

Quarterly report

OzFoodNet QUARTERLY REPORT, 1 APRIL TO 30 JUNE 2013

The OzFoodNet Working Group

Introduction

The Australian Government Department of Health established the OzFoodNet network in 2000 to collaborate nationally to investigate foodborne disease. In each Australian state and territory OzFoodNet epidemiologists investigate outbreaks of enteric infection. 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, that occurred in Australia between 1 April and 30 June 2013.

Data were received from OzFoodNet epidemiologists in all Australian states and territories. The data in this report are provisional and subject to change.

During the 2nd quarter of 2013, OzFoodNet sites reported 426 outbreaks of enteric illness, including those transmitted by contaminated food. Outbreaks of gastroenteritis are often not reported to health agencies or the reports may be delayed, meaning that these figures under-represent the true burden of enteric disease outbreaks. In total, these outbreaks affected 7,891 people, of whom 448 were hospitalised. There were 23 deaths reported during these outbreaks. The majority of outbreaks (74%, n=315) were due to person-to-person transmission (Table 1), with 53% (166/315) of these occurring in residential aged care facilities.

Foodborne and suspected foodborne disease outbreaks

There were 30 outbreaks during this quarter where consumption of contaminated food was suspected or confirmed as being the primary mode of transmission (Table 2). These outbreaks affected 1,089 people and resulted in 55 hospitalisations. There was 1 death reported during these outbreaks. This compares with 34 outbreaks in the 1st quarter of 2013¹ and a 5-year mean of 31 outbreaks for the 2nd quarter between 2008 and 2012. A limitation of the outbreak data provided by OzFoodNet sites for this report was the potential for variation in the categorisation of the features of outbreaks depending on circumstances and investigator interpreta-

tion. Changes in the number of foodborne outbreaks should be interpreted with caution due to the small number each quarter.

Salmonella Typhimurium was identified as the aetiological agent in 9 (30%) foodborne or suspected foodborne outbreaks during this quarter. The aetiological agent in the remaining outbreaks included 2 (6.5%) each due to norovirus and *Listeria monocytogenes* and 1 (3%) each due to *Campylobacter*, hepatitis A, *S. Infantis*, *S. Zanzibar*, histamine fish poisoning and a suspected bacterial toxin. In 10 outbreaks (33%), the aetiological agent was unknown.

Twelve outbreaks (40% of foodborne or suspected foodborne outbreaks) reported in this quarter were associated with food prepared in restaurants (Table 3).

To investigate these outbreaks, sites conducted 2 cohort studies, 3 case control studies and collected descriptive case series data for 17 investigations, while for 8 outbreaks no individual patient data were collected. The evidence used to implicate food vehicles included analytical evidence in 1 outbreak, microbiological evidence in 6 outbreaks and both analytical and microbiological in 2 outbreaks. Descriptive evidence alone was obtained for 21 outbreak investigations.

Table 1: Outbreaks and clusters of gastrointestinal illness reported by OzFoodNet, 1 April to 30 June 2013, by mode of transmission

Transmission mode	Number of outbreaks and clusters	Per cent of total
Foodborne and suspected foodborne	30	7
Waterborne and suspected waterborne	18	4.2
Person-to-person	315	73.9
Unknown (<i>Salmonella</i> cluster)	12	2.8
Unknown (Other pathogen cluster)	5	1.2
Unknown	46	10.8

* Percentages do not add up due to rounding.

