

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

## **Fourth Quarter Summary, October - December 2016 NSW**

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NSW OzFoodNet



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# Highlights Quarter 4, 2016

## Introduction

This report describes data for enteric conditions for quarter 4, 2016. The report is divided into three sections: enteric notifiable diseases, foodborne outbreaks and gastroenteritis outbreaks in institutions. Data in this report have been extracted from the NSW Notifiable Conditions Information Management System, NSW OzFoodNet Outbreak Database and the NSW Gastroenteritis in Institutions Database. Every endeavour has been made to ensure that the information provided in this document was accurate at the time of writing. However, infectious disease notification data are continuously updated and subject to change.

## Summary

During the fourth quarter of 2016, notable increases in cryptosporidiosis (109%) and STEC (372%) were reported. More moderate increases compared to the five year average were reported for giardiasis, rotavirus, salmonellosis, shigellosis and HUS (table 1). The long term trends for the twelve notifiable enteric conditions in NSW are shown in Figures 1-3.

**Cryptosporidiosis** remained at higher than expected levels for the fourth consecutive quarter. The number of cases was above the 5 year average in 13 of the 15 LHDs (table 1). The most notable increase was in Northern Sydney LHD with a 416% increase (66 cases, compared to 12.8 on average). As described in the quarter 3 report, public health units continued to follow up all cases to investigate any common reported potential sources.

**STEC** infections were above the five year average in 10 of the 15 LHDs. A total of 34 cases were reported, compared to 7.2 cases on average. Of these, 3 cases were overseas acquired (Table 2). This increase was not unexpected following the change in the STEC case definition to include detections by a more sensitive method.

There were 951 cases of **salmonellosis** reported in quarter 4 2016, lower than reported in the same

