OzFoodNet: enhancing foodborne disease surveillance across Australia: Quarterly report, January to March 2005

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 around the country.

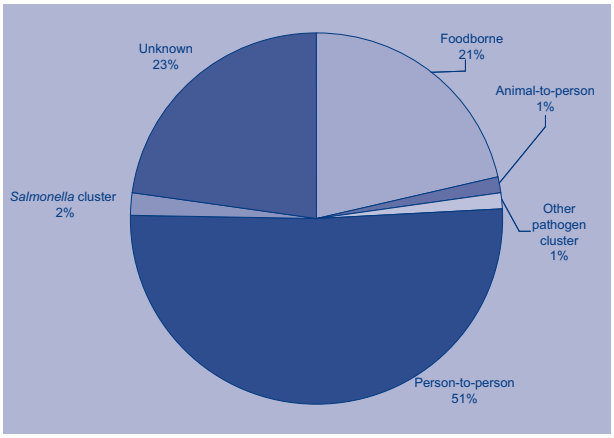
This report summarises the occurrence of foodborne disease outbreaks and cluster investigations between January and March 2005. Data were received from OzFoodNet representatives in all Australian states and territories and a sentinel site in the Hunter region of New South Wales. The data in this report are provisional and subject to change, as results of outbreak investigations can take months to finalise. We would like to thank 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 collected data used in this report.

Foodborne disease outbreaks

During the first quarter of 2005, OzFoodNet sites reported 145 outbreaks of foodborne or enteric illness. In total, these outbreaks affected 2,446 people and hospitalised 77 persons. Three deaths were reported. All three of the deaths occurred in aged care facilities. Two were associated with outbreaks of norovirus infection and one with *Salmonella* infection. As usual, the majority (51%, n=74) of outbreaks resulted from infections spread from person-to-person (Figure).

There were 31 outbreaks of illness where contaminated food was suspected or proven to be the primary mode of transmission. This compares with 24 outbreaks for the first quarter of the previous year and 25 outbreaks in the fourth quarter of 2004. *Salmonella* Typhimurium was the causative agent for seven outbreaks, while Ciguatera toxin was responsible for three outbreaks and *Campylobacter* for two. Of the remaining outbreaks, one each was caused by *Clostridium perfringens*, *Salmonella* Enteritidis 26 var, *Salmonella* Hessarek, *Salmonella* Saintpaul, and suspected scombroid poisoning. In one outbreak caused by *Salmonella*, there were multiple serotypes isolated from patients including: Chester, Muenchen and Subspecies 3b. An aetiological agent was not identified in 42 per cent (13/31) of the outbreaks.

Figure. Mode of transmission for outbreaks of gastrointestinal illness reported by OzFoodNet sites, January to March 2005



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

Ten of the outbreaks were associated with meals prepared in restaurants and another seven with food prepared in private residences. Five occurred in aged-care facilities and four were associated with food prepared by commercial caterers. Two outbreaks involved food prepared in takeaway food outlets. Single outbreaks occurred at a school camp, an institution and an undefined setting. Thirteen of the outbreaks occurred in January, six in February and 10 in March.

To investigate these outbreaks, sites conducted six cohort studies and two case control studies. For 21 outbreaks, only descriptive data were collected and in two outbreaks no individual case data was collected. In eight outbreaks, investigators obtained microbiological evidence linking a food vehicle to illness, and analytical epidemiological evidence in five outbreaks. For the remaining outbreaks, investigators obtained descriptive epidemiological evidence implicating the food vehicle or suggesting foodborne transmission.

In New South Wales there were eight outbreaks of foodborne illness reported during the quarter. One outbreak of *Campylobacter jejuni* in an institution affected two residents on a diet of pureed foods, although no food vehicle was identified. A second outbreak of *Salmonella* Saintpaul in a private residence affecting two people was suspected to be caused by cross contamination of salad by raw chicken. In the other six outbreaks no causative agent was identified. Four of these involved restaurants and two of the four followed the consumption of chicken. The suspected food vehicle was not identified in the other two outbreaks. These restaurant-related outbreaks affected between two and seven people each. The other two outbreaks of unknown aetiology involved a beef casserole prepared by a commercial caterer (13 cases) and food from a takeaway store (3 cases).

