

OzFoodNet—Enhancing Foodborne Disease Surveillance Across Australia.

Second Quarter Summary, 2015 NSW

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Highlights Quarter 2, 2015

Introduction

This report describes data for enteric conditions for quarter 2, 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 second quarter of 2015, four cases of **Haemolytic Uremic Syndrome (HUS)** were reported; a 186% increase compared to the five year average (table 1). Cases ranged in age from 4–46 years, and three cases were female. All reported diarrheal symptoms with two reporting bloody diarrhoea. One was positive for Shiga toxin-producing *Escherichia coli* (STEC) O26, two were negative and one did not have a stool sample collected. Three cases were locally acquired. Most HUS cases are preceded by an episode of infection, typically STEC; however, *Shigella*, *Campylobacter*, viral infections, and non-infection-related genetic mutations have been less frequently implicated.

Shigella notifications increased by 35% compared to the five year average, with the largest increase in locally acquired cases (178%). During this quarter, 22 (66%) were locally acquired and ranged in age from 4–82 years, of which 68% were male. Half of the men reported MSM exposure as a possible source. Of 30 cases with serogroup information available, the majority were identified as *S. sonnei* (70%), followed by *S. flexneri* (25%) and *S. dysenteriae* (5%).

While **Hepatitis A** notification rates were similar to the 5-year average, the number of locally acquired infections increased by 131%. Of the six locally acquired cases, four cases were linked to the national hepatitis A outbreak reported in quarter 1. The source of the remaining two cases could not be identified.

Salmonella notifications increased by 8% compared to the five year average. *S. Typhimurium* accounted for most (42%) *Salmonella* notifications (figure 4). Seventeen percent were not typed as a result of one pathology laboratory not forwarding culture positive specimens to the NSW reference laboratory for further typing. This has since been rectified. Five percent were PCR positive only, 3% were *S. Enteritis* and 3% were *S. Agona*. *S. Agona* is usually rare in NSW accounting for approximately 0.6% of salmonella cases annually.

Ten **foodborne or suspected foodborne outbreaks** were identified affecting 62 people, of whom 4 were hospitalised (table 5). Three outbreaks identified *Salmonella* as the causative agent, one was suspected ciguatera fish poisoning, one *Clostridium perfringens*, one *Campylobacter jejuni* and the remaining four were of unknown aetiology. In five of the outbreaks a suspected contaminated food source could be implicated. This included *Salmonella* Typhimurium infection linked to consumption of items containing undercooked eggs, *Salmonella* Agona infection linked to consumption of tuna sushi rolls, ciguatera poisoning linked to consumption of Spanish mackerel, *Campylobacter jejuni* infection linked to consumption of chicken liver pate and one outbreak with an unknown pathogen linked to consumption of kebabs.

