# CDC Bulletin

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GOVERNMENT OF
SOUTH AUSTRALIA

This edition of the CDC bulletin focuses on the work done by the Disease Surveillance and Investigation Unit (DSIU), one of the six units of the Communicable Disease Control Branch (CDCB).

## Disease Surveillance and Investigation Unit

The DSIU is responsible for the surveillance, investigation and control of communicable and notifiable diseases in South Australia. Notifiable diseases are those listed under section 30 of the Public and Environmental Health Act, 1987, which requires that both medical practitioners and laboratories notify the CDCB if they suspect or diagnose one of the notifiable conditions.

The surveillance of communicable diseases is important for the following reasons:

- to describe the natural history of diseases;
- to reduce the burden of disease in the community;
- to identify outbreaks of disease and implement intervention strategies;
- to monitor the effectiveness of public health interventions, particularly immunisation programs;
- to predict epidemics or outbreaks, for example, cyclical Ross River virus activity;
- to estimate the future impact of a disease.

The members of DSIU liaise with individuals, departments and external agencies to constantly monitor incoming data in order to identify trends and clusters of disease in time, person and place. Missing or outstanding surveillance data are identified through quality improvement processes. Enhanced surveillance activities collect more detailed information for local, national or international purposes. An enhanced surveillance system developed in response to the global threat of Severe Acute Respiratory Syndrome is described on page 12.

Not every notified case is investigated. In some instances, single cases of disease may be referred to local environmental health officers or medical officers for preventative action if the person works in a sensitive occupation, such as a food-handler, or has identified a suspected source for their infection. Increasingly, the members of DSIU are required to coordinate or participate in outbreak investigations. Multidisciplinary outbreak investigation teams are established rapidly after the detection of an outbreak. Individual team members may be required to undertake a wide range of activities including data entry, record keeping, conducting interviews, questionnaire design, data analysis or development of intervention strategies during an outbreak investigation.

The DSIU encourages the release of de-identified epidemiological data to health care professionals and special interest groups for statistical, research and health planning purposes. These data are also accessible via the Population Health www site (http://www.dhs.sa.gov.au/pehs/communicable-diseases-index.htm).

The DSIU also provides health information and advice to health care professionals, community groups and members of the public. This service can be reached by telephoning (08) 8226 7177, 8:30am to 5pm, Monday to Friday.

## Public health alert – Congenital Rubella Syndrome

Following an increase in the number of reported Rubella cases in Queensland, two babies were born in Brisbane this year with Congenital Rubella Syndrome (CRS). It is important to ensure all women are screened for rubella antibodies before pregnancy, in early pregnancy, or if contemplating pregnancy, irrespective of a previous positive rubella antibody result. It is also important to ensure women found to be seronegative antenatally are offered vaccination after delivery and before discharge from hospital.

## Mosquitoes and Ross River virus infection

With the onset of summer comes increased numbers of mosquitoes, and with people spending more time outside there is the potential for more bites. The most common mosquito-borne disease in South Australia is Ross River virus infection (RRv).

While notifications of RRv in recent seasons have been comparatively low (see table below), the Bureau of Meteorology predicted a slightly wetter and warmer than average October to December period, particularly for the far north-east of South Australia. Warm, wet conditions are associated with increased mosquito breeding, which may bring an increased risk of exposure to RRv.

**Ross River virus notifications for South Australia by season, 2000 to 2002**

| Period | Notifications for period (whole of year) |
|---|---|
| 1 Oct to 31 Dec 2000 | 140 (415) |
| 1 Oct to 31 Dec 2001 | 15 (141) |
| 1 Oct to 31 Dec 2002 | 1 (42) |

The best ways to protect yourself against mosquito bites and mosquito-borne disease are to:

- wear loose fitting clothing covering as much of the body as possible;
- use an insect repellent containing DEET (diethyl toluamide) or Picaridin;
- fit 1mm insect screens on all windows and openings of your house;
- screen rainwater and septic tanks and ensure gutters are not holding water;
- empty all containers which may retain water, e.g. pot plant saucers;
- enjoy outdoor activity in the earlier part of the day when mosquitoes are less active;
- stock ornamental ponds and/or disused swimming pools with fish.

For further information, please visit http://www.dhs.sa.gov.au/pehs/Youve-got-what/gen-topic-mozzies.htm, or call the Environmental Health Service on 8226 7100.

