

OzFoodNet—Enhancing Foodborne Disease Surveillance Across Australia.

Third Quarter Summary, July - September 2016 NSW

NSW OzFoodNet



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Highlights Quarter 3, 2016

Introduction

This report describes data for enteric conditions for quarter 3, 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 third quarter of 2016, increases were reported for the following five notifiable enteric conditions (table 1); cryptosporidiosis (72.9% increase), giardiasis (30.9% increase), salmonellosis (46.1% increase), shigellosis (80.6% increase) and STEC (1100% increase). The long term trends for the twelve notifiable enteric conditions in NSW are shown in Figures 1-3.

There were 814 cases of **salmonellosis** reported in quarter 3 of 2016, the highest of any third quarter over the past 5 years. The most significant increases were noted in Southern NSW (98% increase), Sydney (81% increase), Northern Sydney (75% increase), and South Eastern Sydney (56% increase). There was an increase (491%) in the number of locally acquired *Salmonella* Enteritidis infections in the third quarter when compared to the 5 year average (table 2). This increase follows a similar increase in locally acquired *Salmonella* Enteritidis reported last quarter. Public health units continue to interview all *Salmonella* Enteritidis cases, and no common link has been identified. A more comprehensive description of *Salmonella* notifications can be found on page 7.

Shigellosis increased across 11 of the 15 LHDs in the third quarter of 2016. There were a total of 65

cases reported with the majority of cases coming from South Eastern Sydney (n=17) and Sydney (n=19) LHDs. These two LHDs reported a 98% and 164% increase, respectively, in notifications when compared to the 5 year average. A more comprehensive description of shigellosis can be found on page 6.

Cryptosporidiosis remained above expected for the 3rd quarter with the highest increases noted in Northern Sydney (188% increase), Southern NSW (150% increase), South Western Sydney (150% increase), Murrumbidgee (135% increase) and Sydney (127% increase). Public health units continue to interview cases, and monitor for common links, such as to public swimming pools.

STEC infections increased from a 5 year average of 1.25 cases to 15 cases in quarter 3 of 2016. Western Sydney reported five STEC cases, the most of any LHD and a notable increase given no quarter 3 STEC cases have been reported in the past 5 years. It should be noted that a change in case definition, to include cases diagnosed by polymerase chain reaction (PCR), was introduced in July 2016. PCR methods are more sensitive than culture and will result in more cases being notified.

Twelve **foodborne or suspected foodborne outbreaks** were identified affecting 451 people, of whom 13 were hospitalised (table 5). Three outbreaks identified *Salmonella* as the causative agent, one norovirus and the remaining eight were of unknown aetiology. In four of the outbreaks a suspected contaminated food source could be implicated. In the remaining eight outbreaks, a food venue, camp or aged care facility was identified but the food vehicle was unknown. The outbreaks with a known cause were *Salmonella* Hvitvingfoss linked to rockmelons, *Salmonella* Typhimurium linked to raw egg products, norovirus linked to homemade cakes and an unknown infectious agent linked to wraps served at a restaurant.

