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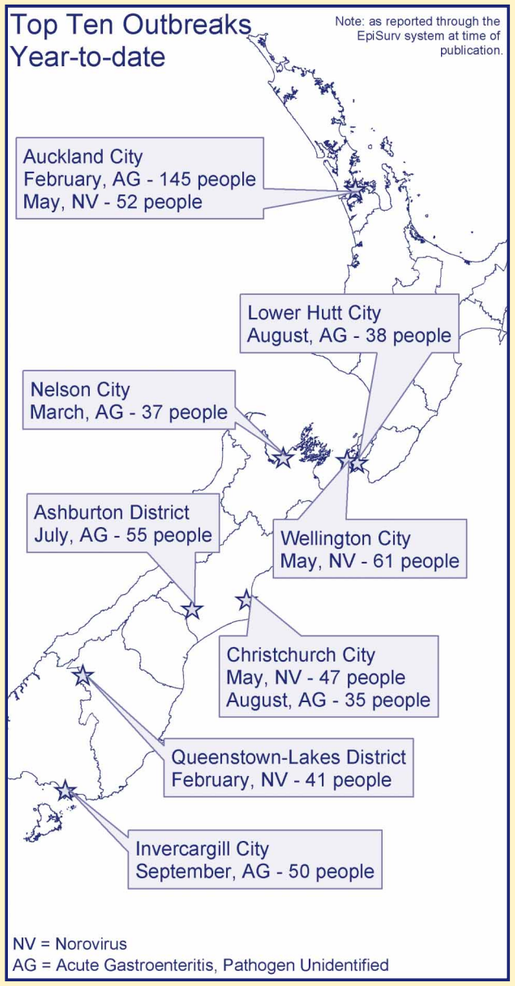
New Zealand Public Health Surveillance Report

Spring 2003

Contents & Highlights



Introduction

The New Publication

Welcome to the first edition of the New Zealand Public Health Surveillance Report. It brings together in a new format the New Zealand Public Health Report and LabLink. We would first like to apologise to regular readers for the lack of output this year but assisting with the national public health response to the SARS pandemic consumed significant resources. In this edition we have tried to 'catch up' by providing an overview of public health surveillance issues for the first nine months of 2003. In future the publication will come out quarterly.

This new publication brings together key surveillance reports from both LabLink and NZPHR in order to provide better integration of surveillance data and information. The format is changed to focus better on 'information for action' for busy practitioners, especially in the primary-care sector.

Articles will include not only laboratory and disease notifications but we will welcome reports and articles from other sources, especially practitioners [in this issue outbreak case reports], and other surveillance centres [in this issue NZPSU] and other areas of public health surveillance, e.g. environmental health.

A complementary website www.surv.esr.cri.nz has been constructed for those wishing to either view the data in more detail or search this and similar ESR/MoH publications. It also provides contact information for those wishing to submit articles etc.

We will be seeking regular feedback on changes from all groups who receive the publication and will respond to these comments and suggestions in future editions.

Notifiable Disease Surveillance

The following summarises the significant trends in the notifiable disease cases reported for the past quarter (July to September 2003) and for the year-to-date (January to September 2003). Numbers or rates for the same period in the previous year are noted in brackets preceded by the year. Rates are based on the cumulative total for the 12 months up to and including September 2003 expressed as notifications of disease per 100,000 population.

Vaccine-preventable diseases

Haemophilus influenzae type b disease (Hib):

- *Notifications*: 2 cases were notified in the quarter, bringing the number of laboratory-confirmed cases in children (under five years of age) in the year-to-date to 6. There were an additional five cases in older children and adults during the year.
- *Current Rate*: 0.3 (2002, 0.1) notifications per 100,000 population
- *Change in Rate*: significant increase

Pertussis:

- *Notifications*: 143 (2002, 290) cases were notified in the quarter with 401 (2002, 781) year-to-date
- *Current Rate*: 18 (2002, 26) cases per 100,000 population
- *Change in Rate:* significant decrease

Measles:

- *Notifications*: 18 (2002, 7) cases were notified in the quarter with 44 (2002, 17) year-to-date, of which 13 were laboratory confirmed
- *Current Rate*: 1.3 (2002, 1.4) cases per 100,000 population
- *Change in Rate*: not statistically significant decrease

Infectious respiratory diseases

Meningococcal disease:

- *Notifications*: 214 (2002, 224) notifications in the quarter, with total year-to-date notifications of 439 (2002, 453)
- *Current Rate*: 14.5 (2002, 17.2) notifications per 100,000 population
- *Change in Rate*: significant decrease

Acute rheumatic fever:

- *Notifications*: 55 (2002, 16) in the quarter and 111 (2002, 69) in the year-to-date
- *Current Rate*: 3.6 (2002, 2.1) notifications per 100,000 population
- *Change in Rate*: significant increase

Enteric infections

Campylobacteriosis:

- *Notifications*: 3,844 (2002, 3,306) notifications in the quarter with 10,316 (2002, 9,017) notifications in the year-to-date
- *Current Rate*: 369 (2002, 349) cases per 100,000 population
- *Change in Rate:* significant increase

Salmonellosis:

- *Notifications*: 284 (2002, 312) notifications in the quarter with 1075 cases (2002, 1484) notifications in the year-to-date
- *Current Rate*: 40 (2002, 60) notifications per 100,000 population
- *Change in Rate*: significant decrease

VTEC/STEC:

- *Notifications*: 13 (2002, 19) cases were notified in the quarter with 75 (2002, 60) cases notified in the year-to-date
- *Current Rate*: 2.4 (2002, 1.9) notifications per 100,000 population
- *Change in Rate*: not statistically significant increase

Hepatitis A:

- *Notifications*: 19 (2002, 5) cases were notified in the quarter with 56 (2002, 93) cases notified in the year-to-date
- *Current Rate*: 1.9 (2002, 2.9) notifications per 100,000 population
- *Change in Rate*: significant decrease

Environmental exposure & infections

Leptospirosis:

- *Notifications*: 30 (2002, 33) cases were notified during the quarter, and the year-to-date count was 85 (2002, 109)
- *Current Rate*: 3.1 (2002, 3.6) notifications per 100 000 population
- *Change in Rate*: not statistically significant decrease

Cryptosporidiosis:

- *Notifications*: 256 (2002, 384) cases were notified in the quarter and 500 (2002, 574) cases in the year-to-date
- *Current Rate*: 24.1 (2002, 25.7) notifications per 100 000 population
- *Change in Rate*: not statistically significant decrease

New, exotic & imported infections

Dengue fever:

- *Notifications*: the most frequently implicated overseas destination was Fiji (65% of all cases) followed by Tonga and Thailand
- *Current Rate*: 1.7 (2002, 2.2) notifications per 100,000 population
- *Change in Rate*: not statistically significant decrease

Typhoid:

- *Notifications*: 5 (2002, 2) cases were notified in the quarter and the number of year-to-date notifications has decreased to 17 (2002, 19) cases
- *Current Rate*: 0.6 (2002, 0.7) notifications per 100,000 population
- *Change in Rate*: not statistically significant decrease

Brucellosis:

- One case of brucellosis, due to recurrence of an earlier infection, was notified in January 2003

Malaria:

- *Notifications*: there were 14 notifications in the quarter (2002, 15) and 35 (2202, 53) in the year-to-date
- *Current Rate*: 1.2 (2002, 1.7) cases per 100,000 population
- *Change in Rate*: significant decrease

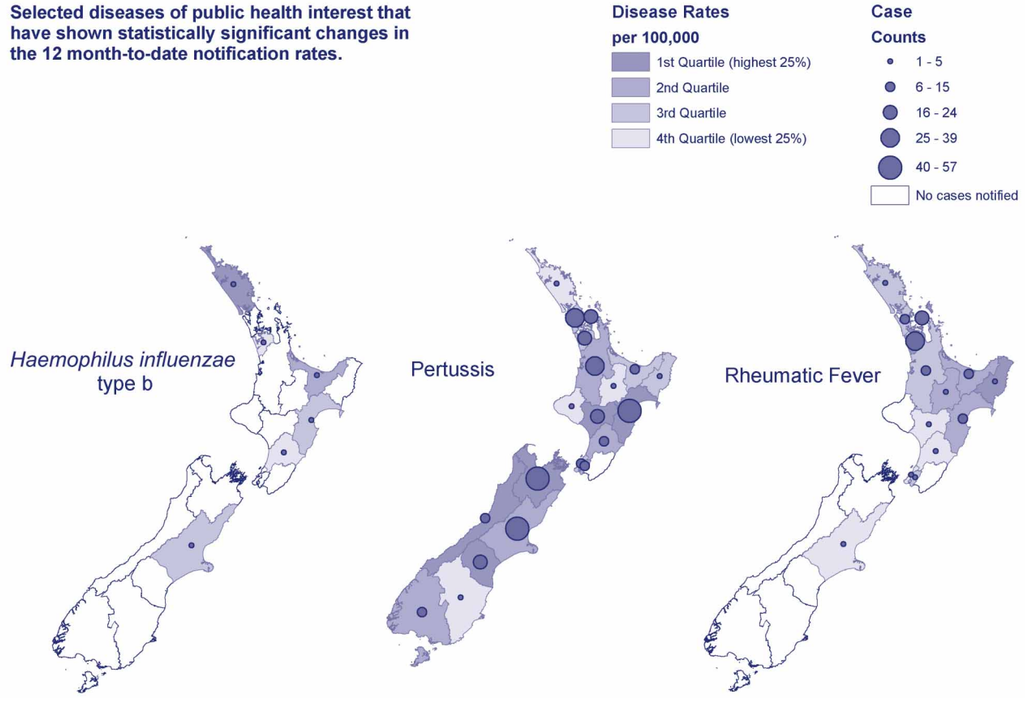
Cholera:

- One laboratory-confirmed case of cholera was notified, following travel to Thailand

Ross river virus:

- During January one laboratory-confirmed case of Ross River virus was notified in a visitor to New Zealand from Australia

Selected diseases of public health interest that have shown statistically significant changes in the 12 month-to-date notification rates.



National surveillance data

Disease[1]	Current year - 2003[2] Jul-Sep 2003 cases	Cumulative total since 1 January	Current rate[3]	Previous year - 2002 Jul-Sep 2002 cases	Cumulative total since 1 January	Previous rate[3]
AIDS	11	27	0.8	5	15	0.6
Campylobacteriosis	3844	10316	369.0	3306	9017	349.4
Cryptosporidiosis	256	500	24.1	384	574	25.7
Dengue fever	4	54	1.7	21	60	2.2
Gastroenteritis[4]	220	738	29.5	200	723	25.8
Giardiasis	378	1180	40.6	357	1211	42.9
H. influenzae type b disease	6	12	0.3	0	3	0.1
Hepatitis A	19	56	1.9	5	93	2.9
Hepatitis B (acute)[5]	19	51	1.8	17	52	1.7
Hepatitis C (acute)[5]	15	30	1.0	17	44	1.5
Hydatid disease	0	0	0	1	1	0.1
Influenza[6]	938	1021	27.9	469	675	18.6
Lead absorption	26	99	3.1	24	73	2.5
Legionellosis	16	49	1.6	15	39	1.3
Leprosy	0	2	0.1	1	3	0.1
Leptospirosis	30	85	3.1	33	109	3.6
Listeriosis	5	19	0.7	6	13	0.5
Malaria	14	35	1.2	15	53	1.7
Measles	18	44	1.3	7	17	1.4
Meningococcal disease	214	439	14.5	224	453	17.2
Mumps	16	40	1.6	14	45	1.4
Paratyphoid	3	11	0.3	4	14	0.6
Pertussis	143	401	18.4	290	781	26.0
Rheumatic fever	55	111	3.6	16	69	2.1
Rickettsial disease	1	1	0	4	6	0.2
Rubella	11	21	0.7	7	29	0.9
Salmonellosis	284	1075	39.4	312	1484	59.6
SARS	0	1	0	0	0	0
Shigellosis	19	64	2.3	24	91	3.0
Tetanus	0	2	0.1	0	1	0.1
Tuberculosis	105	296	11.0	105	266	10.0
Typhoid	5	17	0.6	2	19	0.7
VTEC / STEC infection	13	75	2.4	19	60	1.9
Yersiniosis	114	314	11.7	86	351	12.9

Notes:

1 Other notifiable infectious diseases reported in July to September 2003 : Chemical Poisoning

2 These data are provisional

3 Rate is based on the cumulative total for the current year (12 months up to and including September 2003) or the previous year (12 months up to and including September 2002), expressed as cases per 100 000

4 Cases of gastroenteritis from a common source or foodborne intoxication eg, staphylococcal intoxication or toxic shellfish poisoning

5 Only acute cases of this disease are currently notifiable

6 Surveillance data based on laboratory-reported cases only

Other Surveillance Reports

The New Zealand Paediatric Surveillance Unit Update

The New Zealand Paediatric Surveillance Unit (NZPSU) was established in late 1997 to provide active surveillance of acute flaccid paralysis (AFP) in New Zealand to fulfil the World Health Organization (WHO) requirements for certification of polio eradication.

