

OzFoodNet—Enhancing Foodborne Disease Surveillance Across Australia

Third Quarter Summary, 2010 NSW/Hunter New England OFN sites combined

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Overview of Quarter

Incidence of Foodborne Disease

Salmonellosis notifications increased in the third quarter by 69% when compared to the previous five-year average for the same quarter, with 566 notifications compared with an average of 335 notifications. A similar increase was noted in the second quarter of this year.

There was a 20% increase in *Giardia* notifications (475 cases) when compared to the five-year average of 396 cases for the same quarter. Cryptosporidiosis notifications decreased slightly when compared to the third quarter five-year average, with 63 cases and 68 cases notified for each time period respectively.

Shigellosis notifications also increased during this quarter with 29 cases reported, compared with 24 cases for the five-year average for the same quarter. Fourteen notifications (48%) were typed as *Shigella sonnei* biotype G. Three cases were noted as having travelled overseas during their incubation period, two acquired their infection in Australia, and for nine cases the place of acquisition was unknown.

There was a slight decrease in notifications of Hepatitis A for the quarter when compared to the previous five year average for the same quarter (16 notifications compared to 20 notifications). Ten (63%) of the people notified with Hepatitis A infections acquired their infection overseas.

Four cases of Shiga-toxin producing *E. coli* (STEC) infection were notified during the third quarter, which was an increase over the five-year average of 1 case for the same quarter. No epidemiological link was identified between the four cases. There was one case of haemolytic uraemic syndrome (HUS) notified, which is comparable with the five-year average. This case was not reported as having a concurrent STEC infection.

There were no notifications of listeriosis in the third quarter of 2010. The five-year average for listeriosis notifications for the same quarter is 6 cases

During the third quarter of 2010, the public health units in NSW and the OzFoodNet (HNE) investigated 9 foodborne or suspected foodborne outbreaks. In addition, 268 outbreaks with likely person to person transmission in institutions (263) and non-institutional settings were investigated. One *Salmonella* spp cluster was investigated.

Foodborne and Suspected Foodborne Disease Outbreaks

A food or suspected food source was found in five outbreak investigations where a pathogen was identified.

***Salmonella* Typhimurium¹ (MLVA: 3-9-7-13-523) outbreak associated with a Chinese restaurant**

Two groups of diners reported developing symptoms of gastroenteritis after consuming meals from a Chinese restaurant over a one-week period. In addition, active case finding identified an additional people (related) who also reportedly ate at the same restaurant during the exposure period. In total 14/15 people developed symptoms consistent with salmonellosis, with six stool specimens (from people from all three groups) positive for *Salmonella* typhimurium (MLVA: 3-9-7-13-523). A common food to all cases was deep fried ice-cream, made with unpasteurised whole egg. NSW Food Authority conducted an environmental investigation and collected a number of food samples and environmental swabs. *Salmonella* typhimurium (MLVA: 3-9-7-13-523) was isolated from samples of raw and cooked deep fried ice-cream. The NSW Food Authority issued a formal warning letter to the premises requesting that raw egg be no longer used in preparing deep fried ice-cream, and is considering further enforcement action. (SSW0044)

***Salmonella* Typhimurium¹ (MLVA: 3-9-7-13-523) outbreak associated with a party held at a private residence**

Nine from nine people became ill 7.5 – 54 hours (med. 10.5) after consuming both home-made and commercially prepared foods (naan bread and pappadums) served at a birthday party. Three stool specimens collected from party attendees were positive for *Salmonella* typhimurium (two people with the MLVA: 3-9-7-13-523 profile, one pending). A homemade white chocolate mousse cake made with a raw egg filling is suspected to have been the cause of illness, with 8/9 people consuming the cake. However no cake samples were available for microbiological analysis. (SESILL0066)

¹ At the time of completion of the report, the phage types for these isolates collected as part of investigation had not been received.

