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New Zealand Public Health Surveillance Report

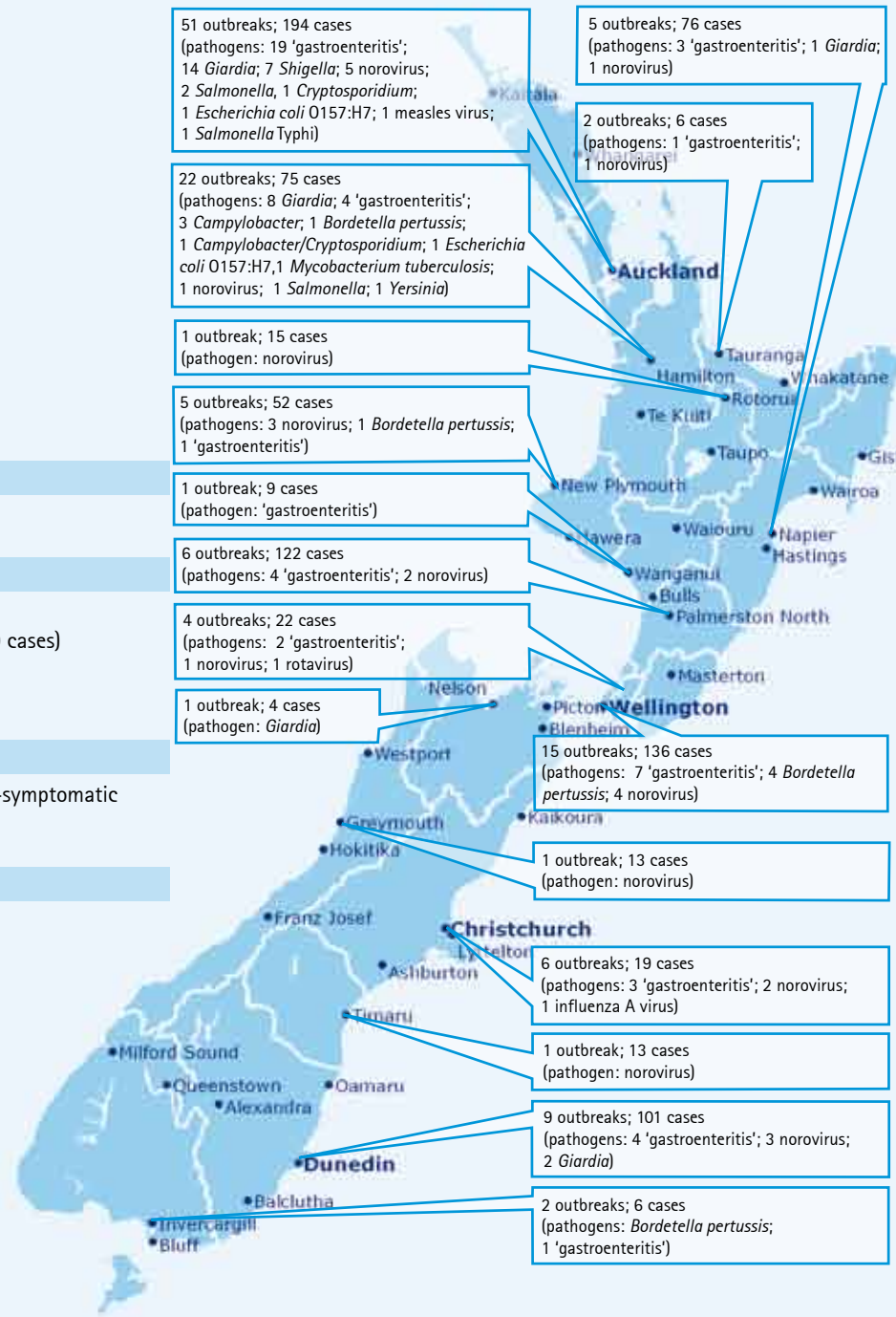
June 2011: Covering January to March 2011

Contents & Highlights

The latest reports from Sexually Transmitted Infections Surveillance, Antimicrobial Resistance, Virology and Enteric Reference Laboratories are available at www.surv.esr.cri.nz

This Quarter's Outbreaks

Notification and outbreak data in this issue are drawn from the January to March quarter of 2011. The outbreak map on this page consists of all outbreak information, final and interim. The total number of outbreaks and cases by region and outbreaks by pathogen are reported, as notified up to 6 April 2011.



1. Editorial

Summary of notifiable disease surveillance trends for 2010

In 2010, 17,277 cases of notifiable diseases were reported through EpiSurv, the national notifiable disease database. This is a decrease from the 19,718 cases reported in 2009 and the second lowest count in the last 14 years (after 2008 with 13,933 cases).

Between 2009 and 2010 there were some significant changes in the number of cases reported for individual diseases. There was a statistically significant increase in reported cases of cryptosporidiosis (854 to 954, 12%), giardiasis (1639 to 1985, 21%), legionellosis (74 to 178, 141%), rickettsial disease (5 to 14, 180%), tetanus (1 to 7, 600%), and toxic shellfish poisoning (1 to 9, 800%).

Between 2009 and 2010 a statistically significant decrease occurred in reported cases of dengue fever (139 to 51, -63%), gastroenteritis (712 to 492, -31%), hepatitis C (32 to 17, -47%), invasive pneumococcal disease (697 to 535, -23%), lead absorption (273 to 201, -26%), measles (248 to 48, -81%), meningococcal disease (133 to 97, -27%), mumps (63 to 41, -35%), non-seasonal influenza (3670 to 1826, -50%) and pertussis (1398 to 873, -38%).

Enteric diseases

Enteric diseases continued to comprise the majority of disease notifications in 2010. Although campylobacteriosis notifications have more than halved in the last five years, at 7346 notifications, this disease still contributed 42.5% of all disease notifications in 2010. There was a statistically significant increase in the notification rate of cryptosporidiosis and giardiasis between 2009 and 2010. In contrast, gastroenteritis was the only enteric disease to show a statistically significant rate decrease compared with 2009. Enteric diseases continue to show seasonal variations in notifications. In particular, campylobacteriosis (summer peak), cryptosporidiosis (spring peak), salmonellosis (peak varies with serotype), and verotoxin- or Shiga toxin-producing *Escherichia coli* infection (VTEC/STEC infection) (autumn and spring peaks).

