

## NEW ZEALAND

## Public Health Surveillance Report

March 2017: Covering October to December 2016

## CONTENTS AND HIGHLIGHTS

## 1. Editorial

- Health (Protection) Amendment Act 2016—opportunities and challenges for notification and STI surveillance

## 2. Notifiable disease surveillance

## Significant increases in 12-monthly notification rate

- Campylobacteriosis
- Cryptosporidiosis
- Dengue
- Leptospirosis
- Measles
- Shigellosis
- VTEC infection
- Yersiniosis
- Zika virus infection

## Significant decreases in 12-monthly notification rate

- Chikungunya fever
- Leprosy

## 3. Other surveillance reports

- A case of toxigenic cutaneous diphtheria in Christchurch, November 2016

## 4. Outbreak surveillance

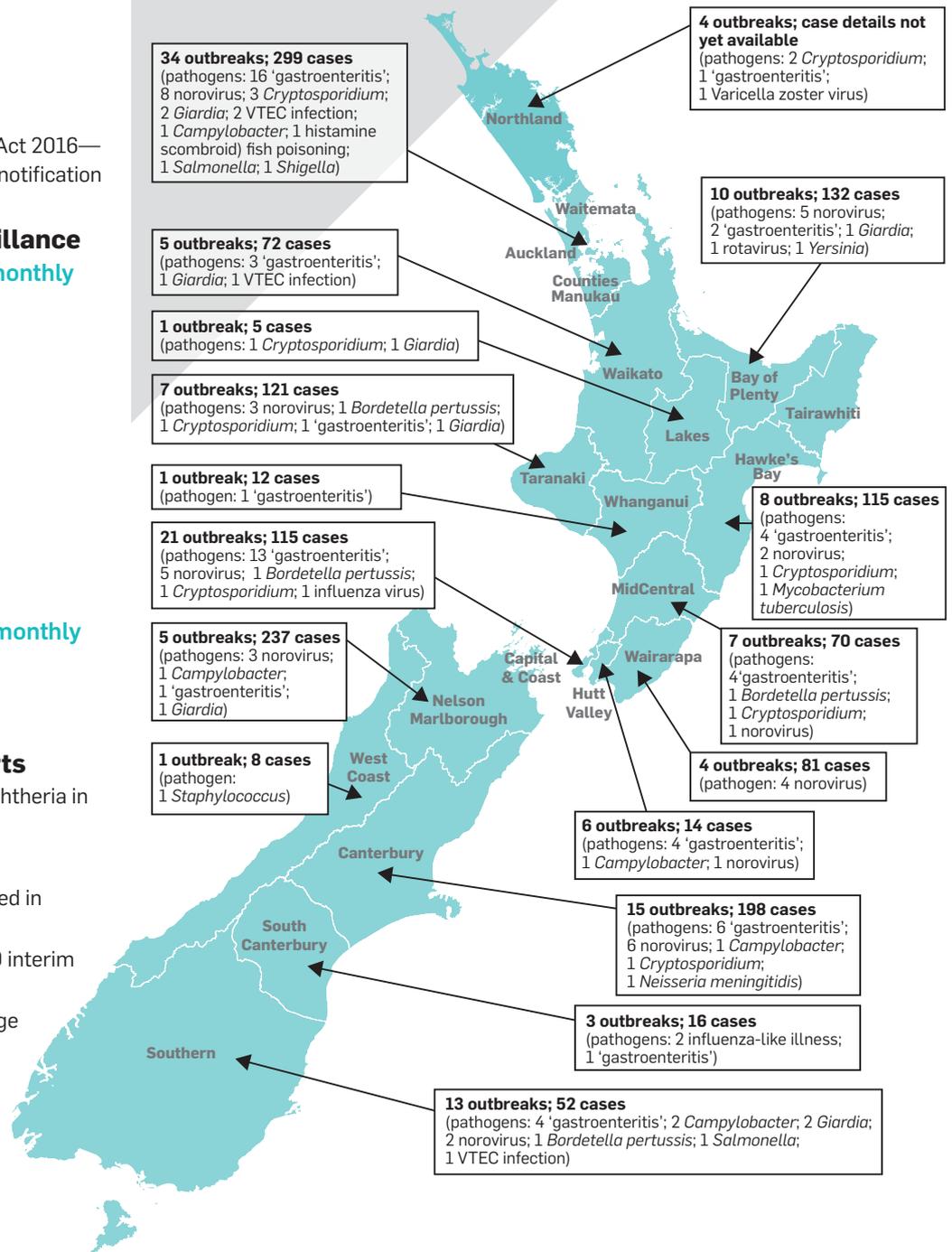
- 142 outbreaks (1537 cases) notified in this quarter
- 102 final reports (1335 cases); 40 interim reports (202 cases)
- 13.1 cases per outbreak on average
- 9 hospitalisations, no deaths

## 5. Outbreak case reports

- No reports this quarter

## 6. Laboratory surveillance

- Influenza surveillance, 2015



## This quarter's outbreaks

Notification and outbreak data in this issue are drawn from the October to December quarter of 2016. 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 16 January 2017. 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.

