

OzFoodNet: enhancing foodborne disease surveillance across Australia

Quarterly report January to March 2001

Martyn Kirk for the OzFoodNet Working Group

Introduction

In the latter part of 2000 the Commonwealth Department of Health and Aged Care established and funded a collaborative network — coined OzFoodNet — to enhance the existing surveillance mechanisms for foodborne disease across Australia.

The aims of OzFoodNet are to:

1. estimate the incidence of foodborne disease in Australia;
2. learn more about the causes and determinants of foodborne disease;
3. identify risky practices associated with food handling and preparation; and
4. train foodborne disease epidemiologists.

The work of OzFoodNet will improve surveillance of foodborne disease across Australia. Collaborators of OzFoodNet include State health authorities, the National Centre for Epidemiology and Population Health (NCEPH), the Public Health Laboratory Network (PHLN), Territory health departments, and national government agencies.

State health authorities have employed epidemiologists to enhance foodborne disease surveillance and conduct applied research into foodborne disease. Western Australia, South Australia, Tasmania, Queensland and Victoria are enhancing surveillance across the whole State. New South Wales is concentrating efforts on the Hunter region although comparative data for the rest of the State area were supplied where available.

Notifications in the first quarter 2001

In the first quarter of 2001, *Campylobacter* was the most commonly notified enteric pathogen, with 3056 cases reported to all OzFoodNet sites, except New South Wales, where campylobacteriosis is not a notifiable disease. Despite the large number of cases, there was only one cluster investigated in OzFoodNet sites for the period.

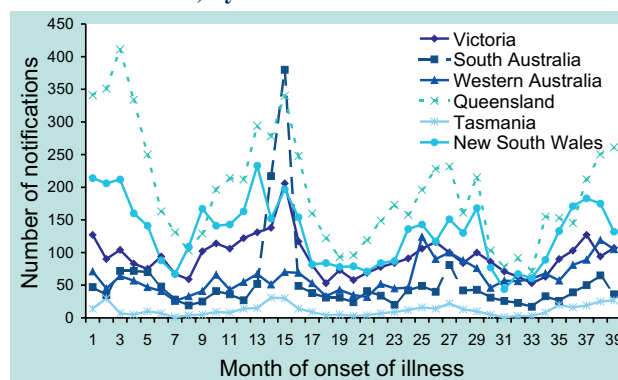
OzFoodNet sites reported 2115 cases of salmonellosis (529 from New South Wales) and 10 outbreaks. Notifications of salmonellosis for the first quarter of 2001 were increased in the Tasmania (19.0%), and in the Hunter Public Health Unit (Hunter PHU) (15.8%), when compared with the three-year mean for the same quarter for 1998–2000. Although there was also a 37.7 per cent increase in Western Australia, this

reflected a change in the notifications system there, whereby laboratory notifications were counted for the first time only from the beginning of 2000. Notifications of *Salmonella* infections from the States of South Australia (-53.4%), Queensland (-18.8%), Victoria (-12.0%), and New South Wales (-9.5%) were decreased compared to three-year mean values[†] (Figure).

Salmonella Typhimurium Phage Type 135 was one of the most common serovars in OzFoodNet sites (Table 1). It was represented in the top 5 serovars of all sites, except for Tasmania. Some States distinguished Typhimurium 135 into variant 135a, although reference laboratories are currently clarifying the sub-typing of this serovar. In Tasmania, the predominant serovar reported during the quarter was *S. Mississippi* (56/71 cases) — a serovar endemic to this State. The incidence of *S. Mississippi* in Tasmania was similar to previous years and there was no obvious geographical clustering. Data on *Salmonella* serovars were not available for samples from Western Australia at the time of writing this report.

OzFoodNet sites reported 22 cases of listeriosis with reported onset of symptoms in the first quarter of 2001. The highest number of cases was reported from Queensland (8 cases), followed by Victoria (6 cases), and New South Wales (5 cases). The majority of these cases were reported in older males who were immunocompromised. The median age of cases varied between 63 and 83 years. None of the cases in Queensland involved maternal-foetal infections.

Figure. Notifications of *Salmonella* infections to OzFoodNet sites, January 1998 to March 2001, by date of onset



* Totals for foodborne disease in this report differ from those reported for the same period to the National Notifiable Diseases Surveillance System. This report analysed cases by date of report and included cases with a disease onset date in 2000 and a date of report in the first quarter 2001 unless specified otherwise.