Exotic diseases

Rickettsial disease was the only exotic disease to show a statistically significant increase in notification rate between 2009 and 2010. The increase was driven by higher murine typhus case counts, almost all of whom acquired their infection locally. All cases of brucellosis, dengue fever, leprosy, Q fever, Ross River virus infection and taeniasis had overseas exposures that accounted for their infection. This was also true for malaria apart from one case of Asian ethnicity with an unknown travel history. There was no evidence of any recent locally-acquired hydatid disease.

Vaccine preventable diseases

In 2010, there were seven cases of tetanus notified, compared with an average of 0.8 cases per year for the previous five years. The 2010 cases included an unvaccinated child in the 1–4 years age group.

Notification rates for invasive pneumococcal disease, measles, meningococcal disease and pertussis were all significantly lower in 2010 compared with 2009. A significant increase in the pertussis notification rate between 2008 and 2009 (9.8 per 100,000 population compared with 32.4 per 100,000 population) was followed by a significant decrease in the pertussis rate in 2010 (20.0 per 100,000 population). Pertussis epidemics occur in New Zealand approximately every three to four years. The 2009 pertussis notification rate was well below that seen in previous epidemics (107.6, 85.3 and 65.8, for the 2000, 2004 and 2005 epidemic years, respectively).

The 2010 meningococcal disease rate (2.4 per 100,000 population) remains well down on the peak annual rate observed during the epidemic in 2001 (16.7 per 100,000 population), but is still higher than before the start of the epidemic in 1989–1990 (1.5 per 100,000 population).

Outbreaks

In 2010, 606 outbreaks were reported involving 6321 cases. This represented a decrease in the number of outbreaks and cases compared with 2009 (638 outbreaks with 10,734 cases). The most common pathogen implicated was norovirus with 152 of the outbreaks and 3223 of the cases, followed by *Giardia* with 97 outbreaks and 378 cases. The most common setting linked to an outbreak was private homes (229 outbreaks, 1034 cases), followed by restaurants/cafés (81 outbreaks, 414 cases).

For a more detailed report see www.surv.esr.cri.nz/surveillance/annual_surveillance.php

Reported by Health Intelligence Team, ESR.

2. Notifiable Disease Surveillance

The following is a summary of disease notifications for the January to March quarter of 2011 and cumulative notifications and rates calculated for a 12-month period (April 2010 to March 2011). For comparative purposes notification numbers and rates are presented in brackets for the same periods in the previous year. A robust method of constructing 95% confidence intervals is used to determine 'statistically significant differences' throughout this report unless otherwise stated [see Newcombe RG and Altman DG 2000. Proportions and their differences. In: Statistics with Confidence. BMJ Books, Bristol.]. Data contained within this report are based on information recorded in EpiSurv by public health service staff up to 6 April 2011. As this information may be updated over time, these data should be regarded as provisional.

National surveillance data tables are available at www.surv.esr.cri.nz

VACCINE PREVENTABLE DISEASE

Haemophilus influenzae type b

- *Notifications:* one notification in the quarter (2010, 5); 4 notifications over the last 12 months (2010, 14), a statistically significant decrease.
- *Comments:* this case was under the age of 5 years and was immunised.

Invasive Pneumococcal Disease

- *Notifications:* 76 notifications in the quarter (2010, 72); 539 notifications over the last 12 months (2010, 648), giving a rate of 12.3 cases per 100,000 population (2010, 15.0), a statistically significant decrease.
- *Comments:* cases were aged between 2 days and 98 years, with 9 cases under the age of 2 years.

Measles

- *Notifications:* 40 notifications in the quarter (2010, 29); 59 notifications over the last 12 months (2010, 250), giving a rate of 1.4 cases per 100,000 population (2010, 5.8), a statistically significant decrease.
- *Comments:* there has been a statistically significant quarterly increase from the previous quarter (3 cases). 28 cases were laboratory confirmed.

Mumps

- *Notifications:* 15 notifications in the quarter (2010, 14); 42 notifications over the last 12 months (2010, 72), giving a rate of 1.0 cases per 100,000 population (2010, 1.7), a statistically significant decrease.
- *Comments:* 4 cases were laboratory confirmed.

Pertussis

- *Notifications:* 192 notifications in the quarter (2010, 291); 773 notifications over the last 12 months (2010, 1354), giving a rate of 17.7 cases per 100,000 population (2010, 31.4), a statistically significant decrease.
- *Comments:* there has been a statistically significant quarterly decrease from the same quarter last year (291 cases).

Rubella

- *Notifications:* 5 notifications in the quarter (2010, no cases); 9 notifications over the last 12 months (2010, 4), not a statistically significant increase.
- *Comments:* there has been a statistically significant quarterly decrease from the same quarter last year (no cases). One case was laboratory confirmed.

INFECTIOUS RESPIRATORY DISEASES

Meningococcal Disease

- *Notifications:* 17 notifications in the quarter (2010, 21); 93 notifications over the last 12 months (2010, 132), giving a rate of 2.1 cases per 100,000 population (2010, 3.1), a statistically significant decrease.
- *Comments:* cases were distributed by age as follows: 3 (<1 year), 6 (1–4 years), 3 (5–14 years), and 5 (15 years and over); 6 cases were the epidemic strain.

ENTERIC INFECTIONS

Campylobacteriosis

- *Notifications:* 1480 notifications in the quarter (2010, 2119); 6707 notifications over the last 12 months (2010, 7404), giving a rate of 153.6 cases per 100,000 population (2010, 171.6), a statistically significant decrease.
- *Comments:* there has been a statistically significant quarterly decrease from the previous quarter (2077 cases) and from the same quarter last year (2119 cases).

Gastroenteritis

- *Notifications:* 187 notifications in the quarter (2010, 118); 562 notifications over the last 12 months (2010, 689), giving a rate of 12.9 cases per 100,000 population (2010, 16.0), a statistically significant decrease.
- *Comments:* there has been a statistically significant quarterly increase from the same quarter last year (118 cases).
- *Note:* this is not a notifiable disease per se except in persons with a suspected common source or with a high risk occupation. The term 'gastroenteritis' provides a catch-all category for enteric diseases that are not notifiable and for syndromic reports that come through public health units, including direct reports from the public where the causative pathogen may never be known.

