

OzFoodNet—Enhancing Foodborne Disease Surveillance Across Australia.

Third Quarter Summary, Jul - Sep 2015 NSW

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Highlights Quarter 3, 2015

Introduction

This report describes data for enteric conditions for quarter 3, 2015. 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, all held by Health Protection NSW. 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.

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 to public health units. 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.

Summary

During the third quarter of 2015, *Shigella* notifications increased by 31% compared to the five year average, with the largest increase in overseas acquired cases (122%). During this quarter, 9 (21%) were locally acquired, of which 4 (44%) acquired infection from a household contact, 2 (22%) reported MSM exposure as a possible source and 3 (33%) had no obvious risk exposure. Of the 26 cases with overseas travel, the most common place of acquisition was Indonesia in 8 (31%) cases. *Shigella sonnei* was the most common serotype identified (63%), followed by *S. flexneri* (19%) and *S. boydii* (7%).

Salmonella notifications increased by 4% compared to the five year average. *S. Typhimurium* accounted for most (35%) *Salmonella* notifications (figure 4). Six percent were *S. Enteritidis*. This represents a small increase in *S. Enteritidis*, which usually accounts for approximately 3-4% of salmonella cases annually. All *S. Enteritidis* cases are follow-up up in NSW as it is important to determine if they are locally acquired or not.

Hepatitis E notification rates were 47% above the 5-year average, with the number of locally acquired infections increased by 275%. The three locally acquired cases all reported consuming pork products from different sources. Two of the cases were typed genotype 3 and one could not be genotyped.

Eleven **foodborne or suspected foodborne outbreaks** were identified affecting 137 people, of whom 2 were hospitalised (table 5). Two outbreaks identified *Salmonella* as the causative agent, one was suspected ciguatera fish poisoning, one *Norovirus* and the remaining 7 were of unknown aetiology. In three of the outbreaks a suspected contaminated food source could be implicated. This included *Salmonella* Typhimurium infection linked to consumption of items containing undercooked eggs or chicken liver and ciguatera poisoning linked to consumption of a red throat emperor fish.

While **Rotavirus** notification rates were the same as the 5-year average, some LHDs, such as Far West and Southern, had marked increases of 333% and 211% respectively. What is also noteworthy is the amount of Rotavirus detected in outbreaks of gastroenteritis in institutions. Of the 31 outbreaks that had a pathogen detected, 13 (42%) detected rotavirus (Table 5), this was in aged care facilities, child care centres and hospitals. Normally rotavirus is only detected in approximately 10% of institution outbreaks when a pathogen is detected.

Figures 1-3. Counts of notifications of enteric disease for each quarter of each year, 2010-2015

