OzFoodNet: enhancing foodborne disease surveillance across Australia: quarterly report, July to September 2002

The OzFoodNet Working Group[1]

Introduction

The Commonwealth Department of Health and Ageing established OzFoodNet in 2000 to improve surveillance and conduct applied research on foodborne disease. The network is a collaborative project with Federal, State and Territory governments, academic institutions, and peak bodies for communicable disease control. During the third quarter, the Department of Health and Ageing commissioned an independent review of OzFoodNet activities. Professor John Kaldor from the National Centre in HIV Epidemiology and Clinical Research lead the review team, which concluded that the network had made substantial improvements to the quality of surveillance activities undertaken in the states and territories and recommended funding for a further five years. A full copy of the review report can be obtained from the Food Safety and Surveillance and Epidemiology Section of Department of Health and Ageing (telephone +61 2 6289 1555 or email: foodsafety@health.gov.au).

In July, the Department of Health and Ageing funded an epidemiologist in both New South Wales Health Department central office and the Northern Territory Department of Health and Community Services to participate in OzFoodNet activities. Previously, New South Wales had enhanced surveillance in the Hunter Region only. This extension of the coverage of OzFoodNet to all states and territories makes a significant improvement to Australia's ability to understand and investigate foodborne disease.

This third quarterly report of OzFoodNet for 2002 summarises the incidence of foodborne disease in the six states of Australia and the Australian Capital Territory between July and September 2002. During the third quarter of 2002, OzFoodNet continued to collect data on the incidence of gastroenteritis and its causes around Australia. All Australian jurisdictions collaborate in the OzFoodNet program of work.

In this report we analyse data by the date that a notification report was received by a health department or its closest equivalent. For historical comparison purposes, total numbers of notifications for the current quarter are compared to a mean of totals for the same quarter of the previous four years. In this report, data are reported for all jurisdictions where available. No data were available for the Northern Territory.

Notifications in the third quarter

In the third quarter of 2002, there were 3,212 notifications of *Campylobacter* infection, which was a decrease of 5.9 per cent from the mean of the same quarter for the previous four years (not including New South Wales). Only two jurisdictions reported increases for the quarter, which were South Australia (4.4%) and Tasmania (1.5%). The median age of cases in different sites ranged from between 27 to 33 years. All States reported that the male to female ratio of cases ranged from 0.9–1.2:1. The Far North Queensland Tropical Public Health Unit investigated one community-wide outbreak of *Campylobacter* infection during the quarter, which was linked to locally produced chicken.

OzFoodNet sites reported 1,010 cases of salmonellosis during the quarter, which was a 7.9 per cent increase from the same quarter in the previous four years. The largest increase was observed in Tasmania (122%). The Australian Capital Territory and Western Australia were the only jurisdictions that recorded decreases (18.5% and 8.3% respectively). The median age of cases ranged from 5 to 27 years in OzFoodNet sites. The male to female ratio ranged from 0.6:1 in South Australia to 2.2:1 in the Hunter.

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During the quarter, four phage types of *Salmonella* Typhimurium were the most commonly notified *Salmonella* infections in three or more states: phage types 9, 126, 170 and 135. *S.* Typhimurium 170 continued as a national problem in multiple states, although case numbers decreased from those at the beginning of the year (Table 1).

During the quarter, New South Wales observed the emergence of *Salmonella* Typhimurium 197, and Tasmania reported a significant increase in *Salmonella* Typhimurium 135. Investigations in both jurisdictions did not reveal any obvious common source, although Tasmania reported one family outbreak of *S.* Typhimurium 135 suggesting contaminated egg consumption as the potential source. There were two cases of a novel serovar in humans—*Salmonella* Niarembe—notified in Tasmania from two family members who were refugees from the Sudan. In Western Australia, 12 cases of *Salmonella* Enteritidis 4b infection were reported in travellers who had returned from overseas. Reference laboratories previously categorised phage type 4b, as phage type 4 and have only recently started classifying them separately. Sites reported one *Salmonella* outbreak with a confirmed link to food, and investigated a further 10 clusters where no vehicle or source was identified. The cluster investigations included multiple serovars, including: Ohio (5 cases), Typhimurium 197 (8 cases), Hvittingfoss (11 cases), Lansing (4 cases), Havana (6 cases), Montevideo (6 cases), Typhimurium 141 (7 cases), Okatie (2 cases), Typhimurium 126 (6 cases) and Chester (5 cases).