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

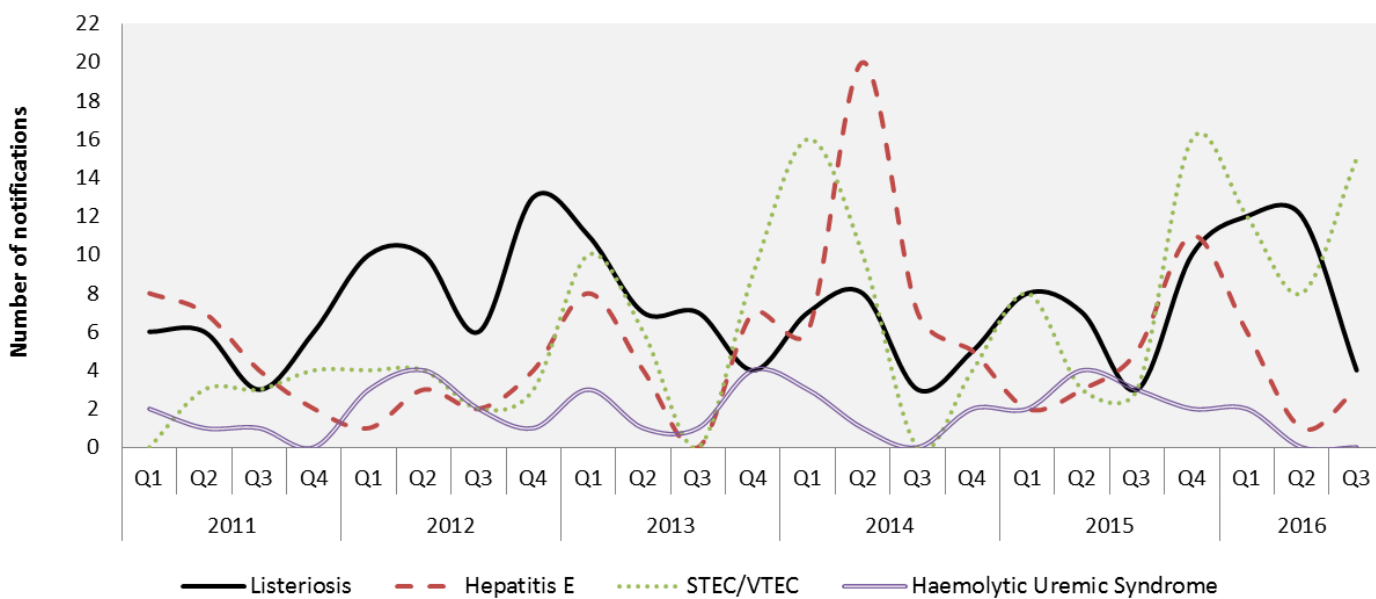
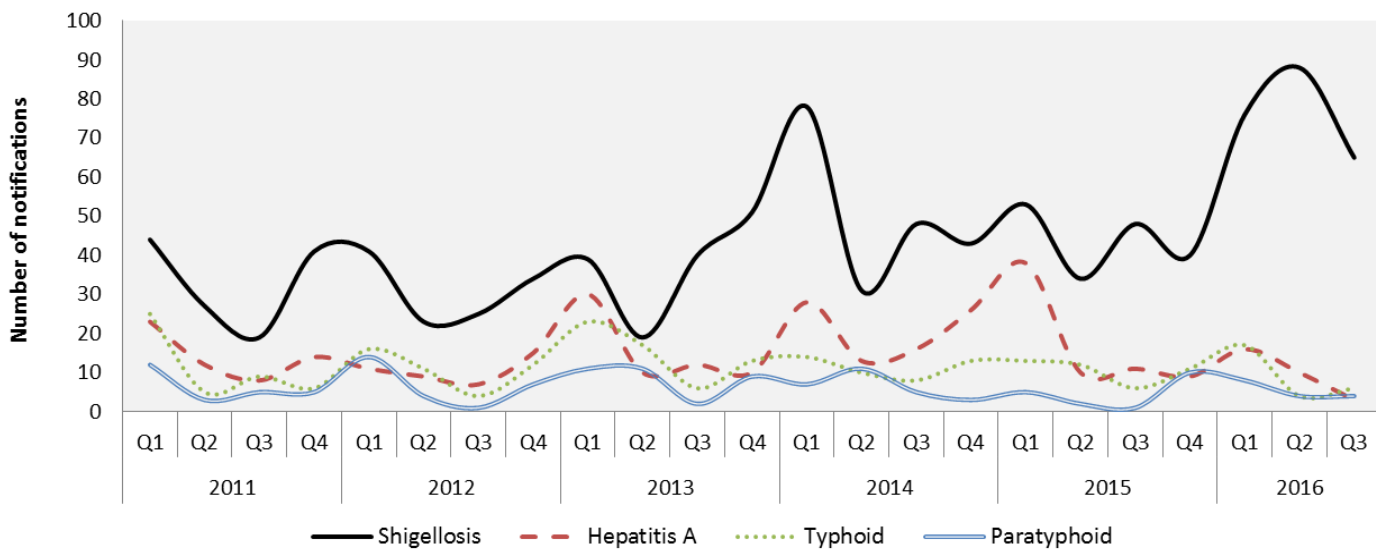
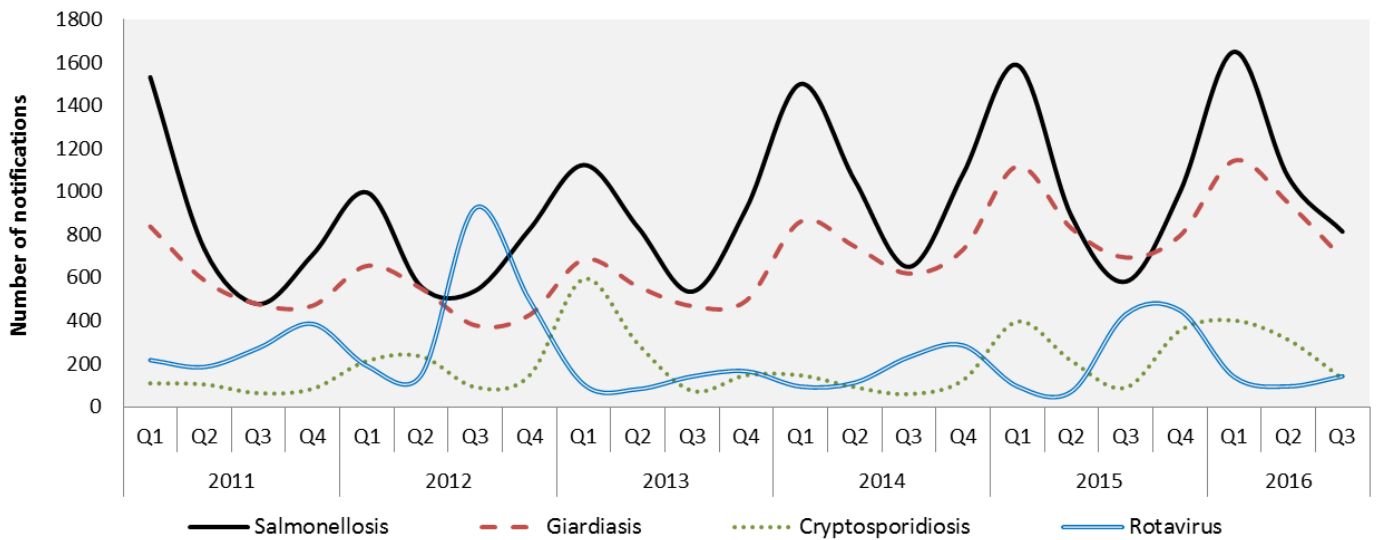


