

Quarterly reports

OzFoodNet QUARTERLY REPORT, 1 JANUARY TO 31 MARCH 2008

The OzFoodNet Working Group

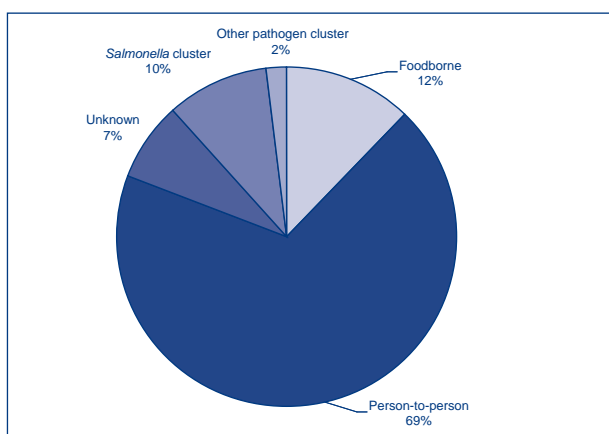
Introduction

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 January to 31 March 2008.

Data were received from OzFoodNet representatives in all Australian states and territories. The data in this report are provisional and subject to change as the results of outbreak investigations can take months to finalise.

During the first quarter of 2008, OzFoodNet sites reported 245 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 3,518 people, of which 118 were hospitalised and 13 died. The majority (68.7%, $n=169$) of outbreaks resulted from infections due to person-to-person transmission (Figure).

Figure. Mode of transmission for outbreaks of gastrointestinal illness reported by OzFoodNet sites, 1 January to 31 March 2008



Foodborne disease outbreaks

There were 29 outbreaks during this quarter where consumption of contaminated food was suspected or confirmed as the primary mode of transmission (Table). These outbreaks affected 492 people and resulted in 38 people being admitted to hospital. There were no deaths. This compares with 40 outbreaks for the first quarter of 2007 and 28 outbreaks in the fourth quarter of 2007.

Salmonella was responsible for 11 outbreaks during this quarter, with *S. Typhimurium* being the most common serotype. There were 3 outbreaks due to *S. Typhimurium* 135a and 2 each due to phage types 44, 126, 170 and 9.

There were 3 foodborne outbreaks of *Campylobacter* infection and one of norovirus during this quarter. There were 4 toxin-related outbreaks during the quarter, including 2 *Clostridium perfringens* outbreaks, one mixed outbreak of *C. perfringens* and *Bacillus cereus* and 1 ciguatera fish poisoning outbreak. The remaining 10 outbreaks were caused by unknown aetiological agents.

Twelve outbreaks reported in this quarter were associated with food prepared at restaurants, 7 from food prepared at private residences and 5 with food prepared by commercial caterers. There were 3 outbreaks associated with institutions, and one each with an aged care facility and with camping.

To investigate these outbreaks, sites conducted 9 cohort studies, 1 case control study, and collected case series data for 19 investigations. Investigators obtained analytical epidemiological evidence in 4 outbreaks and microbiological evidence in four. For the remaining 21 outbreaks, investigators obtained descriptive evidence implicating the food vehicle or suggesting foodborne transmission.

The following jurisdictional summaries describe key outbreaks and public health actions which occurred in this quarter.

Australian Capital Territory

The Australian Capital Territory did not report any foodborne outbreaks during the first quarter of 2008.

Table. Outbreaks of foodborne disease reported by OzFoodNet sites,* 1 January to 31 March 2008

