Volume 2 Issue 2 ISSN 1176-2888

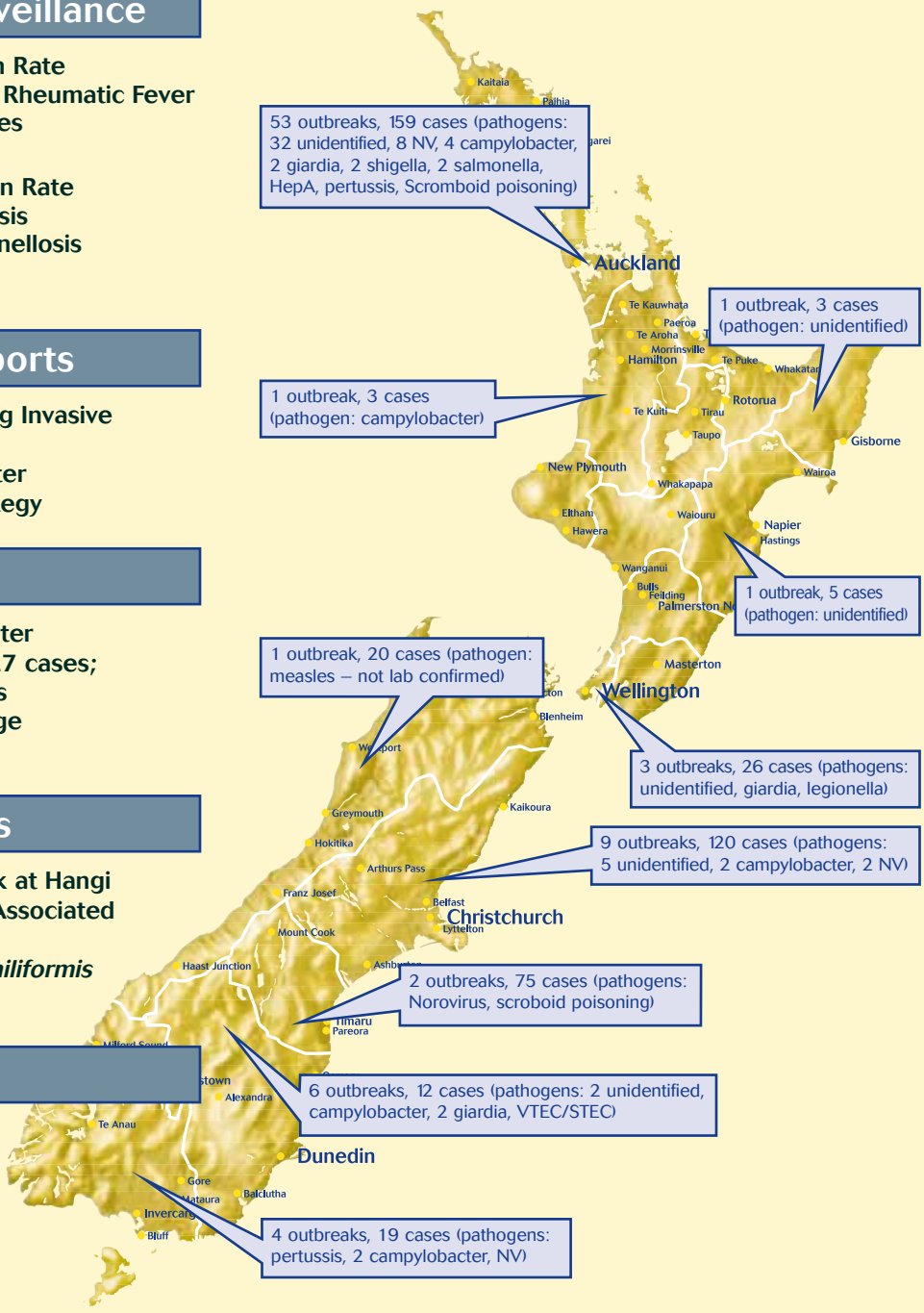
New Zealand Public Health Surveillance Report

June 2004

Contents & Highlights

This Quarter's Outbreaks

Note: As reported by Territorial Local Authourity through the EpiSurv system at time of publication.



NV = Norovirus

1. Editorials

Asian Re-Emergence of Avian Influenza

Unprecedented outbreaks of highly pathogenic avian influenza (HPAI, H5N1 strain) have been reported in a number of Asian countries (including Vietnam, Thailand, China, Laos, Cambodia, Indonesia, South Korea and Japan) since the end of 2003. This resulted in 23 human deaths from 34 confirmed human H5N1 cases. Many of the fatal cases have been linked to contact with dead or diseased poultry in rural areas and estimated poultry losses exceed 100 million birds. So far, no human-to-human transmission has been confirmed. However, the potential exists for the emergence of a novel highly transmissible pandemic influenza strain if an individual is co-infected with influenza viruses of both avian and human origin and genetic re-assortment occurs. To reduce this risk, the public health community's first priority is to minimise human exposure to infected poultry through the slaughter of all infected and exposed poultry and the proper disposal of their carcasses. Should human-to-human transmission eventuate anytime in the near future, rapid detection of the outbreak will be critical to its management. The World Health Organisation (WHO) has issued guidelines for the protection of persons culling infected birds, collecting specimens, handling specimens in the laboratory, or working in infection control and clinical management (http://www.who.int/csr/disease/avian_influenza/en). WHO is coordinating the development of an effective vaccine and confirming the effectiveness of neuraminidase inhibitors (Oseltamivir and Zanamivir) against the current H5N1 strains.