Table 1: Notifiable enteric conditions for quarter 3, 2016, by Local Health District

Notifiable Disease		CC	FW	HNE	IS	M	MNC	NBM	NNSW	NS	SES	SNSW	SWS	Syd	WNSW	WS	NSW
Botulism	Notified, Q3 2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5 y Q3 mean, 2011-2015	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.0	0.0	0.0	0.4
Cryptosporidiosis	Notified, Q3 2016	3	0	12	2	8	2	5	5	23	24	4	10	15	3	14	130
	5 y Q3 mean, 2011-2015	1.4	0	9.2	6.2	3.4	3.6	2.6	5.8	8	12	1.6	4	6.6	3.2	7.6	75.2
Giardiasis	Notified, Q3 2016	28	2	83	45	31	16	26	30	117	121	11	46	74	16	44	690
	5 y Q3 mean, 2011-2015	19.4	1	68.2	30.2	18.6	11.2	24	13.6	84.2	96.6	9.8	29.2	44.8	30	46	527
Hepatitis A	Notified, Q3 2016	0	0	0	1	0	0	1	0	1	0	0	0	0	0	0	3
	5 y Q3 mean, 2011-2015	0.4	0	0	0.2	0.2	0	0.8	0.4	0.6	1.6	0	1	1.6	0.2	2	10.8
Hepatitis E	Notified, Q3 2016	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	3
	5 y Q3 mean, 2011-2015	0	0	0	0	0	0	0	0	0.2	0.2	0	1	0.6	0	1.2	3.6
Listeriosis	Notified, Q3 2016	0	0	0	1	0	0	0	0	0	0	1	1	1	0	0	4
	5 y Q3 mean, 2011-2015	0	0	0	0.2	0	0	0	0	0.8	0.8	0	0.8	0.2	0	0.8	4.4
Rotavirus	Notified, Q3 2016	6	1	7	3	5	2	8	6	18	28	1	17	16	0	24	142
	5 y Q3 mean, 2011-2015	11.6	1.8	43	21.2	5	3.6	24.4	18.8	55.4	48	4.4	39.8	26.4	31	65.2	399.8
Salmonellosis	Notified, Q3 2016	25	1	79	42	26	23	25	44	141	111	25	80	89	16	87	814
	5 y Q3 mean, 2011-2015	23	2.8	59.6	27.8	23	19.6	25.6	29.6	80.6	71	12.6	59.4	49.2	12.6	60.4	557
Shigellosis	Notified, Q3 2016	4	0	2	3	0	1	1	2	7	17	1	6	19	1	1	65
	5 y Q3 mean, 2011-2015	2.4	0	1.4	1	0	0.6	1.2	0.6	6.6	8.6	0.6	2.4	7.2	0.4	2.8	36
STEC	Notified, Q3 2016	0	1	0	0	3	0	0	0	0	1	2	1	0	2	5	15
	5 y Q3 mean, 2011-2015	0	0	0.25	0	0	0	0	0	0	0.25	0.25	0.25	0	0	0	1.25
HUS	Notified, Q3 2016	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5 y Q3 mean, 2011-2015	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.5	0.2	0.0	0.0	1.2
Typhoid	Notified, Q3 2016	0	0	0	2	0	0	0	0	0	2	0	0	0	1	1	6
	5 y Q3 mean, 2011-2015	0	0	0	0	0	0.2	0	0	0.4	1.4	0.2	0.6	1.6	0	2	6.6
Foodborne* Outbreaks	Notified, Q3 2016	0	0	3	2	1	1	2	0	3	3	2	2	3	0	2	12†
	People affected	0	0	36	24	1	1	37	0	66	34	5	97	65	0	9	375
Salmonella Cluster	Notified, Q3 2016	3	0	1	4	2	1	2	1	6	3	1	3	3	1	4	6
	People affected	3	0	2	7	2	2	6	3	32	15	1	18	13	2	15	121