## Reports of notifiable diseases

*Please note that the counts below are for confirmed cases only, and are based on the date of onset of illness.*

| | Jul-Sep 2002 | Jul-Sep 2003 |
|---|---|---|
| Arboviral infection | 8 | 3 |
| Dengue fever | 2 | 1 |
| Ross River virus infection | 6 | 2 |
| atypical *Mycobacterium* infection | 9 | 15 |
| *Campylobacter* infection | 646 | 565 |
| *Cryptosporidium* infection | 35 | 18 |
| *Haemophilus influenzae* infection | 3 | 5 |
| Hepatitis A infection | 4 | 3 |
| Hydatid disease | 0 | 1 |
| Influenza (laboratory confirmed) | 137 | 270 |
| *Legionella* infection | 21 | 18 |
| Leptospirosis | 1 | 1 |
| Malaria | 5 | 7 |
| Measles | 0 | 10 |
| Meningococcal infection | 11 | 10 |
| serogroup B | 6 | 7 |
| serogroup C | 2 | 1 |
| other/unknown | 3 | 2 |
| Mumps | 4 | 4 |
| Pertussis | 94 | 57 |
| Pneumococcal infection | 44 | 45 |
| Q fever | 10 | 2 |
| *Salmonella* infection | 98 | 73 |
| Shiga toxin-producing *E. coli* / HUS / TTP | 11 | 7 |
| *Shigella* infection | 4 | 9 |
| Syphilis | 6 | 4 |
| Tuberculosis | 6 | 12 |
| Typhoid fever (*Salmonella typhi*) | 1 | 1 |
| Varicella virus | 247 | 270 |
| *Yersinia* infection | 6 | 2 |

The following paragraphs summarise the confirmed cases of notifiable diseases reported to the CDCB where the date of onset of illness was between July and September, 2003.

### *Campylobacter* infection

There were 565 cases (276 female, 289 male), making Campylobacter the most commonly notified cause of gastrointestinal illness in South Australia. Year-to-date figures show an increase in notifications with 2097 compared to 1740 at the same time in 2002. The cases were geographically dispersed throughout metropolitan Adelaide and rural South Australia; no apparent clusters were identified.

### *Cryptosporidium* infection

There were 18 cases that were geographically dispersed across the state. Ages ranged from 11 months to 37 years; 12(67%) of cases were less than 15 years of age. Of these, 1 identified contact with farm animals and 1 identified contact with farm animals and a swimming pool as possible sources for their infection. All cases were believed to be sporadic. Information on maintaining healthy swimming pools and spas can be found at www.dhs.sa.gov.au/pehs/.

### *Haemophilus influenzae* infection

Of the 5 cases (3 males, 2 females), 4 were over 70 years of age and the remaining case was a 1 year old child. There were no cases of *Haemophilus influenzae* serotype b (Hib).

### Hepatitis A

There were 3 cases (all males, age range 44 to 88 years), compared to 4 for the same period in 2002. Of these cases, 2 were from rural South Australia and 1 from metropolitan Adelaide. The case from metropolitan Adelaide reported recently holidaying in rural areas of western South Australia.

## *Legionella pneumophila* serogroup 1

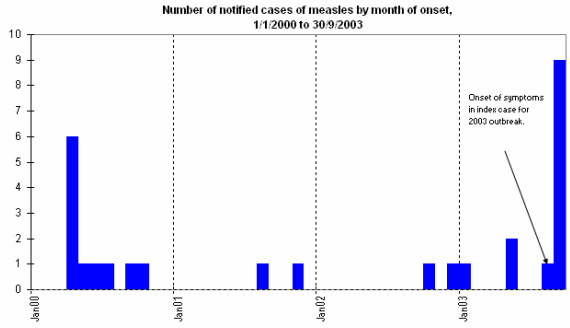
An investigation was conducted into a sporadic case of legionellosis in a 50 year old male with a chronic lung condition. Further tests showed that this was not an acute case and that exposure had occurred prior to April 2003. The case was referred to the Environmental Health Branch, who conducted temperature testing and sampling of the hot water system at the case's residence.

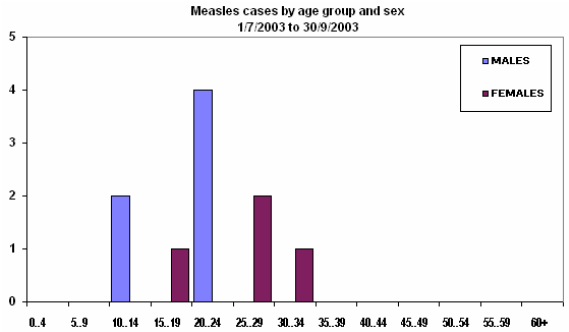
## Malaria

All cases occurred in people who had recently returned or arrived from countries known for endemic transmission of malaria (Papua New Guinea, East Timor, Guinea, Liberia and the West African region). Of the 7 cases (6 male, 1 female, age range 2 to 60 years), 4 were *Plasmodium vivax* infections, 2 were *Plasmodium falciparum* infections, and one was a mixed *Plasmodium malariae* / *Plasmodium falciparum* infection. Papua New Guinea and East Timor were identified as the source for all 4 *Plasmodium vivax* infections. Of the remaining cases, 2 reported travel to West African regions while the remaining case reported travel to West Africa and Papua New Guinea.