The New Zealand influenza pandemic action plan, published in 2002 is being used as the framework for New Zealand's response to HPAI (http://www.moh.govt.nz/birdflu). This action plan sets out the steps to be taken to facilitate the implementation of timely public health measures designed to slow the spread of the virus during the initial phase of a potential pandemic. HPAI became a notifiable disease in New Zealand on 12 February 2004. The Ministry of Health has established an HPAI technical advisory group. Additionally, interagency communication and collaboration, between the health and agriculture sectors, have been enhanced to improve border control and surveillance of migratory birds. With assistance from the WHO and the Public Health Laboratory Network of Australia, the New Zealand Virus Laboratory Group is in the process of developing diagnostic tests for HPAI. The current HPAI outbreak highlights the need to augment existing public health capabilities in order to improve our ability to rapidly detect and respond to a potential influenza pandemic.

E. coli O157 and other VTEC in New Zealand

Verocytotoxigenic *Escherichia coli* (VTEC), also known as Shiga-like toxigenic *Escherichia coli* (STEC), were first identified in New Zealand during the 1980s when an *E. coli* O26 strain was isolated and its cytotoxic effect on verocells, demonstrated. In public health terms, the most significant VTEC serotype globally, *E. coli* O157, was first isolated in New Zealand in 1993. *E. coli* O157 strains, whether possessing the flagellar antigen H7 or being non-motile (HNM or H-), continue to be isolated in increasing numbers nationwide. There were 91 laboratory-confirmed cases of *E. coli* O157 infection in 2003 compared with 62 cases in 2002 (73, 2001; 69, 2000). Non-O157 VTEC are isolated in relatively small numbers: three cases in 2003; 4, 2002; 2, 2001. The majority of New Zealand O157 isolates possess genes encoding the following virulence characteristics: Shiga-like toxin 2, intimin and enterohaemolysin. Typically, the pattern of cases in New Zealand is sporadic; no major outbreaks of O157 infection have been detected to date, only family clusters. The Enteric Reference Laboratory at ESR has undertaken molecular fingerprinting analysis of all O157 it receives to demonstrate that the New Zealand population of O157 is both genetically diverse and temporally stable as certain clonal lineages, typified by distinct DNA "fingerprints", are apparent for a period extending over several years.

O157 has been isolated from a range of environmental sources including water (drinking and recreational), foodstuffs, raw milk and animals. Molecular analyses of isolates from different sources, clinical and environmental, facilitate detection of potential point sources of infection. To date, for example, exposure to raw milk and the consumption of contaminated drinking water have been identified as sources of O157 infection. The current observation of an increasing number of apparently sporadic cases of O157 infection in New Zealand parallels the experience of other countries, most notably Scotland and Canada, where, from a background of a greater number of apparently unlinked infections, major outbreaks of infection occurred. *E. coli* O157 will continue to be a significant public health concern in New Zealand – with the laboratory confirmation of 29 new cases of O157 infection during the first three months of 2004, compared with 18 cases during the same period last year.

2. Notifiable Disease Surveillance

The following is a summary of disease notifications for the January-March quarter of 2004, with cumulative notifications and rates calculated for a 12-month period (April 2003-March 2004). Notifications and rates for previous periods that are used for comparative purposes with current periods are in brackets. 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 6 April 2004.** The number of notifications reported for this quarter is provisional and subject to change, as cases may be entered at a later date or retracted upon further investigation.

The National Surveillance data tables summarised in this report are available from www.surv.esr.cri.nz

VACCINE PREVENTABLE DISEASE

Measles

- *Notifications*: 16 cases were notified in the quarter (2003, 10) with 72 over the last 12 months (2003, 25). This is a statistically significant rate increase to 1.9 cases per 100,000 population (2003, 0.7).
- *Comments*: only 4 of the 16 notified cases this quarter have been laboratory confirmed. As indicated in the previous issues of NZPHSR, 18 notified measles cases on the West Coast for the previous quarter have not been laboratory confirmed and the revised number of cases is 28, not 46 as reported.

Pertussis
- *Notifications*: 324 cases were notified in the quarter (2003, 149) with 759 over the last 12 months (2003, 977). This is a statistically significant rate decrease to 20.3 cases per 100,000 population (2003, 26.1).
- *Comments*: although the 12-month rate has fallen, this quarter's rate has increased over the same quarter last year and from the previous quarter (both are statistically significant). The current activity indicates that this epidemic of pertussis, which peaked in 2000, continues to recede.

INFECTIOUS RESPIRATORY DISEASES

Meningococcal Disease
- *Notifications*: 63 cases were notified in the quarter (2003, 102) with 503 over the last 12 months (2003, 574). This is a statistically significant rate decrease to 13.5 cases per 100,000 population (2003, 15.4). This quarter's rate also shows a statistically significant decrease from both the previous quarter and the same quarter last year.
- *Comments*: notifications were distributed by age as follows: 8 in the under 1 year age group; 16 in the 1-4 age group; 24 in the 5-19 age group; and, 15 in the over 20 age group (see the Meningococcal Vaccine Strategy report in this issue).

Acute Rheumatic Fever
- *Notifications*: 20 cases were notified in the quarter (2003, 29) with 142 over the last 12 months (2003, 81). This is a statistically significant rate increase to 3.8 cases per 100,000 population (2003, 2.2).
- *Comments*: 15 cases were under 15 years of age and 2 cases were in the 15-19 year age group. No cases of rheumatic fever reoccurrence were notified this quarter.

