Volume 11 Issue 3 ISSN 1176-2888 (Print) ISSN 1178-8313 (Online)

New Zealand Public Health Surveillance Report

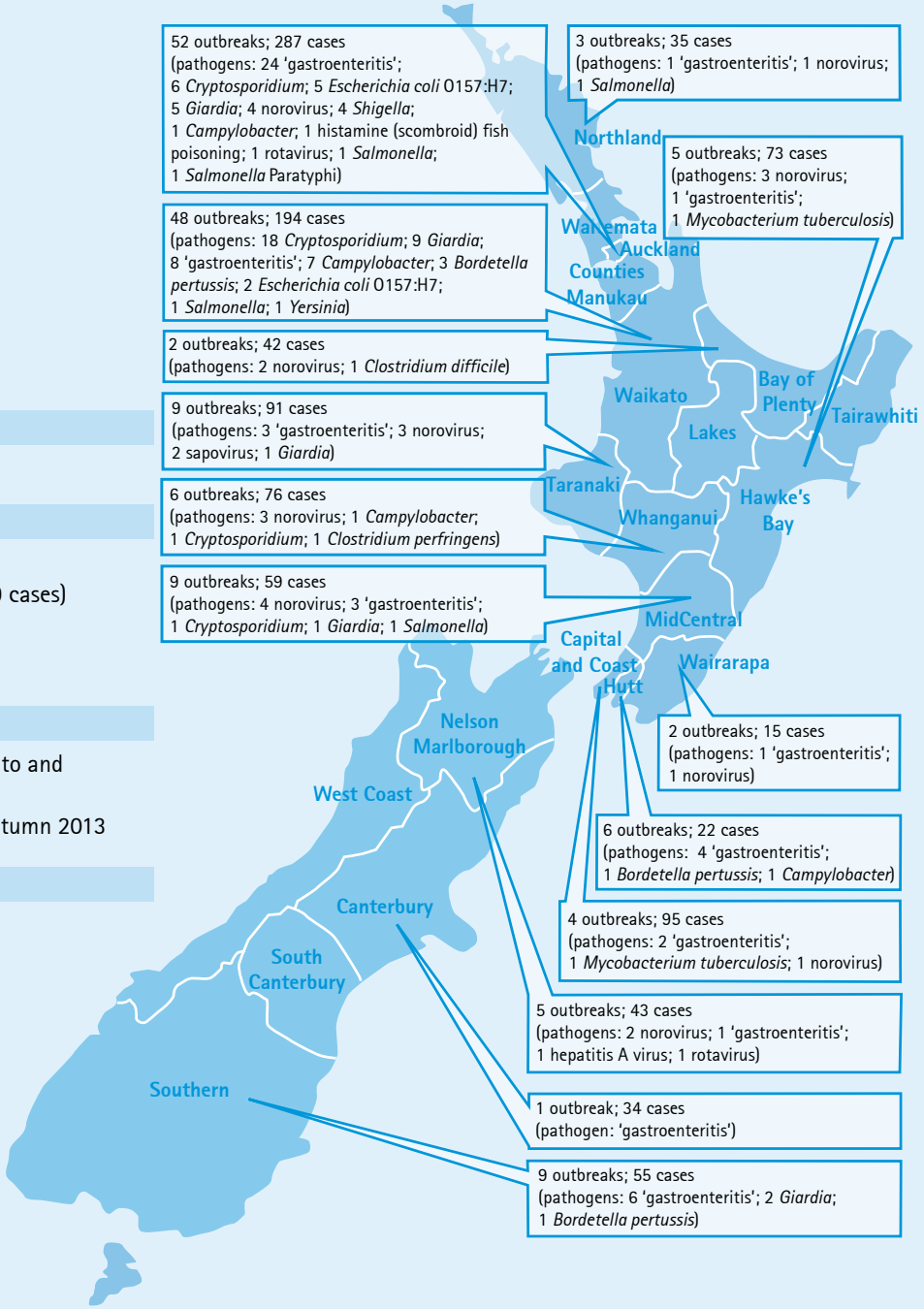
September 2013: Covering April to June 2013

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 April to June quarter of 2013. 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 3 July 2013. Outbreaks reporting exposures in more than one geographic location are assigned to the district health board with the most cases. Three outbreaks involved more than one pathogen therefore individual pathogen outbreak numbers may not sum to group totals.



1. Editorials

Can the National Health IT Plan transform public health surveillance in New Zealand?

The implementation of the National Health IT Plan[1] may create opportunities to enhance information for Public Health in New Zealand. The plan establishes regional clinical data repositories (CDRs) of patient information, which include laboratory and radiology reports, along with clinical summaries such as hospital discharge records. Although the repositories are designed primarily to ensure that core clinical data can be shared across providers and therefore support better care, they also create an opportunity to transform our model of public health surveillance.

Historically, delays in reporting to national data collections and a lack of capacity to query multiple clinical data systems, have seen public health agencies (such as ESR) develop dedicated national systems to collect information on the limited number of conditions that are legally mandated.

As information supporting public health action becomes available within CDRs there may be an opportunity to develop more flexible approaches to public health surveillance, that enable a broader set of health outcomes to be monitored, in near real time, at the population level. Referral of cases requiring a local public health response will still be important and legal and ethical issues require further investigation. However, for conditions that do not require an individual level clinical public health response, CDR query tools could be developed to aggregate and de-identify patient data, to provide measures of disease and risk factor occurrence broken down by time, place and demographic characteristics.

