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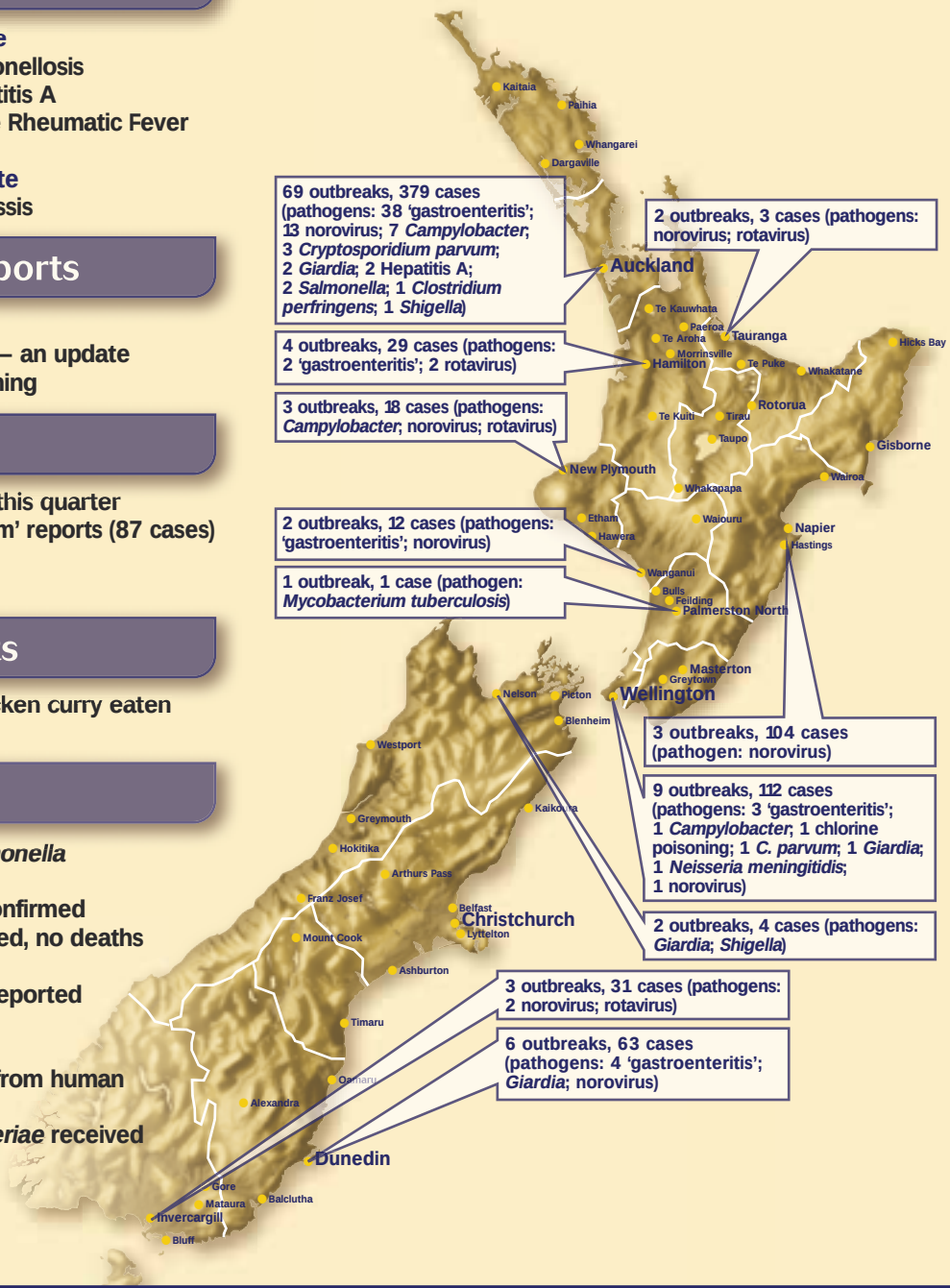
New Zealand Public Health Surveillance Report

December 2006

Contents & Highlights

This Quarter's Outbreaks

Notification and outbreak data in this issue are drawn from the July – September quarter of 2006. 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 9 October2006.



The STI Clinic Surveillance quarterly report from April to June 2006, the Antimicrobial susceptibility among *Neisseria gonorrhoeae* report from April to June 2006, and antimicrobial resistance data from hospital and community laboratories for 2005 are now available at www.surv.esr.cri.nz

1 Editorial

Pandemic influenza preparedness

In the last century there were three widespread influenza pandemics, in 1918/19, 1957 and 1968, all of which reached New Zealand. The World Health Organization advises that the recent spread of the H5N1 strain of avian influenza means that there is now a significant risk of another human influenza pandemic[1], possibly as severe as the 1918/19 pandemic, which resulted in over 8000 deaths in New Zealand and many millions worldwide.

The Ministry of Health is responsible for planning the national response to health service emergencies of all kinds, and along with the health sector have undertaken extensive planning for a potential pandemic through the National Health Emergency Plan: Infectious Diseases (NHEP)[2] and the New Zealand Influenza Pandemic Action Plan (NZIPAP)[3].

The Ministry of Health has taken an approach to pandemic planning that reflects the more serious end of the scale of national health emergencies. Using the impacts in New Zealand of the November 1918 influenza pandemic as a basis, the standard planning model assumes a pandemic wave in which 40% of the New Zealand population becomes ill over an eight-week period.[3] The model indicates that over 1.6 million people could become ill over this time. The peak incidence occurs over weeks 3 to 5, when about 1.3 million people - approximately one third of New Zealand's population - would be ill, convalescent or only just recovered. The model assumes a total case fatality rate of 2%, which equates to about 33,000 deaths over the eight-week period, peaking at about 10,000 in week 4 (this compares with around 550 deaths per week normally).

