

# Quarterly reports

## OzFOODNET QUARTERLY REPORT, 1 JULY TO 30 SEPTEMBER 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 July to 30 September 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 third quarter of 2008, OzFoodNet sites reported 534 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 7,446 people, of which 210 were hospitalised and 31 people died. The majority (90.0%,  $n = 480$ ) of outbreaks were due to person-to-person transmission (Table 1).

### Foodborne disease outbreaks

There were 17 outbreaks during this quarter where consumption of contaminated food was suspected or confirmed as the primary mode of transmission (Table 2). These outbreaks affected a total of 229 people and resulted in eight being admitted to hospital. There were 8 deaths associated with foodborne disease outbreaks during the quarter. This compares with 25 outbreaks in the second quarter of 2008<sup>1</sup> and 36 outbreaks for the third quarter of 2007.<sup>2</sup>

*Clostridium perfringens* was the most common cause of foodborne outbreaks during the quarter and was responsible for 4 outbreaks. Three of

**Table 1. Mode of transmission for outbreaks of gastrointestinal illness reported by OzFoodNet sites, 1 July to 30 September 2008**

Transmission mode	Number of outbreaks	Per cent
Foodborne	17	3.2
Person-to-person	480	90.0
Unknown	28	5.2
<i>Salmonella</i> cluster	1	0.2
Other pathogen cluster	8	1.5
Total	534	100

these occurred in institutional settings. *Salmonella* was implicated in 3 outbreaks during this quarter, with *S. Typhimurium* 44 causing 2 outbreaks and *S. Anatum* causing one.

There were 3 foodborne outbreaks of norovirus during this quarter. Two outbreaks of ciguatera fish poisoning were both from Queensland. There was 1 outbreak due to *Staphylococcus aureus*. The remaining 4 outbreaks were caused by unknown aetiological agents.

Seven outbreaks were associated with food prepared in restaurants, five with food prepared in institutional settings, three with food prepared by commercial caterers and 2 outbreaks associated with primary produce. To investigate these outbreaks, sites conducted 6 cohort studies and 1 case control study. Case series data were collected for 6 investigations. Investigators obtained analytical epidemiological evidence in 2 outbreaks and microbiological evidence in 5 outbreaks. For the remaining 10 outbreaks, investigators obtained descriptive evidence implicating the food vehicle or suggesting foodborne transmission.

The following jurisdictional summaries describe key foodborne outbreaks and public health actions which occurred in this quarter. The Australian Capital Territory, the Northern Territory and Tasmania did not report any foodborne outbreaks during this quarter.

**Table 2. Outbreaks of foodborne disease reported by OzFoodNet sites,\* 1 July to 30 September 2008 (n=17)**

State	Month of outbreak	Setting prepared	Infection	Number affected	Evidence	Responsible vehicles
NSW	Jul	Restaurant	Norovirus	4	M	Oysters
	Jul	Restaurant	Norovirus	10	M	Oysters
	Jul	Restaurant	Unknown	3	D	Fried rice
	Aug	Institution	<i>Clostridium perfringens</i>	25	A	Macaroni bolognaise
	Aug	Commercial caterer	Unknown	8	A	Mixed sandwiches
	Sep	Restaurant	<i>Staphylococcus aureus</i>	7	M	Chicken
	Aug	Restaurant	Unknown	3	D	Multiple foods
	Jun	Aged care	<i>Clostridium perfringens</i>	69	D	Unknown, possibly pureed food
	Aug	Aged care	<i>Salmonella</i> Typhimurium 44	10	AM	Chocolate mousse with raw eggs
	May	Restaurant	<i>Salmonella</i> Anatum	11	M	Chicken
	Sep	Restaurant	Unknown	5	D	Barramundi, lamb & salad
Qld	Jul	Primary produce	Ciguatera	4	D	'Yellow king' – Samson fish
	Jul	Primary produce	Ciguatera	6	D	Red throat emperor/reef snapper
SA	Sep	Commercial caterer	Norovirus	5	D	Unknown
Vic	Aug	Institution – other	<i>Clostridium perfringens</i>	15	D	Savoury mince
	Sep	Aged care	<i>Salmonella</i> Typhimurium 44	14	D	Vitamised food
WA	Jul	Commercial caterer	<i>Clostridium perfringens</i>	30	D	BBQ Asian chicken

\* No foodborne outbreaks were reported in the Australian Capital Territory, the Northern Territory 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.

## New South Wales

New South Wales reported 11 foodborne outbreaks during this quarter.