Another key workstream within the National Health IT Plan focuses on systems to support the 'continuum of care'. Electronic patient discharges enable hospitals to send information about patient hospital visits to general practitioners (GPs). eReferrals enable GPs to send electronic information to district health boards (DHBs), when requesting specialist appointments or procedures.

Medical officers of health and their teams provide specialist public health services within DHBs for patients 'referred' by a notification under the Health Act 1956. Although laboratories have reported notifiable diseases electronically since December 2007, GPs and practice nurses may still be required to provide associated clinical and risk factor information by fax or phone. There may therefore be considerable delays in obtaining information required to assess the priority of reported cases for investigation or other response.

The potential for eReferral to address these gaps has recently been described, and efforts are underway to utilise it to transform the disease notification process.[2] eReferral to medical officers of health may also transform this important aspect of patient care from a reporting process into a shared care model. While a GP currently may have little further involvement in the public health response to a patient's illness, the new model could assist in maintaining continuity of care between the referring doctor and the specialist public health service.

References
1. IT Health Board 2010. National Health IT Plan: Enabling an integrated healthcare model. National Health IT Board, Wellington.
2. Jones N and Calder L 2012. eNotification: Adapting eReferral for Public Health Notifiable Disease Reporting in New Zealand. Healthcare Informatics Research 18(3):225–230.

Reported by Nicholas Jones, Medical Officer of Health, Hawke's Bay District Health Board and Member, National Clinical Information Leadership Group, National Health IT Board.

2. Notifiable Disease Surveillance

The following is a summary of disease notifications for the April to June quarter of 2013 and cumulative notifications and rates calculated for a 12-month period (July 2012 to June 2013). 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 3 July 2013. 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

Invasive Pneumococcal Disease

- *Notifications:* 105 notifications in the quarter (2012, 113); 487 notifications over the last 12 months (2012, 528), giving a rate of 11.0 cases per 100,000 population (2012, 12), not a statistically significant decrease.
- *Comments:* there has been a statistically significant quarterly increase from the previous quarter (77 cases). Cases were aged between 3 months and 97 years, with 7 cases aged less than 2 years.

Measles

- *Notifications:* 1 notification in the quarter (2012, 12); 2 notifications over the last 12 months (2012, 558), a statistically significant decrease.
- *Comments:* there has been a statistically significant quarterly decrease from the same quarter last year (12 cases). After further investigation the case was found not to meet the case definition.

Mumps

- *Notifications:* 13 notifications in the quarter (2012, 4); 36 notifications over the last 12 months (2012, 32), giving a rate of 0.8 cases per 100,000 population (2012, 0.7), not a statistically significant increase.
- *Comments:* there has been a statistically significant quarterly increase from the same quarter last year (4 cases).

Pertussis

- *Notifications:* 785 notifications in the quarter (2012, 1373); 5432 notifications over the last 12 months (2012, 4244), giving a rate of 122.5 cases per 100,000 population (2012, 96.3), a statistically significant increase.
- *Comments:* there has been a statistically significant quarterly decrease from the previous quarter (1359 cases) and from the same quarter last year (1373 cases).

Rubella

- *Notifications:* 2 notifications in the quarter (2012, 1); 3 notifications over the last 12 months (2012, 16), a statistically significant decrease.

ENTERIC INFECTIONS

Campylobacteriosis

- *Notifications:* 1095 notifications in the quarter (2012, 1318); 6216 notifications over the last 12 months (2012, 7427), giving a rate of 140.2 cases per 100,000 population (2012, 168.6), a statistically significant decrease.
- *Comments:* there has been a statistically significant quarterly decrease from the previous quarter (1634 cases) and from the same quarter last year (1318 cases).

Gastroenteritis (acute)

- *Notifications:* 102 notifications in the quarter (2012, 155); 664 notifications over the last 12 months (2012, 613), giving a rate of 15.0 cases per 100,000 population (2012, 13.9), not a statistically significant increase.
- *Comments:* there has been a statistically significant quarterly decrease from the previous quarter (139 cases) and from the same quarter last year (155 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:* 1 notification in the quarter (2012, 4); 26 notifications over the last 12 months (2012, 22), giving a rate of 0.6 cases per 100,000 population (2012, 0.5), not a statistically significant increase.
- *Comments:* there has been a statistically significant quarterly decrease from the previous quarter (10 cases). No perinatal cases were reported.

Salmonellosis

- *Notifications:* 249 notifications in the quarter (2012, 220); 1118 notifications over the last 12 months (2012, 982), giving a rate of 25.2 cases per 100,000 population (2012, 22.3), a statistically significant increase.
- *Comments:* there has been a statistically significant quarterly decrease from the previous quarter (350 cases).

