

## Quarterly reports

# OzFOODNET QUARTERLY REPORT, 1 OCTOBER TO 31 DECEMBER 2007

The OzFoodNet Working Group

## Introduction

The Australian Government Department of Health and Ageing established the OzFoodNet network in 2000 to collaborate nationally to investigate foodborne disease. OzFoodNet conducts studies on the burden of illness and coordinates national investigations into outbreaks of foodborne disease. This quarterly report documents investigations of outbreaks of gastrointestinal illness and clusters of disease potentially related to food, occurring in Australia from 1 October to 31 December 2007.

Data were received from OzFoodNet representatives in all Australian states and territories and a sentinel site in the Hunter/New England region of New South Wales. The data in this report are provisional and subject to change as the results of outbreak investigations can take months to finalise.

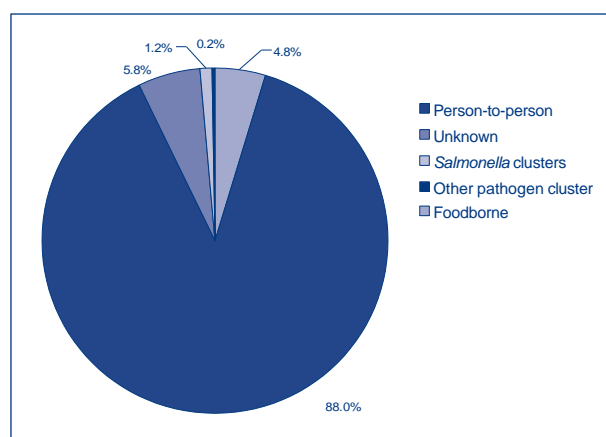
During the fourth quarter of 2007, OzFoodNet sites reported 565 outbreaks of enteric illness, including those transmitted by contaminated food. Outbreaks of gastroenteritis are often not reported to health agencies or the reports are delayed, meaning that these figures under-represent the true burden of enteric illness. In total, these outbreaks affected 9,891 people, of which 256 were hospitalised and 29 people died. The majority (88%,  $n=497$ ) of outbreaks resulted from infections due to person-to-person transmission (Figure).

## Foodborne disease outbreaks

There were 27 outbreaks during this quarter where consumption of contaminated food was suspected or confirmed as the primary mode of transmission (Table). These outbreaks affected 314 people and resulted in 31 people being admitted to hospital. There were no deaths reported. This compares with 34 outbreaks for the fourth quarter of 2006 and 36 outbreaks in the previous quarter of 2007.

*Salmonella* was responsible for 13 outbreaks during this quarter, with *Salmonella* Typhimurium being the most common serotype. Various phage types of *S. Typhimurium* were reported as the cause of these outbreaks including *S. Typhimurium* 44 in four outbreaks, *S. Typhimurium* U307 and *S. Typhimurium* 29 each in two outbreaks, and *S. Typhimurium* 135a

**Figure.** Mode of transmission for outbreaks of gastrointestinal illness reported by OzFoodNet sites, 1 October to 31 December 2007



and *S. Typhimurium* 9 each in one outbreak. The other *Salmonella* serotypes causing outbreaks were *S. Kiambu*, *S. Saintpaul*, and *S. Tennessee*.

Norovirus was associated with six foodborne outbreaks during this quarter. *Campylobacter* was reported in a single outbreak. There were four toxin-related outbreaks during the quarter including two ciguatera fish poisoning outbreaks, and single outbreaks of *Bacillus cereus* intoxication and *Clostridium perfringens* intoxication. The remaining three outbreaks were caused by unknown aetiological agents.

Seven outbreaks reported in this quarter were associated with food prepared at restaurants, six from food prepared at private residences and four with food prepared by commercial caterers. Food prepared by takeaway outlets, institutions and aged care facilities were each associated with two outbreaks. Two outbreaks resulted from contaminated primary produce—Spanish mackerel and coral trout. Single outbreaks were associated with food prepared for a camp and by a bakery.

To investigate these outbreaks, sites conducted one cohort study, and collected case series data in 19 investigations. There were seven outbreaks where no individual patient data were collected.

