

## Quarterly report

# OzFOODNET QUARTERLY REPORT, 1 JULY TO 30 SEPTEMBER 2014

The OzFoodNet Working Group

## Introduction

The Australian Government Department of Health established the OzFoodNet network in 2000 to nationally collaborate the investigation of foodborne disease. In each Australian state and territory, OzFoodNet epidemiologists investigate outbreaks of enteric infection. In addition, OzFoodNet conducts studies on the burden of illness and coordinates national investigations into outbreaks of foodborne disease. This quarterly report documents investigations of foodborne or suspected foodborne disease outbreaks, as well as clusters of disease potentially related to food. These investigations commenced in Australia between 1 July and 30 September 2014.

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 3rd quarter of 2014, OzFoodNet sites reported 343 outbreaks of enteric illness, including those transmitted by contaminated food. Outbreaks of gastroenteritis are often not reported to health authorities or reporting may be delayed, which results in current figures under-representing the true burden of enteric disease outbreaks within Australia. In total, these outbreaks affected 6,204 people, of whom 123 were hospitalised, and 28 deaths were reported during this quarter. This

represents a decrease in both the number affected and the number of deaths, compared with the 5-year average for the 3rd quarter (11,581 affected, 295 hospitalised and 41 deaths) between 2009 and 2013. The majority of reported outbreaks of gastrointestinal illness in Australia are due to person-to-person transmission and in this quarter 71% (n=242) were transmitted via this route (Table 1). This was lower by number but the same proportion as the same quarter in 2013 (71%, n=305) and was lower than the 5-year mean for the 3rd quarter for 2009 to 2013 (80%, n=481). Furthermore, of the reported person-to-person outbreaks this quarter, 57% (194 outbreaks) occurred in aged care facilities and 21% (72 outbreaks) occurred in child care facilities.

## Foodborne and suspected foodborne disease outbreaks

There were 25 outbreaks during this quarter where consumption of contaminated food was suspected or confirmed as being the primary mode of transmission (Appendix). These outbreaks affected 253 people and resulted in 23 hospitalisations. No deaths were reported as a result of these outbreaks. This was a decrease from the number of foodborne outbreaks that were reported in the 2nd quarter of 2014 (n=39) and lower than the 5-year mean for the 3rd quarter between 2009 and 2013 (n=31).

**Table 1: Outbreaks and clusters of gastrointestinal illness and number ill reported by OzFoodNet, Australia, 1 July to 30 September 2014, by mode of transmission**

Transmission mode	Number of outbreaks and clusters	Per cent of total outbreaks and clusters*	Number ill
Foodborne and suspected foodborne	25	7	253
Suspected waterborne	0	0	0
Person-to-person	242	71	5,292
Unknown (Salmonella cluster)	11	3	59
Unknown (Other pathogen cluster)	4	<1	7
Unknown	61	19	593
Total	343	100	6,204

\* Percentages may not add to 100 due to rounding.

The data within this report, provided by OzFoodNet sites, has associated limitations, including the potential variation in categorisation of features of outbreaks, depending on varied circumstances and investigator interpretation. Changes in the number of foodborne disease outbreaks should be interpreted with caution due to the small number each quarter.

*Salmonella* Typhimurium was identified as the aetiological agent in 40% (10/25) of foodborne or suspected foodborne disease outbreaks during this quarter (Appendix). This equates to a slightly lower proportion than the same quarter in 2013 (41%, 11/27). The aetiological agents responsible for the remaining outbreaks during this quarter included: ciguatoxin (3 outbreaks); *Clostridium perfringens* (2 outbreaks); and histamine, *Salmonella* Saintpaul, monophasic *Salmonella* Typhimurium, and *Shigella sonnei* biotype (BT) G (1 outbreak each). The remaining 6 outbreaks were of unknown aetiology.

Ten (40%) foodborne or suspected foodborne disease outbreaks reported this quarter were associated with food prepared in restaurants (Table 2), which was lower than the 5-year mean during the 3rd quarter between 2009 and 2013 (46%).

To investigate these outbreaks, sites conducted 2 cohort studies and collected descriptive case series data for 13 investigations; while for 10 outbreaks no individual patient data were collected. The evidence used to implicate food vehicles included analytical evidence in 2 outbreaks, microbiological evidence in 1 outbreak, and descriptive evidence in 22 outbreaks.

