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News

Current Issue: Volume 2, No 05 **Published on:** 1 February 2008

Publication of MRSA bacteraemia and *Clostridium difficile* infection data

The latest Healthcare Associated Infections quarterly report was published on 30 January. This includes new quarterly data for both MRSA bacteraemia and *C. difficile* infection, and six-monthly data for MRSA bacteraemia, collected through the mandatory surveillance systems. These data are available, together with commentaries and historical annual data, at http://www.hpa.org.uk/infections/topics_az/hai/Mandatory_Results.htm.

MRSA bacteraemia

In the six-month period April – September 2007, 2,376 episodes of MRSA bacteraemia were reported by NHS acute Trusts in England . The national rate of MRSA bacteraemia during this period was 1.24 cases per 10,000 bed-days. This compares to a rate of 1.57 cases per 10,000 bed-days in October 2006 – March 2007, and 1.77 cases per 10,000 bed-days in April – September 2006.

Quarterly data show that there were 1,304 episodes of MRSA bacteraemia in April – June and 1,072 in July – September. This continues the quarter-on-quarter decrease seen since April 2006.

Clostridium difficile

During the quarter July – September 2007, there were 10,734 episodes of *C. difficile* infection in patients aged 65 years and over. This represents a decrease of 21% on the previous quarter and a decrease of 16% from the same period in 2006.

Data on *C. difficile* infections in patients aged 2-64 years were published for the second time this week (until April 2007, the mandatory surveillance scheme only included patients aged 65 years and over). In July – September 2007, there were 2,496 episodes of infection in this younger age group.

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). For the first time, data representing specimens taken in acute and other settings are presented separately. This does not necessarily reflect where the infection was acquired, but does give an indication of the burden of community-diagnosed infection.

The data should be interpreted with care as the mandatory *C. difficile* surveillance system has recently undergone significant changes which may influence ascertainment. Trusts have been given an opportunity to revise their data in accordance with a changed case definition; the data published today are therefore subject to change. Further information about these changes to the reporting requirements is available at: http://www.dh.gov.uk/en/Publicationsandstatistics/Lettersandcirculars/Professionalletters/Chiefmedicalofficerletters/DH_082107

Emergence of resistance to oseltamivir among influenza A(H1N1) viruses in Europe

Surveillance of antiviral drug susceptibility of current influenza viruses circulating in Europe has shown that a proportion, approximately 14%, of the A(H1N1) viruses tested are resistant to oseltamivir but retain sensitivity to zanamivir and amantadine/rimantadine. This is not evenly distributed across Europe and is restricted to nine European countries. Influenza A(H1N1) is currently the predominant influenza virus in Europe.

So far 437 influenza A(H1N1) viruses isolated between November 2007 and January 2008 from 18 European countries have been tested and 59 (14%) isolates have been found to have a mutation, H247Y on the neuraminidase, which confers high resistance to oseltamivir. Eight of 162 (5%) United Kingdom isolates have been found to have oseltamivir resistance compared to 26 of 37 Norwegian isolates (70%), two of six (33%) Portuguese isolates, two of seven (28%) Finnish isolates and 15 of 87 (17%) French isolates. These findings are in marked contrast to the previous winter seasons of 2004/2005, 2005/2006, and 2006/2007, when oseltamivir resistance was detected in <1% of circulating strains from 24 countries.

More extensive surveillance within Europe and in other parts of the world is required to establish the relative prevalence and geographical distribution of these resistant viruses, and to evaluate their potential impact on the effectiveness of drug use. The spectrum of clinical illness associated with infection by oseltamivir-resistant viruses remains to be fully determined, although limited information from initial clinical cases does not suggest unusual disease syndromes. Determining the origins and genesis of these drug-resistant strains, which appear to have emerged in regions of the world where there is little drug pressure, will be important in understanding the emergence and persistence of oseltamivir resistance in relation to the evolution of influenza viruses and drug use.

