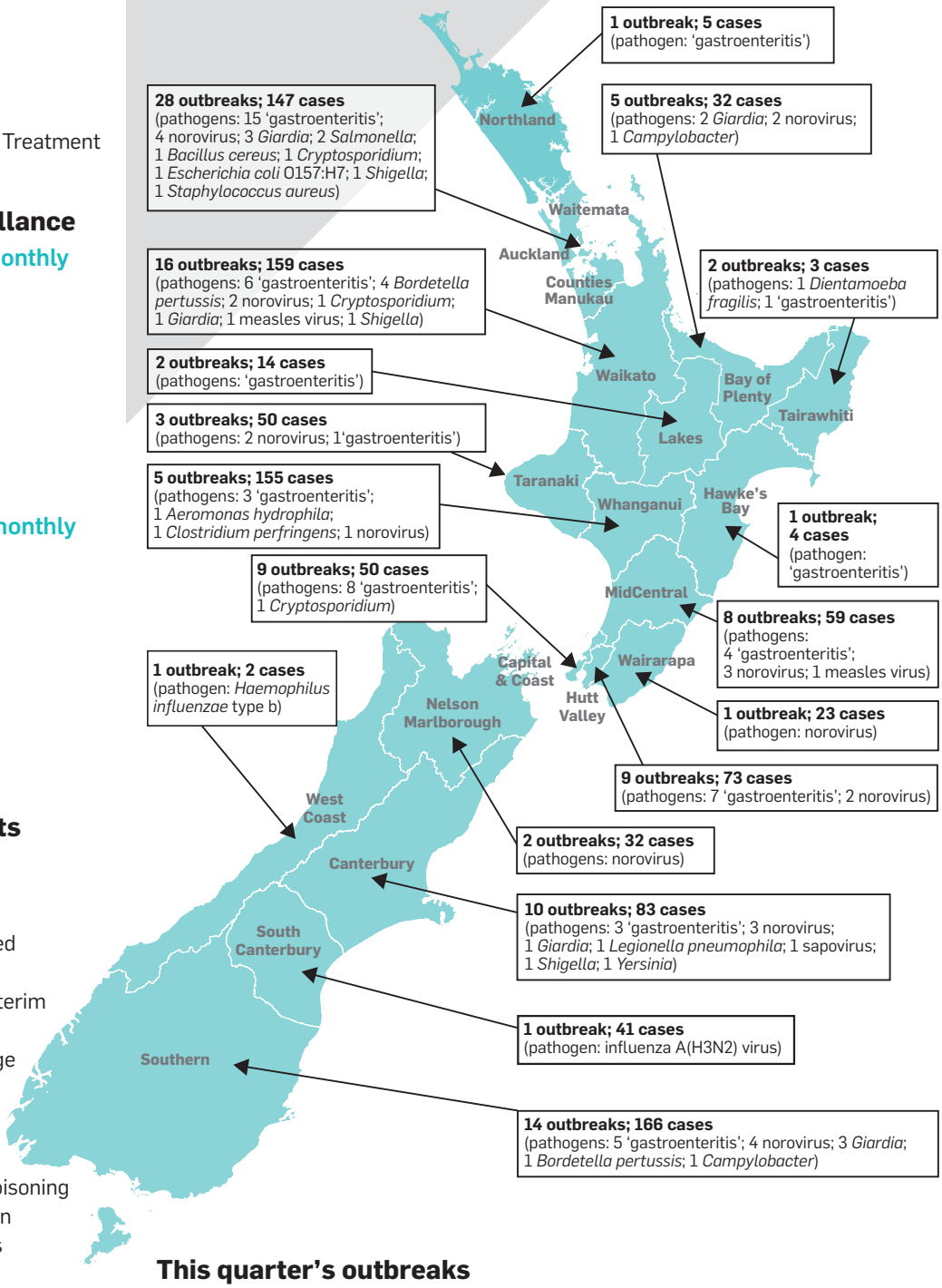
Volume 13 Issue 3

NEW ZEALAND

Public Health Surveillance Report

September 2015: Covering April to June 2015

CONTENTS AND HIGHLIGHTS



This quarter's outbreaks

Notification and outbreak data in this issue are drawn from the April to June quarter of 2015. 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 July 2015. Outbreaks reporting exposures in more than one geographic location are assigned to the district health board with the most cases. One outbreak involved more than one pathogen therefore individual pathogen outbreak numbers may not sum to group totals.

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

ISSN 1176-2888 (Print) ISSN 1178-8313 (Online)

1. EDITORIAL

Complications to care in an Ebola Treatment Unit, Sierra Leone, 2015

The Ebola virus disease (EVD) outbreak, continuing as of 1 July 2015 in Sierra Leone and Guinea, first presented in West Africa in late 2013. The outbreak developed over eight months, and the World Health Organization declared it a Public Health Emergency of International Concern on 8 August 2014. New Zealand chose to fund NZ medical and public health professionals at the Australian-run Hastings 2 Ebola Treatment Centre (ETC) in Sierra Leone. The first NZ staff arrived in January 2015, and seven were there when it closed at the end of April 2015.

