# OzFoodNet: enhancing foodborne disease surveillance across Australia: Quarterly report, July to September 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.

This third quarterly report of OzFoodNet summarises the incidence of foodborne disease in the 6 States of Australia and specific foodborne outbreaks identified between July and September 2001.

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Historical comparisons use notifications by date of onset. All other data are reported using the date the report was received by the health agency.

During the third quarter of 2001, Australia experienced an outbreak of *Salmonella* Stanley. The CDNA requested that OzFoodNet coordinate the national investigation, which identified contaminated peanuts from China as the food vehicle. The investigation also alerted health authorities in Canada and the United Kingdom to human cases of salmonellosis associated with the same brand of peanuts. *Salmonella* Typhimurium phage type 126 also emerged as a national problem during the quarter. In September 2001, OzFoodNet began a national survey to estimate the incidence of diarrhoeal disease, and a pilot of the national case control study into *Campylobacter* infections. During this quarter, the Australian Capital Territory joined OzFoodNet and the Northern Territory participated as an observer. Data are only included for the Territories where specified.

**Notifications in the third quarter**

During the third quarter 2001, OzFoodNet sites reported 4,014 notifications of campylobacteriosis, which represented a 25 per cent increase over the mean for the same quarter for the years 1998 to 2000.[1] The median age of cases ranged between 27 to 33 years old. All States reported that the male to female ratio of cases ranged from 1.1:1.0 to 1.4:1.0. There was one small outbreak of *Campylobacter* infection in Queensland that was associated with eating duck livers in a restaurant.

OzFoodNet sites reported a total of 1,081 cases of salmonellosis during the third quarter and identified the source of 4 *Salmonella* outbreaks. As for previous reports, Queensland reported a lower median age of reported cases (9.0 years old) compared to other States (range of medians: 17.0–23.1 years old). OzFoodNet sites reported that *Salmonella* Typhimurium (phage types 126, and 135), and S. Stanley were the most commonly notified infections during the quarter.

The major feature of *Salmonella* epidemiology during this quarter was the emergence of *Salmonella* Typhimurium phage type 126 in jurisdictions across Australia. The National Enteric Pathogen Surveillance Scheme reported that *S.* Typhimurium 126 was among the five most common infections in five different jurisdictions (Joan Powling, The University of Melbourne, 14 January 2002, personal communication) (Table 1). The South Australian Department of Human Services conducted a case control study of this serovar, which implicated chicken products. There were also concurrent epidemics of this organism in chicken flocks.

The Tasmanian OzFoodNet site continued to report that the most common serovar was *Salmonella* Mississippi, which is endemic in that State. Queensland reported that the distribution and rates of salmonellosis changed depending on geographical location, with higher rates in the north of the State. Jurisdictions reported an increase in the incidence of *Salmonella* Stanley between July and September, which was related to the national outbreak.

State health departments received 14 notifications of listeriosis during the third quarter of 2001, five of which were from Western Australia. Median ages for cases not associated with pregnancy ranged from 43 to 83 years. Tasmania reported one maternal-foetal infection during the quarter.

OzFoodNet sites reported seven cases of shiga toxin producing *E. coli* infections during the quarter; four were from South Australia and three from Queensland. Investigators did not identify any sources and all cases appeared sporadic. The median age of cases were 22 years in South Australia and 7 years in Queensland. The South Australian Health Department was notified of one case of haemolytic uraemic syndrome in a 21-year-old male on holiday from the United Kingdom.

There were 11 notifications of yersiniosis for the third quarter of 2001 (Figure). The Communicable Diseases Network Australia agreed to remove yersiniosis from the list of nationally notifiable disease, but most jurisdictions still receive reports. The decline in yersiniosis has occurred over several years and follows similar trends in other countries. OzFoodNet sites reported that during the quarter there were 86 cases of shigellosis, and 13 cases of typhoid.

*Foodborne disease outbreaks*

During the third quarter of 2001, OzFoodNet sites reported 17 outbreaks that were potentially related to food (Table 2). These outbreaks affected approximately 244 people, of whom 7 were hospitalised. There were no reported deaths from these outbreaks. Ten outbreaks were associated with meals served at restaurants, and three with takeaway food or catered functions.

There were three community-wide epidemics occurring during the quarter, two of which crossed State and Territory boundaries. One of these was a small outbreak of cryptosporidiosis associated with unpasteurised pets' milk that was not intended for human consumption.