Tuberculosis Disease
- *Notifications*: 90 cases were notified in the quarter (2003, 92) with 418 over the last 12 months (2003, 387). This is not a statistically significant rate increase, 11.2 cases per 100,000 population (2003, 10.4). Furthermore, we have seen this quarter's rate actually decrease from the previous quarter (this is a statistically significant decrease, but quarterly rate changes may not reflect longer term trends).
- *Comments*: only 59 of this quarter's cases were laboratory confirmed.

ENTERIC INFECTIONS

Campylobacteriosis
- *Notifications*: 3774 cases were notified in the quarter (2003, 4242) with 14323 over the last 12 months (2003, 13068). This is a statistically significant rate increase to 383.2 cases per 100,000 population (2003, 349.7).
- *Comments*: the notification rate has continued to increase from 1980, when the disease was made 'notifiable', and the upward trend shows no sign of levelling out; the seasonality of the disease continues to grow with rising annual rate.

Salmonellosis
- *Notifications*: 353 cases were notified in the quarter (2003, 474) with 1280 over the last 12 months (2003, 1519). This is a statistically significant rate decrease to 34.2 cases per 100,000 population (2003, 40.6). Additionally, there has been a statistically significant quarterly rate decrease from the same quarter last year.

Shigellosis
- *Notifications*: 34 cases were notified in the quarter (2003, 19) with 102 over the last 12 months (2003, 99). This is not a statistically significant increase, 2.7 cases per 100,000 population (2003, 2.6), but there is a statistically significant quarterly rate increase from the same quarter last year.

VTEC/STEC Infection
- *Notifications*: 35 cases were notified in the quarter (2003, 21) with 118 over the last 12 months (2003, 76). This is a statistically significant rate increase to 3.2 cases per 100,000 population (2003, 2.0).
- *Comments*: this continues a worrying trend, see the editorial this issue.

ENVIRONMENTAL EXPOSURES AND INFECTIONS

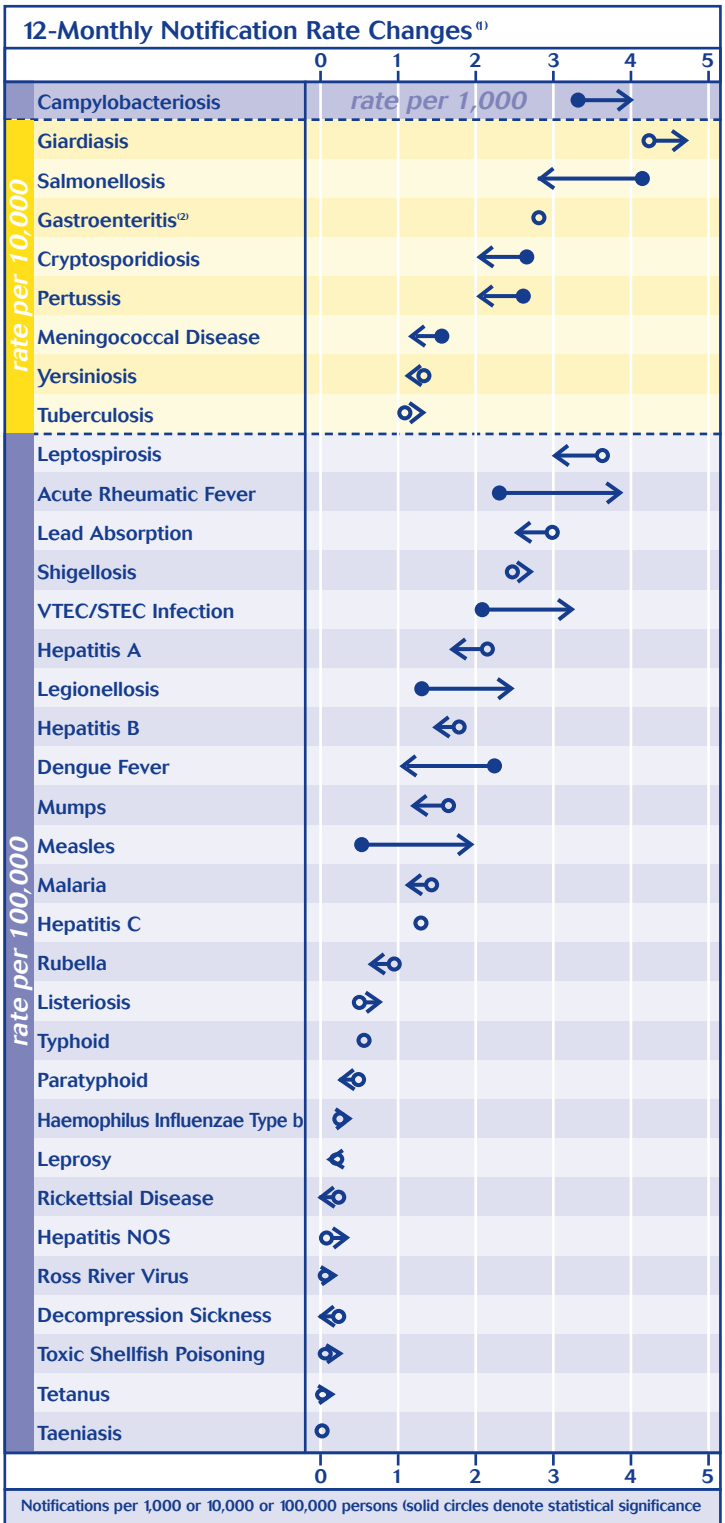
Cryptosporidiosis
- *Notifications*: 58 cases were notified in the quarter (2003, 136) with 740 over the last 12 months (2003, 1009). This is a statistically significant rate decrease to 19.8 cases per 100,000 population (2003, 27.0).
- *Comments*: the significance of the decrease in the 12-month rate is supported by statistically significant quarterly rate decreases from the same quarter last year and from the previous quarter.