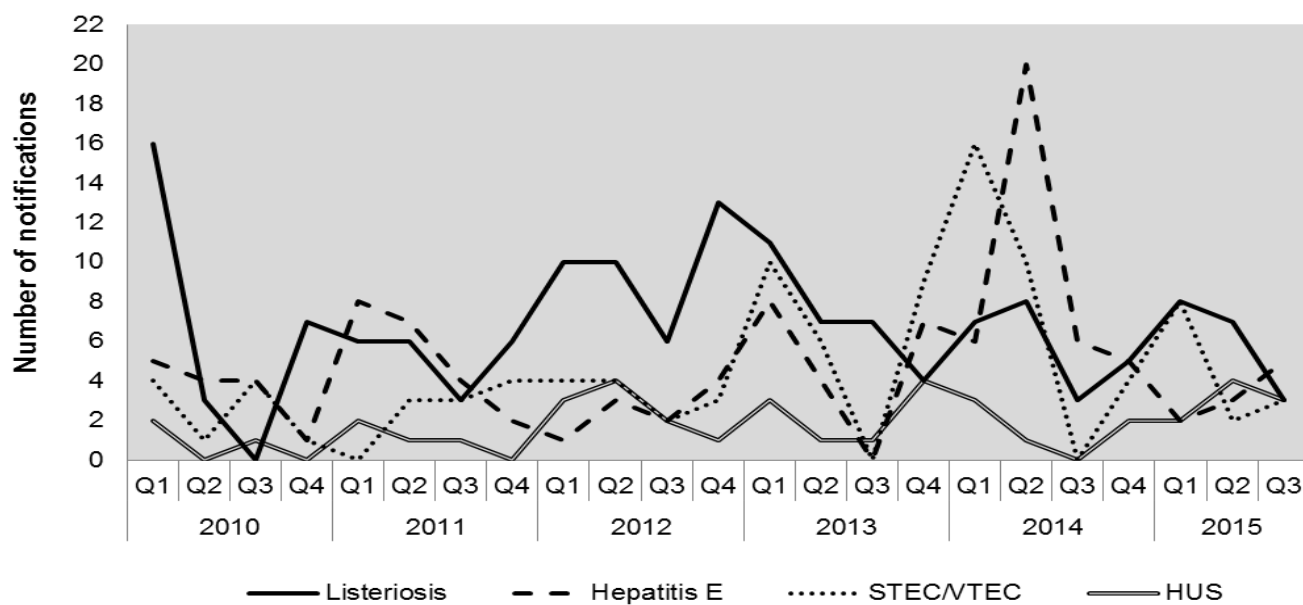
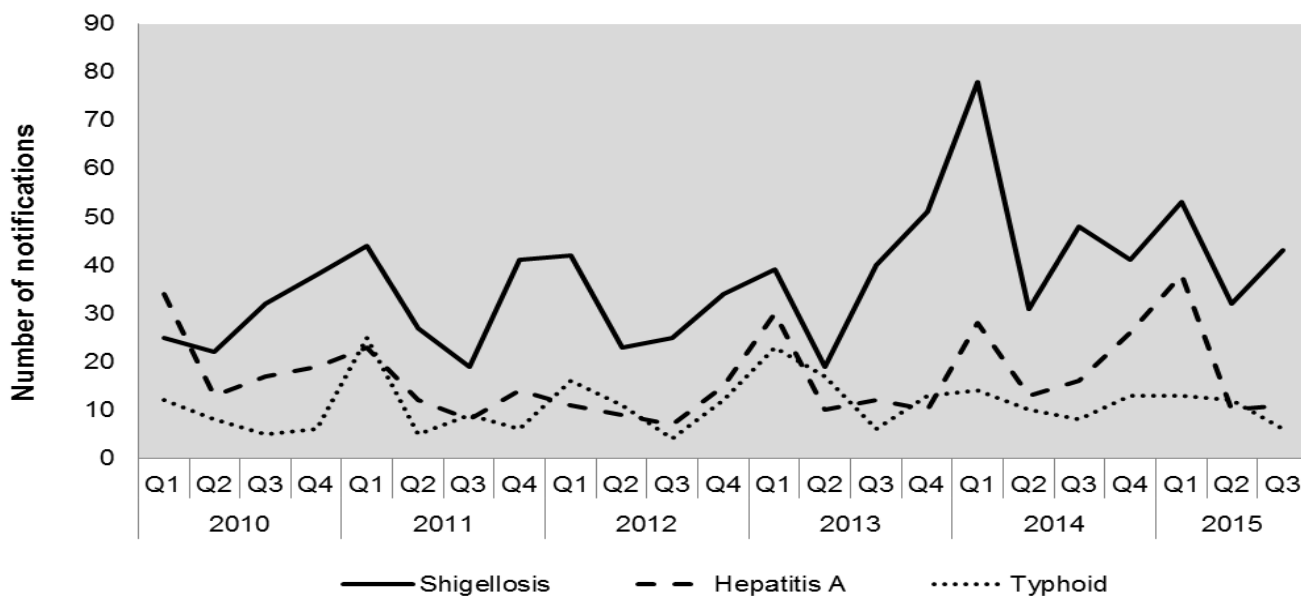