***Salmonella* Typhimurium¹ (MLVA: 3-9-7-13-523) outbreak associated with an aged care facility**

The local Public Health Unit investigated a gastroenteritis outbreak affecting 6/125 residents and 1/160 staff from all four wards in an aged care facility. Onset times for cases occurred over a week long period, with a resident reported as being the index case. Seven stools were collected, with *Salmonella* typhimurium (MLVA: 3-9-7-13-523) isolated in specimens from five residents. Stool specimens submitted by the staff member and remaining resident were negative for *Salmonella* spp. A cohort study found an association between the consumption of minced or pureed diet and illness (RR 9.53, 95% CI 1.11-82.12) however, caution is required when interpreting this result given a number of possible confounding factors. The NSW Food Authority collected a number of environmental swabs and food samples during their environmental investigation, which were negative for *Salmonella* spp. No significant food hygiene and food safety issues were identified during the inspection. No additional cases have been reported. The cause of the outbreak remains unclear, although a foodborne source is suspected. (SESILL0065)

***Clostridium perfringens* outbreak associated with an aged care facility**

An outbreak of gastroenteritis affecting 8/48 residents in an aged care facility was investigated by a local Public Health Unit. Symptoms of illness included diarrhoea (6) and vomiting (2), with illness onset dates spread over a six day period. Four stool specimens were collected. *C. perfringens* enterotoxin A was detected in two stool specimens, with an additional specimen culture-positive for the same pathogen. Affected residents (including those with a positive *C. perfringens* result) were accommodated in two separate wards. Although both wards were serviced by the same kitchen, different menus were provided to each ward. The NSW Food Authority conducted an environmental investigation of the kitchen, and were unable to attribute a causative food or find evidence of a practice that may have allowed *C. perfringens* to sporulate in food. (WS0061)

***Salmonella* Typhimurium PT 9 (MLVA 3-21-12-13-523) outbreak associated with a restaurant**

An outbreak affecting nine people (unknown denominator) was identified by a local Public Health Unit. One person with *Salmonella* Typhimurium (MLVA 3-21-12-13-523) was interviewed upon notification, as the MLVA profile was unique to NSW. This person implicated a restaurant in rural NSW close to the Victorian border as the source of their salmonellosis. At a later date, Department of Human Services, Victoria reported that three employees from the same restaurant developed symptoms of gastroenteritis (one

person with laboratory confirmed Salmonella Typhimurium [STM] phage type 9). An additional four people were also linked to the same premises (3 people with STm PT 9, one with symptoms of gastroenteritis). A 4 month old baby whose parents ate at the restaurant was epidemiologically linked to the outbreak (one with laboratory confirmed STM PT 9).

The cases ate at the restaurant on the 23rd and 24th of July, with a variety of meals consumed. The earliest onset date of illness in this group of 9 cases was 21/7/10. It was reported that the chef of the restaurant had symptoms of gastroenteritis commencing on this day, however this was not confirmed by the chef himself, whom had not submitted a stool specimen. Given the delay in identifying the outbreak, formal epidemiological or environmental investigations were not conducted. (GS0015)

Suspected foodborne outbreaks of unknown aetiology

For four outbreaks of suspected foodborne illness reported during this quarter, the aetiology remained unknown. In summary:

Twenty seven from 45 people (61%) became ill with vomiting and diarrhoea 37 hours (median) after attending a catered meeting at a licensed club. Two specimens were collected which were negative for viral and bacterial pathogens. A cohort study was conducted, and an association between illness and the consumption of wraps (combined variable of chicken wraps and vegetable wraps) was found (RR 2.24, 95% CI 1.21-4.16). The local council conducted an inspection of the premises. No hygiene issues were identified, and no food handling or drinks staff reported ill during or before the function. The food prepared on the day also went to other functions and there was no illness reported. There were no leftover foods available for testing. Given the clinical profile of cases and the onset times of illness, we suspect that this was a viral point source outbreak, quite possibly associated with the consumption of assorted wraps (NSCC0030).

