

**OzFoodNet—Enhancing Foodborne Disease Surveillance
Across Australia**

**Second Quarter Summary, 2014
NSW/Hunter New England OFN sites combined**

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Overview of Quarter

In NSW, foodborne outbreaks are identified via a range of mechanisms, including reports from the public to public health units, general practitioners, emergency departments, analysis of surveillance data, and reports to the NSW Food Authority's (NSWFA) Consumer Complaints Line. Reports to the NSWFA result in a number of outbreaks affecting small numbers of people being referred to public health units (PHUs). These outbreaks usually require limited epidemiological investigation and often the aetiology cannot be determined.

Incidence of Foodborne Disease

Salmonellosis notifications were 47% higher than the previous five-year average for the same quarter. In the second quarter 2014 there were 1,057 notifications, which is the highest count of salmonellosis notifications for this period (the previous five-year average was 716 cases) since reporting began in 1991.

Typhoid notifications for the second quarter of 2014 were similar to the five-year average for the same quarter (9 vs. 9.8 notifications). Eight of the typhoid notifications likely acquired their infections overseas. The remaining case had not travelled for 12 months, but was believed to have long term carriage.

Notifications of **hepatitis A** in the second quarter of 2014 were similar to the five-year average for the same quarter (13 vs. 13.8 notifications). Eleven of the hepatitis A notifications (85%) acquired their infections overseas. One case had no overseas travel but was a close contact of a previous case. For another case, there was no overseas travel prior to illness and the source of infection was undetermined.

Notifications of **hepatitis E** were 3 times higher in the second quarter of 2014 compared to the five-year average for the same quarter (15 vs. 4.4 notifications). Five of the hepatitis E notifications (33%) acquired their infections overseas. Nine cases were locally acquired and linked to a restaurant that served pork liver pâté (described in outbreak NSW201401 below). Consequently, the Food Authority provided advice to the restaurant to ensure adequate cooking of pork liver prior to consumption. Voluntarily, the restaurant removed the product from the menu. For the final case, there was no overseas travel prior to illness and the source of infection was undetermined.

There were 8 notifications of **listeriosis** in the second quarter of 2014, which was 21% higher than the previous five-year average for the same quarter (8 vs. 6.6). Three cases were clustered

in time and place and their isolates had matching molecular typing. All three cases had visited the same private chemotherapy clinic for treatment during their incubation period. Two of the cases reported eating food served at the clinic, and a food sample taken from the facility that provided the food had a matching MLVA typing sequence to that of the three cases (discussed further in outbreak Ill201401 below). Advice was given to the clinic regarding safe food for those vulnerable to listeriosis. No other cases were clustered by exposure or had matching molecular typing results.

There was a 29% increase in **giardiasis** notifications (741 cases) when compared to the five-year average of 572 notifications for the same quarter. No clustering of giardiasis cases by age, sex or place of residence was identified. Single cases are not routinely followed up by PHUs.

There was a 57% decrease in **cryptosporidiosis** notifications when compared with the previous five-year average for the same quarter (91 vs. 212). No clustering of cryptosporidiosis cases by age, sex or place of residence was identified.

Shigellosis notifications were slightly higher than the five year average for the same quarter (30 vs. 27.8 cases). Nine (30%) cases reported travelling overseas during their incubation period, 20 (67%) acquired their infection in Australia, and for one (3%) case the place of acquisition was unknown. All of the locally acquired cases were male and 17 (80%) were recorded as having male to male sex as a possible exposure route, while the route of exposure was unknown for three cases. The most common *Shigella* subtype (in 47% (14) of cases) was *Shigella sonnei* G, 13 of these were male and 11 were recorded as having male to male sex.

Shiga-toxin producing *E. coli* (STEC) notifications were 2.5 times higher in the second quarter of 2014, compared with a previous five-year average for the same quarter (9 vs. 3.6 notifications). There was no clustering by location or time. Two siblings had farm exposures while seven cases had no risk exposure identified. One STEC case developed **haemolytic uraemic syndrome (HUS)**. This was the only HUS notification in the quarter, which is less than the five-year average of 1.6 cases for the same quarter.