Listeriosis

- *Notifications:* 9 notifications in the quarter (2010, 11); 21 notifications over the last 12 months (2010, 33), giving a rate of 0.5 cases per 100,000 population (2010, 0.8), not a statistically significant decrease.
- *Comments:* there has been a statistically significant quarterly increase from the previous quarter (2 cases); one perinatal case (live birth, 38 weeks gestation).

Salmonellosis

- *Notifications:* 368 notifications in the quarter (2010, 337); 1177 notifications over the last 12 months (2010, 1026), giving a rate of 26.9 cases per 100,000 population (2010, 23.8), a statistically significant increase.
- *Comments:* there has been a statistically significant quarterly increase from the previous quarter (296 cases).

VTEC Infections

- *Notifications:* 69 notifications in the quarter (2010, 42); 165 notifications over the last 12 months (2010, 117), giving a rate of 3.8 cases per 100,000 population (2010, 2.7), a statistically significant increase.
- *Comments:* there has been a statistically significant quarterly increase from the previous quarter (22 cases) and from the same quarter last year (42 cases).

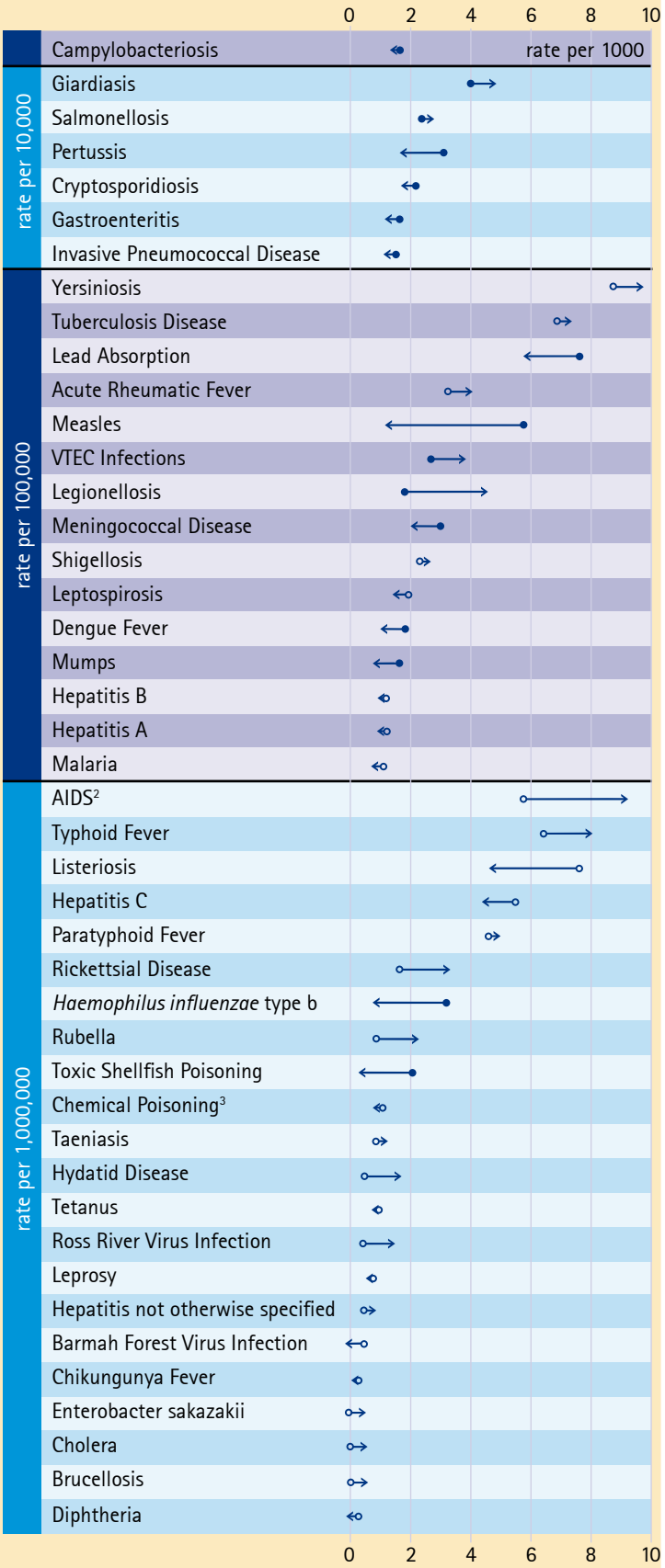
ENVIRONMENTAL EXPOSURES & INFECTIONS

Cryptosporidiosis

- *Notifications:* 85 notifications in the quarter (2010, 235); 804 notifications over the last 12 months (2010, 955), giving a rate of 18.4 cases per 100,000 population (2010, 22.1), a statistically significant decrease.
- *Comments:* there has been a statistically significant quarterly decrease from the previous quarter (265 cases) and from the same quarter last year (235 cases).

National Surveillance Data

12-Monthly Notification Rate Changes[1]



Notifications per 1000 or 10,000 or 100,000 or 1,000,000 population

Rate Change Symbol Key:

- > Rate increase from the previous 12-month period
- < Rate decrease from the previous 12-month period
- ● Statistically significant rate change
- ○ Statistically non-significant rate change

[1] Rates are calculated for the 12-month period April 2010 to March 2011 and compared to previous 12-month rates.

[2] Data provided by the AIDS Epidemiology Group, University of Otago. Note: changes in the 12-month notification rate should be interpreted with caution as this often reflects late notifications.

[3] From the environment.

Giardiasis

- *Notifications:* 616 notifications in the quarter (2010, 555); 2046 notifications over the last 12 months (2010, 1724), giving a rate of 46.8 cases per 100,000 population (2010, 39.9), a statistically significant increase.
- *Comments:* there has been a statistically significant quarterly increase from the previous quarter (419 cases).

