

OzFoodNet: enhancing foodborne disease surveillance across Australia: quarterly report, April to June 2004

The OzFoodNet Working Group

Introduction

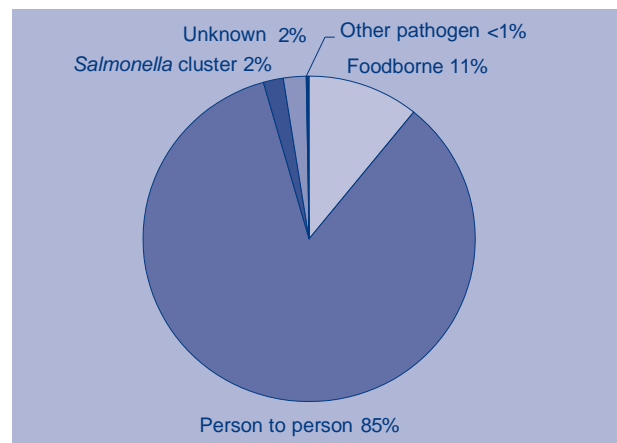
The Australian Government Department of Health and Ageing established the OzFoodNet network in 2000 to collaborate nationally to investigate foodborne disease. OzFoodNet conducts studies on the burden of illness and coordinates national investigations into outbreaks of foodborne disease. This quarterly report documents investigations of gastroenteritis outbreaks and clusters of disease potentially related to food occurring around Australia. For information on sporadic cases of foodborne illness, see Communicable Disease Surveillance, Highlights for 2nd quarter 2004 in this issue.

This report summarises the occurrence of foodborne disease outbreaks and cluster investigations between April and June 2004. Data were reported from all Australian state and territory jurisdictions and a sentinel site in the Hunter region of New South Wales. The data in this report are provisional and subject to change, as results of outbreak investigations can take months to finalise. We would like to thank State, Territory and public health unit investigators, public health laboratories, and local government environmental health officers who contributed data to this report.

Foodborne disease outbreaks

During the second quarter of 2004, OzFoodNet sites reported 342 outbreaks of gastrointestinal infections (Figure). Eighty-seven per cent (298) of these outbreaks were spread from person-to-person or were of unknown transmission affecting 8,668 people, hospitalising 199 and causing 14 fatalities. The majority of these outbreaks occurred in aged

Figure. Mode of transmission for gastro-intestinal outbreaks reported by OzFoodNet sites, April to June 2004



care facilities (71%), hospitals (14%) and childcare centres (7%). Outbreaks of gastroenteritis not transmitted by food 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.

Thirty-seven outbreaks were due to foodborne transmission compared to 24 in the first quarter of 2004 (Table). The outbreaks affected 839 people and 43 people were hospitalised. There were no fatalities relating to these outbreaks. Thirteen outbreaks were due to *Salmonella* infection, four outbreaks of *Clostridium perfringens* (2 confirmed, 2 suspected), three outbreaks of ciguatera poisoning, two outbreaks of norovirus infection, one outbreak of rotavirus, one outbreak of a suspected toxin and one outbreak of *Bacillus cereus* poisoning. The remaining 12 outbreaks

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All data are reported using the date the report was received by the health agency

Table 1. Outbreaks of foodborne disease reported by OzFoodNet sites, April to June 2004