Adapted from:
Lackenby A, Hungnes O, Dudman SG, Meijer A, Paget WJ, Hay AJ, Zambon MC. Emergence of resistance to oseltamivir among influenza A(H1N1) viruses in Europe . *Euro Surveill* 2008;13(5). Available at: http://www.eurosurveillance.org/edition/v13n05/080131_2.asp

For further information:
Observed oseltamivir resistance in seasonal influenza viruses in Europe interpretation and potential implications. *Euro Surveill* 2008;13(5). Available at: http://www.eurosurveillance.org/edition/v13n05/080131_1.asp

Respiratory

Next update: **7 March 2008** Last updated: **1 February 2008**

Laboratory reports of respiratory infections made to CfI from HPA and NHS laboratories in England and Wales: weeks 01-04/2008

Data are recorded by week of report, but include only specimens taken in the last eight weeks (i.e. recent specimens)

Table 1 Reports of influenza infection made to CfI, by week of report: weeks 01-04/2008

Week	Week 01	Week 02	Week 03	Week 04	Total
Week ending	**06/01/08**	**13/01/08**	**20/01/08**	**27/01/08**	
Influenza A	**45**	**39**	**49**	**59**	**192**
Isolation	5	11	6	5	**27**
DIF	11	3	14	9	**37**
Four–fold rise in paired sera	–	–	–	–	**–**
PCR	28	20	22	32	**102**
Other	1	5	7	13	**26**
Influenza B	**3**	**4**	**13**	**16**	**36**
Isolation	–	–	–	2	**2**
DIF	–	2	–	1	**3**
Four–fold rise in paired sera	–	–	–	–	**–**
PCR	3	2	9	9	**23**
Other	–	–	4	4	**8**
Influenza (untyped)	**–**	**–**	**–**	**–**	**–**
Isolation	–	–	–	–	**–**
DIF	–	–	–	–	**–**
Four–fold rise in paired sera	–	–	–	–	**–**
PCR	–	–	–	–	**–**
Other	–	–	–	–	**–**

DIF = Direct Immunofluorescence.
'Other' = 'Antibody detection - Single high titre' or 'method not specified'.

Table 2 Respiratory viral detections by any method (culture, direct immunofluorescence, PCR, four-fold rise in paired sera, single high serology titre, genomic, electron microscopy, other method, other method unknown) by week of report: weeks 01-04/2008.

Week	01	Week 02	Week 03	Week 04	Total
Week ending	06/01/08	13/01/08	20/01/08	27/01/08	
Adenovirus*	12	18	34	21	**85**
Coronavirus	–	9	2	1	**12**
Parainfluenza **	13	18	14	4	**49**
Rhinovirus	24	45	41	11	**121**
Respiratory syncytial virus (RSV)	440	550	285	316	**1591**

* Respiratory samples only. Excludes diagnoses made by electron microscopy (EM)
** Includes parainfluenza types 1, 2, 3, 4 and untyped.

Table 3 Respiratory viral detections by age group: weeks 01-04/2008

Age group (years)	<1 year	1-4 years	5-14 years	15-44 years	45-64 years	≥65 years	Unknown	Total
Adenovirus*	20	18	6	25	11	5	–	**85**
Coronavirus	8	1	1	1	1	–	–	**12**
Influenza A	38	31	19	60	31	12	1	**192**
Influenza B	–	3	7	10	9	6	1	**36**
Parainfluenza†	24	11	4	2	6	2	–	**49**
Rhinovirus	46	22	10	21	17	5	–	**121**
Respiratory syncytial virus (RSV)	1301	152	36	39	33	25	8	**1591**

* Respiratory samples only.
† Includes parainfluenza types 1, 2, 3, 4, and untyped.

Table 4 Laboratory reports of infections associated with atypical pneumonia, by week of report: weeks 01-04/2008

Week	Week 01	Week 02	Week 03	Week 04	Total
Week ending	06/01/08	13/01/08	20/01/08	27/01/08	
Coxiella burnettii	–	–	–	2	**2**
Respiratory *Chlamydia* sp.*	4	2	1	4	**11**
Mycoplasma pneumoniae	16	7	18	8	**49**
Legionella sp.	6	2	3	7	**18**

* Includes *Chlamydia psittaci*, *Chlamydia pneumoniae*, and *Chlamydia* sp detected from blood, serum, and respiratory specimens.

