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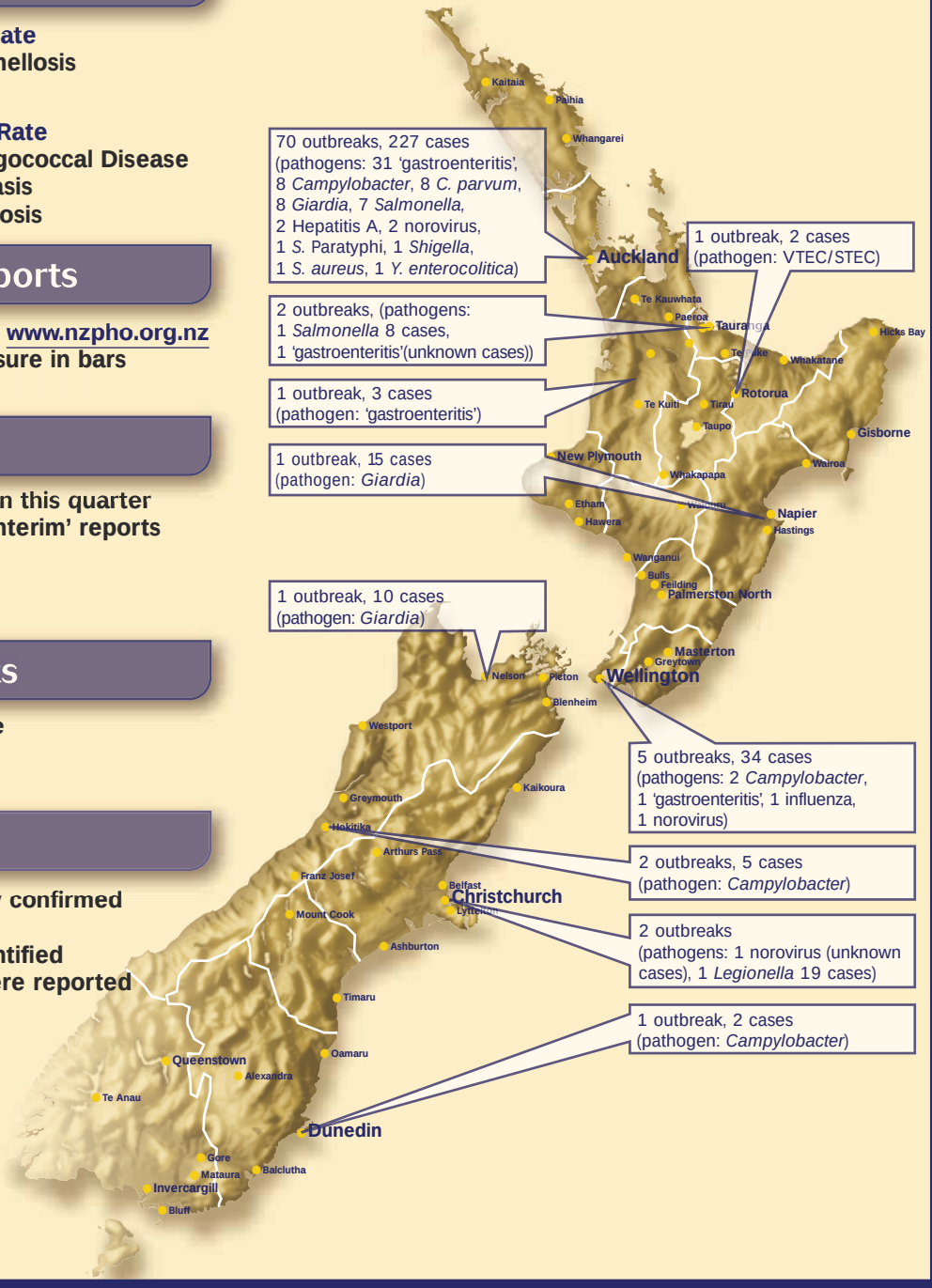
New Zealand Public Health Surveillance Report

December 2005

Contents & Highlights

This Quarter's Outbreaks

Notification and outbreak data in this issue are drawn from the July-September quarter of 2005. 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 by 10 October 2005.



To access copies of the recently published 2005 Chemical Injuries Report (includes Spraydrift data) and STI Clinic Surveillance Quarterly April – June 2005, please go to the following web page www.surv.esr.cri.nz/surveillance/surveillance.php

1 Editorial

Changes to the New Zealand Drinking-Water Standards

The new Drinking-Water Standards for New Zealand (DWSNZ) have been promulgated, and will replace the 2000 Standards from 1 January 2006.[1] As with previous versions, there are two components: numerical standards, including maximum allowable values (MAVs) and compliance criteria (*i.e.* what needs to be monitored to demonstrate compliance, and how often). The MAVs are largely unchanged, most of the changes relate to the compliance criteria.

Bacteriological compliance must be demonstrated at the treatment plant, and in the distribution zone. At the treatment plant, compliance can still be demonstrated by monitoring of *E. coli* or free available chlorine (FAC) but now chlorine dioxide (ClO_2) monitoring can also be used to replace or reduce *E. coli* monitoring. Bacteriological compliance criteria for the distribution zone remain unchanged. However, they are now also applied to bulk distribution zones and tankered water.

As previously, secure groundwater must not be affected by surface or climatic influences. The absence of surface effects can still be demonstrated by residence time, or chemical variability determination, but in the event of the reliability of both of these methods being questionable, a verified hydrogeological model may be used.