Lead Absorption

- *Notifications:* 77 notifications in the quarter (2010, 51); 258 notifications over the last 12 months (2010, 332), giving a rate of 5.9 cases per 100,000 population (2010, 7.7), a statistically significant decrease.
- *Comments:* there has been a statistically significant quarterly increase from the same quarter last year (51 cases); cases were distributed by age as follows: 3 (1–4 years), 1 (5–14 years), 3 (15–24 years), 30 (25–44 years), 32 (45–64 years), and 8 (65 years and over); there were 73 male and 4 female cases; 42 cases were recorded as having an occupation that involved exposure to lead: foundry worker (5 cases), painter/decorator (4 cases), boatbuilder, plumber, radiator fitter (2 cases each), gasfitter, roofer, scrap metal worker, window restorer (1 case each), and not specified (23 cases).

Legionellosis

- *Notifications:* 55 notifications in the quarter (2010, 31); 197 notifications over the last 12 months (2010, 76), giving a rate of 4.5 cases per 100,000 population (2010, 1.8), a statistically significant increase.
- *Comments:* there has been a statistically significant quarterly increase from the same quarter last year (31 cases).

Leptospirosis

- *Notifications:* 18 notifications in the quarter (2010, 32); 67 notifications over the last 12 months (2010, 87), giving a rate of 1.5 cases per 100,000 population (2010, 2.0), not a statistically significant decrease.
- *Comments:* there has been a statistically significant quarterly decrease from the same quarter last year (32 cases); there were 14 male and 4 female cases; 10 cases were recorded as having an occupation identified as high risk for exposure: farmers/farmer workers (7 cases) and meat process workers (3 cases).

NEW, EXOTIC & IMPORTED INFECTIONS

Dengue Fever

- *Notifications:* 13 notifications in the quarter (2010, 11); 52 notifications over the last 12 months (2010, 81), giving a rate of 1.2 cases per 100,000 population (2010, 1.9), a statistically significant decrease.
- *Comments:* 12 cases were laboratory confirmed; all cases were overseas during the incubation period. Places visited or resided in were Indonesia (4 cases), India (3 cases), Malaysia, Philippines, Samoa, Solomon Islands, Timor-Leste, Tonga (1 case each).

Shigellosis

- *Notifications:* 33 notifications in the quarter (2010, 25); 113 notifications over the last 12 months (2010, 102), giving a rate of 2.6 cases per 100,000 population (2010, 2.4), not a statistically significant increase.
- *Comments:* there has been a statistically significant quarterly increase from the previous quarter (8 cases).

Toxic Shellfish Poisoning

- *Notifications:* one notification in the quarter (2010, 8); 2 notifications over the last 12 months (2010, 9), a statistically significant decrease.
- *Comments:* there has been a statistically significant quarterly decrease from the same quarter last year (8 cases).

Typhoid

- *Notifications:* 17 notifications in the quarter (2010, 13); 35 notifications over the last 12 months (2010, 28), giving a rate of 0.8 cases per 100,000 population (2010, 0.6), not a statistically significant increase.
- *Comments:* there has been a statistically significant quarterly increase from the previous quarter (5 cases).

3. Other Surveillance Reports

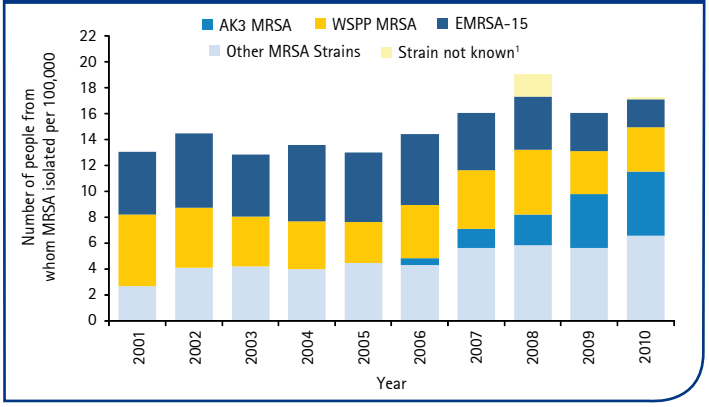
Annual survey of MRSA, 2010

Introduction

Each year ESR conducts a one-month survey of methicillin-resistant *Staphylococcus aureus* (MRSA) to provide information on the epidemiology of MRSA in New Zealand. Hospital and community microbiology laboratories were asked to refer all MRSA isolated during either August or October 2010 to ESR. MRSA isolates were referred from 746 people (732 patients and 14 staff). In addition, one hospital laboratory reported that they isolated, but did not refer, MRSA from eight patients during the survey month. These eight MRSA isolations were included in the analyses of the survey data, except for the analyses relying on MRSA strain identification.

In 2010, the national point-prevalence rate of MRSA was estimated as 17.3 people with MRSA per 100,000 population, which is an increase of 7.5% on the 2009 rate of 16.1 MRSA per 100,000 population. The prevalence of MRSA has increased significantly ($p \leq 0.05$) over the last 10 years (Figure 1).

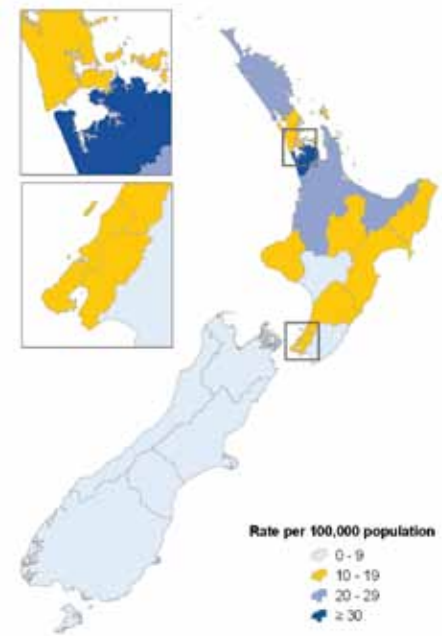
Figure 1. MRSA point-prevalence rates, 2001 to 2010



¹ The category 'Strain not known' in 2008 and 2010 represents people identified with MRSA during the survey period but from whom no isolate was referred for strain identification.

There continues to be marked geographic variation in the prevalence of MRSA in New Zealand, with the highest rates in 2010 in the North Island, particularly in the Counties Manukau District Health Board (DHB), followed by Northland, Waikato and Bay of Plenty DHBs (Figure 2). Differences in screening policies may contribute to the variation in MRSA prevalence between DHBs.

