

COMMUNICABLE DISEASES

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This Monthly Report provides summary data for healthcare associated infections in Northern Ireland for October – December 2008. Decreases are observed in infection rates for both MRSA and MSSA bacteraemias. The surveillance of *Clostridium difficile* associated disease shows a continued fall in the number of episodes of infection in inpatient cases, with a slight increase in community isolates.

Summary annual data for 2008 shows cases of invasive meningococcal disease fell by 13% compared with 2007 with serogroup B accounting for the majority of confirmed disease. Age-specific trends are as expected with the highest incidence in the under one year category. The continued success of the MenC immunisation programme is reflected in the fact that only one case of serogroup C disease was reported during 2008.

Legionnaire's Disease surveillance shows a decline in reports, with five cases reported in 2008 compared with 11 in 2007. In keeping with previous trends, the majority of cases (3) were associated with travel outside the UK.

Finally we provide summary data from the soon to be published Enhanced Surveillance of Tuberculosis report featuring data for 2006.

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Regional Epidemiologist



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Healthcare Associated Infections in Northern Ireland: October - December quarterly report 2008

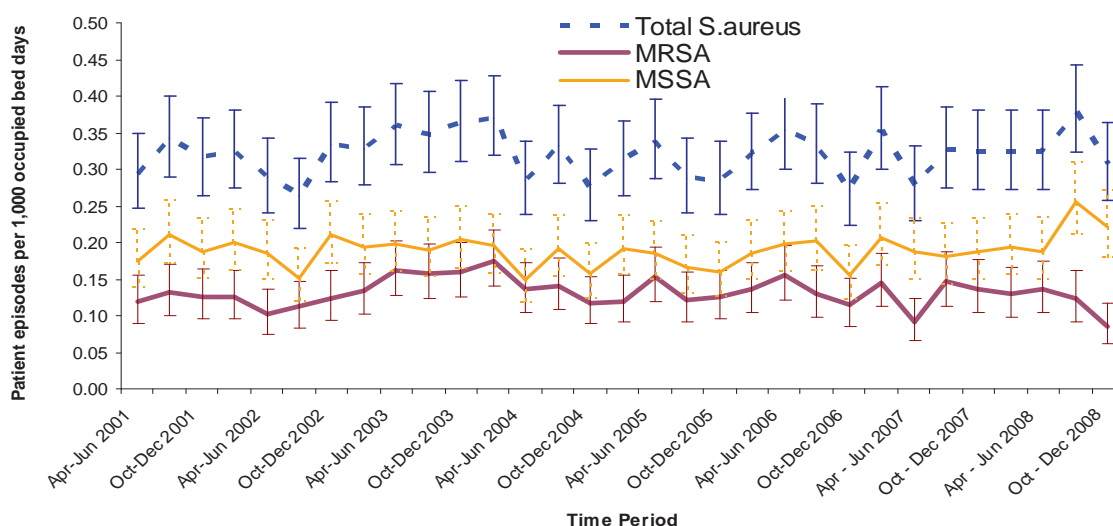
The October – December 2008 quarterly *Staphylococcus aureus* and *Clostridium difficile* reports, based on the mandatory reporting schemes, are available online at: <http://www.cdscni.org.uk>.

Key findings

Staphylococcus aureus bacteraemias

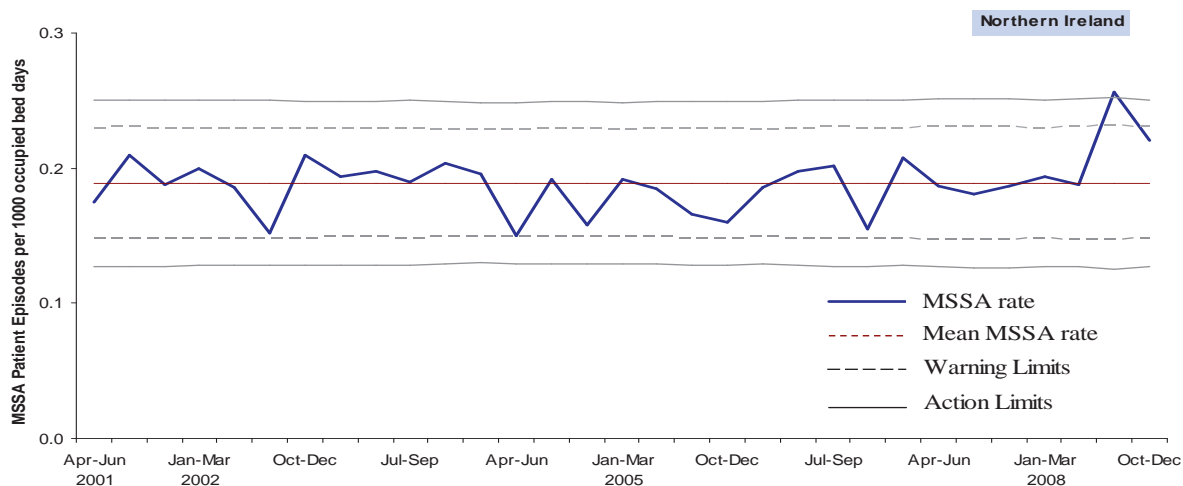
- The rate of *S. aureus* bacteraemia (MRSA plus MSSA) has **decreased** by 18%, from 0.38 per 1000 occupied bed days in the last quarter to 0.31 per 1,000 occupied bed days this quarter (Figure 1).
- The MRSA rate **decreased by** 30% from 0.123 last quarter to 0.086 this quarter (Figure 1).
- The MSSA rate **decreased by** 9% from 0.256 last quarter to 0.221 this quarter (Figure 1).
There was no statistically significant change in rates between July-September and October – December quarters (Figure 1).