Outbreak investigation

During the second quarter of 2014, the public health units in NSW and OzFoodNet investigated 11 foodborne or suspected foodborne outbreaks. In addition, 115 outbreaks with suspected person to person transmission in institutions were investigated.

Foodborne Disease Outbreaks

Of the 11 foodborne or suspected foodborne outbreaks reported by members of the public or identified through routine surveillance of *Salmonella* data in this quarter, seven were due to *Salmonella* Typhimurium, one each were due to *Listeria monocytogenes*, norovirus, Hepatitis E virus and Scombroid fish poisoning.

Salmonella Typhimurium (MLVA type 3-17-10-11-523) infection associated with Vietnamese rolls

A PHU was notified by an ID physician about two people with salmonella infection who reported eating at the same bakery on 28 March 2014. Further complaints about the bakery were received by the NSW Food Authority (NSWFA) and *Salmonella* infection case finding in the area revealed more cases. Thirteen *Salmonella* Typhimurium (STm) (MLVA 3-17-10-11-523) infection cases and at least twenty clinical cases of gastroenteritis reported consuming Vietnamese style rolls from the bakery between 28 and 31 March 2014. Cases reported different fillings in the rolls but almost all reported mayonnaise. The NSWFA inspected the premises on 2 April and reported that home-made raw egg mayonnaise was in use, as was pâté made without checking temperatures with a thermometer. The NSWFA identified a number of further issues including cleaning and sanitisation, facility maintenance and temperature control. A number of food and environmental samples were taken and *Salmonella* contamination was confirmed in many food ingredients and environmental swabs with the same MLVA pattern that was seen in the cases. A prohibition order was placed on the selling of sandwich rolls until they showed a proficiency in cleaning and safe food handling. Trace back on the eggs was not able to determine the brand used. (SES39789).

Salmonella Typhimurium (MLVA 3-13-10-11-523) infection associated with a buffet

The NSWFA received a complaint of gastrointestinal illness in two people from a group of five who had eaten a buffet meal at a restaurant on 22 March 2014. One case had a stool specimen that was positive for *Salmonella* Typhimurium (MLVA 3-13-10-11-523). As part of routine *Salmonella* infection case follow up, two more STm cases with the same MLVA reported eating at the same buffet on 5 and 29 April 2014. The four people reported consuming an assortment of dishes, with grilled chicken the only food in common. The two ill in the NSWFA food complaint reported to be the only ones in their group to consume a chicken dish. The NSWFA inspected the restaurant on 4 June 2014 but found no deficits in handling or cleaning at that time and environmental swabs were negative for *Salmonella*. The source of the illness remains unknown, however given the cases occurred over an extended period of time, there may have been some low level environmental contamination of the food service area. (SSW39736)

Salmonella Typhimurium (MLVA 3-26-7-20-496) infection associated with a raw egg salad dressing

An outbreak was identified following the notification of a cluster of ten *Salmonella* Typhimurium infection cases with a novel MLVA pattern (MLVA 3-26-7-20-496). Interviews revealed that seven of the ten had all consumed a creamy chicken pesto pasta salad bought from a grocery store deli in the eastern suburbs of Sydney from 20 to 27 March 2014. These cases also reported three other people that had become ill after eating the same salad. The NSWFA inspected the premises and found that raw eggs were being mixed into the pasta salad. They also reported sanitisation, temperature and hand hygiene issues. The premises have decided to cease using raw eggs in their salads and an improvement notice was issued for the other issues. Swabs and samples collected at the premises had *Salmonella spp.* detected on PCR but the samples were negative on culture. The implicated eggs were traced back to the two possible suppliers however microbiological sampling at the two farms did not detect any *Salmonella* Typhimurium (SES201403).

Norovirus infection associated with a restaurant

The NSWFA received a complaint of gastrointestinal illness in six people from a group of fifteen who had eaten at a restaurant on 1 May 2014. The six cases developed nausea, vomiting, abdominal cramps and diarrhoea 12-36 hours after eating. Seven out of the 15 people ate a side garden salad and six of these seven were the cases reporting illness. No other food item was common to those who were ill. Symptoms lasted for 24-48 hours, 2 stool samples were submitted and one was positive for norovirus. The local council inspected the premises on 9 May 2014. The management reported that some restaurant staff had experienced a gastrointestinal illness but maintained that it occurred after the date of the group's meal and that the staff did not attend work while sick. The chef who prepared the salad had not reported illness. It is possible an undeclared infectious person was working when this group dined at the restaurant, however the restaurant had no other reports of illness made at the time and they had catered for two large functions on 1 and 2 May. The restaurant was advised to be sanitised throughout, giving particular attention to food contact surfaces and hand hygiene to be strictly enforced in staff (SSW40107).