Table 2: Outbreaks of foodborne or suspected foodborne disease reported by OzFoodNet sites, 1 April to 30 June 2013 (n=30)

State or territory	Month*	Setting prepared	Agent responsible	Number affected	Hospitalised	Evidence	Responsible vehicles
MJO	Apr	Primary produce	Norovirus	525	1	M	Oysters
ACT	May	Restaurant	Suspected bacterial toxin(s)	125	0	AM	Curried prawns, Caesar salad
ACT	May	Restaurant	<i>Salmonella</i> Typhimurium PT 170/108, MLVA profile 03-09-07-13-523	161	17	AM	Potato salad containing raw egg mayonnaise
ACT	May	Takeaway	Suspected bacterial toxin	3	0	D	Chicken kebab
NSW	Apr	Commercial caterer	Unknown	10	0	D	Unknown
NSW	Apr	Commercially manufactured	<i>Listeria monocytogenes</i> PFGE 4A:4:1, ST 1/2b, 3b, 7, BT 223, MLVA profile 04-17-16-05-03-11-14-00-16	3	3	M	Profiteroles
NSW	Apr	Private residence	<i>S. Typhimurium</i> PT 135a MLVA profile 03-13-11-9-523	3	3	D	Unknown
NSW	Apr	Restaurant	<i>S. Typhimurium</i> PT 135 MLVA profile 03-17-9-12-523	16	3	D	Unknown
NSW	Apr	Restaurant	Unknown	3	0	D	Chicken burger
NSW	Apr	Restaurant	Unknown	4	0	D	Beef and Guinness pie
NSW	Apr	Restaurant	Unknown	6	0	D	Unknown
NSW	Apr	Restaurant	Unknown	15	0	D	Unknown
NSW	Apr	Unknown	<i>S. Zanzibar</i>	5	4	D	Unknown
NSW	Jun	Private residence	<i>S. Typhimurium</i> PT 9 MLVA profile 03-23-23-11-523	17	5	D	Béarnaise sauce
NSW	Jun	Private residence	Unknown	3	0	D	Unknown
NSW	Jun	Restaurant	Unknown	5	0	D	Unknown
NSW	Jun	Restaurant	Unknown	5	0	D	Unknown
NT	May	Fair/festival/mobile service	<i>S. Typhimurium</i> PT 170/108	5	1	D	Gravy
SA	Jun	School	Campylobacter	6	0	D	Honey soy chicken wings
Vic.	Apr	Bakery	<i>S. Typhimurium</i> PT 170/108	21	1	M	Cake
Vic.	Apr	Private residence	<i>S. Typhimurium</i> PT 64	3	1	D	Frittata
Vic.	May	Military	Norovirus	85	0	A	Unknown
Vic.	May	Restaurant	Histamine	3	0	D	Tuna
Vic.	May	Restaurant	<i>S. Typhimurium</i> PT 44	36	7	M	Tartare sauce/aioli (raw eggs)
Vic.	May	Restaurant	Unknown	3	0	D	Suspected foie gras parfait
Vic.	Jun	Private residence	<i>S. Typhimurium</i> PT 9	2	0	M	Raw egg mayonnaise
Vic.	Jun	Private residence	Unknown	3	1	D	Aioli with raw eggs

Table 2 continued: Outbreaks of foodborne or suspected foodborne disease reported by OzFoodNet sites, 1 April to 30 June 2013 (n=30)

State or territory	Month*	Setting prepared	Agent responsible	Number affected	Hospitalised	Evidence	Responsible vehicles
WA	Apr	Takeaway	S. Infantis	6	1	M	Multiple foods
WA	May	Commercially manufactured	L. monocytogenes	3	3	D	Pre-prepared frozen meals
WA	May	Private residence	Hepatitis A	4	4	D	Kava
Total				1,089	55		

* Month of outbreak is the month of onset of first case or month of notification/investigation of the outbreak.

A Analytical epidemiological association between illness and 1 or more foods.

BT Binary type.

D Descriptive evidence implicating the suspected vehicle or suggesting foodborne transmission.

M Microbiological confirmation of agent in the suspected vehicle and cases.

MJO Multi-jurisdictional outbreak

MLVA Multi-locus variable number tandem repeat analysis.

PFGE Pulsed-field gel electrophoresis.

PT Phage type.

ST Serotype.

The following jurisdictional summaries describe key outbreaks and public health actions that occurred during the quarter.

