OzFoodNet: enhancing foodborne disease surveillance across Australia: Quarterly report, October to December 2001

The OzFoodNet Working Group[1]

Introduction

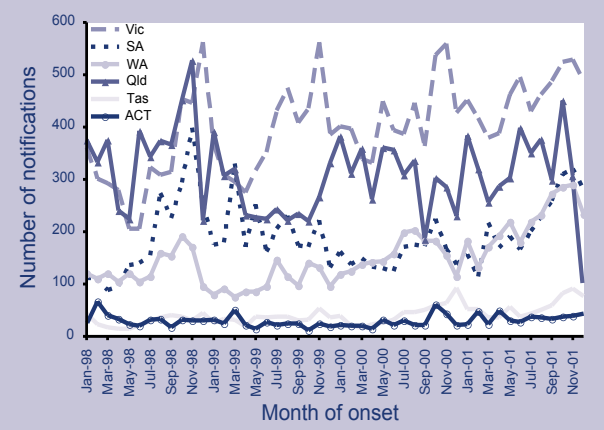
OzFoodNet is a collaborative network of epidemiologists and microbiologists conducting applied epidemiological research into foodborne disease and improving existing surveillance mechanisms for foodborne disease. The Commonwealth Department of Health and Ageing established OzFoodNet in 2000 and the network has had representation on the Communicable Diseases Network Australia (CDNA) since 2001. All Australian jurisdictions collaborate in OzFoodNet. The New South Wales Health Department has enhanced surveillance in the Hunter Region. The Northern Territory participates as an observer and data are only included where specified. Historical comparisons use notifications by date of onset. All other data are reported using the date the report was received by the health agency.

This fourth quarterly report of OzFoodNet summarises the incidence of foodborne disease in the 6 States of Australia and the Australian Capital Territory between October and December 2001. During the fourth quarter of 2001, OzFoodNet continued to collect data on the incidence of diarrhoea and it's causes around Australia.

Notifications in the fourth quarter

In the last 3 months of 2001, notifications of *Campylobacter* infection were elevated across Australia, with the major peak in October and November (Figure). In recent years *Campylobacter* incidence has continued to increase in Australia, which follows similar patterns in other countries. Infections are most common in Spring and Summer. During the fourth quarter 2001, OzFoodNet sites reported 4,492 notifications of campylobacteriosis, which represented a 20.2 per cent increase over the mean for the same quarter for the years 1998 to 2000. For Western Australia and Tasmania, the increase over the mean for 1998 to 2000 was 89 per cent and 67 per cent respectively. The median age of cases ranged between 29 to 33 years. All States reported that the male to female ratio of cases ranged from 1.2:1 to 1.4:1. There were two separate outbreaks of *Campylobacter* infection in Victoria which affected 76 people in total.

Figure. Notifications of campylobacteriosis in OzFoodNet Sites, by month of onset, 1998 to December 2001



OzFoodNet sites reported a total of 1,537 cases of salmonellosis during the fourth quarter, which represented a 6.6 per cent increase over the mean for the same quarter for the years 1998 to 2000. The median age of cases ranged from 15 to 36 years in OzFoodNet sites. The median age of cases in Queensland was higher (15 years) compared to

1. The OzFoodNet Working Group is (in alphabetical order): Rosie Ashbolt (Tas), Meredith Caelli (Hunter PHU), Scott Crerar (ANZFA), Craig Dalton (Hunter PHU), Rod Givney (SA), Joy Gregory (Vic), Gillian Hall (NCEPH), Brigid Hardy (AFFA), Geoff Hogg (MDU), Rebecca Hundy (SA), Martyn Kirk (ANZFA), Vanessa Madden (Tas), Ian McKay (DoHA), Lynn Meuleners (WA), Geoff Millard (ACT), David Peacock (NT), Nittita Prasopa-Plaizier (Vic), Jane Raupach (SA), Paul Roche (DoHA), Russell Stafford (Qld), Nola Tomaska (NCEPH), Leanne Unicomb (Hunter PHU), Craig Williams (ANZFA)

Address for correspondence: Martyn Kirk, Coordinating Epidemiologist, OzFoodNet, c/o National Public Health Partnership, 589 Collins Street, Melbourne Victoria 3000, Australia. Telephone: +61 3 9616 1522. Facsimile: +61 3 9616 1500. E-mail: martyn.kirk@dhs.vic.gov.au.

the previous two quarters (9.0 years). The male to female ratio was approximately 1:1 in all sites, except Tasmania (1:1.6) and South Australia (1:1.3) where females predominated. Sites reported five *Salmonella* outbreaks during the quarter.

