

## Quarterly reports

# OzFoodNet QUARTERLY REPORT, 1 APRIL TO 30 JUNE 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 investigation of outbreaks of gastrointestinal illness and clusters of disease potentially related to food occurring in Australia from 1 April to 30 June 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 second quarter of 2007, OzFoodNet sites reported 334 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 significantly under-represent the true burden of these infections. In total, these outbreaks affected 6,664 people, of which 183 were hospitalised and 20 people died. The majority (72%, n=239) of outbreaks resulted from infections suspected to involve person-to-person transmission (Figure).

## Foodborne disease outbreaks

There were 34 outbreaks during the second quarter of 2007 where consumption of contaminated food was suspected or confirmed as the primary mode of transmission (Table). These outbreaks affected 360 people and resulted in 29 people being admitted to hospital. There were five deaths. This compares with 22 outbreaks for the second quarter of 2006 and 40 outbreaks in the previous quarter of 2007.

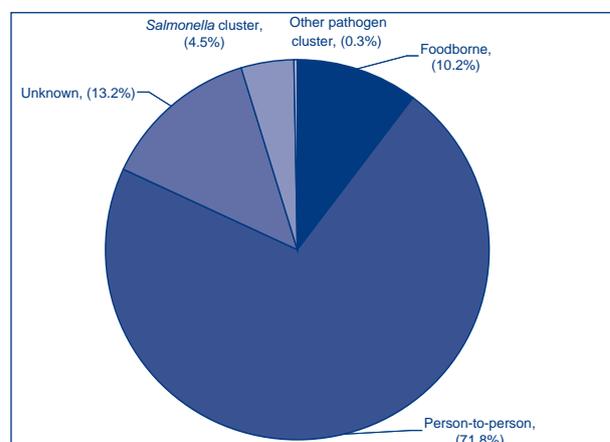
*Salmonella* was responsible for 10 outbreaks during the quarter, with *Salmonella* Typhimurium being the most common serotype. *S.* Typhimurium 9

was responsible for four outbreaks, while *S.* Typhimurium 44 and *S.* Typhimurium 135a were each responsible for two outbreaks. The other *Salmonella* serotypes causing outbreaks were *S.* Virchow 8 and *S.* Enteritidis 6A (a mixed infection with *Campylobacter* and rotavirus).

Norovirus was associated with one foodborne outbreak of illness during the quarter. There were five toxin-related outbreaks during the quarter including histamine poisoning (3 outbreaks) and ciguatera fish poisoning (2 outbreaks). The remaining 18 outbreaks were caused by unknown aetiological agents.

Fourteen outbreaks reported in the quarter were associated with food prepared by restaurants, four from food prepared in private residences, three from food prepared by takeaway outlets, and two outbreaks each from contaminated primary produce, commercial caterers, aged care facilities and a bakery. Single outbreaks were associated with food prepared by a hospital and a commercially manufactured food. There were three outbreaks where the food preparation setting was unknown as multiple foods from different sources could have caused the outbreak.

