OzFoodNet quarterly report, 1 July to 30 September 2006

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 July to 30 September 2006.

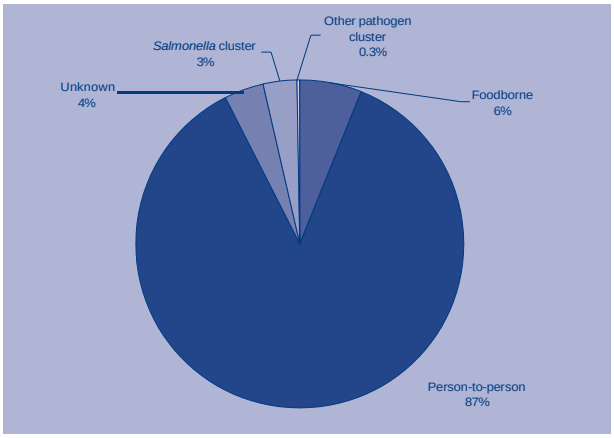
Data were received from OzFoodNet representatives in all Australian states and territories and a sentinel site in the Hunter/New England region of New South Wales. The data in this report are provisional and subject to change, as the results of outbreak investigations can take months to finalise.

During the third quarter of 2006, OzFoodNet sites reported 379 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 7,457 people of which there were 199 hospitalised and 15 died. The majority (87%, n=328) of outbreaks resulted from infections suspected to be spread from person-to-person (Figure). Of the outbreaks in institutions, 192 were in aged care facilities, 77 were in hospitals, 60 were in child care facilities and four were in various other institutional settings. Norovirus was identified as a cause of illness in 103 of the outbreaks in aged care facilities and was suspected in many more.

Foodborne disease outbreaks

There were 23 outbreaks during the third quarter of 2006 where consumption of contaminated food was suspected or confirmed as the primary mode of transmission (Table). These outbreaks affected

Figure. Mode of transmission for outbreaks of gastrointestinal illness reported by OzFoodNet sites, 1 July to 30 September 2006



176 people and resulted in 20 people being admitted to hospital. There were no deaths. This compares with 30 outbreaks for the third quarter of 2005 and 22 outbreaks in the second quarter of 2006.

Salmonella was responsible for eight outbreaks during the quarter, with *Salmonella* Typhimurium being the most common serotype. *S.* Typhimurium 170/108 was responsible for two outbreaks, and *S.* Typhimurium 135a, *S.* Typhimurium 135, and *S.* Typhimurium 8 were each responsible for one outbreak each. The other *Salmonella* serotypes causing outbreaks were *S.* Kiambu (2 outbreaks) and *S.* Potsdam (1 outbreak). *Clostridium perfringens* intoxication and ciguatera fish poisoning were each responsible for two outbreaks. There was also an outbreak of methaemoglobinaemia associated with the consumption of a food additive powder and an outbreak caused by *Campylobacter*. The remaining nine outbreaks were caused by unknown aetiological agents.

Nine outbreaks reported in the quarter were associated with food prepared by restaurants, four with takeaway food premises, three by commercial caterers and three where food was prepared in private

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

Table. Outbreaks of foodborne disease reported by OzFoodNet sites,* July to September 2006

State or territory	Month of outbreak	Setting prepared	Infection/illness	Number affected	Evidence	Responsible vehicle
NSW	July	Restaurant	Unknown	5	D	Unknown
		Commercial caterer	Unknown	5	D	Suspected catering food
		Restaurant	Unknown	4	D	Chinese buffet
		Restaurant	Unknown	2	D	Unknown
		Child care	*Salmonella* Potsdam	4	D	Pikelets made from whole eggs
		Takeaway	*Salmonella* Typhimurium 170	4	M	Eggs
		Takeaway	*Salmonella* Typhimurium 135A	2	D	Suspect eggs
	September	Restaurant	Unknown	7	D	Pasta, pizza
		Imported food	Sodium nitrite	6	D	Powder additive
		Commercial manufactured food	*Salmonella* Typhimurium 170	2	D	Suspect dips
NT	September	Private residence	Ciguatera toxin	14	D	Mother-in-law fish
Qld	August	Restaurant	*Salmonella* Typhimurium 135	6	D	Suspected chicken teriyaki sushi rolls
	July	Restaurant	*Clostridium perfringens*	13	M	Chicken & lamb guvec
		Restaurant	Unknown	6	D	Unknown
		Takeaway	Unknown	4	D	Suspected beef/ lamb component of doner kebab
		Private residence	Ciguatera toxin	2	D	Spanish mackerel
	September	Private residence	*Salmonella* Typhimurium 8	7	D	Unknown
		Takeaway	*Clostridium perfringens*	6	D	Lamb korma
Vic	August	Aged care facility	*Campylobacter*	13	D	Unknown
		Commercial caterer	Unknown	7	D	Sandwiches
	September	Commercial caterer	Unknown	19	D	Unknown
WA	September	Restaurant	*Salmonella* Kiambu	35	D	Unknown
		Restaurant	*Salmonella* Kiambu	3	D	Unknown