## Measles

An outbreak of measles commenced during this period when a 19-year-old female returned from New Zealand incubating the disease. Symptoms were first noticed in the index case on 31st of August. During her infectious period she worked at a local supermarket where she infected a co-worker. The outbreak was amplified when the second case attended a music concert while infectious, infecting 7 other people at the venue. In addition, a friend of the second case also became infected. The chart below shows that 7 cases were aged between 20 and 39 years.




Of the 10 cases, 10 experienced a rash, 10 fever, 8 coryzal symptoms, 7 cough, 6 conjunctivitis and 1 Koplik spots. Nine cases had IgM antibodies to measles, indicating a recent measles infection. The remaining case had a throat swab that was PCR positive for measles nucleic acid, an epidemiological link to a confirmed case of measles, and clinical symptoms consistent with measles infection.

Cases reported attending worksites, shopping centers, childcare centers, health care agencies and various social engagements during the infectious period; some also reported extensive use of public transport systems. The cases were advised to isolate themselves during their infectious period. The CDCB also provided information about measles to over 1800 residents of metropolitan Adelaide, and information was sent to general practitioners, emergency departments and infectious disease consultants, alerting them to the possibility of further cases.

Measles (MMR) vaccination is provided free at 12 months and at 4 years of age, as part of the national immunisation schedule. It is also free for people born since 1966 who have not received a 2nd dose of measles-containing vaccine, and who have not had measles. CDCB has been using various media outlets to advocate vaccination in at-risk groups of the public, particularly those born since 1966.

## Meningococcal infection

There were 10 cases (7males, 3 females, age range 3months to 80 years) compared with 11 cases during the same period in 2002; 9 of the cases were less than 25 years of age. Seven of the cases were characterised as serogroup B, 1 serogroup C, 1 serogroup Y and 1 serogroup W-135. There were 2 deaths during this period. Contact tracing around the cases resulted in 98 people being offered chemoprophylaxis, and 355 people receiving health information.

## Pneumococcal infection

Of the 45 cases (31 males, 14 females), 16 (36%) occurred in children under 5 years of age. Twelve cases required hospitalization and only 1 reported being fully vaccinated against pneumococcal infection. Another 13 (29%) cases occurred in adults over 65 years of age; of these 4 were fully vaccinated, 2 partially, 5 unvaccinated and 2 had unknown vaccination status against pneumococcal infection. In this age group, 12 (92%) reported being hospitalised.

## Q fever

There were 2 cases, compared with 10 cases during the same period in 2002; the average for this period for the past 5 years is 8 cases. Cases reported exposure to several risk factors including meat packing, goats, kangaroos, sheep, cattle and other livestock. Both cases were unvaccinated.

## *Salmonella* infection

There were 73 cases (41 females, 32 males, age range 5 months to 85 years), representing a slight decrease compared to the same period in 2002. *Salmonella* Typhimurium phage types 4, 108 and RDNC, *Salmonella* Adelaide and *Salmonella* Infantis were the most commonly reported types of *Salmonella* this quarter.

## Outbreak of *Salmonella* Typhimurium phage type 4

In September 2003, the CDCB investigated 6 cases (2 males, 4 females, age range 3 to 82 years) geographically dispersed throughout metropolitan Adelaide. Cases had onset dates between the 16th and 19th of August. Hypothesis- generating interviews were conducted with all cases, and 4 out of the 6 reported the consumption of cheesecake. The 4 cases who reported consuming cheesecake had eaten at 3 different commercial outlets in metropolitan Adelaide. Further investigation showed that these outlets all sourced their cheesecakes from the same supplier. An environmental investigation and a case-control study were commenced. The case-control study identified a statistically significant association between human illness and the consumption of cheesecake.

## Shiga toxin-producing *Escherichia coli* (STEC) / haemolytic uraemic syndrome (HUS) / thrombotic thrombocytopaenic purpura (TTP)

Of the 6 cases of STEC infection, 1 developed HUS. A sibling was subsequently diagnosed with disease; both children reported exposure to livestock manure. The remaining 4 cases were sporadic in nature, and 5 of the 6 cases were from rural areas in South Australia. There was an additional case of HUS in which STEC was not detected.

## *Shigella* infection

Of the 9 cases, 4 were *S. flexneri* biotype 2a and were from remote or rural locations in South Australia; 2 of these cases identified as being Aboriginal or Torres Strait Islander. The remaining cases were of type *S. flexneri* biotype 1a, *S. flexneri* biotype 6, *S. sonnei* biotype a, *S. sonnei* biotype g and *S. flexneri* (not biotyped); these cases were all from metropolitan Adelaide, and all reported recent overseas travel (Vanuatu, India, Sudan, Liberia/Guinea).

## Typhoid fever (*Salmonella* Typhi)

There was one case in an 11-year-old boy; exposure is believed to have been in Indonesia.