Table 5a Reports of Legionnaires' disease cases in England and Wales, by week of report: weeks 01-04/2008

Week	Week 01	Week 02	Week 03	Week 04	Total
Week ending	06/01/08	13/01/08	20/01/08	27/01/08	
Nosocomial	1(1*)	–	–	1	**2**
Community	1(5*)	–	2	5(1*)	**12**
Travel Abroad	–	2(1*)	1	1(1*)	**4**
Travel UK	–	–	–	–	**–**
Total	**6**	**2**	**3**	**7**	**18**
Male	5	2	2	5	**14**
Female	1	–	1	2	**4**

* 2007 case(s)

Eighteen cases were reported with pneumonia were reported: 14 males aged from 23 to 73 years and four females aged from 64 to 84 years. Twelve cases had community-acquired infection and two had possible nosocomial association.Two deaths were reported in a 56 year old male and a 74 year old female. Four cases were travel associated: Portugal (1), Spain (1), Sri Lanka (1), and Thailand (1).

Table 5b Reports of Legionnaires' disease cases by region of report in England and Wales: weeks 01-04/2008

Region/Country	Nosocomial	Community	Travel Abroad	Travel UK	Total
North East	–	–	–	–	–
Yorkshire & Humber	–	2	–	1	**2**
East Midlands	–	1(1*)	–	1	**1**
East of England	–	1(1*)	–	–	**1**
London	–	2(1*)	–	1	**3**
South East	–	1	–	–	**3**
South West	–	2(2*)	–	–	**2**
West Midlands	–	3(1*)	–	–	**3**
North West	1(1*)	–	2(2*)	–	**3**
Wales	–	–	–	–	–
Total	**2**	**12**	**4**	–	**18**

* 2007 case(s)

Legionnaires' disease in residents of England and Wales: 2006

Introduction

The National Surveillance Scheme for Legionnaires' Disease in Residents of England and Wales has been run by the Health Protection Agency's Centre for Infections (HPA-CfI, formerly the PHLS Communicable Disease Surveillance Centre) since in 1979.

From 1980 to 2001, between 111 and 280 cases were reported in each year; this increased to between 314 and 389 over the period 2002 to 2005 [1]*. Overall, between 2000 and 2005, cases originating in the community accounted for 46.4% of all cases; cases associated with travel abroad during the 2-10 day incubation period accounted for 43.0% of all cases; cases associated with travel within the UK during the incubation period for 7.6%; and hospital-acquired ('nosocomial') infections for 3.0% [2].

Information about non-pneumonic forms of legionellosis (such as Pontiac Fever) is also collected by the scheme but is not included in this review.

Five hundred and fifty two cases were reported to the scheme for 2006, an unusually high number. This paper, prepared by the Legionella Section, Respiratory Disease Department, HPA Centre for Infections, reviews the epidemiology and microbiology of the cases and discusses the possible reasons for the apparent incidence peak in that year.

Methods

Legionnaires' disease is not notifiable in England and Wales, so cases are reported to the scheme voluntarily. The usual reporting route is from microbiologists to Consultants in Communicable Disease Control (CCDCs), to regional surveillance units and HPA CfI. Clinical, epidemiological, and microbiological information is obtained for each case using follow-up questionnaires administered by Local and Regional Services (LaRS). These data are entered onto a national database, which is then searched for other cases that may be linked in time or place or for premises with which cases have been associated in the past.

The case definitions used by the scheme are available on the HPA website [3] (Table 1). Distinct criteria exist for reporting travel cases to the European Surveillance Scheme for Travel Associated Legionnaires' Disease (EWGLINET).