The latest reports from Sexually Transmitted Infections Surveillance, Antimicrobial Resistance, Virology and Enteric Reference Laboratories are available at [www.surv.esr.cri.nz](http://www.surv.esr.cri.nz)

## 1. EDITORIAL

### Health (Protection) Amendment Act 2016—opportunities and challenges for notification and STI surveillance

Passage of the Health (Protection) Amendment Act 2016 in late June 2016, amended, repealed or revoked several pieces of legislation pertinent to infectious diseases, effective 4 January 2017. The Health Act 1956 was amended, the Tuberculosis Act 1948 repealed, the Tuberculosis Regulations 1951 and Venereal Disease Regulations 1982 revoked and the Health (Infectious and Notifiable Diseases) Regulations 1966 (HIND Regulations) revoked and replaced with new regulations. Both tuberculosis and sexually transmitted infections (STIs) will now be dealt with under the Health Act 1956 and associated HIND Regulations 2016.

Some of these changes have implications for notification procedures and for the on-going surveillance of STIs.

Notification is now a legal requirement for all “health practitioners”. For practical purposes this extends notification from medical practitioners and medical laboratories to some nurse practitioners and licensed maternity carers. However, as most diseases are now notified directly using the electronic (e)-notification system after a positive laboratory test, it is unlikely this will cause an increase in notifications. It may result in more timely notification of some cases of diseases required to be notified on clinical suspicion (eg, measles, pertussis).

A new Section (C) has been added to Part 1, Schedule 1 of the Health Act 1956. Diseases specified in Section C are to be notified “without identifying information” by health practitioners and medical laboratories where identifying information means name, address, place of work/education or other information specified in regulation. However a Medical Officer of Health can obtain identifying information if they think there is “substantial public health risk”. Acquired immune deficiency syndrome (AIDS), human immunodeficiency virus (HIV) infection, syphilis and gonorrhoea are now notifiable under Section C.

The new HIND Regulations 2016 clarify what data should be provided in all notifications by health practitioners and medical laboratories and are worded so as not to preclude additional questions for specific diseases pertinent to risk and/or protective factors.

The addition of HIV infection and some STIs as notifiable diseases is intended to improve national STI surveillance by identifying trends earlier through direct laboratory notification and use of electronic databases for collection of data and generation of reports; collecting information on risk factors; and extending data collection for infectious syphilis to include cases diagnosed by all health practitioners (existing enhanced surveillance of infectious syphilis was limited to data from sexual health clinics).

Development of new systems for collection of non-identifiable case information for Section C diseases that protect privacy, are secure but also provide data in a timely and useful format has been challenging. This has required collaboration between health agencies and multiple stakeholders. A phased roll out for commencing notification for HIV infection, syphilis and gonorrhoea was agreed to allow for: completion of consultation with clinical microbiologists on the direct laboratory notification algorithms and laboratory criteria, laboratories and ESR to make system changes as required to support the new codes and non-identifiable notification, consultation with the sector about case definitions and questionnaires, and thorough testing of the new IT system to ensure safety and security.

For Section C diseases the new system will be fully automated for most notifications with laboratory diagnosed diseases directly notified to Medical Officers of Health via the EpiSurv e-notification system but without the identifying information proscribed in the Act and Regulations. A new, secure electronic database (REDCap) will be used to collect further details about the case directly from notifiers. This data will be used to automatically update EpiSurv allowing ESR and public health units to run timely reports on STIs in a similar fashion to other notifiable diseases.

For cases only able to be diagnosed clinically, such as AIDS and possibly some syphilis cases, clinicians will need to manually notify Medical Officers of Health but only basic information will be required for the initial notification as new processes will be used to enter further details about the case directly from notifiers into the new, secure REDCap database.

While the notification system will replace the existing voluntary HIV infection surveillance and enhanced syphilis surveillance, sentinel, clinic-based STI surveillance and laboratory-based chlamydia and gonorrhoea surveillance will continue, at least for 2017. This will ensure no loss of data, especially trend data. Notification will not collect negative test data for gonorrhoea as is currently done in the laboratory-based surveillance—this data allows for analysis of test positivity and population testing rates and coverage. This potential loss of useful information suggests that discussion with stakeholders is needed to review the purposes of surveillance for each STI before further modifications of the existing systems.