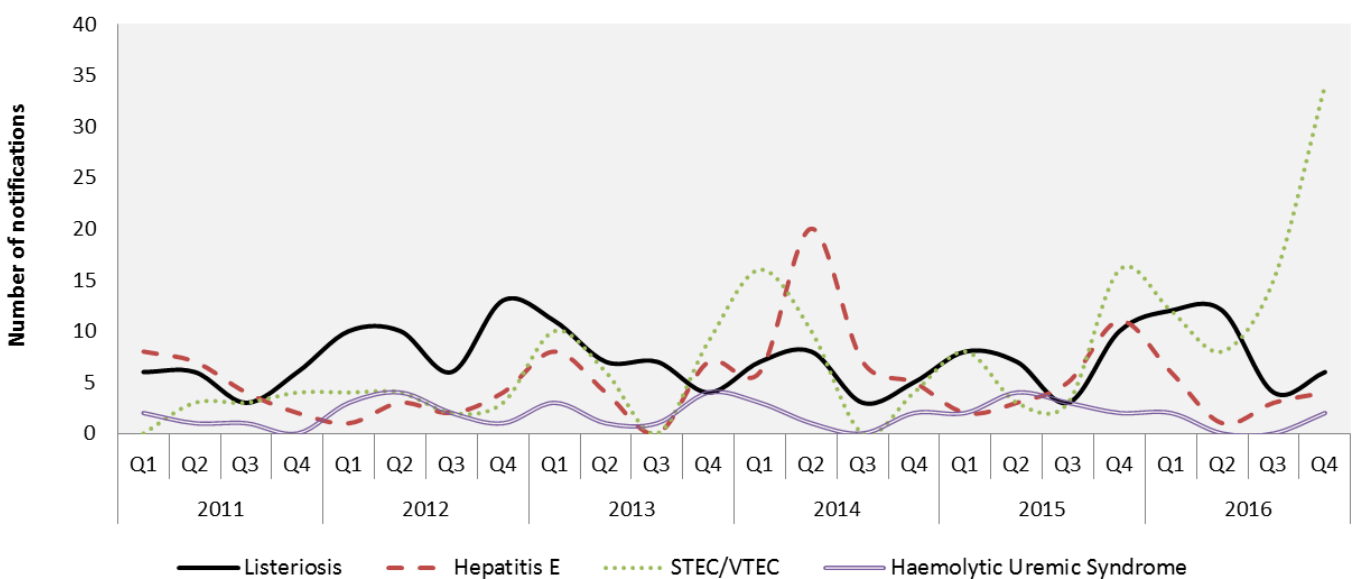
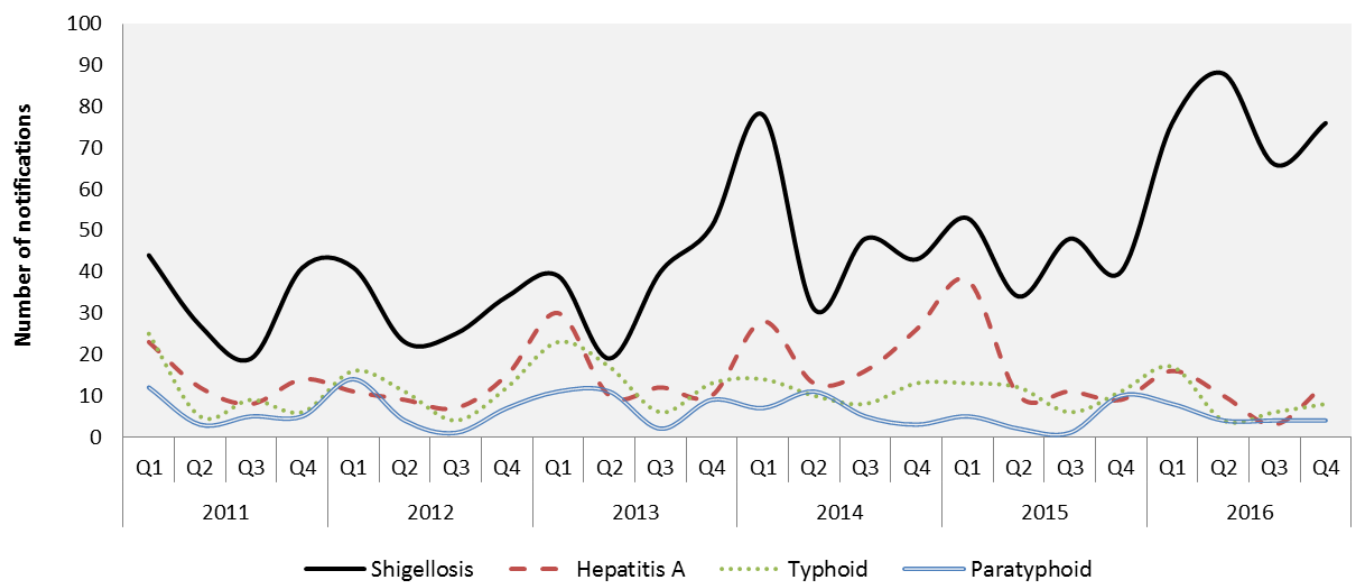
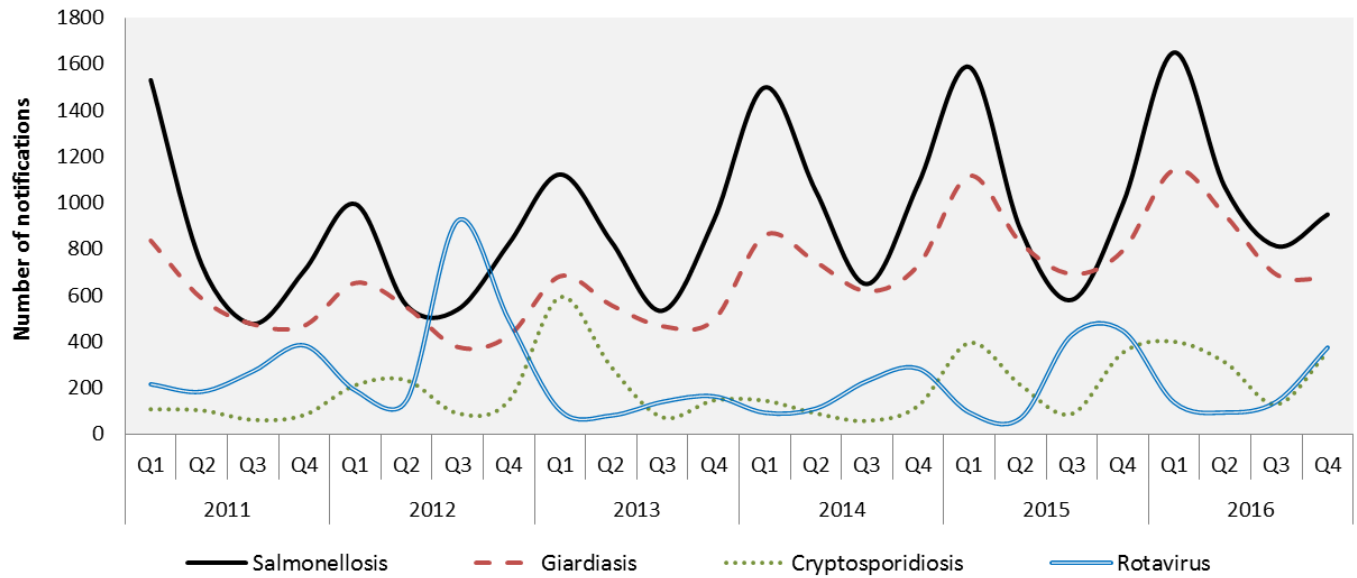
time period in 2014 and 2015. There was a marked increase (204%) in the number of locally acquired *Salmonella* Enteritidis infections in the fourth quarter compared to the five year average (table 2). Public health units conduct enhanced follow up all cases of *S. Enteritidis*, but as yet, no common sources have been identified.