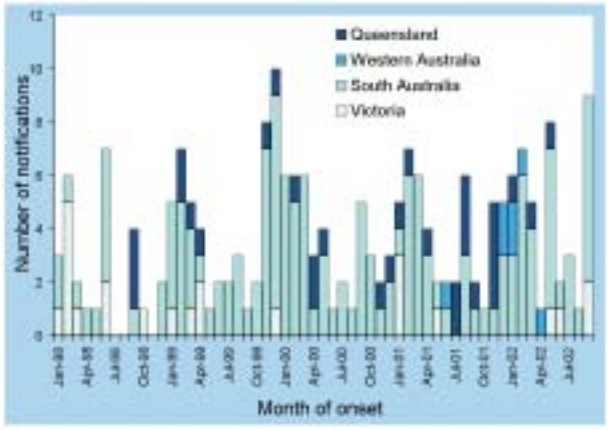
During the third quarter of 2002, the National Enteric Pathogen Surveillance Scheme reported that the five most common *Salmonella* infections nationally were *S*. Typhimurium 135 (79 cases), *S*. Typhimurium 9 (61 cases), *S*. Saintpaul (51 cases), *S*. Typhimurium 170 (50 cases), and *S*. Typhimurium 126 (33 cases). (Personal communication, Mark Veitch, The University of Melbourne, 15 October 2002).

State health departments received 16 notifications of listeriosis during the third quarter of 2002, which was 18.5 per cent higher than the same quarter for the previous four years (14 cases). Fifteen of these cases were reported in older people with severe immunocompromising conditions. The median age of these cases ranged from 42 to 80 years, and the overall male to female ratio was 0.5:1. One of the notifications during the quarter was a materno-foetal infection from Victoria.

OzFoodNet sites reported 15 cases of shiga-toxin producing *E. coli* infections during the quarter, compared to 11 cases for the same quarter in 2001 (Figure 1). South Australia reported 11 cases, Victoria two cases and New South Wales reported two cases of *E. coli*-associated haemolytic uraemic syndrome. No serotype was recorded for 53 per cent (10/19) of notified infections. Four were reported as *E. coli* O157 infections, three of which were from South Australia. The H type was recorded in only one of these cases, which was a case of *E. coli* O157:H7 associated with haemolytic uraemic syndrome in a New South Wales resident. The median age of cases in different sites ranged from 7 to 62 years, with females predominating (male to female ratio, 1:4). South Australia identified a common source outbreak of five cases of *E. coli* O26 associated with a petting zoo. An identical strain of *E. coli* was confirmed in the petting zoo environment as well as from faeces of pigs and alpacas.

OzFoodNet sites reported that during the quarter

Figure 1. Notifications of shiga-toxin producing *E. coli* in OzFoodNet sites, January 1999 to September 2002



NB. Cases of haemolytic uraemic syndrome where STEC were isolated are not shown on this graph.

there were 27 cases of yersiniosis, which represented a 5.9 per cent increase on the mean of the previous four years. Queensland reported 17 cases during the quarter and reports the majority of notifications of yersiniosis in Australia. South Australia received 7 notifications during the quarter, which represents a 115 per cent increase from historical totals. Health agencies have seen continuing declines of yersiniosis in recent years and it is no longer notifiable in Victoria or included in the National Notifiable Diseases Surveillance System. Sites also reported 90 cases of shigellosis and 11 cases of typhoid, which represented decreases of 4.5 and 6.4 per cent from the mean of the previous four years, respectively.

Table 1. Number of notifications for the five most common *Salmonella* infections reported to OzFoodNet sites for the third quarter 2002 compared to third quarter 2001.