**Reported by Jill Sherwood, Health Group, ESR.**

## 2. NOTIFIABLE DISEASE SURVEILLANCE

The following is a summary of disease notifications for the October to December quarter of 2016 and cumulative notifications and rates calculated for a 12-month period (January to December 2016). 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.]. Information in this section is based on data recorded in EpiSurv by public health service staff up to 16 January 2017. As the data may be updated over time, this information should be regarded as provisional.

National surveillance data tables are available at [www.surv.esr.cri.nz](http://www.surv.esr.cri.nz)

### Vaccine preventable disease

#### Invasive pneumococcal disease

- Notifications:** 116 notifications in the quarter (2015, 125); 476 notifications over the last 12 months (2015, 447), giving a rate of 10.4 cases per 100,000 population (2015, 9.7), not a statistically significant increase.
- Comments:** there has been a statistically significant quarterly decrease from the previous quarter (178 cases). Cases were aged between 24 days and 99 years, with 8 cases aged <2 years.

#### Measles

- Notifications:** 1 notification in the quarter (2015, 1); 103 notifications over the last 12 months (2015, 10), giving a rate of 2.2 cases per 100,000 population (2015, 0.2), a statistically significant increase.
- Comments:** there has been a statistically significant quarterly decrease from the previous quarter (9 cases). The case notified this quarter was a confirmed case in the 10–19 years age group.

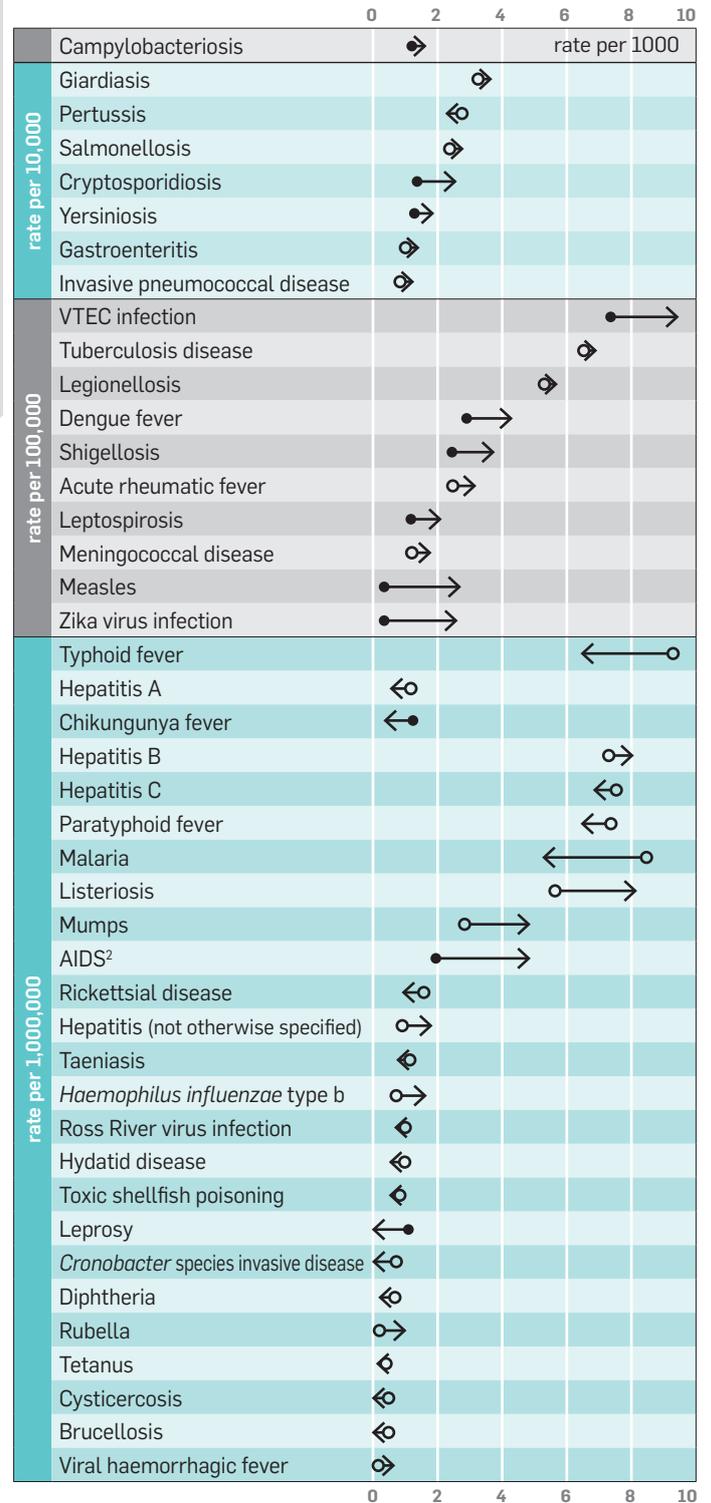
#### Mumps

- Notifications:** 16 notification in the quarter (2015, 3); 22 notifications over the last 12 months (2015, 13), giving a rate of 0.5 cases per 100,000 population (2015, 0.3), not a statistically significant increase.
- Comments:** there has been a statistically significant quarterly increase from the previous quarter (4 cases) and from the same quarter last year (3 cases). 9 of the notified cases were confirmed. No cases were aged <15 months.

