Quarterly reports

OzFoodNet quarterly report, 1 October to 31 December 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 October to 31 December 2008.

Data were received from OzFoodNet epidemiologists 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 4th quarter of 2008, OzFoodNet sites reported 244 outbreaks of enteric illness, including those transmitted by contaminated food. Outbreaks of gastroenteritis are often not reported to health agencies or the reports may be delayed, meaning that these figures under-represent the true burden of enteric illness. In total, these outbreaks affected 3,575 people, of which 84 were hospitalised. There were 9 deaths reported during these outbreaks. The majority (77%, n=188) of outbreaks were due to person-to-person transmission (Table 1).

Foodborne disease outbreaks

There were 31 outbreaks during this quarter where consumption of contaminated food was suspected or confirmed as the primary mode of transmission (Table 2). These outbreaks affected 349 people and resulted in 15 hospitalisations. There was 1 death reported during these outbreaks. This compares with 27 foodborne outbreaks for the 4th quarter of 2007[1] and 17 outbreaks for the 3rd quarter of 2008.[2]

Salmonella was responsible for 12 outbreaks during this quarter, with *S.* Typhimurium being the most common serotype (83%, n=10). There were 3 outbreaks each due to *S.* Typhimurium phage types 9 and 126, two due to *S.* Typhimurium 44 and one each due to *S.* Typhimurium 170 and 170 var. There was 1 outbreak each due to *S.* Thompson and *S.* Virchow 8.

Table 1. Mode of transmission for outbreaks of gastrointestinal illness reported by OzFoodNet sites, 1 October to 31 December 2008

Transmission mode	Number of outbreaks	Per cent of total
Foodborne	31	13
Person-to-person	188	77
Unknown – *Salmonella* cluster	7	3
Unknown – other pathogen cluster	1	0
Unknown	17	7
Total	244	100

Of the remaining 19 outbreaks, 12 were due to foodborne toxins, including 3 *Staphylococcus aureus* outbreaks, 1 ciguatera fish poisoning outbreak, 1 *Clostridium perfringens* outbreak, and 7 suspected bacterial toxin outbreaks. There was 1 outbreak each due to *Campylobacter*, *Escherichia coli*, and norovirus. The remaining 4 outbreaks were of unknown aetiology.

Eighteen outbreaks (58%) reported in this quarter were associated with food prepared in restaurants. There were four outbreaks associated with food prepared in camps and three associated with food prepared in bakeries. Individual outbreaks were associated with food prepared at an aged care facility, commercial caterer, grocery store/delicatessen, national franchised fast food restaurant, primary produce, and a private residence.

To investigate these outbreaks, sites conducted 8 cohort studies, 2 case control studies, and collected descriptive case series data for 18 investigations. As evidence for the implicated vehicle, investigators collected microbiological evidence in 4 outbreaks, analytical epidemiological evidence in 7 outbreaks, and descriptive evidence in 22 outbreaks.

The following jurisdictional summaries describe key outbreaks and public health actions which occurred in this quarter. Tasmania and Western Australia did not report any foodborne outbreaks during this quarter.

Table 2. Outbreaks of foodborne disease reported by OzFoodNet sites,* 1 October to 31 December 2008 (n=31)