**Shigellosis** was higher than expected with 79 cases reported this quarter, compared to the five year average of 41.8 cases. South Eastern Sydney LHD and Sydney LHD accounted for 58% of all reported cases in NSW; with notable increases above the five year average (133% and 104% respectively). The response to shigellosis was described in the quarter 3 report.

Fourteen **foodborne or suspected foodborne outbreaks** were reported affecting 479 people (table 1), of whom eight were hospitalised (table 5). Five outbreaks identified *Salmonella* Typhimurium as the causative agent, one norovirus and one *Campylobacter*. The remaining seven were of unknown aetiology. In five outbreaks a suspected contaminated food source could be implicated. In the remaining nine outbreaks, a food venue was identified but the food vehicle was unknown. The outbreaks with a known cause were identified as: *Salmonella* Typhimurium linked to raw egg products in three outbreaks, *Salmonella* Typhimurium linked to duck pancakes, and *Campylobacter* linked to chicken liver pate.

Two infections in food handlers required **large scale follow-up of contacts**. In November, a case of typhoid in a food handler at a busy cafe required clearance specimens of 23 work and household contacts. No secondary cases arose. In December, a case of hepatitis A in a food handler on a cruise ship was notified. Of 500 food handlers on board, 175 were recommended vaccine as prophylaxis. Hepatitis A vaccine was provided to the most at-risk crew on arrival in Sydney. The vessel was recommended to make hepatitis A vaccination a requirement for employment aboard the ship.

**Figures 1-3.** Number of notifications by year, quarter and disease, Jan 2011 to Dec 2016



**Table 1. Notifiable enteric conditions, quarter 4 2016, by Local Health District**

Notifiable Disease		CC	FW	HNE	IS	M	MNC	NBM	NNSW	NS	SES	SNSW	SWS	Syd	WNSW	WS	NSW
Botulism	Notified, Q4 2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5 y Q4 mean, 2011-2015	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cryptosporidiosis	Notified, Q4 2016	9	1	89	20	16	12	17	19	66	32	9	17	10	33	11	361
	5 y Q4 mean, 2011-2015	4.4	0.2	33.0	9.0	13.2	4.0	6.8	9.6	12.8	25.0	4.0	8.6	11.2	16.6	12.6	171.0
Giardiasis	Notified, Q4 2016	33	0	96	33	45	23	29	19	105	99	13	44	57	28	54	678
	5 y Q4 mean, 2011-2015	19.8	1.8	69.4	35.8	22.8	12.0	33.2	15.4	96.4	104.2	14.6	39.2	50.0	26.2	42.4	583.4
Hepatitis A	Notified, Q4 2016	0	0	0	2	0	0	0	0	0	3	0	2	2	0	4	13
	5 y Q4 mean, 2011-2015	0.4	0.0	0.4	0.2	0.0	0.4	0.4	0.4	1.2	1.6	0.4	3.2	1.8	0.6	3.8	14.8
Hepatitis E	Notified, Q4 2016	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2	4
	5 y Q4 mean, 2011-2015	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.6	0.0	1.0	0.8	0.0	1.0	5.8
Listeriosis	Notified, Q4 2016	1	0	0	1	0	0	1	0	0	1	0	0	0	0	2	6
	5 y Q4 mean, 2011-2015	0.2	0.0	0.8	0.6	0.2	0.2	0.2	0.0	1.0	1.2	0.4	1.0	0.8	0.2	0.6	7.6
Rotavirus	Notified, Q4 2016	6	1	37	12	8	2	11	4	92	46	2	60	38	8	49	376
	5 y Q4 mean, 2011-2015	12.2	3.0	53.2	5.4	13.6	3.0	19.6	16.4	49.2	42.4	5.8	31.6	29.2	29.4	41.2	355.6
Salmonellosis	Notified, Q4 2016	64	3	98	53	30	32	31	66	133	116	17	87	90	37	94	951
	5 y Q4 mean, 2011-2015	31.2	5.2	111.6	41.0	39.8	30.0	40.2	55.8	132.8	117.4	23.2	87.6	76.4	22.2	93.2	907.6
Shigellosis	Notified, Q4 2016	3	0	4	3	2	0	0	5	6	28	0	5	18	2	3	79
	5 y Q4 mean, 2011-2015	1.2	0.2	2.2	2.0	0.4	0.8	1.0	1.6	3.6	12.0	0.2	3.0	8.8	0.4	4.4	41.8
STEC/VTEC	Notified, Q4 2016	1	0	5	1	4	0	0	1	1	3	7	0	0	4	7	34
	5 y Q4 mean, 2011-2015	0.2	0.0	2.4	0.2	1.0	0.2	0.0	0.2	0.4	0.8	1.0	0.0	0.2	0.2	0.4	7.2
HUS	Notified, Q4 2016	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	2
	5 y Q4 mean, 2011-2015	0.0	0.0	0.2	0.0	0.4	0.2	0.0	0.0	0.2	0.4	0.0	0.0	0.0	0.2	0.2	1.8
Typhoid	Notified, Q4 2016	0	0	0	0	0	0	0	0	0	4	0	2	0	1	1	8
	5 y Q4 mean, 2011-2015	0.0	0.0	0.2	0.2	0.0	0.2	0.2	0.0	1.0	2.4	0.0	2.4	1.2	0.0	3.2	11.0
Foodborne* Outbreaks	Notified, Q4 2016	2	0	1	1	0	0	1	0	3	8	2	0	2	1	2	14 <sup>†</sup>
	People affected	10	0	1	1	0	0	2	0	20	173	179	0	18	1	74	479
Salmonella Cluster	Notified, Q4 2016	1	0	0	0	0	0	0	0	3	2	0	0	2	0	0	3 <sup>†</sup>
	People affected	2	0	0	0	0	0	0	0	4	7	0	0	2	0	0	15