VTEC Infections

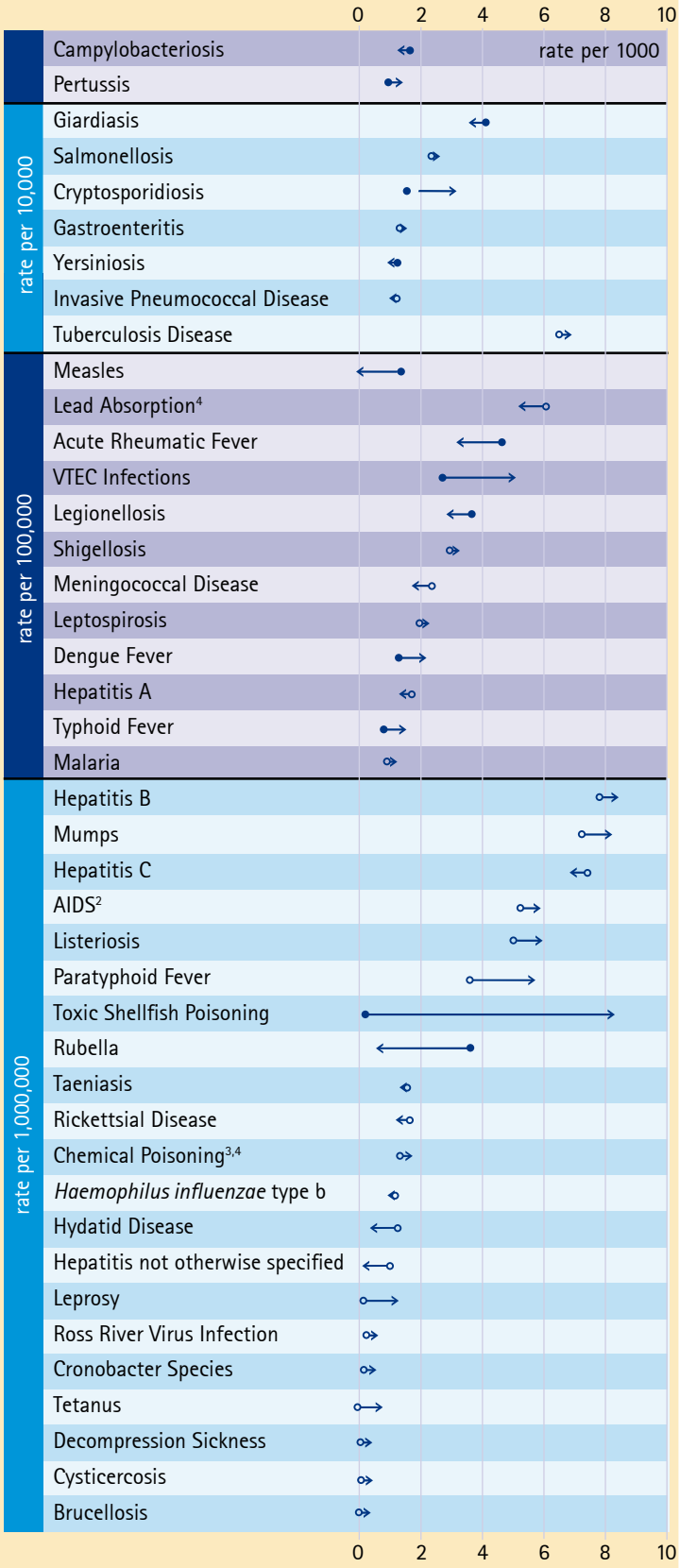
- *Notifications:* 93 notifications in the quarter (2012, 37); 220 notifications over the last 12 months (2012, 119), giving a rate of 5.0 cases per 100,000 population (2012, 2.7), a statistically significant increase.
- *Comments:* there has been a statistically significant quarterly increase from the previous quarter (59 cases) and from the same quarter last year (37 cases).

Yersiniosis

- *Notifications:* 90 notifications in the quarter (2012, 125); 470 notifications over the last 12 months (2012, 545), giving a rate of 10.6 cases per 100,000 population (2012, 12.4), a statistically significant decrease.

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 July 2012 to June 2013 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.

[4] Notification data on lead absorption and chemical poisoning from the environment is incomplete. From 1 February 2013, public health services have been transitioning to the Hazardous Substances Surveillance System maintained by Massey University.

- *Comments:* there has been a statistically significant quarterly decrease from the same quarter last year (125 cases).

INFECTIOUS RESPIRATORY DISEASES

Acute Rheumatic Fever

- *Notifications:* 47 notifications in the quarter (2012, 74); 144 notifications over the last 12 months (2012, 204), giving a rate of 3.2 cases per 100,000 population (2012, 4.6), a statistically significant decrease.
- *Comments:* there has been a statistically significant quarterly decrease from the same quarter last year (74 cases). Cases were distributed by age as follows: 31 (5–14 years), 11 (15–24 years), and 4 (25–44 years). 45 cases were an initial attack of acute rheumatic fever and 2 cases were recurrent attacks.

ENVIRONMENTAL EXPOSURES & INFECTIONS

Cryptosporidiosis

- *Notifications:* 328 notifications in the quarter (2012, 131); 1350 notifications over the last 12 months (2012, 688), giving a rate of 30.5 cases per 100,000 population (2012, 15.6), a statistically significant increase.
- *Comments:* there has been a statistically significant quarterly decrease from the previous quarter (386 cases) and a statistically significant quarterly increase from the same quarter last year (131 cases).

Giardiasis

- *Notifications:* 463 notifications in the quarter (2012, 443); 1654 notifications over the last 12 months (2012, 1806), giving a rate of 37.3 cases per 100,000 population (2012, 41.0), a statistically significant decrease.

Lead Absorption

- *Notifications:* 63 notifications in the quarter (2012, 90); 239 notifications over the last 12 months (2012, 264), giving a rate of 5.4 cases per 100,000 population (2012, 6.0), not a statistically significant decrease.
- *Comments:* there has been a statistically significant quarterly decrease from the same quarter last year (90 cases). Cases were distributed by age as follows: 2 (5–14 years), 3 (15–24 years), 15 (25–44 years), 35 (45–64 years), and 8 (65 years and over). There were 56 male and 7 female cases. 24 cases were recorded as having an occupation that involved exposure to lead. Occupations recorded were radiator fitter/repairer (8 cases), painter (4 cases), panel beater, farmer and labourer (1 case each). The remaining 9 cases did not have an occupation specified.
- *Note:* Notification data on lead absorption is incomplete. From 1 February 2013, public health services have been transitioning to the Hazardous Substances Surveillance System maintained by Massey University.