Table 1 Case definitions for Legionnaires' disease in residents of England and Wales 2006

Category	Case definition
Confirmed case	Clinical or radiological evidence of pneumonia and a microbiological diagnosis by culture of the organism from respiratory specimens, a four-fold rise in serum antibody levels* against *L. pneumophila* sg1, or detection of *L.pneumophila* antigen in urine.
Presumptive case	Clinical or radiological evidence of pneumonia and a microbiological diagnosis of a single high antibody level* against *L. pneumophila* sg1 or a seroconversion demonstrated against Legionella species and serogroups other than *L. pneumophila* sg1.
Hospital acquired (nosocomial) case	1. *Definitely nosocomial:* Patients who spent all of the 10 days in hospital before onset of symptoms. 2. *Probably nosocomial:* Patients who spent between one and nine of the 10 days in hospital prior to onset of symptoms and either a) became ill in a hospital associated with one or more cases of Legionnaires' disease, or b) yielded an isolate that was indistinguishable by monoclonal antibody (mAb) subgrouping, or by molecular typing methods from isolates obtained from the hospital water system at about the same time. 3. *Possibly nosocomial:* Patients who spent between one and nine of the 10 days in hospital prior to onset of symptoms, in a hospital not known to be associated with any other cases of Legionnaires' disease and where no microbiological link has been established between the infection and the hospital.

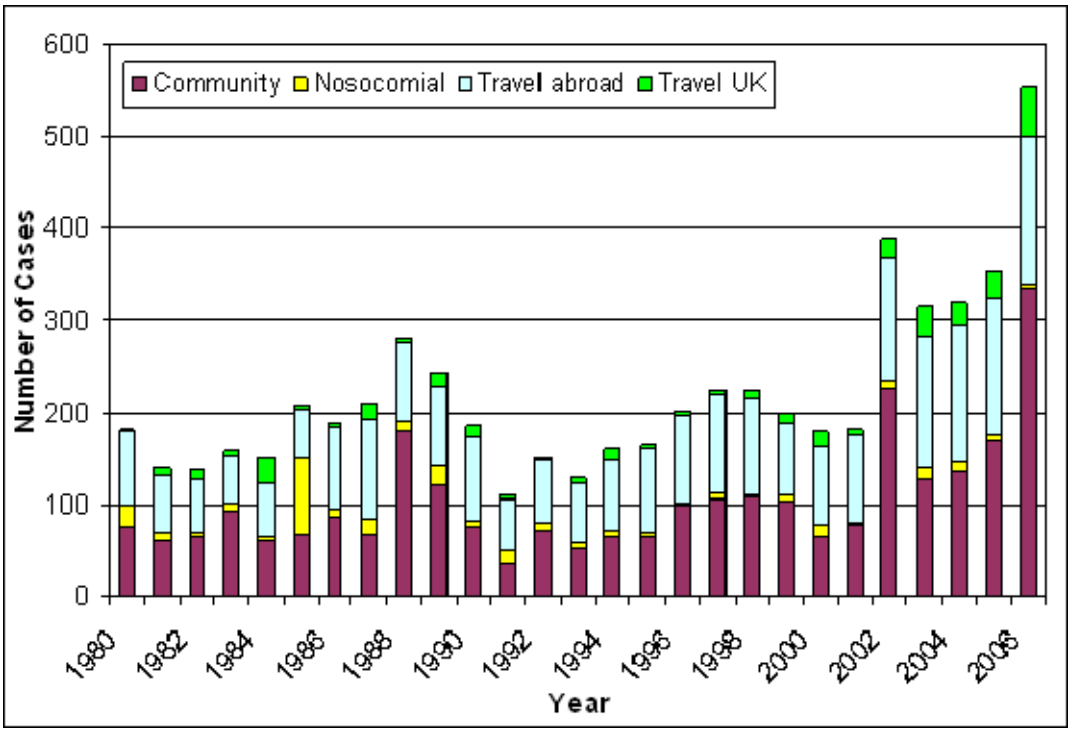
Travel associated case	One or more overnight stays in holiday accommodation in the UK or abroad in the 2-10 days before onset of illness.
Travel associated cluster	Two or more cases that stayed at the same accommodation and with onset of illness within the same two years.
Community cluster	Two or more cases linked by area of residence or work, or places visited and sufficient proximity in dates of onset of illness to warrant further investigation**.
Community outbreak	Community clusters for which there is strong epidemiological evidence of a common source of infection, with or without microbiological evidence, and in response to which control measures have been applied to suspected sources of infection.
* When submitted to the Respiratory and Systemic Infection Laboratory, all positive serum specimens are examined by the IFAT test in the presence of campylobacter blocking fluid, to eliminate cross reactions.	
** This is a working definition: the decision to follow up cases is made locally.	