Legend: Blue shading refers to a 100% or greater increase in the number of notifications compared to the five year average count. *Foodborne or potentially foodborne outbreaks
 † NSW total includes multi 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 for quarter 3, 2016, by local health district

Notifiable Disease	Place infection acquired	NSW, Q3 2016	5 yr Q3 mean 2011-2015	2016 % change
Hepatitis A	Locally acquired	1	1.2	-17%
	Overseas acquired	2	9.4	-79%
	Unknown	0	0.2	-100%
Hepatitis E	Locally acquired	1	1.4	-29%
	Overseas acquired	2	2	0%
	Unknown	0	0.2	-100%
<i>Salmonella</i> Enteritidis	Locally acquired	13	2.2	491%
	Overseas acquired	61	32.8	86%
	Unknown	6	6.6	-9%
Paratyphoid	Locally acquired	0	0	-
	Overseas acquired	4	2.8	43%
	Unknown	0	0	-
Shigellosis	Locally acquired	31	10.8	187%
	Overseas acquired	18	18	0%
	Unknown	16	7.2	122%
STEC	Locally acquired	13	1	1200%
	Overseas acquired	0	0.2	-100%
	Unknown	2	0.4	400%
Typhoid	Locally acquired	0	0.2	-100%
	Overseas acquired	5	6.2	-19%
	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 count

Notable Foodborne Outbreaks

Salmonella Hvittingfoss outbreak

In July 2016, an increase in *Salmonella* Hvittingfoss infections was identified through routine surveillance. 32 cases of *S.Hvittingfoss* with a specimen collection date between 1 July and 14 July 2016 were notified in NSW. NSW receives on average 1.3 notifications of *S.Hvittingfoss* per month. Health Protection NSW (HPNSW) in conjunction with public health units (PHUs) and the NSW Food Authority (NSWFA) commenced an investigation on 8 July 2016.

During this time period, increases were also identified in two other Australian jurisdictions with a multi-jurisdictional outbreak investigation (MJOI) commencing on 18 July 2016. Investigators conducted extensive hypothesis generating interviews later followed by a case control study. Whole genome sequencing (WGS) was incorporated to facilitate the identification of outbreak associated cases.

In NSW, 47 confirmed cases and 22 suspected cases were linked to the outbreak with specimen collection dates between 14 June and 24 August (noting some cases were notified in quarter 2 2016 but included here for completeness) The majority of cases (61%) were aged under 5 years of age.

Initial descriptive analysis identified rockmelon and watermelon as potential sources. A multijurisdictional case-case study was conducted to test the hypothesis that melons were the source of the outbreak. On 2 August 2016 rockmelons from an implicated grower were recalled following a positive food result in another jurisdiction.

Notable Enteric Outbreaks / Increases

Cryptosporidiosis linked to a petting zoo

Nepean Blue Mountains Public Health Unit was notified of four cases of cryptosporidiosis in children under 5 years old within a fortnight of each other. The four cases had symptom onsets between 11 and 20 September 2016. There were multiple risk exposures for all four cases, including attending swimming class and attending child care. However a particular petting zoo at a country club was the only exposure associated with all cases.