The area of greatest change in the DWSNZ has been in the compliance criteria for protozoa. The approach used is largely based on the USEPA's proposed Long-term 2 Enhanced Surface Water Treatment Rule. Protozoal compliance still rests on the need to show that the treatment processes in place are able to remove *Cryptosporidium* (oocysts) without direct measurement of oocysts in the treated water. Ultraviolet irradiation is now included to filtration, and disinfection with ozone or ClO_2 are acceptable protozoal treatment methods. The DWSNZ 2005, however, differ from the earlier standards by requiring the degree of treatment to match the risk presented by the source water, i.e. high oocyst concentrations in the raw water require a high level of treatment.

The level of risk associated with *Cryptosporidium* in the raw water must be determined by monitoring oocyst concentrations in the raw water. For supplies serving less than 10,000 people, the alternative of undertaking a risk assessment of the catchment is also provided. The degree of treatment required is determined from the resultant risk category. This is specified in terms of *log credits* e.g. 3 log credits indicate 1,000 (10^3) fold reduction is required. Various treatment processes may be used (in combination) to achieve this number of credits. The number of log credits available from a treatment process can only be claimed if the process can be shown to be operating satisfactorily by meeting compliance criteria for that process.

Cyanotoxin compliance is a new component of the DWSNZ that was included because of the growing occurrence of toxic cyanobacterial (blue-green algal) blooms in New Zealand. The compliance criteria for cyanotoxin include protocols for their management.

Chemical and radiological compliance is unchanged except for "aggressive waters", now called "*plumbosolvent* waters". All waters will initially be designated as plumbosolvent (unless they have already been shown not to be). The water supplier then has the option of demonstrating that the water is not plumbosolvent, or meeting the compliance requirements for plumbosolvent waters, i.e. regularly providing consumers with advice to flush their taps before drawing water for use - a similar requirement to that in the DWSNZ 2000.

Small water supplies (i.e. those serving fewer than 500 people) are dealt with separately. The MAVs remain the same but the compliance criteria for *Participating small supplies* are simpler and involve less monitoring provided that a satisfactory public health risk management plan (PHRMP) has been developed for the supply.

Reported by Andrew Ball & Chris Nokes, Water Group, ESR

[1] www.moh.govt.nz/water

2. Notifiable Disease Surveillance

The following is a summary of disease notifications for the July-September quarter of 2005 and cumulative notifications and rates calculated for a 12-month period (October 2004 - September 2005). 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 October 2005. As this information may be updated over time, these data should be regarded as provisional.

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

VACCINE PREVENTABLE DISEASE

Measles

- *Notifications:* 5 notifications in the quarter (2004, 3); 25 notifications over the last 12 months (2004, 45) giving a rate of 0.7 cases per 100,000 population (2004, 1.2); statistically significant decrease
- *Comments:* 3 laboratory confirmed cases, 1 is under investigation and 1 unknown

Meningococcal Disease

- *Notifications:* 70 notifications in the quarter (2004, 127); 267 notifications over the last 12 months (2004, 374) giving a rate of 7.1 cases per 100,000 population (2004, 10.0); statistically significant decrease
- *Comments:* there has been a statistically significant quarterly decrease from the same quarter last year (127 cases). Notifications were distributed by age as follows, 9 under 1 year of age; 14 (1-4 years); 5 (5-9 years); 5 (10-14 years); and 37 in the 15 and over category. There were 3 deaths, 2 (30-39 years); 1 (40-49 years); 1 from Nelson Marlborough, 1 from Bay of Plenty and 1 from Canterbury

Mumps

- *Notifications:* 24 notifications in the quarter (2004, 15); 58 notifications over the last 12 months (2004, 48) giving a rate of 1.6 cases per 100,000 population (2004, 1.3); not a statistically significant increase
- *Comments:* there has been a statistically significant quarterly increase from the previous quarter (10 cases)

Pertussis

- *Notifications:* 589 notifications in the quarter (2004, 1,064); 3,802 notifications over the last 12 months (2004, 1,953) giving a rate of 101.7 cases per 100,000 population (2004, 52.3); statistically significant increase
- *Comments:* there has been a statistically significant quarterly increase from the previous quarter (495 cases), and a statistically significant quarterly decrease from the same quarter last year (1,064 cases)

ENTERIC INFECTIONS

Campylobacteriosis

- *Notifications*: 3,560 notifications in the quarter (2004, 2,652); 12,779 notifications over the last 12 months (2004, 13,086) giving a rate of 341.9 cases per 100,000 population (2004, 350.2); not a statistically significant decrease
- *Comments*: there has been a statistically significant quarterly increase from the previous quarter (2,217 cases) and from the same quarter last year (2,652 cases)

Gastroenteritis

- *Notifications*: 117 notifications in the quarter (2004, 283); 797 notifications over the last 12 months (2004, 1,299) giving a rate of 21.3 cases per 100,000 population (2004, 34.8); statistically significant decrease
- *Comments*: 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

Listeriosis

- *Notifications*: 6 notifications in the quarter (2004, 5); 20 notifications over the last 12 months (2004, 25) giving a rate of 0.5 cases per 100,000 population (2004, 0.7); not a statistically significant decrease
- *Comments*: there has been a statistically significant quarterly increase from the previous quarter (0 cases)

Salmonellosis

- *Notifications*: 309 notifications in the quarter (2004, 223); 1,284 notifications over the last 12 months (2004, 1,142) giving a rate of 34.4 cases per 100,000 population (2004, 30.6); statistically significant increase
- *Comments*: there has been a statistically significant quarterly increase from the same quarter last year (223 cases)