Legionellosis

- *Notifications:* 23 notifications in the quarter (2012, 32); 133 notifications over the last 12 months (2012, 168), giving a rate of 3.0 cases per 100,000 population (2012, 3.8), a statistically significant decrease.
- *Comments:* there has been a statistically significant quarterly decrease from the previous quarter (42 cases).

Toxic Shellfish Poisoning

- *Notifications:* 1 notification in the quarter (2012, 0); 36 notifications over the last 12 months (2012, 1), giving a rate of 0.8 cases per 100,000 population, a statistically significant increase.

NEW, EXOTIC & IMPORTED INFECTIONS

Dengue Fever

- *Notifications:* 24 notifications in the quarter (2012, 17); 93 notifications over the last 12 months (2012, 56), giving a rate of 2.1 cases per 100,000 population (2012, 1.3), a statistically significant increase.
- *Comments:* 19 cases were laboratory confirmed. 22 cases had travelled or resided overseas during the incubation period of the disease. The countries visited or resided in were Indonesia (12 cases), Singapore (4 cases), Thailand and Fiji (3 cases each). The travel history for the remaining 2 cases was unknown.

Hepatitis A

- *Notifications:* 30 notifications in the quarter (2012, 10); 65 notifications over the last 12 months (2012, 78), giving a rate of 1.5 cases per 100,000 population (2012, 1.8), not a statistically significant decrease.
- *Comments:* there has been a statistically significant quarterly increase from the previous quarter (16 cases) and from the same quarter last year (10 cases). Cases were aged between 14 months and 64 years, with 18 cases aged less than 16 years. Overseas travel information was recorded for 28 (93.3%) cases. Of these, 20 (71.4%) cases had not travelled overseas during the incubation period of the disease.

Typhoid Fever

- *Notifications:* 8 notifications in the quarter (2012, 10); 60 notifications over the last 12 months (2012, 40), giving a rate of 1.4 cases per 100,000 population (2012, 0.9), a statistically significant increase.
- *Comments:* there has been a statistically significant quarterly decrease from the previous quarter (28 cases). Overseas travel or prior travel information was recorded for all cases. Of these, 2 (25.0%) cases had not travelled overseas during the incubation period.

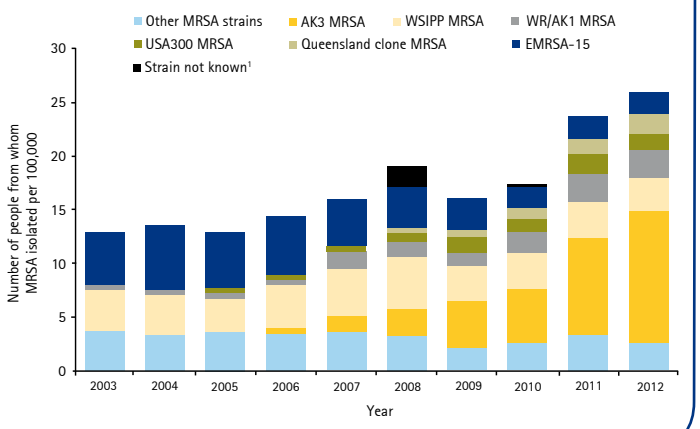
3. Other Surveillance Reports

Annual survey of MRSA, 2012

ESR conducts a month-long survey of MRSA each year, to provide on-going information about the epidemiology of MRSA in New Zealand. For the 2012 survey, hospital and community microbiology laboratories referred all MRSA isolated in August (or an alternative 31-day period), to ESR. Two laboratories in the Auckland area, which both isolate large numbers of MRSA, referred isolates for a 14-day period only. Data analyses were adjusted so that all data represented a one-month period.

MRSA isolates from an estimated 1156 people were referred (1144 patients and 12 staff), which equates to a national point-prevalence rate of 26.1 people per 100,000 population. The prevalence of MRSA in New Zealand has more than doubled over the last 10 years (Figure 1).

Figure 1. MRSA point-prevalence rates, 2003 to 2012



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

As has been observed for several years, again in 2012 there were significant geographical differences in the point-prevalence rates of MRSA, with rates above the national rate of 26.1 MRSA per 100,000 population in the Counties Manukau (68.1 per 100,000), Northland (58.7), Tairawhiti (57.7), Hawke's Bay (37.3), Lakes (32.0), and Auckland (27.5) district health boards (DHBs). Differences in screening policies and protocols for the collection of diagnostic specimens may contribute to this variation in MRSA prevalence between DHBs.

MRSA was reported as causing infection in 75.8% of the patients for whom this information was provided. Among the 1144 patients with MRSA, 42.1% were categorised as hospital patients and 57.9% 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.

MRSA strains were identified using *spa* typing and where necessary, pulsed-field gel electrophoresis. Six MRSA strains predominated in 2012 and together represented 90.2% of all MRSA isolations: AK3 MRSA (47.2%), WSPP MRSA (12.1%), WR/AK1 MRSA (9.9%), EMRSA-15 (8.7%), Queensland clone MRSA (6.9%) and USA300 MRSA (5.4%). For a description of these MRSA strains, including their typical antibiotic susceptibility patterns, see www.esr.cri.nz/competencies/Health/Pages/MRSAstrains.aspx. The most notable change in MRSA strains in recent years has been the emergence in 2005 and subsequent spread of the community-associated AK3 MRSA strain. The prevalence of this strain increased again in 2012 when it accounted for almost half (47.2%) of MRSA isolations – up from 38.0% in 2011. AK3 MRSA was the most prevalent strain in most DHBs in the upper and central North Island, and was particularly dominant in Counties Manukau, Northland and Tairawhiti DHBs.