**Table. Outbreaks of foodborne disease reported by OzFoodNet sites,\* 1 October to 31 December 2007**

State	Month of outbreak	Setting prepared	Aetiological agent	Number affected	Evidence	Responsible vehicles
NSW	October	Private residence	Unknown	7	D	Suspected watermelon
		Bakery	<i>S. Typhimurium</i> 44	27	D	Uncooked cheese/cream cake
	November	Takeaway	<i>Campylobacter</i>	2	D	Meat kebab
		Private residence	<i>S. Typhimurium</i> 9	11	D	Multiple foods
		Restaurant	Unknown	3	D	Unknown
		Private residence	<i>S. Typhimurium</i> 29	8	D	Suspected beef patties/home made icecream
Private residence	<i>S. Typhimurium</i> 29	3	D	Eggnog		
Qld	October	Aged care	<i>S. Kiambu</i>	2	D	Unknown
	November	Takeaway	<i>Bacillus cereus</i>	3	M	Fried rice/honey chicken
		Primary produce	Ciguatera fish poisoning	2	D	Coral trout
		Restaurant	<i>S. Typhimurium</i> U307	3	D	Unknown
		Institution	<i>S. Typhimurium</i> U307	6	D	Unknown
	December	Primary produce	Ciguatera fish poisoning	2	D	Spanish mackerel
		Restaurant	Norovirus	34	D	Unknown
		Private residence	Norovirus	5	D	Salad
Tas	October	Restaurant	Unknown	12	D	Unknown
		Restaurant	<i>S. Typhimurium</i> 135a	2	D	Unknown
Vic	October	Commercial caterer	Norovirus	18	A	Fruit salad
		Restaurant	<i>S. Typhimurium</i> 44	16	M	Chicken foccacia/raw egg aioli
	November	Aged care	<i>S. Saintpaul</i>	3	D	Unknown
		Commercial caterer	Norovirus	34	D	Unknown
		Commercial caterer	Norovirus	53	D	Unknown
		Private residence	<i>S. Typhimurium</i> 44	13	D	Unknown
		Institution	<i>Clostridium perfringens</i>	7	D	Unknown
		December	Restaurant	<i>S. Typhimurium</i> 44	13	M
WA	November	Camp	<i>S. Tennessee</i>	12	D	Unknown
	December	Commercial caterer	Norovirus	13	D	Unknown

\* No foodborne outbreaks were reported in the Australian Capital Territory, South Australia or the Northern Territory during the quarter.

D Descriptive evidence implicating the suspected vehicle or suggesting foodborne transmission.

A Analytical epidemiological association between illness and one or more foods.

M Microbiological confirmation of agent in the suspect vehicle and cases.

Investigators obtained analytical epidemiological evidence in one outbreak and microbiological evidence in three outbreaks. For the remaining 23 outbreaks, investigators obtained descriptive evidence implicating the food vehicle or suggesting foodborne transmission.

The following jurisdictional summaries describe key outbreaks that occurred in this quarter.

### New South Wales

New South Wales reported seven outbreaks of foodborne illness during this quarter. An outbreak of *Salmonella* Typhimurium 9 affected 11 of 13 people attending a private residence. Illness was associated with a shared meal of multiple foods that included raw eggs as ingredients.

*S. Typhimurium* 29 was identified as the aetiologic agent in two outbreaks. One outbreak affected three people who drank an eggnog milkshake that included raw egg as an ingredient. The second outbreak affected eight family members attending a home-catered party. The food source for the party was not identified but the meal included beef patties, eggs and a home-made icecream.

New South Wales also investigated a geographic cluster (27 cases) of *S. Typhimurium* 44. Interviews of some cases (11/17) showed that they had eaten either a cheese or cream cake from one bakery. The New South Wales Food Authority noted that raw egg was an ingredient used in the preparation of the base for these cakes. New South Wales also reported an outbreak of two cases of campylobacteriosis associated with meat kebabs and prepared by a takeaway outlet.

### Queensland

Queensland reported eight outbreaks during this quarter. *Salmonella* Kiambu caused illness in two residents of a Queensland aged care facility. Two outbreaks of *Salmonella* Typhimurium U307 caused three cases of illness among patrons of the same restaurant and six cases of illness among residents of a mental health residential facility. Investigators were unable to identify the food or environmental cause for these three *Salmonella* outbreaks.