VTEC/STEC Infection

- *Notifications*: 18 notifications in the quarter (2004, 21); 94 notifications over the last 12 months (2004, 99) giving a rate of 2.5 cases per 100,000 population (2004, 2.6); not a statistically significant decrease
- *Comments*: there has been a statistically significant quarterly decrease from the previous quarter (34 cases)

ENVIRONMENTAL EXPOSURES AND INFECTIONS

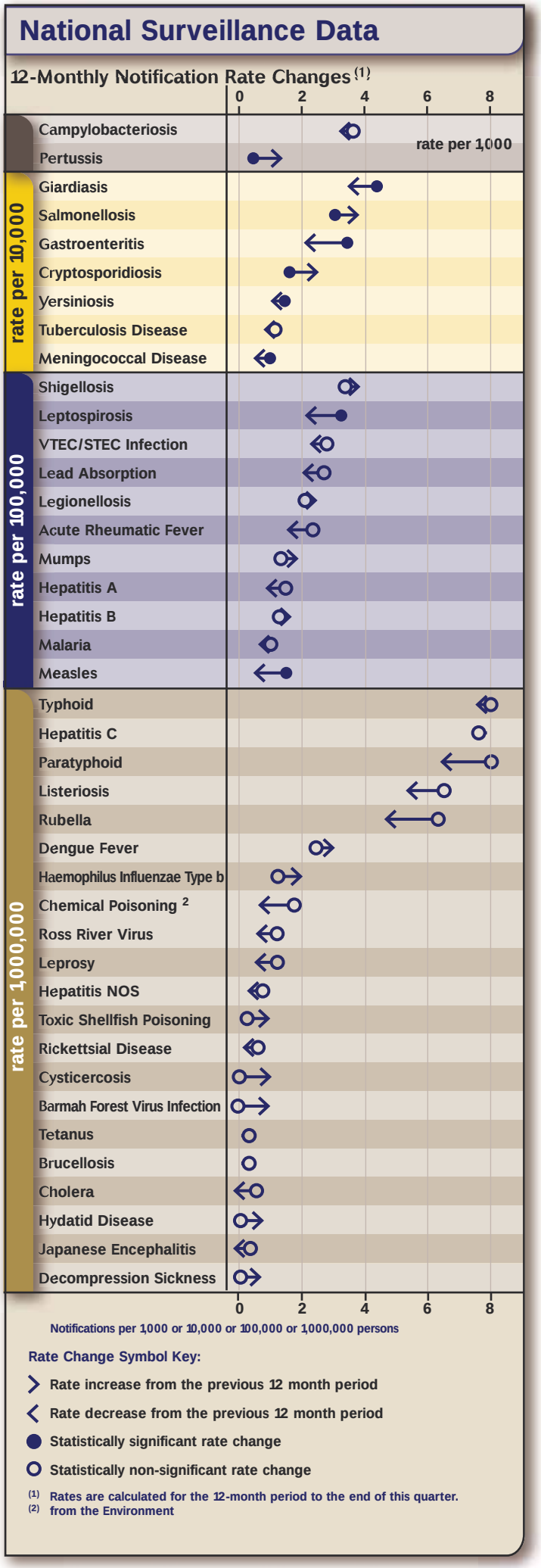
Cryptosporidiosis

- *Notifications*: 273 notifications in the quarter (2004, 222); 818 notifications over the last 12 months (2004, 637) giving a rate of 21.9 cases per 100,000 population (2004, 17.0); statistically significant increase
- *Comments*: there has been a statistically significant quarterly increase from the previous quarter (130 cases) and from the same quarter last year (222 cases)

Giardiasis

- *Notifications*: 314 notifications in the quarter (2004, 342); 1,304 notifications over the last 12 months (2004, 1,547) giving a rate of 34.9 cases per 100,000 population (2004, 41.4); statistically significant decrease

National Surveillance Data



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Hepatitis A

- *Notifications*: 14 notifications in the quarter (2004, 11); 40 notifications over the last 12 months (2004, 56) giving a rate of 1.1 cases per 100,000 population (2004, 1.5); not a statistically significant decrease
- *Comments*: there has been a statistically significant quarterly increase from the previous quarter (4 cases); all notifications were aged between 1 and 84 years, with 2 cases under the age of 16 years

Legionellosis

- *Notifications*: 27 notifications in the quarter (2004, 11); 79 notifications over the last 12 months (2004, 78) giving a rate of 2.1 cases per 100,000 population (2004, 2.1); not a statistically significant change
- *Comments*: there has been a statistically significant quarterly increase from the same quarter last year (11 cases)

Leptospirosis

- *Notifications*: 25 notifications in the quarter (2004, 26); 84 notifications over the last 12 months (2004, 115) giving a rate of 2.2 cases per 100,000 population (2004, 3.1); statistically significant decrease
- *Comments*: 1 female case and 24 male cases; 10 meat industry workers, 7 farmers or dairy farmers, 1 storeman, 3 transporters, 1 freezing worker and 3 unknown

Yersiniosis

- *Notifications*: 101 notifications in the quarter (2004, 78); 369 notifications over the last 12 months (2004, 466) giving a rate of 9.9 cases per 100,000 population (2004, 12.5); statistically significant decrease

NEW, EXOTIC AND IMPORTED INFECTIONS

Dengue Fever

- *Notifications*: 6 notifications in the quarter (2004, 0); 11 notifications over the last 12 months (2004, 9) giving a rate of 0.3 cases per 100,000 population (2004, 0.2); not a statistically significant increase
- *Comments*: there has been a statistically significant quarterly increase from the same quarter last year (0 cases); 4 female and 2 male cases aged between 20-59 years. All of them were overseas during the incubation period, 4 were returning from Singapore and 2 were from Malaysia

Malaria

- *Notifications*: 4 notifications in the quarter (2004, 8); 35 notifications over the last 12 months (2004, 38) giving a rate of 0.9 cases per 100,000 population (2004, 1.0); not a statistically significant decrease
- *Comments*: there has been a statistically significant quarterly decrease from the previous quarter (13 cases); all notifications were laboratory confirmed. All of them had been overseas during the incubation period; 1 to Solomon Islands; 2 to Africa and 1 to Papua New Guinea

3. Other Surveillance Reports

Notifiable disease data available at www.nzpho.org.nz

ESR receives many queries from policy analysts, researchers, students, public health service staff and members of the general public for data on the number of notifiable diseases reported in specified time periods and for different demographic groups and geographic areas.