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

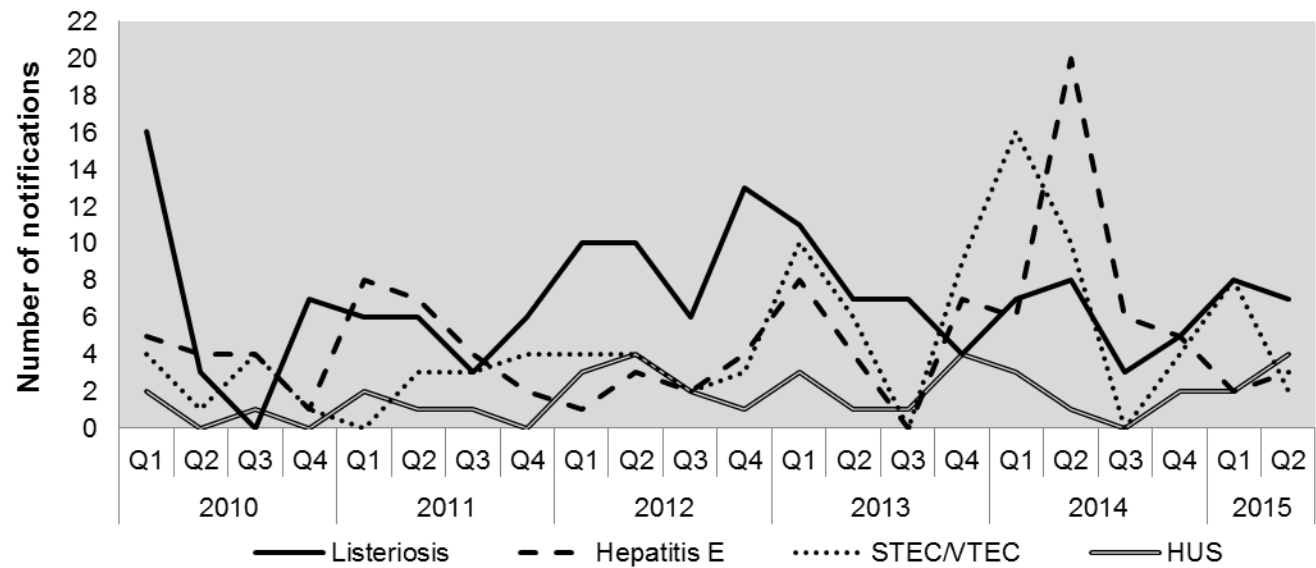
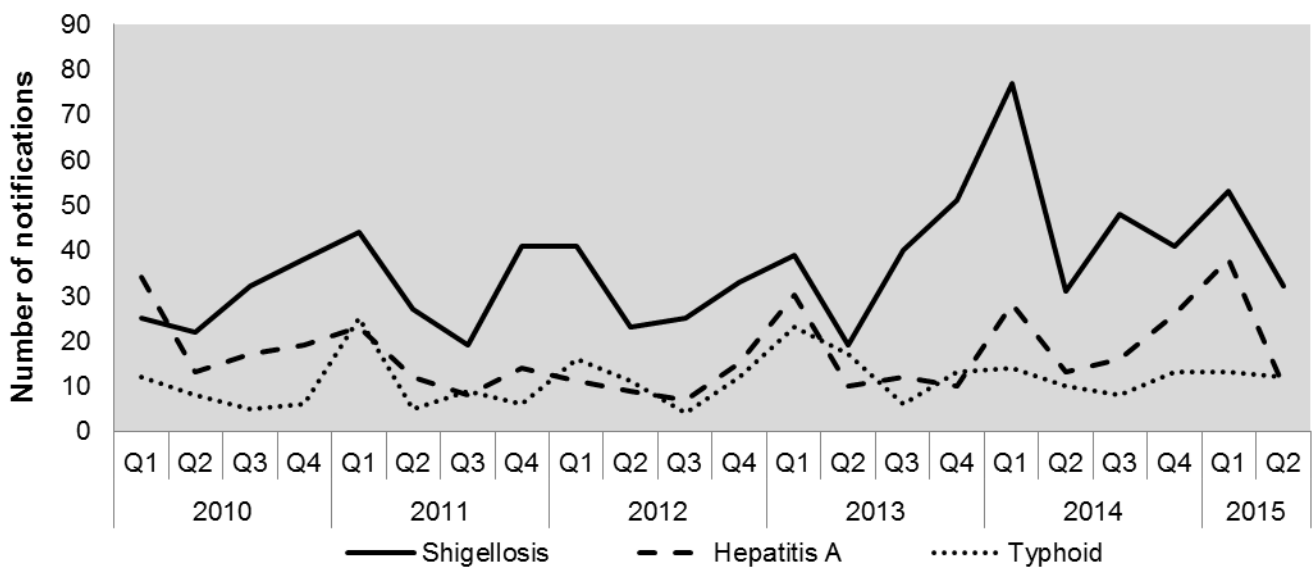
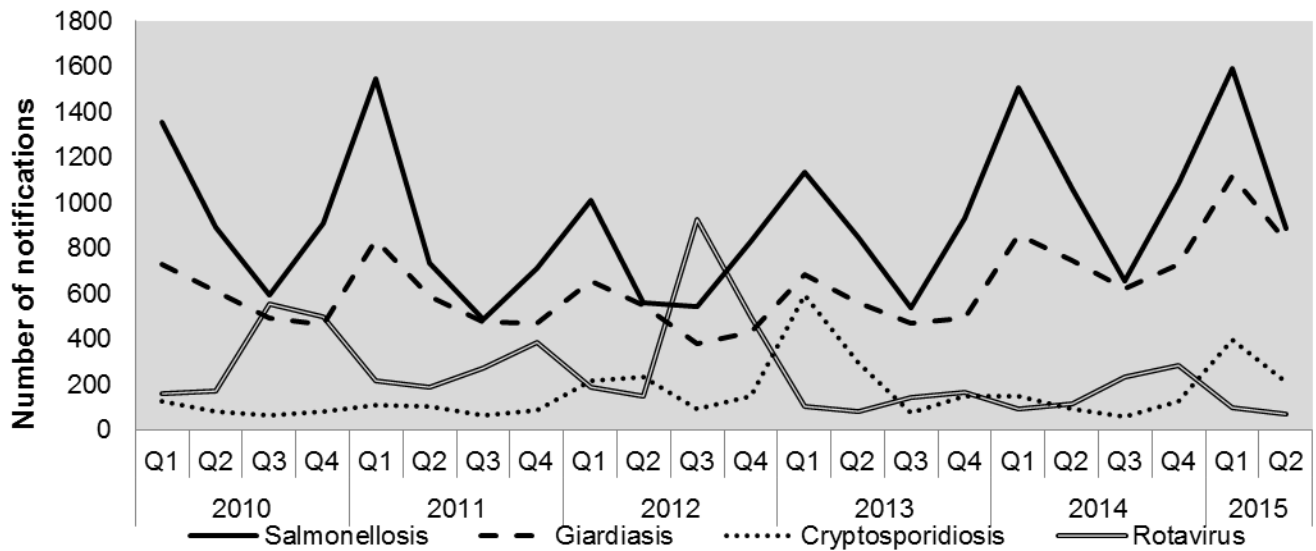