Figure 2. Point-prevalence rates of MRSA by DHB, 2010



MRSA strains were identified using *spa* typing and where necessary, pulsed-field gel electrophoresis. Six MRSA strains predominated in 2010 and represented 84.8% of all MRSA isolations. As in 2009, AK3 MRSA was the most frequently identified strain, accounting for 29.0% of isolates. WSPP MRSA, which accounted for 19.7% of isolates, was the second most commonly identified strain, followed by the EMRSA-15 strain, which accounted for 12.5% of isolates (Figure 1). The prevalence of other MRSA strains was: WR/AK1 MRSA, 11.3%; USA300 MRSA, 7.2%; and Queensland clone MRSA, 5.1%. For a description of these MRSA strains, including their typical antibiotic susceptibility patterns, see www.esr.cri.nz/competencies/Health/Pages/MRSA%20strains.aspx

MRSA was reported as causing infection in 76.3% of the 653 patients for whom this information was provided. Among the 740 patients with MRSA, 48.1% were categorised as hospital patients and 51.9% as community patients. Patients were classified as hospital patients if they were in a healthcare facility (including a residential-care facility) when MRSA was isolated, or if they had been in a healthcare facility in the previous three months.

The majority of isolates of the healthcare-associated EMRSA-15 strain (69.1%) were isolated from hospital patients or staff, and most isolates of the community-associated WSPP MRSA and Queensland clone MRSA strains (75.7% and 60.5%, respectively) were isolated from people in the community. In contrast, a relatively large proportion of the AK3, WR/AK1 and USA300 MRSA strains, which are all considered community-associated strains, were isolated from hospital patients or staff: 49.1%, 54.1% and 42.6%, respectively. This finding for the USA300 strain is consistent with reports from the United States which indicate that the epidemiology of this originally community-associated strain is changing.

A more detailed report is available at www.surv.esr.cri.nz/antimicrobial/mrsa_annual.php

Reported by Alice Richardson, Health Programme, ESR.

4. Outbreak Surveillance

The following information is a summary of the outbreak trends for New Zealand, from data collected in the last quarter (January to March 2011). Comparisons are made to the previous quarter (October to December 2010), and to the same quarter in the previous year (January to March 2010). Note that the outbreak data in this section are notified to ESR by the Public Health Services.

General

- 134 outbreaks notified in this quarter (900 cases).
- 77 are 'final' reports (701 cases); 57 are 'interim' reports (199 cases) that have yet to be finalised and closed.

All data that follow relate to final reports only.

- 9.1 cases on average per outbreak, compared with 8.6 cases per outbreak in the previous quarter (14.6 cases per outbreak in the same quarter of last year).
- 11 hospitalisations: *Shigella* (4 cases), *Bordetella pertussis*, 'gastroenteritis' (2 cases each), *Campylobacter*, *Escherichia coli* O157:H7, and norovirus (1 case each).
- One death: *B. pertussis*.

Pathogens

- 19 'gastroenteritis' outbreaks (92 cases).
- 19 *Giardia* outbreaks (59 cases).
- 19 norovirus outbreaks (406 cases).
- 6 *B. pertussis* outbreaks (34 cases).
- 6 *Shigella* outbreaks (41 cases).
- 2 *Campylobacter* (11 cases).
- 2 *Cryptosporidium* outbreaks (29 cases).
- 2 *E. coli* O157:H7 (7 cases).
- 1 rotavirus outbreak (20 cases).
- 1 *Salmonella* outbreak (2 cases).

Modes of Transmission

Note that reporting allows for multiple modes of transmission to be selected. In some instances no modes of transmission are selected for outbreaks notified to ESR.

- 56 person-to-person, from (non-sexual) contact with an infected person (including droplets): 16 *Giardia* (50 cases), 15 norovirus (379 cases), 7 'gastroenteritis' (59 cases), 6 *B. pertussis* (34 cases), 6 *Shigella* (41 cases), 2 *E. coli* O157:H7 (7 cases), 1 *Campylobacter* (2 cases), 1 *Cryptosporidium* (4 cases), 1 rotavirus (20 cases), and 1 *Salmonella* (2 cases).
- 16 foodborne, from consumption of contaminated food or drink (excluding water): 10 'gastroenteritis' (30 cases), 3 norovirus (17 cases), 2 *Shigella* (10 cases), and 1 *Giardia* (6 cases).
- 13 environmental, from contact with an environmental source (e.g., swimming):
- 4 norovirus (143 cases), 3 'gastroenteritis' (20 cases), 3 *Giardia* (9 cases), 2 *Cryptosporidium* (29 cases), and 1 *E. coli* O157:H7 (4 cases).
- 7 waterborne, from consumption of contaminated drinking water: 5 *Giardia* (16 cases), 1 norovirus (13 cases), and 1 *Salmonella* (2 cases).
- 4 zoonotic, from contact with infected animal: 2 *Giardia* (5 cases), 1 *Campylobacter* (2 cases), and 1 *Cryptosporidium* (4 cases).
- 1 'other' mode: norovirus (21 cases).
- 3 mode of transmission unknown: 2 *Giardia* (6 cases) and 1 'gastroenteritis' (3 cases).

Circumstances of Exposure

Common 'settings' where the exposures occurred are identified below.

- 30 home: 12 *Giardia* (39 cases), 5 *Shigella* (39 cases), 5 'gastroenteritis' (20 cases), 3 *B. pertussis* (14 cases), 2 *E. coli* O157:H7 (7 cases), 1 *Campylobacter* (2 cases), 1 norovirus (2 cases), and 1 *Salmonella* (2 cases).
- 17 long term care facility: 13 norovirus (362 cases) and 4 'gastroenteritis' (28 cases).
- 6 restaurant/café/bakery: 4 'gastroenteritis' (17 cases) and 2 norovirus (8 cases).
- 5 childcare centre: 2 norovirus (32 cases), 1 *B. pertussis* (7 cases), 1 'gastroenteritis' (25 cases) and 1 rotavirus (20 cases).
- 3 takeaways: 2 'gastroenteritis' (4 cases) and 1 norovirus (2 cases).
- 2 community/church/sports gathering: 1 *Campylobacter* (9 cases) and 1 *Cryptosporidium* (4 cases).
- 1 fast food restaurant: 'gastroenteritis' (2 cases).
- 1 hospital (acute care): norovirus (43 cases).
- 1 'other' food outlet: 'gastroenteritis' (2 cases).
- 2 'other setting': 1 *B. pertussis* (6 cases) and 1 *Giardia* (2 cases).
- 1 school: *Cryptosporidium* (25 cases).
- 4 outbreaks had two exposure settings recorded.
- 12 outbreaks had no exposure settings recorded.