The previously published surveillance reports are available from the www.surv.esr.cri.nz website and these have data tables available within them or associated with them. However for many requesters these tables do not meet their requirements or it takes a lot of effort to put together data across multiple time periods. Over the past year a new website www.nzpho.org.nz has been developed to provide data in a more accessible and flexible format.

Available from the new website are notifiable disease data reported from the beginning of 1997 to the end of 2004. The annual datasets for each disease can be viewed by age, sex and ethnicity. Counts of cases of disease reported and rates per 100,000 population are calculated and available on the site. Data are also presented by month from 2000 to 2004 so that seasonality patterns can be observed (Figure 1). The data can be extracted for the total population of New Zealand or for individual District Health Board, Territorial Authority or Health District geographic areas.

Depending on how the data are to be used, e.g. for combining with other data or in a presentation, the data can be viewed as tables, graphs or maps. One option is to download data into Excel in which tailored graphs can be created.

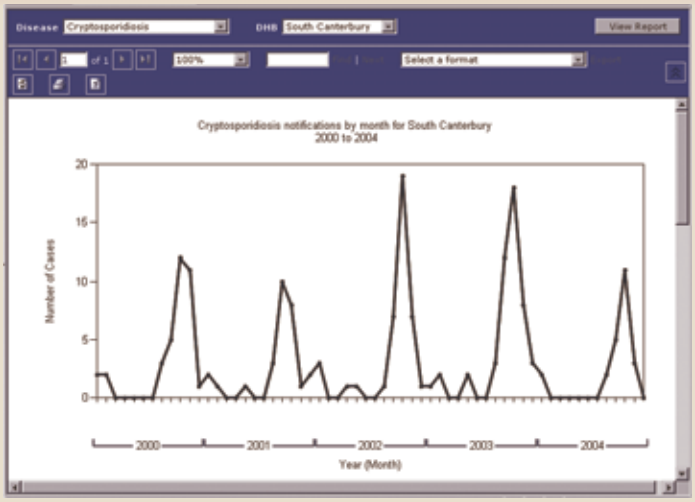


Figure 1. Monthly notifications of cryptosporidiosis reported showing seasonal pattern

At present the data are updated annually but in the future it is intended that the site will have more regular updates with more recent data.

Additional datasets held by ESR will be progressively added to the website. Feedback and requests for particular datasets to be added are welcomed and can be sent to survqueries@esr.cri.nz.

Reported by Ruth Pirie, Population & Environmental Health Programme, ESR

Second-hand tobacco smoke exposure in bars

Exposure to second-hand smoke (SHS) in New Zealand contributes to approximately 400 premature deaths each year.[1] On 10 December 2004 the Smokefree Environments Act Amendment was enacted. Up until this date, bars represented one of the most common public places for SHS exposures to occur. Prior to 10 December 2004, a study was started by ESR (on behalf of the MoH) to provide a quantifiable baseline measurement of SHS exposures to non-smoking bar patrons relating to the implementation of legislative changes banning smoking in bars. Sampling of SHS exposures in the chosen bars is ongoing and will include two further visits (post-implementation of smoking ban) in comparable seasons for each bar ending in November 2005.

Bars from three geographic areas (Auckland, Wellington, and Invercargill) were randomly chosen based on specific study criteria. Thirty bars were visited in total: 15 in the Auckland area, 10 in the Wellington area, and five in Southland and Invercargill. Four bars from these regions were chosen to represent rural areas, 10 bars were in suburban/provincial areas, and the remainder were in urban centres. Five bars were in areas of high Maori and/or Pacific Island demographic representation. Bars were visited in August/ September 2004 and again just prior to December 2004.

Each bar was visited by a volunteer group of 4-5 non-smokers on Friday or Saturday night, with at least a one-week interval between visits. All groups of volunteers spent a three-hour block of continuous time in the bar, recording time of arrival and departure. Saliva samples (approximately 0.5 - 2 mLs) were provided immediately prior to entering the bar, and 5-15 minutes after leaving the bar. Saliva samples were stored and subsequently analysed for cotinine, a nicotine metabolite, at ESR. Each group recorded the initial impression of air quality and ventilation, the number of observed lit cigarettes over three 10-minute intervals throughout the evening, and the number of patrons at each interval, in addition to any general comments about the venue relevant to bar attendance or air quality on the evening.

In all bars, and in all volunteers, a significant increase in saliva cotinine was seen after three hours in the bar (mean increase = 0.63 ng/mL; starting concentration = 0.24 ng/mL, ending concentration – 0.87 ng/mL). The increases in cotinine were greater in Invercargill bars. The difference between Auckland and Wellington bars was not statistically significant. Increases in saliva cotinine in the Invercargill bars were approximately double (1.27 ng/mL) those seen in Auckland, and were also greater than those in Wellington. Women had comparable saliva cotinine increases to men.