Five of the six most common strains (AK3 MRSA, WSPP MRSA, WR/AK1 MRSA, USA300 MRSA and Queensland clone MRSA) are usually considered community-associated MRSA (CA-MRSA) strains. The only healthcare-associated MRSA strain represented among the six most common strains in 2012 was EMRSA-15. The current predominance of CA-MRSA strains indicates that once again, as in the 1990s when New Zealand was one of the first countries to experience CA-MRSA, MRSA is more commonly transmitted and acquired in the community in New Zealand than in our healthcare facilities.

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

Reported by Helen Heffernan, 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 (April to June 2013). Comparisons are made to the previous quarter (January to March 2013), and to the same quarter in the previous year (April to June 2012). Note that the outbreak data in this section are notified to ESR by the Public Health Services.

General

- 157 outbreaks notified in this quarter (1084 cases).
- 104 are final reports (865 cases); 53 are interim reports (219 cases) that have yet to be finalised and closed.

All data that follow relate to final reports only.

- 8.3 cases on average per outbreak, compared with 11.0 cases per outbreak in the previous quarter (11.9 cases per outbreak in the same quarter of last year).
- 21 hospitalisations: norovirus (7 cases), *Escherichia coli* O157:H7 (4 cases), *Cryptosporidium* (3 cases), *Mycobacterium tuberculosis* (3 cases), *Salmonella* (3 cases), and *Campylobacter* (1 case).
- 2 deaths: norovirus.
- 3 outbreaks involved more than one pathogen therefore individual pathogen outbreak numbers may not sum to group totals.

Pathogens

- 25 'gastroenteritis' outbreaks (230 cases).
- 21 *Cryptosporidium* outbreaks (63 cases).
- 17 norovirus outbreaks (391 cases).
- 12 *Giardia* outbreaks (37 cases).
- 7 *E. coli* O157:H7 (30 cases).
- 7 *Campylobacter* outbreaks (25 cases).
- 4 *Salmonella* outbreaks (18 cases).
- 4 *Bordetella pertussis* outbreaks (10 cases).
- 3 *Shigella* outbreaks (19 cases).
- 2 *M. tuberculosis* outbreaks (18 cases).
- 2 sapovirus outbreaks (18 cases).
- 1 *Salmonella* Paratyphi outbreak (14 cases).
- 1 rotavirus outbreak (2 cases).
- 1 *Yersinia* outbreak (8 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.

- 85 person-to-person, from (non-sexual) contact with an infected person (including droplets): 19 *Cryptosporidium* (58 cases), 18 'gastroenteritis' (171 cases), 15 norovirus (365 cases), 9 *Giardia* (28 cases), 6 *E. coli* O157:H7 (26 cases), 6 *Campylobacter* (21 cases), 4 *B. pertussis* (10 cases), 2 *M. tuberculosis* (18 cases), 2 *Salmonella* (13 cases), 2 sapovirus (18 cases), 2 *Shigella* (5 cases), 1 rotavirus (2 cases), and 1 *Yersinia* (8 cases).

- 21 foodborne, from consumption of contaminated food or drink (excluding water): 5 *Campylobacter* (21 cases), 5 'gastroenteritis' (17 cases), 3 *Giardia* (11 cases), 3 *Salmonella* (15 cases), 3 *Shigella* (19 cases), 1 *Cryptosporidium* (3 cases), 1 norovirus (3 cases), and 1 *S.* Paratyphi (14 cases).
- 20 environmental, from contact with an environmental source (eg, swimming): 10 *Cryptosporidium* (32 cases), 4 *Giardia* (12 cases), 3 norovirus (38 cases), 2 'gastroenteritis' (9 cases), 1 *Campylobacter* (9 cases), and 1 *E. coli* O157:H7 (4 cases).
- 13 waterborne, from consumption of contaminated drinking water: 5 *Giardia* (17 cases), 3 *E. coli* O157:H7 (10 cases), 3 *Campylobacter* (8 cases), 2 *Cryptosporidium* (4 cases), and 1 'gastroenteritis' (13 cases).
- 8 zoonotic, from contact with an infected animal: 3 *Campylobacter* (8 cases), 2 *Cryptosporidium* (7 cases), 2 *Giardia* (8 cases), and 1 *Yersinia* (8 cases).
- 4 'other' modes: 1 *Campylobacter* (9 cases), 1 *Cryptosporidium* (3 cases), 1 'gastroenteritis' (41 cases), and 1 *Salmonella* (3 cases).
- 5 mode of transmission unknown: 3 'gastroenteritis' (38 cases) and 2 norovirus (26 cases).