It is important to note that the model is not a prediction or a forecast of what will happen should a pandemic occur. A 21st century pandemic may not reflect the course, incidence or fatality rates of the 1918 pandemic. The purpose of the model is to provide a structure around which the health sector, government and New Zealand as a whole can plan for a very large event with severe impacts on all aspects of society.

The New Zealand government has taken a strategic approach to preparing for, reducing the impact of, responding to and recovering from a pandemic. Central to this approach are three overarching goals, and a five-stage planning strategy.[3]

Goals:

(1) To minimise the impact of the disease, and to mitigate its effects on the people of New Zealand.

(2) To enable society to continue to function as normally as possible during and after a pandemic.

(3) To minimise and mitigate the economic consequences of a pandemic on New Zealand.

Stages:

(1) *Plan for it* - To plan to reduce the health, social and economic impact of a pandemic on New Zealand.

(2) *Keep it out* - To prevent, or delay to the greatest extent possible, the arrival of the pandemic virus into New Zealand.

(3) *Stamp it out* - To control and/or eliminate any clusters that may be found in New Zealand.

(4) *Manage it* - To reduce the impact of pandemic influenza on New Zealand's population.

(5) *Recover from it* - To expedite the recovery of population health, communities and society where affected by the pandemic, pandemic management measures, or disruption to normal services.

Over the next seven months, three national training exercises will be run to practice and evaluate New Zealand's response to a potential pandemic. The first exercise, Exercise Makgill, was run on 9 November 2006, and focued on the *Stamp It Out* stage of New Zealand's five-stage strategy. The exercise was designed to specifically address public health interventions, cluster control, and communications with the public, government, health professionals and media. In addition, the exercise was designed to assess the coordination and communication between the District Health Boards, the Ministry of Health, and other information and reporting lines, and assess the governance aspects of the NZIPAP. The exercise allowed the health sector to exercise their plans and identify any gaps that need to be addressed.

1 www.who.int/csr/disease/avian_influenza/en/

2 www.moh.govt.nz/nhep

3 www.moh.govt.nz/moh.nsf/indexmh/nz-influenza-pandemic-action-plan-2006

2. Notifiable Disease Surveillance

The following is a summary of disease notifications for the July - September quarter of 2006 and cumulative notifications and rates calculated for a 12-month period (October 2005 – September 2006). 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, R. G. and D. G. Altman. Proportions and their differences. In: *Statistics with Confidence*. 2000. BMJ Books. Bristol]. Data contained within this report are based on information recorded in EpiSurv by public health service staff up to 10 July 2006. As this information may be updated over time, these data should be regarded as provisional.

National surveillance data tables are available online (www.surv.esr.cri.nz).

VACCINE PREVENTABLE DISEASE

Haemophilus influenzae Type b

- *Notifications:* No notifications in the quarter (2005, 3); 10 notifications over the last 12 months (2005, 7) giving a rate of 0.3 cases per 100,000 population (2005, 0.2); not a statistically significant increase
- *Comments:* there has been a statistically significant quarterly decrease from the previous quarter (8 cases)

Hepatitis B

- *Notifications:* 16 notifications in the quarter (2005, 15); 71 notifications over the last 12 months (2005, 45) giving a rate of 1.9 cases per 100,000 population (2005, 1.2); statistically significant increase
- *Comments:* one of the notifications was aged under 16 years

Mumps

- *Notifications:* 11 cases were notified in the quarter (2005, 24); 47 over the last 12 months (2005, 58) giving a rate of 1.3 cases per 100,000 population (2005, 1.6); not a statistically significant decrease
- *Comments:* There has been a significant decrease from the same quarter last year (24 cases)

Pertussis

- *Notifications:* 324 notifications in the quarter (2005, 582); 1,600 notifications over the last 12 months (2005, 3,794) giving a rate of 42.8 cases per 100,000 population (2005, 101.5); statistically significant decrease
- *Comments:* there has been a statistically significant quarterly increase from the previous quarter (260) and statistically significant decrease from the same quarter last year (582 cases)

INFECTIOUS RESPIRATORY DISEASES

Acute Rheumatic Fever

- *Notifications:* 29 notifications in the quarter (2005, 20); 114 notifications over the last 12-months (2005, 72) giving a rate of 3.1 cases per 100,000 population (2005, 1.9); statistically significant increase
- *Comments:* notifications were distributed by age as follows, 12 (5-9 years); 10 (10-14 years); 4 (15-19 years); 2 (20-29 years) and 1 unknown; 28 notifications had rheumatic fever initial attacks with 1 case of recurrence attack

Meningococcal Disease

- *Notifications:* 61 notifications in the quarter (2005, 67); 165 notifications over the last 12 months (2005, 263) giving a rate of 4.4 cases per 100,000 population (2005, 7.0); statistically significant decrease
- *Comments:* there has been a statistically significant quarterly increase from the previous quarter (29 cases). Notifications were distributed by age as follows, 12 under 1 year of age; 9 (1-4 years); 5 (5-9 years); 2 (10-14 years); 13 (15-19 years) and 20 in the 20 and over category; 5 deaths were reported in this quarter

Tuberculosis Disease

- *Notifications:* 120 notifications in the quarter (2005, 78); 344 notifications over the last 12-months (2005, 371) giving a rate of 9.2 cases per 100,000 population (2005, 9.9); not a statistically significant decrease
- *Comments:* there has been a statistically significant quarterly increase from the previous quarter (65 cases) and from the same quarter last year (78 cases); 110 new cases and 10 reactivated cases; 69 were laboratory confirmed cases, 47 were probable cases, and 4 cases were under investigation