#### Pertussis

- Notifications:** 330 notifications in the quarter (2015, 289); 1098 notifications over the last 12 months (2015, 1168), giving a rate of 23.9 cases per 100,000 population (2015, 25.4), not a statistically significant decrease.

## National surveillance data 12-monthly notification rate changes<sup>1</sup>



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

<sup>1</sup> Rates are calculated for the 12-month period January to December 2016 and compared to previous 12-month rates.

<sup>2</sup> 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.

- **Comments:** there has been a statistically significant quarterly increase from the previous quarter (260 cases).

## Enteric infections

### Campylobacteriosis

- **Notifications:** 2753 notifications in the quarter (2015, 2114); 7456 notifications over the last 12 months (2015, 6218), giving a rate of 162.2 cases per 100,000 population (2015, 135.3), a statistically significant increase.
- **Comments:** there has been a statistically significant quarterly increase from the previous quarter (2022 cases) and from the same quarter last year (2114 cases).

### Gastroenteritis (acute)

- **Notifications:** 109 notifications in the quarter (2015, 143); 523 notifications over the last 12 months (2015, 503), giving a rate of 11.4 cases per 100,000 population (2015, 10.9), not a statistically significant increase.
- **Comments:** there has been a statistically significant quarterly decrease from the previous quarter (169 cases) and from the same quarter last year (143 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 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.

### VTEC infection

- **Notifications:** 89 notifications in the quarter (2015, 101); 422 notifications over the last 12 months (2015, 330), giving a rate of 9.2 cases per 100,000 population (2015, 7.2), a statistically significant increase.
- **Comments:** The annual increase may be due to a recent change in laboratory methods in the Auckland region, all faecal specimens are now screened for VTEC using PCR.

### Yersiniosis

- **Notifications:** 293 notifications in the quarter (2015, 225); 858 notifications over the last 12 months (2015, 634), giving a rate of 18.7 cases per 100,000 population (2015, 13.8), a statistically significant increase.
- **Comments:** there has been a statistically significant quarterly increase from the previous quarter (219) and from the same quarter last year (225 cases).

## Infectious respiratory diseases

### Acute rheumatic fever

- **Notifications:** 17 notifications in the quarter (2015, 24); 139 notifications over the last 12 months (2015, 112), giving a rate of 3.0 cases per 100,000 population (2015, 2.4), not a statistically significant increase.

- **Comments:** there has been a statistically significant quarterly decrease from the previous quarter (43 cases). Cases were distributed by age as follows: 3 (5–9 years), 5 (10–14 years), and 9 ( $\geq 15$  years). 15 cases were an initial attack and 2 cases were a recurrent attack of acute rheumatic fever.

- **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.

## Tuberculosis disease

- **Notifications:** 94 notifications in the quarter (2015, 77); 301 notifications over the last 12 months (2015, 293) giving a rate of 6.5 per 100,000 population (2015, 6.4), not a statistically significant increase.
- **Comments:** there has been a statistically significant quarterly increase from the previous quarter (54 cases). 68 cases were laboratory confirmed; 92 cases were new cases and 2 cases were a relapse or reactivation.

## Environmental exposures & infections

### Cryptosporidiosis

- **Notifications:** 344 notifications in the quarter (2015, 261); 1061 notifications over the last 12 months (2015, 696), giving a rate of 23.1 cases per 100,000 population (2015, 15.1), a statistically significant increase.
- **Comments:** there has been a statistically significant quarterly increase from the same quarter last year (261 cases). The increase in notifications may be partly due to a change in laboratory practice in the Northern region, where since late June 2015, all faecal specimens are screened for *Cryptosporidium* and *Giardia* regardless of whether parasite screening requested.

### Legionellosis

- **Notifications:** 69 notifications in the quarter (2015, 121); 252 notifications over the last 12 months (2015, 247), giving a rate of 5.5 cases per 100,000 population (2015, 5.4), not a statistically significant increase.
- **Comments:** there has been a statistically significant quarterly increase from the previous quarter (43 cases) and statistically significant decrease from the same quarter last year (121 cases). 3 notifications were still under investigation.

### Leptospirosis

- **Notifications:** 30 notifications in the quarter (2015, 16); 93 notifications over the last 12 months (2015, 63), giving a rate of 2.0 cases per 100,000 population (2015, 1.4), a statistically significant increase.
- **Comments:** there has been a statistically significant quarterly increase from the same quarter last year (16 cases). There were 25 male cases and 5 female cases. 22 cases were recorded as engaged in occupations identified as high risk for exposure. The most commonly recorded occupations for these cases were farmer or farm worker (17 cases) and meat process worker (5 cases). 4 notifications were still under investigation.