Salmonella Typhimurium (MLVA type 3-10-7-12-523) infection associated with Vietnamese rolls

A PHU was notified by a general practitioner about three patients that had symptoms of gastroenteritis after eating at a bakery on 5 May 2014. Stool specimens from two of the cases tested positive for *Salmonella* Typhimurium (MLVA 3-10-7-12-523). The PHU interviewed other *Salmonella* Typhimurium cases in the area and identified a total of 11 people (9 STm cases and 2 clinical cases) with illness following consumption of Vietnamese style rolls at this bakery from 3

to 5 May 2014. Cases reported different fillings in the rolls but ingredient information was not available from all cases. The NSWFA inspected the premises on 22 May and reported that home-made raw egg butter was in use and made in large batches two or three times per week. No other process issues were identified on the inspection and the business was in a clean, well run condition. A number of food and environmental samples were taken and were negative for pathogens. The business was advised against using raw eggs and they have since stopped mixing raw eggs into the butter (SSW40297).

***Salmonella* Typhimurium (MLVA type 3-24-12-10-523) infection associated with tiramisu**

A cluster of thirteen *Salmonella* Typhimurium cases with MLVA 3-24-12-10-523 in a localised area was identified in the routine salmonella case notifications in June 2014. The local PHU investigated the cluster and found 10 cases had all participated in a dinner party at a private residence on 24 May 2014. The host of the party was interviewed and she revealed that approximately one third of her 40 guests reported illness after the party. Foods served included chicken, salad and a tiramisu made with raw egg. Interviews with people that attended the dinner revealed those that became unwell had eaten the tiramisu while those who remained well had not. The host could not identify the specific brand of egg used in the tiramisu so trace back was not conducted. The host of the dinner was educated about the risks of using raw eggs in foods (NS201401).

***Listeria monocytogenes* infection associated with a cancer treatment facility**

A PHU was notified of three *Listeria monocytogenes* cases within a four week period. All three cases reported attending the same chemotherapy treatment facility in a two week period. *Listeria* isolates from the three cases had the same Binary type (158), MLVA (04-17-16-05-03-11-14-00-16) and serotype (1/2b, 3b, 7). Two cases had the PFGE 4:4:5A while the third PFGE is pending. Two of the cases reported eating sandwiches on multiple visits to the facility but the third case denied eating anything. The facility sourced its food from a café next door. This café was inspected by the NSWFA and while considered generally well run, a sample of cucumber tested positive for *Listeria monocytogenes* of the same binary type, MLVA and serotype identified in the human infections (Binary type 158, MLVA 04-17-16-05-03-11-14-00-16, serotype 1/2b, 3b, 7, PFGE pending). As the food provider is a public café (rather than a food provider for vulnerable populations which should be registered with the NSWFA), it is not required to be listeria free. Although not all cases reported eating food provided from the café, the identical typing of the cases and the food isolate (a novel type), indicates that it's likely the third may have eaten something from the café but could not recall on interview. The café was advised of ways to help reduce the possibility of having listeria on foods, and the chemotherapy facility was advised on the importance of food safety for vulnerable populations, with particular reference to *Listeria*. (Ill201401). See below a link to NSW Food Authority information on food service for vulnerable

populations: <http://www.foodauthority.nsw.gov.au/industry/industry-sector-requirements/vulnerable-persons>

Scombroid fish poisoning associated with tuna steaks

A PHU was informed about two unrelated people who developed rash, headache, nausea and diarrhoea within 30 minutes of eating tuna steaks purchased from the same fish retailer. The steaks were purchased on 1 and 2 June 2014. The cases attended the same Emergency Department and were treated with antihistamines. The NSW Food Authority inspected the retail premises. High levels of histamine were found in left over fish steaks, but no temperature issues were found at the retailer or fish market to suggest the cause of the scombroid poisoning. The fish came from an interstate supplier and the results were passed on to the relevant authority for follow up (SSW201402).