State	Month of outbreak	Setting prepared	Agent responsible	Number affected	Evidence	Responsible vehicles
NSW	February	Commercial caterer	<i>C. perfringens/B. cereus</i>	75	M	Chicken curry, curry pumpkin, rice with lamb, plain rice
	January	Restaurant	Unknown	7	D	Suspected marinated mussels
	March	Private residence	<i>S. Typhimurium 170</i>	17	D	Custard cake
	January	Private residence	<i>S. Typhimurium 126/126 var 1</i>	41	M	Eggs
	March	Restaurant	<i>S. Typhimurium 126/126 var 1</i>	3	D	Raw egg dressing
	March	Institution	<i>C. perfringens</i>	48	D	Curry
	January	Restaurant	Unknown	3	D	Unknown
	January	Restaurant	Unknown	2	D	Unknown
	February	Institution	Unknown	6	D	Unknown
	February	Restaurant	Unknown	4	D	Unknown
	March	Restaurant	Unknown	3	D	Unknown
	NT	March	Restaurant	<i>S. Typhimurium 9</i>	11	D
Qld	February	Restaurant	<i>Campylobacter</i>	2	D	Chicken
	February	Restaurant	<i>Campylobacter</i>	4	D	Chicken liver pate
	March	Restaurant	Unknown	6	D	Unknown
	March	Private residence	Ciguatera Fish Poisoning	2	D	Yellowtail kingfish
	March	Institution	Norovirus	56	A	Deli meat & salad dish
Vic	January	Private residence	<i>S. Typhimurium 135a</i>	18	D	Mixed foods
	January	Private residence	<i>S. Typhimurium 135a</i>	7	M	Ice cream cake
	January	Private residence	<i>S. Typhimurium 44</i>	12	D	Lemon dessert
	February	Commercial caterer	<i>S. Typhimurium 170</i>	18	A	Chicken and pasta salad and ham
	February	Commercial caterer	<i>Campylobacter</i>	4	A	Chicken and pasta salad
	February	Commercial caterer	Unknown	21	A	Continental custard cake
	February	Aged care	<i>Clostridium perfringens</i>	6	D	Unknown
	March	Commercial caterer	<i>S. Typhimurium 44</i>	24	D	Unknown
Tas	January	Restaurant	<i>S. Typhimurium 135a</i>	78	M	Suspected eggs
SA	Jan	Camping	Unknown	5	D	Suspected milk
	March	Restaurant	Unknown	6	D	Unknown
WA	January	Private residence	<i>S. Typhimurium 9</i>	3	D	Suspected chicken

* No foodborne outbreaks were reported in Australian Capital 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.

New South Wales

Eleven outbreaks of foodborne illness were reported from New South Wales and the Hunter sites during this quarter.

Salmonella Typhimurium was associated with 3 outbreaks, all linked with consuming egg products. In the first egg-associated outbreak, there were 41 cases of *Salmonella* Typhimurium Multilocus Variable Number Tandem Repeat Analysis (MLVA) type 3-17-16-13-523 infection. Where phage typing was completed, 81.5% (22/27) were phage type 126 and 18.5% (5/27) were phage type 126 var 1. The median age of cases was 40 years and 61% were female. Most cases were resident of the Central Coast and Sydney areas. A local egg producer/retailer/wholesaler was consistently identified in hypothesis generating interviews and the NSW Food Authority conducted an environmental investigation. *S.* Typhimurium with the same MLVA type was isolated from manure samples collected in 3 of 5 egg sheds at the egg producer's property. Local media were engaged to warn the public of the potential risk of foodborne disease associated with egg and chicken products.

Three of 10 people became ill following a meal at a Central Coast restaurant in a second egg-associated outbreak of *S.* Typhimurium MLVA type 3-17-16-13-523 that was related to the community-wide one reported above. The restaurant used raw egg mayonnaise to dress Caesar salad eaten by those who were ill. The restaurant sourced their eggs from the implicated egg producer mentioned previously. The NSW Food Authority advised the proprietor not to use raw eggs in dressings.

In the third egg-associated outbreak, 17 of 21 people sharing a common meal at a private function became infected with *S.* Typhimurium phage type 170 MLVA type 3-9-8-12-523. Illness was associated with eating cake made with raw-egg custard filling. *S.* Typhimurium was not isolated from the farm where the eggs were sourced.

An outbreak of *Clostridium perfringens* enterotoxin type A affected 48 of 100 people who had a curry meal at an army training facility. Temperature abuse of food and inadequate catering equipment and management were likely factors in promoting the growth of spore forming bacteria that led to illness.

New South Wales also reported an outbreak of *C. perfringens* and *B. cereus* affecting 75 people who ate a catered meal, as well 6 small outbreaks of unknown aetiology.