## Gastroenteritis

### Norovirus

In July 2003, the CDCB investigated an outbreak of gastroenteritis associated with a wedding reception in metropolitan Adelaide. A cohort study was undertaken and questionnaires distributed to wedding guests. Of the 57 (79%) of questionnaires returned, 40 (70%) reported gastrointestinal illness. The 4 major symptoms were abdominal pain or discomfort, diarrhoea, nausea and vomiting. The analytical study did not find a statistically significant association between any of the food items served at the wedding reception and gastrointestinal illness. An environmental investigation found kitchen hygiene and food handling practices to be of a satisfactory standard at the reception venue. Four stool samples yielded Norovirus type 2. The source of this outbreak was not identified. However, person-to-person transmission of this virus in a confined setting probably contributed to the large number of guests that experienced gastrointestinal illness.

In the same month, the CDCB also investigated an outbreak of gastroenteritis associated with employees attending a training workshop. A cohort study was undertaken and a questionnaire distributed to all 11 attendees. Results showed that 7 (64%) of attendees experienced gastrointestinal symptoms after attending the training workshop. No statistical associations were identified between any of the food items consumed and gastrointestinal illness. Cases declined to provide stool samples for laboratory testing. An environmental investigation found that the food handling and hygiene practices of the catering companies involved were of a satisfactory standard.

## A cluster of gastrointestinal illness following a camp at a dairy

The consumption of raw or unpasteurised milk has been associated with outbreaks of *Campylobacter* and other bacterial infections (1, 2, 3, 4). Organised events, such as farm visits and school camps, are settings that have specifically been associated with outbreaks of *Campylobacter* infection (5, 6).

Standard 2.5.2, 4(2) of the Australia New Zealand Food Standards Code (7) prohibits the sale of unpasteurised cow's milk. Despite this legislation, the consumption of unpasteurised milk occurs in organized settings. In March 2003 an outbreak of gastrointestinal illness followed a school camp at a dairy, and serves as an important reminder that a high degree of caution should be taken when choosing to provide unpasteurised milk.

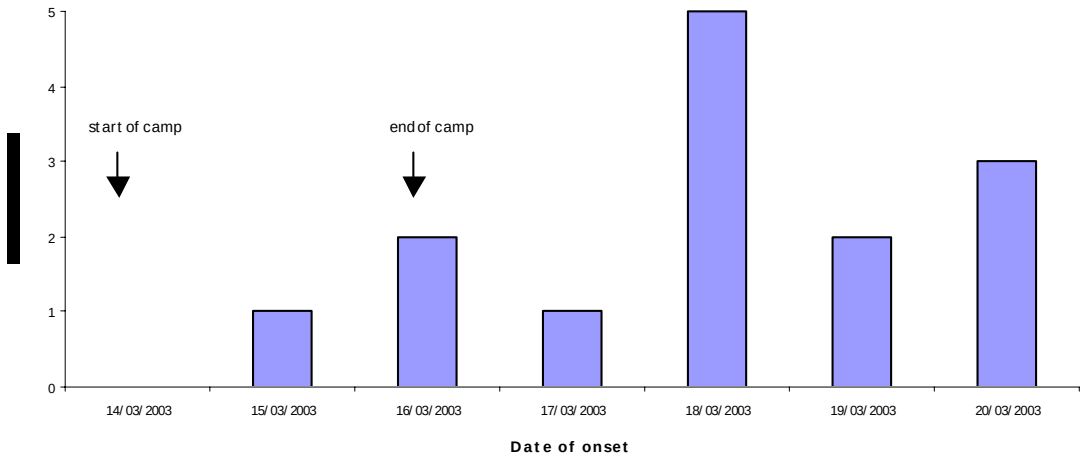
On 4 April 2003 the CDCB was notified of a case of campylobacteriosis in a 23 year old male school teacher following attendance at a school camp between March 14 and 16 2003. The notifying doctor reported that there had been a number of cases of gastroenteritis among students attending the camp. An investigation was commenced and hypothesis-generating interviews were conducted to examine food consumption and activities at the camp.

The 3-day, 2-night camp was held in south-eastern South Australia on a working dairy farm. The 112 attendees incorporated 60 students aged 10-11 years, 49 fathers and 3 teachers; all were male except for one teacher. The group camped by a lake in areas where cattle may have recently grazed. Most of the food served was purchased in Adelaide prior to departure, but unpasteurised milk was provided from the dairy. All milk consumed at the camp was unpasteurised and was used for chocolate drinks, cereal, tea and coffee. A group of fathers collected milk from a large cooling vat and carried it to the campsite. Other foods included bulk pasta supplied by an Italian restaurant chain, and spit lamb supplied and prepared by one of the fathers; food was refrigerated in mobile fridges supplied by the school organisers. The facilities for campers included tents, 'drop'/non-flushing toilets, access to rain water from a rainwater tank and limited hand-washing facilities. Lake water was reportedly boiled prior to use for washing dishes.