Results

Epidemiology:

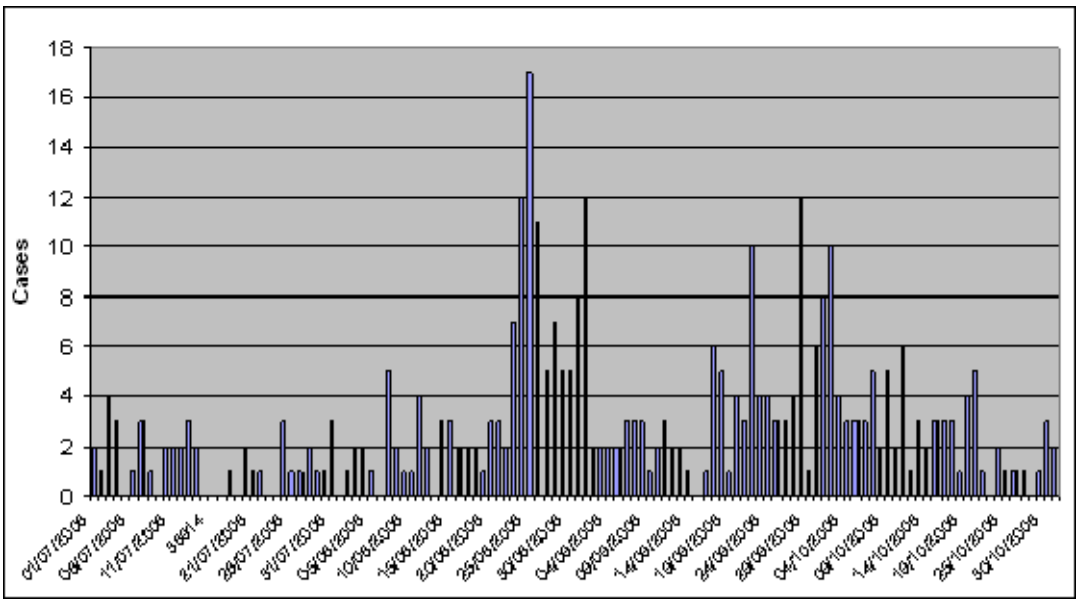
Five hundred and fifty two cases of Legionnaires' disease with onset in 2006 were reported to the scheme (Figure 1). Twenty four were lost to follow-up (where insufficient clinical or microbiological evidence of infection was obtained): 20 men and four women, age range 31 to 84 years, from London (3), North West (6), Wales (10), West Midlands (3), Jersey (1) and one with unknown domestic region.

Fig 1 Category of cases of Legionnaires' disease in residents of England and Wales by year of onset of symptoms (1980-2006)



In this review, 434 cases (79%) were male aged 17 to 91 years and 118 cases (21%) were female aged 26 to 90 years. The median age of all cases was 58 years. 47 cases died, giving a case fatality rate of 8.5%. The highest number of cases had onset in August (119), following a sharp increase from July's case numbers (43) (Figure 2).

Fig 2 All cases of Legionnaires' disease in residents of England and Wales with onset between 1st July 2006 and 31st October 2006 (NB Includes travel abroad)



The cases were allocated to regions by domestic postcode: East Midlands (78), East of England (54), London (62), North East (18), North West (50), South East (81), South West (42), Wales (33), West Midlands (72), Yorkshire and Humber (61) (Figure 3). There was one further case in a resident of the Isle of Man. Rates per 100,000 residents were calculated for community-acquired cases by region, using denominators taken from the ONS 2001 census [4]: East Midlands (1.49), East of England (0.65), London (0.54), North East (0.32), North West (0.39), South East (0.59), South West (0.45), Wales (0.69), West Midlands (0.82), Yorkshire and Humber (0.66) (Figure 4).

Fig 3 Cases of Legionnaires' disease by region of residence

Fig 4 Rates of community-acquired Legionnaires' disease per 100,000 by region of residence. (Denominators taken from 2001 census.)