The increases in cotinine across all bars were correlated with subjective measures of ventilation and air quality as well as counts of lit cigarettes per number of patrons throughout the three-hour visit. There was a difference in increased cotinine with venue classification as urban (0.61 ng/mL) vs rural (1.06 ng/mL), but this difference was of marginal statistical significance.

These findings quantify exposure to SHS in bars in New Zealand before the implementation of the SFE Amendment. As identified in an earlier pilot study, a three-hour bar visit provides for a clearly measurable increase in the level of cotinine in saliva that correlates with subjective measures of air quality and cigarette counts. However, even in bars that were perceived to be "seemingly smokefree", and to have "good ventilation", an increase in salivary cotinine was observed, indicating the presence of SHS. Therefore the analytical limit of detection of cotinine in saliva appears to exceed the discriminatory ability of non-smokers to detect their own exposure to SHS. While hand counts of cigarettes and perceived smokiness were correlated with the measured increases in saliva cotinine in bar patrons, the saliva measurement removes a degree of subjectivity and human error from the assessment.

Significant regional variations in New Zealand appear to be present in bar SHS exposure. The Invercargill bars sampled were clearly smokier environments than those in Auckland and Wellington, on average. Further sampling of these venues is ongoing and will end in November 2005. An analysis of the influence of the SFE Act Amendment on SHS exposures to bar patrons will be completed by the end of 2005.

Reported by Jeff Fowles, Population & Environmental Health Programme, ESR

[1] Woodward A, and Laugesen M. 2000. Deaths in New Zealand attributed to secondhand cigarette smoke. A report to the NZ Ministry of Health

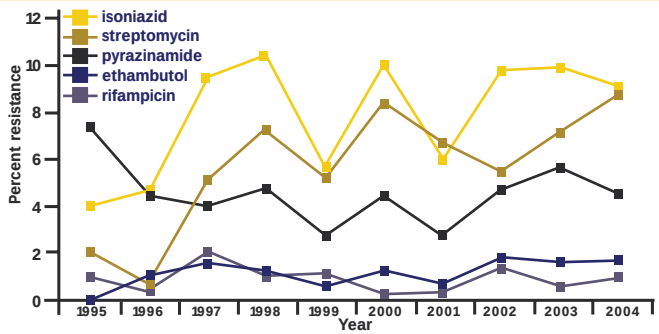
Antituberculosis-drug Resistance

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 2004, 376 cases of tuberculosis were notified, 288 (76.6%) of which were reported by the Mycobacteriology Reference Laboratories as culture positive. The 288 isolates from the culture-positive cases included 283 *Mycobacterium tuberculosis* and five *M. bovis* isolates. Isoniazid resistance was most common (9.0%), followed by resistance to streptomycin (8.7%), pyrazinamide (4.5%), ethambutol (1.7%) and rifampicin (1.0%). Compared with New Zealand-born cases, cases born overseas were more resistant to each of the antimicrobials except pyrazinamide, although the difference was only significant ($p \leq 0.05$) for streptomycin.

Between 1995 and 1998 there was a trend of increasing isoniazid and streptomycin resistance (Figure 2), but this trend was only significant ($p \leq 0.05$) among cases born overseas. Since 1999, while there have been year-to-year fluctuations in isoniazid and streptomycin resistance, there has been no significant change in the resistance to these two antimicrobials in either overseas-born or New Zealand-born cases. Pyrazinamide resistance has also fluctuated from year to year, with no apparent trend. Rifampicin and ethambutol resistance has remained ≤2%.

Figure 2. Antituberculosis-drug resistance, 1995-2004



The majority (81.9%) of the isolates in 2004 were susceptible to all five antimicrobials tested. Three isolates (1.0%) 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 0.7% and a total of 19 cases recorded in the 10 years since national surveillance of antituberculosis-drug resistance began in 1995. All but one of the 19 MDR-TB cases were born overseas and assumed to have acquired their MDR-TB overseas.

A full report on antituberculosis-drug resistance in 2004 is available at http://www.surv.esr.cri.nz/antimicrobial/tuberculosis.php

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

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 2005). Comparisons are made to the previous quarter (April-June 2005), and to the same quarter in the previous year (July-September 2004). Note that the outbreak data in this section are notified to ESR by the Public Health Services.

General

- 86 outbreaks notified in this quarter (325 cases)
- 45 are 'final' reports (201 cases); 41 are 'interim' reports (124 cases) that have yet to be finalised and closed

All data following are pertaining to final reports only.

- 4.5 cases on average per outbreak, compared with 4.5 cases per outbreak in the previous quarter (13.6 cases per outbreak in the same quarter of last year)
- 14 hospitalisations: influenza virus (11 cases), campylobacteriosis (3 cases)
- 1 death: influenza virus

Pathogens

- 14 'gastroenteritis' outbreaks (50 cases) during this quarter
- 8 *Campylobacter* outbreaks (28 cases)
- 7 *Giardia* outbreaks (32 cases)
- 6 *Salmonella* outbreaks (37 cases)
- 3 *Cryptosporidium parvum* outbreaks (12 cases)
- 3 norovirus outbreaks (17 cases)
- 1 influenza virus outbreak (18 cases)
- 1 *Salmonella* Paratyphi outbreak (2 cases)
- 1 *Staphylococcus aureus* outbreak (3 cases)
- 1 *Yersinia enterocolitica* outbreak (2 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.