Giardiasis
- *Notifications*: 447 cases were notified in the quarter (2003, 409) with 1607 over the last 12 months (2003, 1529). While this is not a statistically significant rate increase, 43.0 cases per 100,000 population (2003, 40.9), there has been a statistically significant quarterly rate increase from the previous quarter, as would be expected from this seasonal disease.

Lead Absorption
- *Notifications*: 27 cases were notified in the quarter (2003, 45) with 101 over the last 12 months (2003, 113). While the rate decrease is not statistically significant, 2.7 cases per 100,000 population (2003, 3.0), there has been a statistically significant quarterly rate decrease from the same quarter last year.
- *Comments*: 4 cases in the 1-4 year age group, 2 cases in the 15-19 year age group with the remaining cases being 20+ years of age. In terms of occupation: 3 painters and 1 builder were notified with the remainder spread over several other professional and non-professional groups including one of each – housewife, lead light manufacturer, forester, technician, IT professional.

Legionellosis
- *Notifications*: 22 cases were notified in the quarter (2003, 11) with 87 over the last 12 months (2003, 48). This is a statistically significant rate increase to 2.3 cases per 100,000 population (2003, 1.3).
- *Comments*: note the report in the last issue regarding what appeared to be an unusual number of cases related to potting-mix exposure in the Wellington region December 2003 and in this issue 3 cases are linked to operating display spa pools.

National Surveillance Data



(1) Rates are calculated for the 12-month period to the end of this quarter.

(2) Gastroenteritis notifications are syndromic reports for the most part – derived from a variety of sources – this is a 'Catch all' category.

NEW, EXOTIC AND IMPORTED INFECTIONS

Dengue fever

- *Notifications*: 6 cases were notified in the quarter (2003, 22) with 39 in the 12-month period (2003, 84). This is a statistically significant rate decrease to 1.0 case per 100,000 population (2003, 2.2).
- *Comments*: of the 6 notified cases, 5 had travel histories – 2 cases had recently travelled to Tonga, other cases to Fiji, India or Rarotonga.

3. Other Surveillance Reports

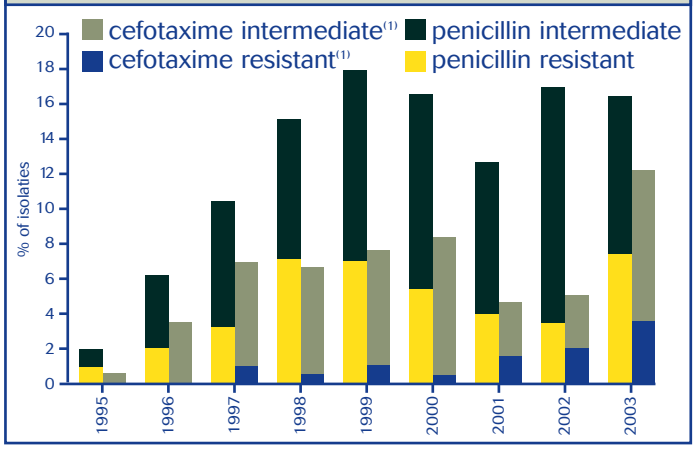
Antimicrobial Susceptibility among Invasive Isolates and Salmonella

Invasive Isolates

Streptococcus pneumoniae, Neisseria meningitidis and *Haemophilus influenzae* isolated from normally sterile sites are routinely referred to ESR for the national laboratory-based surveillance of invasive disease due to these organisms. The antimicrobial susceptibility of all viable invasive isolates of these three organisms referred in 2003 was tested.

More detailed information is available on www.surv.esr.cri.nz

Penicillin and cefotaxime resistance among invasive *S. pneumoniae*, 1995-2003



(1) meningitis interpretive standards

Streptococcus pneumoniae

The antimicrobial susceptibility of 523 invasive *S. pneumoniae* isolates was tested in 2003. Penicillin resistance increased again in 2003 after four successive years of declining resistance. Seven percent of the 523 isolates were penicillin resistant (MIC ≥2 mg/L) and 9% had intermediate penicillin resistance (MIC 0.12-1 mg/L).

There are now two sets of interpretive standards, depending on the site of infection, for the third-generation cephalosporins, cefotaxime and ceftriaxone. Applying the meningitis interpretive standards, 4% of the 523 invasive isolates were cefotaxime resistant (MIC ≥2 mg/L) and 8% had intermediate cefotaxime resistance (MIC 1 mg/L). Applying the non-meningitis interpretive standards, 2% were resistant (MIC ≥4 mg/L) and 2% had intermediate resistance (MIC 2 mg/L). There has been a trend of increasing resistance to third-generation cephalosporins in recent years. All isolates were vancomycin susceptible.

Neisseria meningitidis

The antimicrobial susceptibility of 243 meningococcal isolates from cases of invasive disease in 2003 was tested. All isolates were susceptible to penicillin, ceftriaxone and ciprofloxacin. One isolate (0.4%) was rifampicin resistant. Eight percent of isolates had reduced penicillin susceptibility, with MICs of 0.12-0.5 mg/L. Isolates with reduced penicillin susceptibility have been increasing over the last 10 years. However, meningococcal infections due to such isolates are still treatable with penicillin.