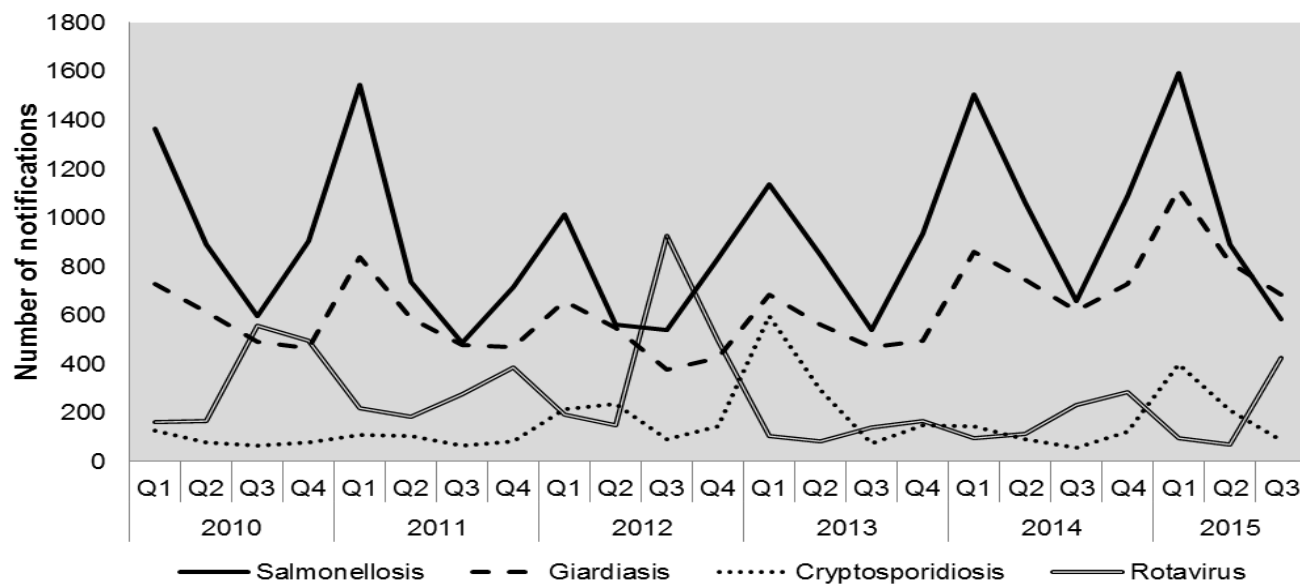