Salmonella Typhimurium (MLVA type 3-12-12-9-523) infection associated with a restaurant

A PHU was notified by an infection control nurse about three patients that had *Salmonella* Typhimurium (MLVA 3-12-12-9-523) infection who had attended a function on 16 June 2014. An interview with one of the cases suggests that 9 from 80 people developed gastrointestinal symptoms after the event, however there was only information available on the three cases confirmed with salmonella infection. Numerous dishes were consumed from a buffet, but no obvious high risk food identified. The NSWFA inspected the premises but found no major problems except some temperature issues such as hot meat not being stored under adequate temperatures (<60 °C) as well as a refrigerated display unit not below 5 °C, for which an improvement notice was issued. Environmental samples were taken and none were positive for *Salmonella*. Indicator microorganism swabs showed that sanitisation controls put in place at the food business were satisfactory. The food vehicle(s) of the salmonellosis remains unknown (SES40750).

Salmonella Typhimurium (MLVA type 3-9-7-12-523) associated with a café

In April 2014, a cluster of seven cases of *Salmonella* Typhimurium (MLVA 3-9-7-12-523) in the greater Newcastle area was investigated. Illness onset dates ranged from 14 to 28 April 2014. Six of the seven cases reported eating from the same café. Cases reported consuming a variety of foods from the café between 12 and 14 April. A NSWFA inspection identified several food handling, cooking and cleaning issues. These included, cracking eggs directly on food preparation countertops, serving poached eggs with runny yolks, cleaning deficiencies, inadequate hand washing facilities and inadequate hand hygiene practices. Several foods were sampled but *Salmonella* was not detected in any of the food samples tested. Environmental swabs were also taken and two floor swabs were positive for the outbreak strain (STm 3-9-7-12-523). It is not clear if the source of the illness was ingestion of raw food or foods contaminated

by environmental contact. An improvement order was issued for the deficits identified on inspection (HUN0484).

Hepatitis E infection associated with a restaurant

In April 2014, a case of hepatitis E (HEV) was notified to public health. The interview revealed that the case's work colleague from Victoria also had HEV and the only common exposure for both cases was dinner with 7 other people from the same work place at a restaurant on 11 March. Further investigations included interviewing and serological testing of co-dining work colleagues, which revealed a further three cases. Case interviews revealed that pork pâté was the only food consumed by all the cases. An additional 10 infected individuals, unrelated to the work group, were also investigated as part of this cluster. Of the 10 individuals, four had symptoms and were identified through routine surveillance, five were asymptomatic cases identified through screening co-diners and one symptomatic case patient was identified through retrospective testing of stored sera. All cases report consuming pork pâté at the same restaurant on different dates to the work group (13 March, 15 March, 3 May and 15 May). The NSWFA inspected the restaurant on two occasions on 15 and 21 May 2014 and witnessed the preparation and cooking of the pork pâté. The restaurant was found to be very well-run with no issues identified in food handling, cooking or cleaning. The pork pâté was made with pork livers and included only one short cooking step. Pork samples from the restaurant were tested for HEV. All samples were negative. It is conceivable that on more than one occasion the pork livers had been inadvertently undercooked and so the HEV survived when the pâté was made. Pork liver pâté is no longer sold at the restaurant. Trace back of the pork livers revealed that a single pig farm supplied the livers that were served as pork pâté on the days the cases reported eating at the restaurant. Investigations are ongoing.

In addition to the HEV cases above, three notifications of locally acquired HEV from 2013 with no known source of infection were re-investigated. Interviews revealed that two cases had also eaten pork pâté at the same restaurant during their incubation period (the third case was thought to be person to person transmission). An additional case from October 2013, identified on retrospective testing of stored sera was also linked to the cluster. The viruses from 11 out of the 18 cases linked to the restaurant (three from 2013 and eight from 2014) were genetically sequenced and were found to be closely related, suggesting a common source (NSW201401). Undercooked pork has been associated with cases of food borne hepatitis E overseas. NSW Health convened a hepatitis E expert panel and it was concluded there was no ongoing public health risk associated with the restaurant.