- 18 foodborne, from consumption of contaminated food or drink (excluding water): 11 gastroenteritis (30 cases), 3 *Campylobacter* (11 cases), 2 *Salmonella* (27 cases), 1 norovirus (4 cases), and 1 *Staphylococcus aureus* (3 cases)
- 17 person-to-person, from (non-sexual) contact with an infected person (including droplets): 5 *Giardia* (28 cases), 3 gastroenteritis (22 cases), 2 *Campylobacter* (5 cases), 2 *Cryptosporidium parvum* (10 cases), 2 norovirus (13 cases), 2 *Salmonella* (6 cases), and 1 influenza virus (18 cases)
- 3 waterborne, from consumption of contaminated drinking water: 2 *Giardia* (17 cases) and 1 gastroenteritis (4 cases)
- 3 zoonotic, from contact with an infected animal: 2 *Campylobacter* (5 cases) and 1 *Giardia* (15 cases)
- 2 environmental, from contact with an environmental source (e.g. swimming): 1 *Campylobacter* (3 cases) and 1 gastroenteritis (16 cases)
- 11 mode of transmission unknown: 3 *Campylobacter* (12 cases), 2 *Giardia* (4 cases), 2 *Salmonella* (4 cases), 1 *Cryptosporidium parvum* (2 cases), 1 gastroenteritis (2 cases), 1 *Salmonella* Paratyphi (2 cases), and 1 *Yersinia enterocolitica* (2 cases)

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.

- 18 home: 5 *Giardia* (28 cases), 4 *Campylobacter* (9 cases), 4 gastroenteritis (12 cases), 4 *Salmonella* (33 cases), and 1 *Cryptosporidium parvum* outbreak (3 cases)
- 13 café: 8 gastroenteritis (20 cases), 2 *Campylobacter* (9 cases), 1 norovirus (4 cases), 1 *Salmonella* (19 cases), and 1 *Staphylococcus aureus* (3 cases)
- 3 farm: 2 *Campylobacter* (5 cases) and 1 *Giardia* (15 cases)
- 3 takeaways: 2 gastroenteritis (4 cases) and 1 *Campylobacter* (2 cases)
- 2 childcare centre: 1 *Cryptosporidium parvum* (7 cases) and 1 gastroenteritis (16 cases)
- 2 supermarket: 1 gastroenteritis (3 cases) and 1 *Salmonella* (19 cases)
- 1 continuing care: influenza virus (18 cases)
- 1 camp: *Salmonella* (19 cases)
- 1 community: *Salmonella* (8 cases)
- 1 hotel/motel: *Salmonella* (3 cases)
- 1 rest home: norovirus (10 cases)
- 4 'other setting': 3 overseas acquired; 1 *Cryptosporidium parvum* (2 cases), 1 *Salmonella* (2 cases), and 1 *Salmonella* Paratyphi (2 cases). 1 cruise ship outbreak: *Campylobacter* (8 cases)
- 6 outbreaks with no setting selected: 2 *Giardia* (4 cases), 1 *Campylobacter* (2 cases), 1 norovirus (3 cases), 1 *Salmonella* (2 cases), and 1 *Yersinia enterocolitica* (2 cases)

5. Outbreak Case Reports

Influenza A outbreak at a resthome

On 11 July 2005, Regional Public Health was notified of a respiratory outbreak at a resthome. The resthome is a 630 resident village with a 30 bed Long Term Care Facility (LTCF - largely dementia cases), looked after by 30 staff. The outbreak was confined to the LTCF. RPH action was to first interview two ill staff and five ill residents, to obtain case histories of illness using questionnaires implemented in earlier respiratory outbreaks at a number of schools. All information came from nurses as residents were too ill and there were problems with dementia. Interviews showed that symptoms were mainly respiratory, and were indicative of influenza. Nasopharyngeal swabs were obtained from five residents, and sent to ESR. Two gave the causal agent as Influenza A/California/7/2004 (H3N2) like – low reactor.

During the outbreak 11 residents and seven staff became ill with influenza, cases were diagnosed on symptoms with two being laboratory confirmed. The first case was a staff member, an outlier with an onset of 25 June 2005. The next case was a resident with an onset of 5 July 2005. The last case was a resident with an onset of 13 July 2005. All resident cases were contained in one wing of the LTCF, apart from one case who mixed a lot with others in the lounge. The duration of illness ranged from 2+ to 6+ days, with a median of 4+ days. One resident died of a complicating pneumonia.

RPH assistance included:

(1) Provision of illness log.
(2) Provision of information sheet on advice on respiratory illness in LTCF.
(3) Provision of posters on hand washing procedures and standard procedures for infection control.
(4) Daily monitoring of outbreak and provision of advice.
(5) Tracking NP swabs taken by practice nurse and interpretation of ESR results, regarding treatment and prophylaxis.
(6) Advice on use of Tamiflu as treatment for residents and prophylaxis for residents and staff. No staff received it as a treatment (recovered too soon) but 22 did as prophylaxis. Four ill residents given it as a treatment, nine well residents were given it as prophylaxis - the rest were too late or refused the anti-viral.
(7) Collecting flu vaccination status records to correlate with ill and well residents. Twenty percent of vaccinated residents became ill.

Reported by Quentin Ruscoe, Health Protection Officer, Regional Public Health, Hutt Valley District Health Board

Norovirus outbreak at a resthome

An outbreak of acute gastro-enteritis involving residents and staff of a resthome was notified to the Hawkes Bay DHB Public Health Unit on 17 May 2005. The likely index case was a person with vomiting and diarrhoea from a neighbouring retirement village, who had been moved to the resthome on 6 May 2005 for nursing. From the information provided, 22 out of a total of 40 residents along with seven resthome healthcare workers, that met the case definition, were affected from 6 - 16 May 2005. A further resident and staff member had abdominal pain or nausea only (respectively) and did not meet the case definition. The predominant symptoms of the illness were diarrhoea and vomiting (attack rate 45%), diarrhoea only (36%), vomiting only (13%) and abdominal pain or nausea only (6%). The illness was relatively short in duration with a median duration of two days (range 1-6 days).