Circumstances of exposure

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

- 47 home: 17 *Cryptosporidium* (45 cases), 9 *Giardia* (27 cases), 6 *E. coli* O157:H7 (26 cases), 6 *Campylobacter* (21 cases), 3 *B. pertussis* (7 cases), 2 *Salmonella* (6 cases), 2 *Shigella* (5 cases), 1 'gastroenteritis' (6 cases), 1 *M. tuberculosis* (3 cases), 1 rotavirus (2 cases), and 1 *Yersinia* (8 cases).
- 22 long term care facility: 12 norovirus (352 cases) and 10 'gastroenteritis' (135 cases).
- 9 childcare centre: 5 'gastroenteritis' (30 cases), 2 sapovirus (18 cases), 1 *Giardia* (3 cases), and 1 norovirus (7 cases).
- 9 restaurant/café/bakery: 4 'gastroenteritis' (11 cases), 2 *Campylobacter* (6 cases), 2 *Salmonella* (13 cases), and 1 *Giardia* (3 cases).
- 3 hospital (acute care): 2 'gastroenteritis' (27 cases) and 1 *M. tuberculosis* (15 cases).
- 2 camp: 1 *E. coli* O157:H7 (4 cases) and 1 'gastroenteritis' (13 cases).
- 2 farm: 2 *Giardia* (8 cases).
- 2 takeaways: 1 'gastroenteritis' (6 cases) and 1 norovirus (3 cases).
- 2 other institution: 2 norovirus (21 cases).
- 1 caterer: *Salmonella* (2 cases).
- 1 hotel/motel: *Giardia* (3 cases).
- 1 swimming pool: *Cryptosporidium* (3 cases).
- 1 workplace: *Yersinia* (8 cases).
- 9 'other setting': 5 *Cryptosporidium* (12 cases), 1 *B. pertussis* (3 cases), 1 'gastroenteritis' (6 cases), 1 *Giardia* (2 cases), and 1 *M. tuberculosis* (15 cases).
- 11 outbreaks had two or more exposure settings recorded.
- 5 outbreaks had no exposure settings recorded.

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

- 6 restaurant/café/bakery: 3 'gastroenteritis' (8 cases), 2 *Salmonella* (13 cases), and 1 *Campylobacter* (2 cases).
- 4 home: 2 *Giardia* (8 cases), 1 *Campylobacter* (9 cases), and 1 *Shigella* (2 cases).
- 2 takeaways: 1 'gastroenteritis' (6 cases) and 1 norovirus (3 cases).
- 1 caterer: *Salmonella* (2 cases).
- 1 childcare centre: *Giardia* (5 cases).
- 1 commercial food manufacturer: *Shigella* (2 cases).
- 1 farm: *Campylobacter* (4 cases).
- 2 outbreaks had two preparation settings.
- 7 outbreaks had no preparation settings recorded.

5. Outbreak Case Reports

Verotoxin-producing *Escherichia coli* (VTEC) in Waikato and Auckland

Auckland Regional Public Health Service (ARPHS) and Population Health (Waikato District Health Board) were notified of 52 and 36 cases of VTEC from 1 January to 31 May 2013 respectively, compared with 20 and 9 notifications in each region for the same period in 2012.

Auckland cases tended to be slightly older and more likely to live in a rural area, while Waikato cases were less likely to have mains (reticulated) supply as their primary drinking water source (Table 1).

Table 1. Demographic details and primary drinking water supply of notified cases in Waikato and Auckland

	Waikato (n=36)		Auckland (n=52)	
	Number	%[1]	Number	%[1]
Sex				
Female	24	66.7	32	61.5
Male	12	33.3	20	38.5
Age group (years)				
< 1	6	16.7	2	3.8
1–4	10	27.8	10	19.2
5–14	5	13.9	11	21.2
15–24	4	11.1	10	19.2
25–44	2	5.6	6	11.5
45–64	9	25.0	13	25.0
Rural/urban profile				
Rural	15	42.9	42	80.8
Urban	20	57.1	10	19.2
Unknown	1	-	0	-
Primary drinking water supply				
Mains	15	44.1	28	53.8
Roof	12	35.3	13	25.0
Ground (bore/well)	5	14.7	0	0.0
Surface	1	2.9	0	0.0
Roof + mains	1	2.9	7	13.5
Roof + ground	0	0.0	4	7.7
Unknown	2	-	0	-

[1] % does not include unknown

Approximately one third of cases (34.1%, 30/88) had complications of haemorrhagic colitis and 8.0% (7/88) had haemolytic uraemic syndrome. As a result of their infection, 44.3% (39/88) were hospitalised.

Waikato

In Waikato, the majority of cases resided in Hamilton city (27.8%), Waikato district (25.0%) and Waipa district (16.7%) exhibiting both rural and urban profiles. No overall linked common source was

identified. Individual case risk factors included contact with farm animals (66.7%, 16/24), consumption of home killed meat (40.7%, 11/27), consumption of unpasteurised milk (14.7%, 5/34), contact with nappies (37.9%, 11/29) and contact with sewage (3.3%, 1/30). More than half of the Waikato cases listed non-reticulated water as their primary drinking water source (55.9%, 19/34). Approximately one third of cases (35.3%, 12/34) further indicated roof water as their primary supply, of which only 25.0% (3/12) reported filtering the water and/or using ultraviolet disinfection (Table 1).

Auckland

No common source was identified among the Auckland cases. The key risk factors included consumption of non-reticulated untreated water (46.2%, 24/52), contact with farm animals (21.2%, 11/52), contact with a confirmed VTEC case (11.5%, 6/52) and consumption of home killed meat (5.8%, 3/52).

Three cases with the same Pulse Field Gel Electrophoresis (PFGE) profile (Xb0040a), were linked to a non-reticulated untreated water supply at a campsite from 16 to 19 April, however other risk factors (including mudslides and contact with farm animals) were also present at the campsite. Three of the eleven cases who reported contact with farm animals attended a petting zoo on 1 April and had matching PFGE profiles (Xb0040g).