† The three-year mean value for South Australia was skewed by the large number of cases in a *Salmonella* Typhimurium 135a outbreak associated with contaminated orange juice in March 1999.

Table 1. Top five serovar of *Salmonella* notified to OzFoodNet sites, January to March 2001, by date of onset

State		First quarter 2000	Second quarter 2000	Total 2000	% change
New South Wales	Typhimurium 135	52	28	121	85.7
	Typhimurium 135a	28	3	13	833.3
	Typhimurium 9	38	44	136	-13.6
	Typhimurium 64	31	33	76	-6.1
	Birkenhead	26	23	76	13.0
Hunter PHU	Typhimurium 135a	7	0	0	
	Typhimurium 135	5	2	10	150.0
	Typhimurium 64	3	5	13	-40.0
	Typhimurium 9	3	2	3	50.0
	Typhimurium 44	2	0	0	
Queensland	Birkenhead	62	35	97	77.1
	Saintpaul	61	44	185	38.6
	Virchow 8	48	66	175	-27.3
	Typhimurium 135	42	57	127	-26.3
	Aberdeen	27	25	58	8.0
South Australia	Typhimurium 9	19	8	28	137.5
	Typhimurium 135	19	1	3	1800.0
	Typhimurium 126	15	0	4	
	Typhimurium 64	13	4	20	225.0
	Chester	9	6	18	50.0
Tasmania	Mississippi	56	36	73	55.6
	Typhimurium 9	3	7	22	-57.1
	Bovismorbificans	1	0	1	
	Enteriditis 1	1	1	1	0.0
	Meunchen	1	0	0	
Victoria ¹	Typhimurium 9	51	58	178	-12.1
	Typhimurium 135	43	23	68	87.0
	Typhimurium 4	37	7	38	428.6
	Virchow 34	16	37	60	-56.8
	Typhimurium 170	15	9	36	66.7

¹ Victorian data reported by date of receipt at the Victorian Department of Human Services.

South Australia recorded 77.3 per cent (17/22) of cases of Shiga toxin producing *E. Coli* (STEC) from OzFoodNet sites during the first quarter of 2001. The median age of these South Australian cases was 32.5 years (range 0-87 years), and the male to female ratio was 1:1. South Australian pathology laboratories intensively screen faeces containing blood for the presence of a gene that encodes for production of shiga toxin. Other States do not conduct similar intensive screening, and detecting toxin producing *E. coli* requires special culture media or the use of nucleic acid detection methods. These factors account for the relatively higher number of reports from South Australia.

The only other OzFoodNet sites to report STEC cases were Victoria (3 cases), and Queensland (2 cases). Despite the high number of cases reported from South Australia relative to other States, the total number reported in South Australia was decreased in the first quarter of 2001 compared to previous years.

There were 3 reports of haemolytic uraemic syndrome during the first quarter of 2001. Two of these were from

Queensland and one was from Victoria. *E. coli* O111 was identified in one of these cases, but no toxigenic *E. coli* were isolated from the other 2 cases.

Foodborne disease outbreaks

During the quarter, OzFoodNet sites reported 27 outbreaks that were potentially related to food. These outbreaks affected approximately 402 people and a total of 28 people were hospitalised (Table 2). Some of these outbreaks were associated with previously recognised high-risk foods or food preparations and should have been preventable. An example of this was a small family cluster of rudderfish diarrhoea that occurred in the Hunter area of New South Wales. Similar outbreaks of rudderfish diarrhoea have previously occurred in Victoria and South Australia.

During the quarter, the Queensland OzFoodNet site reported a small cluster of 3 cases of *Campylobacter* infection that was associated with a chicken kebab shop. This is the third small outbreak of *Campylobacter* associated with take-away kebab shops in the last 2 years. These infections are easily prevented providing proprietors cook

the meat thoroughly, monitor the internal temperature of the meat, and handle foods correctly.

There were 2 outbreaks of salmonellosis associated with raw or undercooked eggs served to residents of aged care facilities during the quarter. One of these outbreaks was due to *Salmonella* Heidelberg 1 (Queensland), and the other to *Salmonella* Typhimurium 135 (South Australia). There is a high risk of *Salmonella* infection associated with the consumption of raw eggs, which should not be served to elderly people.