Table 3: Outbreaks of foodborne or suspected foodborne disease reported by OzFoodNet, 1 April to 30 June 2013, by food preparation setting

Food preparation setting	Outbreaks
Restaurant	12
Private residence	7
Commercially manufactured	2
Takeaway	2
Bakery	1
Commercial caterer	1
Fair/festival/mobile service	1
Military	1
Primary produce	1
School	1
Unknown	1
Total	30

Australian Capital Territory

There were 3 reported outbreaks of foodborne or suspected foodborne illness during the quarter. The aetiological agents were identified as *S. Typhimurium* phage type (PT) 170/108* multi-locus variable number tandem repeat analysis (MLVA) profile† 03-09-07-13-523 in 1 outbreak and suspected bacterial toxins in the other 2 outbreaks.

Description of key outbreaks

An outbreak was detected in May following multiple emergency department presentations for gastroenteritis. A local restaurant was confirmed as the source of exposure. A case control study was undertaken with 161 case and 32 control interviews being conducted. There were 79 laboratory-confirmed *Salmonella* infections and 17 hospitalisations. The case control study showed a number of different food vehicles to have a significant association with illness but only potato salad with a raw egg mayonnaise remained significantly

* Classification of this organism differs between laboratories, with the Microbiological Diagnostic Unit using PT 170 to classify this type of *S. Typhimurium* and the Institute of Medical and Veterinary Science using PT 108 due to a difference in the interpretation of a phenotypic characteristic.

† MLVA profiles are reported using the Australian coding convention agreed at a MLVA typing harmonisation meeting in Sydney in November 2011.

associated with illness after multivariate analysis (adjusted odds ratio [OR] 7.79, 95% confidence interval [CI] 2.2-27.6, $P=0.001$). *S. Typhimurium* PT 170/108, MLVA profile 03-09-07-13-523 was isolated from raw egg mayonnaise recovered from the premises.

A second outbreak was identified through complaints from members of the public following a buffet luncheon. A paper describing this outbreak is published in this issue of *Communicable Diseases Intelligence*.² A cohort analysis study was undertaken with 225/303 (74%) attendees being interviewed. Some 56% (125/225) reported illness, with 2 stools being collected but both tested negative for bacteria, virus and parasites. Multivariate analysis showed illness to be significantly associated with consuming curried prawns and Caesar salad. An environmental inspection highlighted issues relating to food storage practices, a lack of hand washing facilities, and a need for substantial cleaning and repairs to the kitchen, with cross contamination and temperature abuse likely contributors to the outbreak. Samples of the prawns and Caesar salad were not available for laboratory testing; however staphylococcal enterotoxin and *Bacillus cereus* diarrhoeal enterotoxin were detected in samples of roast chicken and parboiled chat potatoes. The suspected cause of the outbreak was a bacterial toxin(s).

New South Wales

There were 13 reported outbreaks of foodborne or suspected foodborne illness during the quarter. The aetiological agents were identified in five of these outbreaks: three due to *S. Typhimurium* and one each due to *S. Zanzibar* and *Listeria monocytogenes*.

Description of key outbreak

An outbreak of *L. monocytogenes* infection was detected following the notification of 3 cases within 8 days. All 3 cases were inpatients in hospitals within the same local health district during their incubation period. The specimens were indistinguishable by binary type (BT) 223, serotype (ST) 1/2b, 3b, 7, pulsed-field gel electrophoresis (PFGE) type 4A:4:1 and MLVA profile 04-17-16-05-03-11-14-00-16, indicating a common source. A public health investigation determined that the 3 cases had all consumed profiteroles from the same external commercial supplier on the same day. Multiple environmental swabs from the supplier's premises tested positive for *L. monocytogenes*, which were indistinguishable from that found in the cases. There was 1 death associated with this outbreak.