## New, exotic & imported infections

### Chikungunya fever

- Notifications:** 6 notifications in the quarter (2015, 1); 28 notifications over the last 12 months (2015, 48), giving a rate of 0.6 cases per 100,000 population (2015, 1.0), a statistically significant decrease.
- Comments:** 5 cases were confirmed and 1 case was probable. All cases had travelled overseas during the incubation period or had a prior travel history that could account for their infection. Countries visited were India (5 cases), Bali, Singapore and Viet Nam (1 case). Cases may have travelled to more than one country.

### Dengue fever

- Notifications:** 30 notifications in the quarter (2015, 19); 193 notifications over the last 12 months (2015, 125), giving a rate of 4.2 cases per 100,000 population (2015, 2.7), a statistically significant increase.
- Comments:** 29 cases were laboratory confirmed and 1 notification was still under investigation. All laboratory confirmed cases had travelled overseas during the incubation period of the disease. The most commonly visited countries were Indonesia (11 cases), India (5 cases), Solomon Islands and Viet Nam (3 cases each).

### Leprosy

**Notifications:** no notifications in the quarter (2015, 1); no notifications over the last 12 months (2015, 5), a statistically significant decrease.

### Shigellosis

- Notifications:** 54 notifications in the quarter (2015, 22); 174 notifications over the last 12 months (2015, 111), giving a rate of 3.8 per 100,000 population (2015, 2.4), a statistically significant increase.
- Comments:** there has been a statistically significant quarterly increase from the same quarter last year (22 cases). Overseas travel or prior travel information was known for 49 (90.7%) cases. Of these, 17 (34.7%) cases had not travelled overseas during the incubation period and had no travel history that could account for their infection.

### Typhoid

- Notifications:** 7 notifications in the quarter (2015, 19); 38 notifications over the last 12 months (2015, 43), giving a rate of 0.8 per 100,000 population (2015, 0.9), not a statistically significant decrease.
- Comments:** there has been a statistically significant quarterly decrease from the same quarter last year (19 cases). Overseas travel or prior travel information was known for all cases. Of these, 1 (14.3%) case had not travelled overseas during the incubation period and had no travel history that could account for their infection.

### Zika virus infection

- Notifications:** 1 notification in the quarter (2015, 5); 100 notifications over the last 12 months (2015, 9), giving a rate of 2.2 per 100,000 population (2015, 0.2), a statistically significant increase.
- Comments:** This was a probable case that had travelled to Tonga during the incubation period of the disease.

## 3. OTHER SURVEILLANCE REPORTS

### A case of toxigenic cutaneous diphtheria in Christchurch, November 2016

In October 2016 Canterbury Health Laboratories notified the medical officer of health at Community & Public Health (CPH) of a case of *Corynebacterium diphtheriae* isolated from a finger lesion in a 48-year-old of Pacific ethnicity.

The case (who had previously lived in Australia) visited Samoa from 6 August to 9 September 2016 before travelling to New Zealand. Three days after arriving in Christchurch they noticed their right middle finger was swollen. Over the next 10 days the swelling became progressively worse. On 19 September the case was admitted to Christchurch Hospital because of congestive heart failure. While in hospital the finger lesion was swabbed. The result was positive for *C. diphtheriae* and *Staphylococcus aureus*. The case was commenced on Flucloxacillin 500mg four times a day for 14 days while waiting for the results of the tests for toxigenicity and antibiotic resistance. Once the test showed the strain was toxigenic and resistant to penicillin, Erythromycin 400 mg three times a day for 14 days was added to his regimen.

Although a throat swab on 13 October was clear, the significance was uncertain as the case was taking antibiotics and there had been no initial nasopharyngeal swab. The infectious disease physician who treated the case assumed pharyngeal colonisation with *C. diphtheria*, as this occurs in 20–40% of cutaneous cases.<sup>1</sup> The case also received a dose of tetanus-diphtheria vaccination. After completing both courses of antibiotics, nasopharyngeal, throat and finger lesion swabs were clear. The case recovered without any further problems.

The case's contacts were people living in the same household as the case, or who had contact with the finger lesion or dressings, or who had been patients in the same hospital room, since cutaneous sites can contaminate the inanimate environment and induce throat infections more efficiently than pharyngeal colonisation.<sup>2</sup>

The case was unemployed and had kept to them self since arriving from Samoa. They had come into contact with only one person in the household, no one had visited them, and they hadn't attended any gatherings. However, nine patients had shared the hospital room. CPH staff asked the GPs of the discharged patients to administer nasopharyngeal and throat swabs, and antibiotics. These patients also received

either a diphtheria (Td) booster (if their previous booster was more than five years ago) or a complete course to immunise against diphtheria (if they were never immunised).