I had been involved in the Ministry of Health's response to and preparations for EVD since mid-2014. Upon completing EVD precautions for NZ, Aspen Medical, the Australian contractor, selected me to work in the ETC as a clinical nurse for seven weeks. I trained in Canberra, arrived in Sierra Leone with three other NZ nurses in January 2015, and left on 1 March 2015.

One notable aspect of this outbreak was the morbidity and mortality among healthcare workers (HCW) caring for EVD patients. The rates of HCW infection in Sierra Leone peaked in August 2014 at 103 times higher than for adults in the general population.[1] As infected individuals left West Africa and international aid efforts arrived, HCW from various nations became infected. This led to responses in Africa, North America, and Europe.

Measures to prevent EVD infecting HCW included compartmentalisation of care areas, personal protective equipment (PPE), and ongoing monitoring. These measures meant HCW infection rates dropped after mid-2014. Yet they complicated how care was provided at ETCs and in the field.

Each ETC was divided into three zones. A White Zone had administration, stores, and food preparation areas. A Green Zone had clinical elements (such as staff tents), PPE donning and doffing sites, laundry facilities for contaminated items, and laboratories. A Red Zone had the patient care areas (Suspect, Probable, Confirmed, and Convalescent wards), the incinerators for discarding contaminated items, triage and admission areas, stand-off zones for patients to communicate with family and friends, and the mortuary. Passing between zones involved an intermediate area, changing rooms between White and Green, and PPE donning/doffing areas between Green and Red. Travel into or between zones also required scrubbing with chlorine solutions. Each transit needed HCW time, effort, and extra monitoring staff.

PPE to prevent disease transmission became the hallmark of the EVD response, yet it limited access time to patients and the Red Zone. To ensure proper use, assistants had to monitor the donning of PPE and review protections before entry into the Red Zone. Starting with gumboots, the PPE donned at the Hastings 2 ETC included inner gloves, a full-body fluid-impervious coverall, an N-95 mask, a protective hood with a tear to allow protrusion of the duck-bill mask, a large ski-type set of goggles, outer gloves, and a long, heavy apron.

This PPE protected HCW and other staff in contaminated areas, but it had problems.

- It required 10–15 minutes and extra support staff to don and doff.
- It prevented staff identification—names and roles were noted on their gear instead.
- It was hard to work in, making delicate procedures difficult.
- Most notably, it built up heat. External temperatures were around 35°C and the PPE trapped all heat. Time in the Red Zone was limited to 45–60 minutes. An HCW risked heat injury and collapse. So the time they entered the Red Zone was noted on their arms. Once they reached their prescribed time limit, they were called outside. Often they had to leave earlier due to overheating. Each HCW lost 1–1.5 kilograms inside the PPE, and needed to recuperate for at least 30 minutes.

These problems meant that HCW could only enter the Red Zone twice every eight hours as the intellectual and physical impairment as a result of overheating was not fully compensated for by the 30 minute recuperation period and could only be resolved fully with sleep. This sharply reduced their total time in direct patient contact.

Finally, HCW health was monitored closely. Each HCW's temperature was taken when they moved between buildings (on and off-shift). Staff with elevated temperatures could not work or enter the Red Zone with broken skin (often caused by frequent hand-washing in strong chlorine solutions). If their PPE was compromised in a contaminated area, they would be evacuated to London for 21 days of observation.

These issues directly impacted the ability of HCW to care for patients in ETCs. Other complications included:

- language barriers
- EVD tending to spread within family groups
- the collapse of local medical systems that led patients with a range of complaints to present at ETCs
- the multinational makeup of the outbreak response
- limited local resources
- most notably, the absence of local HCW due to high HCW mortality early in the outbreak.

As the outbreak progressed, the high risk to HCW saw a welcome and necessary, yet limiting, suite of protocols and equipment developed to protect them as they cared for patients. Until better options emerge, any planning of a local response to EVD must allow for such limitations and plan for a large commitment of staff and resources.

REFERENCE:
[1] Kilmarx P, Clarke K, Dietz P, et al. 2014. Ebola virus disease in health care workers. Morbidity and Mortality Weekly Report 63(49):1168–71.

Reported by Ryan McLane, Communicable Diseases Team, Ministry of Health.

2. NOTIFIABLE DISEASE SURVEILLANCE

The following is a summary of disease notifications for the April to June quarter of 2015 and cumulative notifications and rates calculated for a 12-month period (July 2014 to June 2015). 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 is based on information recorded in EpiSurv by public health service staff up to 6 July 2015. 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:*** 8 notifications in the quarter (2014, 2); 10 notifications over the last 12 months (2014, 4), giving a rate of 0.2 cases per 100,000 population, not a statistically significant increase.
- ***Comments:*** there has been a statistically significant quarterly increase from the previous quarter (no cases). Cases were aged between 9 days and 83 years, with 4 cases aged less than 5 years.