Further investigations

From 8 April, an ESR trawling questionnaire was used for hypothesis generation and collecting more in-depth risk factor information. No overall common source was found. As well as continuously monitoring VTEC case data for possible links, ESR provided PFGE results on individual cases of VTEC, but with the exception of the small clusters mentioned above, no clear single PFGE outbreak strain was indicated in Waikato or Auckland.

Conclusion

No single common infection source was identified during an investigation into the recent increase of VTEC in Auckland and Waikato. Rather, a multitude of risk factors were identified, many of which are established and also risk factors for other enteric diseases. This increase in VTEC cases serves as a reminder for continued health promotion and education to minimise risk factors where possible, especially proper hand hygiene practices, treatment and monitoring of non-reticulated water supplies and an awareness of risks associated with the consumption of home killed meat and unpasteurised milk.

Reported by Natasha Murray, Public Health Registrar, Population Health, Waikato District Health Board and Jenny Wong, Technical Officer, Auckland Regional Public Health Service.

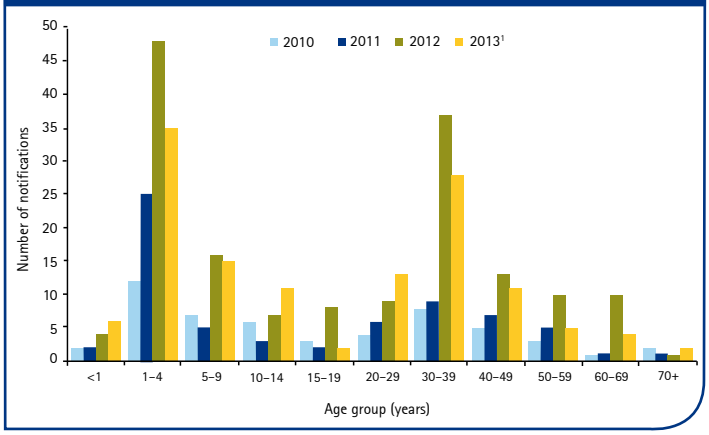
Increased cryptosporidiosis in Greater Wellington, autumn 2013

From 1 January to 30 June 2013, 129 cases of cryptosporidiosis were notified to Regional Public Health (RPH), compared with 93 cases for the same period in 2012. Cases were widespread across Capital & Coast and Hutt Valley district health board areas. The increase started in February and continued until June.

Nationally, there is a distinct seasonal pattern for cryptosporidiosis notifications. The highest number of notifications is received during spring, followed by a smaller peak in autumn each year. However, this pattern has been less distinct in the greater Wellington region and in both 2012 and 2013, where a marked increase in cases was reported during autumn.

Figure 2 shows the number of cryptosporidiosis notifications by age group from 2010 to 2013. The highest number of notifications was consistently in the 1–4 years age group, followed by the 30–39 years age group. Note that the 2013 data is for six months only.

Figure 2. Cryptosporidiosis notification by age group and year, 2010 to 2013[1]



[1] 1 January to 30 June only

For cases where a risk factor was identified recreational water contact was the most common risk factor for cryptosporidiosis in 2012 (52.3%) and 2013 (68.8%). The most commonly-identified risk factor in 2010 was contact with farm animals (87.5%), and in 2011, contact with other symptomatic people (44.4%).

Recreational water contact was mainly from municipal swimming pools. These included pools in Wellington, Hutt Valley, Porirua and the Kapiti Coast, as well as outside the greater Wellington region. Some cases reported contact with more than one swimming pool **within a**nd outside the region.

Our investigation shows that the use of public swimming pools by recently-infected people may be allowing cryptosporidiosis to continue circulating, and resulting in higher levels of illness. In fact, some cases reported swimming while still symptomatic.

We have been working with pool managers in the region, to ensure pool systems are functioning optimally. This work has included:

- increasing the messaging about the need to avoid swimming while symptomatic and for two weeks after having diarrhoea
- displaying a RPH notice at the pool reception
- reminding swimming groups (such as swim squads and those taking lessons) about the increase in cryptosporidiosis and highlighting key prevention messages
- taking appropriate action after faecal accidents.

No further cases of cryptosporidiosis have been reported to RPH since 14 June.

Reported by Loushy Mangalasseril, Health Protection Officer, Regional Public Health, Hutt Valley District Health Board.

6. Laboratory Surveillance

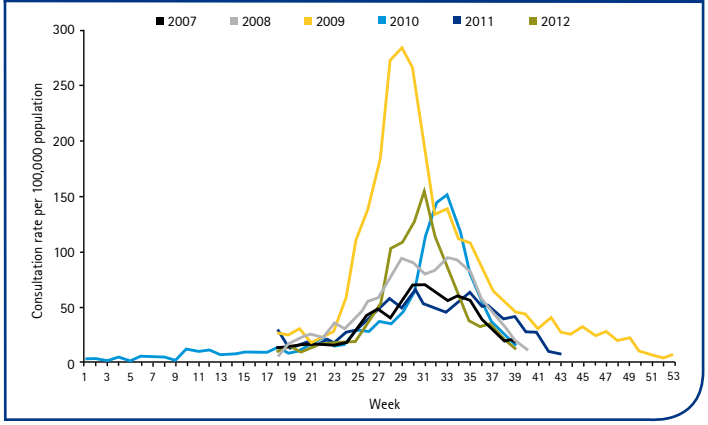
Influenza surveillance, 2012

Influenza activity was at a medium level in 2012. The average weekly consultation rate from May to September was 50.2 per 100,000 patient population – higher than the 2011 rate (40.4 per 100,000) and similar to the 2010 (50.9). Higher rates were recorded in 1997 (163.7 per 100,000) and 1999 (112.3), and the lowest rate was recorded in 2000 (32.5).