ENTERIC INFECTIONS

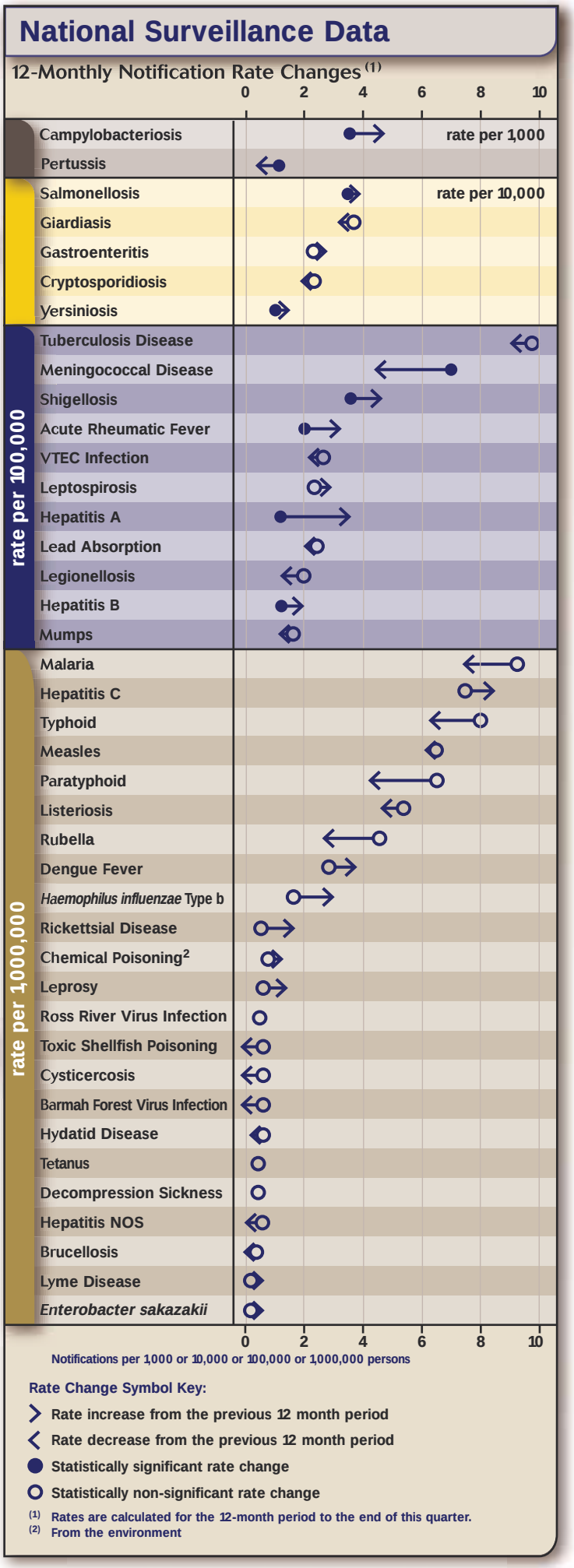
Campylobacteriosis

- *Notifications:* 3,512 notifications in the quarter (2005, 3,563); 16,121 notifications over the last 12 months (2005, 12,783) giving a rate of 431.4 cases per 100,000 population (2005, 342.0); statistically significant increase

Gastroenteritis

- *Notifications:* 192 notifications in the quarter (2005, 118); 865 notifications over the last 12 months (2005, 798) giving a rate of 23.1 cases per 100,000 population (2005, 21.4); not a statistically significant increase
- *Comments:* there has been a statistically significant quarterly decrease from the previous quarter (243 cases) and a statistically significant increase from the same quarter last year (118 cases); note that this is not a notifiable disease per se except in persons with a suspected common source or with a high risk occupation, and 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

National Surveillance Data



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Salmonellosis

- *Notifications:* 260 notifications in the quarter (2005, 305); 1,406 notifications over the last 12 months (2005, 1,273) giving a rate of 37.6 cases per 100,000 population (2005, 34.1); statistically significant increase
- *Comments:* there has been a statistically significant quarterly decrease from the previous quarter (323 cases)

Shigellosis

- *Notifications:* 23 notifications in the quarter (2005, 26); 173 notifications over the last 12 months (2005, 129) giving a rate of 4.6 cases per 100,000 population (2005, 3.5); statistically significant increase

VTEC/STEC Infection

- *Notifications:* 12 notifications in the quarter (2005, 18); 90 notifications over the last 12 months (2005, 92) giving a rate of 2.4 cases per 100,000 population (2005, 2.5); not a statistically significant decrease
- *Comments:* there has been a statistically significant quarterly decrease from the previous quarter (24 cases)

ENVIRONMENTAL EXPOSURES AND INFECTIONS

Cryptosporidiosis

- *Notifications:* 232 notifications in the quarter (2005, 274); 773 notifications over the last 12 months (2005, 819) giving a rate of 20.7 cases per 100,000 population (2005, 21.9); not a statistically significant decrease
- *Comments:* there has been a statistically significant quarterly increase from the previous quarter (85 cases)

Hepatitis A

- *Notifications:* 22 notifications in the quarter (2005, 14); 128 notifications over the last 12 months (2005, 40) giving a rate of 3.4 cases per 100,000 population (2005, 1.1); a statistically significant increase
- *Comments:* all notifications were aged between 6 and 78 years, with 4 cases under the age of 16 years

Legionellosis

- *Notifications:* 11 notifications in the quarter (2005, 26); 64 notifications over the last 12 months (2004, 75) giving a rate of 1.7 cases per 100,000 population (2005, 2.0); not a statistically significant decrease
- *Comments:* there has been a statistically significant quarterly decrease from the same quarter last year (26 cases)

Yersiniosis

- *Notifications:* 113 notifications in the quarter (2005, 100); 450 notifications over the last 12 months (2005, 368) giving a rate of 12.0 cases per 100,000 population (2005, 9.8); a statistically significant increase