Haemophilus influenzae

The antimicrobial susceptibility of 70 invasive *H. influenzae* isolates was tested in 2003. Six of the 70 isolates were serotype b. Thirty-one percent of isolates were ampicillin resistant, 6% co-amoxiclav resistant, and 6% cefuroxime resistant. There was no resistance to cefotaxime or rifampicin.

Salmonella

Each year a representative sample of non-typhoidal *Salmonella*, chosen from isolates routinely referred to ESR for serotyping, is tested for antimicrobial susceptibility. In addition, all isolates of *S.* Typhi, *S.* Paratyphi A and *S.* Paratyphi B are tested. More detailed information is available on www.surv.esr.cri.nz

Antimicrobial resistance among *Salmonella* remains relatively uncommon. Among the 613 non-typhoidal *Salmonella* tested in 2003, 94% were fully susceptible to all 10 antimicrobials tested. One percent of isolates were ampicillin resistant and 0.4% co-trimoxazole resistant. All isolates were susceptible to ciprofloxacin and third-generation cephalosporins.

Among the 18 *S.* Typhi isolates tested, one was multiresistant to ampicillin, chloramphenicol, co-trimoxazole, streptomycin, sulphonamides, tetracycline and trimethoprim. This infection was acquired in India. Two of the total *S.* Paratyphi B var. Java isolates were multiresistant to ampicillin, chloramphenicol, streptomycin, sulphonamides and tetracycline.

Reported by Helen Heffernan, Communicable Disease Programme, ESR

The National Immunisation Register

The National Immunisation Register (NIR) will be completed in 2004. It is expected that it will become an indispensable tool for vaccinators, District Health Boards (DHBs) and the National Immunisation Programme (NIP). Considerable progress on all aspects of this project including policy, IT, communications and training, has been made. Public communication resources (NIR pamphlet and poster) have been completed and these resources will be available via the usual channels.

The Ministry's DHB implementation team is currently focusing on preparation for 'Go Live' in the three Auckland DHBs. Implementation of the NIR in the other DHBs will be undertaken on a staged basis, working from north to south, to support the proposed Meningococcal B immunisation programme.

The NIR project takes a decentralised approach, whereby DHBs are responsible for local implementation including provider management, training and communication, and local control of data quality. A Quickplace website has been developed to assist DHB NIR project managers share experiences, problems and solutions during the implementation phase.

The successful immunisation of those children who are presently not fully immunised at age two will be a measure of the potential health gain that can be attributed to the NIR. The NIR will assist practitioners in providing opportunistic vaccination services to those children. Importantly, the NIR will also allow for accurate coverage data to be obtained for those vaccinated under the general immunisation schedule and also as part of the proposed Meningococcal B immunisation programme.

An 'opt-off' clause will mean that parents of newly born infants whose data will be automatically entered onto the NIR have the option of removing their children from the register. Although further immunisation data will not be added onto the register from the time of opt off, the child will still be included in the denominator for immunisation coverage calculations. If a child participates in the proposed Meningococcal B immunisation programme, there is no 'opt-off' option available.

Reported by Susan Calvert, Communications Advisor, National Immunisation Programme, Ministry of Health. Further information about the NIR can be accessed on the Ministry of Health website at www.moh.govt.nz/immunisation.html and interested readers can subscribe to the National Immunisation Programme newsletter by contacting Susan at immunisation@moh.govt.nz

The Meningococcal Vaccine Strategy

During 2004, New Zealand will enter its fourteenth year of a widespread epidemic of group B meningococcal disease dominated by a single PorA subtype (P1.7b,4). The Meningococcal Vaccine Strategy (MVS) aims to achieve control of this epidemic by implementing a nationwide mass immunisation programme to all under 20 year olds utilising a tailor made group B meningococcal vaccine (MeNZB™) produced by Chiron Vaccines.

The MeNZB™ clinical trials, lead by a University of Auckland research team are nearing completion. Available results from these trials have shown good sero-response against the New Zealand epidemic strain and no serious adverse events attributed to the vaccine.

Immunogenicity and reactogenicity data from clinical trials of MeNZB™, supported by physicochemical bridging of the parent Norwegian vaccine, and safety data from the large-scale use of other similar group B meningococcal vaccines, are currently being reviewed by Medsafe as part of a licensure application under s.23 of the Medicines Act 1981.

If provisional licensure is granted, the rollout of MeNZB™ will commence at the end of May 2004, subject to licence conditions. The programme will commence in Counties Manukau DHB and a geographically defined "eastern corridor" of Auckland DHB and then be progressively rolled out nationwide. The MVS also incorporates extensive post-licensure safety monitoring of the vaccine. This will rely heavily on being able to track immunisations through the National Immunisation Register which is nearing completion.

Rollout of the programme will occur knowing that MeNZB™ is immunogenic but without efficacy data. A number of observational studies are planned post-licensure to assess effectiveness of the vaccine. Throughout the rollout, evaluation of the programme will also occur. Vaccine coverage assessment alongside qualitative evaluation methodologies will be a key element of this evaluation, examining in particular, delivery of vaccine to those at highest risk, namely Māori and Pacific children aged less than five years.