Common 'settings' where the preparations occurred in foodborne outbreaks are identified below.

- 5 restaurant/café: 3 ' gastroenteritis' (14 cases) and 2 norovirus (4 cases)
- 4 home: 2 'gastroenteritis' (4 cases), 1 *Giardia* (6 cases), 1 norovirus (10 cases)
- 1 long term care facility: norovirus (13 cases).
- 1 'other' food outlet: 'gastroenteritis' (2 cases).
- 2 outbreaks had two preparation settings recorded.

5. Outbreak Case Reports

A norovirus outbreak – occult virus shedding in a pre-symptomatic food handler

Background

On 15 September 2010, the host of a birthday party informed Auckland Regional Public Health Service of a suspected gastrointestinal illness outbreak. The party was held at a restaurant on 11 September 2010.

Method

A retrospective cohort study was conducted using a customised questionnaire administered by telephone to party guests. Data were analysed using Epi Info™. The case definition was anyone who consumed food or beverages at the restaurant on 11 September 2010 and had diarrhoea, vomiting or nausea 48 hours after the event.

Twelve faecal specimens were submitted for microbiological analysis by party guests and individuals who had a connection to the party, but had not attended it. Four restaurant staff members also provided specimens. A slice of the birthday cake was sent to ESR for analysis.

A site visit was conducted at the restaurant on the day of notification.

Results

A total of 45 people attended the party. Of the 39 individuals who completed the questionnaire (response rate 86.7%), 15 (38.5%) met the case definition. The median incubation period was 48 hours (range 23–77 hours). The median duration of illness could not be calculated because five cases stated their illness was 'ongoing' at the time of the interview. The other 10 cases had symptoms that lasted longer than 24 hours. Abdominal pain, diarrhoea and nausea were prominent symptoms.

Epidemiological analysis suggested that individuals who consumed the privately catered birthday cake were three-times more likely to experience gastroenteritis compared with those who did not (Table 1).

Table 1. Attack rates and relative risks of food items consumed at the birthday party

Food item	Exposed to food(s)			Not exposed to food(s)			RR	95% CI	p-value
	Case	Not a case	Attack rate (%)	Case	Not a case	Attack rate (%)			
Cake	11	12	47.8	2	12	14.3	3.35	0.9-12.9	0.04
Antipasto	13	18	41.9	1	6	14.3	2.94	0.5-18.9	0.18
Tiramisu	10	16	38.5	3	8	25.0	1.41	0.5-4.2	0.40
Pannacotta	10	16	38.5	3	8	27.3	1.41	0.5-4.2	0.40
Seafood salad	11	17	39.3	3	7	30.0	1.31	0.5-3.8	0.45
Seafood ravioli	10	16	38.5	4	7	36.4	1.06	0.4-2.7	0.60
Tagliata	11	19	36.7	3	5	37.5	0.98	0.4-2.7	0.64
Ravioli	11	21	34.4	2	3	40.0	0.86	0.3-2.8	0.59
Snapper main	8	15	34.8	7	7	50.0	0.70	0.3-1.5	0.19
Pizza bread	6	18	25.0	7	5	58.3	0.43	0.2-1.0	0.06

RR = relative risk; CI = confidence interval

The restaurant owner advised that all foods were freshly prepared on the day, the guests sat across four tables and the food was served on shared platters. No gastrointestinal illness was reported by staff before the event, but two staff members reported symptoms of gastrointestinal illness after the party.

The cake was baked and decorated in the cake baker's home kitchen on 8 September 2010. Gloves were worn throughout the process, and no-one in the baker's family had been ill. On 11 September 2010 the cake baker completed the decoration by affixing candles with fondant to the board underlying the cake without wearing gloves, placed the cake and board into a box, and then arranged for it to be transported to the party venue in advance of the party. The cake baker did not enter the venue, attend the party, or consume any of the cake. The chef sliced the cake at 8.30 pm and it was served to each table on platters, from which guests helped themselves by hand. On the evening of 11 September 2010, the cake baker became symptomatic with severe abdominal pain, diarrhoea and vomiting.

Norovirus was detected in seven specimens from party guests. The cake baker and two restaurant staff members also tested positive for norovirus. The norovirus-positive isolates were identified as genotype GII.7. All isolated GII.7 norovirus genotypes were identical to each other. The birthday cake sample could not be tested for norovirus because the specimen size was insufficient and no approved methods are available for testing this food item.

Discussion

This outbreak describes clinical and microbiological features that are similar to previously reported norovirus outbreaks.[1, 2] Faecal excretion of the virus occurs from illness onset and up to four weeks after symptom cessation. The current recommendation is that sick food handlers should stand down from work for at least 48 hours after the last episode of diarrhoea or vomiting to prevent further transmission. However, viruses may be shed in the faeces up to 14 hours before the onset of any clinical symptoms.[3] This occult shedding poses a problem especially for individuals employed in the food sector, as sick worker policies may not adequately mitigate risks of contamination from infected food handlers who may be excreting the virus during their asymptomatic or recovery stages.

The norovirus strain in this outbreak was confirmed as norovirus GII.7, which caused 4.2% (3/71) of the reported New Zealand norovirus outbreaks from January to October 2010.[4] The cake baker was the most likely outbreak source given that he/she was first to be symptomatic and did not attend the actual event. The cake was the most likely transmission vehicle and was probably contaminated by the cake-maker during the pre-symptomatic stage.