Table 1: Notifiable enteric conditions for quarter 2, 2015 by Local Health District

Notifiable Disease		CC	FW	HNE	IS	M	MNC	NBM	NNSW	NS	SES	SNSW	SWS	Syd	WNSW	WS	NSW
Botulism	Notified, Q2 2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5y Q2 mean 2010-2014	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0
Cryptosporidiosis	Notified, Q2 2015	8	0	25	13	5	10	10	8	28	35	6	15	18	8	21	210
	5y Q2 mean 2010-2014	7.2	0.6	17.8	7	5	4	9	8.4	28.6	25.2	4	7	14.2	7.4	14.6	160
Giardiasis	Notified, Q2 2015	25	2	101	52	28	20	36	43	136	163	15	45	70	31	61	828
	5y Q2 mean 2010-2014	22.4	0.6	72.6	38.2	20.4	14.6	31.8	6.8	105.4	108.2	12.2	42.2	55.4	28.2	51.4	610.8
Hepatitis A	Notified, Q2 2015	0	0	2	0	0	0	0	0	1	0	0	0	0	2	5	10
	5y Q2 mean 2010-2014	0.2	0	0.2	0	0	0	0	0.4	1.4	3.4	0	1	1.2	0	3.6	11.4
Hepatitis E	Notified, Q2 2015	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	3
	5y Q2 mean 2010-2014	0.2	0	0.4	0	0	0.2	0	0	1.6	1.4	0	1	1.2	0	1.6	7.6
Listeriosis	Notified, Q2 2015	0	0	1	0	1	0	1	0	0	1	1	0	1	1	0	7
	5y Q2 mean 2010-2014	0.4	0	0.6	1.2	0.2	0	0.2	0.2	0.6	1.2	0.2	0.8	0.2	0	1	6.8
Rotavirus	Notified, Q2 2015	1	0	8	6	4	1	0	8	15	4	5	3	5	4	6	70
	5y Q2 mean 2010-2014	4.6	0	23	3.6	3.8	1.8	7.6	9.8	23.2	20.8	1.8	8.4	8.6	7	14.8	138.8
Salmonellosis	Notified, Q2 2015	28	6	94	34	28	28	44	86	127	105	24	90	59	20	114	887
	5y Q2 mean 2010-2014	36.8	5.2	98.4	31.4	32.8	25.2	32.8	48.6	117.6	102.2	21.2	95	70.2	22.4	78.2	819.2
Shigellosis	Notified, Q2 2015	0	0	2	1	1	1	0	0	8	8	0	3	5	0	4	33
	5y Q2 mean 2010-2014	0.4	0	0.8	1	0.2	0.4	0.8	2.2	2.8	5.8	0	3	4.6	0.8	1.6	24.4
STEC/VTEC	Notified, Q2 2015	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2
	5y Q2 mean 2010-2014	0	0	2	0.2	0.4	0	0	0.4	0	0.6	0.4	0.2	0	0.4	0.2	4.8
HUS	Notified, Q2 2015	0	0	0	1	0	0	0	0	1	1	0	0	0	1	0	4
	5y Q2 mean 2010-2014	0	0	0.2	0	0	0	0	0	0.4	0.2	0.2	0	0	0.2	0.2	1.4
Typhoid	Notified, Q2 2015	0	0	1	0	0	0	0	0	2	0	0	2	1	0	6	12
	5y Q2 mean 2010-2014	0	0	0.4	0.2	0.4	0	0.2	0.4	1.4	1.6	0.2	2	0.8	0	2.6	10.2
Foodborne Outbreaks	Notified, Q2 2015	2	0	0	0	0	0	1	1	1	1	0	0	2	0	2	10
	People affected	16	0	0	0	0	0	6	11	7	9	0	0	6	0	7	62
Salmonella Cluster	Notified, Q2 2015	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
	People affected	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	20