Microbiology:

Clinical isolates were obtained from 73 cases (13%), 70 of which were *Legionella pneumophila* serogroup (sg) 1, one was *L. pneumophila* sg 6, and two were *L. pneumophila* sg 10. Four hundred and sixty three cases were diagnosed primarily by urinary antigen tests, with the remainder diagnosed by serology (Table 2). Overall, 414 cases (75%) were confirmed by the Respiratory and Systemic Infections Laboratory (RSIL) reference service at HPA CfI (using either RSIL's in-house urinary antigen EIA test or a commercial kit).

Tab 2 Legionnaires' disease in residents of England and Wales 2006: by main method of diagnosis

		Other methods of diagnosis (in addition to the main method)			
Main method of diagnosis	**Number of cases**	**Urinary antigen detection**	**Serology (seroconversion)**	**Serology (single high titre)**	**Other***
Isolation	73	69	6	2	11
Urinary antigen detection	463	–	9	10	14
Serology: Seroconversion to L. pneumophila	6	–	–	–	1
Serology: Single high titre to L. pneumophila	10	–	–	–	–
Total (each case counted only once)	552	–	–	–	–

* Includes PCR and IF.

Category of case:

Community

Three hundred and thirty six cases of Legionnaires' disease (60.9% of all cases: 267 men and 69 women, age range 19 to 91 years) were associated with infection from industrial or community settings in 2006, of which 27 were fatal. There was a sudden increase in community-acquired case numbers between July (14) and August (79) to a 2006 peak. Community case numbers remained higher than for the equivalent months of 2005 for the remainder of the year. The vast majority of these community cases were sporadic, but six small clusters were identified.

Three cases had links to an industrial site in Andover, Hampshire but no source was identified. Two cases were associated with a meat-packing factory in Preston: an isolate was obtained from one patient which was phenotypically and genotypically indistinguishable from environmental isolates obtained from a pressure hose in the factory. Two cases were linked to a hospital in south east London where they both worked. *L. pneumophila* serogroup 1 was isolated from the water system, but there were no clinical samples available for comparison.

Five cases were identified with links to Stroud city centre; no source was identified. Eight cases of *L. pneumophila* serogroup 1 infection were clustered in Norwich [5], of which three had a common strain confirmed by sequence-based typing performed by RSIL. Despite water samples being taken from several cooling towers, all were negative for *L. pneumophila* serogroup 1. Two cases of Legionnaires' disease were associated with a leisure centre in Sunderland along with four cases of Pontiac Fever. *L. pneumophila* was isolated from the spa pool, but no clinical isolates were available for comparison.

Nosocomial

Two definite and two possible cases of hospital-acquired Legionnaires' disease were reported in 2006 (0.7%). A 64 year old man died after developing the disease approximately a month after admission to hospital. High numbers of *L. pneumophila* were found in a wash basin in his ward's shower-room. A 71 year old woman became ill 19 days after admission to hospital for lymphoma, and recovered. Her clinical isolate matched an environmental isolate from a water sample taken from her hospital ward. A 65 year old female in hospital for 16 days fell ill five days after discharge from an elderly care ward, and recovered. The hospital went on to be associated with two further cases in 2007 and, although *Legionella* was isolated from the ward sink, no clinical isolates were available for comparison. A 44 year old male survived after developing Legionnaires' disease nine days after admission for angina.

Travel-associated

A total of 212 travel-associated cases were reported. One hundred and sixty cases (29%:126 men and 34 women) reported travelling abroad in the 10 days before onset of illness, with the largest number of cases in September. Ages ranged from 17 to 84 years. Fourteen cases were fatal. Fifty-two cases (9.4%: 39 men and 13 women) reported travel within the UK in the 10 days before onset of illness, the highest numbers occurring in August. Their ages ranged from 36 to 83 years. Five were fatal. The countries visited by three or more travel-associated cases are shown in Table 3.