Reported by Dr Jane O'Hallahan, Director, Meningococcal Vaccine Strategy, Ministry of Health

4. Outbreak Surveillance

The following information is a summary of the outbreak trends for New Zealand, from data collected in this quarter (1 January – 31 March 2004). Comparisons are made to the previous quarter (1 October 2003 – 31 December 2003), and to the same quarter in the previous year (1 January 2003 - 31 March 2003). Note that the outbreak data in this section are notified to ESR by the Public Health Services.

General

- 82 outbreaks notified in this quarter (446 cases)
- 34 are 'final' reports (227 cases); 48 are 'interim' reports (219 cases) that have yet to be finalised and closed
- 5.5 cases on average per outbreak, compared with 11 cases per outbreak in the previous quarter (5.4 cases per outbreak in the same quarter of last year)
- 4 hospitalisations and no deaths this quarter (hospitalisations: VTEC/STEC (1 case) and *Legionella pneumophilia* (3 cases)
- *Comment*: the latest data for the previous quarter indicate that there were 21 hospitalisations including 6 from one *Salmonella* Typhimurium outbreak (only 7 were reported at the time of the previous publication)

Pathogens

- 43 'pathogen unidentified' outbreaks (189 cases) during this quarter
- 12 norovirus outbreaks (147 cases)
- 11 campylobacteriosis outbreaks (41 cases)
- 5 *Giardia* outbreaks (17 cases)
- 2 outbreaks each of salmonellosis (12 cases), shigellosis (6 cases), pertussis (4 cases)
- 1 outbreak each of measles (20 cases, no lab confirmations), Hepatitis A (3 cases), legionellosis (3 cases), VTEC/STEC (2 cases), scromboid poisoning (2 cases)

Modes of Transmission

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

- 17 person-to-person, from (non-sexual) contact with an infected person (including droplets): 5 outbreaks with unidentified pathogens, 4 outbreaks of norovirus, 2 outbreaks each of pertussis, campylobacteriosis and giardiasis, 1 outbreak each of Hepatitis A and VTEC/STEC
- 15 food borne, from consumption of contaminated food or drink (excluding water): 10 outbreaks with unidentified pathogens, 2 outbreaks of campylobacteriosis, 1 outbreak each of norovirus, *Salmonella* Paratypi, scromboid poisoning
- 12 mode of transmission unknown: 4 outbreaks of norovirus, 3 outbreaks each of unidentified pathogens and campylobacterisosis, 2 outbreaks of giardiasis
- 8 environmental, from contact with an environmental source (eg swimming): 4 outbreaks with unidentified pathogens, 1 outbreak each of norovirus, campylobacteriosis, giardiasis, *Legionella pneumophilia*
- 5 waterborne, from consumption of contaminated drinking water: 2 outbreaks each of campylobacteriosis and giardiasis and 1 outbreak with an unidentified pathogen
- 1 zoonotic, from contact with an infected animal: 1 outbreak of campylobacteriosis

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.

- 13 home outbreaks: 2 each of unidentified pathogens, pertussis, giardia, *Campylobacter* and 1 each of Hepatitis A, measles, norovirus, shigellosis and VTEC/STEC
- 10 café outbreaks: 6 with unidentified pathogens, 2 of norovirus, 1 each of campylobacteriosis and *Salmonella* Paratyphi
- 6 resthome outbreaks: 4 with unidentified pathogens, 2 of norovirus

5. Outbreak Case Reports

Salmonella Typhimurium outbreak at Hangi

An outbreak of *Salmonella* Typhimurium Phage Type 8 variant (STM8) infection was discovered following a Hangi social event attended by an estimated 150 people in December 2003. In the absence of a guest list, many attendees were traced through salmonellosis notifications and by word of mouth. Ninety-two attendees were identified of whom 77 completed an outbreak questionnaire (response rate 84%).

Sixty-four of the respondents met the case definition (attack rate 83%) with symptoms including diarrhoea (97%), stomach cramps (85%), lethargy (85%), fever (78%), nausea (77%) and vomiting (54%). STM8 was confirmed in more than 30 cases, and in two non-cases (whose illness commenced prior to the event). Six of the cases with confirmed *Salmonella* were hospitalised and in two of these, STM8 was grown from blood. There were no deaths. The median incubation to onset of symptoms was 23 hours (a range of 4-124 hours). The median duration of symptoms was 144 hours (a range of 3-309 hours).

The investigation was limited because there were only a small number of non-cases (13 of the 77 attendees interviewed) and most cases had eaten most of the foods available, making it difficult to identify higher risk foods. Nonetheless, statistically significant positive associations were observed between illness and the reported consumption of several foods. Kumara had a RR=1.3 with a 95% Confidence Interval (CI) of 1.0-1.6, pork (RR=1.5; 95%CI 1.1-2.2), potato (RR=1.4; 95%CI 1.1-1.8), and pumpkin (RR=1.3; 95%CI 1.0-1.5) also had statistically significant relative risks (RR).

A food safety assessment revealed that the pork was the probable source of STM8 contamination, although it is possible that an infected food handler who had eaten the pork prior to the event had cross-contaminated the food during preparation. One of five cooks had eaten some of the pork prior to the event, suffering stomach cramps two days before the hangi. This cook and another individual who consumed the pork before the event were confirmed as infected with STM8 after the event (the cook did not have anything to eat or drink at the event). Unfortunately, because the pork was still partially frozen when it was put into the hangi for cooking, it had an increased risk of being undercooked, allowing pathogens to survive the cooking process.