## Mode of transmission for outbreaks of gastrointestinal illness reported by OzFoodNet sites, 1 April to 30 June 2007



## Outbreaks of foodborne disease reported by OzFoodNet sites,\* 1 April to 30 June 2007

State	Month of outbreak	Setting prepared	Infection	Number affected	Evidence	Responsible vehicles
ACT	April	Restaurant	Unknown	29	A	Unknown
	May	Restaurant	Unknown	8	D	Unknown
NSW	April	Unknown	Unknown	9	A	Fruit, meringue and custard tart
		Takeaway	Unknown	5	D	hot dogs
	May	Restaurant	Unknown	7	D	Fried rice suspected
		Restaurant	Unknown	4	D	Unknown
		Takeaway	Unknown	6	D	Fresh fruit juices suspected
		Restaurant	<i>Salmonella</i> Typhimurium 9	12	M	Fried ice cream
	June	Restaurant	Unknown	6	D	Unknown
		Restaurant	Unknown	14	D	Mixed vegies, chicken, beef
		Takeaway	Unknown	2	D	Unknown
		Restaurant	Unknown	2	D	Unknown
NT	June	Unknown	<i>Salmonella</i> Enteritidis 6A/ <i>Campylobacter</i> species/rotavirus	11	D	Unknown
		Commercial manufactured food	Suspected histamine poisoning	2	D	Tinned tuna
Qld	April	Unknown	Unknown	21	D	Unknown
	May	Restaurant	<i>Salmonella</i> Virchow 8	15	D	Unknown
		Restaurant	<i>Salmonella</i> Typhimurium 135a	6	D	Unknown
		Private residence	Unknown	7	D	Wurst
		Contaminated primary produce	Ciguatera fish poisoning	3	D	Coral trout
		Contaminated primary produce	Ciguatera fish poisoning	2	D	Mackerel
	June	Bakery	<i>Salmonella</i> Typhimurium 135a	7	M	Cheesecake
		Private residence	Histamine poisoning	4	M	Tuna kebabs
SA	April	Commercial caterer	Unknown	12	A	Sushi
Vic	April	Restaurant	Histamine poisoning	2	D	Mahi Mahi fish
		Commercial caterer	Unknown	25	A	Suspected penne pasta salad
	May	Aged care	<i>Salmonella</i> Typhimurium 44	22	A	Unknown
		Restaurant	Unknown	9	D	Lasagne
		Private residence	<i>Salmonella</i> Typhimurium 9	3	D	Unknown
		Private residence	<i>Salmonella</i> Typhimurium 9	8	M	Chocolate mousse
		Hospital	<i>Salmonella</i> Typhimurium 9	4	D	Unknown
	June	Aged care	Unknown	17	D	Unknown
		Restaurant	<i>Salmonella</i> Typhimurium 9	5	D	Chicken massaman curry suspected
		Bakery	<i>Salmonella</i> Typhimurium 44	45	M	Pork rolls
WA	June	Restaurant	Norovirus	26	A	Unknown

\* No foodborne outbreaks were reported in Tasmania 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.

To investigate these outbreaks, sites conducted nine cohort studies and one case control study, and collected case series data on 23 outbreaks. There was one outbreak where no individual patient data was collected. Investigators obtained analytical epidemiological evidence in six outbreaks and microbiological evidence in five outbreaks. For the remaining 23 outbreaks, investigators obtained descriptive epidemiological evidence implicating the food vehicle or suggesting foodborne transmission.

Victoria reported 10 outbreaks of foodborne illness during the quarter, including three outbreaks of *S. Typhimurium* 9. The first outbreak involved 23% (8/35) of participants becoming ill after consuming various foods at a party, including a chocolate mousse containing raw eggs. One of the cases was confirmed to have an *S. Typhimurium* 9 infection and a leftover sample of the mousse was also positive for *S. Typhimurium* 9.

The second outbreak of *S. Typhimurium* 9 occurred in a group of seven people who attended a dinner party together where chocolate mousse containing raw eggs was served. Two dinner attendees were confirmed to have an *S. Typhimurium* 9 infection. A third case of *S. Typhimurium* 9 occurred in a person who did not attend the dinner but ate the chocolate mousse.

The third outbreak was detected during an investigation of clustering of cases of *S. Typhimurium* 9 where three inpatients of the same hospital were identified. An additional case in a food handler at the same hospital was also reported although no food source was identified. In addition, an outbreak caused illness in 36% (5/14) of attendees at a dinner party where foods were purchased from two takeaway stores. Eighty-three per cent (5/6) of people who ate a chicken curry became ill while none of the eight who didn't eat curry became ill. One case was confirmed to have an *S. Typhimurium* 9 infection and the other cases had symptoms consistent with salmonellosis.