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

### Australian Capital Territory

There were no outbreaks of foodborne or suspected foodborne illness reported in the Australian Capital Territory during this quarter.

### New South Wales

There were 11 outbreaks of foodborne or suspected foodborne illness reported in New South Wales during this quarter. The aetiological agents were identified as *Salmonella* Typhimurium for 4 outbreaks and histamine for 1 outbreak. No aetiological agent was identified for the remaining 6 outbreaks.

#### Description of key outbreak

An outbreak of acute gastrointestinal illness was investigated at a resort in September. Twenty cases were identified and 14 of these were confirmed as *S. Typhimurium*, with 13 having multi-locus variable number tandem repeat analysis (MLVA) pattern 03-12-11-14-523 and 1 having MLVA 03-12-11-15-523. Onset dates ranged from 20–22 September 2014 and 5 of the 20 cases were hospitalised. The median age of cases was 18 years (range 2–64 years) and 75% of cases were identified as male. A cohort study was conducted involving several groups who ate at the resort. This involved interviewing 16 cases and 44 well individuals. The study found that chocolate milk served with the breakfast buffet on 20 and 21 September was significantly associated with illness (consumed by 15/16 cases and 1/30 well individuals; relative risk (RR) 28.6, 95% confidence interval (CI) 4.1–198.0,  $P < 0.005$ ). Other foods found to be potentially associated with illness were various cereals (consumed by 6/8 cases and 12/38 well individuals; RR 4.7, 95% CI 1.1–20.7,  $P = 0.04$ ) and beef sausages (consumed by 5/9 cases and 1/23 well individuals; RR 5.6, 95% CI 2.1–14.9,  $P < 0.005$ ).

**Table 2: Outbreaks of foodborne or suspected foodborne disease and number ill reported by OzFoodNet, Australia, 1 July to 30 September 2014, by food preparation setting**

Food preparation setting	Outbreaks	Per cent of foodborne outbreaks	Number ill
Restaurant	10	40	75
Aged care facility	4	16	42
Bakery	3	12	50
Primary produce	3	12	13
Camp	1	4	30
Private residence	1	4	18
Takeaway	1	4	13
Fair, festival, other temporary/mobile service	1	4	7
School	1	4	5
Total	25	100	253

There were no egg related dishes significantly associated with illness. The outbreak investigation found that a commercial stick blender used to prepare the chocolate milk was also used for blending raw eggs and raw chicken products. The blender was swabbed on 2 occasions; however laboratory testing did not detect *Salmonella* spp. Although the source of the outbreak was not determined, there was strong epidemiological evidence implicating cross-contaminated chocolate milk as the source of this outbreak.

### Northern Territory

There were 2 outbreaks of foodborne or suspected foodborne illness reported in the Northern Territory during this quarter. *Shigella sonnei* biotype (BT) G was identified as the aetiological agent for 1 outbreak and *Salmonella* Saintpaul was the aetiological agent responsible for the 2nd outbreak.

#### Description of key outbreak

An outbreak of salmonellosis was investigated in the Northern Territory in August affecting 30 of 67 people who attended a school camp in a remote area. Four children had laboratory confirmed *S. Saintpaul*, but no cases were reported to have been hospitalised. Earlier in the year this same camp was associated with a cluster of 7 cases of *S. Saintpaul*, which implicated different schools. Following a cohort study, a batch of cordial was identified as being likely contaminated (either ice, water or the container) and was subsequently defined as the source of the outbreak (RR 3.8, 95% CI 1.3-11.0,  $P < 0.005$ ). The camp remained closed until major renovations were completed.

### Queensland

There were 5 outbreaks of foodborne or suspected foodborne illness reported in Queensland during this quarter. The aetiological agents were identified as *S. Typhimurium* for 2 outbreaks and ciguatera toxin for 3 outbreaks.