New South Wales also reported 15 listeriosis notifications during the first quarter, which was an increase of 88% compared with the first quarter in

2007. Of the 15 cases, 3 were in pregnant women, one of whom miscarried. Despite an investigation, no epidemiological links or microbiological links between the cases were established. A listeriosis alert was sent out to all general practitioners in New South Wales informing them of the illness and prevention measures.

Northern Territory

The Northern Territory reported an outbreak of *S.* Typhimurium 9 amongst people eating at a buffet restaurant in March 2008. An epidemiological study did not identify a vehicle of transmission and all food samples taken were negative for *Salmonella*. It was suspected that cross contamination in the kitchen occurred.

Queensland

Queensland reported 5 outbreaks of foodborne illness during the first quarter of 2008.

Two separate outbreaks of gastroenteritis due to *Campylobacter* occurred in restaurant settings in Brisbane during February 2008. The first outbreak affected 4 people who ate chicken liver pate at a restaurant. The second outbreak involved 2 people from the same household who had consumed chicken dishes at a different Brisbane restaurant. No food items were available for testing from either outbreak.

Two people became intoxicated with suspected ciguatera fish poisoning after eating yellowtail kingfish at a private residence. The fish was purchased from a local seafood business in Brisbane and was thought to have been caught off the New South Wales coast.

A large outbreak of norovirus gastroenteritis affected 40.6% (56/138) of attendees on a 5 day training course at a Brisbane academy. A retrospective cohort study identified an association between a cold meat and salad dish, provided by an outside caterer, and illness (RR=2.0, 95%CI: 1.5–2.7, p=0.004). Eight faecal specimens were submitted for testing and all were positive for norovirus. Transmission was suspected to be from person-to-food-to-person.

An outbreak of gastroenteritis of unknown aetiology occurred at a wedding reception held at a local golf club. Faecal specimens were negative for viral and bacterial pathogens and no food vehicle was identified.

South Australia

In January 2008, a suspected foodborne outbreak was reported in 5 children who were camping. The children reported drinking milk that was off and

developed sudden onset of violent vomiting, lethargy and dehydration. No pathogens were detected in faecal specimens.

Tasmania

Tasmania reported an outbreak of 78 cases of *S. Typhimurium* affecting people eating food from the same food business over a 4 day period. Forty-one isolates were typed as phage type 135a and one as an untypable phage type. Illness was strongly associated with eating products containing aioli made with raw eggs (OR 511, 95%CI 90–4709, $p < 0.000$). *S. Typhimurium* 135a was isolated from 4 food items: aioli, tartare sauce, sweet potato salad and guacamole. All these foods contained raw egg ingredients, except guacamole that was commercially produced and may have become cross contaminated. The food business used eggs from the same producer implicated in similar outbreaks of *S. Typhimurium* 135a in Tasmania during 2005.¹

Victoria

Victoria reported 8 outbreaks of foodborne illness during this quarter.

An outbreak of *Salmonella* Typhimurium 135a affected 18 of 30 guests at a family gathering on Christmas day. *S. Typhimurium* 135a was isolated from faecal specimens collected from 5 cases. Several different foods were associated with illness, although no definitive food vehicle was identified.

Another outbreak of *S. Typhimurium* 135a affected 6 people following consumption of ice cream cake prepared with raw eggs and served on Christmas day. Five cases had *S. Typhimurium* 135a isolated from faecal specimens and *S. Typhimurium* 135a was isolated from a sample of leftover ice cream cake. The eggs used to make the ice cream cake were sourced from a family member's private flock.

Twelve of 14 people at a family function were infected with *S. Typhimurium* 44, which was isolated from 6 faecal specimens. Lemon dessert made with raw eggs sourced from a backyard flock was suspected as the source of this outbreak.

An outbreak of *S. Typhimurium* 170 affected 32% (18/56) of a group of workers following a catered lunch. Eight cases had *S. Typhimurium* 170 isolated from a faecal specimen. Both chicken and pasta salad (RR 5; 95% CI 1.3–19.7) and ham (RR 3.7; 95% CI 1.1–11.4) were associated with illness. The chicken and pasta salad was prepared with a raw egg mayonnaise. The eggs were traced back to a farm that was investigated by the Victorian Department of Primary Industries.