State	Month	Setting	Agent responsible	Number exposed	Number affected	Evidence*	Responsible vehicles
ACT	April	Restaurant	Unknown	40	15	A	Calamari
	April	Restaurant	S. Typhimurium 197	Unknown	12	AM	Ling fish
	May	Bakery	Unknown	7	10	D	Chocolate cake
	May	Caterer	Norovirus	1140	247	A	Salmon and egg sandwiches
NSW	April	Restaurant	S. Typhimurium 170	13	13	D	Chicken
	April	Grocery store	S. Typhimurium U290	Unknown	5	D	Suspected fish cakes
	May	Fast food	Unknown	5	5	D	Takeaway chicken
	May	Fast food	Unknown	8	5	D	BBQ meat pizza
	May	Community	S. Typhimurium RDNC and 170	60	27	AM	Roast pork
	May	Grocery store	Unknown	27	18	D	Sandwiches mixed
	June	Restaurant	Unknown	20	6	D	Unknown
	June	Restaurant	Rotavirus	52	14	D	Dips (salsa, bean and guacamole)
	June	Restaurant	Suspected toxin	15	6	D	Unknown
	June	Restaurant	Unknown	Unknown	3	D	Mixed Asian foods
	June	Hostel	S. Typhimurium 135	57	43	M	Custard
	May	Restaurant	Unknown	10	3	D	Unknown
NT	May	Home	Unknown	5	5	D	Japanese imported oyster meat
Qld	April	Community	S. Singapore	Unknown	13	A	Sushi Rolls
	April	Restaurant	<i>Bacillus cereus</i>	190	16	M	Japanese lunch box
	April	Fast food	S. Typhimurium 12a	Unknown	41	D	Unknown
	April	Home	Ciguatera	Unknown	5	D	Spanish mackerel / golden trevally
	June	Restaurant	Unknown	35	25	D	Buffet meal
	June	Home	Ciguatera	5	3	D	Trevally
	June	Home	Ciguatera	4	4	D	Grey mackerel
SA	April	Home	S. Typhimurium 108	24	8	A	unknown
	April	Restaurant	S. Typhimurium 108	Unknown	9	D	unknown
	June	Restaurant	Unknown	12	9	D	unknown
	June	Fast food	S. Typhimurium 35	Unknown	3	D	unknown

State	Month	Setting	Agent Responsible	Number exposed	Number affected	Evidence*	Responsible vehicles
Tas	May	Restaurant	Norovirus	Unknown	57	D	Bakery products
	June	Caterer	Unknown	Unknown	13	D	Unknown
Vic	April	Community	<i>S. Typhimurium</i> 9	Unknown	9	D	Unknown
	May	Caterer	<i>S. Typhimurium</i> 12a	61	28	AM	Gourmet rolls/Red onion
	June	Hostel	Suspected toxin	30	8	D	Unknown
	May	Restaurant	<i>S. Typhimurium</i> 9	Unknown	8	D	Suspect Hollandaise sauce
	May	Hospital	Suspected toxin	Unknown	21	D	Unknown
	June	Hostel	<i>Clostridium perfringens</i>	47	22	D	Unknown
WA	April	Caterer	<i>Clostridium perfringens</i>	700	100	M	Pasta meat sauce

* 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.

were of unknown aetiology, affecting a total of 117 people. Fourteen of the outbreaks occurred in association with meals at restaurants or cafes, five with private residences, four in association with meals prepared by commercial caterers and four with fast food outlets. Twelve outbreaks occurred in April, 12 in May and 13 in June 2004.

Sites conducted 10 retrospective cohort studies and three case control studies to investigate these foodborne outbreaks. Forty-nine per cent of outbreak investigations relied on descriptive epidemiology alone. Three outbreak investigations obtained both epidemiological evidence of an association with a food vehicle and microbiological evidence of the agent in the food. In four outbreaks investigators obtained analytical epidemiological evidence only, and a further three found evidence of a microbiological agent in the food.