Two cases had direct contact with the petting zoo at the country club with a plausible incubation period before illness; a 3rd case, who was a sibling of one of the earlier cases, had direct contact, but the time from contact to illness onset was too long and therefore may have been a secondary case; the final case had contact with the petting zoo but there were several weeks between contact and illness onset.

The petting zoo owner was interviewed and an inspection conducted at the country club. The petting zoo is licenced with DPI and had no obvious risk factors for cryptosporidiosis: it had no new staff, it has a copy of South Australian Health Guidelines for contact with animals, faeces are immediately removed from the display area, and it does sessions at numerous locations each weekend.

The animal enclosure at the country club was recently constructed and only 10 children at time are allowed to enter. There is hand gel and hand washing signage at the exit, staff constantly supervise children and animals, and hose down the enclosure after animals are removed. There is also a hand wash trough with soap, but this is located about 20 metres from the exit of the enclosure. Advice was given to relocate the hand washing station closer to the exit from the enclosure to reduce the risk of children accessing food before washing their hands.

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Shigellosis increase

During quarter 3, 2016 notifications of shigellosis increased by 81% compared to the 5 year average for the same quarter. This follows increases in both quarter 1 (49%) and 2 (31%), 2016.

In January, 2016 the number of locally acquired *Shigella* cases started to increase, and by March the majority of cases were locally acquired (70% locally acquired compared to 17% overseas acquired) (Figure 4). An analysis of exposure information revealed that the majority of locally acquired cases were in men who have sex with men (MSM). For the first 9-months of 2016 MSM accounted for 57% of all cases when in previous years MSM accounted for only 40% of cases.

From March to June 2016, 14-16 cases of shigellosis in MSM were reported per month, which reached a monthly peak in September of 18 cases. Locally acquired cases with other exposures (such as sick house-hold contacts) or unidentified risk factors have remained steady (Figure 5). There was no shift in the serotyping of the cases; with the majority of shigellosis cases from all sources typed as *Shigella sonnei* G.

Health Protection NSW met with local health districts and NSW lesbian/gay/bisexual/transgender community health organisations at the beginning of July to discuss the increase in those with MSM risk factors. A program of awareness raising was initiated including social media releases, clinician alerts, gay media print ads, and poster information distributed to sex on premises venues.

Figure 4. Number of notifications of shigellosis by year, month and source of infection from Jan, 2014, to Sep, 2016

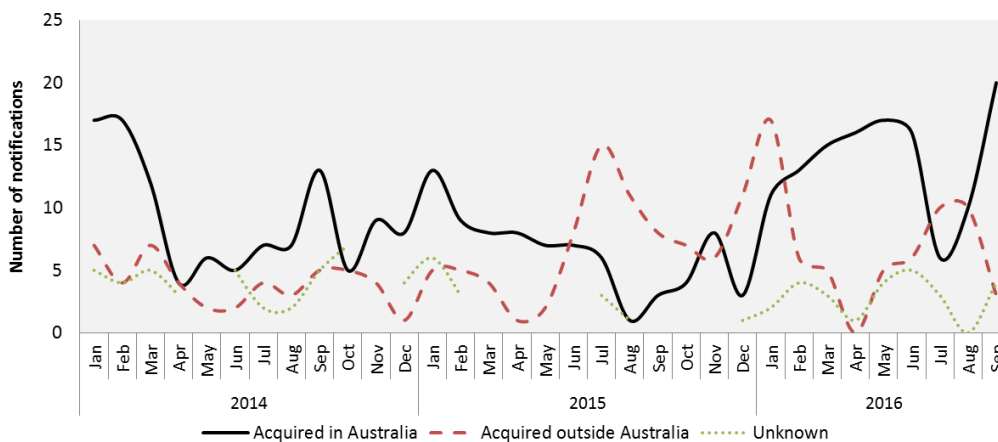
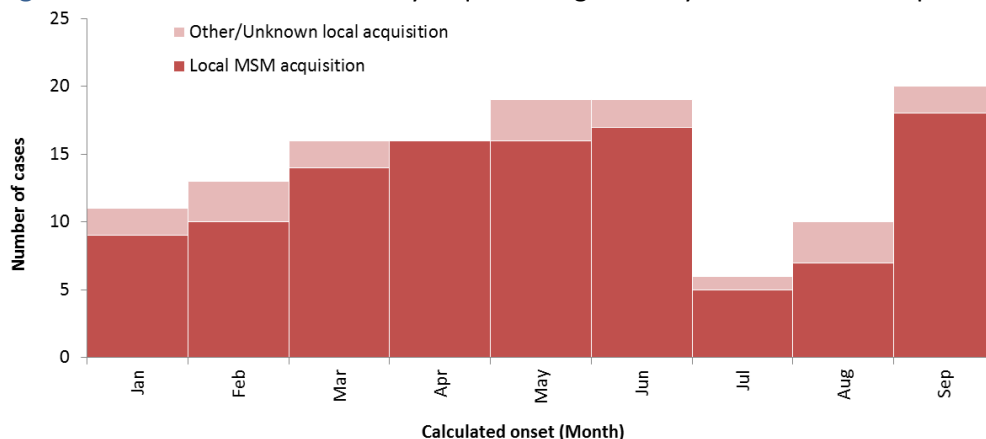


