytotoxin-producing isolates (data from Health Protection Agency's Laboratory of Enteric Pathogens (LEP)).

† Data from Health Protection Agency's Laboratory of Enteric Pathogens.

Typhoid and paratyphoid, England and Wales: laboratory reports, January to March 2008

Organism and phage type	Infection acquired abroad				Excretors and carriers
	Number of cases	Yes	No	Not reported	
S. Typhi					
A	6	4	-	2	-
C1	3	1	-	2	-
C4	4	-	-	4	-
D1	5	3	-	2	-
D2	16	7	-	9	-
E1	13	6	-	7	-
E9 variant	2	1	-	1	-
O	1	-	-	1	-
46	6	4	-	2	-
Degraded	4	2	-	2	-
Untypable Vi-1	5	4	-	1	-
Untypable Vi-2	4	3	-	1	-
Untypable VI-7	1	1	-	-	-
Vi-Negative	1	-	-	1	-
Total	71	36	0	35	0
S. Paratyphi A					
1	17	7	-	10	-
1A	8	5	-	3	-
2	4	3	-	1	-
3	1	1	-	-	-
4	9	7	-	2	-
6A	1	1	-	-	-
13	18	9	-	9	-
Total	58	33	-	25	-
S. Paratyphi B					
1	3	-	-	3	-
Taunton	2	2	-	-	-
Total	5	2	-	3	-

Commentary

***Borrelia burgdorferi* (Lyme borreliosis): (73)**

Reports were received from all English regions (71) and Wales (2); for one patient the source laboratory was unknown. Fifty nine percent of reports were from the South east and South West health regions of England. All age groups were represented and the near equal male:female ratio observed in previous reports was maintained.

Seven patients reported overseas travel. The total number of reports shows a decrease over the same period in 2007; this is likely to be due to the recent cold weather with lower levels of tick activity and reduced levels of human outdoor exposure.

Country visited	Number of cases
Hungary	1
Germany	1
Sweden	1
Czech Republic	1
USA (Eastern seaboard)	2
Northern Europe (unspecified)	1

Leptospirosis: (5)

Indigenous cases (5):

Infections were reported from all regions of England and Wales; reported sources of infection were identified in seven patients as: watersports, lake or river contact, immersion in inland waters, farming and fishing (2).

Reported serovars were: Icterohaemorrhagiae (4), Saxkoebing (1), not determined (26).

Infections acquired overseas (6):

Age group	Females	Males	Total
<10yr	-	-	-
10-14yr	-	-	-
15-24yr	-	-	-
25-44yr	-	2	2
45-64yr	-	1	1
>65yr	1	1	2
Not stated	-	-	-
Total	1	4	5

Infections were reported from regions throughout England and Wales ; one patient died (serovar not determined).

Reported serovars were: Icterohaemorrhagiae (1), not determined (4).

No overseas acquired infections were reported.

Pasteurella : (104)
Pasteurella haemolytica : (0)
Pasteurella multocida : (76)
Pasteurella pneumotropica : (1)
***Pasteurella* spp** : (26)

Age group	Females	Males	Unknown	Total
<10yr	5	4	-	9
10-14yr	1	2	-	3
15-24yr	2	1	-	3
25-44yr	4	12	-	16
45-64yr	24	11	-	35
>65yr	21	15	-	36
Not stated	-	-	2	2
Total	57	45	2	104

Toxocara: (nil report)

Toxoplasmosis: (12)
Toxoplasma gondii: (7)
***Toxoplasma* spp**: (5)

Age group	Females	Males	Total
<1yr	1	-	1
15-24yr	1	1	2
25-44yr	8	-	8
45-64yr	-	1	1
65-79yr	-	-	-
Unknown	-	-	-
Total	10	2	12

Coxiella burnetii: (4)

Age group	Females	Males	Total
15-24yr	-	-	-
25-44yr	1	-	1
45-64yr	1	-	1
65-79yr	1	1	2
Unknown	-	-	-
Total	3	1	4

Patients were reported by laboratories in south Wales and the south west of England. No clinical or epidemiological details were available.

Chlamydia (Chlamydophila) psittaci: (10)

Age group	Females	Males	Unknown	Total
05-09yr	-	1	-	1
15-24yr	1	-	-	1
25-44yr	2	1	-	3
45-64yr	2	1	-	3
65-79yr	1	-	1	2
>80yr	-	-	-	-
Total	6	3	1	10

No clinical or epidemiological details were available.