Under ESR's sentinel general practitioner-based surveillance programme, 85 sentinel practices were recruited from 19 of the 20 district health boards (DHBs). Although some practices did not report every week, on average 81 practices with a total patient roll of 376,281 participated in influenza sentinel surveillance each week from May to September. During this period, 4090 consultations for influenza-like illness (ILI)

were reported to ESR. We therefore estimate that an ILI resulting in a doctor's visit affected over 48,186 people in New Zealand (1.1% of the total population).

Figure 3. Weekly sentinel surveillance consultation rates for influenza-like illness, 2007 to 2012



Note: Following the emergence of influenza A(H1N1) 09 in 2009, influenza surveillance and reporting was continued through the summer of 2009/10, beyond the normal autumn, winter and spring reporting period. In 2011, surveillance and reporting was extended by a month to cover the Rugby World Cup held during September and October.

In 2012, the influenza consultation rate remained at or below the baseline level (50.0 per 100,000) from weeks 18 to 26 and peaked in week 31 (30 July to 5 August), with a consultation rate of 154.1 per 100,000 patient population (Figure 3). This peak was higher than in 2011 and 2010 (66.1 and 151.6 per 100,000, respectively). Since 1997, the highest peaks were recorded in 2009 (284.0 per 100,000) and 1997 (244.2), and the lowest in 2000 (41.7).

The consultation rate varied among DHBs, with the highest rates recorded for Waitemata (126.6 per 100,000 patient population) and South Canterbury (110.4).1

The Ministry of Health reported 1076 hospitalisations with the primary reason for admission being influenza, in 2012. This was higher than in 2011 and 2010 (526 and 975, respectively). By the number of hospitalisations by week discharged, 95.0% (1022) occurred from June to October. The highest number of hospitalisations (492) was in July.

In addition to testing respiratory samples as part of the influenza sentinel surveillance programme, year-round laboratory-based surveillance of influenza (non-sentinel) is carried out by four regional virus diagnostic laboratories and by the National Influenza Centre at ESR. In 2012, these five laboratories identified 2425 influenza viruses, compared with 1268 and 2012 viruses in 2011 and 2010 respectively. Of the 2425 viruses identified, 399 came from sentinel practice surveillance and were detected from 895 specimens (44.6%); 2026 viruses were identified from non-sentinel sources.

Influenza A viruses were the most common (87.4%, 2119/2425) and A(H3N2) viruses represented 65.0% (1577/2425) of all viruses. Low percentages of influenza B and A(H1N1)pdm09 viruses were recorded (12.6%, 306/2425 and 10.2%, 247/2425, respectively).

Noticeable changes have occurred in the predominance patterns of typed and subtyped influenza viruses from 1990 to 2012.[1]

Influenza A(H1N1) viruses

In 2012, influenza A(H1N1) viruses represented 10.2% of all influenza viruses and all were the pandemic strain, A(H1N1)pdm09. The antigenic data from New Zealand isolates indicates that most of the A(H1N1) pdm09 currently circulating was closely related to the vaccine strain A/California/7/2009 (H1N1). The seasonal influenza A(H1N1) viruses that were circulating before the emergence of the A(H1N1)pdm09 strain have not been detected in New Zealand since 2010.

Influenza A(H3N2) viruses

The A(H3N2) viruses predominated in 2012, making up 65.0% (1577/2425) of all influenza viruses. The A(H3N2) viruses have drifted genetically and antigenically from the reference strain A/Perth/16/2009 (H3N2) to A/Victoria/361/2011-like strain. Influenza A(H3N2) viruses were predominant five times from 2003 to 2012: 2003 (99.6%), 2004 (91.3%), 2006 (86.3%), 2007 (45.0%) and 2012 (74.0%).

Influenza B viruses

In 2012, influenza B viruses represented 12.6% (306/2425) of all influenza viruses detected, of which 118 were antigenically typed: 19 as B/Victoria lineage (B/Brisbane/60/2008-like) and 99 as B/Yamagata lineage (B/Wisconsin/1/2010-like).

Since the 2002 introduction of the B/Victoria lineage to New Zealand, this strain and the B/Yamagata lineage have been co-circulating. B/Victoria lineage viruses have been predominant over the B/Yamagata lineage viruses every three years (in 2005, 2008 and 2011). The influenza B viruses have been associated with a high disease burden in young children, with the B/Victoria viruses associated with outbreaks involving more schools and cases than the B/Yamagata viruses.

Characterisation of the influenza viruses isolated during the winter of 2012 indicated a need to change the vaccine strains. Accordingly, the 2013 southern hemisphere winter influenza vaccine contains:

- A(H1N1) – an A/California/7/2009 (H1N1)-like strain (this is an influenza A(H1N1)pdm09 strain)
- A(H3N2) – an A/Victoria/361/2011 (H3N2)-like strain
- B – a B/Wisconsin/1/2010-like strain.

A more detailed report is available at www.surv.esr.cri.nz/virology/influenza_annual_report.php

References

1. Lopez L and Huang QS 2013. Influenza Surveillance in New Zealand 2012. Institute of Environmental Science and Research Ltd, Porirua.

Reported by Sue Huang and Liza Lopez, 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

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