Table 3 Countries visited by Legionnaires' disease in residents of England and Wales 2006, where countries have been associated with at least three cases

Country	Number of English and Welsh cases	Rate per million travellers*
Cruise	3	N/A
France	13	1.3
Germany	4	1.5
Greece	14	7.0
India	5	6.6
Italy	20	6.6
Malta	5	10.1
Mexico	3	14.2
Spain	40	3.4
Thailand	5	12.1
Turkey	3	3.6
United Kingdom	52	N/A
United States of America	5	1.3
> One European Country	9	N/A
> One Non-European Country	4	N/A
Other	27	N/A
TOTAL	212	3.6

* Source: International Passenger Survey Statistics. Rates have been calculated using total UK travel cases rather than the English and Welsh cases listed here.
N/A = Not available

Of the 212 travel-related cases, 17 were associated with nine outbreaks/clusters (involving at least two English or Welsh residents where the first case onset in 2006), all occurring abroad.

Two *L. pneumophila* sg 1 cases were linked to a hotel in Italy with dates of onset two months apart, but only *L. pneumophila* sg '2-15' was recovered from water samples at the site. A hotel in France was linked with two cases in September but water samples showed no evidence of colonisation. Two further cases two months apart were linked with a site in Germany but the serogroup was not identified; *L. pneumophila* sg 2-15 was recovered from the water system and control measures were implemented.

Two cases (one with onset in 2007) were linked to a hotel in Spain . The water samples from the hotel were negative. A second Spanish hotel was linked to two cases two months apart. Water samples were positive. Control measures were taken at both sites. A further two cases (one with onset in 2007) were linked to a third hotel in Spain . Control measures were already in place at the site at the time of investigation and water samples showed no evidence of *Legionella* sp.

Two cases (one non-pneumonic) were linked to a cruise ship that was associated with a further three cases of Legionnaires' disease in non-English or Welsh individuals. A US investigation revealed that the jacuzzi (which used sea water), filters and spa pools on the vessel were positive for *Legionella* sp. They were superchlorinated, subjected to monochloramine treatment and taken out of use until no legionellae could be detected.

Investigation details and results are not available for the two remaining travel-associated clusters because they occurred in countries outside the EWGLINET scheme. Two cases each visited a series of hotels in India, of which two were found to be in common. One of these hotels had been linked with a non-English case in 2004, and in 2007 a further non-English case was associated with the second hotel. The final two travel-associated cluster cases were linked to a hotel in Mexico, one month apart.

Discussion

The 552 Legionnaires' disease cases with onset during 2006 reported to the National Surveillance Scheme for Legionella Infections in Residents of England and Wales was the highest annual number reported to date [6-8] . There was an unusually rapid increase in case numbers between July and August (43 to 119), reflected in the epidemic curve [Figure 2]. This shows a double peak at the ends of August and October, the second of which is potentially attributable to increased case ascertainment following the publicity that surrounded the first peak.

The most notable difference in the epidemiology of 2006 compared with previous years was the shift in category of case. In 2006, 60.9% of cases were community-acquired, compared with 47.7% in 2005. In addition, 9.4% of cases were associated with travel within UK, compared with 8.5% in 2005. This suggests that many of the excess cases in 2006 were acquired within England and Wales . These excess cases were largely distributed across the East and West Midlands, although every region saw a rise in case numbers except for the North East, whose numbers remained consistent with 2005. Despite extensive investigations, few environmental sources were identified, and none that could have explained the excess in case numbers.

Data on environmental testing is not of a good quality nationally but anecdotal reports from outbreak control teams suggest that the environmental testing conducted in 2006 was wide-ranging, with unusually few sources of legionellae identified. Domestic sampling was also reported to have been used more extensively than in previous years in an attempt to identify any reasons for the increase in cases, but again with few positives arising.

The investigation work associated with the abnormally high incidence of Legionnaires' disease in 2006 had a large impact on the surveillance scheme's resources at both a local and a national level. The very high numbers of cases were all followed up, detailed questionnaires completed for each and, in addition, extensive environmental investigations conducted and incident meetings held. The possible reasons underlying the incidence peak are considered below - not only for public health purposes but also to inform long-term resource allocation decisions.

The rise in cases cannot be explained by a change in testing patterns facilitating the detection of a greater number of milder cases since the case fatality rate remained essentially the same during 2006 (8.5% compared with 8.2% during 2005). Additional explanations are plausible, for example outdoor water features, showers, and air conditioning units are all used more frequently during the summer months, and as such may give rise to an increase in case numbers, however there is no reason why these would have had an unusually large effect in 2006 in comparison with any other year.