Figure 1: MSSA, MRSA and *S. aureus* patient episode rates in Northern Ireland by quarter, with 95% Confidence Intervals, April 2001-December 2008



- This quarter, Northern Ireland rates of SA (MRSA plus MSSA) are fluctuating within normal parameters. MSSA rates, having crossed the action limit last quarter, have come back below the warning limits (Figure 2). The reasons for this are not known.

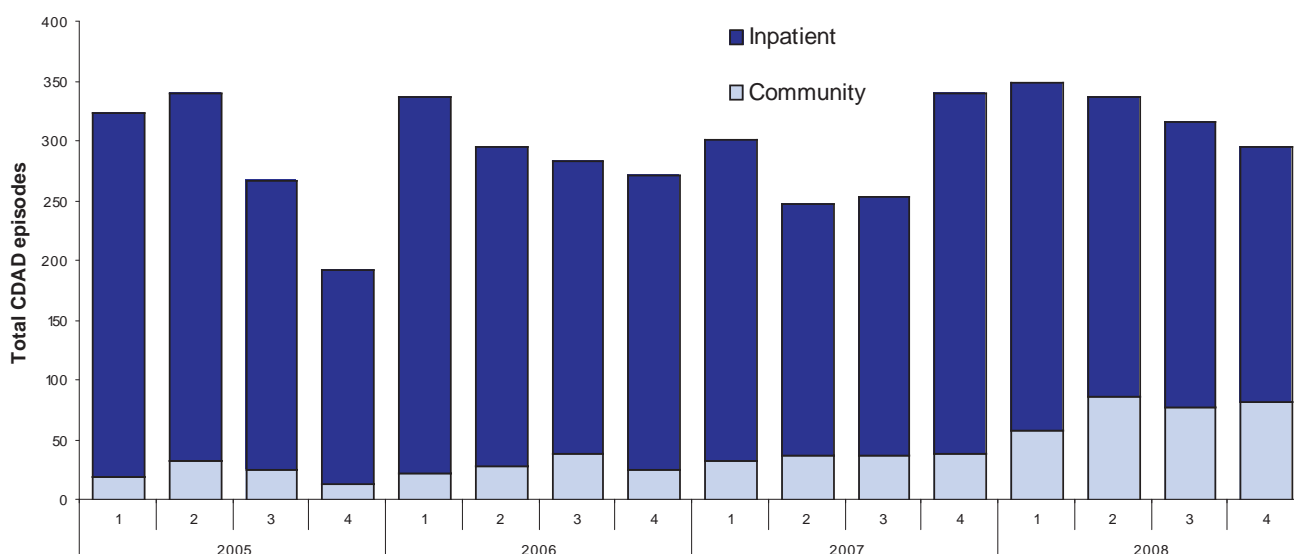
Figure 2: Statistical Process Control chart for quarterly MSSA rates in Northern Ireland



***Clostridium difficile* associated disease**

- For inpatients >65 years of age there has been a **decrease** of 25 cases (10.5%) in the number of cases reported in this quarter (213) compared with the previous quarter (238). This has been the trend throughout 2008, where there has been a reduction in inpatient episodes each consecutive quarter (Figure 3).
- Community isolates have **increased** by 4 episodes (5.1%) this quarter (78 reports in July – September compared with 82 reports this quarter (Figure 3).