Fifty-three guests attended a catered lunch party in Victoria and then 25 guests stayed for dinner, which consisted of leftovers from the lunch meal. A penne pasta salad was significantly associated with illness (RR 2.75 95% CI 1-7.53) with a food specific attack rate of 69%, which accounted for 88% (22/25) of the cases. Illness was consistent with a viral pathogen, with 80% and 76% of cases reporting vomiting and diarrhoea, respectively. The median incubation period was 1-2 days and median duration of illness was two days. Seven of the 25 ill guests only ate lunch. None of the food handlers reported illness and none of the attendees interviewed reported

illness during the function. As the food was served in a buffet style it is possible that an asymptomatic food handler or attendee contaminated food.

Victoria reported that 45 people became ill, including eight who required hospital treatment, after eating pork rolls from a bakery. Samples of a leftover roll from a case's home and pate sampled from the premises were positive for *S. Typhimurium* 44. A raw egg mayonnaise was used as an ingredient in all rolls. Five cases ate rolls with the pate and egg butter that did not include any other meat products.

A Victorian aged care facility reported diarrhoea in 17 residents, with a clinical picture that was consistent with *Clostridium perfringens* enterotoxin. Fifteen of the 17 ill residents had consumed vitaminised meals but no specific food was identified as the vehicle. Victoria also reported a small outbreak of histamine poisoning that affected two people after they ate a reheated meal of Mahi Mahi fish. Nine people, who were from four separate groups, reported diarrhoea and abdominal pains between 8 and 15 hours after dining at a Victorian restaurant. Each group ate lasagne purchased from the restaurant on the same night.

Queensland reported eight outbreaks of foodborne disease during the quarter. *S. Virchow* 8 caused illness among 15 participants of a four-day conference at a resort. OzFoodNet conducted a multi-state cohort study, which indicated that two food items consumed on the first night of the workshop were associated with illness – vegetables, and a tossed green salad. The local public health unit conducted an environmental inspection and collected food specimens for testing. Eggs collected from the resort were positive for *S. Agona*, *S. Cerro*, *S. Ohio* and *S. Isangi*. *S. Cerro* was also isolated from a chopping board used to cut red meat. The eggs appeared soiled with faecal matter and feather material (one of the eggs was cracked open). The source of infection was not identified, although there was some evidence that cross-contamination and/or poor food handling practices may have contributed to this outbreak.

Queensland investigated a cluster of *S. Typhimurium* 135a cases that had the same multiple-locus variable-number tandem-repeats analysis (MLVA) profile (1-3-6-13-3). Five of these cases plus another epidemiologically-linked case reported consuming meals from the same Brisbane restaurant over a period of six days, during May. An environmental health investigation identified multiple food hygiene breaches and that the facility was not licensed. The restaurant ceased operating until food safety issues were addressed and a license granted.

A cluster of 19 *S. Typhimurium* 135a cases with the same MLVA profile (1-4-5-13-3) were identified in the Gold Coast region. Of these, seven cases had consumed foods from the same bakery prior to infection. *S. Typhimurium* 135a, with the same MLVA profile (1-4-5-13-3), was detected in a sample of cheesecake taken from the premises. Environmental investigations further identified that the cheesecake was prepared using raw egg and was undercooked. No dirty or cracked eggs were identified on the premises at the time of inspection. Cheesecakes were subsequently removed from sale and destroyed. The bakery was instructed to use pasteurised eggs in place of raw eggs in foods that undergo minimal cooking.

Seven people from two Queensland families reported nausea, vomiting, fever, cramps and diarrhoea. All were ill after consuming garlic flavoured Wurst purchased from a local market and had no other foods or drinks in common.

Queensland investigated 21 cases of gastrointestinal illness of unknown aetiology among a group attending a conference. Based on the cases' clinical histories, a toxin was suspected to have caused this outbreak. An environmental inspection of the kitchen did not identify any food safety issues and no staff members reported illness.

Queensland reported three fish related toxin outbreaks during the quarter. Histamine poisoning affected four people after a meal of tuna kebabs, where 3,600 mg of histamine per kg was detected in a sample of the tuna.

Ciguatera fish poisoning was reported among three people who consumed coral trout at a restaurant. The fish was caught off Cairns. One case required hospital treatment for their illness.