Table 1: Notifiable enteric conditions for quarter 3, 2015 by Local Health District

Notifiable Disease		CC	FW	HNE	IS	M	MNC	NBM	NNSW	NS	SES	SNSW	SWS	Syd	WNSW	WS	NSW	
Botulism	Notified, Q3 2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5y Q3 mean 2010-2014	0	0	0	0	0	0	0	0	0	0.2	0	0.2	0	0.2	0	0.4	
Cryptosporidiosis	Notified, Q3 2015	2	0	11	12	6	5	1	6	8	10	2	1	11	3	10	88	
	5y Q3 mean 2010-2014	1.6	0	8.6	4	2.6	2.8	2.8	5.2	8.2	12.6	1.8	4.6	5.6	3.2	6.8	70.4	
Giardiasis	Notified, Q3 2015	26	1	76	54	26	13	35	26	131	116	5	27	50	41	59	686	
	5y Q3 mean 2010-2014	18	1.6	64	24.4	16.4	10.2	21.8	8.8	72.8	93.6	10.8	31.4	45	25.2	42.2	486.6	
Hepatitis A	Notified, Q3 2015	0	0	1	0	0	1	2	0	0	0	0	3	2	0	2	11	
	5y Q3 mean 2010-2014	0.4	0	1	0.4	0.2	0.2	0.4	0.4	0.8	1.6	0.4	0.8	1.6	0.4	3.4	12	
Hepatitis E	Notified, Q3 2015	0	0	0	0	0	0	0	0	0	0	0	2	1	0	2	5	
	5y Q3 mean 2010-2014	0	0	0.2	0	0.2	0	0	0	0.2	0.6	0	0.6	0.8	0	0.8	3.4	
Listeriosis	Notified, Q3 2015	0	0	0	0	0	0	0	0	1	0	0	2	0	0	0	3	
	5y Q3 mean 2010-2014	0.6	0	0	0.2	0.2	0	0	0	0.6	0.8	0	0.4	0.2	0	0.8	3.8	
Rotavirus	Notified, Q3 2015	20	4	21	10	11	0	35	14	46	57	11	35	28	43	90	425	
	5y Q3 mean 2010-2014	11.8	1.2	55.8	23.8	6.2	5.2	28.8	21	60.8	51.2	5.2	38	29.8	24.2	61.8	425	
Salmonellosis	Notified, Q3 2015	14	2	68	29	21	20	28	28	70	82	11	86	53	16	54	582	
	5y Q3 mean 2010-2014	25.6	2.8	59	27.2	22.6	19	26.6	29.6	83.2	72.2	12.8	53.6	48.8	12.8	66.2	562.2	
Shigellosis	Notified, Q3 2015	0	0	4	3	0	0	1	1	10	9	2	1	5	0	7	43	
	5y Q3 mean 2010-2014	1.8	0.2	1.2	0.6	0	0.6	1	0.6	4.6	9.2	0.2	3.6	6.6	0.4	2.2	32.8	
STEC/VTEC	Notified, Q3 2015	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0	3	
	5y Q3 mean 2010-2014	0	0	0.8	0.2	0	0	0.2	0.2	0	0	0	0.4	0	0	0	1.8	
HUS	Notified, Q3 2015	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	3	
	5y Q3 mean 2010-2014	0	0	0	0	0	0	0	0	0	0	0	0.4	0.4	0.2	0	1	
Typhoid	Notified, Q3 2015	0	0	0	0	1	0	0	0	0	2	0	0	0	0	3	6	
	5y Q3 mean 2010-2014	0	0	0	0	0	0.2	0.2	0	0.4	1.2	0.2	0.6	1.6	0	2	6.4	
Foodborne Outbreaks	Notified, Q3 2015	2	0	1	0	0	0	0	0	0	2	0	2	2	1	1	11	
	People affected	39	0	18	0	0	0	0	0	0	6	0	17	8	9	40	137	
Salmonella Cluster	Notified, Q3 2015	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	2	
	People affected	0	0	2	0	0	0	0	0	0	0	0	0	13	0	0	15	

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

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, 2015

Notifiable Disease	Place infection acquired	NSW, Q3 2015	5 yr Q3 mean 2010-2014	2015 % change
Salmonella Enteritidis	Locally acquired	1	2	-50%
	Overseas acquired	30	34	-12%
	Unknown	7	5.6	25%
Hepatitis A	Locally acquired	0	2.6	-
	Overseas acquired	10	9.2	9%
	Unknown	1	0.2	400%
Hepatitis E	Locally acquired	3	0.8	275%
	Overseas acquired	2	2.2	-9%
	Unknown	0	0.4	-
Paratyphoid	Locally acquired	0	0.2	-
	Overseas acquired	1	4.2	-76%
	Unknown	-	-	-
STEC/VTEC	Locally acquired	2	1	100%
	Overseas acquired	0	0.6	-
	Unknown	1	0.2	400%
Shigellosis	Locally acquired	9	9.8	-8%
	Overseas acquired	28	12.6	122%
	Unknown	6	10.4	-42%
Typhoid	Locally acquired	0	0.2	-
	Overseas acquired	6	6	0%
	Unknown	0	0.2	-

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

Norovirus

A foodborne complaint was received by the NSW Food Authority (NSWFA) about illness in a group of people who had consumed food together at a training event from 25 - 27 August 2015. The event was catered by a local bakery. The investigation subsequently identified a second cluster of illnesses involving individuals who attended a staff lunch catered for by the bakery on 27 August 2015. One other case, not associated with either cluster, was identified through a GP practice. This individual also reported consuming food from the Bakery on 27 August, 2015. A total of 18 people became ill, out of a potential 19.

Symptoms of fever, nausea, vomiting, diarrhoea and abdominal cramps occurred on average 31 hours after the events. One person was hospitalised. Samples were taken from two people, of which one was positive for Norovirus.

The foods consumed were sandwiches and salads made fresh at the bakery. Salad items were consumed by all cases, the one well member of the events ate only tuna and egg sandwiches with no salad.