NEW, EXOTIC AND IMPORTED INFECTIONS

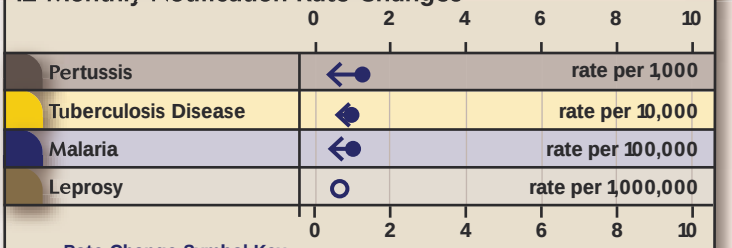
Malaria

- *Notifications:* 13 notifications in the quarter (2005, 4); 28 notifications over the last 12 months (2005, 35) giving a rate of 0.7 cases per 100,000 population (2005, 0.9); not a statistically significant decrease
- *Comments:* there has been a statistically significant increase from the previous quarter (3 cases) and from the same quarter last year (4 cases); all notifications were laboratory confirmed; 10 cases were overseas during the incubation period, 1 case was a resident of India, 1 case was a resident of Papua New Guinea, and the travel history of 1 case was unknown; countries visited were Vanuatu, Solomon Islands, Papua New Guinea, India, Mali, and Ethiopia

Erratum: In the September 2006 issue of the NZPHSR, four of the disease rates in the table on page three (Pertussis, Tuberculosis, Malaria and Leprosy) were incorrectly reproduced, indicating rates 10 times lower than the correct rates. The rates in the text accompanying the table in Section 2 are correct. Below is the corrected table for these diseases.

National Surveillance Data

12-Monthly Notification Rate Changes [1]



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 to the end of June 2006.

3. Other Surveillance Reports

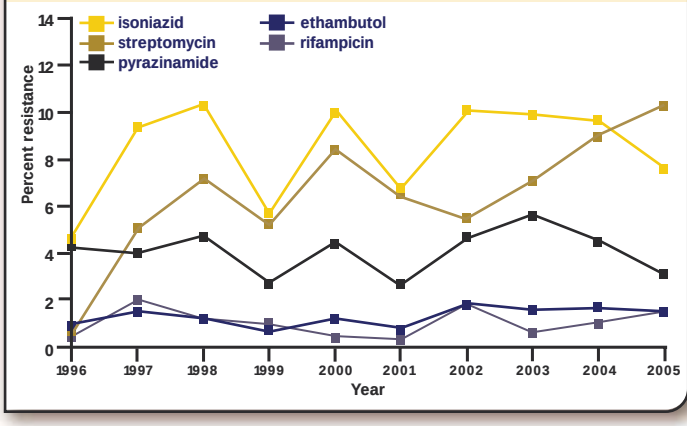
Antituberculosis-drug resistance

The national surveillance of antituberculosis-drug resistance is based on the results of susceptibility testing of isolates in the Mycobacteriology Reference Laboratories at Auckland City, Wellington and Waikato Hospitals. Susceptibility to five antituberculosis drugs (isoniazid, rifampicin, ethambutol, pyrazinamide and streptomycin) is routinely tested.

In 2005, 344 cases of tuberculosis were notified, 262 (76.2%) of which were reported by the Mycobacteriology Reference Laboratories as culture positive. The 262 isolates from the culture-positive cases included 257 *Mycobacterium tuberculosis* and five *M. bovis* isolates. Streptomycin resistance was most common (10.3%), followed by resistance to isoniazid (7.6%), pyrazinamide (3.1%), rifampicin (1.5%) and ethambutol (1.5%). Compared with New Zealand-born cases, cases born overseas were more resistant to each of the antimicrobials except pyrazinamide, although the differences were not significant ($p \geq 0.05$).

Trends in resistance to the five antimicrobials are shown in Figure 1. Over the whole 10-year period, 1996-2005, only streptomycin resistance changed significantly ($p \leq 0.05$). Streptomycin resistance increased between 1996 and 1998, but the increase was only significant among cases reported to have been born overseas. In contrast, the further increase in streptomycin resistance evident since 2002 occurred in both New Zealand- and overseas-born cases.

Figure 1. Antituberculosis-drug resistance, 1996-2005



The majority (84.0%) of the isolates in 2005 were susceptible to all five antimicrobials tested. Four isolates (1.5%) were multidrug-resistant (MDR-TB, resistant to at least isoniazid and rifampicin). MDR-TB is rare in New Zealand, with an average annual incidence of 0.8% and a total of 23 cases recorded in the 11 years since national surveillance of antituberculosis-drug resistance began in 1995. All but one of the 23 MDR-TB cases were born overseas and assumed to have acquired their MDR-TB overseas.

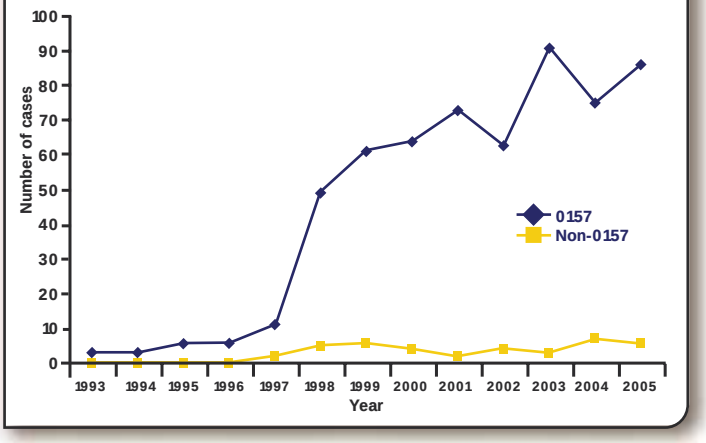
A full report on antituberculosis-drug resistance in 2005 is available at www.surv.esr.cri.nz/antimicrobial/tuberculosis.php

Reported by Helen Heffernan, Communicable Disease Programme, ESR, on behalf of the Mycobacteriology Reference Laboratories

STEC/VTEC infection in New Zealand – an update

The emergence in New Zealand of verocytotoxigenic *Escherichia coli* (VTEC) infection, also known as Shiga toxin-producing *E. coli* or STEC, was reported by Baker, Eyles, Bennett et al. in the February 1999 issue of the New Zealand Public Health Report (Vol. 6 Iss. 2 Feb 1999 p. 9-12). The increasing importance of VTEC as a gastrointestinal pathogen in New Zealand is reflected in the fact that the current annual incidence exceeds that given for the entire study period of the previous report (1988-1998). The annual incidence from 1993, when the first isolate of VTEC O157 was confirmed, to 2005 is given in Figure 2.