After consulting with the infectious disease physician seven patients were offered Ciprofloxacin 500 mg twice daily for seven days. An additional two patients received Erythromycin 250 mg four times a day for seven days (because they didn't tolerate Ciprofloxacin) and one further patient was already on Roxithromycin, which was considered sufficient. Seven contacts received a tetanus-diphtheria booster. All swabs (taken before and after antibiotics were administered) tested negative for *C. diphtheriae*.

In both 2014 and 2015 New Zealand had two notified cases of toxigenic cutaneous diphtheria. These people were infected in Samoa, Tokelau and Pakistan. New Zealand had its last case of pharyngeal diphtheria in 1998.<sup>3</sup>

#### References

1. Pasternack M, Swartz M 2010. Cellulitis, necrotizing fasciitis and subcutaneous tissue infections. In: Mandell, Douglas and Bennett's Principles and Practice of Infectious Diseases, 7th edition. Churchill Livingstone Elsevier, Philadelphia. p1298.
2. MacGregor R 2010. *Corynebacterium diphtheriae*. In: Mandell, Douglas and Bennett's Principles and Practice of Infectious Diseases, 7th edition. Churchill Livingstone Elsevier, Philadelphia. p2691.
3. Institute of Environmental Science and Research Ltd. 2016. Notifiable diseases in New Zealand: Annual Report 2015, Institute Of Environmental Science And Research Limited, Porirua.

Reported by Jimmy Wong, Health Protection Officer, Dr Peter Mitchell, Medical Officer of Health and Daniel Williams, Medical Officer of Health, Community and Public Health (Canterbury).

## 4. OUTBREAK SURVEILLANCE

The following is a summary of the outbreak trends for the October to December 2016. Comparisons are made to the previous quarter (July to September 2016), and to the same quarter in the previous year (October to December 2015). Information in this section is based on data recorded in EpiSurv by public health service staff up to 16 January 2017. As the data may be updated over time, this information should be regarded as provisional.

### General

- 142 outbreaks notified in this quarter (1537 cases).
- 102 are final reports (1335 cases); 40 are interim reports (202 cases) that have yet to be finalised and closed.

All data that follow relate to final reports only.

- 13.1 cases on average per outbreak, compared with 19.5 cases per outbreak in the previous quarter (13.5 cases per outbreak in the same quarter of last year).
- 9 hospitalisations: norovirus (6), *Neisseria meningitidis* (2), and *Salmonella* (1).
- No deaths.
- Three outbreaks involved more than one pathogen therefore individual pathogen outbreak numbers may not sum to group totals.

### Pathogens

- 39 'gastroenteritis' outbreaks (340 cases).
- 34 norovirus outbreaks (868 cases).
- 8 *Cryptosporidium* outbreaks (55 cases).
- 8 *Giardia* outbreaks (28 cases).
- 4 *Campylobacter* outbreaks (12 cases).
- 4 VTEC infection outbreaks (11 cases).
- 2 *Bordetella pertussis* outbreaks (8 cases).
- 1 histamine (scombroid) fish poisoning outbreak (4 cases).
- 1 *N. meningitidis* outbreak (2 cases).
- 1 rotavirus outbreak (4 cases).
- 1 *Salmonella* outbreak (2 cases).
- 1 *Shigella* outbreak (5 cases).
- 1 *Staphylococcus* 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.

- 74 person-to-person, from (non-sexual) contact with an infected person (including droplets): 28 norovirus (798 cases), 25 'gastroenteritis' (285 cases), 6 *Cryptosporidium* (33 cases), 6 *Giardia* (21 cases), 3 VTEC infection (7 cases), 2 *B. pertussis* (8 cases), 2 *Campylobacter* (5 cases), 1 *N. meningitidis* (2 cases), 1 rotavirus (4 cases), 1 *Salmonella* (2 cases), and 1 *Shigella* (5 cases).
- 24 foodborne, from consumption of contaminated food or drink (excluding water): 12 'gastroenteritis' (41 cases), 6 norovirus (85 cases), 2 *Campylobacter* (7 cases), 2 *Giardia* (9 cases); 1 histamine (scombroid) fish poisoning (4 cases), 1 *Salmonella* (2 cases), and 1 *Staphylococcus* (8 cases).
- 10 environmental, from contact with an environmental source (eg, swimming): 5 'gastroenteritis' (74 cases), 2 norovirus (48 cases), 1 *Campylobacter* (3 cases); 1 *Cryptosporidium* (18 cases), and 1 *Giardia* (2 cases).
- 4 waterborne, from consumption of contaminated drinking water: 1 *Campylobacter* (3 cases), 1 *Cryptosporidium* (4 cases), 1 *Giardia* (4 cases), and 1 VTEC infection (4 cases).
- 3 zoonotic: 2 *Campylobacter* (5 cases) and 1 VTEC infection (2 cases).
- 1 other mode: 'gastroenteritis' (3 cases).
- 6 mode of transmission unknown: 4 'gastroenteritis' (21 cases) and 2 norovirus (19 cases).