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 2, 2015

Notifiable Disease	Place infection acquired	NSW, Q2 2015	5 yr Q2 mean 2010-2014	2015 % change
Hepatitis A	Locally acquired	6	2.6	131%
	Overseas acquired	4	8.6	-53%
	Unknown	0	0.2	-
Hepatitis E	Locally acquired	1	2.8	-64%
	Overseas acquired	2	4.4	-55%
	Unknown	0	0.4	-
Salmonella Enteritidis	Locally acquired	2	1.6	25%
	Overseas acquired	21	25.8	-19%
	Unknown	6	4.6	30%
Paratyphoid	Locally acquired	0	0.4	-
	Overseas acquired	2	6.2	-68%
	Unknown	0	0.2	-
Shigellosis	Locally acquired	22	7.2	205%
	Overseas acquired	10	9	11%
	Unknown	1	8.2	-88%
STEC/VTEC	Locally acquired	2	3	-33%
	Overseas acquired	0	1.8	-
	Unknown	0	0.4	-
Typhoid	Locally acquired	12	9.4	28%
	Overseas acquired	0	0.4	-
	Unknown	2	1.6	25%

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 Agona

An increase in *Salmonella Agona* (9 cases) in Western Sydney in May and June 2015 was identified through routine surveillance. A total of 37 cases were notified in NSW between Jan and June 2015, with 13 notified in May and June 2015. The previous five year average in NSW was 28 cases for the entire year.

Sixteen of the more recent NSW cases were interviewed including all 9 located in Western Sydney. Six had consumed sushi from one of two sushi outlets in the same shopping centre, no links were found between the other 10 cases.

For the cases related to the shopping centre, consumption dates ranged from 7 April 2015 to 23 June 2015, 4 from sushi outlet A and 2 from sushi outlet B. Both venues were inspected by the NSWFA and were reported to have potential for cross contamination of ready to eat foods. It was reported no ingredients or staff were shared between the shops but records were not available to confirm this.

Samples were taken from both venues, with sushi outlet A returning positive *Salmonella Agona* results from sushi rolls. Sushi outlet A was inspected another two times during the following 19 days. On all occasions the tuna mix for tuna sushi rolls was positive for *Salmonella Agona*, even though the individual ingredients for this mix and the tools used to make this mix were all negative. The venue was prohibited from selling the tuna product until it showed evidence of *Salmonella* clearance.

Whole genome sequencing was performed on all *Salmonella Agona* isolates for this time period as well as 10 food source isolates obtained during the outbreak and from retail samples of chicken meat earlier in the year. The sequencing showed all six people who reported eating at the two sushi outlets had identical sequencing as did five others who did not report the sushi restaurant or were not interviewed. Three of these were from the first quarter of the year. All of the *S. Agona* isolates from sushi outlet A were also identical to these cases. These were also very similar to two of the

raw retail chicken isolates. This analysis suggests the source of the *S. Agona* in this cluster may have been chicken meat, with a common source of chicken for the two sushi venues likely at the time of the outbreak and environmental contamination from raw chicken the source of the *Salmonella* in the businesses.