State	Month of outbreak	Setting prepared	Infection	Number affected	Evidence†	Responsible vehicle(s)
ACT	December	Restaurant	*Salmonella* Typhimurium 44	23	A	Eggs, hollandaise sauce
NSW	November	Camp	*Campylobacter*	6	D	Chicken schnitzel
	November	Restaurant	*Clostridium perfringens*	4	AM	Suspected curry
	November	Restaurant	*Salmonella* Typhimurium 170 var	33	AM	Raw eggs in Caesar salad dressing
	November	Bakery	*Salmonella* Typhimurium 126	16	AM	Chocolate mousse cake
	November	Bakery	*Salmonella* Typhimurium 126	10	AM	Chocolate mousse cake
	November	Grocery store/delicatessen	*Salmonella* Typhimurium 126	2	D	Cabanossi or pepperoni
	December	National franchised fast food restaurant	*Salmonella* Typhimurium 44	3	D	Eggs
	December	Aged care facility	*Salmonella* Typhimurium 9	6	D	Unknown
	December	Restaurant	Suspected bacterial toxin	5	D	Lamb korma
	December	Restaurant	Suspected bacterial toxin	20	D	Unknown
	December	Restaurant	Suspected bacterial toxin	25	D	Unknown
	December	Restaurant	Unknown	5	D	Suspected aioli
	November	Restaurant	Unknown	6	D	Unknown
	October	Restaurant	Unknown	6	D	Unknown
	November	Restaurant	Suspected bacterial toxin	4	D	Suspected pasta with tomato sauce
	November	Restaurant	Suspected bacterial toxin	3	D	Unknown
	December	Restaurant	Unknown	3	D	Unknown
NT	December	Camp	*Salmonella* Thompson	8	D	Unknown
	December	Restaurant	*Salmonella* Typhimurium 9	2	D	Suspected raw egg mayonnaise
	November	Restaurant	Suspected bacterial toxin	3	D	Suspected meat lovers pizza
Qld	December	Primary produce	Ciguatera Fish Poisoning	3	D	Cod
	November	Camp	*Esherichia coli* – multiple serotypes	7	M	Untreated tank water
	October	Private residence	*Salmonella* Virchow 8	3	D	Chicken curry
	October	Camp	*Staphylococcus aureus*	23	D	Roast chicken
	November	Restaurant	*Staphylococcus aureus*	4	D	Unknown
	November	Commercial caterer	*Staphylococcus aureus*	16	M	Multiple foods

Table 2. Outbreaks of foodborne disease reported by OzFoodNet sites,* 1 October to 31 December 2008, *continued*

State	Month of outbreak	Setting prepared	Infection	Number affected	Evidence†	Responsible vehicle(s)
SA	December	Bakery	*Salmonella* Typhimurium 9	15	A	Sweet bakery products
Vic	December	Restaurant	Norovirus	26	D	Multiple foods
	October	Restaurant	*Salmonella* Typhimurium 170	18	D	Tiramisu
	October	Restaurant	Suspected bacterial toxin	41	A	Buffet meal meats (lamb, pork, chicken)

* No foodborne outbreaks were reported by Tasmania or Western Australia during the quarter.

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

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

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

Australian Capital Territory

The Australian Capital Territory reported 1 outbreak of foodborne or suspected foodborne illness during the quarter.

An outbreak of *S.* Typhimurium 44 affected 23 people (16 laboratory confirmed cases) at a restaurant. A case control study showed strong associations with illness and having eaten eggs or hollandaise sauce. There were no positive food or environmental samples collected during the environmental investigation. Traceback of eggs was undertaken, with links to a New South Wales supplier established. A voluntary recall of eggs was undertaken by the supplier.

New South Wales

New South Wales reported 17 outbreaks of foodborne or suspected foodborne illness during this quarter: 6 *Salmonella* outbreaks, 1 *Campylobacter* outbreak, 1 outbreak of *Clostridium perfringens*, 5 outbreaks due to suspected bacterial toxins, and 4 outbreaks of unknown aetiology.

There were 3 outbreaks of *S.* Typhimurium 126 (MLVA 3-17-16-13-523), two of which were associated with a chocolate mousse cake containing raw eggs sourced from a farm associated with a *S.* Typhimurium 126 outbreak earlier in 2008. Two groups of people were ill after consuming this chocolate mousse cake, and the NSW Food Authority (NSW FA) prohibited the owners of the cake shop from selling cakes with raw egg mousse. *S.* Typhimurium 126 was identified in samples from birds and rats collected by the NSW FA at the egg farm. The 3rd outbreak was linked to cabanossi and pepperoni, however a different exposure may be possible as the outbreak occurred at the same time as the previous 2 egg-associated outbreaks and had a matching MLVA pattern.

An outbreak of *S.* Typhimurium 170 var (MLVA 3-9-7-13-523) that affected 33 cases was associated with foods containing raw eggs and chicken eaten at a café. Fouteen of the 33 cases were laboratory-confirmed. *S.* Typhimurium 170 was identified in pesto and in chopped parsley, however there was no epidemiological association between illness and eating these foods. Environmental sampling from the egg farm identified several different *Salmonella* serotypes.