Figure 3: Total CDAD reports, inpatient and community, in Northern Ireland, by quarter patients ≥65 years), between 2005 and 2008



For this quarter, the rate of *C. difficile* patient episodes **remains** within the control limits of the chart (Figure 4).
Figure 4: Statistical Process Control chart for quarterly *C. difficile* rates in inpatients, in Northern Ireland



Enhanced surveillance of Tuberculosis

Enhanced Surveillance of Tuberculosis

1. Summary 2006

- There were 61 tuberculosis cases notified in 2006, giving a Northern Ireland rate of 3.5/100,000 population. This contrasts with 75 notifications in 2005 (4.4/100,000).
- Rates of TB in Northern Ireland remain approximately three times lower than for England and Wales. The number of notifications in NI for 2006 is lower than the previous two years.
- The Southern Health and Social Services Board (SHSSB) had the highest rate of TB in 2006.
- There were no notified cases of tuberculosis in children under 15 years in 2006.
- The proportion of cases diagnosed with TB during 2006 born outside the UK/Ireland was 38% - an increase from 2005 (26% born abroad).
- Six healthcare workers were notified with tuberculosis.
- There were three culture confirmed cases of *M. bovis*, all of whom had no obvious risk factors.

A total of 66 cases were reported through the surveillance scheme in Northern Ireland during 2006. Of these 66 cases; four were laboratory confirmed as an infection with a mycobacterium other than tuberculosis, and one other case was diagnosed as having an illness other than tuberculosis. These five patients were de-notified but remained recorded in the dataset and were excluded from the main analysis, giving a total of 61 cases of tuberculosis notified in 2006 for Northern Ireland. This represents a rate of 3.5/100,000 population, which is slightly lower than 2005 (4.4/ 100,000).

Of the 61 notified cases in 2006, 43 (70%) had pulmonary disease and 18 (30%) had non-pulmonary disease. Forty-eight (79%) of the 61 notified cases were culture confirmed. Forty-five of the isolates were identified as *M. tuberculosis* and three as *M. bovis*. In addition 13 cases were notified on the basis of clinical or non-culture diagnosis and response to anti-tuberculosis therapy. Of these thirteen cases, seven were confirmed by histological examination of lymph node, lung tissue or peritoneal fluid.

Of the 43 pulmonary tuberculosis cases, sixteen (37%) were found to be sputum smear positive at the time of notification and all were, subsequently, confirmed by culture as being *M. tuberculosis*. This is similar to 2005 when 39% of pulmonary tuberculosis cases notified were found to be sputum smear positive. The proportion of males with pulmonary TB in 2006 was higher than previous years at 72% compared with 66% and 69% in 2005 and 2004, respectively. Twenty-five (58%) of the 43 pulmonary tuberculosis cases notified during 2006 successfully completed a full course of anti-tuberculosis treatment. One patient with pulmonary tuberculosis died and tuberculosis was cited as a contributing factor in the death of two further patients.

Twelve of the 18 non-pulmonary tuberculosis cases were confirmed by culture (11 *M. tuberculosis* and 1 *M. bovis*). The annual notification rate for non-pulmonary tuberculosis in 2006 was 1.0 case per 100,000 population, with the SHSSB having the highest incidence rate at 1.5 per 100,000 population.

Follow-up information (Treatment outcome forms and/or death certificates) were provided for 58 (95%) of the 61 notified cases.

Antimicrobial susceptibility information was received on 44 of the 45 *M. tuberculosis* isolates, 34 of which were pulmonary. Two *M. tuberculosis* pulmonary isolates were found to be resistant to both isoniazid & rifampicin (MDR) and one other isolate was found resistant to isoniazid only. Antimicrobial susceptibility data was available on one *M. bovis* (pulmonary) isolate, and as expected, was found to be pyrazinamide resistant.

The detailed report for 2006 will appear shortly on the CDSC website

2. Provisional data 2007

During 2007 CDSC (NI) received 77 notifications of tuberculosis. Eleven cases have been identified as having infections with mycobacteria other than the tuberculosis complex, leaving a total of 66 notified cases of tuberculosis. This corresponds to a notification rate of 3.75 cases per 100,000 population.

Of the 66 notified cases, 42 (64%) have pulmonary disease and 24 (36%) are non-pulmonary. Fifty-four of the 66 notified cases were culture confirmed as *M. tuberculosis* infection and one as *M. bovis* infection.

Thirty-nine of the 42 pulmonary cases have been culture confirmed of which 37 were *M. tuberculosis* infection (20 were also sputum smear positive). To date, 15 of the 24 non-pulmonary cases have been confirmed by culture (14 *M. tuberculosis* and 1 *M. bovis*).