**Table 1. Top five *Salmonella* infections reported to OzFoodNet sites, July to September 2001, by date of receipt of notification at the Health Department**

| OzFoodNet Site | Top 5 *Salmonella* infections | Number of cases | | | | |
|---|---|---|---|---|---|---|
| | | 3rd Qtr 2001 | 3rd Qtr 2000 | Year to date 2001 | Total 2000 | Ratio* |
| Queensland | S. Typhimurium 135 | 22 | 14 | 99 | 83 | 1.6 |
| | S. Virchow 8 | 22 | 18 | 145 | 153 | 1.2 |
| | S. Typhimurium 126 | 16 | 0 | 52 | 2 | |
| | S. Saintpaul | 15 | 23 | 121 | 157 | 0.7 |
| | S. Aberdeen | 13 | 2 | 69 | 42 | 6.5 |
| Hunter | S. Typhimurium 126 | 4 | 1 | 7 | 3 | 4.0 |
| | S. Typhimurium 170 | 2 | 0 | 5 | 1 | - |
| | S. Birkenhead* | 1 | 0 | 1 | 9 | - |
| | S. Bovismorbificans 30 | 1 | 0 | 2 | 0 | - |
| | S. Bredeney | 1 | 0 | 1 | 0 | - |
| New South Wales | S. Typhimurium 135 | 41 | 20 | 155 | 115 | 2.1 |
| | S. Typhimurium 9 | 18 | 8 | 107 | 138 | 2.3 |
| | S. Stanley | 14 | 1 | 30 | 8 | 14.0 |
| | S. Typhimurium 126 | 14 | 6 | 64 | 56 | 2.3 |
| | S. Enteritidis 4 | 12 | 5 | 20 | 19 | 2.4 |
| South Australia | S. Typhimurium 126 | 49 | 1 | 88 | 3 | 49.0 |
| | S. Typhimurium 108 | 6 | 2 | 12 | 8 | 3.0 |
| | S. Stanley | 5 | 0 | 0 | 6 | - |
| | S. Infantis | 4 | 1 | 8 | 12 | 4.0 |
| | S. Typhimurium 43 | 4 | 0 | 5 | 0 | - |
| | S. Typhimurium 12A | 4 | 1 | 11 | 9 | 4.0 |
| Tasmania | S. Mississippi | 4 | 0 | 90 | 69 | - |
| | S. Typhimurium 9 | 1 | 1 | 10 | 21 | 1.0 |
| | S. Typhimurium 135 | 1 | 1 | 2 | 5 | 1.0 |
| | S. Enteritidis 4 | 1 | 0 | 3 | 5 | - |
| | S. Infantis | 1 | 0 | 1 | 4 | - |
| Western Australia | S. Typhimurium 135 | 16 | 7 | 0 | 68 | 2.3 |
| | S. Chester | 10 | 1 | 0 | 12 | 10.0 |
| | S. Kiambu | 10 | 0 | 0 | 9 | - |
| | S. Stanley | 10 | 0 | 0 | 5 | - |
| | S. Typhimurium 4 | 7 | 0 | 0 | 1 | - |
| Victoria | S. Typhimurium 99 | 99 | 95 | 438 | 539 | 1.0 |
| | S. Typhimurium 9 | 16 | 9 | 33 | 35 | 1.8 |
| | S. Typhimurium 135 | 15 | 17 | 79 | 109 | 0.9 |
| | S. Stanley | 11 | 3 | 11 | 11 | 3.7 |
| | S. Typhimurium 104 | 12 | 0 | 19 | 0 | - |

* Ratio of cases for the third quarter 2001 to the third quarter 2000.