Figure 2. Laboratory confirmed cases of STEC/VTEC, 1993 -2005



At least part of the reason for the sharp increase in isolates referred between 1997 and 1998 will be due to an increase in awareness and testing by diagnostic laboratories.

Most New Zealand cases are the result of sporadic infection or part of small family clusters. No widespread outbreaks have been identified to date. Documented risk factors include consumption of raw milk, untreated water and contact with farm animals especially cattle. Serotype O157:H7 remains the most commonly identified VTEC, although it is not known whether this is a reflection of testing methods or a true predominance, since the majority of laboratories use methodologies that cannot identify most non-O157 VTECs.

Data on VTEC isolates, including clinical details, serotype and health district, are available at www.surv.esr.cri.nz/enteric_reference/enteric_reference.php The geographical distribution of isolates has changed since the earlier report, when the Central North Island and Waikato regions had the highest rate of VTEC infection. Increasingly, isolates are confirmed from the South Island, especially Canterbury and Southland. This may be a reflection of the agricultural diversity that has occurred in these regions, with a resulting increase in cattle farming and dairying. Ruminants, especially cattle, are a recognised source of VTEC.

It is important that clinical diagnostic laboratories are aware of the need to examine faecal samples for the presence of VTEC, particularly those from young children or from any age group living in a rural area. Suspect isolates should be referred to the Enteric Reference Laboratory (ERL) for confirmation and toxin testing, and molecular typing where appropriate. In cases where VTEC infection is suspected, but no VTEC O157 is isolated, a mixed sweep of organisms from a non-selective plate may be submitted to ERL for toxin testing and isolation of possible non-O157 VTEC serotypes. From January 2007 VTEC O157 will be phage typed and the *stx2* gene from all VTEC serotypes will be subtyped as an aid to recognising which strains should undergo molecular typing. This will aid in the timely recognition of outbreaks.

Reported by Jenny Bennett, Communicable Disease Programme, ESR

A near fatal case of nitrite food poisoning

On 18 April 2006, a 47-year-old male was brought to Middlemore Hospital after suddenly vomiting and collapsing at home. He was grey-blue in colour, had a rapid pulse rate (120/min), low oxygen saturation (SaO2 80%) and a reducing level of consciousness. Blood drawn from his vein was an unusual chocolate brown colour. The signs were classical of methaemoglobinaemia and he was treated with methylene blue solution, an antidote. Fifteen minutes later his colour had returned to normal and, although needing admission to the intensive care unit, he made a full recovery and was discharged three days later.

The case recounted that approximately one hour before his collapse he had consumed a very bitter cooked meatball, grey-green in colour. The remaining meatballs were sent to the Institute of Environmental Science and Research (ESR) for analysis. A level of sodium nitrite of 4.3% w/w (43,000 mg/kg) was confirmed, 334 times higher than the 125 mg/kg permitted for this preservative in “cured meat” under the joint Australia New Zealand Food Standards Code.[1]

The case was notified on 4 June 2006 and Auckland Regional Public Health Service’s officers immediately visited the butchery where the meatballs had been purchased. A product recall was initiated because of the severity of the illness, the amount of product unaccounted for (48 meatballs) and the possibility that some consumers had frozen them for later consumption. No product was ever returned. Two trays of meatballs had been purchased by a female known to the management. This person reported consuming the meatballs over 1-2 weeks without ill effects.

The head butcher of the implicated premises was interviewed about the process for producing meatballs. He had worked at the premises for 10 years and had three assistants. None of the butchers were formally trained. There was no documented recipe for making the meatballs and few features indicative of good food manufacturing practice. There was poor record keeping with no product storage records, no records kept of complaints and no procedures for storage of chemical preservatives.

A company supplying food preservatives to the premises was contacted. From receipts the company could confirm supplying 10kg of sodium nitrite powder on 5 January 2006. At the time of the investigation no nitrite preservative was found on the premises.

A 10 kg bag of flavouring powder was kept in the cupboard in the main butchery area next to a 10 kg bag of nitrite powder. Both powders were in white paper bags. The bag containing the nitrite had “poison” written on it and the powder was tinted pink. April 16 2006 was the first occasion that one of the assistants had made the meatballs on their own, with seven trays of eight meatballs produced. English was a second language and he could not read

continued...

the labelling on the nitrite bag. Since both were similar in colour it is likely that he added nitrite instead of flavouring. No meatballs had been made since 16 April 2006.