Invasive pneumococcal disease

- ***Notifications:*** 105 notifications in the quarter (2014, 128); 472 notifications over the last 12 months (2014, 502), giving a rate of 10.5 cases per 100,000 population (2014, 11.3), not a statistically significant decrease.
- ***Comments:*** there has been a statistically significant quarterly increase from the previous quarter (64 cases). Cases were aged between 1 month and 93 years, with 5 cases aged less than 2 years.

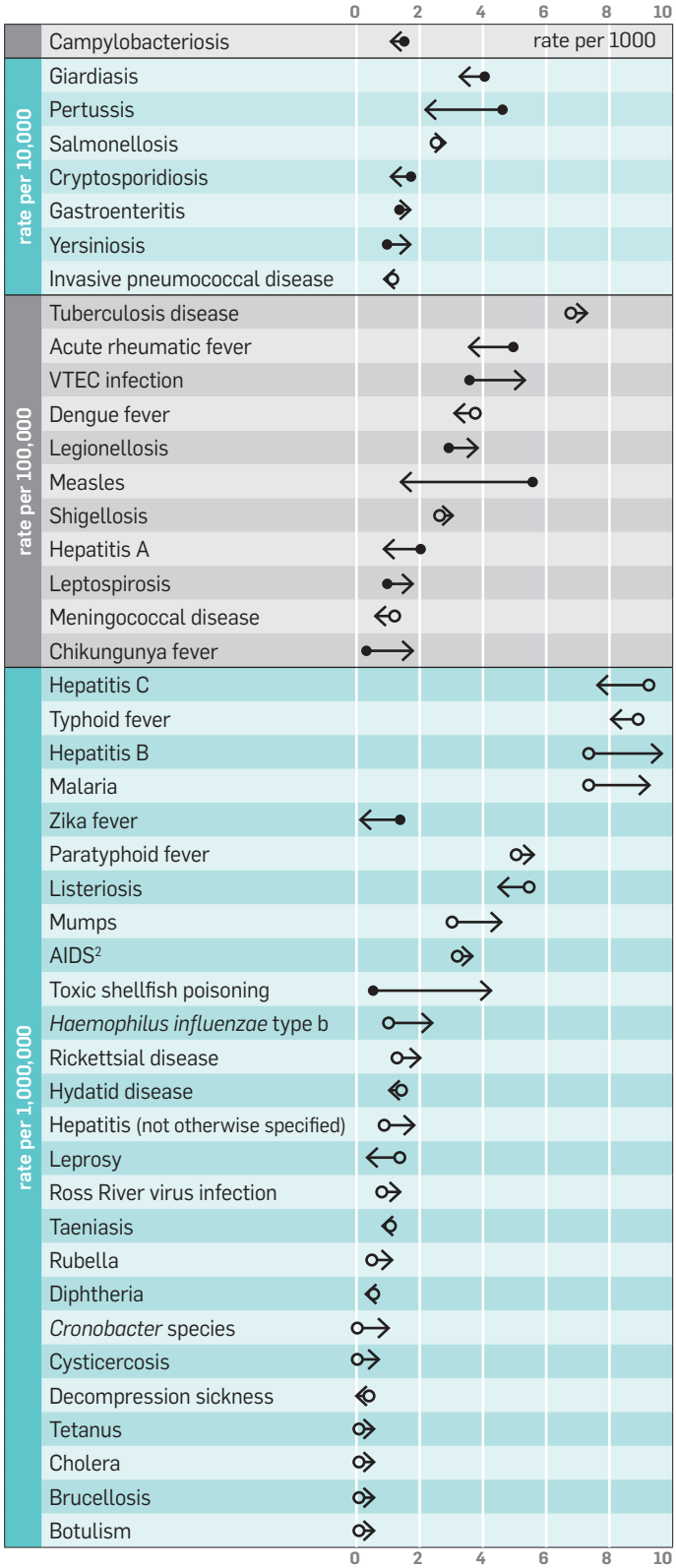
Measles

- ***Notifications:*** 8 notifications in the quarter (2014, 119); 60 notifications over the last 12 months (2014, 237), giving a rate of 1.3 cases per 100,000 population (2014, 5.3), a statistically significant decrease.
- ***Comments:*** there has been a statistically significant quarterly decrease from the same quarter last year (119 cases). No cases were aged less than 15 months. Seven cases were confirmed and 1 case was still under investigation.

Mumps

- ***Notifications:*** 6 notifications in the quarter (2014, 0); 20 notifications over the last 12 months (2014, 13), giving a rate of 0.4 cases per 100,000 population (2014, 0.3), not a statistically significant increase.
- ***Comments:*** there has been a statistically significant

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 2014 to June 2015 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.

quarterly increase from the same quarter last year (no cases). One case was aged less than 15 months. One case was confirmed, 2 cases were probable and 3 cases were still under investigation.

Pertussis

- ***Notifications:*** 243 notifications in the quarter (2014, 249); 957 notifications over the last 12 months (2014, 2026), giving a rate of 21.2 cases per 100,000 population (2014, 45.6), a statistically significant decrease.