Figure 5. Number of cases of locally acquired shigellosis by month and risk exposure, 2016



Salmonella spotlight.

In quarter 3 of 2016, 43% of all enteric infections notified were salmonellosis. The 814 notifications represent a 46% increase above the 5 year average (n=557). Of the 814 *Salmonella* notifications, 24% (n=199) were *Salmonella* Typhimurium, a 19% reduction from the 5 year average of 257 cases for the third quarter.

The top 10 *Salmonella* serotypes are shown in Figure 6. *Salmonella* Enteritidis was the second most common serotype with 80 cases reported in quarter 3 of 2016. *Salmonella* Enteritidis made up 10% of all

serotypes in quarter 3, compared to 4% and 3% in the second and first quarters of 2016 respectively. The long term trends of *Salmonella* Enteritidis and *Salmonella* Typhimurium are shown in Figure 7. Other common serotypes are shown in Figure 4. A multi-state outbreak resulted in a sharp increase in the number of *Salmonella* Hvittingfoss notifications (see Notable Foodborne Outbreak for more details).

The most common *Salmonella* Typhimurium MLVA profiles were 3-12-11-14-523 (also the most common in quarter 2) and 3-9-7-12-523 (Table 3).

Table 3. Top ten *Salmonella* Typhimurium MLVAs, quarter 3, 2016

MLVA	Notifications	% of STm typed
3-12-11-14-523	14	6%
3-9-7-12-523	13	6%
3-12-12-9-523	10	4%
4-13-9-0-490	7	3%
4-15-11-0-490	7	3%
1-9-0-0-463	6	3%
3-11-15-10-523	6	3%
3-9-8-11-523	5	2%
3-26-13-8-523	4	2%
3-17-9-11-523	4	2%
Top ten total	76	33%

Figure 6. Proportion of *Salmonella* serovars, quarter 3, 2016 (N=814)

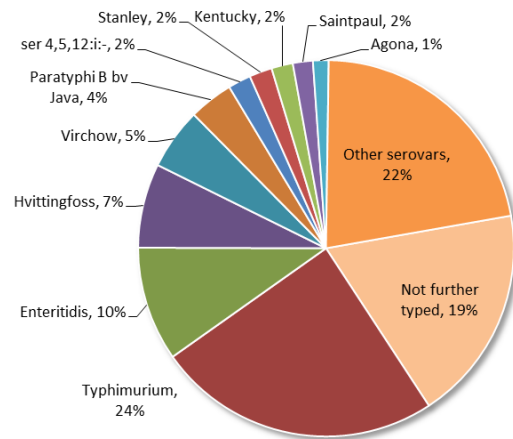


Figure 7. Trends, by quarter, for *S. Typhimurium* and *S. Enteritidis* in NSW from 2011-2016.