Cluster Investigations

Since 2008, ICPMR laboratory Westmead routinely conducts multiple-locus variable number tandem repeat analysis (MLVA) to type *Salmonella* Typhimurium to improve capacity for cluster identification. For investigation purposes, a cluster is defined as five or more isolates with the same MLVA type collected over a period of four weeks. The foodborne outbreak SES201403 described above was identified through surveillance of *Salmonella* Typhimurium notifications by MLVA type. The top five *Salmonella* Typhimurium notifications by MLVA type in the second quarter of 2014 were:

| MLVA type | Number of notifications |
|----------------|-------------------------|
| 3-17-9-11-523 | 72 |
| 3-12-11-14-523 | 58 |
| 3-10-7-12-523 | 41 |
| 3-10-13-11-496 | 39 |
| 3-9-7-12-523 | 33 |

* MLVA was also not recorded for 25 *Salmonella* Typhimurium cases at the time of writing this report.

***Salmonella* Typhimurium MLVA profile 3-17-9-11-523**

In May, a cluster of eight cases of STm with MLVA 3-17-9-11-523 was investigated. These cases were clustered spatially and temporally (illness onsets from 6 to 13 May 2014). The median age of cases was 71 years (range 14 – 89 years) and 87.5% (n=7) were male. The majority of cases (75%) were hospitalised and one death was reported. In-person or phone interviews were conducted with all cases/proxies and no common events, eating establishments or foods were identified.

***Salmonella* Typhimurium MLVA profile 3-24-13-11-523**

In April, a cluster of STm with MLVA 3-24-13-11-523 was investigated. In 2014, there were 18 cases in NSW with this MLVA pattern. Specimen collection dates ranged from 9 February to 2 April 2014. The majority of cases were men (61%) and the age of cases ranged from 3 – 63 years (median 33 years). Of the seven cases interviewed, one was hospitalised. Food exposure histories indicated that fresh produce including carrots, tomatoes, onions, broccoli, cucumber and lettuce was consumed at higher than expected frequencies. In particular bagged lettuce was consumed by 88% of those interviewed which is significantly higher than previous salmonella cluster interview consumption rates of 22%. However, no action was taken given that the evidence was inconclusive and no common brands or purchase locations were identified. There have been no further cases of this MLVA profile since April 2014.

Salmonella Wangata

HNE OzFoodNet and NSW Health continued an investigation into a cluster of *Salmonella* Wangata in which 34 cases were notified to NSW Health from 1 April to 30 June. The cases reported this quarter had a median age of 25 years (range 0-94) and 59% were female. With the exception of two cases, all of the cases resided along the NSW coast from Sydney to the Queensland border. Twenty four cases were interviewed by HNE OzFoodNet using a Hypothesis Generating Questionnaire with additional environmental questions. Exposures of greatest interest included exposure to birds (95%), bats (79%), lizards (71%) ducks (41%) and dogs (41%). The investigation is ongoing.

Non-foodborne Disease Outbreaks

There were 115 reported outbreaks of (suspected) viral gastrointestinal disease in institutions in the second quarter of 2014. Of these, 58 (50%) occurred in aged care facilities, 45 (40%) in child care centres and 12 (10%) in hospitals. The outbreaks affected a total of 1,955 people.

In 53% (61/115) of all outbreaks, one or more stool specimens were laboratory tested to identify a possible cause of the outbreak. Norovirus was identified in 39% (24/61) of the outbreaks. In five norovirus outbreaks, other pathogens were also detected alongside norovirus. Of the five outbreaks, *Clostridium difficile* was identified in three, while rotavirus and *Salmonella* were also identified in one outbreak each. However the epidemiology of the outbreaks was more consistent with a norovirus outbreak and these pathogens were likely coincidental findings in individuals rather than the cause of the outbreaks. Of the 61 outbreaks where one or more stool specimens were tested, 61% (37/61) were negative for any pathogens.

Notes for Quarterly Report

Data was reported as received by the Communicable Diseases Branch on 26 July 2014. For both (suspected) foodborne illness outbreaks as well as gastroenteritis outbreaks in institutions, PHUs are required to complete a summary form within 1 month of completion of the investigation, or within 1 month of notification respectively. This means that for outbreaks reported after 26 June 2014, the information in this report and in the Outbreak Register may not be complete.

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