Legend: Blue shading refers to a 100% or greater increase in the number of notifications compared to the five year average. \*Foodborne or potentially foodborne outbreaks  
<sup>†</sup> NSW totals include multi LHD outbreaks and therefore do not equal the sum of LHD outbreaks. Local Health District (LHD) abbreviations: Central Coast LHD (CC), Far West NSW LHD (FW), Western NSW LHD (WNSW), Hunter New England LHD (HNE), Illawarra Shoalhaven LHD (IS), South Western Sydney LHD (SWS), Mid North Coast LHD (MNC), Northern NSW LHD (NNSW), Murrumbidgee LHD (M), Southern NSW (SNSW), Nepean Blue Mountains LHD (NBM), Northern Sydney LHD (NS), South Eastern Sydney LHD (SES), Sydney LHD (Syd), Western Sydney LHD (WS).

**Table 2.** Notifiable enteric conditions by overseas or local acquisition, quarter 4 2016, by local health district

Notifiable Disease	Place infection acquired	NSW, Q4 2016	5 yr Q4 mean 2011-2015	2016 % change
Hepatitis A	Locally acquired	1	2.2	-55%
	Overseas acquired	12	12.2	-2%
	Unknown	0	0.4	-100%
Hepatitis E	Locally acquired	0	1.4	-100%
	Overseas acquired	4	4	0%
	Unknown	0	0.4	-100%
<i>Salmonella</i> Enteritidis	Locally acquired	14	4.6	204%
	Overseas acquired	48	33.6	43%
	Unknown	5	5	0%
Paratyphoid	Locally acquired	1	0	-
	Overseas acquired	3	6.6	-55%
	Unknown	0	0.2	-
Shigellosis	Locally acquired	44	17	159%
	Overseas acquired	23	17	35%
	Unknown	12	7.8	54%
STEC/VTEC	Locally acquired	29	4.2	590%
	Overseas acquired	3	0.4	650%
	Unknown	2	2.6	-23%
Typhoid	Locally acquired	0	1	-100%
	Overseas acquired	7	9.8	-29%
	Unknown	1	0.2	400%

Legend: Blue shading refers to a 100% or greater increase in the number of notifications compared to the five year average.

## Notable Foodborne Outbreaks

### **Multijurisdictional outbreak of *Salmonella* Typhimurium 3-25-18-12-523**

In early December 2016, four separate complaints of foodborne illness were received by the NSW Food Authority and Public Health Units. Initial investigations by the NSW Food Authority identified one common food item which was served at all events, a duck pancake supplied by a commercial catering company.