During the quarter there were seven outbreaks of foodborne illness in Queensland. Queensland reported an outbreak of *Salmonella* Singapore, in association with the consumption of sushi rolls purchased from at least one sushi outlet. Thirteen people were affected. It is likely that this pathogen was introduced from a contaminated raw product, used directly as an ingredient. An investigation of an outbreak of *S. Typhimurium* 12a showed a significant association with the consumption of foods from a nationally franchised fast food chain. Cases were associated with at least three stores. No specific food vehicle or source of infection was identified

and extensive traceback investigations of various produce did not identify a potential common source. Three outbreaks were due to ciguatera following consumption of Spanish mackerel, trevally and grey mackerel. All three outbreaks occurred at home. In an outbreak involving a Japanese restaurant, *Bacillus cereus* was detected in a composite food sample of rice, chicken and egg. *Salmonella aureus* enterotoxin was also detected. Lunch boxes had been prepared on the previous evening and left at room temp overnight until lunch the next day. There was also an outbreak at a restaurant where the food vehicle was not identified.

The Victorian Department of Human Services reported three outbreaks of *Salmonella* infection, and three of *Clostridium perfringens* (1 confirmed, 2 suspected). An outbreak of *Salmonella* Typhimurium 12a occurred at a conference facility and affected 28 people. Gourmet filled rolls served at the conference were suspected. Sliced red onions, which were a component of the gourmet rolls, sandwiches and salads served at one of the lunches, tested positive for *S. Typhimurium* 12a. However, it could not be determined if these were contaminated from another source, since a whole red onion tested negative for *Salmonella*. All other food samples were negative for bacterial pathogens. In one outbreak of *S. Typhimurium* 9 all eight cases ate a breakfast meal of poached eggs with hollandaise sauce from the same cafe in a rural Victorian town. Samples of eggs, hollandaise sauce and bacon all tested negative for bacterial pathogens and all egg and

environmental samples from the egg supplier tested negative for *Salmonella*. The second outbreak of *S. Typhimurium* 9 affected nine people of the same ethnic background, who bought goods at local ethnic shops. All cases ate Kosher foods at or around Passover and despite many foods being in common with cases and extensive sampling at manufacturing and retail level, no source for the outbreak could be determined. Of the three outbreaks involving or suspected to involve *Clostridium perfringens*, two occurred in aged care settings and one in a hospital. No food vehicles were identified.

New South Wales reported 12 outbreaks during the quarter, four of which were due to *Salmonella* Typhimurium. One outbreak of *S. Typhimurium* 170 involved a chicken wrap shop. Samples of chicken kebabs tested positive for *Salmonella*. Another outbreak of *S. Typhimurium* 170 at a community dinner dance affected 27 people and implicated roast pork as the food vehicle. Investigations into an outbreak at a drug and alcohol rehabilitation centre affecting at least 18 people, produced positive tests for *S. Typhimurium* 135 in 10 samples and *S. Waycross* in one sample. The food vehicle implicated in this outbreak was custard. The suspected food vehicles in the remaining outbreaks included fish-cakes, takeaway chicken, pizza, roast pork, dips, spring rolls, prawn chop suey, and sweet and sour pork.

The Northern Territory reported a single outbreak of gastroenteritis involving a private dinner party. Investigations implicated imported Japanese oyster meat. The product was clearly labelled 'cook before consumption'. The five guests who consumed raw oysters became ill while the three guests who ate either steamed oysters or no oysters did not. Faecal specimens were negative for pathogens as were a bag of raw, frozen oysters collected from the retailer. No pathogen was identified, although the illness was consistent with norovirus infection. The importer agreed to voluntarily withdraw the implicated product from the market place. This was the sixth outbreak implicating this product in the previous 18 months.

South Australia investigated four outbreaks of foodborne illness during the quarter. Following a party at a private residence in rural South Australia, eight of 24 people became ill after consumption of a BBQ lunch. A cohort study demonstrated a strong association between illness and consumption of a home made lemon meringue pie (RR= 14.0 CI 2.06-95.09) and potato bake (RR=undefined). There was also an outbreak of *S. Typhimurium* 108 associated with dining at a cafe in Metro Adelaide where six of eight cases reported eating the warm chicken salad. A case control study produced an elevated odds ratio of 5.5 but this was not significant at the 95 per cent confidence level. The study did not identify significant association with other food items.