A cohort questionnaire with 76 items was sent to all attendees. A case was defined as gastrointestinal illness with diarrhoea during or following attendance at the school camp. Questions were asked about exposure to food and water at the camp and activities undertaken; these included playing with camp dogs, patting cows, canoeing, swimming or falling in the lake, handling frogs, and fishing. Data were entered and analysed using Epi-info. Environmental samples were obtained from several sources at the camp, including the rainwater tank and the nearby freshwater lake.

The response rate for the return of questionnaires was 76%. Forty-three (72%) students, 39 (80%) fathers and all 3 teachers completed questionnaires. Of these respondents, 14 (17%) reported diarrhoea, thus meeting the case definition. The 14 cases reported other symptoms including vomiting (in 7), fever (in 12), chills (in 9), and abdominal pain (in 9). Onset dates were between 15/3/2003 and 20/3/2003. There were no reports of gastrointestinal illness prior to the camp, and the first case of gastrointestinal illness was reported on the second day of the camp (see chart below). The median duration for the illness was 5 days with a range of 1.5-7 days.

**Figure 1. Number of cases of gastroenteritis linked to attending a school camp at a dairy farm**




Bivariate analyses identified significant associations between cases and several exposures (both food and environmental), with risk ratios (RR) between 2.9 and 3.8. These exposures included eating potato crisps (RR 3.8, 95% CI 1.1-12.5), salad (RR 3.0, 95% CI 1.1-7.9), and BBQ flavoured biscuits (RR 2.9, 95% CI 1.1-7.4), drinking cordial (RR 3.3, 95% CI 1.1-9.6), drinking chocolate drinks with unpasteurised milk (RR 3.7, 95% CI 1.1-12.2), and swimming in the lake (RR 3.2 95% CI 1.1-9.5).

Food-specific attack rates ranged from 26 to 31%, except for salads (attack rate 50%). The attack rate for chocolate drinks made with unpasteurised milk was 26% (11/42). When the exposures of drinking chocolate drinks made with unpasteurised dairy milk and eating cereal with unpasteurised milk were combined, the risk ratio was 7.5 (95% CI 1.02-54.4).

The index case was positive for *Campylobacter* infection, however no other faecal specimens were obtained. The lake water, mussels found at the edge of the lake, rainwater from the rainwater tank and unpasteurised milk from the dairy all tested negative for pathogens.

The characterisations of this outbreak are consistent with *Campylobacter* infection. While *Campylobacter* was not isolated from any environmental sample, this organism can be difficult to isolate from potentially contaminated sources such as milk and water (8). The index case was positive for *Campylobacter*, and the incubation period and duration of illness in this cluster was in keeping with the typical features of *Campylobacter* infection (9).

The specific mode of transmission in this outbreak remains unknown, and may have been food consumed or an environmental exposure. However the high risk ratio for exposure to unpasteurised milk suggests that milk was the most likely source. Unpasteurised milk has been implicated in *Campylobacter* outbreaks (6), and this outbreak is an important reminder that a high degree of caution should be taken when choosing to provide unpasteurised milk in organised settings, such as school camps.

The CDCB is grateful to Nick Rose, Food Unit, Environmental Health Branch, Department of Human Services, Clarrie Fisher, Environmental Health Officer, Coorong District Council, and Chris Murray, Food Microbiologist, IMVS for their contribution to the environmental investigation.

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## An outbreak of *Salmonella* Typhimurium phage type 99 linked to contaminated bakery piping bags

In October 2002, the CDCB investigated an outbreak of *Salmonella* Typhimurium phage type 99. The 22 cases (13 male, 9 female, age range 2 to 83 years) were residents of metropolitan Adelaide. Of these, 20 were available for interview. Hypothesis-generating interviews sought information related to food purchasing, food consumption, social activities and animal contact for the 7-day period prior to the onset of symptoms. Seven cases were hospitalised, and one case died. There were two secondary cases.

Hypothesis-generating interviews identified three distinct groupings. The first consisted of 6 community cases reporting consumption of sweet bakery items. Of these, 5 had eaten cream-filled buns or cakes. These items were all traced back to the same point of manufacture, identified as bakery A.

The second grouping consisted of 6 cases that had attended a self-catered birthday party. A cohort study was initiated using a telephone-administered questionnaire. In total, 53 of 57 party attendees were interviewed. Of these, 22 (42%) experienced an onset of gastrointestinal illness within 3 days of attending the party. Of those ill, 15 (68%) reported fever, 20 (91%) abdominal pain, 20 (91%) diarrhoea, 3 (14%) bloody diarrhoea, 13 (59%) nausea and 8 (36%) vomiting. Three party attendees reported gastrointestinal illness prior to attending the party, however, none were involved in subsequent food preparation or food handling.