Capnocytophaga spp: (7)

Age group	Females	Males	Unknown	Total
05-09yr	-	1	-	1
15-24yr	-	-	-	-
25-44yr	-	-	-	-
45-64yr	-	-	-	-
65-79yr	1	-	-	1
>80yr	-	-	5	5
Total	1	1	5	7

No clinical or epidemiological details were available for these patients.

Mycobacterium marinum: (Nil report)

Orf: (1)

Age group	Females	Males	Total
65-79y	1	-	1
Total	1	-	1

Echinococcus granulosus : (2)

Age group	Females	Males	Total
15-24yr	-	-	-
25-44yr	-	-	-
45-64yr	-	-	-
65-79yr	1	1	2
Total	1	1	2

Toxoplasma gondii infections diagnosed by the Toxoplasma Reference Unit, England and Wales: weeks 1-13/08

The Health Protection Agency, in collaboration with the National Public Health Service for Wales (NPHSW), is currently reviewing the number of cases of *Toxoplasma gondii* infection diagnosed by the Toxoplasma Reference Unit (TRU) in Swansea [1]. This report describes cases diagnosed in the first quarter of 2008 (weeks 1-13). Further data will be reported quarterly in subsequent issues of Health Protection Report.

Table 1 indicates that a total of 89 *T. gondii* infections were confirmed by the TRU during weeks 1 to 13 of 2008 (1 st January to 30 th March 2008). Cases are classified by the TRU using specific laboratory and clinical diagnostic criteria [2].

Table 1: *Toxoplasma gondii* diagnoses by age group and status, Toxoplasma Reference Unit weeks 1-13/2008

Age group	Acute	Congenital	HIV	Organ recipient/donor	Total
<1	-	2	-	-	2
1-9	3	-	-	-	3
10-14	2	-	-	-	2
15-24	11	-	2	-	13
25-44	35	-	14	-	49
45-64	10	-	5	3	18
65-79	-	-	-	2	2
Total	61	2	21	5	89

Of the 89 cases diagnosed, 61 were classed as acute cases of toxoplasmosis in immunocompetent individuals, 2 were congenital infections, 21 were in patients either classed as known HIV positive, or considered to be at high risk for HIV infection, and 5 were in prospective organ donors or recipients.

During the same period a total of 12 cases were reported by NHS laboratories to the HPA national surveillance system, compared with 18 for the same period during 2007 [3], and 24 in 2006 [4].

Table 2: *T. gondii* diagnoses by region, Toxoplasma Reference Unit , England and Wales weeks 1-13/2008

HPA Region	Total
East Midlands	1
East of England	6
London	39
North East	7
North West	5

South East	7
South West	5
West Midlands	6
Yorkshire and Humber	5
Not known	8
Total	89

As shown in table 2, the majority (44%) of cases diagnosed by the TRU in the first quarter of 2008 were referred by laboratories in the London region. This may reflect local testing policy.

Table 3: *T. gondii* diagnoses by age and sex, Toxoplasma Reference Unit weeks 1-13/2008

Age group	Female	Male	Not stated	Total
<1	2	-	-	2
1-9	-	3	-	3
10-14	1	1	-	2
15-24	7	2	4	13
25-44	26	12	11	49
45-64	4	8	6	18
65-79	-	2	-	2
Total	40	28	21	89

Table 3 indicates that toxoplasma infection was most commonly diagnosed in females, aged 25-44 (29% of cases). This is partly due to the higher proportion of tests carried out in pregnant women.

Table 4: Reported symptoms associated with toxoplasma infection, Toxoplasma Reference Unit weeks 1-13/2008

Symptoms	Acute	Congenital	HIV	Organ recipient/donor	Total
Lymphadenopathy	37	-	-	-	37
Neutropenia	1	-	-	-	1
Pyrexia	1	-	-	-	2
Tiredness	1	-	-	-	1
Post viral illness	1	-	-	-	1
Asymptomatic	-	-	1	-	1
Ocular	2	-	1	-	3
Respiratory failure	-	-	1	-	1
Toxoplasmic encephalitis	-	-	2	-	2
Pregnant	7	-	3	-	10
Mother of congenital infant	2	-	-	-	2
Hydrocephalus	-	1	-	-	1
Organ donor	-	-	-	2	2
Organ recipient	-	-	-	3	2
Not given	9	1	13	-	23
Total	61	2	21	5	89

As shown in table 4, the most commonly reported symptom of acute toxoplasma infection was lymphadenopathy (61%). Among the acute cases reported, seven were in pregnant women (12%), and two were in mothers of children born with congenital toxoplasma infection.