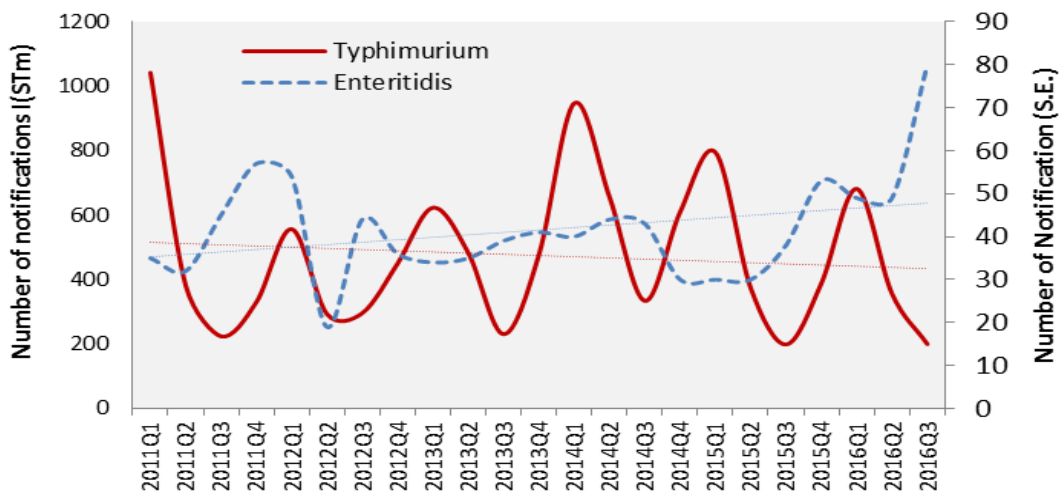


Table 5: Foodborne and Suspected foodborne outbreaks for quarter 3, 2016

PHU ID	Month	Setting	Agent responsible	No. ill	Lab confirmed	No. Hospitalised	Evidence	Responsible vehicles	Contributing factors
HUN0504	Jul	restaurant	<i>Salmonella</i> Typhimurium MLVA 3-11-15-10-523	5	5	1	D	Raw egg products	sale of raw egg products
NSW201602	Jul-Aug	National	<i>Salmonella</i> Hvitvingfoss	144*	144*	10	AM	Rockmelon	Inadequate sanitation of RTE product
NSW201601	Jul	camp	Unknown	116	0	0	D	unknown	person to food to person
WS51181	Jul	restaurant	Unknown	3	0	0	D	unknown	unknown
IS51433	Aug	commercial caterer	Unknown	19	0	0	D	unknown	food handler contamination
LIV51720	Aug	restaurant	Norovirus	80	1	1	D	Contaminated cakes	food handler contamination
SES51787	Aug	restaurant	Unknown	7	0	0	D	unknown	unknown
GS52152	Sep	commercial caterer	Unknown	3	0	0	D	Contaminated wraps	food handler contamination
HUN0506	Sep	restaurant	Unknown	19	0	0	D	unknown	unknown
HUN0507	Sep	restaurant	Unknown	12	0	1	D	unknown	unknown
SYD52140	Sep	restaurant	Unknown	30	0	0	D	unknown	unknown
100587429	Sep	Aged Care	<i>Salmonella</i> Typhimurium MLVA 3-14-9-13-523	13	3	0	D	unknown	unknown

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. * Total includes 77 cases from other States and Territories

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 July, 2016 to 30 September, 2016, a total of 254 outbreaks of suspected viral gastrointestinal illness in institutions were reported in NSW, affecting at least 3,602 people. This represents an increase of 30% compared to the five year mean number of outbreaks reported during the same quarter from 2011 to 2015 (n=196), and an increase of 10% compared to the mean number of people affected as a result of the outbreaks (n=3,265).

Of the 254 outbreaks of probable viral gastroenteritis in institutions reported in NSW, 156 (61%) occurred in child care centres, 75 (30%) in aged care facilities, 15 (6%) in hospitals and 8 (3%) in other facilities. The number of child care centre outbreaks during quarter 3 was 164% higher than the five year mean, but numbers of outbreaks in other facilities were at or below average levels (figure 8).

Overall, 15% of staff members and 14% of non-staff became sick during gastroenteritis outbreaks (attack rate) in quarter 3. The highest attack rate for gastrointestinal disease for staff was in child care centre staff (18%) and for non-staff was in patients on hospital wards (22%). On average outbreaks lasted 10 days; shortest in hospitals (5 days) and longest in other facilities (18 days) (table 7).

One or more stool samples were collected in 86 (34%) of the outbreaks. Norovirus was identified from 31 (36%) of these outbreaks and rotavirus was identified from 2 (2%). The results of the other samples were negative, or not reported (table 8).