Specimens collected as part of the initial investigations were positive for *Salmonella* Typhimurium MLVA 3-25-18-12-523. A review of all *Salmonella* specimens with collection dates from 27 November to 17 December 2016 found a total of 54 cases with the same MLVA. 36 were able to be interviewed, of which 31 identified attending 12 catered events during the exposure period (including the initial four complaints). Eight of the 12 events were found to have been supplied by the identified caterer; however, a supplier could not be confirmed for the other four events. A survey sent to guests and staff from one of the events showed a significant risk of illness associated with consumption of duck pancakes (RR 9.2; 95% CI 2.5-33.5) and sushi (RR 3.0; 95% CI 1.1-8.2), both supplied by the one caterer.

Based on epidemiological, environmental and laboratory investigations, it was concluded that the outbreak was likely caused by consumption of contaminated duck pancakes distributed by the one commercial caterer. The NSW Food Authority took immediate action prohibiting the sale and distribution of food products from this company.

### **Cluster of norovirus following funeral functions**

On 5 November, the Public Health Unit in Murrumbidgee Local Health District was notified by West Wyalong Hospital Emergency Department of a number of patients with gastroenteritis symptoms who had reported attending either of two funeral functions the previous day.

A survey was distributed to 109 (of 400 total) guests with mobile phone numbers and five staff members. Thirty one attendees reported gastro-like illness (vomiting and/or diarrhoea) with onset dates between 4 and 6 November 2016. The survey was unable to identify or exclude any clear food source or person to person transmission.

Of three specimens collected from 13 hospitalised patients, two detected norovirus and no bacterial pathogens were found.

### ***Salmonella* Typhimurium 3-9-7-12-523**

In late October 2016, a cluster of eleven cases of salmonellosis was reported in residents and travellers to Cooma. Nine were laboratory confirmed, of which eight were characterised as *Salmonella* Typhimurium MLVA 3-9-7-12-523.

Nine of the eleven reported eating at a particular cafe in Cooma between 3 and 24 September 2016. The two cases that did not eat at the cafe were local residents; however, had both received eggs from friends with backyard chickens. Foods consumed by cases at the cafe varied widely. Local council inspected the premises and found that the cafe produced raw egg mayonnaise in addition to other minor issues. A prohibition order was issued on the sale of raw egg products, cleaning and sanitising was completed, and other issues were rectified.

Samples of raw egg mayonnaise were collected but *Salmonella* was not detected. Despite this, it is thought that the cluster was likely caused by consumption of items containing raw egg products based on based on epidemiological evidence, laboratory investigations, and issues detected during the council inspection.

### ***Salmonella* Typhimurium 3-10-8-11-496**

In December 2016, four cases of *Salmonella* Typhimurium MLVA 3-10-8-11-496 were reported, an MLVA type which had not previously been

reported in NSW. The four cases were equally dispersed between two neighbouring local health districts, were unrelated to one another, and all middle-aged adults with specimens collected between 17 and 24 October 2016.

Three cases were interviewed, of whom two reported eating at the same restaurant between 11 and 13 October 2016. Both recalled eating items containing eggs or raw egg products. The third, who did not recall eating at the venue or

travelling to the area, experienced illness onset slightly later than the others and reported multiple other exposure risks.

The NSW Food Authority inspected the venue but did not detect any significant findings related to food operations. Based on epidemiological and laboratory investigations, however, it is thought that the cluster was likely caused by consumption of items containing undercooked eggs or raw egg products.

## Salmonella spotlight.

Salmonellosis accounted for 37% of all enteric infections reported between 1 October and 31 December 2016. 951 notifications of *Salmonella* were received in this quarter, which is 5% above the five year average (n=908). The top 10 *Salmonella* serotypes are shown in Figure 4. The most common serovar was *Salmonella* Typhimurium at 35% (n=337) of the 951 notifications, which is 25% below the five year average of 451 *Salmonella* Typhimurium cases for this period. The most common *Salmonella*

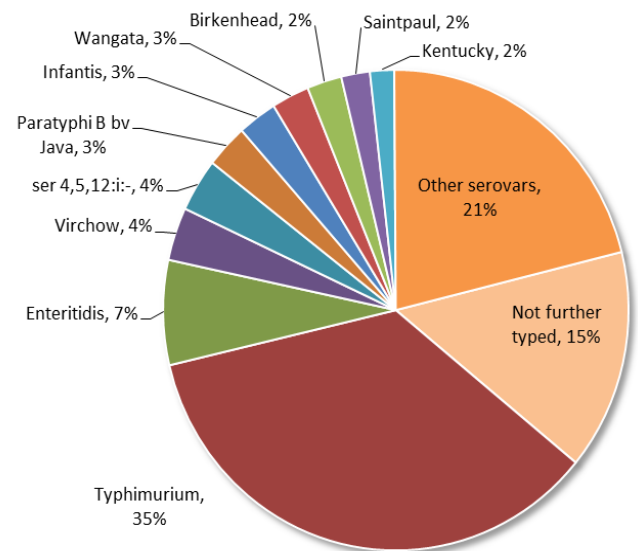
Typhimurium MLVA profile was 3-25-18-12-523 (Table 3).