The infected food handler was also a possible source of contamination at the event, because the cooks had prepared the salads, mixing them in a number of large plastic bowls with gloved hands. There was no protocol for how often and when the gloves were changed. There was no hand towel or nail brush at the hand basin. Therefore, the possibility of cross-contamination of foods through serving utensils and bowls can not be excluded.

A further, compounding issue was that many of the attendees had taken 'leftover' home with them, foods that may have been contaminated. These 'leftovers', some of which were eaten at a function later that evening, were left out of the refrigerator for up to 6 hours in temperatures of approximately 20°C. Some of this food, being temporarily stored in attendees car's, would have been exposed to even higher temperatures.

Because all five cooks were experienced in hangi cooking, a marae-based food safety education campaign is warranted, emphasising key food safety failures that include the clean, cook, cover and chill messages.

Reported by Cath Grant, Drs Greg Simmons and Siniva Sinclair, and Raniera Bassett, Auckland Regional Public Health Service

This investigation revealed failures in all areas:	
Clean:	poor hand hygiene may have been caused cross-contamination via bowls
Cook:	inadequate thawing and poor temperature assessment may have led to undercooking
Cover:	food leftovers were left uncovered
Chill:	unrefrigerated leftovers probably enhanced growth of bacteria

[Eds. The relative risk (RR) here is a measure of the observed relative risk of illness from eating a particular food. A RR of 1.3 implies a risk of illness 1.3 times for those who ate a food compared to those who didn't eat it. All measures of RR are accompanied by a confidence interval (CI), 2 values, that we believe our RR 'probably' falls within. We quantify our confidence that the RR does fall within this range of values by a percentage, usually '95%' by convention.]

Another Legionellosis Outbreak Associated with Display Spa Pools

An unusually large number of legionellosis cases (10) and atypical pneumonia were notified to Regional Public Health between September and December 2003. A final laboratory identification of *Legionella pneumophila* (Lp) was made for five cases, with three of these cases (males aged 52, 57, and 82) becoming the focus of further investigation. Two cases were typed as Lp serogroup 2, while the other case could only be narrowed to Lp serogroups 1 - 4. Onset of illness in all three cases, who reside in different cities in the Wellington region, occurred within a nine-day period in October.

Initial investigations did not reveal any activities in common, nor did any of the cases give a history of high-risk activities. However, lists of commercial buildings visited by each of the men during the incubation period showed that one case had visited a spa pool retail outlet. Four operating spa pools were on display in the centre of the shop. Because an outbreak of *L. pneumophila* in Auckland during 2002 had been linked to a spa pool outlet of the same company, the other 2 cases were questioned about possible visits to the outlet in question. Both then recalled visits to this particular outlet during what would have been their incubation periods. In all, the eldest man had spent nearly an hour inside the shop, one had watched the pools operating, and the other had merely walked past them, but all had visited the same outlet.

The premise in question was visited and waters and filter swabs were taken from the display spa pools. Lp1 was isolated from one pool. The pools had been refilled since the cases' exposures. At sampling, water temperatures were found to be 32-37°C and free available chlorine levels were below the level required for *Legionella* control. Immediate measures were undertaken to sanitise the pools. The company's Head Office has since decided to stop exhibiting operating spa pools in New Zealand.

No direct linkage was established between the cases' infections and the display spa pools. However, the three cases were all apparently exposed to water aerosols from operating pools that were not subject to effective *Legionella* control measures. It is reasonable to conclude that the most likely source of their infections was *L. pneumophila*-contaminated water in the display spa pools.

Reported by Quentin Ruscoe, Health Protection Officer, Regional Public Health, Lower Hutt

Case Report: Streptobacillus moniliformis from Pet Rat Bite

A previously healthy 19-year-old man was bitten by his pet rat and presented one week later, with fever, hypotension and back pain. Treatment with IV flucloxacillin and gentamicin resulted in defervescence of the fever after 36 hours. From blood cultures a pleomorphic, filamentous gram negative bacillus was grown after 21 hours. This was presumptively identified as *Streptobacillus moniliformis* by standard microbiological methods. Penicillin MIC by E test was 0.008 micrograms per mL. After 2 days, the flucloxacillin was changed to penicillin. He had a total of 5 days IV antibiotics and was discharged well, with 5 days of oral amoxycillin to follow. A 16S rRNA sequence established definitive identification at ESR's Communicable Disease Reference Laboratory. The attached photo is the Gram stain appearance in the original blood culture bottle.

Report and Photo by Dr Chris Mansell MB,ChB FRCPA, Clinical Microbiologist, Waikato Hospital, Hamilton

[Eds. While disease incidence is rare, this pathogen is commonly associated with rats in New Zealand]

6. Pathogen Surveillance

Unless otherwise reported, pathogen surveillance covers the period January through March 2004.

ENTERIC PATHOGENS

Salmonella

The data for human and non-human Salmonella isolates are available at www.surv.esr.cri.nz

- 368 human isolates were submitted down from 538 during the same quarter last year
- no large outbreaks were reported

VTEC/STEC

- 29 laboratory-confirmed cases of *E. coli* O157 compared with 19 for the same time period in 2003
- PFGE patterns demonstrated that three cases of *E. coli* O157 from the Waikato and one from Canterbury were indistinguishable from each other. There is no known link between any of the cases.
- A separate cluster of 4 *E. coli* O157 isolates from the Waikato (*stx* 1 and *stx* 2 positive) were also characterised using PFGE. Two showed indistinguishable patterns and the remaining two were closely related. No common link has been established between these cases.
- 3 laboratory-confirmed non-O157 cases, ONT:H11, O107:H51 and O75:HNM.

continued...