An outbreak in a vegetarian restaurant involving four groups of people did not identify a confirmed pathogen. However, rice from the fridge tested positive for *Bacillus cereus*. In June, an outbreak of *Salmonella* Typhimurium 35 was investigated. All three cases had consumed 'yiros' from the same outlet. Routine microbiological testing of food samples did not identify any pathogens.

Western Australia reported an outbreak where 100 of 700 people working at a mine site became ill with *Clostridium perfringens*. Illness was associated with pasta meat sauce. The pathogen was isolated from both cases and food samples.

Tasmania reported two outbreaks for the quarter. One involved norovirus infection and affected 57 people. Bakery products were found to be the food vehicle. Investigations found that a food handler had been ill with vomiting and diarrhoea while serving at the bakery. The second outbreak involved a commercial caterer and no food vehicle or pathogen was identified.

The Australian Capital Territory reported four foodborne outbreaks. One outbreak of *S. Typhimurium* 197 involved a restaurant where samples of ling fish tested positive for *S. Typhimurium* 197 even though there was no epidemiological evidence to implicate the fish. An outbreak of norovirus affected 247 people in numerous work places and conferences throughout Canberra. All groups affected used a common caterer and there was a significant association between smoked salmon and egg sandwiches, which may have related to staff illness at the catering company. Two other outbreaks of unknown aetiology occurred, involving the consumption of calamari at a restaurant and chocolate cake purchased from a cake shop.

Cluster investigations

During the second quarter of 2004, Australian states and territories conducted 12 investigations into clusters of various *Salmonella* serovar infections, including: *S. Typhimurium* 135a, and *S. Subs* 3b in Queensland; *S. Typhimurium* 197, *S. Typhimurium* 170, *S. Typhimurium* 135, and *S. Infantis* in Victoria; *S. Typhimurium* 108 (2) in South Australia; *S. Saintpaul* in the Northern Territory; and *S. Typhimurium* 170, *S. Typhimurium* U290 and *S. Typhimurium* 12 in New South Wales.

The Hunter OzFoodNet site continued to coordinate an investigation into the large increase of *Salmonella* Typhimurium 12 across New South Wales. There were in excess of 130 cases of this infection for the first six months of 2003. A case control study of *S.*

Typhimurium 12 was conducted to explore hypotheses for the increase, which showed that cases were more likely than controls to have consumed chicken.

Victoria investigated a cluster of 20 cases of *S. Typhimurium* 197, 16 of which were geographically clustered. Seventeen of 18 cases with onset of illness in May were infected with organisms that were resistant to ampicillin. This cluster occurred at the same time as the outbreak of *S. Typhimurium* 197 in a restaurant in the Australian Capital Territory that had a positive isolation from ling fish. However, no connection between this cluster and the outbreak was identified.

The Australian Capital Territory reported a case of locally acquired *S. Typhimurium* 104L, which was the third case reported in the previous six months. All three cases lived in the same locality and had no history of travel. No source was identified for this cluster of infections due to this antibiotic resistant organism, despite intensive efforts to generate hypotheses.

There were also several cluster investigations into pathogens other than *Salmonella*, including *Campylobacter* infections in a military camp in Victoria, and a community-wide increase in *Shigella flexneri* 2a in the Northern Territory.

Summary

Salmonella incidence was increased during the quarter, similar to the first quarter of 2004. There were several outbreaks of different phage types of *S. Typhimurium* occurring in multiple Australian states. OzFoodNet held several discussions during the quarter to try to identify links between these increases. In total, *Salmonella* infections were responsible for 32 per cent of foodborne outbreaks. Large norovirus outbreaks were reported in association with food service industries where people had worked while ill. It is vital that people responsible for preparing and handling food do not work while they have symptoms of gastroenteritis, as the results can be devastating for food businesses. Imported Japanese oysters were again implicated in an outbreak of suspected viral illness, highlighting the need for improved control measures for these products.