This outbreak investigation demonstrates the virulence of norovirus, and raises the possibility of a pre-symptomatic food handler excreting the virus. The advice to the affected guests, restaurant staff and the cake baker emphasised the importance of maintaining personal hygiene, namely fostering proper hand hygiene practices. The restaurant was advised to use hypochlorite-based solutions to clean toilet facilities. Staff with confirmed infections were advised stand down from work for at least 48 hours after the cessation of diarrhoea and vomiting symptoms.

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Reported by Lavinia Perumal, Public Health Medicine Registrar, Jenny Wong, Disease Investigation Team Technical Officer, Craig Thornley, Medical Officer of Health, Auckland Regional Public Health Service.

6. Laboratory Surveillance

Laboratory-based surveillance of listeriosis, 2010

Listeriosis is a food-borne illness caused by the Gram-positive organism *Listeria monocytogenes*. The disease primarily affects pregnant women, new-borns and patients with a compromised immune system. Ordinarily, healthy adults infected with *L. monocytogenes* are asymptomatic and can clear the infection although mild flu-like symtoms can occur. Over the last 10 years the number of notifications in New Zealand has remained steady at approximately 0.6 per 100,000 population.

In 2010, *L. monocytogenes* was isolated from 22 cases of listeriosis (5 perinatal cases and 17 non-perinatal cases) and sent to ESR for characterisation. The majority of non-perinatal isolates were from the elderly although one child and one infant were also infected. Neither of these young cases had an underlying illness or were receiving immunosuppressive drugs. Age distribution and serotype of the isolates received at ESR in 2010 are shown in Table 2.

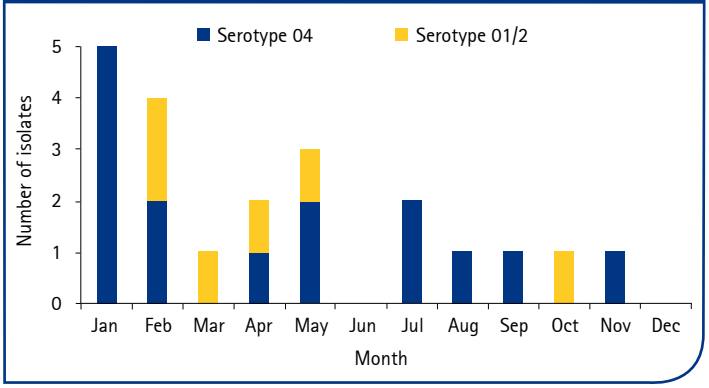
Table 2. *Listeria monocytogenes* isolates by age group and serotype, 2010

Age group (years)	Serotype 04	Serotype 01/2
Perinatal[1,2]	5	
<1	1	
1–4	1	
5–14		
15–24		
25–44		
45–64	1	4
65+	7	3
Total	**15**	**7**

[1] Includes both mother and foetus/newborn
[2] Includes 4 stillbirths from 7 to 25 weeks gestation

In 2010, 68.2% of isolates were serotype 04 and 31.8% were serotype 01/2. Figure 3 shows the distribution of isolates by serotype and month in 2010. No outbreaks associated with *L. monocytogenes* were reported in EpiSurv. Examination of isolates using DNA macrorestriction analysis by pulse-field gel elctrophoresis is in progress to determine any links.

Figure 3. *Listeria monocytogenes* isolates by serotype and month, 2010



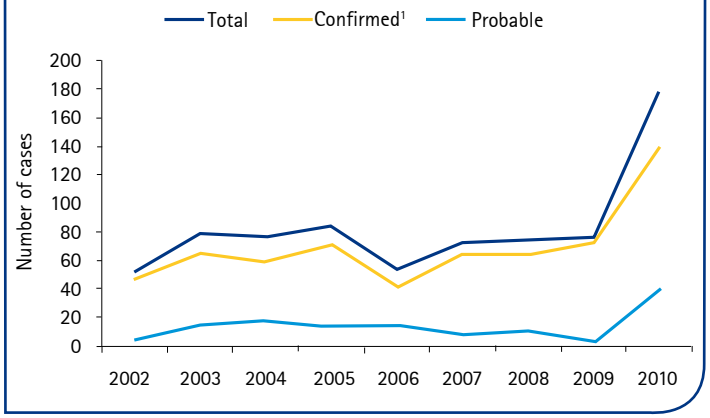
The 22 isolates received at ESR had case information recorded in EpiSurv. Ethnicity was distributed as follows: New Zealand European (16 cases), Samoan (3 cases), Chinese, Maori, and Tongan (one case each).

Reported by Pat Short, Special Bacteriology Laboratory, Health Programme, ESR.

Laboratory-based legionellosis surveillance, 2010

Legionellosis has been a notifiable disease in New Zealand since 1980. Laboratory-based surveillance and laboratory testing on referred clinical specimens at ESR has been carried out since 1978. From 2002 to 2009, the number of legionellosis cases was fairly constant, with between 50 and 80 laboratory-confirmed cases seen each year (Figure 4). In 2010, the number increased significantly with 178 laboratory-proven legionellosis cases notified. This is the highest annual number of confirmed legionellosis cases ever recorded in New Zealand.

Figure 4. Number of legionellosis cases, 2002 to 2010

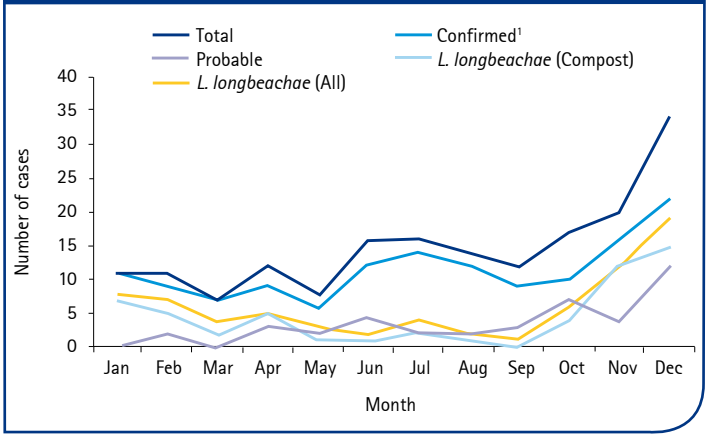


[1] A confirmed case is defined as having a clinically compatible illness *and* either laboratory test positive for *Legionella* culture *or* a four-fold rise in antibody titre by IFA or a sustained elevated titre >256 *or* a positive *Legionella* urinary antigen test. A probable case is defined as having a clinically compatible illness and either a positive *Legionella* PCR test or a single antibody titre >256 by IFA.