The way the NZPSU operates was detailed in a previous report published in the New Zealand Public Health Report. Briefly, all paediatricians are asked to report by phone all children with AFP, the key clinical feature of poliomyelitis, to the NZPSU as soon as possible after admission while the child is still in hospital. Two stool samples are sent for testing at ESR so poliomyelitis can be discounted.

In addition, each month all paediatricians throughout New Zealand are sent either a reply-paid card or email (depending on their preference) on which they indicate whether they have seen a child with AFP in the previous month in case they saw a child without a telephone notification being made. The response rate is high, with a monthly average of 94%. The process has enabled the incidence of a number of other conditions seen by paediatricians to be investigated. Most of the studies are generally undertaken for a period of two or three years, although some will probably remain ongoing.

When a case of any of the conditions under surveillance is notified to the NZPSU, a short anonymous questionnaire is sent to the notifying paediatrician to ascertain demographic details and a few clinical details. Several studies also require a follow-up questionnaire to ascertain outcome.

Currently there are seven conditions on the NZPSU card. Conditions of particular public health interest are shown in the following table. Investigation of the AFP cases has confirmed that New Zealand is polio free but surveillance for AFP needs to continue for several more years.

The NZPSU prepares and distributes an annual report that summarises the year's activities and findings. The Principal Investigators for all studies are asked to update their study for this report, and are encouraged to disseminate their findings in a variety of ways. Further information on how the NZPSU operates, and copies of the 2002 and previous annual reports can be found at:

www.paediatrics.org.nz

(Reported by Melissa Carter, NZPSU)

Condition	2000	2001	2002	2003 (Jan - Jun)
Acute Flaccid Paralysis (AFP)	14	11	11	3
Perinatal HIV exposure	5	9	6	2
Vitamin K Deficiency Bleeding	2	2	5	1
Haemolytic Uraemic Syndrome	7	6	11	5
Congenital Rubella	0	0	0	0

Outbreak Surveillance

Incidence and outcomes

- From January to September 2003, there were 118 outbreaks involving 737 people.
- The average number of cases per outbreak was 6.2.
- Common source outbreaks remain the most common types of event.
- There has been no significant change in the proportion of outbreaks or associated cases between 2002 and 2003 (to date) with regard to types of outbreaks (common source, community wide or within defined settings).
- Outbreaks caused 13 hospitalizations, but no deaths.

Geography

- Auckland has had the most outbreaks in 2003 (75.4%).
- The national rate is currently 6.3 outbreaks per 100,000 population per year.

Pathogens

- Thus far, there were more cases associated with outbreaks caused by unidentified pathogens in the first six months of the year than in all of 2002.
- Twenty eight percent of all cases and 8% of all common source outbreaks were caused by noroviruses.
- 266 cases occurred in 62 common source outbreaks.
- Forty one percent of all cases and 54.8% of all common source outbreaks were caused by unidentified pathogens.
- Norovirus caused 5 institutional outbreaks (62.5%) involving 81 cases (30.3%). However, the cause of most outbreak-related cases occurring in institutions (183/267) remains unidentified.
- Enteric pathogens *(Campylobacter, Salmonella,* norovirus, *Cryptosporidium, Giardia,* VTEC/STEC) caused 318 (43.2%) outbreak-related cases and 50 (42.4%) outbreaks.

Settings

- Commercial food operations (mostly restaurants or cafes) remain the most common setting for outbreaks, followed by households (38.1% and 24.6%, respectively).
- The number of household outbreak-associated cases has risen since 2002.

Transmission routes

- Most outbreaks are foodborne (49.2%) or person-to-person (22.0%), with 30.5% of outbreak-related cases attributed to foodborne and 21.8% to person-to-person outbreaks.

Sources

- Of the 58 foodborne outbreaks involving 225 cases, 13 outbreaks had no identified source (98 cases). These are similar proportions to 2002.
- *Campylobacter* caused the largest proportion of foodborne outbreaks (13.8%) where the pathogen was identified, however norovirus caused the largest proportion of cases (20.9%).

Recognition, reporting and control of outbreaks

- Outbreaks of unknown/'other' type are reported most rapidly (average delay: 8/4 days respectively). Institutional outbreaks take the longest to report (average delay: 46.1 days).
- Control measures were applied to 81 (68.4%) outbreaks in 2003, a similar proportion to those reported in 2002.