OzFoodNet site	Top five *Salmonella* infections	Number of cases				
		3rd Qtr 2002	3rd Qtr 2001	YTD 2002	Total 2001	Ratio*
ACT	Typhimurium 135	2	0	9	2	–
	Typhimurium 64	1	0	3	2	–
	Typhimurium 197	1	0	3	0	–
	Typhimurium 170	1	0	2	0	–
	Typhimurium U290	1	0	3	0	–
Hunter	Typhimurium 170	2	2	7	6	1.0
	Typhimurium 197	2	0	3	0	–
	Agona	1	0	8	1	–
	Enteritidis 6a	1	0	1	0	–
	Muenchen	1	0	1	0	–
NSW	Typhimurium 135	23	42	159	201	0.5
	Typhimurium 9	18	21	236	32	0.9
	Typhimurium 170	16	11	107	35	1.5
	Birkenhead	13	8	77	89	1.6
	Typhimurium 197	12	0	23	1	–
Qld	Saintpaul	29	15	199	173	1.9
	Virchow 8	26	22	238	183	1.2
	Birkenhead	17	6	103	134	2.8
	Typhimurium 170	15	2	69	20	7.5
	Aberdeen	14	13	97	81	1.1
SA	Typhimurium 9	6	2	19	49	3.0
	Typhimurium 126	6	49	33	110	0.1
	Typhimurium 108	5	6	25	31	0.8
	Typhimurium 135	5	3	12	24	1.7
	Typhimurium 8	4	1	56	3	4.0
Tas	Typhimurium 135	6	1	18	4	6.0
	Niarembe	2	0	2	0	–
	Mississippi	2	4	62	102	0.5
	Enteritidis 4	1	1	1	3	1.0
	Agona	1	0	2	2	–
Vic	Typhimurium 135	25	12	159	92	2.1
	Typhimurium 9	23	17	119	127	1.3
	Typhimurium 170	19	7	145	72	2.7
	Typhimurium 126	16	3	52	16	5.3
	Hvittingfoss	10	1	13	10	10.0
WA	Enteritidis 4B	12	1	24	3	12.0
	Typhimurium 9	10	1	42	18	0.0
	Chester	7	7	21	31	1.0
	Typhimurium 135A	7	1	25	17	7.0
	Typhimurium 126	6	0		2	–

* Ratio of cases for the third quarter 2002 to the third quarter 2001.

Table 2. Outbreaks reported by OzFoodNet sites, July to September 2002

State	Month of outbreak	Setting	Agent responsible	Number exposed	Number affected*	Evidence	Responsible vehicles
NSW	July	Restaurant	Unknown	130	30	D	Unknown
	August	Restaurant	Unknown	19	5	D	Unknown
Qld	August	Community	*C. jejuni*	Unknown	>24	M	Retail chicken meat
	September	Restaurant	Unknown	23	16	D	Unknown
Vic	August	Nursing Home	*C. perfringens*	69	15	D	Gravy suspected
	August	Restaurant	*S.* Typhimurium 135	Unknown	12	D	Spring rolls or prawn toasts suspected
WA	August	Mine site	Unknown	Unknown	23	D	Unknown
	August	Conference	Suspected viral	1,100	Unknown	A	Oyster shooters

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.
* The number affected is calculated from the proportion of people interviewed who were ill, multiplied by the number of people exposed.

Foodborne disease outbreaks

During the third quarter of 2002, OzFoodNet sites reported 8 outbreaks of gastrointestinal infections with a probable food source, compared to 17 outbreaks for the third quarter of 2001 (Table 2). The outbreaks affected more than 125 people, although the number affected in two outbreaks was unknown. Ten people were hospitalised, however no deaths were reported. Sites conducted two retrospective cohort studies and two case control studies to investigate these outbreaks. The remainder of investigations relied on descriptive information.

Six of the outbreaks occurred in August. One outbreak was due to *Salmonella* Typhimurium 135, one due to *Campylobacter jejuni,* one due to *Clostridium perfringens* and the remainder were of unknown aetiology. Five of the outbreaks occurred in association with meals at restaurants, or conferences or functions. The majority (75%) of investigations relied on descriptive epidemiology, with only one outbreak confirming the vehicle microbiologically and another using a case control study to identify the vehicle.

The outbreak of *C. jejuni* was a community-wide outbreak in Far North Queensland that was associated with locally supplied chicken meat. Investigators conducted a traceback of chicken consumption and found that 80 per cent of all chicken meat sampled for retail sale was contaminated with *Campylobacter*. Isolates from chicken meat supplied by a local abattoir were indistinguishable from human isolates using flagellin A gene typing and pulsed field gel electrophoresis.

Victoria reported an outbreak of *C. perfringens* where 22 per cent (15/69) of residents of a nursing home became ill following a common meal. The suspect food vehicle was gravy. Victoria also reported an outbreak of 12 cases of *Salmonella* Typhimurium 135 that was suspected to be caused by consumption of spring rolls or prawn toasts. The spring rolls contained raw chicken mince and may have been inadequately cooked.