An outbreak of gastrointestinal illness that was associated with a large multi-jurisdictional outbreak of norovirus is discussed under the multi-jurisdictional investigations section of this report.

Northern Territory

There was 1 reported outbreak of foodborne or suspected foodborne illness affecting 5 people during the quarter. The aetiological agent was identified as *S. Typhimurium* PT 170/108.

Description of key outbreak

An outbreak of gastroenteritis affecting 5 people was detected after routine follow up of sporadic cases of salmonellosis. All 5 cases had eaten a meal of meat or chips and gravy at a market stall 2 to 3 days prior to onset of symptoms. All 5 cases tested positive for *S. Typhimurium* PT 170/108. An environmental health inspection of cooking facilities and processes identified inadequate temperature control and monitoring as a likely contributing factor to contamination.

Queensland

There were no reported outbreaks of foodborne or suspected foodborne illness during the quarter. However, an outbreak of gastrointestinal illness that was associated with a large multi-jurisdictional outbreak of norovirus is discussed under the multi-jurisdictional investigations section of this report.

South Australia

There was 1 reported outbreak of foodborne or suspected foodborne illness during the quarter. The aetiological agent was identified as *Campylobacter*.

Description of key outbreak

A cluster of gastrointestinal illness was identified at a boarding school. Six people experienced gastrointestinal illness and two were confirmed with campylobacteriosis. Interviews were conducted and several common meals were identified. An environmental investigation identified a faulty oven that was not sufficiently cooking food on the bottom shelf. There were reports of undercooked honey soy chicken wings being returned to the kitchen. All 6 people ate the chicken wings meal and became ill 2 to 4 days later.

Tasmania

There were no reported outbreaks of foodborne or suspected foodborne illness during the quarter. However, an outbreak of gastrointestinal illness

that was associated with a large multi-jurisdictional outbreak of norovirus is discussed under the multi-jurisdictional investigations section of this report.

Victoria

There were 8 reported outbreaks of foodborne or suspected foodborne illness during the quarter. The aetiological agents were identified in six of these outbreaks: four were due to *S. Typhimurium* and one each due to norovirus and histamine.

Description of key outbreaks

An outbreak of gastroenteritis affecting several family members who had attended an engagement party was notified by a doctor from a Melbourne metropolitan hospital. The party was held at a restaurant and an engagement cake made at a bakery was brought to the restaurant by the family. There were 60 guests at the party and 29 were interviewed. Twenty-one guests became ill after the party and *S. Typhimurium* PT 170/108 was isolated from the faecal specimens of 5 cases as well as a sample of leftover engagement cake. It is suspected that the cake was originally contaminated at the bakery where whipped cream decoration on the cake may have been cross contaminated through inadequately sanitised mixing equipment. Inadequate temperature control of the cake after purchase would have permitted bacterial growth.

An outbreak was identified after a doctor notified a case with salmonellosis and commented that several other members from a group of 20, who had dined at a hotel restaurant together, were ill. An additional notification of a patient, who dined at the same restaurant, was received on the same day from another doctor. Interviews were conducted with the initial group of 20 and the single notified case. Active case finding was also conducted through a booking list provided by the restaurant and through notified cases of *Salmonella* residing in the geographical area surrounding the restaurant. A total of 36 cases were identified in restaurant patrons and 16 of these cases had *S. Typhimurium* PT 44 isolated from a faecal specimen. *S. Typhimurium* PT 44 was isolated from a sample of tartare sauce made with raw eggs that were collected from the restaurant 6 days after the last case reported eating there. A review of the process for making the mayonnaise highlighted deficiencies with cleaning and sanitising of blending equipment. *S. Typhimurium* PT 44 was isolated from samples collected by the Department of Environment and Primary Industries during an on-farm investigation.

An outbreak of gastrointestinal illness that was associated with a large multi-jurisdictional outbreak of norovirus is discussed under the multi-jurisdictional investigations section of this report.