Four people became infected with *Campylobacter* after a Christmas work function at a private residence. Analysis of food histories from 17 people showed that consumption of chicken and pasta salad prepared in a butcher shop was associated with illness.

Gastroenteritis of unknown aetiology affected 21 people attending a catered private party. Analysis of food exposures for 40 guests identified that illness was associated with eating a continental custard cake. One person who did not attend the party but ate leftover cake also became ill. Eleven faecal specimens were collected but no bacterial or viral pathogens were isolated.

An outbreak of diarrhoea due to *C. perfringens* occurred in an aged care facility in February. Five residents and 1 staff member were affected and 2 cases had *C. perfringens* enterotoxin isolated from faecal specimens. No source for the outbreak was identified.

In March 2008, an outbreak of *S. Typhimurium* 44 occurred amongst a film crew. Foods provided to the film crew were prepared differently each day making it difficult to conduct an investigation to identify the source of the outbreak. Twenty-seven cases were identified through an employee illness register.

Western Australia

Western Australia reported 1 foodborne outbreak during the quarter. In January, 3 members of a family from a regional town were admitted to hospital with bloody diarrhoea, vomiting and fever. Two faecal specimens were positive for *Salmonella* Typhimurium 9 with a Pulsed Field Gel Electrophoresis (PFGE) profile designated STYMAV.0108. There were no other reports of isolates with similar profiles in Western Australia at this time. Undercooked chicken was suspected as the source of the infection.

The National Gastroenteritis Survey II

During the quarter, OzFoodNet and the New South Wales Food Authority launched the National Gastroenteritis Survey II (NGSII). The NGSII is a national cross sectional survey to assess changes in the prevalence of gastroenteritis in Australia. The NGSII is a telephone survey conducted over 12 months in all states and territories, with an over-sample in New South Wales.

There were 1,263 interviews completed between 4 February and 9 April 2008. Fifty-six point seven per cent of people contacted agreed to participate in the survey. In total, the crude proportion of survey respondents reporting gastroenteritis in the 4 weeks

prior to interview was 6.0% (76/1,263). OzFoodNet will be comparing the results of this survey to the previous national survey conducted in 2001–02 to provide important information on the changing nature of gastroenteritis and foodborne disease in Australia.²

Food recalls linked to microbiological contamination, January to March 2008

During the period January to March 2008 there were 8 food recalls that occurred due to microbiological contamination. Of these 8 microbial food recalls, 4 were due to contamination with *Listeria*, 1 was due to the presence of *Salmonella* and 3 were due to other microbial contamination. Where there was potential for human cases linked to these recalls jurisdictions carried out epidemiological investigations in response. Tuna steaks imported from Indonesia were recalled after testing revealed high levels of histamine. The steaks were tested as a result of consumer complaints.

Comments

During this quarter, 28% (8/29) of foodborne outbreaks were suspected to be due to eggs or egg-based dishes. Similar to previous reports, a wide range of foods were identified as a cause of these outbreaks, including desserts, salad dressings, sauces, and undercooked eggs.³ In this report, 2 of the egg-associated outbreaks were attributed to eggs laid by backyard chickens.

During the quarter, there was a marked reduction in the reported number of person-to-person outbreaks. In the last 6 months of 2007, there were 1,179 outbreaks of gastroenteritis spread from person-to-person compared to 169 for this quarter. The majority of these outbreaks were due to norovirus. In 2006–2007, international reports of large numbers of gastroenteritis outbreaks due to norovirus highlighted the global nature of this virus.^{4,5}

In this report, state and territory health departments used different molecular testing methods to further characterise strains of *S. Typhimurium* during outbreaks, with Queensland and New South Wales using MLVA and Western Australia using PFGE. These typing systems are highly discriminatory and very useful in foodborne outbreaks. Based on laboratory experience, jurisdictions have begun to use results of molecular tests of isolates for the purposes of epidemiological investigation prior to phage type results coming back from reference laboratories. To ensure that results are comparable between different jurisdictions, Australia needs to move towards a harmonised system of molecular typing salmonellas and other organisms for public health surveillance.⁶

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