An outbreak of *S.* Typhimurium 9 (MLVA 3-10-14-11-496) in a combined nursing home and hostel facility affected six of 60 residents. All cases had an unmodified diet. *S.* Kiambu was detected on raw chicken in the kitchen while samples of eggs, cooked meals and devon were negative for *Salmonella*. Environmental swabs were also negative for bacteria. A review of the menu and the NSW FA investigation of the central kitchen did not reveal high risk foods or practices to explain the point-source outbreak.

An outbreak of *S.* Typhimurium 44 (MLVA 3-10-7-9-523) affected 3 people who ate meals containing eggs from a national franchised fast food restaurant. The eggs were sourced from a large producer but traceback to farm level was not possible.

The outbreak of *C. perfringens* affected 4 people who consumed an Indian takeaway meal. *C. perfringens* was isolated from the curry and it is suspected that rapid cooling of the curry to safe temperatures after cooking did not occur.

The outbreak of *Campylobacter* occurred at a school camp where six from 43 people developed gastroenteritis after eating chicken schnitzel that had been prepared by camp members. *Campylobacter* was identified in the stools of 2 cases.

In 1 outbreak of suspected bacterial toxin poisoning, 4 people fell ill after consuming pasta and tomato sauce in a restaurant. The NSW FA inspected the premises and observed inadequate cleaning of equipment and slow cooling of prepared pasta.

There were 4 outbreaks of unknown aetiology suspected to be caused by food reported in this quarter. All four occurred at restaurants and involved a variety of foods, including a raw egg aioli, a seafood hotpot, and a lamb pizza.

Northern Territory

The Northern Territory reported 3 outbreaks of foodborne or suspected foodborne illness during the quarter.

An outbreak of *S.* Thompson affected 8 people at a remotely located farm/work camp; no food vehicle was identified. An outbreak of *S.* Typhimurium 9 affected 2 people at a restaurant after consumption of a raw egg mayonnaise. A suspected bacterial toxin outbreak affected 3 people following consumption of a 'meat-lovers' pizza at a restaurant.

Queensland

Queensland reported 6 outbreaks of foodborne or suspected foodborne illness during this quarter: 3 *Staphylococcus aureus* outbreaks, 1 ciguatera fish poisoning outbreak, 1 *S.* Virchow 8 outbreak and a Shiga toxin producing *Escherichia coli* (STEC) outbreak.

An outbreak of *Staphylococcus aureus* affected 22 of 29 students and 1 of 4 teachers after consuming a common meal containing roast chicken at a school camp. Gross temperature abuse of roast chicken was the suspected cause of the outbreak. Nine raw chickens were stored overnight at room temperature, cooked the following day and the cooked meat removed using bare hands. The cooked chicken was subsequently stored in large ice cream containers overnight and not served until the following evening for dinner.

Another outbreak of *S. aureus* affected 4 people after consuming a meal consisting of meatballs, rice and chicken souvlaki. While some foods collected in the investigation tested positive for other bacteria (*Bacillus cereus* and *C. perfringens*), no *S. aureus* was detected. Environmental Health provided the restaurant with an audit report with appropriate corrective actions and follow up inspections were conducted.

The third outbreak of *S. aureus* affected 16 people following a catered event. *Staphylococcus* enterotoxin was detected in chicken meat samples and *S. aureus* was cultured from chicken, pavlova and cream; six of 11 stool specimens were culture positive for *S. aureus* and stools were also positive for *Staphylococcus* enterotoxin.

Three cases of suspected ciguatera fish poisoning were notified in Townsville following the consumption of a cod fish caught off Lucinda (Truck Reef).

An STEC outbreak in a school camp affected 7 people. Multiple serotypes were identified among the cases: O26, O112ab:H2, O153:H21, O88:H25, Ont:H7, and O174:H-. Six of the 7 cases were school children attending the camp; the 7th case was the father of one of the infected children. Both the father and son were asymptomatic so mode of transmission of infection to the father could not be determined, however, the father had consumed untreated tank water during a short visit to the camp; this was identified as the potential source of the infection. STEC genes (stx1, ehxA, saa) were identified in the water sample and 2 types of shiga toxin-producing *E. coli* were cultured (serotypes pending). The serotypes of the water isolates are pending. Bottled water is now being used at the camp for drinking purposes until a decision has been made regarding the most appropriate method of water treatment for the tanks.