The incubation periods and symptoms suggested that the likely causative agent was norovirus, an organism commonly associated with outbreaks of acute gastro-enteritis in elderly care facilities. A total of six faecal specimens, three from resthome residents and three from staff were submitted for norovirus testing. Of these specimens, the three staff yielded positive results along with two residents.

The management of the resthome had independently implemented their infection control procedures once the outbreak became apparent. The following measures were initiated:

1) Affected resthome residents and healthcare workers were recorded in a sickness log, detailing name, age, symptoms, onset of symptoms, date symptoms stopped, results of specimens submitted to a laboratory.
2) Resthome residents with symptoms were isolated in their room until asymptomatic for at least 24 hours. Signage was posted on the entrance door of the resthome and each case's room.
3) Hand washing practices were reinforced and included the use of an alcohol disinfectant. Increased cleaning practices of each case's room were implemented using a bleach product.
4) Healthcare workers used increased personal protection including gloves, gown and facemask while caring for sick residents.
5) Sick healthcare workers were sent home until asymptomatic for 24 hours.
6) Visitors to resthome residents were advised either not to visit or were required to follow infection control procedures.

No patients or healthcare workers of the neighbouring hospital facility were affected. This is primarily attributed to the fact that resthome healthcare workers do not work in the hospital facility and vice versa.

Reported by Joanne Lynch, Health Protection Officer, Public Health Unit, Hawkes Bay District Health Board

Yersinia outbreak at a camp

During May 2005 the Wanganui Public Health Centre was contacted about a possible *Shigella* outbreak at a camp. The causative organism was later confirmed as *Yersinia enterocolitica*. The outbreak involved five laboratory confirmed cases admitted to hospital from 7 - 15 May 2005. Prior to the onset of symptoms, all cases were participating in a field exercise. It is possible that the outbreak involved a greater number of cases – a total of 36 participants were admitted to hospital with gastroenteritis between 7 - 19 May 2005 though faecal specimens were obtained from only 11 patients.

The investigation was impeded by problems contacting two of the cases. As a consequence, the source of Yersiniosis was difficult to ascertain. However, several potential issues were identified with regards to food safety and personal hygiene pertaining to field exercises.

Approximately 120 people undertook the field exercise, which commenced on 11 April 2005. All participants received the same meals in the field - consisting of cooked breakfasts, cut lunches and hot dinners - supplied by the central kitchen, which operates under a NZFSA approved Food Safety Programme. The same meals would have also been provided to approximately 400 others. However, no cases of Yersiniosis were diagnosed outside the field exercise group.

For field exercises, hot breakfasts and dinners are packed into single-serve, sealed tin foil trays and placed into large insulated containers. Lunches are packed into paper bags and then into insulated containers. These containers are driven out to the exercise site. There is no control over the temperature of the food once it leaves the kitchen, although there are regular directives to consume meals as soon as possible after delivery. Delivery time may be up to half an hour, leaving little time for significant bacterial growth to occur, however, it is possible for food consumption to occur up to 3 - 4 hours after delivery due to practicalities related to the field exercise.

Drinking water on field exercises is obtained from the community drinking water supply and is transported to the exercise site by jerry-cans. Participants are strongly discouraged from drinking water from surface sources but there is no certainty regarding the adherence to this rule. Therefore, a potential source of *Yersinia* could be contaminated water acquired from a surface water supply or a contaminated jerry-can.

Sanitary facilities are either very limited or non-existent. Water from the community drinking water supply is used for basic hygiene purposes (washing and shaving). There is no showering. Hand-washing after toileting and before eating is often not carried out. There are also no toilet facilities, necessitating toileting in the open. Thus, person-to-person transmission of *Yersinia* is possible.

There is no direct contact with animals, wild or domesticated, during a field exercise. However, there is a possibility that participants come across the faeces of wild animals (horses, possums, deer, rabbits). Due to the lack of suitable hand-washing facilities or the drive to use them, wild animal faeces is another possible source of *Yersinia*.

A further case of *Yersinia* was diagnosed within a week of his arrival at the camp. This case, hospitalised on 27 May 2005, was unable to be contacted, therefore any links to the initial outbreak could not be ascertained.

Recommendations following the investigation included:

(1) To reinforce to field staff that food delivered is consumed as soon as possible after delivery.
(2) To ensure adequate hand washing facilities are available and to reinforce to field staff the importance of hand washing after toileting and before eating, drinking or smoking.

Reported by Margaret Tunbridge, Senior Health Protection Officer, Wanganui Public Health Centre, Wanganui District Health Board

6. Pathogen Surveillance

Unless otherwise reported, pathogen surveillance covers the July-September 2005 quarter.