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Emerging Infections/CJD

Creutzfeldt-Jakob disease (CJD) update report

This six-monthly report provides an update on reports of incidents of potential iatrogenic (healthcare-acquired) exposure to CJD via surgery, and on the National Anonymous Tonsil Archive. Data are correct as of 17 April 2008.

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

Reports of incidents of potential iatrogenic exposure to CJD via surgery: 01 January 2000 to 31 Dec 2007

There were a total of 329 incidents reported during this period (table 1). Eleven surgical incidents were reported between 1 July and 31 December 2007 (since the previous update report). A surgical incident occurs when a patient undergoes surgery but is only identified as having CJD or being at risk of CJD at a later date. This means that the Advisory Committee on Dangerous Pathogens (ACDP) transmissible spongiform encephalopathy working group infection control guidelines would not have been followed. The surgery carried out on an index patient with, or at risk of, CJD may result in contamination of the instruments with abnormal prion protein. Table 1 shows the number of CJD surgical incidents reported to the CJD Incidents Panel from January 2000 to December 2007 by the diagnosis of the index patient.

Table 1 CJD Surgical Incidents (n=329) reported to the CJD Incidents Panel, by diagnosis of index patient: January 2000 to Dec 2007

Diagnosis of index patient	2000	2001	2002	2003	2004	2005	2006	2007	Total
1. Sporadic (possible, probable or definite)	7	19	22	23	15	17	28	12	143(43%)
2. vCJD (possible, probable or definite)	6	14	22	5	4	1	2	-	54(16%)
3. Familial including 'at risk' familial	-	2	2	7	1	3	6	-	21(7%)
4. 'At risk' vCJD blood component recipient	-	-	-	-	4	10	5	1	20(6%)
5. 'At risk' - vCJD plasma product recipient	-	1	2	-	9	17	7	7	43(13%)
6. 'At risk' - other			2	2	1	2	4		11(3%)
7. CJD type unclear/ CJD unlikely	1	1	-	4	-	1	2	-	9(3%)
8. Not CJD	2	1	4	7	7	1		-	22(7%)
9. Other			1	1	1	1	1	-	5(2%)
10. No longer considered 'at-risk'	-	-	1	-	-	-	-	-	1(0%)
Total	16	38	56	49	42	53	55	20	329(100%)

Investigation of surgical incidents may result in advice to remove surgical instruments from clinical use (to quarantine, destroy, or donate for research). Such advice is generally only given for instruments considered to be potentially contaminated with the CJD agent that have not undergone a certain number of cycles of use and decontamination since their use on an index patient. Hospitals are asked to consider sending any instruments to be permanently removed from use to the Surgical Instrument Store (held by the Health Protection Agency, Porton Down) for research. In the second half of 2007, there were no incidents in which instruments were permanently removed from use.

The Panel may advise contacting and informing some patients of their possible exposure to CJD in a surgical incident. Such advice is generally only given for patients who have definitely been exposed to potentially contaminated instruments which have been used on risk tissues in certain index patients. The Panel may advise that some of these patients should be considered 'at-risk of CJD for public health purposes' and asked to take certain precautions (ie, not to donate blood or other tissues and to inform their medical and dental carers prior to any invasive procedures) in order to reduce the risk of transmitting the CJD agent further. Since 2000, 19 incidents have given rise to advice to contact and inform subsequent patients of their potential exposure to CJD (table 2). Two of these incidents were reported in the second half of 2007. The Panel advised that a total of 75 patients should be contacted and informed that they are 'at-risk' of CJD for public health purposes. Fourteen patients were subsequently re-assessed and, based on updated risk assessments, are no longer considered to be 'at-risk' of CJD for public health purposes.