During the quarter, there were 5 serovars that were among the most common in three or more States: *Salmonella* Typhimurium (phage types 9, 126, 135 and 170), and S. Infantis (Table 1). Health departments across Australia continued to receive *Salmonella* Typhimurium phage type 126 notifications. In October, the Victorian Department of Human Services reported an increase in *S*. Typhimurium 170. Increases in this serovar were also reported for New South Wales and Queensland. Queensland reported that there were 29 cases of *S*. Birkenhead this quarter compared to 25 cases for the same time period in 2000. There is an endemic focus of this serovar in the southern region of Queensland and northern parts of New South Wales. During the first quarter of 2002, the Hunter OzFoodNet site also reported notifications of *S*. Birkenhead. The National Enteric Pathogen Surveillance Scheme reported that during the fourth quarter of 2001 the five most common *Salmonella* infections nationally were *S*. Typhimurium phage types 135, 126, 170 and 4, and *S*. Virchow 8. (Personal communication. Joan Powling, University of Melbourne, 17 January 2002).

State health departments received 14 notifications of listeriosis during the fourth quarter of 2001, which was similar to the mean number of notifications for the last 3 years (15 cases). Queensland reported five of these cases, four of which were in older people and one materno-foetal case. Western Australia reported 3 cases, two of which were pregnancy-associated infections in foetuses at 15 and 23 weeks gestation, respectively. Nationally, the range of ages for non-pregnancy associated cases was 36–89 years old.

OzFoodNet sites reported 11 cases of shiga toxin producing *E. coli* infections during the quarter; with cases notified from South Australia (5), Western Australia (2), Queensland (3), and New South Wales (1). There were no common links identified between cases, except for one case in Western Australia. The Western Australian Health Department reported isolation of *E. coli* O157:H7 from a patient stool and a locally produced salami product containing a mix of meats. The age range of all cases was 1 to 76 years, with females predominating (1:1.4). New South Wales reported one case of haemolytic uraemic syndrome in an 11-month-old male.

OzFoodNet sites reported that during the quarter there were 74 cases of shigellosis, 14 cases of typhoid, and 10 cases of yersiniosis.

Foodborne disease outbreaks

During the fourth quarter of 2001, OzFoodNet sites reported 28 outbreaks of gastrointestinal infections with a probable food source, affecting an estimated 990 people, of whom 11 were hospitalised (Table 2). There were no reported deaths from these outbreaks.

There were several outbreaks associated with pre-Christmas functions, often where the meals were catered. This may be due to an overall increase in the number of functions, or unsafe practices used during this time. At least 10 of the 28 outbreaks were associated with catered events. Six of the outbreaks were associated with meals served at restaurants or hotels.

The Australian Capital Territory reported 4 outbreaks of gastroenteritis that were associated with meats cooked on a spit roast. All 4 meals were prepared by the same company in Sydney and transported to the Australian Capital Territory the next day. Investigators did not identify a responsible agent, but suspected bacterial toxins as the cause.

The South Australian Department of Human Services reported an outbreak of *S*. Typhimurium 135a associated with a dessert containing raw eggs. This was the fourth outbreak associated with eggs during 2001, two of which were due to *Salmonella* Typhimurium 135.