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

Figure 8: Number of reported outbreaks of gastrointestinal illness in institutions; quarter 3, 2016 and average of the previous 5 years by month and facility type

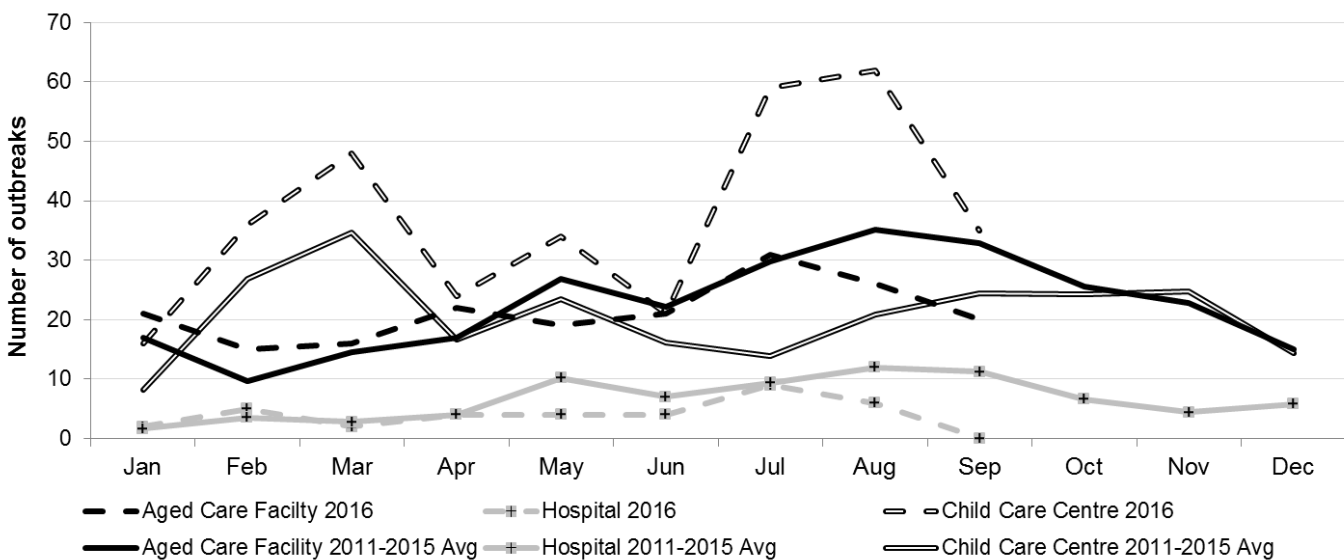


Table 7: Characteristics of outbreaks of gastrointestinal illness in institutions reported to NSW in quarter 3, 2016

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	75	336: 6%	1,077: 19%	7	59: 79%	22: norovirus & 1: rotavirus
CCC	156	388: 18%	1,572: 12%	11	14: 9%	2: norovirus & 1: rotavirus
Hospital	15	48: 12%	89: 22%	5	9: 60%	6: norovirus
Other	8	9: 12%	83: 13%	18	4: 50%	1: norovirus
Total	254	781: 14%	2,821: 15%	10	86: 34%	31: norovirus & 2: rotavirus

(ACF= aged care facility, CCC= child care centre, Other= School & residential care facilities)

Table 8: Outbreaks of gastroenteritis in institutions reported to NSW for quarter 3, 2016 by Local Health District*

Facility type	Q3 2016	CC	HNE	IS	M	MNC	NBM	NNSW	NS	SES	SNSW	SWS	Syd	WNSW	WS	NSW
ACF	No. of outbreaks	2	13	4	3	1	5	1	13	8	5	4	4	4	8	75
	Staff affected	4	133	52	0	1	3	2	22	34	19	4	7	19	36	336
	Non-staff affectede	11	202	102	18	7	30	7	132	131	95	19	72	56	195	1077
CCC	No. of outbreaks	1	20	12	7	1	23	1	23	11	6	10	9	0	32	156
	Staff affected	8	49	35	17	9	60	1	66	19	26	17	19	0	62	388
	Non-staff affectede	9	178	137	112	17	230	3	238	94	91	134	92	0	237	1572
Hospital	No. of outbreaks	0	0	5	0	1	2	0	1	1	2	1	0	0	2	15
	Staff affected	0	0	6	0	4	9	0	0	6	6	16	0	0	1	48
	Non-staff affectede	0	0	22	0	9	5	0	31	0	8	0	0	0	14	89
Other	No. of outbreaks	0	2	0	0	0	2	0	1	0	0	2	1	0	0	8
	Staff affected	0	1	0	0	0	1	0	3	0	0	4	0	0	0	9
	Non-staff affecte	0	15	0	0	0	26	0	5	0	0	15	22	0	0	83

*FW 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).