Table 2 Panel advice to inform patients that they are 'at-risk' of CJD/vCJD: 1 January 2000 to 31 Dec 2007

Diagnosis of index patient	Procedure on index patient	Number of Incidents	Number of 'at risk' patients advised to be notified (subsequently 'denotified')
Sporadic CJD	Brain biopsy	2	28 (-)
	Cataract surgery	11	31 (11)
vCJD	Appendectomy	1	2 (-)
	Cataract surgery	1*	2 (1)
'at risk' vCJD	Endoscopy & GI surgery	4†	12 (2)
Total		19	75 (14)

*The index patient was a blood component recipient with evidence of vCJD infection. Information about the CJD Incidents Panel can be found on the HPA website [3].

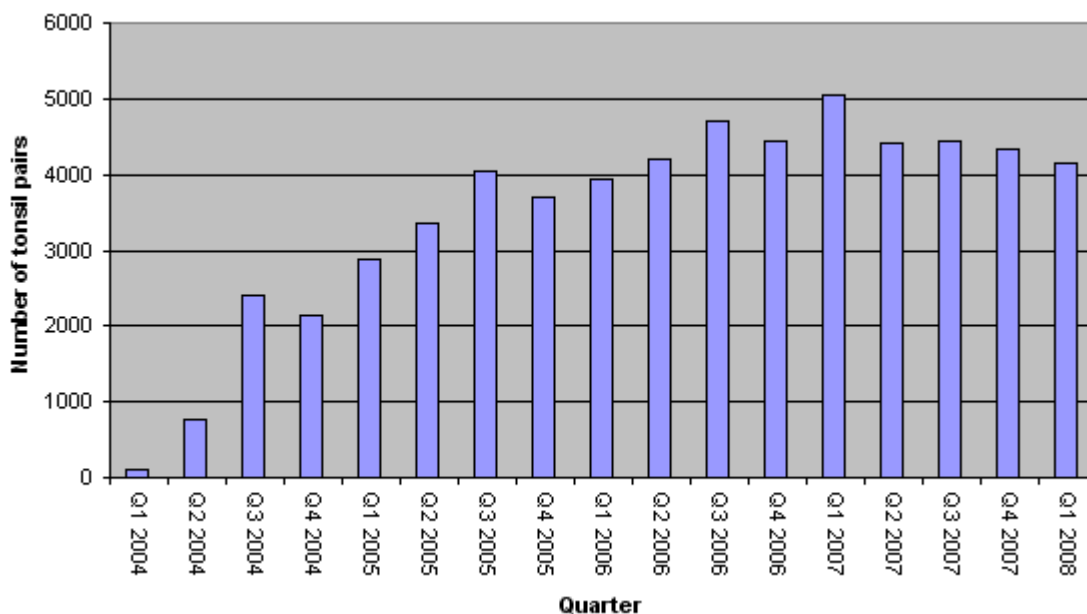
† For one incident, the total number of 'at-risk' patients is still being determined.

National anonymous tonsil archive for studies of detectable abnormal prion protein

The National Anonymous Tonsil Archive (NATA) continues to receive approximately 400 tonsil pairs per week (figure 1). The archive had received a total of 58,619 tonsil pairs up to the end of March 2008 from hospitals in England and Scotland. A further 3,000 tonsil pairs have been received from the Medical Research Council Prion Unit at the Institute for Neurology, National Hospital for Neurology and Neurosurgery. Therefore the total number of tonsil pairs in the archive was 61,619. The number of collection forms that were completed but no tonsil tissue collected was 1,956 (1,258 due to patient objection and 698 due to clinical pathology being requested).

Out of the 100 NHS Hospital Trusts that perform over 200 tonsillectomies per year in England, 91 have been recruited and are currently sending tonsil pairs to NATA on a regular basis. There are 120 hospitals sites within these trusts taking part in NATA. At present, approximately 50,000 tonsillectomies are performed annually in England. Figure 2 shows the number of tonsil pairs received from each Strategic Health Authority.

Fig 1 Number of tonsil pairs collected for NATA Quarterly: Q1 2008



Just over 5,000 tonsillectomies are performed in Scotland each year. The project in Scotland, where there are 14 hospitals that each carry out more than 200 tonsillectomies per year, is being coordinated by Health Protection Scotland. All 14 of these hospitals have been recruited and are collecting tonsils for NATA. The tonsil tissue is being transported to the HPA Colindale for inclusion in the archive. Figure 3 shows all hospitals in England and Scotland currently recruited in the study.