Table 1. Top five *Salmonella* infections reported to OzFoodNet sites, October to December 2001, by date of receipt of notification at each health department

OzFoodNet site	Top 5 Salmonella infections	Number of notifications				
		4rd Qtr 2001	4rd Qtr 2000	Total 2001	Total 2000	Ratio*
ACT	S. Typhimurium 9	3	3	10	31	1.0
	S. Bovismorbificans 14	2	0	4	0	–
	S. Enteritidis RDNC 11	2	0	2	0	–
	S. Typhimurium 64	1	0	1	1	–
	S. Para B bv Java Dundee	1	0	2	1	–
Hunter	S. Typhimurium 135	8	4	15	10	2.0
	S. Birkenhead	4	9	5	9	0.4
	S. Typhimurium U290	3	0	3	0	–
	S. Typhimurium 126	2	2	9	3	1.0
	S. Typhimurium 64	2	3	9	14	0.7
New South Wales	S. Typhimurium 135	48	34	202	115	1.4
	S. Typhimurium 126	34	17	98	56	2.0
	S. Birkenhead	27	30	87	73	0.9
	S. Typhimurium 9	23	38	133	138	0.6
	S. Typhimurium 170	14	3	35	8	4.7
Queensland	S. Saintpaul	43	27	164	184	1.6
	S. Typhimurium 135	38	35	137	118	1.1
	S. Virchow 8	32	36	177	189	0. 9
	S. Birkenhead	29	25	130	102	1.2
	S. Typhimurium 126	21	0	73	2	–
South Australia	S. Typhimurium 126	23	2	110	5	11.5
	S. Typhimurium 64var	21	0	21	0	–
	S. Typhimurium 108	20	3	31	11	6.7
	S. Typhimurium 9	11	6	49	26	1.8
	S. Infantis	8	0	19	8	–
Tasmania	S. Mississippi	12	22	98	73	0.5
	S. Typhimurium 9	2	11	11	22	0.2
	S. Typhimurium 135	2	2	5	5	1.0
	S. Infantis	2	1	3	4	2.0
	S. Saintpaul	2	1	2	2	2.0
Western Australia	S. Typhimurium 135	15	2	80	68	7.5
	S. Chester	9	4	31	12	2.3
	S. Typhimurium 9	8	0	15	14	–
	S. Stanley	8	3	21	5	2.7
	S. Kiambu	5	0	20	9	–
Victoria	S. Typhimurium 170	46	11	73	36	4.2
	S. Typhimurium 9	22	41	127	186	0.5
	S. Typhimurium 135	19	9	96	70	2.1
	S. Typhimurium 4	14	23	79	37	0.6
	S. Infantis	8	3	28	14	2.7

* Ratio of cases for the fourth quarter 2001 to the fourth quarter 2000

Table 2. Outbreaks reported by OzFoodNet sites, October to December 2001

State	Month of outbreak	Setting	Agent responsible	Number exposed	Number affected	Evidence*	Epidemiological study	Responsible vehicles or mode of transmission
ACT	Dec	Catered event	Suspected toxin	24	22	D	Case series	Spit roast
	Dec	Catered event	Suspected toxin	141	63	D	Case series	Spit roast
	Dec	Catered event	Suspected toxin	130	50	D	Case series	Spit roast
	Dec	Catered event (school)	Suspected toxin	56	31	D	Not done	Spit roast (at school)
	Dec	Restaurant	Suspected toxin	43	15	D	Case series	Unknown
	Oct	Conference centre	Campylobacter	129	48	S	Cohort	Tomato and cucumber salad
Hunter	Oct	Conference	Escolar wax-ester oils	47	20	D	Cohort	Escolar
QLD	Nov	Home	Ciguatoxin	4	4	D	Case series	Coral trout
	Nov	Home	Ciguatoxin	9	9	D	Case series	Spanish mackerel
	Dec	Hotel	Unknown	35	6	D	Case series	Unknown
SA	Nov	Function centre	Human calicivirus	331	90	D	Case series	Unknown
	Nov	Private function	Human calicivirus	15	13	D	Case series	Unknown
	Nov	Restaurant	Suspected viral	47	44	D	Case series	Unknown
	Dec	Private function	S.Typhimurium 135a	19	11	S, M	Cohort	Tiramisu dessert
	Dec	Restaurant	S. Typhimurium 64 var	Unknown	28	S, M	Cohort	Mango pudding
Vic†	Nov	Aged care	Campylobacter	243	49	D	Case series	Unknown
	Dec	Restaurant	Unknown	115	33	D	Cohort	Unknown
	Dec	Hotel	C. perfringens	9	9	D	Case Series	Suspected potato and bacon soup
	Dec	Private residence	S. Virchow 34	17	11	M	Cohort	Barbequed chicken or beef
	Dec	Convention centre	Suspected toxin	533	269	D	Cohort	Suspected soup or roast beef
	Dec	Community	S. Mississippi	Unknown	6	D	Case series	Suspected seafood
	Dec	Community	S. Hvittingfoss	Unknown	5	D	Case series	Unknown
WA	Oct	Wedding	Unknown	93	50	D	Cohort	Unknown
	Nov	Fast food restaurant	Unknown	21	10	D	Cohort	Unknown
	Dec	Catered event	Norwalk-like virus	36	23	D	Cohort	Unknown
	Dec	Catered event	Norwalk-like virus	90	56	D	Cohort	Unknown
	Dec	Christmas breakfast	Unknown	14	4	D	Cohort	Unknown
	Oct	Respite farm for handicapped	Human calicivirus	31	11	D	Cohort	Unknown