The bakery was inspected by the local council and it was reported a staff member who was involved in making the sandwiches had fallen ill on 24 August 2015. The business also reported that they catered a function on 26 August 2015, this group was followed up but no reports of illness occurred amongst this group. The source of the illness was not confirmed, however, it is suspected that an ill food handler may have contaminated produce items prepared for salads and sandwiches sold on 27 August 2015.

Ciguatera poisoning

A Public Health Unit (PHU) was notified of a family who ate a regulation size red-throat emperor fish and subsequently suffered suspected ciguatera poisoning. The fish was purchased whole from a local fish market, cleaned and eviscerated in-store, and cooked and eaten on the same day. The father of the family

experienced onset of symptoms within a few hours of eating the head of the fish, which progressively worsened during the week before presenting to an emergency department. The wife and a child reported milder symptoms after eating a small portion of the fish. Further to this complaint the same fish market received a complaint from a consumer who returned the uneaten portion of a purple rock cod. This fish had been in the same shipment as the previous red-throat emperor and had been caught off a regularly fished seamount off the Queensland coast. Ciguatera toxin was detected in the returned rock cod. The Fish market management decided to prohibit the sale of warm water ocean fish caught from the implicated area.

Salmonella Typhimurium MLVA 3-16-9-11-523

A cluster of 13 *Salmonella* Typhimurium (STM) was identified by spatial and temporal clustering in a Sydney area. Six cases with collection dates 6 - 8 September 2015 were found on interview to have all eaten Vietnamese pork rolls in the same bakery prior to illness onset. Further typing was received with all cases being MLVA 3-16-9-11-523. Further case finding occurred with this MLVA and a total of 8 STM 3-16-9-11-523 and 4 unconfirmed cases were identified as becoming sick after eating chicken and pork rolls from this bakery. The NSWFA inspected the bakery on 25 September 2015. Hygiene and practices were found to be acceptable except for the use of raw egg for the mayonnaise. Samples of food and the environment were taken and four samples of cooked pork, chicken liver pate, a swab of the pate blender and a boot swab were all positive for STM MLVA 3-16-9-11-523. The business were prohibited from selling rolls until a further inspection showed they were clear of salmonella contamination. The business was advised to use a pasteurized mayonnaise product. It is not clear if the contamination was introduced by the raw egg or undercooked pate, though cross-contamination in the food preparation area was likely to have contributed to the spread and size of the outbreak.

Salmonella spotlight.

Salmonella Typhimurium MLVA 3-12-11-14-523 clusters, linked to the same egg supplier.

On 29 September the NSWFA received three separate complaints of food poisoning from three separate groups dining at the same Chinese restaurant on 22 & 23 September 2015. The PHU and NSWFA initiated an investigation

A retrospective cohort study was conducted. Forty four of 59 diners were interviewed, 34 reporting illness following the dinner. Eleven stool samples were positive for STM 3-12-11-14-523. Univariate analyses identified a statistically significant association between illness and those that consumed the fried ice cream (OR=6.89, CI: 1.2-39.0, p=0.04).

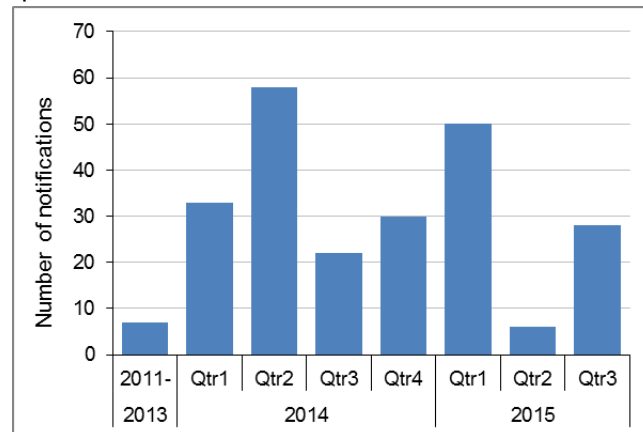
The NSW Food Authority, in conjunction with the local council, conducted an inspection of the premises on 30 September 2015. General hygiene and food handling practices were found to be good; however fried ice cream was made using raw egg. Food and environmental samples were taken during the inspection. Samples of uncooked fried ice cream balls and fried ice cream crumbs were both positive for STM MLVA 3-12-11-14-523. The NSW Food Authority issued the restaurant with a prohibition order on serving fried ice cream (made using a raw egg component). A traceback on the egg supplier was conducted.