The possibility that the meteorological conditions in 2006 may have been at least partially responsible for the high number of cases is currently being investigated. There was a period of high temperature early in the year followed by some intense rain; this combination may have enhanced conditions for growth and dissemination of *Legionella* sp. in the environment. The analysis will be published in a separate paper.

The high case numbers in 2006 served to emphasise the low number of nosocomial cases present in the dataset (four in 2006 compared with seven in 2005). There is a good history in England and Wales of low nosocomial levels of legionella infection; case numbers have not risen above 15 per year since 1989. The maintenance of these low numbers despite the general upwards trend is suggestive of good control of *Legionella* sp. in most hospital water systems in England and Wales .

The percentage of cases who travelled abroad during their incubation periods in 2006 fell compared with 2005 (from 149 out of 355 cases in 2005 (42%), to 160 out of 552 cases in 2006 (29%)). A large number of countries appeared in cases' travel histories but four were recorded with notable frequency (France, Greece, Italy and Spain) (Table 3). However, some countries are more popular tourist destinations than others and as such it is important to apply denominators when interpreting these figures. When rates are calculated based on the number of visits abroad by UK residents collected by the ONS International Passenger Survey [9] (and including Scottish and Northern Irish cases in the numerators), Malta, Mexico and Thailand all show higher rates than the four countries mentioned above, of over 10 cases per million tourists.

If the high number of Legionnaires' disease cases in England and Wales in 2006 is part of an upward trend in case numbers, or due to some ongoing effect such as climate change, there are important consequences for surveillance of this disease. At present every case is followed up individually in order to obtain a detailed exposure history. With higher numbers of cases, this degree of follow-up will become more resource intensive, and close collaboration will be required between the HPA and its partners to ensure efficient management of the increasing workload with no loss of data quality. If we assume that the increase is not a one-off event, and unless further resources become available, changes in the surveillance system will inevitably be required in order to manage the larger volume of cases.

Acknowledgements
The authors thank all microbiologists, CCDCs, local health protection staff, and others for providing epidemiological and microbiological data on individual cases and for their continued support of the surveillance scheme.

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** This sentence was amended on 14 April 2008 to underline the fact that the lowest number of cases occurred in 2003, not 2002 as the original text had stated.*
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Diary

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11th annual meeting on practical aspects of infection control

Sheffield Teaching Hospitals and Sheffield Hallam University, in association with the Hospital Infection Society, are to run the eleventh "Don't Panic!" meeting on 23rd and 24th June 2008 looking at current issues and practical aspects of Infection Control. It would be of interest to microbiologists and infection control nurses, public health staff and biomedical scientists. The meeting is recognised for CPD.

The programme includes lectures on: The impact of climate change on the epidemiology of viral infection; Larval therapy - a new treatment for MRSA?; Epidemiology of XDR-TB; Management of the TB infected healthcare worker; Control of *E.coli* O157 - Lessons from Wales; Implementation of the Health Act in the PCT; *Legionella* - what to test and when, and what to do with the results; What to do about high counts in your endoscopy rinse water; Audit - the secrets of maximum return for minimum effort; Applying psychological methods for effective training in infection control; *Clostridium difficile* - epidemiology and surveillance; The role of probiotics in the prevention of GI infection.

Two optional workshops (40 delegates only) will be held on each day on Using ORION to assess the quality of Infection Control publications and Using the Hand-hygiene Observation Tool (HHOT) for audit and feedback.

There will be posters and a free paper session on each day.The closing date for receipt of abstracts is 31st March 2007. A £500 bursary will be awarded to the lead author/presenter of the best free paper or poster.

The meeting will be held at the Sheffield Hallam University , City Campus, Sheffield . The registration fee is £60 per day which includes refreshments. Accommodation is available in local hotels at discounted rates.

Further information may be obtained from Jan Waddingham, Tel: 0114 271 3129, Fax: 0114 278 9376 or e-Mail: jan.waddingham@sth.nhs.uk . Information about the meeting, programme, workshops, abstract submission and registration forms are available on the website at www.shu.ac.uk/hwb/cpd/dontpanic