### Circumstances of exposure

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

- 29 long term care facility: 14 'gastroenteritis' (128 cases), 14 norovirus (533 cases), and 1 rotavirus (4 cases).

- 19 private home: 7 *Giardia* (23 cases), 4 *Cryptosporidium* (14 cases), 3 VTEC infection (7 cases), 2 *B. pertussis* (8 cases), 2 *Campylobacter* (5 cases), 1 'gastroenteritis' (2 cases), 1 *Salmonella* (2 cases), and 1 *Shigella* (5 cases).
- 17 childcare centre: 6 'gastroenteritis' (92 cases), 7 norovirus (177 cases), 1 *B. pertussis* (5 cases), 1 *Cryptosporidium* (17 cases), 1 *N. meningitidis* (2 cases), and 1 VTEC infection (4 cases).
- 12 restaurant/café/bakery: 8 'gastroenteritis' (21 cases), 3 norovirus (44 cases), and 1 histamine (scombroid) fish poisoning (4 cases).
- 5 school: 3 norovirus (53 cases) and 2 'gastroenteritis' (27 cases).
- 4 takeaways: 4 'gastroenteritis' (10 cases).
- 3 hospital acute care: 3 norovirus (36 cases).
- 3 other institution: 2 'gastroenteritis' (23 cases) and 1 norovirus (17 cases).
- 2 camp: 1 *Cryptosporidium* (18 cases) and 1 norovirus (24 cases).
- 2 farm: 1 *Campylobacter* (2 cases) and 1 'gastroenteritis' (2 cases).
- 2 other food outlet: 1 *Campylobacter* (5 cases), 1 'gastroenteritis' (2 cases), and 1 *Giardia* (5 cases).
- 2 other setting: 2 *Cryptosporidium* (6 cases).
- 1 caterers: norovirus (10 cases).
- 1 fast food restaurant: norovirus (7 cases).
- 1 hotel/motel: *Giardia* (2 cases).
- 1 supermarket/delicatessen: 'gastroenteritis' (2 cases).
- 4 outbreaks had two or more exposure settings recorded.
- 2 outbreaks had no exposure settings recorded.

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

- 5 takeaways: 4 'gastroenteritis' (10 cases) and 1 *Staphylococcus* (8 cases).
- 9 restaurants/café/bakery: 5 'gastroenteritis' (14 cases), 3 norovirus (44 cases), and 1 histamine (scombroid) fish poisoning (4 cases).
- 2 private home: 1 *Giardia* (4 cases) and 1 'gastroenteritis' (2 cases).
- 2 other food outlet: 1 *Campylobacter* (5 cases), 1 'gastroenteritis' (2 cases), and 1 *Giardia* (5 cases).
- 1 camp: norovirus (24 cases)
- 1 fast food restaurant: norovirus (7 cases).
- 1 supermarket/delicatessen: 'gastroenteritis' (2 cases).
- 4 outbreaks had no preparation settings recorded.

## 5. OUTBREAK CASE REPORTS

No reports this quarter.

## 6. LABORATORY SURVEILLANCE

### Influenza surveillance, 2015

This article provides an overview of the influenza surveillance in New Zealand in 2015 ([https://surv.esr.cri.nz/virology/influenza\\_annual\\_report.php](https://surv.esr.cri.nz/virology/influenza_annual_report.php)). Influenza surveillance provides critical information about a virus that can rapidly change to cause substantial morbidity and mortality. The New Zealand influenza surveillance system compiles information from a variety of sources to guide public health action and policy with essential information on disease burden, epidemiology, aetiology, risk factors, clinical spectrum and outcomes, and vaccine effectiveness. The influenza surveillance system is in place to detect influenza epidemics/pandemics, inform vaccination policy and vaccine strain selection, and guide public health control measures. New Zealand influenza surveillance also contributes to these activities at a global level.

#### Influenza activity

New Zealand conducts both hospital- and general practice- (GP) based surveillance, because these systems capture disease presentations at different levels of severity. Due to differences in care seeking, the combination of these systems also allows for a better representation of the burden of influenza in New Zealand. The very young (<5 years), older adults (≥65 years), and those of Māori or Pacific ethnicities are more likely to be admitted in hospital but less likely to be seen at GPs.