In methaemoglobinaemia the iron in haemoglobin is oxidised from the ferrous (Fe2+) to the ferric (Fe3+) form, an inert pigment incapable of transporting oxygen.[2] Acquired methaemoglobinaemia may be caused by ingestion of a range of drugs and chemicals, but commonly sodium nitrite. Sodium nitrite is used as a curing agent for the preservation of meat and fish, acting simultaneously as a colouring agent,[3] however, at sufficient doses sodium nitrite is toxic to humans. Signs and symptoms of poisoning include intense cyanosis, nausea, dizziness, abdominal pain, rapid heart rate and respirations, collapse, coma and convulsions leading to death. There have been a number of reports of accidental nitrite poisoning. In one outbreak involving 10 cases and a fatality, sodium nitrite was mistaken for ordinary table salt.[4] Methaemoglobinaemia has also been reported from eating food that had been contaminated during transportation by fluid leaking from a refrigeration system, where sodium nitrite was used as an anticorrosive agent.[5]

Methaemoglobinaemia resulting from consumption of cured meats, particularly pork and beef are well documented.[6,7] However, rarely in these incidents are nitrite levels measured. In one outbreak involving 10 cases, levels of 5-6,000 mg/kg were measured in contaminated sausages.[8] The highest documented levels of nitrite in foods linked to cases of methaemoglobinaemia were 10,000 mg/kg and 15,000 mg/kg in meat consumed by three cases.[7] This is only one third of the level found in the meatballs consumed by our case (43,000 mg/kg). To obtain a concentration of 43,000 mg/kg in 11kg (10 kg meat and 1 kg of additives) of meatballs 473 g of sodium nitrite powder would need to have been added. Even if only the eight meatballs purchased by the case were contaminated at that level (because of poor mixing and a bolus concentration of nitrite in a small proportion of the meat balls) then 59 g of nitrite powder would be needed. The head butcher routinely added 500g of powdered flavouring. If 500mg of nitrite had been added then the only two other explanations for the lack of other cases associated with the 32 remaining meatballs are that the product was either not sold and subsequently destroyed or that the meatballs were not consumed because of their bitter taste.

This case of nitrite poisoning was entirely avoidable and demonstrates the need for care in using chemical food preservatives. It highlights the importance of staff training, safe storage of preservatives, having documented recipes and keeping accurate records in food businesses. The owner of the premises was fined $45,000 under Section 11AA of the Food Act 1981.

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

Acknowledgements

We would like to thank the staff of the emergency department and intensive care unit of Middlemore Hospital, Counties-Manukau District Health Board; Staff of the Food Chemistry Laboratory, Institute of Environmental Science and Research (ESR), Mt Albert, Auckland; The New Zealand Food Safety Authority; Communicable Disease Investigation & Food Safety Teams of the Auckland Regional Public Health Service and the NZ Police for assistance with the investigation.

Reported by Shikha David, Health Protection Officer, and Greg Simmons, Public Health Physician, Auckland Regional Public Health Service; Ali Khan, Medical Registrar, Timothy Sutton, Cardiologist, and Adrienne Adams, ED Physician, Counties-Manukau District Health Board

4. Outbreak Surveillance

The following information is a summary of the outbreak trends for New Zealand, from data collected in the last quarter (July - September 2006). Comparisons are made to the previous quarter (April - June 2006), and to the same quarter in the previous year (July - September 2005). Note that the outbreak data in this section are notified to ESR by the Public Health Services.

General

- 104 outbreaks notified in this quarter (756 cases)
- 71 are 'final' reports (669 cases); 33 are 'interim' reports (87 cases) that have yet to be finalised and closed

All following data pertain to final reports only.

- 9.4 cases on average per outbreak, compared with 11.6 cases per outbreak in the previous quarter (5.2 cases per outbreak in the same quarter of last year)
- 49 hospitalisations: norovirus (45 cases), Hepatitis A (2 cases), *Neisseria meningitidis* (2 cases)
- 1 death: norovirus

Pathogens

- 26 'gastroenteritis' outbreaks (140 cases) during this quarter
- 20 norovirus outbreaks (400 cases)
- 8 *Campylobacter* outbreaks (36 cases)
- 4 *Cryptosporidium parvum* outbreaks (16 cases)
- 4 *Giardia* outbreaks (11 cases)
- 3 rotavirus outbreaks (25 cases)
- 2 Hepatitis A outbreaks (4 cases)
- 1 chlorine poisoning outbreak (30 cases)
- 1 *Clostridium perfringens* outbreak (2 cases)
- 1 *N. meningitidis* outbreak (2 cases)
- 1 *Shigella* outbreak (3 cases)

Modes of Transmission

Note that reporting allows for multiple modes of transmission to be selected. In many instances no mode of transmission is selected for outbreaks notified to ESR, consequently, numbers may not add up to the total number of outbreaks reported.

- 41 person-to-person, from (non-sexual) contact with an infected person (including droplets): 17 norovirus (391 cases), 7 gastroenteritis (68 cases), 4 *Giardia* (11 cases), 3 *C. parvum* (13 cases), 3 rotavirus (25 cases), 2 *Campylobacter* (6 cases), 2 Hepatitis A (4 cases), 1 *C. perfringens* (2 cases), 1 *N. meningitidis* (2 cases), and 1 *Shigella* (3 cases)
- 17 foodborne, from consumption of contaminated food or drink (excluding water): 9 gastroenteritis (34 cases), 4 *Campylobacter* (26 cases), 3 norovirus (11 cases), and 1 *C. perfringens* (2 cases)
- 3 environmental, from contact with an environmental source (e.g. swimming): 1 chlorine poisoning (30 cases), 1 *C. parvum* (3 cases), and 1 *Giardia* (3 cases)
- 2 waterborne, from consumption of contaminated drinking water: *Campylobacter* (2 cases) and *Giardia* (4 cases)
- 2 zoonotic: *C. parvum* (7 cases) and *Giardia* (3 cases)
- 2 other mode of transmission: norovirus (via formites) (38 cases) and *C. parvum* (unclean surfaces) (2 cases)
- 16 mode of transmission unknown: 13 gastroenteritis (44 cases), 2 norovirus (4 cases), and 1 *Campylobacter* (2 cases)

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...Outbreak Surveillance continued

Circumstances of Exposure/Transmission

Common 'settings' where exposure/transmission occurred or contaminated food/beverage was prepared for consumption are identified below. Note that multiple settings can be selected and in many instances no settings are selected in outbreaks notified to ESR.