**Table 2. Outbreaks reported by OzFoodNet sites, July to September 2001**

| State | Month of Outbreak | Setting | Agent responsible | Number exposed | Number affected | Evidence* | Responsible vehicles |
|---|---|---|---|---|---|---|---|
| Australia | Jul—Sep | Community | *Salmonella* Stanley | Unknown | 27 | D, M | Imported dried peanuts |
| ACT | Sep | Conference | Probably Norwalk virus | 115 | 25 | D | Suspected salad |
| Hunter | Jul | Restaurant | Unknown | 25 | 10 | D | Suspected honey chicken |
| | Jul | Fast food outlet | Unknown | Unknown | 2 | D | Suspected takeaway chicken |
| Qld | Jul | Restaurant | *Clostridium perfringens* | 15 | 8 | S | Beef curry |
| | Jul | Restaurant | *Clostridium perfringens* | 7 | 7 | D | Unknown |
| | Jul | Restaurant | *Campylobacter* | Unknown | 2 | D, M | Duck liver |
| | Aug | Community | Cryptosporidiosis | Unknown | 6 | S, M | Unpasteurised pets milk (cow) |
| | Jul | Functions x 2 | Norwalk virus | 90 | 56 | S | Salads, steak sandwiches |
| SA | Jun | Household | *S.*Typhimurium 135a | n/a | 2 | S, M | Homemade italian sausage |
| Vic | Jul | Hotel restaurant | *S.* Typhimurium 99 | 91+ | 19 | S | Lamb's fry |
| | Aug | Restaurant | Butterfish diarrhoea | 15 | 4 | D | Escolar |
| | Aug | Restaurant | *S.* Typhimurium 99 | 316+ | 50 | S | Eye fillet meal |
| | Aug | School camp | Unknown (suspect *Campylobacter*) | 27 | 6 | D | Suspected unpasteurised milk |
| | Sep | Restaurant | Unknown | 17 | 7 | D | Unknown |
| WA | Jul | Restaurant | Unknown | 11 | 6 | D | Suspected undercooked turkey |
| | Sep | Restaurant | Unknown | 10 | 7 | D | None identified |

*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.

The Communicable Disease Network Australia requested that OzFoodNet coordinate the national investigation into an outbreak of *Salmonella* Stanley amongst people of Asian ethnicity. OzFoodNet held national teleconferences of State and Territory investigators to generate hypotheses about the reasons for this national increase. The Victorian Department of Human Services and the Microbiological Diagnostic Unit (MDU) sampled dried peanuts originating from China after 2 cases gave a history of consumption during interviews. MDU identified *Salmonella* Stanley in the peanuts with a molecular pattern that was indistinguishable from patient isolates. The Australia New Zealand Food Authority coordinated a nation-wide recall of the contaminated product. OzFoodNet sites reported 27 cases of salmonellosis associated with these peanuts. The Australian investigation triggered product recalls and outbreak investigations in Canada and the United Kingdom.[1]

The South Australian Department of Human Services continued investigations into a State-wide outbreak of *Salmonella* Typhimurium phage type 126. Since reporting this outbreak in the previous OzFoodNet report other jurisdictions around Australia have identified cases of this emerging infection.[2] South Australian investigators completed a case-control study that showed that illness was associated with consumption of chicken. The Department also identified corroborating evidence for this link, including descriptive epidemiology and microbiological evidence.

This outbreak is one of a number in 2001 that were possibly associated with chicken.[2,3,4] It is concerning that cases of this serovar are now occurring in other Australian States and Territories. It once again raises the difficult question about the role that contaminated chicken plays in the epidemiology of *Salmonella* and *Campylobacter* infections in humans in Australia.

*Applied research*

In September 2001, the Tasmanian OzFoodNet Site piloted the national *Campylobacter* case control study. This study aims to examine the risk factors for infection with sporadic *Campylobacter* infection. *Campylobacter* is the most common enteric disease reported to health agencies, and is a cause of significant morbidity in Australia. This study will recruit approximately 1,200 cases and 1,200 controls across Australia during the next 12 months. The case control study will use the results of a comparison of 8 *Campylobacter* typing methods that is being coordinated by the OzFoodNet-Hunter Site and Hunter Area Pathology.

During this quarter, the National Centre for Epidemiology and Population Health started the national OzFoodNet gastroenteritis survey. The aim of this cross-sectional survey is to measure the prevalence of gastrointestinal illness across all States and Territories of Australia. Interviewers use Computer Assisted Telephone Interviews (CATI) to ask respondents about demographic details and whether they have experienced an episode of gastrointestinal disease in the last month. If participants mention that they have had an episode of gastroenteritis, interviewers record symptom details and the patients' use of health services. This study includes residents of the Northern Territory where many people living in remote areas would not have telephone. Despite this, in the month of September Northern Territory residents reported the highest crude proportion of people experiencing gastroenteritis in the previous month, and South Australian residents reported the lowest (Table 3).

The population survey covers all States and Territories and will run for a year. It will provide important information about the burden of gastrointestinal disease and will supplement information that States and Territories collect about the causes of foodborne illness. OzFoodNet aims to combine these data to learn more about the causes and burden of foodborne illness in Australia.