Enteric infections

Campylobacteriosis

- ***Notifications:*** 1082 notifications in the quarter (2014, 1183); 6413 notifications over the last 12 months (2014, 7110), giving a rate of 142.2 cases per 100,000 population (2014, 160.1), a statistically significant decrease.
- ***Comments:*** there has been a statistically significant quarterly decrease from the previous quarter (1549 cases) and from the same quarter last year (1183 cases).

Gastroenteritis (acute)

- ***Notifications:*** 122 notifications in the quarter (2014, 130); 702 notifications over the last 12 months (2014, 619), giving a rate of 15.6 cases per 100,000 population (2014, 13.9), a statistically significant increase.
- ***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 unless they meet the criteria above and for syndromic reports that come through public health units, including direct reports from the public where the causative pathogen may never be known.

Salmonellosis

- ***Notifications:*** 239 notifications in the quarter (2014, 215); 1053 notifications over the last 12 months (2014, 1035), giving a rate of 23.3 cases per 100,000 population (2014, 23.3), not a statistically significant change.
- ***Comments:*** there has been a statistically significant quarterly decrease from the previous quarter (355 cases).

VTEC infection

- ***Notifications:*** 65 notifications in the quarter (2014, 51); 230 notifications over the last 12 months (2014, 160), giving a rate of 5.1 cases per 100,000 population (2014, 3.6), a statistically significant increase.

Yersiniosis

- ***Notifications:*** 101 notifications in the quarter (2014, 78); 715 notifications over the last 12 months (2014, 487), giving a rate of 15.9 cases per 100,000 population (2014, 11.0), a statistically significant increase.
- ***Comments:*** there has been a statistically significant quarterly decrease from the previous quarter (133 cases).

Infectious respiratory diseases

Acute rheumatic fever

- ***Notifications:*** 39 notifications in the quarter (2014, 46); 170 notifications over the last 12 months (2014, 221), giving a rate of 3.8 cases per 100,000 population (2014, 5.0), a statistically significant decrease.
- ***Comments:*** Cases were distributed by age as follows: 13 (5–9 years), 18 (10–14 years), and 8 (15 years and over). 36 cases were an initial attack of acute rheumatic fever and 3 cases were recurrent attacks.
- ***Note:*** this information is based on report date and may not reflect the actual onset of acute rheumatic fever. This information should not be used to assess trends in the disease rates over time.

Environmental exposures & infections

Cryptosporidiosis

- ***Notifications:*** 81 notifications in the quarter (2014, 70); 590 notifications over the last 12 months (2014, 785), giving a rate of 13.1 cases per 100,000 population (2014, 17.7), a statistically significant decrease.

Giardiasis

- ***Notifications:*** 363 notifications in the quarter (2014, 466); 1537 notifications over the last 12 months (2014, 1777), giving a rate of 34.1 cases per 100,000 population (2014, 40.0), a statistically significant decrease.
- ***Comments:*** there has been a statistically significant quarterly decrease from the same quarter last year (466 cases).

Legionellosis

- ***Notifications:*** 64 notifications in the quarter (2014, 23); 172 notifications over the last 12 months (2014, 136), giving a rate of 3.8 cases per 100,000 population (2014, 3.1), a statistically significant increase.
- ***Comments:*** there has been a statistically significant quarterly increase from the previous quarter (33 cases) and from the same quarter last year (23 cases). Nine notifications remain under investigation, a proportion of these will fail to meet the case definition and be classified 'not a case'. The increase in notifications may be partly due to the LegiNZ study, which began in May 2015. The one year study is based in 20 hospitals, representing 17 DHBs. During the study all lower respiratory samples from hospitalised patients with suspected pneumonia will be tested for Legionella spp. by PCR. An increase in case detection in these regions is expected.

Leptospirosis

- ***Notifications:*** 19 notifications in the quarter (2014, 14); 81 notifications over the last 12 months (2014, 53), giving a rate of 1.8 cases per 100,000 population (2014, 1.2), a statistically significant increase.
- ***Comments:*** There were 18 male cases and 1 female case. 8 cases were recorded as engaged in occupations identified as high risk for exposure. The recorded occupations for these cases were farmer or farm worker (7 cases) and meat process worker (1 case). One further case had an occupation that involved direct contact with animals.

Toxic shellfish poisoning

- ***Notifications:*** no notifications in the quarter (2014, 1); 18 notifications over the last 12 months (2014, 2), giving

a rate of 0.4 cases per 100,000 population, a statistically significant increase.

New, exotic & imported infections

Chikungunya fever

- ***Notifications:*** 7 notifications in the quarter (2014, 11); 75 notifications over the last 12 months (2014, 12), giving a rate of 1.7 cases per 100,000 population, a statistically significant increase.
- ***Comments:*** there has been a statistically significant quarterly decrease from the previous quarter (35 cases). 4 cases were laboratory confirmed. All cases had travelled overseas during the incubation period of the disease. Countries visited were Cook Islands (4 cases) and Samoa (2 cases).