There were 2 outbreaks of *Clostridium perfringens* intoxication in institutional settings. The 1st outbreak occurred in an aged care facility where 53% (69/131) of residents experienced episodes of gastroenteritis over a 1 month period. Forty-two per cent (29/69) of residents experienced more than 1 episode of gastroenteritis (predominately manifested as diarrhoea). The median age was 83 years (range 60–100 years) and 74% (69/51) were female. Epidemiological investigation found that during the outbreak, residents in the nursing home were almost 3 times more likely to be ill than residents in the hostel (RR 2.7, 95%CI 1.7–4.1). Residents on milled or pureed diets were twice as likely to be ill as those who were not on a milled or pureed diet (RR 2.3, 95% CI 1.62–3.1). Laboratory testing iden-

tified *C. perfringens* enterotoxin type A in seven out of 10 stool samples submitted for testing. No other pathogens were found in the 10 stool samples collected. The NSW Food Authority (NSWFA) found that food handling, temperature control and kitchen hygiene were all satisfactory. The epidemic curve suggests that there were 2 foodborne point source outbreaks within the outbreak period, with the possibility of some environmental contamination and/or person-to-person spread.

The second outbreak occurred in August in an institution for disabled adults, where 6% (25/450) of residents experienced diarrhoea. *C. perfringens* enterotoxin type A was detected in three of 6 stool samples taken from residents. A cohort study demonstrated a strong association between consuming macaroni bolognese and illness (RR = 12.1, 95% CI 1.7–86.8). The NSWFA did not find any food safety breaches and could not identify any temperature control issues that would explain the outbreak.

In August 2008, 22% (10/46) of residents of another aged care facility in rural New South Wales developed gastroenteritis, with eight confirmed as *S. Typhimurium* 44. The median age of cases was 82 years with cases' illness spread over an 8-day period. In this outbreak, chocolate mousse made with raw eggs was the likely source of infection with *S. Typhimurium* 44 detected on the shell of an egg supplied to the facility by a local farm. The eggs used in the facility kitchen were substandard and there were several potential food safety issues within the facility and kitchen environment.

In July 2008, there was an increase in *S. Anatum*, with 9 cases notified between 13 May and 2 July 2008. The median age was 26 years and 4 cases were male. Three of the 5 cases contacted for interview reported eating a chicken meal from the same restaurant. The NSWFA conducted an environmental investigation at the premises, with food and environmental samples taken. One sample collected from a stainless steel bench in the food preparation area was positive for *S. Anatum*, although the source of contamination of the environment was not identified.

On the north coast of New South Wales, there were 2 outbreaks of norovirus due to consumption of contaminated oysters that affected a total of 14 people. Norovirus was detected in 2 oysters sampled from the lease. The river was closed for harvesting by the NSWFA. The source of contamination remains unclear.

Two separate groups of people reported illness within 3 hours of consuming chicken kebabs at a commercial premise. Illness was consistent with foodborne intoxication caused by *Staphylococcus aureus*, which was isolated from cold cooked chicken stored in a cool room. Food handler contamination was the suspected cause of this outbreak.

Public health units in New South Wales also investigated a further 4 small outbreaks of gastroenteritis where foodborne transmission was suspected. Less than 10 people were affected in each of these outbreaks, and the aetiology was unknown.

## Queensland

Queensland reported 2 outbreaks of foodborne illness during the third quarter of 2008, both of which were due to ciguatera contaminated fish.

In July, 4 cases of suspected ciguatera fish poisoning occurred after consuming steaks from a single 2–3 kilogram Samson fish. Cases experienced symptoms of nausea, vomiting, diarrhoea, abdominal cramps and numbness or tingling of hands, feet and mouth. The cases were aged between 5 and

62 years. The fish was caught off Saumarez Reef, north-east off Gladstone and purchased from a local fish market in Brisbane.

In late July and early August, 6 cases of suspected ciguatera fish poisoning were associated with fish purchased from a single distributor in Brisbane. Cases were aged 25–63 years. The median incubation period was 13 hours (range 3–18 hours) and symptoms included diarrhoea, vomiting, reversed temperature sensation and numbness or tingling of hands, feet and mouth. One case reported eating Reef Snapper while the remaining cases all ate Red Throat Emperor. These cases were associated with 2 different mixed catches from the same fishing location, Capel Bank, approximately 400 kilometres east-north-east of Brisbane. In total, the 2 catches consisted of 8,654 kilograms of fish and approximately 700 kg of fish was also distributed to New South Wales; no cases were reported from New South Wales. Retailers disposed of all remaining Red Emperor from the implicated batch of fish.

## South Australia

South Australia reported a single outbreak of suspected foodborne illness during the quarter. The outbreak occurred amongst participants of a 5-day catered training course in metropolitan Adelaide during September. Of 5 course attendees ill with gastroenteritis, three provided specimens that were positive for norovirus. One of the catering staff developed gastroenteritis during the 5-day course, which was also confirmed as norovirus infection. This catering worker was involved in food preparation prior to becoming ill, but was not involved in serving foods. A cohort study was conducted, but no foods were significantly associated with illness.

## Victoria

Victoria reported 2 outbreaks of foodborne illness during the quarter, both of which occurred in institutional settings.

In August, a foodborne outbreak was reported in a supported residential facility. Fourteen residents and 1 staff member became ill with diarrhoea within a 2-hour period of each other. Three faecal specimens were positive for *C. perfringens* enterotoxin. Savoury mince served for dinner the previous night, was suspected as the cause of the illness. Cooling and reheating of foods was identified as a problem at the facility.