Fig 2 Tonsils collected by Strategic Health Authority, January 2005 - March 2008

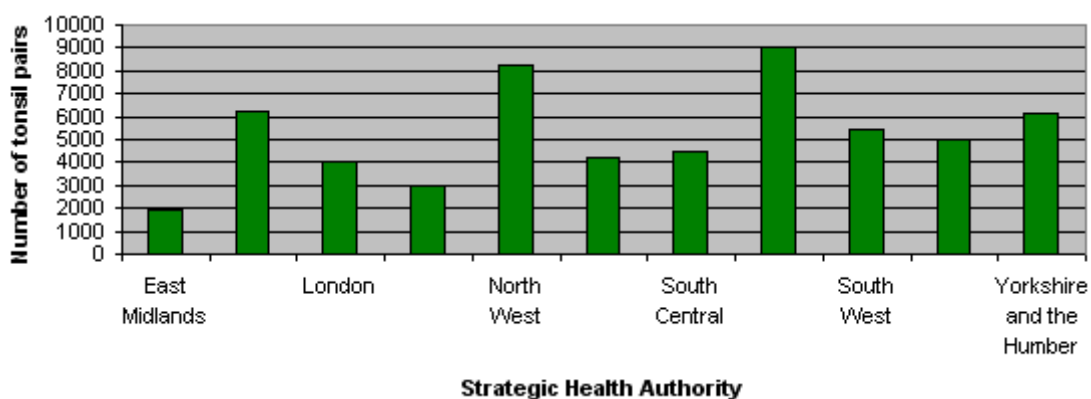
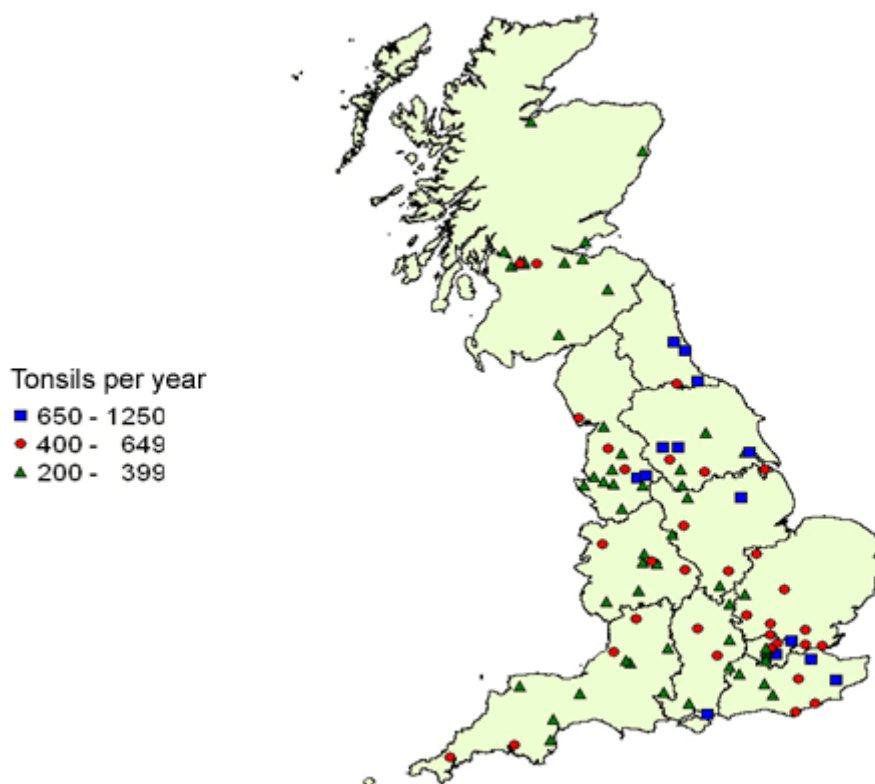


Figure 3: NHS Trusts and Scottish Hospitals currently collecting and sending tonsil tissue to the archive April 2008



Testing of homogenates of the tonsil tissue from the archive began at the end of January 2007. Two enzyme immunoassays (EIAs) are being used for the initial screening of the homogenates for the presence of abnormal prion protein. These EIAs allow the identification of any tonsils that need to be investigated further by the more specific tests of Western blotting (WB) and immunohistochemistry (IHC) [4].

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