## *References*


1. Kirk M for the Outbreak Investigation Team. *Salmonella enterica* serotype Stanley in peanuts. Promed Mail (www.promedmail.org), 11 September 2001, Archive Number: 20010911.2189
2. The OzFoodNet Working Party. OzFoodNet: Enhancing foodborne disease across Australia: Quarterly report April to June 2001 *Comm Dis Intell* 2001;25:270-272.
3. The OzFoodNet Working Party. OzFoodNet: Enhancing foodborne disease across Australia: Quarterly report January to March 2001 *Comm Dis Intell* 2001; 25:103-106.
4. Tribe I, Cameron AS. *Salmonella* Zanzibar in rural South Australia. *Comm Dis Intell* 2001;25:102.

**Figure: Notifications of yersiniosis in OzFoodNet sites, 1998 to September 2001, by month of offset.**

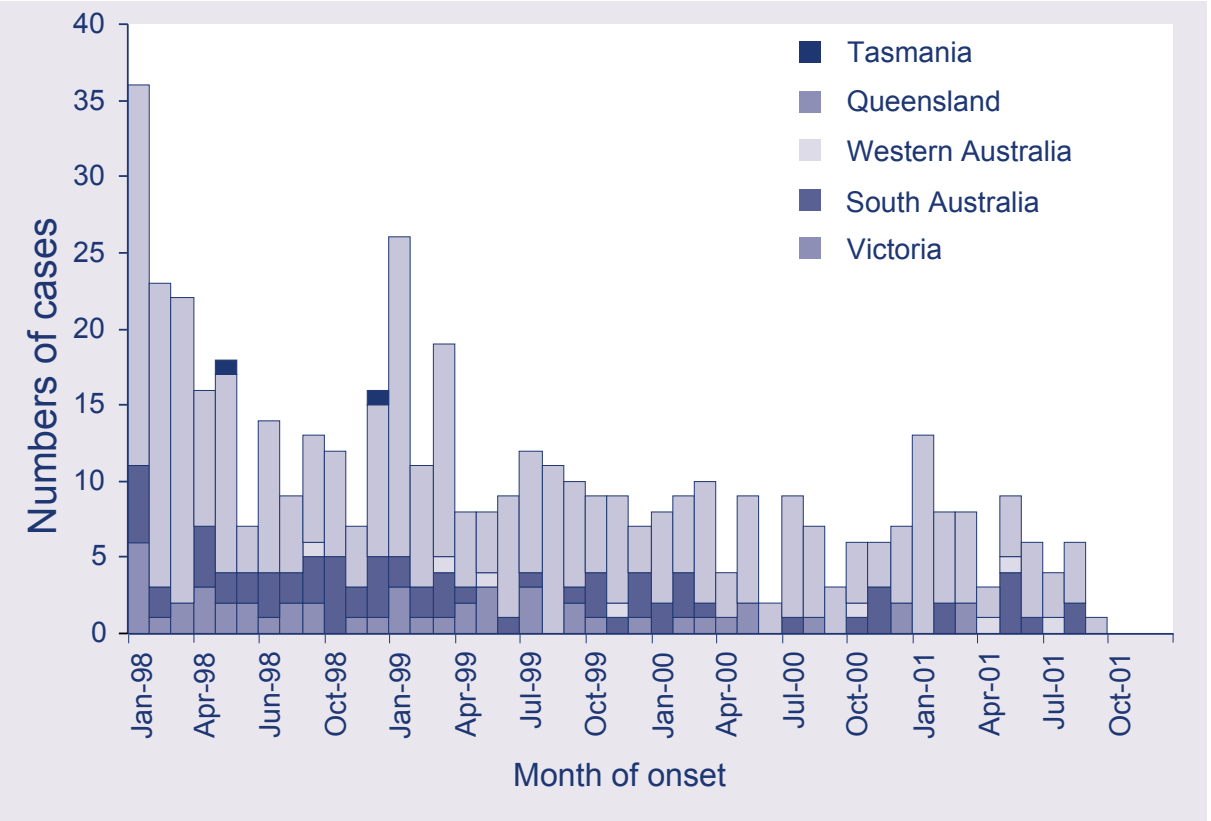


**Table 3. Unweighted results of the national OzFoodNet gastroenteritis survey during September 2001 showing the proportion of respondents reporting an episode of gastroenteritis in the previous month, and the response rates by jurisdiction**

| State or Territory | Number of respondents | Proportion with gastroenteritis (%) | Response rate (%) |
|---|---|---|---|
| New South Wales* | 110 | 9.3 | 64 |
| Victoria | 93 | 11.8 | 64 |
| Tasmania | 97 | 9.3 | 71 |
| Queensland | 89 | 14.6 | 62 |
| South Australia | 90 | 8.8 | 68 |
| Western Australia | 83 | 10.8 | 65 |
| Northern Territory | 68 | 23.5 | 63 |

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