Queensland reported two ciguatera fish poisoning outbreaks during the quarter. Coral trout purchased from a fish market in Gladstone caused two cases of this toxin-related illness. The other outbreak of two cases was from consumption of a Spanish mackerel caught by a recreational fisherman in a channel between Upolu, Vlasoff and Michaelmas Cays (Great Barrier Reef).

Queensland investigated an outbreak of three cases of *Bacillus cereus* intoxication from a meal of fried rice and honey chicken. Both food and vomitus specimens were positive for *Bacillus cereus* toxin gene.

Norovirus caused two outbreaks of gastrointestinal illness; both were likely due to food handlers working while they were infectious. These outbreaks of norovirus involved illness among 34 patrons who had dined at a restaurant and five people eating at a private residence.

### Tasmania

Tasmania reported two outbreaks during this quarter. Two cases of *Salmonella* Typhimurium 135a were notified from the same household in north-west Tasmania. A restaurant was suspected as being the

source of infection. No other salmonellosis cases, associated with this business, were identified nor any links identified between these cases and recent *S. Typhimurium* 135a clusters.<sup>1</sup>

Tasmania investigated foodborne illness among 12 patrons who had eaten the same meal at a restaurant. Cases onset of symptoms began 30–40 hours after meals were consumed and included abdominal pains, vomiting and diarrhoea. A source for the outbreak was not identified.

### Victoria

Victoria reported eight outbreaks of foodborne illness during this quarter. Two cases became sick within one day of each other in an outbreak caused by *Salmonella* Saintpaul in an aged care facility. Both cases were residents of the facility but did not have contact with each other. A third case was a staff member who had an onset of illness at the same time as the residents – this staff member was negative for *Salmonella*. A source for this outbreak was unable to be identified despite an extensive investigation.

There were three outbreaks caused by *Salmonella* Typhimurium 44 investigated in Victoria during the quarter. *S. Typhimurium* 44 affected 16 patrons of a restaurant. All cases ate the chicken foccacia that included a raw egg aioli. A sample from the outside of the blender used to make the aioli was positive for *S. Typhimurium* 44.

A second outbreak caused by *S. Typhimurium* 44 was reported in 13 cases (patrons and staff) of a restaurant. Food (risottini and stuffed mushrooms) and a sample from the outside of the blender that was used to make a raw egg aioli were positive for *S. Typhimurium* 44. This outbreak was suspected to have been caused by the use of raw eggs in an undercooked food, and cross contamination of other food within the restaurant.

Victoria investigated a third outbreak of *S. Typhimurium* 44 where several home prepared foods were served at a private residence. Thirteen cases of illness were identified including two cases who provided faecal specimens that were positive for *S. Typhimurium* 44. The cause of this outbreak was unable to be identified.

Three outbreaks were suspected to have been caused by food handlers working while they were infectious with norovirus. The first outbreak involved a commercial caterer who provided a lunch that included various meats, vegetables and desserts. A food handler was symptomatic with vomiting and diarrhoea a few days prior to preparing food for the function. An investigation showed a statistically significant association between consumption of fruit salad and illness (RR 4.5; 95%CI 1.2–16.7). The

second norovirus outbreak was confirmed in four separate groups who had a catered lunch provided by the same commercial caterer over a two day period. One food handler was ill with abdominal pain and nausea on the day prior to the food being provided to customers. Three further staff became ill with vomiting and diarrhoea at the same time the customers became ill three days later. One of the positive specimens was from a food handler. The third of these norovirus outbreaks saw two separate groups of illness on successive weekends. The first group involved 53 guests who became ill. It is likely that a child who had vomited in the dining room was the source of illness for the guests and some of the staff. Two staff became ill after this function, and their illness was consistent with the guests. The following weekend there were two separate groups who dined at the same function centre and illness was reported in guests of both groups. It is suspected that an infectious food handler contaminated multiple foods during preparation and was the source of illness for the people who dined on this second weekend.

### Western Australia

Western Australia reported two outbreaks of foodborne illness during this quarter. An outbreak of gastroenteritis caused by norovirus occurred among people who ate at a Western Australia function centre on two evenings. The cause of illness in the 13 cases was suspected to be foodborne as two food handlers prepared food while ill with symptoms consistent with norovirus infection.