Vibrio/Aeromonas spp.

Isolates of *Vibrio* and *Aeromonas* spp. from infected ears/wounds are common in the warmer months in New Zealand.

- *Vibrio alginolyticus*, 3 ear, 1 leg wound
- *Vibrio damsela*, 1 leg wound
- *Vibrio cholera* non O1 non O139, 1 ear
- *Aeromonas caviae*, 1 shoulder wound
- *Aeromonas* species most closely resembling caviae, 1 knee wound

Erratum: in Vol. 2 Iss. 1 of NZPHSR it was reported that there were no human isolates of *Vibrio parahaemolyticus* in 2003. This should have stated that no isolates of *Vibrio parahaemolyticus* were referred to ESR during 2003.

Norovirus

- 20 norovirus outbreaks were reported to the ESR Norovirus Laboratory
- 12 occurred in rest homes and hospitals around New Zealand
- Foodborne transmission was implicated in 6 outbreaks
- The common global strain, GII/1,4,8, was the predominant genotype identified in 13/20 outbreaks
- Other genotypes identified were GII/5, GI/2 and GI/3

LEGIONELLOSIS AND ENVIRONMENTAL LEGIONELLA

- 22 cases of legionellosis were laboratory-confirmed by the Legionella Reference Laboratory at ESR
- All cases were sporadic in nature
- 14 fitted the confirmed case definition and 8 fitted the probable case definition
- A further 4 notified cases were laboratory-tested and were not proven to be cases
- Seven of the confirmed cases were culture-proven with isolation of legionella species from respiratory tract samples. This is higher than normal.
- There was one death following *L. micdadei* infection in a 74-year old male from the North West Auckland Health District
- The predominant legionella species were *L. longbeachae* (8 infections) and *L. pneumophila* (8 infections)
- *L. pneumophila* strains were identified as serogroup 1 (4 case), 12 (3 cases) and 15 (1 case)
- *L. bozemanii* was responsible for 2 infections as was *L. micdadei*
- *L. gormanii* and *L. hackeliae* were each responsible for 1 infection
- The first environmental isolations in New Zealand of the non-pathogenic *Legionella* species were reported: *L. rubrilucens* from a cooling tower and *L. londiniensis* from a potable water storage tank

RESPIRATORY VIRUSES

Influenza virus

- 7 isolations of influenza viruses were reported from Auckland (4), Canterbury (2) and Wellington (1) with 4 isolations during the same quarter of 2003
- all influenza viruses were typed as A
- 4 influenza A isolates were further subtyped as A/Moscow/10/99 (H3N2)-like viruses
- the 2003 influenza vaccines should provide reasonable protection against current circulating influenza strains

Respiratory Syncytial Virus & Rhinoviruses

- 7 cases of respiratory syncytial viruses were reported from Auckland (1), Waikato (1), Wellington (2) and Christchurch (3) with only 1 RSV infections in the same quarter of 2003
- 2 isolations of rhinoviruses were reported from Auckland (1) and Waikato (1) with 11 isolations of rhinoviruses during the same period in 2003

ADENOVIRUSES AND ENTEROVIRUSES

Adenoviruses

- 29 adenoviruses were reported, down from 46 isolations during the same period of 2003
- Adenovirus type 2 (7) and type 3 (7) were co-predominant serotypes
- 14 adenoviruses were serotyped as adenovirus type 1 (2), type 4 (1), type 5 (2), type 6 (1), type 7 (1), type 8 (2), type 9 (1), type 11 (1), type 15 (1) and type 29 (2)

Enteroviruses

- 29 enteroviruses were reported, slightly more than 27 enterovirus isolations during the same period of 2003
- 11 isolations of Coxsackie A type 9 were reported from Waikato (5), Auckland (3), Northland (1) and Canterbury (2)
- the first Coxsackie isolation was from a nasal swab taken from 6 month old boy from the Waikato region; patients ranged in age from 1 month to 41 years old (mean 10 years); the male-female ratio was 1.75
- clinical symptoms associated with Coxsackie infections ranged from respiratory illness, gastroenteritis, fever, lesion and aseptic meningitis
- 12 enteroviruses were serotyped as Coxsackie B3 (1), Coxsackie A8 (2), Echovirus 6 (3), Echovirus 9 (4), Echovirus 30 (1) and enterovirus 71 (1)

MYCOLOGY

A table detailing the biannual summary of opportunistic mycoses and aerobic actinomycetes in New Zealand for the period July-December 2003 is available at www.surv.esr.cri.nz

SPECIAL BACTERIOLOGY

Listeria monocytogenes

- 10 isolates of *L. monocytogenes* from human cases were referred (for table of human *L. monocytogenes* giving more details see www.surv.esr.cri.nz)
- 1 case was perinatal, in which a foetal death was recorded.
- 7 of the 9 remaining cases were in adults who had an underlying illness and/or were elderly

Corynebacterium diphtheriae

- 19 cutaneous isolates of *Corynebacterium diphtheriae* were received for toxigenicity testing, typing and surveillance purposes
- patients ranged in age from 1 year to 67 years
- all isolates were non-toxigenic by PCR examination for the toxin gene
- the Auckland laboratory that isolated the organism from such a large number of patients did so as a result of increased awareness of the presence of *C. diphtheriae* in cutaneous infections

ESR

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MINISTRY OF HEALTH
MANATŪ HAUORA

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