Outbreak Case Reports

Outbreak of Hepatitis A in blueberries

Hepatitis A is a foodborne virus that can easily be transmitted to susceptible people via the faecal-oral route, often from an infected food-handler. In New Zealand, the common risk factors for Hepatitis A include consumption of contaminated food/water and overseas travel. Exposure to the virus in the workplace and contact with someone else excreting the virus are also risk factors.

A sharp rise in incidence during late summer in 2002 alerted health professionals across 13 health districts that there may be an outbreak of Hepatitis A. Forty-three individuals had been notified with the disease, and 60% of these cases lived in the greater Auckland area. Unusually, most cases were of European ethnicity, who had not recently travelled outside of New Zealand.

Public health officials looked closely into the habits of 39 infected people, and discovered that some of them (56%) had consumed raw blueberries. This was most likely the source of the infection (Odds Ratio 7.6, 95%CI 2.6-22.4), with those infected then transmitting the virus to those who had not consumed blueberries.

The origin of the blueberries was traced back from the retailers, via the wholesalers, to the orchard from which they came. A site investigation showed that workers did not wear gloves while picking blueberries and that the only toilet facilities available to the workers were pit latrines without running water, soap or towels. It is also possible that the high rainfall during the picking season may have caused the ground water level to rise allowing contamination of the blueberry crop.

Following the orchard inspection, food safety measures have been implemented in the orchard, and berry production and marketing organisations are together employing new food safety programmes. To keep consumers safe, some wholesalers will now only purchase berries from orchards implementing approved food safety programmes.

Pathogen Surveillance

A detailed summary of the data from 2002 is available at www.esr.cri.nz (see LabLink 2003; 10 (1): 1-16).

Enteric pathogens

Salmonella:

The January-June data for human and non-human *Salmonella* isolates are available at www.esr.cri.nz. During this period there were 888 human isolates and 498 non-human isolates confirmed, compared with 1275 and 616, respectively, during the same period in 2002.

Outbreaks:

S. Typhimurium DT 160 was identified on a visiting cruise ship. *S.* Brandenburg, *S.* Hindmarsh, *S.* Infantis mixed infections in four cases who were in institutional care. *S.* Heidelberg, five cases were associated with an Auckland café. *S.* Montevideo, three cases identified following a conference in Fiji.

Non-Human Isolates:

S. Typhimurium DT 1 has been the predominant isolate found in the poultry industry. An increase in *S.* Typhimurium DT 156 is noted particularly from bovine sources.

Shigella:

There have been 51 isolates of *Shigella* species confirmed. Twenty *S. sonnei* Biotype a of which five cases indicated travel in the Pacific and one in Thailand. There were 14 isolates of *S. flexneri* 2a, which is endemic in the Auckland region.

E. coli O157:

There have been 51 human isolates confirmed compared with 35 for the same period in 2002. There have been six family clusters, but no outbreaks. Isolations from the various health districts are as follows: 5 Northland, 10 Auckland, 11 Waikato, 6 Tauranga, 1 Taranaki, 2 Manawatu, 1 West Coast, 6 Canterbury, 3 South Canterbury, 6 Otago.

Legionellosis & environmental *Legionella*

A total of 37 cases of legionellosis were laboratory-diagnosed between 1 January and 30 June 2003, with one death. Ten of the cases have not been notified to a medical officer of health. The number of cases compares to 25 laboratory-reported cases and three deaths for the same period in 2002. Twenty-six cases were confirmed either by culture isolation of *Legionella* organisms (two cases) or by a greater legionella indirect fluorescent antibody testing (IFAT) of paired serum samples (24 cases). Eleven other cases were regarded as probable cases.

The confirmed cases all had symptoms compatible with legionellosis. The IFAT demonstrated a four-fold or greater rise in antibody titre in 12 cases, or antibody titres above 512 on more than one occasion (seven cases), or the demonstration of rising antibody titres to above 512 (five cases). *Legionella* serotype testing on the serum samples from the 24 IFAT serology-confirmed cases identified *Legionella* species most likely to be the cause of the legionellosis in all but one case. In the case where serotyping could not distinguish the causative agent, equal high titres were detected for *L. pneumophila* serogroups 1 and 12, and *L. hackeliae* (see website for details).