An outbreak of gastroenteritis in an aged care facility was notified in September 2008. There were 11 residents and 3 staff members who were affected and six of the residents had specimens positive for *S. Typhimurium* 44. The staff members cared for

ill residents and were likely to have been secondary cases. A food specific source was unable to be identified but consumption of vitamised food was associated with illness (RR 9.47 95% CI 3.1–28.9).

### Western Australia

Western Australia reported a single outbreak of foodborne illness this quarter in mine workers. In July, at least 30 mine workers were ill with diarrhoea and abdominal pain following a company barbeque meal. The pattern of illness was consistent with *C. perfringens* intoxication. A total of 662 people were reported to have eaten at this meal, and 88 were interviewed in a case control study of 30 cases and 58 controls. Analysis of the results demonstrated a minimum attack rate of 34% (30/88). Consumption of chicken and steak was associated with illness, but did not reach statistical significance. Faecal specimens from four of the 5 mine workers were positive for *C. perfringens*, with two of the samples having an indistinguishable pulsed field gel electrophoresis pattern. Asian barbeque chicken was the most likely source, as chicken was the food item consumed by the highest proportion of cases and was possibly held at incorrect temperatures for long periods of time.

### Comments

During the quarter, the number of outbreaks reported was lower than previous quarters in 2008, although the number of outbreaks spread from person to person remained high. There were only 3 foodborne outbreaks of salmonellosis this quarter, compared to 11 outbreaks each for the 1st and second quarters of 2008.

The 2 outbreaks of ciguatera poisoning in Queensland associated with commercially-available fish highlight the potential for large reef fish to cause illness. It is unusual to receive reports associated with commercial fisheries, as affected reefs are well known and avoided by fishermen.

The 2 outbreaks associated with commercial caterers highlight 2 major food safety issues that lead to outbreaks in these operations: ill food handlers and poor temperature control of foods. It is vital that people preparing and serving food do not work while they have symptoms of gastroenteritis, as it can lead to outbreaks of norovirus.<sup>3</sup> Similarly, catering services can lead to food being held at inappropriate temperatures for long periods of time allowing bacteria such as *C. perfringens* to grow.

There were increased numbers of toxin-related outbreaks reported during this quarter, including a large highly publicised outbreak in New South Wales. The unusually long outbreak of *C. perfringens* with 2 apparent point sources dem-

onstrated that foodborne illnesses may have an unusual course or presentation in elderly people.<sup>4</sup> There were 5 foodborne institutional outbreaks during the quarter, including three in aged care facilities. While identifying a specific food vehicle in these outbreaks is difficult, the association between illness and consumption of pureed food is striking and highlights the need to improve food handling associated with foods for vulnerable populations.<sup>5</sup>

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The OzFoodNet Working Group is (*in alphabetical order*): Mary Barker (WA), Robert Bell (Qld), Therese Carroll (NSW), Craig Dalton (Hunter New England), Kathleen Fullerton (DoHA), Robyn Gibbs (WA), Joy Gregory (Vic), Gillian Hall (NCEPH), Michelle Harlock (NT), Geoff Hogg (MDU), Rebecca Hundy (ACT), Martyn Kirk (DoHA), Karin Lalor (Vic), Katrina Leslie (DoHA), Tony Merritt (Hunter New England), Jennie Musto (NSW), Lillian Mwanri (SA), Nevada Pingault (WA), Jane Raupach (SA), April Roberts-Witteveen (Hunter New England), Mark Salter (FSANZ), Craig Shadbolt (NSWFA), Frances Sheehan (Qld), Russell Stafford (Qld), Nicola Stephens (Tas), Barbara Telfer (NSW), Hassan Vally (NCEPH), Mark Veitch (MDU), Tory Worgan (Hunter New England).

### Author details

Correspondence: Mr Martyn Kirk, Senior Epidemiologist, OzFoodNet, Office of Health Protection, Australian Government Department of Health and Ageing, GPO Box 9848, MDP 14, Canberra, ACT 2601. Telephone: +61 2 6289 2746. Facsimile: +61 2 6289 2500. Email: martyn.kirk@health.gov.au

### References

1. OzFoodNet Working Group. OzFoodNet quarterly report, 1 April to 30 June 2008. *Commun Dis Intell* 2008;32:335–340.
2. OzFoodNet Working Group. OzFoodNet quarterly report, 1 January to 31 March 2008. *Commun Dis Intell* 2008;32:267–271.
3. Dalton CB, Gregory J, Kirk MD, Stafford RJ, Givney R, Kraa E, et al. Foodborne disease outbreaks in Australia, 1995 to 2000. *Commun Dis Intell* 2004;28:211–224.
4. Smith JL. Foodborne illness in the elderly. *J Food Prot* 1998;61:1229–1239.
5. Tallis G, Ng S, Ferreira C, Tan A, Griffith J. A nursing home outbreak of *Clostridium perfringens* associated with pureed food. *Aust N Z J Public Health* 1999;23:421–423.