South Australia

South Australia reported 1 outbreak of foodborne or suspected foodborne illness during the quarter.

An outbreak of *S.* Typhimurium 9 affected 15 people and was associated with a bakery. A case control study showed a statistically significant association between the consumption of sweet products from the bakery with illness. Environmental investigation at the bakery reported satisfactory conditions of the premises and food handling procedures. Food and environmental swabs from the bakery were all negative for *Salmonella*.

Victoria

Victoria reported 3 outbreaks of foodborne or suspected foodborne illness this quarter.

A suspected *C. perfringens* outbreak affected 41 people who ate at a large buffet restaurant. Cases were identified from a booking list obtained after illness was reported in 3 separate groups of patrons. Thirteen cases submitted faecal samples but many were collected several days after symptoms resolved. *C. perfringens* enterotoxin was detected in 1 specimen. Analysis of hypothesis generating questionnaires showed a statistically significant association with consumption of 3 different foods and illness – lamb tenderloin (RR 4.0; 95% CI 2.3-7.0); chicken cacciatore (RR 2.0; 95% CI 1.4-2.8) and roast pork (2.4; 95% CI 1.4-4.0).

An outbreak of S. Typhimurium 170 affected 18 people associated with 2 different restaurants with the same proprietor. During the investigation it was discovered that foods were transferred between the restaurants. It was confirmed that the 3 initially reported cases had consumed tiramisu at these restaurants on the same weekend. In total, 18 cases (15 laboratory confirmed cases) had eaten tiramisu from either of these 2 restaurants. The tiramisu was made using raw eggs. The proprietor was advised about the risks associated with preparing and selling ready to eat foods containing raw eggs and as a result they now prepare tiramisu without eggs.

An outbreak of norovirus affected 26 people at a restaurant. Cases were identified from a booking list obtained after illness was reported in 1 group; subsequently illness was identified in 5 separate groups who dined at the restaurant on one of 2 consecutive days. Thirty-one attendees were interviewed and 26 people met the case definition. Ten faecal specimens were collected from cases and norovirus was detected in eight of these. During the investigation it was discovered that a food handler at the restaurant had an onset of diarrhoea whilst working at the restaurant on the same evening that the original group had dined. The food handler was responsible for preparation of the antipasto platters, which most of the cases consumed. A cohort study was not conducted so it was not possible to determine which foods were associated with illness, however, six ready to eat foods were sampled during

the investigation and four had either high bacterial counts, coliforms or *E. coli* detected, which is indicative of poor storage and handling.

Comments

During the quarter, the number of outbreaks (n=244) reported was lower than previous quarters in 2008, although the number of foodborne outbreaks (n=31) reported was the highest for 2008. There were 12 foodborne outbreaks of salmonellosis reported this quarter, compared with 3 foodborne outbreaks of salmonellosis last quarter and 11 outbreaks each for the 1st and 2nd quarters of 2008.

There were increased numbers of toxin-related outbreaks reported during the quarter; of the 12 toxin related outbreaks, three were confirmed as *Staphylococcus aureus,* an organism that is most likely present in foods as a result of contamination by food handlers. There were 7 outbreaks that were suspected to be due to bacterial toxins; the exact aetiology of these outbreaks was not elucidated either because samples were not collected or there was no quantification of detected enterotoxin.

Of the 12 salmonellosis outbreaks this quarter, 10 were due to *S.* Typhimurium (various phage types/MLVA types). While these outbreaks are reported here by their phage type, in New South Wales, they are, for the most part, being detected by routine MLVA surveillance. Of the 10 *S.* Typhimurium outbreaks, eight of these were associated with eggs, highlighting the ongoing role of uncooked or raw eggs in foodborne illness; the food items implicated in egg-associated outbreaks this quarter included hollandaise sauce, Caesar salad dressing, chocolate mousse cake, raw egg mayonnaise, bakery products, and tiramisu.

The outbreak of STEC associated with untreated drinking water at a camp in Queensland highlights the need to consider treating tank water if it is to be used for consumption.

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