*Salmonella* Enteritidis was the second most common serotype with 67 cases reported in the quarter. *Salmonella* Enteritidis made up 7% of all serotypes in the fourth quarter; compared to 10%, 4% and 3% in the third, second and first quarters of 2016 respectively. The long term trends of *Salmonella* Enteritidis and *Salmonella* Typhimurium are shown in Figure 5.

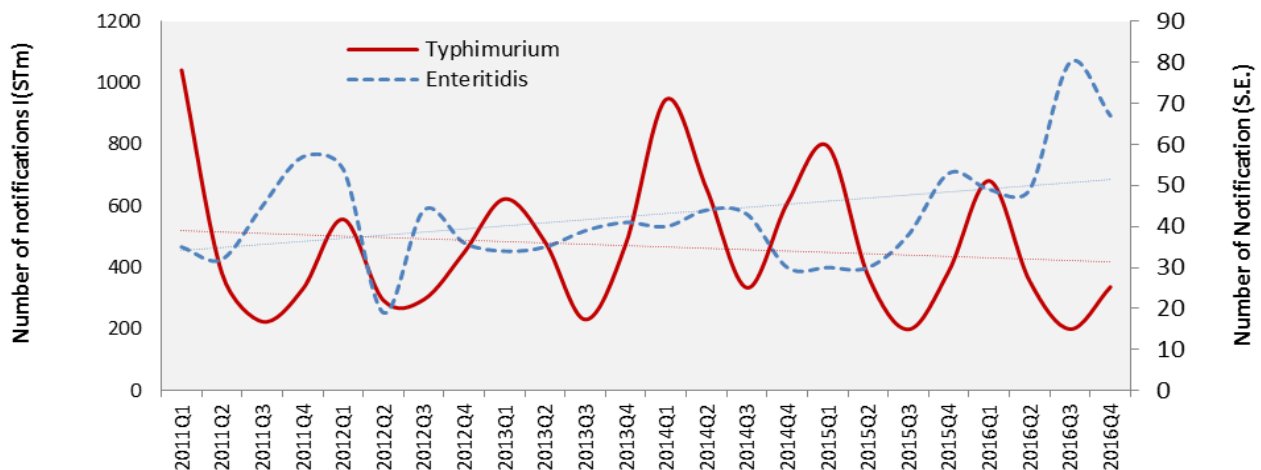
**Table 3.** Top 12 *Salmonella* Typhimurium MLVAs, quarter 4 2016

MLVA	Notifications	% of STm typed
3-25-18-12-523	55	14%
3-16-9-7-523	15	4%
4-15-11-0-490	14	4%
3-13-12-9-523	9	2%
3-17-9-11-523	8	2%
3-10-7-11-523	8	2%
3-18-9-11-523	8	2%
3-24-13-10-523	6	2%
1-10-0-0-463	6	2%
4-15-12-0-490	6	2%
3-23-13-10-523	6	2%
3-9-7-14-523	6	2%
<b>Top 12 total</b>	<b>147</b>	<b>39%</b>