Western Australia

There were 3 reported outbreaks of foodborne or suspected foodborne illness during the quarter. The aetiological agents were identified in the outbreaks were *L. monocytogenes*, *S. Infantis* and hepatitis A.

Description of key outbreaks

The Goldfields Public Health Unit investigated 4 cases of hepatitis A that were reported over a short period of time. Investigation found the index case had travelled to Fiji during their incubation period. A paper previously published in *Communicable Diseases Intelligence* describes this outbreak.³

While infectious, the index case prepared kava[‡] for a group of friends in the Goldfields area, two of whom subsequently developed hepatitis A. No other common exposure was identified. A child of one of the cases also developed hepatitis A, despite having received a hepatitis A vaccination more than 2 weeks previously. All 4 cases were typed at the Victorian Infectious Diseases Reference Laboratory as hepatitis A genotype IA, with 100% homology.

An outbreak of *L. monocytogenes* infection was detected following notification of 3 elderly people who had all purchased frozen meals from the same home delivery service. Two cases had the same PFGE type, which was indistinguishable from that of a 2011 food isolate from the implicated company. The 3rd case had a different PFGE type. A roast beef meal sample collected during an assessment of the food was positive for *L. monocytogenes* of a different PFGE type to that of the cases. No significant food safety issues were identified during the assessment.

Multi-jurisdictional investigations

Norovirus associated with the consumption of oysters from Tasmania

OzFoodNet commenced a multi-jurisdictional outbreak investigation on 3 April 2013. Tasmanian oysters associated with a gastroenteritis outbreak were confirmed to have been distributed to several

other states and suspected cases had been identified in Victoria and New South Wales. A report describing this outbreak was published previously.⁴

There were 525 cases associated with this outbreak. This included 306 cases in Tasmania; 209 in Victoria; eight in New South Wales; and two in Queensland. One case was hospitalised. Of the 10 human samples sent for testing, 8 faecal specimens had norovirus detected and 1 sample also had *Campylobacter* detected.

An environmental survey of the area where the oyster lease is located identified a leaking underwater sewerage pipe as the suspected source of the contamination. The pipe was crimped by the sewerage authority and the leak stopped.

The operator of the oyster lease was advised to withdraw product from retail sale. There was no consumer-level food recall because of business closures over the Easter period and the short shelf life of the product. Urgent media releases were issued and Tasmanian suppliers were instructed to immediately withdraw the remaining product from sale.

Cluster investigations

During the quarter, OzFoodNet sites conducted investigations into 17 clusters of infection for which no common food vehicle or source of infection could be identified. Aetiological agents identified during the investigations included 7 *S. Typhimurium*; 2 Shiga toxin-producing *Escherichia coli* and *S. Virchow*; and 1 each of *Cryptosporidium*; *L. monocytogenes*; *S. Infantis*; *S. Mbandaka*, *S. Montevideo* and *S. Havana* (investigated in a single cluster); *S. Potsdam* and *S. Stanley*.

Comments

The majority of reported outbreaks of gastrointestinal illness in Australia are due to person-to-person transmission, and in this quarter 74% of outbreaks (n=315) were transmitted via this route. The number of foodborne outbreaks this quarter (n=30) compares with the previous quarter (n=34) and is consistent with the 5-year mean (n=31, 2008-2012). Of the 20 foodborne outbreaks for which a source of the outbreak was identified, 6 (33%) were associated with the consumption of raw or minimally cooked egg dishes.

Salmonella species were identified as the aetiological agent in 11 (37%) of the 30 foodborne or suspected foodborne outbreaks during the quarter (Table 2), with 9 outbreaks being due to *S. Typhimurium*. Of

‡ Kava is a traditional Fijian drink consumed during ceremonial and cultural practices and recreational socialising.

the 11 outbreaks where *Salmonella* was implicated as the responsible agent, 5 (45%) were associated with dishes containing raw or minimally cooked eggs.

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