Antimicrobial sensitivity testing results are available for 55 of the *M. tuberculosis* isolates. Three isolates were found resistant to both isoniazid and rifampicin (multi-drug resistant) and one found resistant to isoniazid alone. The *M. bovis* isolate was resistant to pyrazinamide.

Enhanced surveillance of Meningococcal Disease, Northern Ireland

Quarter 4, Oct-Dec 2008 (provisional data)

Cases

26 cases were reported during Q4. 19 (73%) were laboratory confirmed, 18 of which were serogroup B and 1 serogroup W135 (Table 1).

Deaths

There was 1 death during Q4. This was confirmed as serogroup B disease.

Table 1: Invasive Meningococcal disease, by serogroup, by HSSB area of residence, Northern Ireland Oct – Dec 2008

	B	C	Others & ungrouped	Not confirmed	Total
EHSSB	5	*	*	1	6
NHSSB	3	*	*	1	4
SHSSB	6	*	*	2	8
WHSSB	4	*	1	3	8
Total	18	0	1	7	26

CALENDAR YEAR SUMMARY 2008 (provisional data)

During 2008:

- 78 notifications of invasive meningococcal disease were received.
- 65% (51/78) were laboratory confirmed
- 90% (46/51) of confirmed cases were due to serogroup B
- 1 case confirmed as serogroup C disease
- 2 deaths occurred

Cases

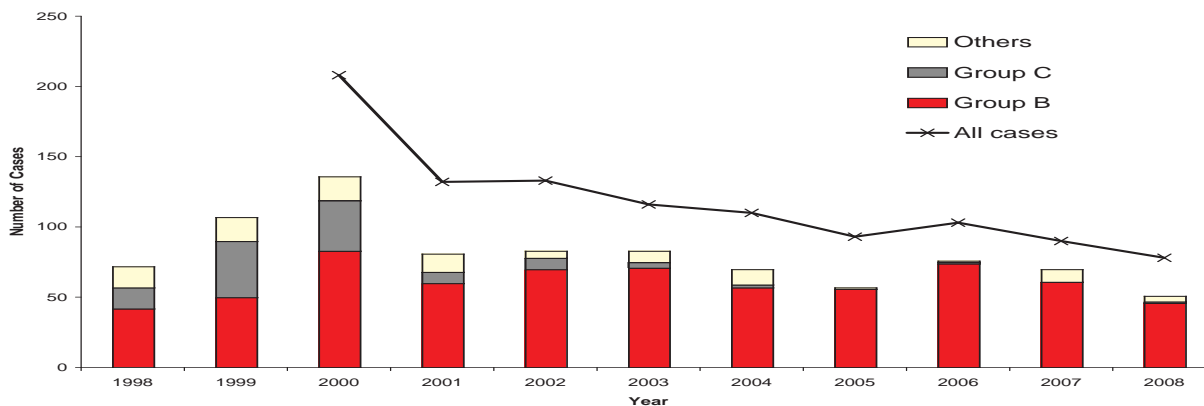
78 cases of Invasive Meningococcal Disease (IMD) were notified during 2008 a rate of 4.4 cases per 100,000 population. This represents a 13% decrease compared with 2007 (90). The crude incidence rate was similar in all boards with the exception of the NHSSB, which was slightly lower. However, there was no statistically significant variation between Boards or from the overall Northern Ireland incidence, as estimated by 95% confidence intervals (Table 2).

Table 2: Invasive Meningococcal disease, by serogroup, by HSSB area of residence, Northern Ireland Jan-Dec 2008

	B	C	Others & ungrouped	Not confirmed	Total	Crude incidence rate/ 100,000 population (95% CI)
EHSSB	16	0	2	12	30	4.5 (3.1-6.3)
NHSSB	8	0	0	5	13	2.9 (1.6-4.8)
SHSSB	15	0	0	5	20	5.8 (3.7-8.8)
WHSSB	7	1	2	5	15	5.1 (3.0-8.2)
Total	46	1	4	27	78	4.4 (3.5-5.5)