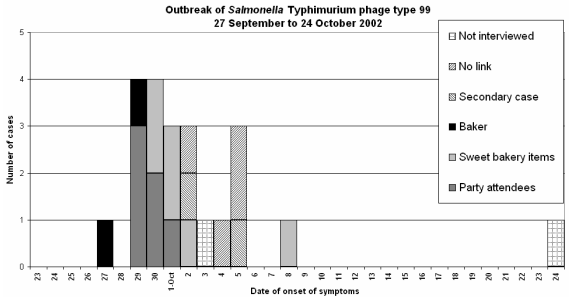
The analytical study revealed males were 8 times more likely to have experienced illness after attending the party (RR=8.5, 95%CI 2.2-32.8). Univariate analyses identified pork (RR=2.4, 95%CI 1.1-5.2) and cream puffs (RR=3.7, 95%CI 2.1-6.6) as statistically significant risk factors for illness. Thirteen assorted desserts from a variety of sources were served at the party. Of these, 10 dozen small individual cakes had been purchased the previous day from a local bakery. After purchase, the cakes were stored un-refrigerated until required the following evening. Included in the purchase, was a selection of cream-filled cakes. The risk ratio for small individual cream-filled cakes was 3.0 (95%CI 1.4-6.6). These cakes were traced back to the point of manufacture, also bakery A.

The third grouping consisted of 4 cases that reported no apparent links to the consumption of sweet bakery products.

An environmental investigation of bakery A was conducted. There were 2 reports of gastrointestinal illness in bakery employees. Both employees reported involvement in the production of cream-filled bakery products. Moreover, both employees reported eating sweet bakery items produced by bakery A. Stool specimens provided by both employees yielded *Salmonella* Typhimurium phage type 99. In total, 111 environmental swabs and food samples were collected from bakery A. Of these, a composite sample of 6 piping bags yielded *Salmonella* Typhimurium phage type 99. Initially, unrecognised cross-contamination of piping bags from staff, ingredients or environmental sources was considered. Of particular importance, the environmental investigation focused on inadequate procedures for cleaning and sanitising piping bags. Subsequent questioning of staff directly involved in food production procedures identified that non-disposable piping bags were being used to pipe both raw meat for sausage rolls and cream for sweet bakery items.

The epidemiological and microbiological investigations identified an association between human infection with *Salmonella* Typhimurium phage type 99 and the consumption of bakery items from bakery A. This outbreak illustrates the dangers of using non-disposable piping bags for multiple purposes. To minimise cross-contamination, separate piping bags for raw meat and cream processes were introduced. In addition, correct procedures for cleaning and sanitising non-disposable piping bags were instituted. A Food Industry Bulletin highlighting correct procedures for maintaining piping bags was issued.

Clearly, temperature abuse of cream products by some customers may have increased the likelihood of human illness. Nonetheless, *Salmonella* is an undesirable contaminant in any commercial food product that is sold ready-to-eat. Procedures should be in place in all commercial bakeries to minimize the risk of infection to members of the public.



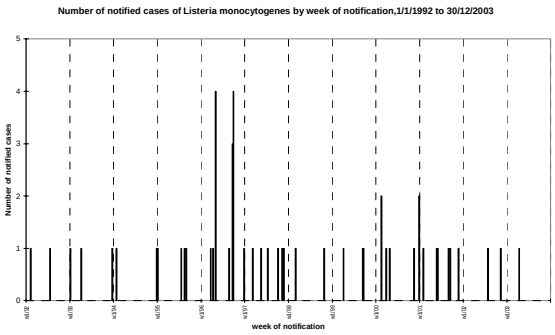

Please note - this report was adapted from the following article:

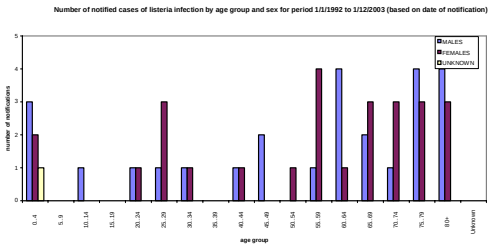
Tribe I, Hart S, Ferrall D, Givney R. An outbreak of *Salmonella* Typhimurium phage type 99 linked to contaminated bakery piping bags. *Communicable Disease Intelligence* 2003; 27(3):87-88.

## Listeriosis

Listeriosis is an illness caused by eating food contaminated with bacteria, *Listeria monocytogenes.* The infection is most serious when it occurs in newborn babies, the elderly, the immuno-suppressed, and pregnant women. Symptoms vary from a sudden onset of fever, headache, nausea, vomiting and neck stiffness to a gradual onset of confusion and decreased alertness. Pregnant women may have relatively mild symptoms (mild fever and aches) and make a quick recovery. However, they may transfer the infection to their unborn child who may be stillborn or born very ill. Healthy adults are not normally susceptible to *Listeria* infection. *Listeria* infection can be fatal.