Dengue fever

- ***Notifications:*** 14 notifications in the quarter (2014, 48); 153 notifications over the last 12 months (2014, 174), giving a rate of 3.4 cases per 100,000 population (2014, 3.9), not a statistically significant decrease.
- ***Comments:*** there has been a statistically significant quarterly decrease from the previous quarter (75 cases) and from the same quarter last year (48 cases). 11 cases were laboratory confirmed. Overseas travel information was recorded for 11 cases. The most commonly visited countries were Indonesia (4 cases) and Tonga (3 cases).

Hepatitis A

- ***Notifications:*** 7 notifications in the quarter (2014, 4); 57 notifications over the last 12 months (2014, 88), giving a rate of 1.3 cases per 100,000 population (2014, 2.0), a statistically significant decrease.
- ***Comments:*** there has been a statistically significant quarterly decrease from the previous quarter (18 cases). Cases were aged between 2 and 74 years. Overseas travel information was recorded for 6 cases. Of these, 1 (16.7%) case had not travelled overseas during the incubation period of the disease.

Shigellosis

- ***Notifications:*** 24 notifications in the quarter (2014, 29); 128 notifications over the last 12 months (2014, 119), giving a rate of 2.8 cases per 100,000 population (2014, 2.7), not a statistically significant increase.
- ***Comments:*** there has been a statistically significant quarterly decrease from the previous quarter (44 cases). Overseas travel or prior travel information was recorded for 15 (62.5%) cases. Of these, 5 (33.3%) cases had not travelled overseas during the incubation period and had no prior history of travel that could account for their infection.

Zika fever

- ***Notifications:*** 3 notification in the quarter (2014, 41); 5 notifications over the last 12 months (2014, 56), giving a rate of 0.1 per 100,000 population (2014, 1.3), a statistically significant decrease.
- ***Comments:*** there has been a statistically significant quarterly decrease from the same quarter last year (41 cases). All cases had travelled overseas during the incubation period of the disease. Countries visited were Cook Islands (2 cases) and Vanuatu (1 case).

3. OTHER SURVEILLANCE REPORTS

No reports this quarter.

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 2015). Comparisons are made to the previous quarter (January to March 2015), and to the same quarter in the previous year (April to June 2014). Data contained in this section is based on information recorded in EpiSurv by public health service staff up to 6 July 2015. As this information may be updated over time, this data should be regarded as provisional.

General

- 118 outbreaks notified in this quarter (1098 cases).
- 62 are final reports (677 cases); 56 are interim reports (421 cases) that have yet to be finalised and closed.

All data that follow relate to final reports only.

- 10.9 cases on average per outbreak, compared with 12.5 cases per outbreak in the previous quarter (18.9 cases per outbreak in the same quarter of last year).
- 13 hospitalisations: 'gastroenteritis' (5 cases), influenza A(H3N2) virus (4 cases), norovirus (2 cases), *Salmonella* (1 case), and *Shigella* (1 case).
- 3 deaths: influenza A(H3N2) virus.
- One outbreak involved more than one pathogen therefore individual pathogen outbreak numbers may not sum to group totals.

Pathogens

- 23 'gastroenteritis' outbreaks (191 cases).
- 15 norovirus outbreaks (351 cases).
- 7 *Giardia* outbreaks (39 cases).
- 5 *Bordetella pertussis* outbreaks (15 cases).
- 3 *Cryptosporidium* outbreaks (14 cases).
- 2 *Salmonella* outbreaks (7 cases).
- 2 *Shigella* outbreaks (6 cases).
- 1 *Bacillus cereus* outbreak (3 cases).
- 1 *Campylobacter* outbreak (5 cases).
- 1 *Dientamoeba fragilis* outbreak (3 cases).
- 1 *Escherichia coli* O157:H7 outbreak (2 cases).
- 1 influenza A(H3N2) virus outbreak (41 cases).
- 1 *Staphylococcus aureus* outbreak (3 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.

- 53 person-to-person, from (non-sexual) contact with an infected person (including droplets): 16 'gastroenteritis' (169 cases), 15 norovirus (351 cases), 7 *Giardia* (39 cases), 5 *B. pertussis* (15 cases), 3 *Cryptosporidium* (14 cases), 2 *Shigella* (6 cases), 1 *Campylobacter* (5 cases), 1 *D. fragilis* (3 cases), 1 *E. coli* O157:H7 (2 cases), 1 influenza A(H3N2) virus (41 cases), and 1 *Salmonella* (4 cases).
- 8 foodborne, from consumption of contaminated food or drink (excluding water): 4 'gastroenteritis' (17 cases), 2 norovirus (17 cases), 1 *B. cereus* (3 cases), 1 *Campylobacter* (5 cases), and 1 *S. aureus* (3 cases).
- 7 environmental, from contact with an environmental source (eg, swimming): 6 norovirus (147 cases) and 1 *Cryptosporidium* (2 cases).
- 2 zoonotic, from contact with an infected animal: 2 *Giardia* (9 cases).
- 1 waterborne, from consumption of contaminated drinking water: *D. fragilis* (3 cases).
- 1 'other' mode: *Shigella* (2 cases).
- 5 mode of transmission unknown: 4 'gastroenteritis' (9 cases) and 1 *Salmonella* (3 cases).