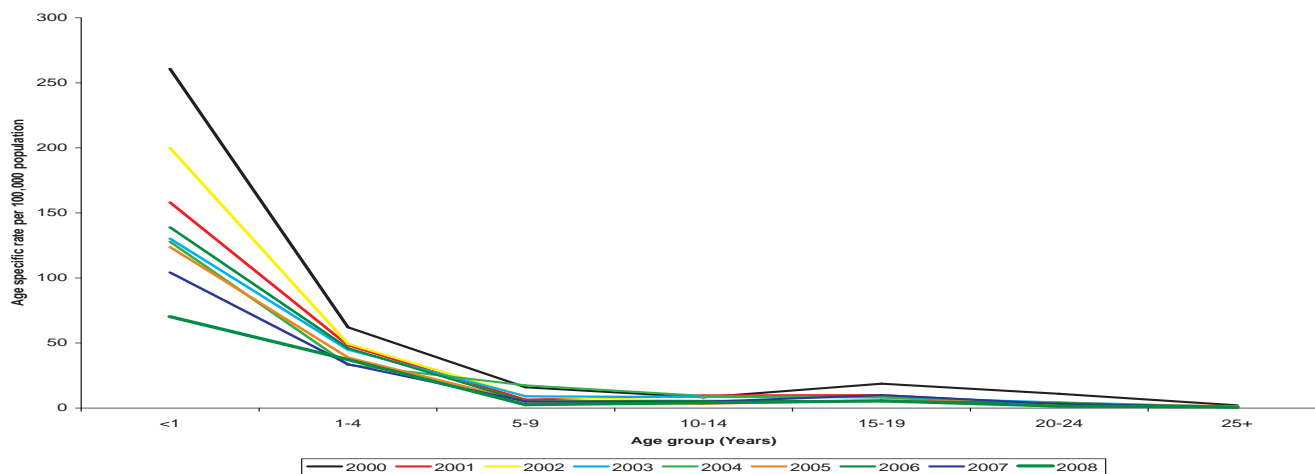
As in previous years *Neisseria meningitidis* serogroup B was the predominant pathogen, accounting for 59% of the IMD notifications. There was one case of serogroup C disease in one person over 50 years of age. While the proportion of serogroup C laboratory confirmed cases have been decreasing since the introduction of Men C vaccine in late 1999, the proportion of serogroup B has been steadily increasing from 58% (42/72 confirmed cases) in 1998 to 90% (46/51 confirmed cases) in 2008 (Figure 5).

Figure 5: Invasive Meningococcal disease, by calendar year, Northern Ireland 1998-2008



Also consistent with previous years, age-specific incidence during 2008 was highest in <1 age group (70/100,000) followed by the 1-4 age group (37/100,000) (Figure 6).

Figure 6: Invasive Meningococcal disease, age-specific incidence/100,000 population, Northern Ireland 2000-2008



Deaths

A total of 2 deaths were reported during 2008. Both cases were confirmed serogroup B disease. The Case fatality Rate (CFR) for 2008 was 2.6% (2/78).

Legionella Infection in Northern Ireland

- 5 cases of Legionnaires' disease were reported in 2008*.

Legionnaires' disease is a notifiable disease in Northern Ireland. The disease, caused by *Legionella pneumophila*, is a multi-system illness which can have severe widespread clinical symptoms, though the principal manifestation of the disease is pneumonia.

The organism is commonly found in various natural and man-made aquatic environments, often in low numbers. Water-cooling towers, air conditioning systems and spa pools have been implicated as major sources of infection. Colonisation is enhanced by temperatures of 25-42°C, stagnation and the presence of scale and sediment. Airborne or aerosol transmission of the organism from contaminated water in water systems in large institutions has accounted for numerous outbreaks throughout the world, associated with hotels, leisure complexes and hospitals. A significant proportion of cases are travel related. Sporadic cases may also occur worldwide. The elderly, immunosuppressed and chronically ill people are most at risk of infection.

Monitoring of Legionella infections in Northern Ireland is carried out in conjunction with the European Working Group for Legionella infections (EWGLI). Although the disease is not currently a serious risk to public health in Northern Ireland in terms of number of notified cases, participation in this surveillance scheme ensures standardised methods of detection, diagnosis, recording and reporting of disease, and permits direct comparisons with data from other participating regions. Outbreaks or clusters of cases of Legionnaires' disease in returning travellers can be quickly identified through this European network, allowing rapid alerts to be communicated to all collaborating countries, WHO, ECDC and other relevant centres.

Case definitions for Legionnaires' Disease

- I) Confirmed case – A clinical diagnosis of pneumonia with laboratory evidence of one or more of the following: culture of *Legionella spp* from clinical specimens; seroconversion (a four fold rise or greater) by the indirect immunofluorescent antibody test (IFAT) using *L. pneumophila* serogroup 1 antigen; positive urine ELISA using validated reagents.
- II) Presumptive case – A clinical diagnosis of pneumonia with laboratory evidence of one or more of the following: A single high titre using IFAT above; positive direct fluorescence (DFA) on a clinical specimen using validated monoclonal antibodies; seroconversion (a four fold rise or greater) by the indirect immunofluorescent antibody test (IFAT) to *L. pneumophila* other serogroups or other legionella species.