A review of the MLVA profile indicated that prior to 2014 only seven cases were notified, with notifications increasing since the start of 2014. (Figure 4) Since 2014, this MLVA was the cause of four additional outbreaks (Table 3). While the vehicle responsible could not be determined in all outbreaks, the egg supplier to all four businesses was the same as the recent outbreak, 'supplier A'.

The egg farms associated with the supplier A were inspected by the NSWFA in November 2015. Salmonella (including Typhimurium 3-9-8-13-523, Agona, Bareilly, Orion) was detected on the farm, despite no deficits in hygiene or processing being observed. The farm did report some bird illness in the last 18 months as well as

new flock repopulations. It is possible stress events such as these could exacerbate the presence of salmonella on otherwise hygienic and well run egg farms.

Figure 4. Epi curve of MLVA 3-12-11-14-523 by quarter.



Follow up of all notifications with this MLVA was initiated following the September outbreak to determine if they had links to the known outbreaks or to the implicated egg brand. Since September 2015 there were 39 notifications of which 23 were interviewed. For those not linked to the known outbreaks, knowledge of egg brands eaten at home was poor.

The emergence of this MLVA is notable due to the links of all outbreaks associated with it to a single egg supplier. The link to eggs was not obvious in some outbreak, where the evidence suggested cross-contamination of varied products. It highlights the importance of good food handling at food preparation. This series of investigations also raise questions about salmonella control on egg farms and that there is a need for greater understanding about what drives salmonella infection pressure at farm level.

Table 3. Outbreaks of STM MLVA 3-12-11-14-523 linked to egg 'supplier A'.

PHU ID	Date	No. ill	Responsible vehicle
HUN0486	Sep 2014	18	Contaminated equipment suspected
CAM201401	Nov 2014	35	Contamination of pre-prepared meals
NS44476	Jan 2015	12	Suspected raw egg sauces
NS43533	Jan 2015	3	Dishes containing undercooked eggs

Figure 5. Proportion of *Salmonella* serovars, quarter 3, 2015 (N=706)

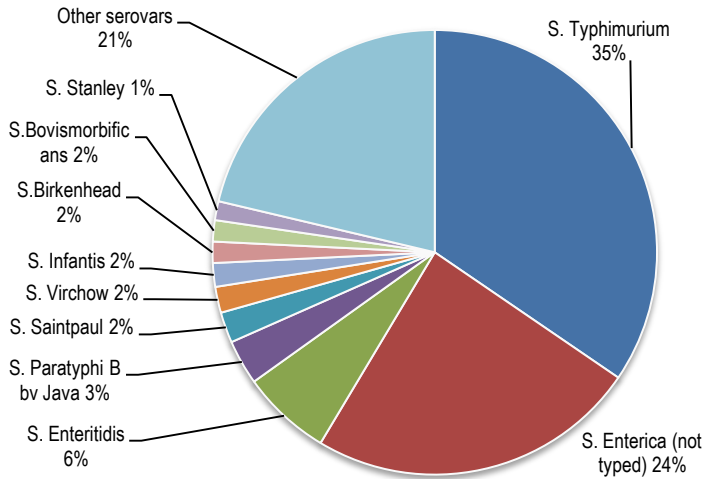


Table 4. Top twelve *Salmonella* Typhimurium MLVAs, quarter 3, 2015

MLVA	Notifications	% of STm total
3-12-11-14-523	28	13%
3-16-9-11-523	18	9%
3-12-12-9-523	11	5%
3-9-7-12-523	8	4%
3-25-12-12-523	7	3%
3-24-13-10-523	5	2%
3-17-8-11-523	4	2%
4-13-10-0-490	3	1%
3-17-9-11-523	3	1%
3-12-13-10-523	3	1%
4-16-11-0-517	3	1%
3-18-10-12-523	3	1%
Top ten total	96	46%