Eleven from 80 ill with diarrhoea and vomiting after attending a 21st birthday party at a hotel. No specimens were collected. There were no reports of illness in functions held at the same venue on the same night (some meal items shared). An environmental investigation of the food premises was not conducted. It is suspected that this was a foodborne outbreak, however an environmental source or person-to-person transmission cannot be discounted. (SESILL0064)

Four from 8 people reported symptoms of diarrhoea (4) and abdominal pain (3) 11 hours (median) after eating a meal at a commercial club. No other events or meals were common to all four cases. No specimens were collected. A council inspection identified problems with defrosting potentially hazardous foods, and overstocking and storage of foods in a freezer and coolroom, with council issuing a warning letter requesting that these issues be addressed. Based on the clinical profile of cases, onset times of illness and the findings of the environmental investigation, we suspect that this was a point source outbreak of a toxin-mediated pathogen. (HUN0430)

Sixteen of 150 aged care facility residents became unwell with a diarrhoeal illness over a four day period (onset times for 82% of residents occurred on a single day). Five specimens were negative for bacteria, viruses and toxins. The NSW Food Authority conducted an environmental investigation and a review of the menu, and were unable to identify a cause to the outbreak. Without a pathogen identified, we are unable to conclude the aetiology or the vehicle that caused this outbreak. (WS0062)

Cluster Investigations

The top five *Salmonella* Typhimurium notifications by MLVA type in the third quarter² of 2010 were:

MLVA type	Associated with phage type	Number of notifications
3-9-7-13-523	170	89
3-10-7-13-523	170	20
3-10-14-12-496	9	12
3-9-8-13-523	170	11
3-10-7-15-523	170	10

A cluster of three *Salmonella* Typhimurium (MLVA 3-9-7-13-523) notifications occurring in the Eastern Sydney area was investigated during the third quarter. One case was identified as part of the outbreak associated with a Chinese Restaurant (see the

² Data source: ICPMR Enteric Disease download (archive file). Data download: 13/10/2010. These numbers are based on the date of collection of the stool samples (the date closest to the date of onset of salmonellosis).

'Foodborne and Suspected Foodborne' section of the report: SSW0044. Contact could not be made with the remaining two cases)

Public Health Real-time Emergency Department Surveillance System (PHREDSS)

PHREDSS uses routinely collected data from 56 Emergency Department (ED) information systems to identify increases or outbreaks of disease. It receives real-time data feeds from ED's, grouping clinical presentations of patients into 36 key syndromes, including "Gastrointestinal Illness". When daily counts of presentations for a "gastrointestinal illness" in a 7 day period are statistically higher for the same seven day period for the previous five years, an alert is forwarded to the local Public Health Unit. This prompts Public Health Unit review of ED presentations to determine whether the increase is due to seasonal fluctuations of gastroenteritis in the community, or whether the increase is related to an outbreak of foodborne or other gastrointestinal disease outbreak.

In the third quarter there were six alerts which were followed up by Public Health Units. All six alerts were attributable to an increase in gastroenteritis in the community, probably of viral aetiology with no evidence of a point source outbreak.

Non-foodborne Disease Outbreaks

(Suspected) viral outbreaks: Institutions

Of the 263 reported outbreaks of (suspected) viral gastrointestinal disease in institutions in the third quarter of 2010, 133 (50%) occurred in aged care facilities, 74 (28%) occurred in child care centres, 53 (20%) in hospitals, and 1 (0.4 %) each in a camp, school and military institution. Upon further investigations, three outbreaks were suspected to be caused by a foodborne source (refer to Foodborne and suspected foodborne section of this report). In total, the outbreaks affected approximately 4932 people.

In 63% (164/263) of all outbreaks, one or more stool specimens were laboratory tested to identify a possible cause of the outbreak. Norovirus was identified in 35% (93/263) of all outbreaks. Rotavirus was identified as a possible cause of 7% (18/263) of the outbreaks. *Clostridium difficile* was detected in patients associated with 10 (4%) outbreaks. For 31% (51/163) of the outbreaks, where one or more stool specimens were tested, the pathogen

that caused the outbreak could not be identified. In total, the responsible pathogen remained unknown for 56% (148/261) of the outbreaks.