Victoria reported 14 outbreaks of foodborne disease, five of which were associated with different phage types of *Salmonella* Typhimurium. There was one large outbreak of *Salmonella* Typhimurium 197 at a Turkish restaurant. *S.* Typhimurium 197 was isolated from dips served at the restaurant. The results of this investigation are still being finalised. An outbreak of *S.* Typhimurium 12 following a barbeque at a private residence resulted in 15 people being ill. The specific food vehicle causing the outbreak was not identified.

Victoria reported two outbreaks of *S.* Typhimurium 9, one of which was associated with food prepared in a restaurant and the other was associated with a takeaway outlet. The restaurant outbreak affecting 13 people was caused by hollandaise sauce made with raw eggs. *S.* Typhimurium 9 was cultured from a sample of leftover hollandaise sauce. Hollandaise sauce at this restaurant also resulted in an outbreak of *S.* Typhimurium 9 one year earlier in May 2004. Trace back of the eggs revealed that the eggs were supplied by the same company for both outbreaks. The second Victorian outbreak of *S.* Typhimurium 9 was also caused by eggs from this company. In this outbreak affecting 14 people participating in a children's cooking class run by a commercial caterer, investigations implicated chocolate mousse made with raw eggs. Environmental investigations were undertaken on the farm supplying eggs and *Salmonella* Typhimurium 9 was cultured from a wash sample of dirty eggs.

Eggs were also suspected to be the cause of outbreaks of *S.* Enteritidis 26 var in an aged care facility and *S.* Typhimurium 126 var 4 in a private residence. The first affected seven residents and the eggs were traced back to a producer who had recently isolated *S.* Enteritidis 26 from one of their farms. In the second outbreak five people were ill after consuming chocolate mousse containing *S.* Typhimurium 126 var 4, although it was not possible to trace back the supply of eggs to a specific farm.

Victoria reported that 30 children and seven staff were ill with campylobacteriosis following a school camp. *Campylobacter* was isolated from the drinking water supply at the camp, although children also drank unpasturised milk and had contact with farm animals.

There were seven outbreaks in Victoria in which no causative agent was identified. Two of these occurred in aged care facilities and affected 30 and 11 residents respectively. Both were suspected to be caused by *Clostridium perfringens*. Three of the outbreaks were associated with commercial caterers, one with a restaurant and one with a takeaway outlet. Food vehicles associated with these outbreaks of unknown aetiology included chicken vol-au-vents, veal rolls, red curry, seafood platter, baked fish and hommus dip.

Queensland reported six outbreaks of foodborne illness, three of which were due to ciguatera fish poisoning. The fish responsible for the outbreaks of ciguatera were mackerel, black trevally and yellowtail kingfish. An outbreak of *Salmonella* Typhimurium 12 affected 10 people, although no food vehicle was identified. Thirty-six people were ill in an outbreak of *Clostridium perfringens* after a meal of braised steak and gravy at an aged care facility. *C. perfringens* was isolated from both the food eaten and residents' stools. In a second outbreak in an aged care facility, eight residents were ill with salmonellosis thought to be caused by a contaminated rainwater tank. Patients were infected with multiple serotypes of *Salmonella*, including Muenchen, Chester, and Subspecies 3b

over a three month period. Subspecies 3b was isolated from water from the facility's rainwater tank. The tank water was also heavily contaminated with *E. coli*. The source of the pathogens is unknown but may have been due to amphibians or reptiles.

South Australia reported an outbreak of *S.* Typhimurium 9 affecting 13 people following a restaurant meal. Shallot pancakes were the only food with a high, but non-significant, association with gastroenteritis.

Tasmania reported one outbreak of suspected scombroid poisoning in two people, thought to be due to yellowfin tuna in a nicoise salad served at a restaurant.

The Australian Capital Territory reported an outbreak of *S.* Hessarek caused by contaminated free range eggs. The eggs were served at a restaurant as poached eggs and as hollandaise sauce.