In South Australia Listeriosis became notifiable in 1992. From 1992 to September 30 2003, 53 (26 females, 26 males, 1 sex-unknown; age range 0-88 years) cases of Listeriosis have been notified. Of these, 39 (73%) have been in people who are immuno-suppressed for varying reasons, including renal transplant, carcinoma, chronic heart disease and chronic respiratory disease. Nine of the cases (17%) were associated with pregnancy and/or neonates. Risk factors in the remaining 5 cases could not be determined. The cases were geographically scattered over South Australia.




The way in which *Listeria* infection is spread is by eating contaminated foods. However, because the organism is widespread in nature and found in soil, water, sewerage and most animals including man, exposure to it is almost unavoidable. It is important therefore to minimise the risk of infection especially if you are pregnant or immuno-compromised.

*Listeria* are capable of growth in food held under refrigeration. However they are readily killed by adequate cooking. *Listeria* contamination can be minimised by good hygiene practices in food manufacturing plants and retail food services such as restaurant or fast food outlets and sandwich shops. Health department surveillance of imported and domestic foods provides added protection for the consumer. Consumers should not eat food where there is doubt about its hygienic preparation.

*Listeria* infection from food prepared at home can be minimised by adhering to the following principles:

- Follow good hand-washing practice and maintain a clean environment;
- Avoid cross contamination between raw and processed foods;
- Use separate knives and cutting boards for raw and processed foods;
- Be sure to adequately refrigerate all prepared foods, especially meat products, dairy products and salads such as coleslaw.

Those people at risk from Listeriosis should not eat high risk foods such as coleslaw or other prepared salads that have been stored in domestic refrigeration for more than 12 hours; this is because *L.monocytogenes* can grow under refrigeration at temperatures as low as 0.5 degrees Celsius. *L.monocytogenes* is readily destroyed by cooking, so freshly cooked meals are the safest. Eat only freshly prepared foods and hot foods that are served very hot. Dairy foods such as hard cheese, fresh pasteurised milk, UHT milk and yoghurt are considered safe. Avoid eating dips and pates which have previously been exposed to raw vegetables. Avoid eating high risk foods such as

- Soft cheeses such as brie, camembert and ricotta (these are safe if cooked and served hot);
- Take-away cooked diced chicken (as used in chicken sandwiches);
- Cold meats;
- Pate;
- Raw seafood (such as oysters and sashimi);
- Smoked seafood such as smoked salmon, smoked oyster (canned fish are safe);
- Pre-prepared or stored salads;
- Unpasteurised milk.

For further information contact The Food Safety Unit, Environmental Health Service, Department Human Services. A brochure is available titled “Listeria and Pregnancy”; for copies contact Publications Officer, Australian New Zealand Food Authority, PO Box 7186 Canberra MC ACT 2610; Tel (02) 62712241; Fax (02) 62712278; Email info@anzfa.gov.au; Website: http://www.ansfa.gov.au.

The National Health and Medical Research Council also provides special dietary advice on Listeriosis. The information is available from the http://www.nhmrc.gov.au/publications/reporte/ph43rep.htm

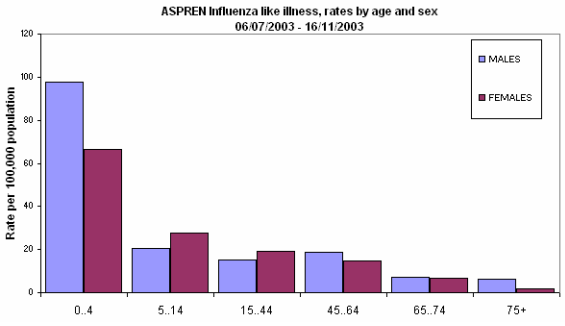
## Summary of Influenza activity, January 1 to November 26, 2003

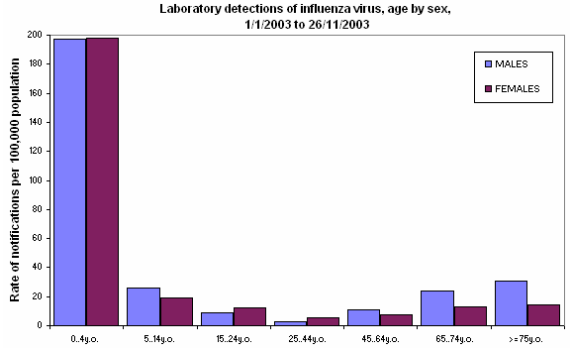
South Australian influenza surveillance combines laboratory-confirmed cases reported by the Institute of Medical and Veterinary Science (IMVS), and clinical diagnoses of "influenza-like illness" collected from Royal Australian College of General Practitioners members participating in the Australian Sentinel Practice Network (ASPREN), and clinical diagnoses of "influenza-like illness" collected from the emergency departments of the Royal Adelaide Hospital and the Women's and Children's Hospital. The case definition for "influenza-like illness" currently being used in South Australia is as follows:

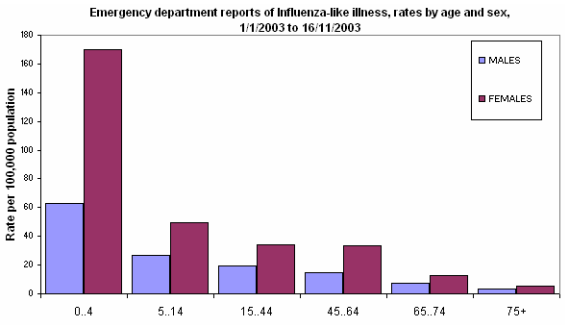
> Any six of the following criteria: sudden onset (within 12 hours), cough, rigors or chills, fever, prostration and weakness, myalgia, widespread aches and pains, no significant respiratory physical signs other than redness of nasal mucous membranes and throat, and influenza in close contacts. During an influenza epidemic, only 4 of the above criteria are required. The definition will change nationally in 2004 to a combination of fever, cough and fatigue.

The 2003 influenza season was characterised by a late onset in the middle of August, with a particularly acute rise and sizeable peak in cases less than one month later. The season then rapidly declined to off-season levels one month after peaking in the middle of September. Year-to-date there have been 306 laboratory detections of influenza virus compared to 285 in 2002. In 2003 the season peaked with 61 laboratory-confirmed cases reported in week 38, compared to a peak of 32 cases in week 24 of 2002. However, the short duration of the 2003 season has resulted in only slightly more cases year-to-date. The South Australian season was comparable in nature to that described by other states, except the season commenced and peaked approximately two weeks later in South Australia (see chart below).

The age by sex distribution of cases during the 2003 season, for each surveillance system, indicates that children aged 0 to 4 years were most affected (see charts below). The laboratory-confirmed age distribution graph is exaggerated by higher specimen collection rates in this age group. However the graph does reflect age distribution patterns seen in the clinically based surveillance systems. International literature suggests children aged 0 to 4 years commonly have the highest rates of influenza illness. This is presumably because lack of exposure means they have yet to develop any immunity to circulating strains. Rates appear lowest in the over 65 population, reflecting positively on the immunisation program that aims to reduce morbidity and mortality in the particularly vulnerable elderly population.



The IMVS sent 106 isolates to the WHO Influenza Reference Centre in Victoria for strain analysis. Of these, 105 were reported as Influenza A/Fujian/411/2002 (H3N2). This is the same strain that was circulating throughout Australia and had been seen in New Zealand prior to the commencement of the Australian season.

The 2003 influenza vaccine was derived from 3 strains of influenza virus, these were:

- Influenza A/New Caledonia/20/99 (H1N1) - like virus
- Influenza A/Moscow/10/99 (H3N2) – like virus
- Influenza B/Hong Kong/330/2001 – like virus

The Fujian strain that was circulating during the 2003 season was not contained in the vaccine, however it is believed that there was sufficient antigenic cross-reactivity between the Moscow strain (contained in the vaccine) and Fujian strain for the vaccine to be protective. The World Health Organisation has recommended that the Fujian strain be included in next season's vaccine.

## Severe Acute Respiratory Syndrome surveillance in South Australia

The World Health Organization (WHO) issued a global alert in March 2003 about cases of a new, highly infectious severe atypical pneumonia referred to as Severe Acute Respiratory Syndrome (SARS). Symptoms of SARS include a fever greater than 38 degrees Celsius, and cough, shortness of breath or breathing difficulties. The Australian Government Department of Health and Ageing coordinated the national public health management for SARS through daily teleconferences with the Joint Executive Group, comprised of state and territory members of the Communicable Diseases Network Australia (CDNA). This ensured a coordinated and uniform approach to surveillance, infection control, contact tracing and border screening.

In South Australia, 48 people were notified to the CDCB as possible SARS cases. Forty were rejected because they did not meet the WHO case definition. Of the remaining 8 cases, 7 people were under investigation as suspect cases and 1 person was under investigation as a probable case. There were 5 males and 3 females under investigation with an age range between 24 and 68 years (median 56 years). Seven cases were hospitalised. Seven cases were eventually excluded by alternative diagnoses: 3 showed a clinical response to antibiotics and 4 were diagnosed with *Streptococcus*, viral pneumonia, measles and bacterial exacerbation of asthma respectively. One case was excluded on the basis of the illness being mild and self-limiting.

The symptoms of SARS – on which the case definition was based – mimicked those for a range of other respiratory diseases. This resulted in resource-intensive investigation and isolation of cases that did not have SARS, but was a necessary precautionary approach. If SARS re-emerges, this problem will continue until a sensitive and specific diagnostic test for SARS in the early stages of infection is developed.