Western Australia reported an outbreak of suspected viral gastroenteritis amongst delegates at an international conference. The vehicle for the outbreak was identified on epidemiological grounds as 'oyster shooters'. Conference organisers served the oysters in small glasses of tomato juice at a cocktail hour. The frozen oysters were imported and the packaging information indicated that the product should be cooked before consumption. No pathogens were isolated from a different batch of the same brand of oysters, although none of the implicated batch was available for testing.

OzFoodNet sites also reported significant numbers of person-to-person spread outbreaks of norovirus, particularly genogroup 2, occurring in hospitals and aged care settings. The numbers of outbreaks appeared to be considerably higher than reports from previous years, although the reasons for this are not known.

Applied research

In the third quarter of 2002, OzFoodNet concluded the national *Campylobacter* case control study with five sites interviewing 1,986 study subjects. The study recruited 881 cases and 883 controls who were aged 5 years or more, and 138 cases and 134 controls under the age of 5 years. South Australia completed data collection for a pilot of a case control study examining risk factors for shiga-toxin producing *E. coli*. OzFoodNet sites interviewed 29 patients as part of the *Listeria* case control study, four of which were infections acquired during pregnancy. Sites continued to recruit patients and controls for the national *Salmonella* Enteritidis case control study and studies into locally endemic *Salmonella* serovars.

In the third quarter of 2002, 900 people were interviewed as part of the national OzFoodNet gastroenteritis survey. Overall 9.8 per cent of people experienced gastroenteritis compared with 9.4 per cent for the previous quarter. Residents of Tasmania reported the highest crude proportion of people experiencing gastroenteritis in the previous month, while Victorian residents reported the lowest.

In the month of August, the national survey concluded after running for a full year. In total 11.2 per cent (683/6,092) of respondents reported any diarrhoea or vomiting in the previous month (Figure 2). There were noticeable differences by season in different jurisdictions (Table 3). This is self-reported gastroenteritis and does not take into account the mode of transmission. The data collected in this survey will contribute to OzFoodNet's estimation of the burden of gastroenteritis due to food in Australia. During the quarter, OzFoodNet held discussions with national and international experts about the proportion of different enteric pathogens that might be ascribed to transmission from food.

Figure 2. Unweighted results of the national OzFoodNet gastroenteritis survey showing the proportion of respondents reporting an episode of gastroenteritis in the previous month (n=6,092), September 2001 to August 2002

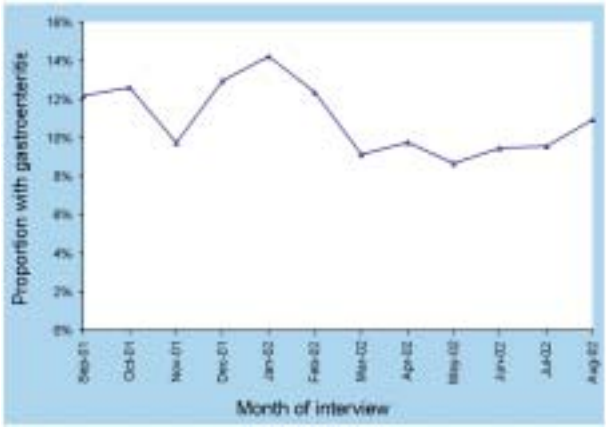


Table 3. Crude proportions of people reporting gastroenteritis in the previous month, Australia, 2001 to 2002, by season (n=6,092)

State	Proportion of respondents reporting gastroenteritis, by season (%)				
	Spring 2001	Summer 2001–02	Autumn 2002	Winter 2002	Total
New South Wales*	9.8	14.8	8.4	8.3	10.3
Northern Territory	19.9	19.3	12.9	12.9	16.3
Queensland	13.1	9.0	7.1	9.1	9.6
South Australia	10.6	12.5	8.4	13.6	11.3
Tasmania	9.5	10.9	8.8	11.6	10.2
Victoria	9.8	12.4	10.1	7.3	9.9
Western Australia	10.5	12.7	6.9	9.2	9.8
Total	11.5	13.2	9.2	10.0	11.0

* Includes the Australian Capital Territory and an over sample for the Hunter region of New South Wales.