ENTERIC PATHOGENS

Salmonella

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

- 343 human and 646 non-human isolates were submitted to ERL (2004: 275 and 485 respectively)
- *S.* Saintpaul, Auckland Public Health are conducting a case control study following a cluster of 13 isolates in North West Auckland
- *S.* Typhimurium phage type 193, isolated on several different occasions from persons attending functions at a South Auckland marae. PFGE of 8 isolates and a porcine isolate from earlier in 2005 demonstrated a clonal strain present in New Zealand
- *S.* Brandenburg, an increase in isolates from bovine abortions in the endemic areas of southern New Zealand for the first time in 3 years. Reduced vaccination and natural immunity are thought to be the main reasons for the increase

VTEC/STEC

- 18 laboratory confirmed cases of *E. coli* O157:H7 (2004, 18)
- PFGE and phage typing performed on 2 isolates from young children with no known association. Isolates indistinguishable and further investigation revealed the children had visited neighbouring rural properties that shared calf rearing facilities

Campylobacter

- Penner serotyping (HS1,44) and PFGE performed on 5 isolates of *C. jejuni* following an outbreak at a drug rehabilitation unit in Auckland. This serotype and PFGE profile has previously been observed in Auckland outbreaks in 1998 and 2002 and on those occasions it was also present in retail poultry

Norovirus

- 6 confirmed outbreaks were reported to the Norovirus Reference Laboratory
- 2 outbreaks occurred in hospital or rest home settings and 4 were associated with food consumption
- norovirus genotypes GII/6,7,9, GII/3 and GII/12 were responsible for the outbreaks. Different strains of GII/6,7,9 were associated with 4 outbreaks
- 2 outbreaks were linked to consumption of imported Korean oysters. For one outbreak, GII/12 norovirus was identified in both the oysters and a patient
- 1 hospital-related outbreak and one oyster related-outbreak in the Wellington region were caused by the same GII/6,7,9 strain
- since April 2005 there has been a noticeable absence of the GII/4 strains that predominated throughout New Zealand in 2003-4
- identical GII/3 norovirus strains were identified in 2 patients with gastroenteritis but no outbreak information was reported

LEGIONELLOSIS AND ENVIRONMENTAL LEGIONELLA

- 27 legionellosis cases were laboratory identified
- 25 cases have been notified, with a further 2 notified cases not being laboratory-proven
- 2 outbreaks were identified, both associated with *L. pneumophila* serogroup 1
- 15 cases including 2 deaths identified were linked to the Christchurch outbreak (of the total 19 cases, 4 cases including 1 death were reported last quarter)
- 2 cases were linked to a common source exposure (inadequately maintained domestic spa pool) in Auckland
- 10 remaining lab-proven cases were sporadic CAP cases
- 8 of the 27 cases identified fitted the confirmed case definition and 19 fitted the probable case definition
- 8 confirmed cases demonstrated either antibody titres >512 on two or more occasions (2 cases), or at least a four-fold rise in antibody titre by the legionella IFAT (4 cases), or a rising titre to at least 512 (1 case), or a combination of being PCR positive on an acute respiratory tract sample and showing high antibody titres on a convalescent serum sample (1 case)
- 19 probable cases were either PCR-positive (2 cases) or had a positive UAT only (17 cases)
- *L. pneumophila* serogroup 1 was identified as the causative agent in 21 cases
- *L. pneumophila* serogroup 4 was identified as the causative agent in 1 case
- *L. pneumophila* with an unidentified serogroup was the causative agent in 2 cases
- *L. longbeachae* serogroup 1 was identified in a further 2 cases
- 1 infection was caused by *L. bozemanii*
- Legionellae isolated from industrial water systems including cooling towers included *L. pneumophila* serogroups 1, 5, 6, & 8, *L. anisa* and *L. feeleii* serogroups 1 & 2

RESPIRATORY VIRUSES

Influenza Virus

- 491 isolations of influenza virus were reported (2004, 560)
- 83 were typed as influenza A and 408 as influenza B
- 51 of the type A were sub-typed as A/California/20/99 (H3N2)-like, 13 as A/Wellington/1/2004 (H3N2)-like and 12 A/New Caledonia/20/99 (H1N1)-like
- 313 of the type B were antigenically typed as B/HongKong/330/2001-like, 53 as B/Shanghai/361/2002-like and 10 as B/Sichuan/379/99-like

Respiratory Syncytial Virus, Rhinovirus & Parainfluenza Virus

- 611 cases of respiratory syncytial viruses were reported (2004, 477)
- 35 isolations of rhinoviruses were reported (2004, 31)
- 96 isolations of parainfluenza virus were reported (2004, 51), type 1 (2), type 2 (7) and type 3 (87)

ADENOVIRUSES AND ENTEROVIRUSES

Adenoviruses

- 91 adenoviruses were reported (2004, 72)
- adenovirus type 3 was the predominant serotype
- 83 adenoviruses were serotyped as adenovirus type 1 (5), type 2 (10), type 3 (39), type 4 (19), type 5 (2), type 8 (1), type 14 (1), type 37 (4), type 41(1) and untypable (1)

Enteroviruses

- 67 enteroviruses were reported (2004, 63)
- Coxsackie A type 16 was the predominant serotype
- 39 enteroviruses were serotyped as Coxsackie B1 (4), Coxsackie B3 (2), Coxsackie A16 (21), Echovirus 9 (2), Echovirus 25 (4), Echovirus 27 (1), Echovirus 30 (4) and Poliovirus type 1 sabin-like (1)

MYCOLOGY

A table detailing the biannual summary of opportunistic mycoses and aerobic actinomycetes in New Zealand for the period January-June 2005 is available at www.surv.esr.cri.nz

SPECIAL BACTERIOLOGY

Listeria monocytogenes

- 5 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)
- all were in adults with underlying illnesses and/or were elderly

Corynebacterium diphtheriae

- 1 isolate of *Corynebacterium diphtheriae* was received for toxigenicity testing, typing and surveillance purposes
- the isolate was from a cutaneous source, patient was aged 37 y and came from Christchurch
- the isolate was 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