Table 5: Foodborne and Suspected foodborne outbreaks for quarter 2, 2015

PHU ID	Month	Setting	Agent responsible	No. ill	Lab confirmed	No. Hospitalised	No. Deaths	Evidence	Responsible vehicles	Contributing factors
HUN46716	Aug	Bakery	Norovirus	18	1	1	0	D	Unknown	Unconfirmed food handler contamination
CC47096	Sep	Function	Unknown	29	0	0	0	D	Unknown	Unknown
SWS47182	Sep	Bakery	<i>Salmonella</i> Typhimurium MLVA 3-16-9-11-523	12	8	0	0	M	Vietnamese pork rolls	Use of undercooked egg and chicken liver products & cross contamination
SES201502	Sep	Private residence	Ciguatera poisoning	3	0	1	0	M	Red-throat Emperor fish	Toxic fish flesh
WS47224	Sep	Restaurant	<i>Salmonella</i> Typhimurium MLVA 3-12-11-14-523	40	11	0	0	M	Fried ice-cream	Undercooked egg products
Outbreaks of gastrointestinal illness without enough evidence to classify the cause										
SES46394	Aug	Take Away	Unknown	3	0	0	0	D	Unknown	Unknown
SYD46553	Aug	Restaurant	Unknown	3	0	0	0	D	Unknown	Unknown
SWS46313	Aug	Restaurant	Unknown	5	0	0	0	D	Unknown	Unknown
SYD47214	Sep	Restaurant	Unknown	5	0	0	0	D	Unknown	Unknown
CC45931	Jul	Restaurant	Unknown	10	0	0	0	D	Unknown	Unknown
WNSW201501	Jul	Take Away	Unknown	9	0	0	0	D	Unknown	Unknown

Month of outbreak is the month of onset of third case or month of notification/investigation of the outbreak. * This was a national outbreak with cases in other State and Territories, only the NSW cases are reported here. Evidence category: **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.

Gastroenteritis Outbreaks in Institutions

From 1 July, 2015 to 30 September, 2015, a total of 132 outbreaks of gastrointestinal illness in institutions were reported in NSW, affecting at least 2,255 people. This represents a decrease of 38% compared to the five year mean (n=214), for the same quarter and a decrease of 36% compared to the mean number of people affected as a result of the outbreaks (n=3,515).

Of the 132 outbreaks of viral gastroenteritis in institutions reported in NSW, 69 (52%) occurred in child care centres, 49 (37%) in aged care facilities, 9 (7%) in hospitals and 5 (4%) in other facilities (figure 6).

Overall, 13% of staff members and 20% of non-staff became sick during gastroenteritis outbreaks in quarter 3. The highest attack rate for gastrointestinal disease for staff was hospital staff (20%) and for non-staff were patients on hospital wards (39%). On average outbreaks lasted 9 days; it was shortest in aged care facilities (8 days) and longest in hospitals (10 days) (table 6).

One or more stool samples were collected in 69 (53%) of the outbreaks. Norovirus was identified from 19 of these outbreaks and rotavirus was identified in 13. The results of the other samples were negative, or not reported (table 7).

Figure 6: Number of reported outbreaks of gastrointestinal illness in institutions; quarter 3, 2015 and average of the previous 5 years by month and facility type