Visits to the GP (Figure 1) and hospital for acute respiratory illnesses were at a moderate level during 2015. However, the number of influenza-positive acute respiratory illnesses in both settings were at high levels. In the national ILI system, ILI consultation rates varied greatly across district health boards (DHBs), with the highest rates reported from South Canterbury and Tairāwhiti DHBs.

Influenza A(H3N2) was the predominant 2015 influenza virus among subtyped and lineage-typed viruses; however, two lineages of influenza B viruses (Yamagata and Victoria) also circulated. The influenza B (Victoria lineage) was not included in the 2015 trivalent influenza vaccine. The influenza B (Victoria lineage) virus will be added to the 2016 trivalent and quadrivalent influenza vaccines. More detail on 2016 influenza vaccine recommendations are here: [https://surv.esr.cri.nz/virology/influenza\\_vaccine.php](https://surv.esr.cri.nz/virology/influenza_vaccine.php)

#### Influenza in populations at elevated risk

Groups at increased risk for infection with influenza or poor outcomes with influenza infection are a particular focus of influenza surveillance. Pregnant women, adults with specific underlying medical conditions, and children

<5 years old who have been hospitalised for respiratory illness or have a history of significant respiratory illness are all eligible for free seasonal influenza vaccine (<http://www.influenza.org.nz/eligibility-criteria>).

**Pregnant women:** Pregnant women were five times (95% Confidence Interval [CI]: 2–11) as likely as other similarly aged women (15–45 years) to be hospitalised with influenza.

**Adults with underlying medical conditions:** Of the nearly 200 adults ( $\geq 15$  years) who were hospitalised with influenza during 2015, many (60%) had underlying medical conditions or prior respiratory hospitalisation with cardiovascular disease, asthma and diabetes being the most common.

**Children:** Around a third (36%) of children <15 years old hospitalised with influenza had any underlying conditions or prior respiratory hospitalisation.

### Vaccine coverage, vaccine effectiveness and antiviral resistance

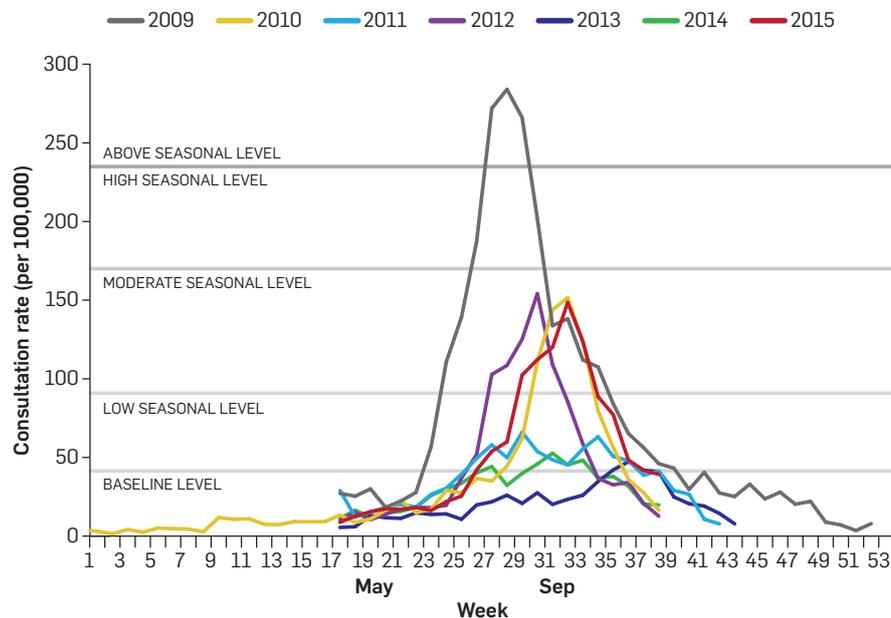
In 2015, a reported 26% of the New Zealand population was vaccinated for influenza, which is slightly lower than

the peak in 2013 when influenza vaccine for children <5 years old with significant respiratory illness became funded. Influenza vaccine coverage was also low (<30%) among severe acute respiratory infection patients who are eligible for free vaccine (ie, those  $\geq 65$  years, those <65 years with underlying conditions, and children with prior respiratory hospitalisations).

The 2015 seasonal influenza vaccine was 36% (95% CI: 11–54) effective at preventing influenza-related general practice consultations and 50% (95% CI: 20–68) effective at preventing influenza-associated hospitalisations. Even with moderate vaccine effectiveness (35–65%), influenza vaccine can not only help protect those who are vaccinated but can also help protect their close contacts from getting ill with influenza (<https://www.cdc.gov/flu/about/qa/vaccineeffect.htm>). The circulating influenza viruses were all sensitive to oseltamivir and zanamivir (antiviral agents).

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

FIGURE 1. Weekly consultation rates for influenza-like illness (ILI) in New Zealand, 2009–2015



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