**Figure 4.** Proportion of *Salmonella* serovars, quarter 4 2016 (N=952)



**Figure 5.** Trends for *S. Typhimurium* and *S. Enteritidis* in NSW, 2011-2016, by quarter





**Table 4.** Foodborne and Suspected foodborne outbreaks, quarter 4 2016

PHU ID	Month <sup>#</sup>	Setting	Agent responsible	No. ill	Lab confirmed	No. Hospitalised	Evidence	Responsible vehicles	Contributing factors
GS201601	Oct	restaurant	<i>Salmonella</i> Typhimurium MLVA 3-9-7-12-523	8	6	0	D	Raw egg sauce	Cross contamination & use of raw egg
SES52304	Oct	restaurant	Unknown	9	0	0	D	Unknown	Unknown
SES52328	Oct	restaurant	Unknown	8	0	0	D	Unknown	Unknown
SES52362	Oct	restaurant	Unknown	62	0	0	D	Unknown	Unknown
NSW201603	Oct	restaurant	<i>Salmonella</i> Typhimurium MLVA 3-12-11-15-523	6	6	0	D	Unknown	Cross contamination
CC201601	Oct	restaurant	<i>Salmonella</i> Typhimurium MLVA 3-10-8-11-496	4	4	0	D	Items containing undercooked eggs	Use of raw eggs
GS201602	Nov	restaurant	Norovirus	171	2	0	D	Unknown	Unknown
WS52757	Nov	restaurant	Unknown	70	0	0	D	Unknown	Unknown
NS201601	Nov	restaurant	<i>Campylobacter</i>	3	1	0	D	Chicken liver pate	Undercooking
NSW201604	Dec	commercial caterer	<i>Salmonella</i> Typhimurium MLVA 3-25-18-12-523	78	28	5	A	Duck pancakes	Cross contamination
SES53083	Dec	restaurant	Unknown	4	0	0	D	Unknown	Unknown
CC201602	Dec	restaurant	<i>Salmonella</i> Typhimurium MLVA 3-18-9-11-523	6	1	0	D	Raw egg sauce	Use of raw eggs
SES53176	Dec	restaurant	Unknown	6	0	0	D	Unknown	Food handler contamination likely
SES53224	Dec	restaurant	Unknown	44	0	3	D	Unknown	Unknown

<sup>#</sup>Month of outbreak is the month of onset of first case or month of notification/investigation of the outbreak. Evidence category: **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 agent in the suspected vehicle and cases. **MLVA** Multi-locus variable number tandem repeat analysis.

In NSW, gastroenteritis and foodborne outbreaks are identified via a range of mechanisms, including reports from the public, general practitioners, institutions such as residential care facilities and child care centres, emergency departments, analysis of surveillance data, and reports to the NSW Food Authority's (NSWFA) Consumer Complaints Line.

## Gastroenteritis Outbreaks in Institutions

From 1 October to 31 December 2016, a total of 215 outbreaks of suspected viral gastrointestinal illness in institutions were reported in NSW affecting at least 3,190 people. This represents an increase of 45% compared to the average number of outbreaks reported during the same quarter from 2011 to 2015 (n=148), and an increase of 42% compared to the mean number of people affected as a result of the outbreaks (n=2,246).

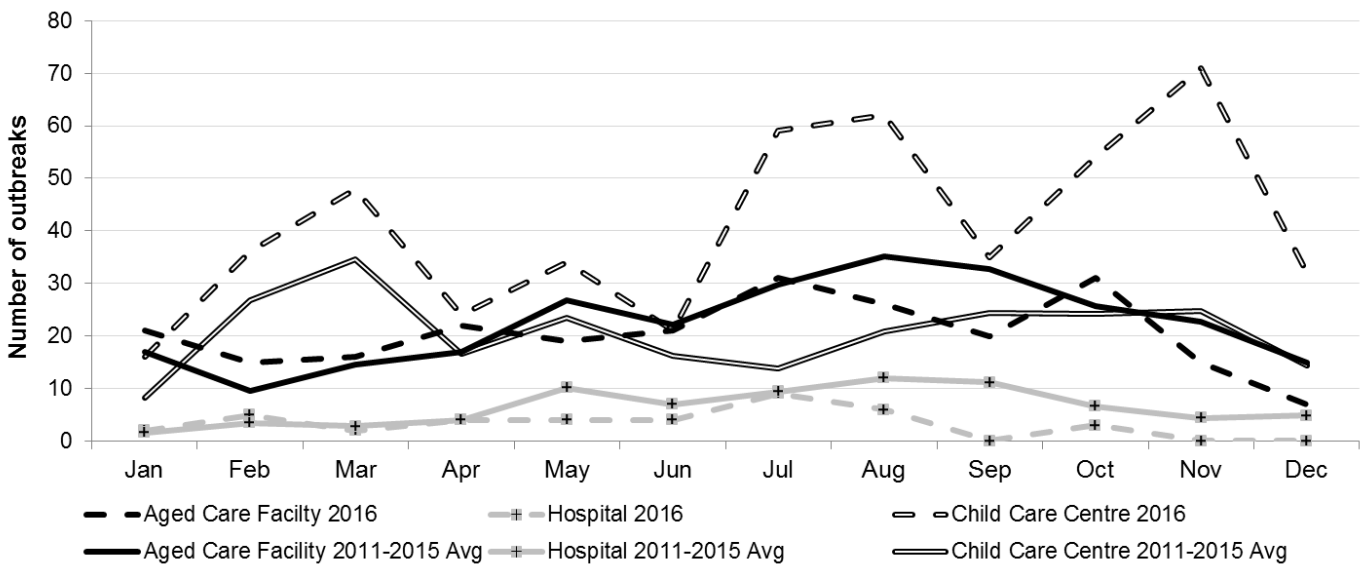
Of the 215 outbreaks, 157 (73%) occurred in child care centres, 53 (25%) in aged care facilities, 3 (1%) in hospitals and 2 (1%) in schools. The number of child care centre outbreaks during quarter four was 149% higher than the five year average, but numbers of outbreaks in other facilities were at or below average levels (figure 6).