Comments

During the first quarter of 2005, there were five outbreaks suspected to be caused by contaminated eggs, which is a continuing concern for Australia.[1] Two of these outbreaks were related to hollandaise sauce prepared in restaurants in two different states. These outbreaks clearly highlight the importance of restaurants using pasteurised eggs in sauces and desserts.[2] It is a concern that one of the egg associated outbreaks during the quarter was an outbreak of *S.* Enteritidis in a Victorian aged care facility. Australia does not have *S.* Enteritidis endemic in egg laying flocks, so it is vital that public health agencies investigate infected patients, as they may represent sentinels for new emerging sources of this pathogen.[3]

During January to March 2005, there was an increase in *S.* Typhimurium 197 cases in New South Wales that occurred among people of Middle Eastern ethnicity. While this community-wide increase in infections occurred at the same time as the large outbreak in Melbourne, there was no apparent connection between the two outbreaks. The number of cases of *S.* Typhimurium 170/108 was also markedly increased in New South Wales during the first quarter of 2005. New South Wales investigated the increases of both of these phage types of *S.* Typhimurium using a case control study methodology exploring hypotheses developed during interviews of a series of infected patients. The hypotheses included consumption of poultry and red meats, although results of these studies were not finalised at the time of this report and are not reported in the summary of outbreaks above.

During the quarter, there were two outbreaks potentially associated with drinking water. The first was associated with an outbreak of campylobacteriosis on a school visit to a farm and the second with a prolonged outbreak of salmonellosis at an aged care facility. The aged care facility used rainwater tanks as the source of drinking water. The tanks may have been contaminated by animals on roof catchment areas. This outbreak and previous microbiological surveys illustrate that tanks may be unsuitable as a source of drinking water for aged care facilities.[4] Rainwater tanks have been implicated as a source of disease previously and they are difficult to clean and maintain.[5,6] Rainwater tanks may be a more common cause of disease than previously recognised.

References

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Table. Outbreaks of foodborne disease reported by OzFoodNet sites,* January to March 2005

State	Month of outbreak	Setting prepared	Infection	Number affected	Evidence	Responsible vehicle
ACT	Mar	Restaurant	*Salmonella* Hessarek	5	A	Hollandaise sauce
NSW	Jan	Restaurant	Unknown	2	D	Unknown
	Mar	Restaurant	Unknown	5	D	Chicken and fish green curry dishes
	Mar	Restaurant	Unknown	3	D	Chicken Caesar salad and chicken burger
	Mar	Caterer	Unknown	13	A	Beef casserole
	Jan	Home	*Campylobacter jejuni*	2	M	Unknown
	Feb	Institution	*Salmonella* Saintpaul	2	M	Unknown
	Mar	Restaurant	Unknown	7	D	Suspect vegetable filled naan or rice
	Mar	Takeaway	Unknown	3	D	Unknown
Qld	Jan	Home	Ciguatoxin	4	D	Mackerel
	Jan	Home	Ciguatoxin	2	D	Black trevally
	Jan	Aged care	*Clostridium perfringens*	36	M	Braised steak and gravy
	Feb	Other	*Salmonella* Typhimurium 12	10	D	Unknown
	Mar	Home	Ciguatoxin	2	D	Yellowtail kingfish
	Jan	n/a	*Salmonella* Chester, *Salmonella* Muenchen, *Salmonella* Subspecies 3b	8	M	Contaminated rainwater tank
SA	Feb	Restaurant	*Salmonella* Typhimirium 9	13	D	Unknown
Tas	Feb	Restaurant	Suspected scombroid poisoning	2	D	Yellowfin tuna
Vic	Jan	Home	Unknown	10	D	Unknown
	Jan	Aged care	*Salmonella* Enteritidis 26 var	7	D	Suspect eggs
	Jan	Aged care	Unknown	30	D	Unknown
	Jan	Home	*S.* Typhimurium 126 var 4	5	D	Suspect eggs
	Jan	Caterer	Unknown	29	A	Chicken vol-au-vents
	Jan	Restaurant	*Salmonella* Typhimurium 197	Pending	M	Dips
	Jan	Caterer	Unknown	40	A	Veal rolls/red curry
	Feb	Camp	*Campylobacter*	22	M	Suspected water
	Feb	Restaurant	Unknown	16	A	Seafood platter/baked fish/octopus
	Mar	Home	*Salmonella* Typhimurium 12	15	D	Unknown
	Mar	Takeaway	Unknown	6	M	Hommus dip
	Mar	Restaurant	*Salmonella* Typhimurium 9	13	M	Hollandaise sauce
	Mar	Aged care	Unknown	11	D	Unknown
	Mar	Caterer	*Salmonella* Typhimurium 9	14	D	Chocolate mousse

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.

* No foodborne outbreaks reported from Western Australia or the Northern Territory during the quarter.