There was one *Salmonella* outbreak reported in an aged care facility, with person-to-person spread the likely mode of transmission. Seven of 71 residents became ill with laboratory confirmed *Salmonella* Infantis (4 residents) or a diarrhoeal illness suggestive of salmonellosis over a nine day period. This facility was implicated in an outbreak of *Salmonella* Infantis in the previous quarter, affecting 22 residents and 1 staff member (SSW0043), suspected to be caused by thickened fluid contaminated by raw chicken mince. It is suspected that some residents may have been asymptomatic carriers of *Salmonella* spp, with symptoms appearing in the more immuno-compromised residents, as no epidemiological or environmental evidence of a food vehicle could be found. As a result, all asymptomatic residents in the facility's high care wards are being screened for *Salmonella* spp. At the time of completing this report, an additional 5 cases had been detected and the investigation is continuing. (SSW0045)

In addition to two suspected foodborne *Clostridium perfringens* outbreaks investigated during the quarter, an additional outbreak associated with the same pathogen and type of facility, was investigated. Eleven from 50 residents and 1 staff member (1/35) in an aged care facility became ill with a diarrhoeal illness over a 10 day period. Four stool specimens were collected. Three stool specimens were found to have a clinically significant *C. perfringens* result. Two of these stools had the cpe gene present on the plasmid (with one of these stool specimens also having vegetative count and spore count of 7.4×10^6 cfu/g and 8.5×10^6 cfu/g, respectively). One of the specimens was positive for *C. perfringens* enterotoxin Type A. An additional stool specimen had a low *C. perfringens* vegetative count (1.0×10^4 cfu/g), the result of which is difficult to interpret. NSW Food Authority reviewed the food handling practices of the facility by phone, and were unable to identify a practice that would have resulted in organism sporulation. From discussions with staff and a review of a menu, a food common to all cases could not be established. Furthermore, the presence of the cpe gene on a *C. perfringens* plasmid has been associated with both foodborne and non-foodborne disease outbreaks internationally. Based on these finding and a review of the literature, the source of the *C. perfringens* infection in affected residents remains unclear (HUN0431)

(Suspected) viral Outbreaks: Non- institutional settings

There were five outbreaks of (suspected) viral gastrointestinal disease in non-institutional settings investigated during this quarter.

Fourteen from 60 people (predominantly children) reported becoming ill with diarrhoea, vomiting and fever after attending a golf event. No specimens were collected. Onset times of illness were indicative of person to person transmission. (GS0014)

An initial report from the NSW Food Authority indicated 15/40 people became unwell with vomiting and diarrhoea after attending a wedding reception. Initial interviews indicated some of the cases had household contact prior to the wedding. However we were unable to obtain the additional information required to conduct a formal epidemiological investigation. (#226, HNE cluster)

Five from 8 people reported becoming unwell with vomiting (4) and diarrhoea (2) after consuming a meal at a country club. Person to person transmission of a viral illness was considered likely, as one of the family members was symptomatic with gastroenteritis whilst at the restaurant. (WS0060)

Four from 4 people reported illness with gastroenteritis after consuming a variety of meals purchased from a chicken franchise. No specimens were collected. A 4 m/o child who did not eat any of the food had symptoms of diarrhoea at the time of the meal. Person-to-person pathogen transmission was considered the likely cause of the outbreak. (WS0059)

An initial report of 7/12 people (all children) who became ill with vomiting 2 hours after consuming a variety of pizzas was received by the local Public Health Unit. The investigation found that there many shared meals and exposures between cases prior to consuming the implicated meal. Person to person transmission of a viral pathogen is suspected, however a foodborne source cannot be discounted. (SESILL0063)

Notes for Quarterly Report

The quarterly summary is the basis for the national report published in *Communicable Diseases Intelligence* each quarter. The emphasis in this summary is on brevity and timeliness. For further information on public health action taken as a result of the described enteric disease outbreak investigations, please contact the manager of the Enteric diseases unit.

In NSW, foodborne outbreaks are often reported to the NSW Food Authority's (NSWFA) Consumer Complaints Line by members of the public. This results 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 are often of unknown aetiology.

Data was reported as received by the Communicable Diseases Branch on 18 October 2010. 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 18 September 2010, the information in this report and in the Outbreak Register may not be complete.

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