During 2008, five cases of Legionnaires' disease were reported in Northern Ireland, all of which were confirmed and met the above case definition. This was a significant decrease from the number of cases reported last year (11 cases) but was similar to those reported in previous years; 5 cases in 2005, 6 cases in 2005 and 5 cases in 2004.

Ages ranged between 43 and 65 years, mean 53 years. All cases were male. Three cases were reported to be associated with travel, having travelled outside the UK for all or some of the 2-10 days prior to the onset of symptoms. These individuals had visited France, Majorca, Greece and Italy. One death was recorded in 2008. In all cases the diagnosis was confirmed by urinary antigen tests. None of the cases had had a recent organ transplant. One of the cases had spent time near a whirlpool/spa in the 2 weeks prior to the onset of symptoms. All of the cases in 2008 were admitted to hospital.

Between 1980 and 2008 sixty-eight cases have been notified in Northern Ireland. Forty-four (65%) cases are known to have been travel associated, having travelled outside the UK, with Spain (n=9) the country most frequently reported. Information relating to age of patient was available in sixty-six cases: ages ranged from 23 years to 83 years, with mean age of 55 years and median age of 55 years. The sex of cases was known in sixty-seven cases: 50 male, 17 female (2.9:1). Since 1995, travel to Spain, Italy and Turkey accounted for 47% of all infections likely acquired abroad.

There was an increase in the number of cases reported after 2001 which was mainly due to better ascertainment, especially with regards to travel-related cases. Since the initial rise following 2001 between four and eleven cases have been reported each year.

For further information on Legionnaires' Disease, please see:
http://www.hpa.org.uk/infections/topics_az/legionella/menu.htm

* Specimen dates tested during 2008.

Figure 7: Legionnaires' disease: Annual Reports and Deaths, Northern Ireland, 1995-2008

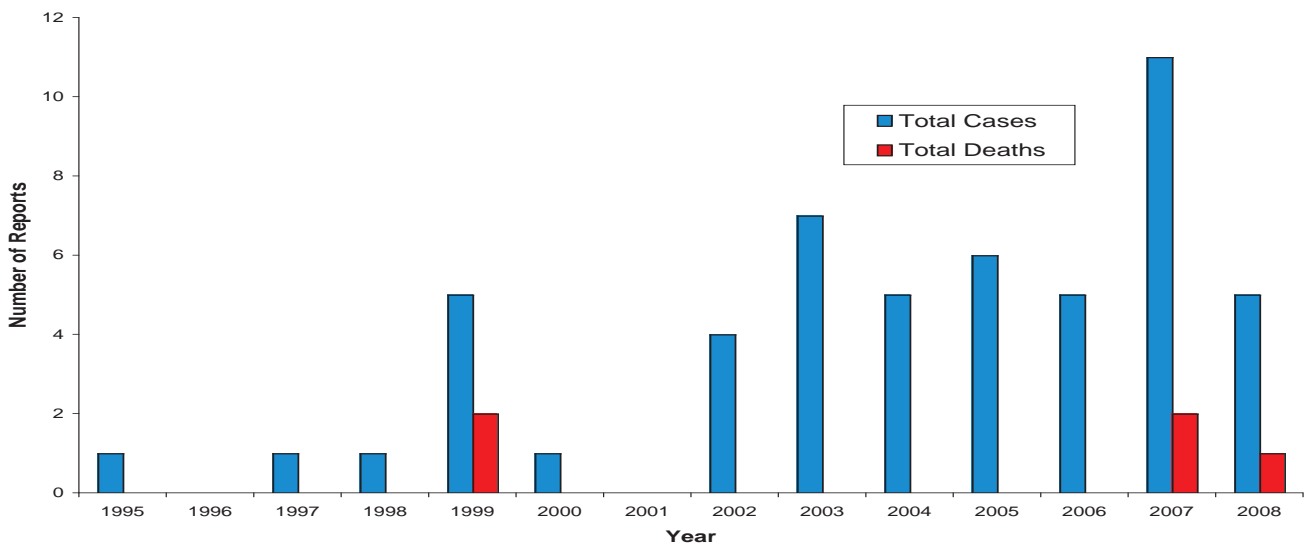


Figure 8: Legionnaires' disease: Travel Associations, Northern Ireland, 1995-2008