Surveillance improvements and applied research

The work of OzFoodNet during the quarter revealed several areas where surveillance and control activities for foodborne disease need improvement. These have included differences between States in the case definition for listeriosis, and delays in communicating *Salmonella* typing information. OzFoodNet will work with stakeholders, such as State and Territory health departments, the Communicable Diseases Network Australia (CDNA) and industry groups, to effect improvements.

Table 2. Outbreaks reported by OzFoodNet sites, first quarter 2001

State	Month	Setting	Agent responsible	No. exposed	No. affected	Responsible vehicles
Vic	Jan	Function	S. Typhimurium 170	30	14	Beef product suspected
	Jan	Restaurant	Norwalk	12	9	Unknown
	Feb	Restaurant	Unknown	9	5	Unknown
	Feb	Restaurant	Norwalk	159	65	Possible sausages
	Feb	Restaurant	Unknown (suspected Norwalk)	56	24	Unknown
	Mar	Home	Ciguatera toxin	17	13	Coral Trout
	Mar	Hotel	Unknown	36	9	Possible cheese platter, mushroom risotto, Thai prawns or combination
	Mar	Restaurant	Unknown	18	14	Unknown
SA	Dec 00- Jan 01	Restaurant	S. Typhimurium 29		8	Consumption of prepared food at the restaurant
	Nov 00-Jan 20		Rotavirus in one faecal specimen		11	
	Mar		S. Typhimurium 126		9	Custard fruit tart
	Jan		S. Typhimurium 185		5	
	Mar	Aged Care	S. Typhimurium 135	38	17	Raw egg (served in mince & potato pie & rice pudding)
WA	Mar	Remote mine	S. Typhimurium untyped	~300	29	Probably bore water supply
	Feb-Mar	Detention centre	S. Wandsworth	~1000	50 ¹	Unknown
Tas	Feb		Unknown	10	9	Unknown
Qld	Jan	Home	Ciguatera	14	14	Spanish Mackerel
	Jan	Home	Ciguatera	2	2	Spotted Mackerel
	Jan	Restaurant	C. perfringens	25	9	Reef & Beef (possible sauce)
	Jan	Camp (Health Retreat)	Unknown	141	87	Drinking water
	Feb	Restaurant	Histamine Poisoning	4	4	Mahi Mahi
	Feb	Aged Care Facility	Unknown	Unknown	19	Unknown
	Feb	Wedding	Unknown	110	6	Unknown
	Feb	Aged Care Facility	S. Heidelberg PT 1	Unknown	12	Suspected raw egg drink
	Mar	Aged Care Facility	S. Muenchen	Unknown	3	Unknown
	Mar	Caterer	S. Virchow PT 8	Unknown	2	Chicken
	Mar	Take-away	C. jejuni	Unknown	3	Chicken kebabs

1. All cases in this outbreak were asymptomatic.

OzFoodNet epidemiologists in each site have developed plans for studies to further our knowledge about foodborne disease in Australia. These studies include:

- a national survey of diarrhoeal prevalence;
- four case control studies into risk factors for infections due to: *Campylobacter*, *Salmonella* Enteritidis and other locally-important serovars, *Listeria*, and STEC;
- a census of pathology laboratories for faecal testing practices;
- a register for foodborne outbreaks;
- laboratory sub-typing projects on *Campylobacter*;
- a retrospective review of foodborne disease across Australia; and
- enhanced surveillance through laboratories and general practitioners.

It is expected that these studies will commence within the next three months

OzFoodNet has only recently been established, but has developed into an extensive network of foodborne disease

specialists. This has the potential to benefit investigations of foodborne disease that cross State and Territory boundaries. OzFoodNet sites will provide an estimate of the incidence of foodborne disease in Australia, and will work to improve investigation and control efforts.

OzFoodNet represents a significant investment in applied research into foodborne disease. It is important for the results of this work to become incorporated into policy formulation. The results of analytical studies will provide a useful insight into the occurrences of foodborne disease in Australia.

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Erratum

The Table 1 headings of the OzFoodNet report in the August issue of *CDI* were incorrect. The corrected table is reprinted below. *CDI* apologises for this error.

Table 1. Top five serovar of *Salmonella* notified to OzFoodNet sites, January to March 2001, by date of onset

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