* D = Descriptive evidence implicating the suspected vehicle or suggesting foodborne transmission;
S = Statistical association between illness and one or more foods;
M = Microbiological confirmation of agent in the suspect vehicle and cases.

† In Victoria, where investigators conducted a cohort study and did not interview the whole cohort, the number affected is calculated from the proportion of people interviewed that were ill multiplied by the number exposed.

Applied research

In the fourth quarter of 2001, three OzFoodNet sites interviewed patients infected with *Campylobacter* and controls for the national *Campylobacter* case control study. The national *Salmonella* Enteritidis case control study, which will identify travel history from human cases, and examine risk factors for infection also commenced this quarter. OzFoodNet sites also commenced case control studies of local endemic serovars of *Salmonella* to identify risk factors for infection, including *S.* Typhimurium 135 (Hunter Public Health Unit and surrounding Public Health Units (PHU), Victoria and Western Australia), *S.* Mississippi (Tasmania), and *S.* Birkenhead (Queensland and Northern Rivers PHU).

During the quarter, the OzFoodNet-Hunter site coordinated a microbiological typing project to supplement the *Campylobacter* case control study. Several laboratories, using different microbiological techniques, analysed *Campylobacter* isolates collected in an earlier case control study conducted by the Hunter PHU. Risk factor data from this study will by analysed by *Campylobacter* subtype, and the most relevant microbiological test selected for use in the OzFoodNet national *Campylobacter* case control study.

The national OzFoodNet gastroenteritis survey showed that 11.6 per cent of people experienced gastroenteritis in the month prior to interview (Table 3). The overall response rate for the 3 months was 67 per cent. During the quarter, Northern Territory residents reported the highest crude proportion of people experiencing gastroenteritis in the previous month (19.5%), and Queensland residents reported the lowest (9.7%). Nationally, the prevalence of gastroenteritis was highest for respondents interviewed in the month of December (12.9%). This is self-reported gastroenteritis and does not distinguish foodborne illness from other causes of gastroenteritis.

This gastroenteritis survey covers all States and Territories and will run for a year. It will provide important information about the burden of gastrointestinal disease. These preliminary results suggest that gastroenteritis is very common and affects millions of people each year in Australia. The data collected in this survey will contribute to OzFoodNet's calculation of an estimate of the proportion of gastroenteritis due to food.

Table 3. Unweighted results of the national OzFoodNet gastroenteritis survey between October and December 2001 showing the proportion of respondents reporting an episode of gastroenteritis in the previous month (n = 1,829).

State or Territory	Proportion with gastroenteritis (%)			
	October	November	December	Mean prevalence
New South Wales*	11.9	8.2	12.1	10.8
Northern Territory	22.2	13.1	23.1	19.5
Queensland	15.5	8.1	5.5	9.7
South Australia	11.4	11.1	11.6	11.4
Tasmania	10.0	8.6	13.9	10.8
Victoria	13.0	7.1	12.6	10.9
Western Australia	4.7	14.1	13.3	10.7
Total	**12.1**	**9.7**	**12.9**	**11.6**

* Includes an over sample for the Hunter region of New South Wales.