#### Description of key outbreak

An outbreak of *S. Typhimurium* (MLVA 03-12-12-09-524) was reported in September affecting 12 individuals (10 laboratory-confirmed and 2 epidemiologically-linked) in a metropolitan area. Specimen collection dates were between 19 and 25 September and interviews concluded that all cases had reported eating egg-based meals from the same café prior to onset of their symptoms. Eggs Benedict (containing hollandaise sauce) was consumed by 9 of the 12 cases, potato rosti

was consumed by 7 of the 12, and bacon and eggs were consumed by 2 of the 12 cases. The potato rosti consisted of a ball of potato that was bound with egg and then deep fried prior to consumption. Investigations identified that this particular food item was prepared earlier, stored frozen and cooked to order, raising concerns as to whether an adequate temperature was being achieved in the centre of the rosti during the cooking step. Multiple food samples and environmental swabs of food preparation surfaces were collected during the investigation; however all samples were negative for *Salmonella*. A number of hygiene issues with potential for cross-contamination were identified during environmental health investigations and were subsequently rectified by the café.

### South Australia

There were 3 outbreaks of foodborne or suspected foodborne illness reported in South Australia during this quarter. The aetiological agents were identified as *S. Typhimurium* in 2 of the outbreaks and monophasic *S. Typhimurium* in 1 outbreak.

#### Description of key outbreak

An outbreak of gastroenteritis was investigated in September in metropolitan Adelaide linked to a restaurant. Twelve people were affected and all cases were subsequently confirmed as *S. Typhimurium* phage type (PT) 44 (MLVA 03-10-08-09-523). Resulting interviews concluded that 11 of the cases had consumed different types of eggs (scrambled, poached, or fried) for breakfast at the same restaurant, all during the same weekend in late August 2014. The 12th case was identified as a chef at the restaurant who had prepared the eggs that weekend, however the information he provided regarding his onset of illness was deemed inconsistent and therefore his role in the outbreak was unclear. An inspection of the restaurant was carried out and the restaurant was shut down until improvements were made. Food samples, including eggs, were collected from the restaurant and 1 sample returned a positive result for *S. Typhimurium* PT 44 (MLVA 03-10-08-09-523). The positive result was for a sample of breadcrumbs used to coat meat and zucchini. The breadcrumbs sampled were not used for breakfast foods. Furthermore, it was not confirmed whether eggs were used during the coating process.

### Tasmania

There were no outbreaks of foodborne or suspected foodborne illness reported in Tasmania during this quarter.

## Victoria

There were 3 outbreaks of foodborne or suspected foodborne illness reported in Victoria during this quarter. The aetiological agents were identified as *S. Typhimurium* for 2 outbreaks and *Clostridium perfringens* for the remaining outbreak.

### Description of key outbreak

Following the notification of 3 cases of *Salmonella* during July, a routine investigation identified that all cases had eaten at the same Vietnamese bakery within a 6 day period. A further 7 cases of gastroenteritis were reported during the investigation and 5 of these were subsequently confirmed with *Salmonella*. Eight isolates were typed as *S. Typhimurium* PT 135. In total, 10 individuals were affected during the outbreak and 5 of these were hospitalised. Seven food samples were collected, including chicken liver pâté, roast pork, mayonnaise and vegetables. One pâté sample was positive for *S. Typhimurium* PT 135 and 3 subsequent environmental samples were negative for *Salmonella*.

## Western Australia

There was 1 outbreak of foodborne illness reported in Western Australia during this quarter. The aetiological agent was identified as *Clostridium perfringens*.

### Description of key outbreak

An outbreak of gastroenteritis at a residential care facility involving 19 residents was investigated in September. Onset dates were from 21–24 September, with 14 of 19 residents becoming ill on the morning of 24 September, predominantly with diarrhoea. Microbiological examination found 7 specimens positive for *C. perfringens* toxin. Six of 7 were also culture positive for *C. perfringens* and 5 of these were typed by pulsed-field gel electrophoresis, with 4 having indistinguishable patterns. The majority of ill residents were from the dementia ward and had a soft, minced or pureed diet and all of these diets were processed in a vitamiser. An environmental investigation found that remains of food were left in the vitamiser after it had undergone its normal cleaning process and therefore it was suspected that an unclean vitamiser may have led to the *C. perfringens* contamination.

## Cluster investigations

During the quarter, OzFoodNet sites conducted investigations into 76 clusters of infection for which no common food vehicle or source of infection could

be identified. Aetiological agents that were able to be identified during the investigations included 1 *Campylobacter* cluster, 6 *S. Typhimurium* clusters, 1 *Yersinia enterocolitica* cluster, 1 adenovirus cluster, 1 *S. Weltevreden* cluster, 1 *S. Onderstepoort* cluster, 1 *S. Hessarek* cluster, 1 *S. Mbandaka* cluster and 1 *S. Kottbus* cluster.