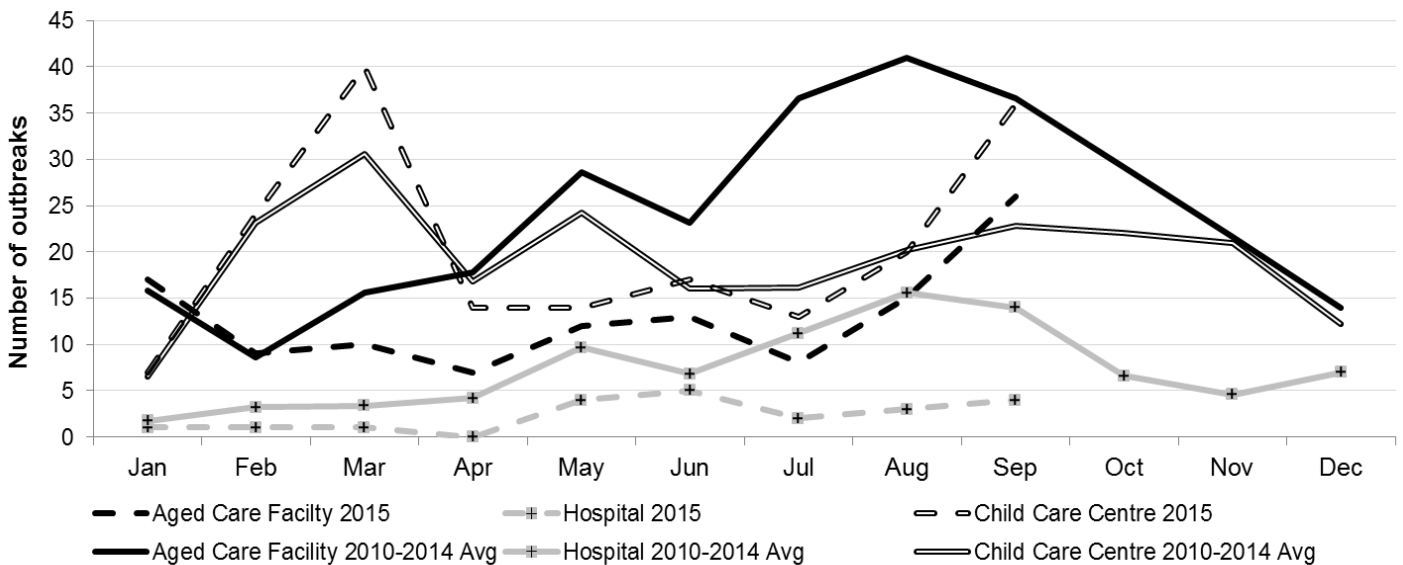


Table 6: Characteristics of outbreaks of gastrointestinal illness in institutions reported to NSW in quarter 3, 2015

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	49	187: 7%	723: 22%	8	43: 88%	14:norovirus & 3:rotavirus
CCC	69	167: 17%	946: 17%	10	17: 25%	9:rotavirus
Hospital	9	70: 20%	88: 39%	10	6: 67%	3:norovirus & 1:rotavirus
Other	5	11: 1%	63: 18%	5	3: 60%	2:norovirus
Total	132	435: 13%	1,820: 20%	9	69: 52%	32

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

Table 7: Outbreaks of gastroenteritis in institutions reported to NSW for quarter 3, 2015 by Local Health District*

Facility type	Q3 2015	M	WNSW	FW	Syd	SNSW	NS	JH	SWS	HNE	WS	NBM	SES	IS	NSW
ACF	No. of outbreaks	2	1	0	11	0	8	0	3	8	6	7	1	2	49
	Staff affected	0	22	0	44	0	18	0	14	19	17	30	10	13	187
	Non-staff affectedd	9	34	0	192	0	138	0	41	88	100	62	19	40	723
CCC	No. of outbreaks	1	1	0	1	2	9	0	1	8	18	17	3	8	69
	Staff affected	2	0	0	2	0	22	0	2	20	38	54	4	23	167
	Non-staff affectedd	5	16	0	14	18	148	0	13	88	249	269	39	87	946
Hospital	No. of outbreaks	2	2	1	2	1	0	0	0	1	0	0	0	0	9
	Staff affected	7	39	5	9	1	0	0	0	9	0	0	0	0	70
	Non-staff affectedd	17	30	5	23	4	0	0	0	9	0	0	0	0	88
Other	No. of outbreaks	1	1	0	0	0	1	2	0	0	0	0	0	0	5
	Staff affected	1	0	0	0	0	2	8	0	0	0	0	0	0	11
	Non-staff affectedd	5	11	0	0	0	14	33	0	0	0	0	0	0	63

*CC, NNSW & MNC 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).