- 17 home: 4 gastroenteritis (8 cases), 3 *Campylobacter* (8 cases), 3 *Giardia* (8 cases), 3 norovirus (7 cases), 1 *C. perfringens* (2 cases), 1 Hepatitis A (2 cases), 1 *N. meningitidis* (2 cases), and 1 *Shigella* (3 cases)
- 10 café: 5 gastroenteritis (26 cases), 2 *Campylobacter* (22 cases), 2 norovirus (74 cases), and 1 *C. perfringens* (2 cases)
- 6 childcare centre: 2 *C. parvum* (9 cases), 1 gastroenteritis (6 cases), 1 norovirus (16 cases), and 2 rotavirus (17 cases)
- 6 rest home: 4 norovirus (148 cases) and 2 gastroenteritis (54 cases)
- 5 hospital (acute care): norovirus (99 cases)
- 5 takeaways: 3 gastroenteritis (6 cases), 1 *Campylobacter* (2 cases), and 1 norovirus (5 cases)
- 3 hospital (continuing care): norovirus (102 cases)
- 3 workplace: 2 norovirus (7 cases) and 1 *Campylobacter* (2 cases)
- 2 hotel/motel: norovirus (58 cases) and gastroenteritis (2 cases)
- 2 swimming/spa pool: chlorine poisoning (30 cases) and *C. parvum* (3 cases)
- 1 community: norovirus (58 cases)
- 1 farm: *Giardia* (3 cases)
- 1 hostel: Hepatitis A (2 cases)
- 1 supermarket: *Campylobacter* (2 cases)
- 3 'other setting': 1 *Campylobacter* (20 cases) (adventure park), 1 gastroenteritis (18 cases) (Harbour cruise vessel), and 1 rotavirus (8 cases) (elderly residential home)
- 13 outbreaks with no setting selected: 11 gastroenteritis (24 cases) and 2 norovirus (4 cases)

5. Outbreak Case Reports

Foodborne illness associated with chicken curry eaten at a staff club

On 15 June 2006 the MidCentral Public Health Unit was contacted by the manager of a staff club who reported that members of two groups of diners had become unwell after eating chicken curry there on 13 June 2006. He provided contact details and advised that the leftover curry had been discarded on 13 June 2006.

Three out of four members of the first group were unwell, and both members of the second group. All cases had eaten chicken curry for lunch at the club between 11.30am and 12.30pm. The well member of the first group had not eaten the curry. A staff member who had eaten the curry on 13 June 2006 was also unwell.

The onset times for the cases ranged between 11pm and 3am on the night of the 13/14 June 2006. Symptoms included stomach cramps and diarrhoea. None of the cases were prepared to give a faecal specimen due to an underlining loyalty to their club.

An investigation was undertaken at the club with the local Environmental Health Officer. Rice was ruled out, as it had been freshly prepared in a steam oven at 11.20am and hot held from 11.30am-2.00pm. However, the storage time of the curry exceeded the recommended 1-2 days for "cooked chicken covered with broth or gravy".[1] The curry had been prepared in a different commercial kitchen on 10 June 2006 for a buffet meal. The leftover curry had been left to cool in a plastic container for 30–40 minutes, and then placed in a 2.4°C chiller. It was transported to the club (less than 5 minutes drive) on 11 June 2006, and placed in the club chiller (also running at 2.4°C). The curry was reheated on 13 June 2006 for the lunch service and temperature checked using a spoon that was inserted in the centre of the pot then placed on the back of the hand. Once reheated, the curry was poured into ceramic dishes and hot held at 73°C. The dishes were removed one at a time over a 2.5-hour period and placed on a heat pad on the buffet.

The kitchens appeared to be well managed and organised. There were a number of monitoring systems in place for chillers. A lack of probe type thermometers was noted. All staff were well trained including three qualified chefs and all other staff had at least completed NZQA 167 Basic Food Hygiene.

The following recommendations were made to the manager at the time and in the health-warning letter sent at the end of the investigation:

(1) Thermometers are made available to staff to make temperature checks when preparing and reheating food. Cooked foods must reach temperatures above 70°C and reheated/hot held foods must reach temperatures above 60°C and remain there until service.

(2) Refresher training is undertaken in house to remind staff of danger zone temperatures for food. Including information on types of pathogens and illnesses likely to result from perishable foods held in the danger zone for extended periods.

(3) A policy of discarding food which has been exposed to the public, i.e. on a buffet.

(4) Reducing storage times for holding perishable pre-prepared foods.

A follow-up meeting and inspection showed all recommendations had been implemented.

There were six reported illnesses with onset between 11.00pm on 13 June 2006 and 3.00am on 14 June 2006 with symptoms including stomach cramps and diarrhoea. All cases had eaten chicken curry for lunch at the club between 11.30am and 12.30pm on 13 June 2006. While there was a lack of conclusive evidence as to the pathogen, the onset period, symptoms and vehicle indicated it was likely to have been *Clostridium perfringens*.

1 www.fsis.usda.gov/Fact_Sheets/Chicken_Food_Safety_Focus/index.asp

Reported by Tui Shadbolt, Health Protection Officer, MidCentral Health

6. Pathogen Surveillance

Unless otherwise reported, pathogen surveillance covers the July - September 2006 quarter.

ENTERIC PATHOGENS

The Enteric Reference Laboratory (ERL) is responsible for the confirmation of the following notifiable diseases *Salmonellae*, *Shigellae*, *Vibrio cholerae* O1 and VTEC.

Salmonella (ERL)

Human and non-human Salmonella isolate data are available at www.surv.esr.cri.nz/enteric_reference/enteric_reference.php

- 279 human and 578 non-human isolates were submitted to ERL (2005: 341 and 646 respectively)

VTEC/STEC (ERL)

- 12 laboratory confirmed human cases of *E. coli* O157:H7 (2005,18 cases)
- 6 isolates were received from one family, including a case of HUS
- 1 case of *E. coli* O176:HNM confirmed

Shigella

- isolates from 23 cases of shigellelosis were submitted to ESR
- 4 out of 5 isolates of *Shigella flexneri* 2b came from Nelson

continued...