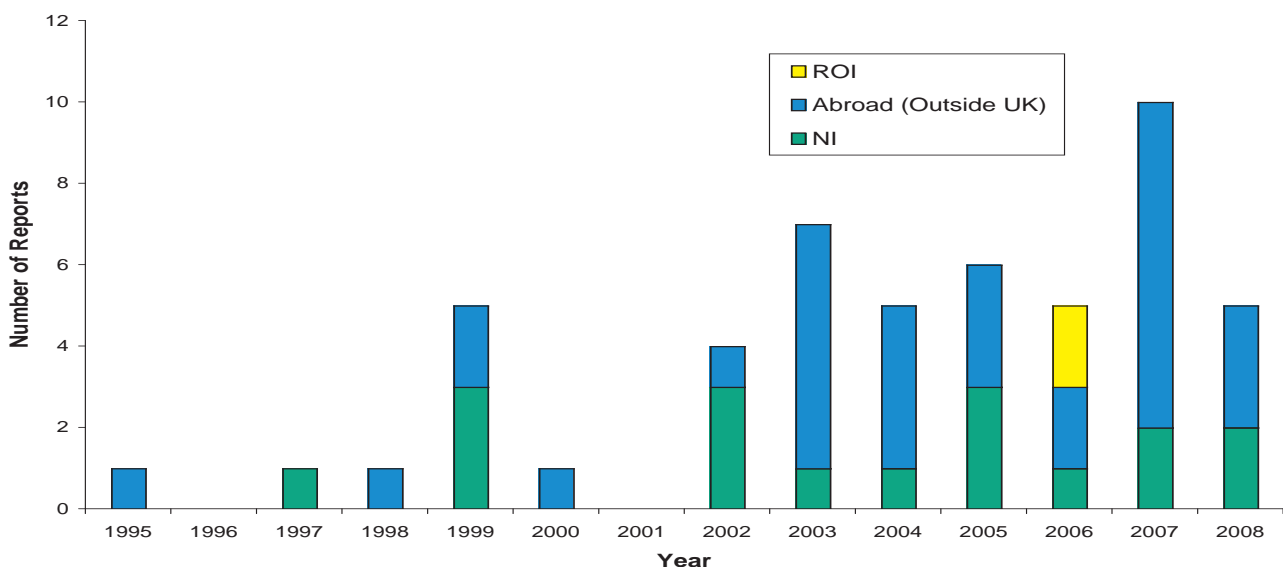


Figure 9: Legionnaires' disease: Infections acquired abroad, Northern Ireland, 1995-2008