Circumstances of exposure

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

- 16 long term care facility: 8 norovirus (228 cases), 7 'gastroenteritis' (91 cases), and 1 influenza A(H3N2) virus (41 cases).
- 14 home: 5 *B. pertussis* (15 cases), 5 *Giardia* (32 cases), 2 *Cryptosporidium* (9 cases), 1 *E. coli* O157:H7 (2 cases), and 1 *Salmonella* (4 cases).
- 9 childcare centre: 5 'gastroenteritis' (60 cases), 3 norovirus (75 cases), and 1 *Cryptosporidium* (5 cases).
- 6 restaurant/café/bakery: 3 'gastroenteritis' (7 cases), 2 norovirus (15 cases), and 1 *Campylobacter* (5 cases).
- 2 other institution: 1 'gastroenteritis' (3 cases) and 1 *Giardia* (3 cases).
- 2 school: 1 *Campylobacter* (5 cases) and 1 norovirus (29 cases).
- 2 takeaways: 2 'gastroenteritis' (6 cases).
- 1 community gathering: 1 *B. cereus* (3 cases) and 1 *S. aureus* (3 cases).
- 1 hospital acute care: 'gastroenteritis' (4 cases).
- 1 hotel/motel: 'gastroenteritis' (10 cases).
- 1 supermarket/delicatessen: 'gastroenteritis' (2 cases).
- 1 temporary or mobile food service: norovirus (4 cases).
- 1 workplace: *Shigella* (2 cases).
- 3 other setting: 1 *D. fragilis* (3 cases), 1 'gastroenteritis' (6 cases), and 1 *Giardia* (3 cases).
- 2 outbreaks had two or more exposure settings recorded.
- 4 outbreaks had no exposure settings recorded.

Common 'settings' where food was prepared in foodborne outbreaks are identified below.

- 2 restaurant/café/bakery: 1 *Campylobacter* (5 cases) and 1 'gastroenteritis' (3 cases).
- 2 takeaways: 2 'gastroenteritis' (6 cases).
- 1 long term care facility: 'gastroenteritis' (8 cases).
- 1 other food outlet: 1 *B. cereus* (3 cases) and 1 *S. aureus* (3 cases).
- 1 temporary or mobile food service: norovirus (4 cases).
- 1 outbreak had no preparation settings recorded.

5. OUTBREAK CASE REPORTS

"P soup anyone?" – A foodborne outbreak of methamphetamine poisoning

On 24 October 2013, two adults were admitted to Middlemore Hospital after developing diarrhoea, intermittent abdominal cramps, nausea, loss of appetite, dry and sore mouth, palpitations, dizziness, facial flushing, facial sweating, swollen tongue, dilated pupils (6 mm), and tachycardia with a heart rate higher than 160 beats per minute. The symptoms developed within 10 minutes of eating a homemade bean casserole ('Guernsey Bean Jar'). Both reported developing similar milder symptoms, after eating the same bean casserole and homemade beef casserole on separate days before being admitted to hospital. Both were discharged the same day.

On 30 October 2013, Auckland Regional Public Health Service (ARPHS) was notified of the two cases. The provisional diagnosis was cholinergic syndrome due to possible organophosphate poisoning. Health Protection Officers at ARPHS then investigated to confirm the outbreak and determine the source of exposure.

A telephone questionnaire and face-to-face interview sought to confirm symptoms and how the meals were made. Samples of left-over casserole, and the ingredients used, were collected.

The investigation identified that two adults in the household had eaten the casseroles on five occasions between 13 September and 23 October 2013. They experienced mild to severe symptoms within 10 minutes of eating. Each visited their local Accident and Emergency Clinic, but a diagnosis was inconclusive. Neither said they had drunk alcohol or taken drugs with the casseroles. They lived on a small lifestyle farm and did not actively use fertilisers.

One of the cases had prepared the beef casserole on 6 September 2013 and the bean casserole on 28 September 2013. The beef casserole was made using shin on the bone beef (coated in paprika and potato flour), sea salt, pepper, red wine, tomato paste, mushrooms, garlic, carrots, onions, beef stock and bay leaf. This mixture was placed in a slow cooker for all-day cooking, and then divided among six, 1500 ml plastic containers and frozen. On reheating, it was eaten with

white rice and steamed vegetables (broccoli and cauliflower). The bean casserole had been prepared with canned butter beans, canned mixed beans, beef shin on a bone, pork hock, chicken stock powder, onions, carrots, sea salt, pepper, thyme, rosemary and bay leaf. A small portion was dished into a bowl, refrigerated and eaten the next day. The rest was placed in single-serve plastic containers and frozen.

Based on the hospital's provisional diagnosis of organophosphate poisoning, the left-over casseroles were tested at the ESR Laboratory for organophosphorus pesticides. Both tested negative. They were then screened with a 'Western medicine and drug screen test'. Tests revealed 200 µg/g of methamphetamine in the bean casserole and 90 µg/g of methamphetamine in the beef casserole. The left-over ingredients tested negative for methamphetamine. However, tests revealed methamphetamine inside the slow cooker and on the lid's inner and outer surfaces.