* No foodborne outbreaks were reported in the Australian Capital Territory, South Australia or 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.

residences. Single foodborne disease outbreaks were associated with food prepared by a commercial food manufacturer, an aged care home, and a child care facility. One outbreak was also associated with imported food.

To investigate these outbreaks, sites conducted five cohort studies and descriptive data were collected for the remaining 18 outbreaks. Investigators obtained microbiological evidence linking a food vehicle to illness in two outbreaks. For the remaining 21 outbreaks, investigators obtained descriptive epidemiological evidence implicating the food vehicle or suggesting foodborne transmission.

Queensland reported seven outbreaks of foodborne disease during the quarter. Four were attributed to foods being left to cool at room temperature before refrigeration. *C. perfringens* was identified as the agent responsible for illness in at least 13 people after a restaurant meal of chicken and lamb guvec. *C. perfringens* was detected in both clinical and

food samples. The guvec dishes were cooked in large batches in 40 litre pots and left to cool at room temperature for approximately eight hours before being placed into smaller containers and stored in a cold room. In another outbreak, six people from two unconnected groups were ill after consuming a common dish of lamb korma at the same restaurant on the same night. *C. perfringens* was detected in faecal specimens, but no leftover food samples were available for testing. A third outbreak of four cases who consumed takeaway lamb and beef kebabs was also suspected to be due to *C. perfringens*. The fourth outbreak possibly caused by storage of food at incorrect temperatures involved six people infected with *S.* Typhimurium 135 following consumption of sushi rolls from the same venue over a two day period.

New South Wales reported 10 outbreaks of foodborne disease during the quarter. *S.* Potsdam was identified in four children who attend the same child care facility. The onset of illness for the children were three days apart. Children were located in the toddlers (1 case) and general (3 cases) buildings, which have separate dining areas, sleeping areas, toilets and playground facilities. All four children attended child care on a Friday. Meals prepared at the facility were deemed low risk. All four children were involved in preparing pikelets (beating batter) and then consuming them after they were cooked. Raw eggs were an ingredient of the pikelet batter. Staff members reported that none of the children licked the beaters or stuck fingers in raw batter. However, the pikelets may have been undercooked, with the inside of some pikelets reported to be quite runny.

In late September, New South Wales investigated two clusters involving a total of six cases of methaemoglobinaemia that were associated with the consumption of Goldfish brand nutre powder. Laboratory testing of nutre powder showed that it was 100% sodium nitrite. Consumption of sodium nitrite converts haemoglobin to methaemoglobin, which is unable to bind with oxygen, resulting in hypoxia and has been previously associated with outbreaks.[1,2] In both clusters the nutre powder had been purchased from Asian grocery stores and added to food as a flavour enhancer. The product was imported from China and distributed to multiple states in Australia. Enhanced surveillance in all other jurisdictions did not identify any further cases. Food Standards Australia New Zealand coordinated a national consumer level recall of Goldfish brand nutre powder.

Victoria investigated three outbreaks during the quarter including an outbreak of 13 cases of illness in an aged care facility. Three residents were confirmed with *Campylobacter* infection. A staff member was also ill but likely to have been a secondary case as her onset was 5 days after the last case in a resident. A food source was suspected as the cause of this outbreak, but a specific food was unable to be identified during the investigation. A viral illness was suspected to have caused two outbreaks associated with commercially catered functions. One outbreak was suspected to have been associated with the consumption of sandwiches, but a food source was not identified for the other incident.