Overall, 16% of staff members and 15% of non-staff became sick during gastroenteritis outbreaks (attack rate) in quarter 4 (table 5). The highest attack rate for gastrointestinal disease for staff was in schools (26%) and for non-staff was in school students (42%). Outbreaks lasted 9 days on average; shortest in hospitals (2 days) and longest in child care centres (10 days) (table 6).

One or more stool samples were collected in 63 (29%) of the outbreaks. Norovirus was identified in 22 (35%) of these outbreaks and rotavirus was identified in 9 (14%). The results of the other samples were negative, or not reported (table 6).

Public health units monitor gastroenteritis outbreaks in institutions and provide advice on control measures.

**Figure 6.** Number of reported outbreaks of gastrointestinal illness in institutions, quarter 4 2016 compared to the five year average, by month and facility type



**Table 5.** Outbreaks of gastroenteritis in institutions reported in NSW, quarter 4 2016, by Local Health District\*

Facility type	Q4 2016	CC	HNE	IS	M	MNC	NBM	NS	SES	SNSW	SWS	Syd	WNSW	WS	NSW
ACF	No. of outbreaks	5	4	3	2	1	1	13	4	1	6	2	2	9	53
	Staff affected	23	12	16	0	1	5	81	4	1	15	2	20	60	240
	Non-staff affectedd	83	37	38	8	10	13	275	38	17	95	18	31	217	880
CCC	No. of outbreaks	0	21	16	2	1	14	41	15	3	11	12	0	21	157
	Staff affected	0	83	56	7	2	13	113	28	7	22	18	0	60	409
	Non-staff affectedd	0	259	208	29	14	87	404	148	25	76	104	0	218	1572
Hospital	No. of outbreaks	0	0	0	0	0	0	0	2	0	1	0	0	0	3
	Staff affected	0	0	0	0	0	0	0	30	0	0	0	0	0	30
	Non-staff affectedd	0	0	0	0	0	0	0	8	0	7	0	0	0	15
Other	No. of outbreaks	0	0	0	0	0	0	1	1	0	0	0	0	0	2
	Staff affected	0	0	0	0	0	0	2	3	0	0	0	0	0	5
	Non-staff affectedd	0	0	0	0	0	0	21	16	0	0	0	0	0	37

\*FW & NNSW did not report any outbreaks of gastroenteritis in institutions in this period

Local Health District (LHD) abbreviations: Central Coast LHD (CC), Far West NSW LHD (FW), Western NSW LHD (WNSW), Hunter New England LHD (HNE, Illawarra Shoalhaven LHD (IS), South Western Sydney LHD (SWS), Mid North Coast LHD (MNC), Northern NSW LHD (NNSW), Murrumbidgee LHD (M), Southern NSW (SNSW), Nepean Blue Mountains LHD (NBM), Northern Sydney LHD (NS), South Eastern Sydney LHD (SES), Sydney LHD (Syd), Western Sydney LHD (WS).

**Table 6.** Outbreaks of gastroenteritis in institutions reported in NSW, quarter 4 2016, by facility type

Setting	No of Outbreaks (n)	Staff Affected (n: attack rate)	Non-staff affected (n: attack rate)	Average duration of outbreak (days)	Outbreaks with stool collected (n: %)	Outbreaks with pathogen found (n: pathogen found)
ACF	53	240: 7%	880: 20%	8	43: 81%	20: norovirus & 4: rotavirus
CCC	157	409: 18%	1,572: 13%	10	18: 11%	5: rotavirus
Hospital	3	30: 11%	15: 32%	2	2: 67%	2: norovirus
School	2	5: 26%	37: 42%	5	0: 0%	-
Total	215	684: 16%	2,504: 15%	9	63: 29%	22: norovirus & 9: rotavirus

(ACF= aged care facility, CCC= child care centre)