ARPHS asked the National Poisons Centre to advise on the likely health impacts of methamphetamine at concentrations of 90 µg/g and 200 µg/g. The Centre advised that methamphetamine in doses of 10 mg to 25 mg can cause symptoms of euphoria, weight loss, irritability and insomnia. Such doses could also cause tachycardia and possibly some dysarthria. Doses of 25 mg to 60 mg would likely cause severe adrenergic symptoms such as sweating, tremor and hallucinations. To receive a dose of 25 mg, a person would need to eat 125 g of a casserole containing 200 µg/g methamphetamine, or 278 g of a casserole containing 90 µg/g. To receive a dose of 60 mg, a person would need to eat 300 g of the 200 µg/g casserole or 667 g of the 90 µg/g casserole. Given that 1 g is equivalent to about 1 ml of fluid, both people likely ate a minimum dose of 25 g, or possibly more, in a dessert-size bowl of each casserole. It is likely the methamphetamine could have caused their symptoms.

Insufficient information and evidence was available to establish whether the ingredients contained methamphetamine. Even so, there was real concern that a criminal act of food contamination or deliberate poisoning had occurred. The New Zealand Police were notified, but no further information is available.

The Ministry for Primary Industries was also notified of this foodborne outbreak of methamphetamine poisoning. Case interviews revealed no plausible explanation for the contaminated slow cooker.

Findings from this investigation support the conclusion that this outbreak was due to methamphetamine contamination of the bean and beef casseroles. How the food was contaminated is undetermined.

ACKNOWLEDGEMENTS:

We thank staff of the Food Chemistry and Forensics Laboratories at ESR, MPI and the NZ Police for their help in this investigation.

Reported by Shikha David, Health Protection Officer and Dr Denise Barnfather, Public Health Physician, Auckland Regional Public Health Service.

Outbreak of *Salmonella* Thompson linked to Northland food premises

Northland District Health Board (DHB) was first alerted to a possible outbreak involving a bakery in Northland by colleagues in Auckland. The bakery was a popular stopover point along State Highway 1. Auckland Regional Public Health Unit had already found that two cases with *Salmonella* had eaten at a common bakery. Every person with a recently reported illness due to *Salmonella* was questioned. It soon became clear that, in this outbreak, a number of them had eaten at the same bakery.

Public Health Officers (PHOs) from Northland DHB visited the bakery. Each staff member was asked about symptoms and for a stool sample. One food handler tested positive for *Salmonella*, but denied having symptoms. They were not allowed to handle food until they had returned two negative stool samples. The PHOs took environmental samples. All tested negative for *Salmonella*. An officer from the Ministry for Primary Industries accompanied the PHOs and decided not to collect food samples.

Salmonella Thompson, a serotype of *Salmonella* rarely confirmed in New Zealand, was isolated from cases. From 1 January to 10 February 2015, 24 cases of *S.* Thompson were reported to EpiSurv. Two cases of *Salmonella* enterica subsp. enterica (I) ser. 6,7 : k : - were also reported, but *S.* Thompson was not confirmed as no second phase flagella antigen was detected. Both case isolates had pulsed-field gel electrophoresis (PFGE) profiles indistinguishable from the outbreak profile.

The cases were reported from five DHBs: Auckland (8), Waitemata (7), Northland (7), Counties Manukau (1), and Capital & Coast (1). The two cases of *Salmonella* enterica subsp. enterica (I) ser. 6,7 : k : - were reported from Northland DHB (1) and Taranaki DHB (1). The total of 24 cases was an increase from the same period in previous years (none in 2014 and 2012, 4 in 2013).

Most reported cases were female (65.4%, 17/26). Ages ranged from 10 to 73, and the median age was 47. Onset dates ranged from 27 December 2014 to 22 January 2015, although the onset date was unknown for four cases. One case from Northland was hospitalised and there were no deaths.

The ESR Enteric Reference Laboratory performed PFGE typing on 16 confirmed isolates, including the two *Salmonella* enterica subsp. enterica (I) ser. 6,7 : k : - isolates. The PFGE profiles of the isolates were indistinguishable. This suggests that cases were exposed to the same source of infection. The PFGE profiles from this outbreak were compared with historical isolates of *S.* Thompson. The outbreak profile was distinct from the PFGE profiles of the older isolates.

At least 17 cases (Auckland region – 11 cases, Northland DHB – 4 cases, Taranaki and Capital & Coast DHBs – 1 case each) were known to have eaten food from the bakery during the incubation period. The most common items consumed were lamb and salad filled roll/focaccia (10 cases) and chicken filled roll (5 cases), although the specific source of

the outbreak was not determined as no food items from the bakery were tested.

The earliest case of *Salmonella* enterica subsp. enterica (I) ser. 6,7 : k: - was reported from Northland DHB and had an onset date of 27 December 2014. Molecular typing results linked this case to the outbreak cluster. The case had not travelled overseas or been exposed to any unusual risk factors within the incubation period. It was suspected that their illness was caused by eating left-over chicken at home. The case denied any contact with the bakery.