## Comments

Three outbreaks in this quarter affecting 50 people were associated with Vietnamese style bakeries selling bánh mì thit, which are sandwiches consisting of a crusty roll, with mayonnaise, pâté, roast meat (traditionally pork, but sometimes chicken in Australia) and salad. This dish can become risky if the pâté is made with lightly cooked livers or the mayonnaise is made by blending raw egg through butter.

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Appendix: Outbreaks of foodborne or suspected foodborne disease reported by OzFoodNet sites,\* 1 July to 30 September 2014 (n=25)

State or territory	Month†	Setting prepared	Agent responsible	Number affected	Hospitalised	Evidence	Responsible vehicles
NSW	Jul	Restaurant	Histamine	8	0	D	Unknown
NSW	Jul	Restaurant	Unknown	5	0	D	Unknown
NSW	Jul	Restaurant	<i>Salmonella</i> Typhimurium MLVA 03-24-12-10-523	4	0	D	Unknown
NSW	Aug	Restaurant	Unknown	3	0	D	Suspected oysters
NSW	Sept	Restaurant	Unknown	8	0	D	Unknown
NSW	Sept	Restaurant	Unknown	4	0	D	Unknown
NSW	Sept	Bakery	<i>S. Typhimurium</i> MLVA 03-26-13-08-523	13	0	D	Raw egg mayonnaise
NSW	Sept	Restaurant	Unknown	3	0	D	Unknown
NSW	Sept	Restaurant	<i>S. Typhimurium</i> MLVA 03-12-11-14/15-523	20	5	A	Cross-contaminated chocolate milk
NSW	Sept	Aged care facility	Unknown	8	0	D	Roast beef
NSW	Sept	Aged care facility	<i>S. Typhimurium</i> MLVA 03-25-13-10-523	6	2	D	Unknown
NT	Jul	Fair, festival, other temporary/mobile service	<i>Shigella sonnei</i> /BT G	7	0	D	Unknown
NT	Aug	Camp	<i>S. Saintpaul</i>	30	0	A	Cordial
Qld	Aug	Primary produce	Ciguatoxin	2	0	D	Unknown
Qld	Aug	Restaurant	<i>S. Typhimurium</i> MLVA 03-12-13-09-524	9	2	D	Unknown
Qld	Sept	Primary produce	Ciguatoxin	9	0	D	Spanish mackerel
Qld	Sept	Primary produce	Ciguatoxin	2	0	M	Spanish mackerel
Qld	Sept	Restaurant	<i>S. Typhimurium</i> MLVA 03-12-12-09-524	12	1	D	Eggs Benedict with potato rosti
SA	Sept	Private residence	Monophasic <i>S.</i> <i>Typhimurium</i> MLVA 04-15-12-00-490	18	1	D	Pork spit roast
SA	Sept	Restaurant	<i>S. Typhimurium</i> PT 44 MLVA 03-10-08-09-523	12	3	D	Suspected eggs
SA	Sept	School	<i>S. Typhimurium</i> PT 9	5	1	D	Chicken burger

### Appendix continued: Outbreaks of foodborne or suspected foodborne disease reported by OzFoodNet sites,\* 1 July to 30 September 2014 (n=25)

State or territory	Month†	Setting prepared	Agent responsible	Number affected	Hospitalised	Evidence	Responsible vehicles
Vic.	Jul	Aged care facility	<i>Clostridium perfringens</i>	9	0	D	Unknown
Vic.	Jul	Bakery	<i>S. Typhimurium</i> PT 135	10	5	D	Chicken liver pâté
Vic.	Sept	Bakery	<i>S. Typhimurium</i> PT 170	27	3	D	Unknown
WA	Sept	Aged care facility	<i>Clostridium perfringens</i>	19	0	D	Soft/minced/vitamised food

\* No foodborne outbreaks were reported in Tasmania or the Australian Capital Territory during the quarter.

† Month of outbreak is the month of onset of the first case or month of notification of the first case or month the investigation of the outbreak commenced.

The number of people affected and hospitalised relates to the findings of the outbreak investigation at the time of writing and not necessarily in the month specified or in this quarter. The number of people affected does not necessarily equal the number of laboratory-confirmed cases.

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

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

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

PT Phage type

MLVA Multi-locus variable number tandem repeat analysis profile

BT Biotype