Ciguatera fish poisoning was also reported among two people who had consumed mackerel purchased from a seafood outlet in Hervey Bay. A traceback identified that the fish was caught in Platypus Bay between Hervey Bay and Fraser Island, South East Queensland.

New South Wales reported 10 outbreaks of foodborne illness during the quarter. Twelve people were affected by *S. Typhimurium* 9 after a restaurant dessert of fried ice-cream. *S. Typhimurium* 9 was detected in the pre-prepared ice-cream. An aetiological agent was not identified for the remaining nine outbreaks. These outbreaks affected between two and 14 people.

Six outbreaks were associated with New South Wales restaurants, three with takeaway outlets and one setting was unable to be identified. Foods associated with illness included, commercially prepared tart, hot dogs, fried rice, and fresh fruit juices.

The Australian Capital Territory reported two outbreaks during the quarter including an outbreak of unknown aetiology that affected 29 restaurant patrons over several days. The cause of illness was unable to be identified in an investigation of eight people attending a planning day at a hotel. Many cases reported diarrhoea and a short incubation period of between two and six hours.

The Northern Territory reported two outbreaks during the quarter including one due to mixed infections of *S. Enteritidis* 6A, *Campylobacter* species, and rotavirus. The investigation commenced in June after notification of two cases of salmonellosis on board a ship returning from South East Asia. The source of the outbreak was not determined but may have involved transmission from infected persons after one or two cases acquired illness in Asia.

The Northern Territory reported two cases of suspected histamine poisoning in June. Cases worked at the same place, but had eaten two different brands of tinned tuna 10 days apart.

South Australia reported 12 cases of unknown aetiology in people attending a seminar during April. Lunch was provided by a caterer and included sandwiches, sushi and drinks. A cohort study showed that sushi was associated with illness after all cases reported consumption. Separate types of sushi were significantly associated with illness including cooked tuna sushi (RR 1.9, 95%CI 1.0-3.8) and beef sushi (RR 3.4, 95%CI 1.6-7.1).

Western Australia reported one foodborne outbreak during the quarter. A company reported that a higher than expected number of staff were ill with gastroenteritis in early June. A case-control study showed that illness was strongly associated with eating at the staff cafe (OR 38, 95%CI 4.3-855.6). No association with a particular food was found. Faecal specimens from three affected employees were positive for norovirus.

Tasmania did not report any foodborne outbreaks during the second quarter of 2007.

## Comments

In Australia, cases of *Salmonella* infection are more common in summer and autumn. However, the number of *Salmonella* infections were significantly increased during the quarter in several Australian states and territories, with the exception of Queensland, the Australian Capital Territory and Western Australia. In the first six months of 2007, there were 5,856 cases of *Salmonella* infection across Australia compared with the average for the previous five years of 4,704, an increase of 24%.

Some of the increase was probably due to several outbreaks in different jurisdictions that each affected large numbers of people. In the last six months, OzFoodNet recorded approximately 20 outbreaks which were suspected to be due to contaminated eggs. One outbreak of *Salmonella* infection affecting approximately 300 people in New South Wales was the largest outbreak in this State in several years. This outbreak was linked with pork and chicken rolls containing raw egg mayonnaise from a Vietnamese bakery. In response to these outbreaks, several health departments, including those in New South Wales and Victoria, issued media reports advising consumers to follow food safety practices for proper food storage and handling, and ensuring foods are fully cooked to prevent foodborne illnesses such as *Salmonella*.

## Acknowledgements

OzFoodNet thanks the investigators in the public health units and state and territory departments of health, as well as public health laboratories and local government environmental health officers who provided data used in this report. We would also like to thank laboratories conducting serotyping and phage typing of *Salmonella* for their work during the quarter.

The OzFoodNet Working Group is (*in alphabetical order*): Mary Barker (WA), Robert Bell (Qld), 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), Meeyin Lam (NSW), Beth Lord (WA), 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), Minda Sarna (WA), Cameron Sault (Tas), Nicola Stephens (Tas), Russell Stafford (Qld), 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 8124. Facsimile: +61 2 6289 7100. Email: gerard.fitzsimmons@health.gov.au