For supplementary material see www.surv.esr.cri.nz/surveillance/NZPHSR.php

Reported by Shirley Crawshaw Medical Officer of Health, Northland District Health Board and Shevaun Paine, Health Intelligence Team, Health Group, ESR.

6. LABORATORY SURVEILLANCE

Influenza surveillance, 2014

In 2014, 60 sentinel practices were recruited from 17 of New Zealand's 20 district health boards (DHBs) for ESR's sentinel general practice-based surveillance. Some practices did not report every week. On average, 57 practices with a total patient roll of 297,480, participated in influenza sentinel surveillance each week from May to September, and reported 1966 sentinel consultations for influenza-like illness (ILI). ILI resulting in a visit to a general practitioner affected about 29,768 people (0.7% of total population) in 2014.

The average weekly consultation rate from May to September 2014 was 30.6 per 100,000 patient population. This rate was higher than the average weekly rate for 2013 (21.6), but lower than in 2012 (50.2). Overall, influenza activity in 2014 was low. Consultation remained below the seasonal threshold level for the first part of the surveillance period (weeks 18–26) in 2014. It peaked in week 32 (4–10 August 2014), with a consultation rate of 52.7 per 100,000 patient population. This peak occurred five weeks earlier than the peak in 2013 (week 37, 47.3) and one week later than the peak in 2012 (week 31, 154.1).

Weekly ILI consultation rates per 100,000 patient population varied among DHBs, with rates above the national average in Tairawhiti (100.7), Whanganui (73.4), South Canterbury (68.1), MidCentral (52.0), Canterbury (38.6), and Capital & Coast (33.7).

Hospital-based surveillance[3] for severe acute respiratory infection (SARI) cases in 2014 in Auckland and Counties Manukau DHBs recorded cumulative SARI and associated influenza incidence of 214.0 and 39.0 respectively. SARI-associated influenza rates were highest at the extremes of age (348.0; 71.9; 62.9 and 59.8 in persons aged <1; 1–4; 65–79 and ≥80 years respectively), in Pacific peoples (94.9) and Māori (63.3) ethnic groups and those from the lowest socio-economic group (70.6). A total of 4144 influenza viruses were identified in 2014, higher than in 2013 (2326 viruses) and 2012 (2425). Of those, 273 came from sentinel practice surveillance between May and September, compared with 196 in 2013 and 399 in 2012. A total of 3871 non-sentinel viruses were identified in 2014, compared with 2130 in 2013 and 2026 in 2012.

In 2014, influenza A was the predominant strain of influenza—88.6% (3673/4144) compared with 11.4% (471/4144) for influenza B. The influenza A(H1N1)pdm09 virus represented 58.3% (2416/4144) of all viruses and 69.3% (2416/3486) of all sub-typed and lineage-typed viruses. Influenza A(H3N2) strain represented 20.3% (842/4144) of all viruses and 24.2% (842/3486) of all typed and sub-typed viruses. The influenza B/Yamagata lineage virus represented 5.3% (220/4144) of all viruses and 6.3% (220/3486) of all sub-typed and lineage-typed viruses. The influenza B/Victoria lineage virus represented 0.2% (8/4144) of all viruses and 0.2% (8/3486) of all sub-typed and lineage-typed viruses.

No significant antigenic drift was detected for influenza A(H1N1)pdm09 viruses. A(H3N2) viruses drifted from the A/Texas/50/2012-like strain to the A/Switzerland/9715293/2013-like strain. Two lineages of influenza B viruses (B/Victoria and B/Yamagata lineages) were co-circulating in 2014, with an increase in B/Yamagata lineage viruses. The B/Yamagata lineage viruses drifted from the B/Massachusetts/2/2012-like strain to the B/Phuket/3073/2013-like strain. This meant, the A(H3N2) and B components were updated for the 2015 influenza vaccine.

Influenza vaccines are recommended for people at risk of developing complications following infection because of age or underlying chronic conditions.[1] In 1997, New Zealand introduced a programme of free influenza vaccinations for all New Zealanders aged 65 and older. In 1999, the programme was extended to those aged under 65 with specified chronic medical conditions.[2] In 2010, free vaccination was extended to all pregnant women.[2] In 2013, it was extended to children aged under five with a significant respiratory illness.[3] Quality data is essential for evaluating the effectiveness of influenza vaccines. So influenza vaccination information from multiple sources must be included on the national immunisation register. Progress in this area in the coming years will help us to assess vaccine effectiveness more accurately.

For list of references and supplementary material see www.surv.esr.cri.nz/surveillance/NZPHSR.php

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

Reported by Sue Huang, Liza Lopez, Tim Wood and Namrata Prasad, Health Group, ESR.

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. Please send contributions and feedback to: Scientific Editor, New Zealand Public Health Surveillance Report, ESR, PO Box 50-348, Porirua, 5240, Wellington, New Zealand. Phone: (04) 914 0700; Fax (04) 914 0770; Email: survqueries@esr.cri.nz