Western Australia reported two outbreaks caused by *S.* Kiambu that were probably related. The cases from both outbreaks had onset dates within a two week period and genetic patterns of the *S.* Kiambu isolates were indistinguishable from each other. One outbreak occurred in a cafe where three confirmed cases had eaten. A high risk food consumed by these cases was raw egg mayonnaise. Four confirmed cases were associated with dining at another restaurant venue. A cohort study of patrons at this restaurant venue found that 31 of 149 people who ate at the restaurant had become ill; four staff members also tested positive for *S*. Kiambu. There was no statistical association with illness and any of the menu items and *Salmonella* was not detected in food or environmental samples from the venue. The source of infection for either outbreak was not determined. The *S.* Kiambu isolates were sensitive to a wide range of antibiotics.

The Northern Territory reported one outbreak of ciguatera fish poisoning that affected 14 people. All were members of the same family and ate parts of one 'mother-in-law' fish, the common name for slate sweetlips (*Diagramma labiosum*), during an evening meal. Hospital treatment was required by four of the cases.[3]

South Australia, Tasmania and the Australian Capital Territory did not report any foodborne outbreaks occurring in the third quarter of 2006.

Enhanced hepatitis A surveillance and response

In early July, Queensland was notified of a laboratory-confirmed hepatitis A virus (HAV) infection in an 18-year-old female food handler in a smallgoods processing plant packing pre-cooked, ready-to-eat meats. The case worked during the 25 day infectious period before onset of symptoms. Although the risk of contaminating handled meat with HAV was considered low, the company voluntarily recalled potentially affected products. OzFoodNet enhanced surveillance for hepatitis A infections across all states and territories on behalf of the Communicable Disease Network Australia. Enhanced surveillance for hepatitis A did not detect any associated cases. From 26 June to 18 September 2006, 50 cases of HAV were notified to the National Notifiable

Diseases Surveillance System. The mean age of cases was 32 years (range 5 to 79 years) with a 1:1 male to female ratio. Thirty-seven of the 50 notified HAV cases were investigated. Nine were overseas-acquired infections and a variety of other potential risk factors were identified. The number of cases reported nationally during this period was less than the historical averages. No outbreak investigation was required and enhanced surveillance was ceased on 18 September 2006.

In mid-August, New South Wales reported a case of hepatitis A that occurred in a person who had worked as a food handler in a school tuckshop. This case was identified as part of an investigation of a group of people that had contracted their illness while visiting Fiji. The case reported having worked for one day at the school tuckshop, whilst infectious, preparing ready-to-eat foods which presented an opportunity for hepatitis A transmission. Normal human immunoglobulin (NHIG) was offered to any member of the school community who may have consumed ready-to-eat foods prepared by the case at the tuckshop. NHIG is effective in preventing hepatitis A if given within two weeks of being exposed to the virus.[4] The school provided a letter to parents and students including fact sheets about hepatitis A and NHIG, and sought consent for students at risk to be passively immunised. Two clinics were held at the school where information and NHIG were given to 568 students, teachers and tuckshop workers. No secondary cases of hepatitis A were identified in relation to this incident.

Comments

New South Wales and Queensland initiated major public health responses to incidents of potential hepatitis A contamination of food. The need for a public health response after a case of hepatitis A in a traveller to Fiji highlights the importance of appropriate pre-travel vaccination for people travelling to countries where hepatitis A is endemic.[5] This is especially important for food handlers. It is important to educate both travellers and general practitioners about the value of individually targeted travel advice and appropriate prophylaxis or referral of patients to a travel health clinic.

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References

1. Greenberg M, Birnkrant WB, Schiftner JJ. Outbreak of sodium nitrite poisoning. *AJPH* 1945;353:1217–1220.

2. Finan A, Keenan P, O'Donovan F, Mayne P, Murphy J. Methaemoglobinaemia associated with sodium nitrite in three siblings. *BMJ* 1998;317:1138–1139.

3. Opa J, Stephenson L, Goggin D, Lalara E, Hansen-Kanrhoi, Fairley M, *et al.* Reporting of ciguatera food poisoning. *Northern Territory Disease Control Bulletin* 2006;13:1–7.

4. National Health and Medical Research Council. *The Australian Immunisation Handbook.* 8th Edn. Canberra: Australian Government Publishing Service; 2003.

5. O'Brien D, Tobin S, Brown GV, Torresi J. Fever in returned travellers: review of hospital admissions for a 3–year period. *Clin Infect Dis* 2001;33:603–609.