For the probable cases, all had symptoms compatible with legionellosis, and the IFAT demonstrated stable high titres at 512 only (six cases), or rising titres to 512 (three cases). Two other cases were regarded as probable cases because laboratory diagnosis was based on a positive PCR from sputum (one case) or a positive urinary antigen test only (one case). *Legionella* serotype testing on the serum samples from the nine IFAT serology-tested cases identified a *Legionella* species most likely to be the cause of the legionellosis in all cases See wesite for more details.

There was a single legionellosis outbreak identified in the January-to-June period. It was a common source outbreak caused by *Legionella pneumophila* serogroup 2. An outbreak was suspected after the laboratory diagnosis of two cases with culture-proven legionellosis in early January 2003 within the same health district and with the same strain of legionella. For both patients *L. pneumophila* serogroup 2 was grown from respiratory tract samples at Lab Plus, Auckland Hospital, within days of each other.

A further case was suspected in early February after IFAT serology identified a greater than four-fold rise in antibody titre to *L. pneumophila* serogroup 2. In the outbreak investigation the onset for the three cases was within 24 hours of each other. A common source was identified for two of the three cases (one of the culture-proven cases and the serology-proven case). The source was identified as a display whirlpool spa bath in a store from which *L. pneumophila* serogroup 2 was grown. The isolates from the spa were indistinguishable from the two clinical isolates and different from other *L. pneumophila* serogroup 2 isolates by molecular typing, although only one of the two culture-proven cases had visited the site.

Epidemiological information was available for all 37 laboratory-diagnosed cases. Of these, 22 were males aged 32 to 85 years (median age 59 years) and 15 were females aged 32 to 85 years (median age 73 years). The median age for all cases was 67 years. See website for details, www.surv.esr.cri.nz

Respiratory viruses

Influenza virus:

During January to June 2003, 188 isolations of influenza viruses were reported from Auckland. Influenza isolations in 2003 were fewer than the same period in 2002 when 260 isolations of influenza viruses were reported. Of 187 influenza A viruses received, 158 isolates were further subtyped as A/Moscow/10/99 (H3N2)-like viruses. One influenza B isolate was typed as B/Hong Kong/330/02-like virus. The 2003 influenza vaccines should provide good protection against current circulating influenza strains.

Respiratory syncytial virus and rhinoviruses:

During January to June 2003, 54 cases of respiratory syncytial viruses were reported. This was much lower than the 125 cases of RSV infection reported during the same period in 2002. Twenty-six isolations of rhinoviruses were reported, the same number of rhinovirus isolations that were reported during the same period in 2002.

Adenoviruses & enteroviruses

Adenoviruses:

During January to June 2003, a total of 91 adenoviruses was reported. This is slightly lower than 95 adenovirus isolations during the same period of 2002. Adenovirus type 3 was the most predominant serotype with 31 isolations. In addition, 35 adenoviruses were serotyped as adenovirus type 1 (9), type 2 (9), type 4 (1), type 7 (4), type 8 (1), type 9 (1), type 13 (1), type 15 (2), type 19 (4), type 20 (1), type 21 (1) and type 22 (1).

Enteroviruses:

During January to June 2003, a total of 48 enterovirus infections was reported. This is significantly lower than 158 enterovirus infections reported during the same period in 2002. Nine isolations of echovirus type 6 were reported. In addition, 18 enteroviruses were serotyped as Echovirus 9 (5), Echovirus 1 (1), Coxsackie A24 (2), Coxsackie A16 (2), Coxsackie A9 (1), Coxsackie B3 (4), Coxsackie B4 (1), Coxsackie B6 (1) and enterovirus 70 (1).

Special bacteriology

A summary of the opportunistic mycoses and aerobic actinomycetes identified in New Zealand for the period January – June 2003 is available on the website, www.surv.esr.cri.nz

Listeria monocytogenes:

Thirteen isolates of *L. monocytogenes* from human cases were referred in the period January-June 2003. This is a considerable increase compared with the same period in 2002 when six isolates were referred. Three of the cases were perinatal with one foetal death. The remaining cases (10) were in adults of whom nine had an underlying illness and/or were elderly.

Corynebacterium diphtheriae:

Six isolates of *C. diphtheriae* were received for toxigenicity testing, typing and surveillance purposes in the period January-June 2003. Sources were cutaneous (4) and blood (2). All isolates were non-toxigenic as determined by PCR testing for the presence of the toxin gene.

New Zealand Public Health Surveillance Report

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Internet website: http://www.surv.esr.cri.nz

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