The large increase in case numbers seen in 2010 cannot be explained wholly as a result of outbreaks or clusters or due to changes in laboratory testing methods. While no single-source legionellosis outbreaks were identified in 2010, the increase in case numbers coincided with a prolonged cluster of 46 compost-related cases beginning in October 2010 and ending in January 2011. These cases were primarily reported from the Canterbury and Southern District Health Boards (DHBs). Many of the Canterbury DHB cases were diagnosed initially by *Legionella* polymerase chain reaction (PCR) testing at Canterbury Health Laboratories and some later confirmed by follow-up culture or serology testing.

Monthly legionellosis case numbers were significantly higher for the whole of 2010 compared with those seen in previous years, with numbers of cases diagnosed ranging from 7 to 16 cases for the first nine months (January to September), then increasing sharply in October, November and December with 17, 24, and 34 cases, respectively (Figure 5). In previous years, from five to seven legionellosis cases on average were diagnosed each month, with seasonal spikes often occurring in spring/early summer and again in autumn. Seasonal spikes in case numbers are usually associated with compost use, with more gardening activity occurring during these periods. Compost-related seasonal spikes have previously been seen in 2002 and 2005 but the case numbers in those years were much lower.

Figure 5. Number of legionellosis cases by month, 2010

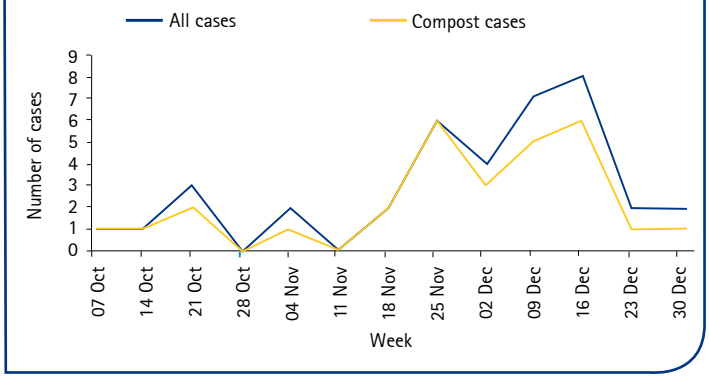


[1] A confirmed case is defined as having a clinically compatible illness and either laboratory test positive for *Legionella* culture or a four-fold rise in antibody titre by IFA or a sustained elevated titre >256 or a positive *Legionella* urinary antigen test. A probable case is defined as having a clinically compatible illness and either a positive *Legionella* PCR test or a single antibody titre >256 by IFA.

In 2010, the most prevalent *Legionella* infectious agent identified by laboratory testing of clinical samples was *Legionella* longbeachae with 73 (41.0%) cases, followed by *Legionella* pneumophila with 50 (28.1%) cases. Thirty-six cases of *L. longbeachae* infection were identified in the first nine months (January to September) of 2010, and 37 cases were identified in the last three months (October to December) of 2010. Source tracing identified 78 (43.8%) legionellosis cases with exposure to compost or potting mix or other gardening activity during the incubation period. Of these, 53 (67.9%) cases were diagnosed with a *L. longbeachae* infection, with 29 (54.7%) of these cases occurring between 1 October and 31 December 2010 (Figures 5 and 6). Source tracing has highlighted that compost harbours *Legionella* species other than *L. longbeachae*. Infections with *Legionella* micdadei, *L. pneumophila* (4 cases each), *Legionella* jordanis (3 cases), *Legionella* dumoffii (2 cases), *Legionella* bozemanae, *Legionella* feeleii, and *Legionella* gormanii (1 case each) occurred following exposure to compost.

The environmental source was identified for only six of the *L. pneumophila* cases, with compost implicated in four cases, and a rain water tank and foreign travel implicated in one case each. The domestic water supply is usually tested for each *L. pneumophila* case and the inability to grow any *Legionella* in almost all cases implicates environmental sources other than this. The prime candidate for these sporadic cases where compost is not implicated is cooling towers. For a table summarising all laboratory-confirmed cases of legionellosis for 2010, broken down by DHB, case status and exposure source refer to www.surv.esr.cri.nz/surveillance/NZPHSR.php

Figure 6. Number of *Legionella longbeachae* cases by week, October to December 2010



A legionellosis case diagnosed solely by a positive PCR laboratory test only fits the probable case definition. In 2010, 16 (9.0%) probable cases of legionellosis were diagnosed solely on the basis of a positive *Legionella* PCR test. This represents a large increase compared with previous years from 2002 to 2009, when only two to three probable cases were diagnosed each year based on positive *Legionella* PCR tests. In September 2010, routine PCR testing of referred lower respiratory tract samples for *Legionella* DNA was introduced at Canterbury Health Laboratories. This change in testing does not account for the increase in case numbers seen in 2010 by itself, but has contributed to the increased probable case numbers seen and may have identified cases that under previous testing algorithms would have gone undetected.

Molecular methods are much more sensitive for legionellosis diagnosis compared with culture methods. The increased use of PCR testing highlights again the perceived under-reporting of legionellosis cases. As more laboratories adopt routine *Legionella* PCR testing for patients admitted to hospital with unexplained community-acquired pneumonia, it is expected that greater numbers of cases will be detected compared with previous years. However, inherent issues around false-positive results with *Legionella* PCR testing means that any positive result needs to be interpreted with caution and appropriate follow-up testing must be carried out to confirm the diagnosis and identify the infecting *Legionella* species.

Reported by David Harte, *Legionella* Reference Laboratory, Health Programme, ESR.

Mycology

Tables detailing the biannual summary of opportunistic mycoses and aerobic actinomycetes in New Zealand are available at www.surv.esr.cri.nz/surveillance/NZPHSR.php

New Zealand Public Health Surveillance Report is produced quarterly by ESR for the Ministry of Health and may be downloaded in PDF format from www.surv.esr.cri.nz

Contributions to this publication are invited in the form of concise reports on surveillance issues or outbreak investigations.

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