An outbreak of *S. Tennessee* infection that occurred at a railway construction camp in the north of Western Australia was suspected to be either food- or water-borne. *S. Tennessee* has been detected previously in drinking water from this region and drinking water at the camp had a history of contamination. A treatment system was fitted and the drinking water sampled was subsequently free of microbial contamination. In addition, a food handler who had prepared salads for lunches had *S. Tennessee* infection. Lunches were prepared in the morning and stored at ambient temperature until consumption. Ambient temperatures at the time of the outbreak were greater than 40°C.

### Comments

During the quarter, Western Australia also investigated a travel-acquired outbreak of *Cyclospora cayetanensis*, which is rarely reported as a cause of illness in Australia. It involved a cluster of eight cases from a family of 13 members, including two cases who provided faecal specimens that were positive for *C. cayetanensis*. The family had

recently completed a five day cruise on a ship that departed and returned to Singapore. Symptoms reported by cases included diarrhoea, nausea and abdominal discomfort. A source for the infection was not identified.

*C. cayetanensis* infection is usually via a food- or water-borne contamination typically associated with imported produce or with international travel.<sup>2</sup> The mode of transmission is faecal-oral or ingestion through ingestion of contaminated food or water. Person to person exposure is unlikely as oocysts typically become infectious after maturing days to weeks after excretion. Outbreaks have not been associated with cooked or frozen food.<sup>3</sup>

*C. cayetanensis* gastroenteritis causes watery diarrhoea, anorexia, fatigue and weight loss. In Australia, the infection should be considered as a potential cause of traveller's diarrhoea in people returning from overseas.<sup>2,4</sup> However, a seemingly isolated case of *C. cayetanensis* without a travel history may be outbreak related and the need for further action discussed with public health officials.<sup>4</sup>

Eggs and egg-containing dishes were identified as the most common outbreak food vehicle in 2006 and responsible for 14% (16/115) of foodborne outbreaks.<sup>3</sup> This continued in 2007 and the fourth quarter with 19% (5/27) of foodborne outbreaks associated with uncooked or lightly cooked foods that had raw eggs as an ingredient. All jurisdictions, except for the Northern Territory, have reported egg-related *Salmonella* outbreaks due to various strains of *Salmonella* Typhimurium in 2006 and 2007.<sup>3</sup> An assortment of food vehicles were identified in these outbreaks, including dessert, salad dressing, sauce, milkshake and under/lightly cooked egg.

The reasons for the increase in outbreaks linked with eggs are unclear, but it has stimulated national discussions about means to prevent disease from potentially contaminated eggs. In August 2007, Federal, State and Territory governments met with industry and stakeholders at the National Egg Food Safety Summit to discuss how to tackle the problem of egg-associated illness.

Continued liaison between food safety agencies and the egg industry are paramount given egg-associated outbreaks of salmonellosis. There would be value in the development of nationally consistent guidelines on the use of eggs for the entire food service industry, specifically targeting restaurants and bakeries that have been the source of many of these outbreaks. In addition, the general public require continuing education on the safe handling and use of eggs in the home.

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The OzFoodNet Working Group is (*in alphabetical order*): Mary Barker (WA), Robert Bell (Qld), Charlie Blumer (ACT), Roy Byun (NSW), Adam Craig (NSW), Craig Dalton (Hunter New England), Gerard Fitzsimmons (DoHA), Kathleen Fullerton (DoHA), Robyn Gibbs (WA), Joy Gregory (Vic), Gillian Hall (NCEPH), Michelle Harlock (NT), Geoff Hogg (MDU), Martyn Kirk (DoHA), Karin Lalor (Vic), Michelle McPherson (SA), Tony Merritt (Hunter New England), Sally Munnoch (Hunter New England), Jennie Musto (NSW), Lillian Mwanri (SA), Rhonda Owen (DoHA), Chris Oxenford (ACT), Raj Patil (DAFF), Nevada Pingault (WA), Jane Raupach (SA), Mark Salter (FSANZ), Cameron Sault (Tas), Russell Stafford (Qld), Nicola Stephens (Tas), Hassan Vally (NCEPH), Tory Worgan (Hunter New England).

## Author details

Correspondence: Mr Gerard Fitzsimmons, Epidemiologist, OzFoodNet, Office of Health Protection, Australian Government Department of Health and Ageing, GPO Box 9848, MDP 14, CANBERRA ACT 2601. Telephone: +61 2 6289 2748. Facsimile:+61 2 6289 2500. Email: gerard.fitzsimmons@health.gov.au

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