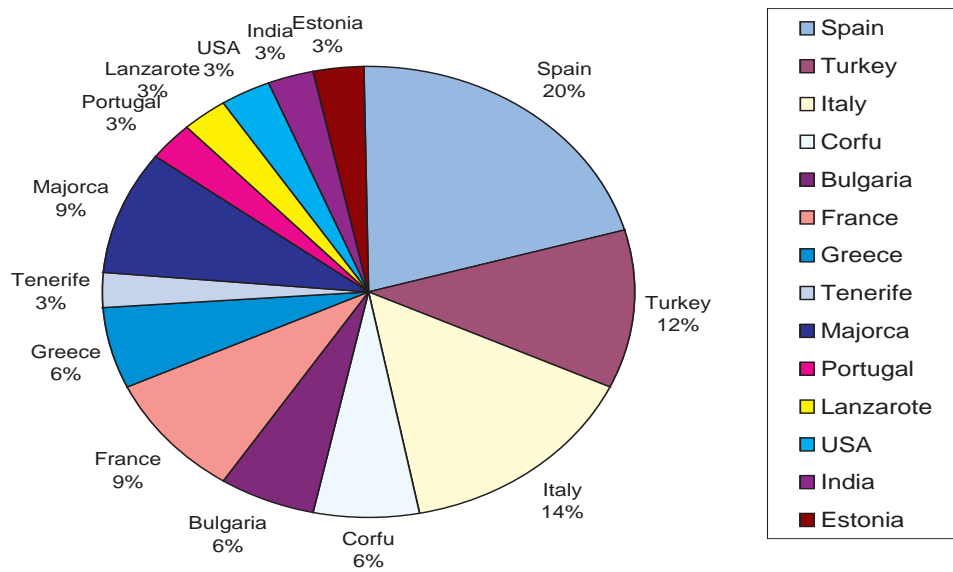
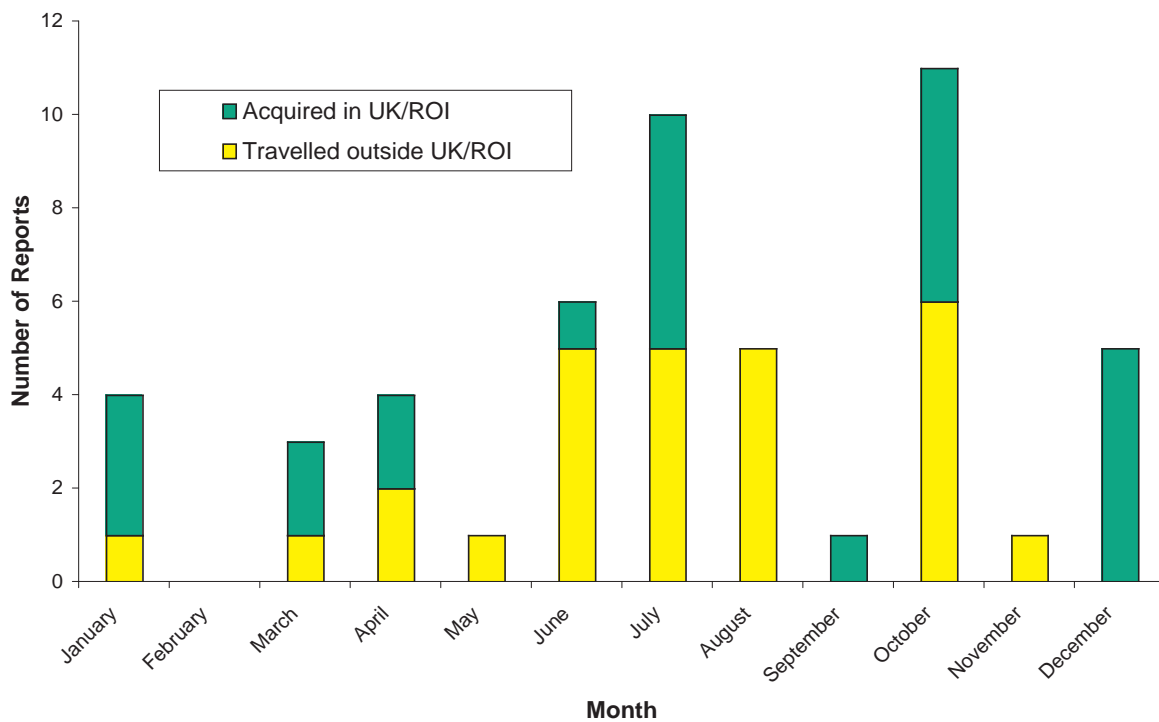


Figure 10: Legionnaires' disease: Travel associations by month of onset, Northern Ireland, 1995-2008



Foodborne and gastrointestinal tract infections: Laboratory reports, weeks 05-08

	Number of Reports received		Cumulative total	
	09/05-08	08/05-08	09/01-08	08/01-08
<i>Campylobacter</i>	35	54	74	81
<i>C. difficile</i> Toxin	115	132	234	268
<i>C. perfringens</i>	3	3	4	6
<i>E. coli</i> O 157	0	6	0	6
<i>Salmonella</i> total	6	8	9	14
<i>S. enteritidis</i> (PT 4)	1 (0)	4 (0)	2 (1)	6 (0)
<i>S. typhimurium</i> (DT 104)	1 (0)	0 (0)	1 (0)	3 (2)
<i>Salmonella</i> other	4	4	6	5
<i>Shigella</i>	1	0	1	2
<i>Cryptosporidium</i>	3	4	5	6
<i>Giardia</i>	0	0	0	1
Adenovirus (faeces)	8	15	20	38
Enterovirus (faeces)	1	3	1	5
Rotavirus	87	17	129	35
Norovirus	97	65	138	143

Salmonella (other than *enteritidis* or *typhimurium*):

<i>S. java</i>	1
<i>S. spp</i>	3

Comment:

There were no reports of travel associated infection during this reporting period.

Cumulative reports of foodborne and gastrointestinal tract infections are showing a decrease compared to the same period last year with the exception of Rotavirus – there were 129 cases reported to week 8 in 2009 compared with 35 for the same period last year.

Respiratory tract infections: Laboratory reports, weeks 01-08

	Number of Reports received		Cumulative Total	
	09/01-04	09/05-08	09/01-08	08/01-08
<i>Coxiella burnetii</i>	0	0	0	1
<i>Mycoplasma pneumoniae</i>	0	0	0	2
Respiratory <i>Chlamydia</i>	0	0	0	1
<i>Adenovirus</i> (excluding faeces)	6	6	12	4
RSV	91	24	115	126

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Craigavon	Ulster
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