Norovirus (Norovirus Reference Laboratory)

- 37 confirmed norovirus outbreaks were reported to the NRL
- 7 outbreaks occurred in July, 16 in August and 14 in September
- 3 outbreaks were caused by GI strains, 32 by GII strains, and in 2 outbreaks both GI and GII norovirus strain were identified from cases
- 17 outbreaks occurred in rest homes and hospitals. Catered settings featured in 7 outbreaks, and household settings in 2 outbreaks
- an outbreak at a South Island ski field resulted in over 210 cases and was associated with sewage contamination of the drinking water supply. A GI/5 norovirus strain was identified in faecal specimens from cases. GI norovirus strain was identified in the drinking water supply
- 3 outbreaks related to consumption of Korean oysters and, for 2 of these outbreaks, GI and GII norovirus strains were detected in oysters from the same batch as those consumed
- of the faecal specimens genotyped to date, the majority belong to genogroup II, especially GII/4 or GII/1,4,8 (20 outbreaks). Others belong to GI/2, GI/3, GI/5, GII/5, GII/6, and GII/17. For mixed outbreaks, a GI and GII strain were present

LEGIONELLOSIS AND ENVIRONMENTAL LEGIONELLA

- 13 legionellosis cases were laboratory identified, no deaths reported
- no outbreaks were identified in this quarter, all cases identified as sporadic CAP cases
- 7 fitted the confirmed case definition and 6 fitted the probable case definition
- the 7 confirmed cases were either culture-positive (1 case) or demonstrated antibody titres >512 on two or more occasions (5 cases), or at least a four-fold rise in antibody titre by the legionella IFAT (1 case)
- the 6 probable cases with compatible clinical symptoms demonstrated either stable antibody titres of 512 (2 cases), or a single antibody titre of ≥512 (3 cases), or were urinary antigen positive (1 case)
- *L. pneumophila* was identified as the causative agent in 8 cases
- *L. dumoffii* was identified in 1 case
- *L. gormanii* was identified in 1 case
- *L. longbeachae* was identified in 1 case
- *L. micdadei* was identified in 1 case
- the *Legionella* species was unidentified in a further probable case
- environmental isolates identified this quarter included *L. pneumophila* serogroup 1 isolated from cooling tower waters and a domestic rainwater tank; *L. pneumophila* serogroup 5 isolated from a cooling tower; *L. rubrilucens* isolated from a water storage tank; and *L. taurinensis* isolated from a cooling tower

RESPIRATORY VIRUSES

Influenza Virus

- 585 influenza viruses were reported from sentinel and laboratory-based surveillance (2005, 491)
- 584 were identified as influenza A, 187 as A/New York/55/2004 (H3N2) –like strains, 51 as A/Wisconsin/67/2005 (H3N2) –like strains, 51 as A/New Caledonia/20/99 (H1N1) – like strains, and 295 influenza A as not-subtyped
- 1 was identified as influenza B (yet to be typed)
- The Australian Influenza Vaccine Committee (AIVC), with a New Zealand representative, met in Canberra on 4 October 2006 to consult on the influenza vaccine composition for 2007. The recommended composition is:
  - o A(H1N1), an A/New Caledonia/20/99-like strain
  - o A(H3N2), an A/Wisconsin/67/2005 - like strain
  - o B, a B/Malaysia/2506/2004 - like strain

For more details on the influenza vaccine recommendation, please refer to the report: www.surv.esr.cri.nz/virology/influenza_vaccine.php

Respiratory Syncytial Virus, Rhinovirus & Parainfluenza Virus

- 559 cases of respiratory syncytial virus were reported (2005, 611)
- 11 rhinoviruses were reported (2005, 35)
- 47 parainfluenza viruses were reported (2005, 96), 23 were typed as paparainfluenza type 1, and 24 as type 3

ADENOVIRUSES AND ENTEROVIRUSES

Adenoviruses

- 66 adenoviruses were reported (2005, 91)
- adenovirus type 4 and type 8 were the predominant serotypes
- 61 adenoviruses were serotyped as adenovirus type 1 (3), type 2 (11), type 3 (5), type 4 (18), type 5 (3), type 7 (2), type 8 (14), type 19 (1), type 37 (1), type 41 (2), and untypable (1)

Enteroviruses

- 40 enteroviruses were reported (2005, 67)
- 16 enteroviruses were serotyped as Coxsackie B3 (1), Coxsackie B5 (1), Coxsackie A6 (1), Coxsackie A9 (2), Coxsackie A16 (1), Coxsackie A21 (1), Coxsackie A24 (4), Echovirus 2 (1), Echovirus 3 (2), and Echovirus 18 (2)

MYCOLOGY

A table detailing the biannual summary of opportunistic mycoses and aerobic actinomycetes in New Zealand for the period January-June 2006 is available at www.surv.esr.cri.nz/surveillance/NZPHSR.php

SPECIAL BACTERIOLOGY

Listeria monocytogenes

- 3 isolates of *Listeria monocytogenes* from human cases were referred (for table of human *L. monocytogenes* cases giving more details see www.surv.esr.cri.nz/surveillance/NZPHSR.php)
- all cases involved adults, 1 case was elderly and had underlying illness, 2 cases did not identify any risk factors

Corynebacterium diphtheriae

- 3 isolates of *Corynebacterium diphtheriae* were received for toxigenicity testing, typing and surveillance purposes
- 2 isolates were var. *mitis* strains and 1 was var. *gravis* strain, all were from cutaneous sources, patients were aged between 17 and 67 years and came from Christchurch
- all isolates were non-toxigenic by PCR examination for the toxin gene

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

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