Campylobacter jejuni outbreak

A foodborne complaint was received by the NSWFA about illness in two people who had consumed food together on 29 April 2015. Symptoms were fever, nausea, vomiting, diarrhoea and abdominal cramps. One person was hospitalised and symptoms lasted for 6 days. Samples were taken for both and were positive for *Campylobacter jejuni*. Foods consumed at the reported dinner were hot noodle dishes.

The investigation by the PHU revealed the pair had eaten together at another restaurant on 28 April 2015, with four other people. At this dinner it was reported the pair shared chicken liver pate. This earlier dinner and dish was deemed the most likely source of the *Campylobacter* illness and the NSWFA inspected the restaurant. They found that as a digital thermometer was not in use to confirm that livers reached the correct safe temperature it is possible that contaminated livers could have resulted in a batch that caused infection in this case. The restaurant was advised of the safe way to prepare the pate, however they voluntarily removed it from the menu.

Salmonella Typhimurium MLVA 3-12-12-9-523

Three NSW residents with *Salmonella Typhimurium* MLVA 3-12-12-9-523 were identified in April through routine surveillance. An investigation was initiated by the PHU and Health Protection NSW. Interviews identified a common exposure of a restaurant at a NSW resort. Additional case finding revealed four different groups with exposures to the restaurant from 16 to 19 April 2015. At least 11 people were reported as ill. The majority of cases reported consuming a dessert containing raw eggs, one case that did not consume this dessert had soft poached eggs for breakfast from the same restaurant.

The local council inspected the restaurant and learned that the restaurant had already

investigated some reports of illness and had removed the dessert from the menu. The eggs supplied for the dessert and breakfast were from an egg supplier which was previously implicated in outbreaks of the same MLVA.

Foodborne outbreak of unconfirmed cause

A foodborne complaint was received by the NSWFA about illness in two co-workers who had consumed food together on 21 May 2015. The two initial cases were interviewed and reported consuming beef kebabs from a local take-away. Five additional co-workers were reported as having kebabs from the same takeaway with similar illness on either 21 or 22 May 2015. One of these additional cases agreed to be interviewed and they reported consuming a beef kebab and similar symptoms of stomach cramps, fever, diarrhoea, some blood and mucous in the stools, no headache or vomiting. Symptoms onset was on average 12 hours after food consumption. The illness was short lived and they had all recovered by approximately 12 hours later. No one in the workplace had reported any illness in the week prior. No clinical samples were submitted for testing.

NSWFA inspected the premises and whilst no obvious source or practice was detected that may have contributed to food poisoning, *E. coli* and marginally high general bacterial plate counts were detected in some of the ready to eat food samples. The presence of these bacteria in food indicates that these foods had been subject to poor hygiene conditions and/or inadequate temperature control. Although the causative organism for the reported illness was not found, the investigation created an opportunity to review adequacy of hygiene and food safety controls and provide for improvement against the risk of potential food poisoning in the future.

Possible food borne outbreak

Gastroenteritis outbreak linked to a function

On 26 May 2015, the local PHU were notified of 20 people ill following a lunch time gathering at a local function centre that catered for 170 people on 24 May 2015. A list of 70 attendees was

provided to the PHU, of which 57 responded to an online survey. Twelve people reported they were ill. Symptoms included nausea, vomiting and diarrhoea. Onset dates ranged from 25 to 27 May 2015. Median time between event and onset of illness was 48 hours (range 12-74 hours). One person presented to the local emergency department. No clinical samples were collected. From the 57 respondents to the survey, only one food item showed a potential association between consumption and illness and that was a white chocolate truffle. Interviews conducted by the PHU also identified illness among catering staff prior to the function.

The NSWFA conducted a site inspection, collected environmental samples and analysed food samples provided by the function caterer. All food samples were negative for bacteria. The environmental samples were also negative for bacteria with the exception of a low count of *E. coli* in one water sample taken from a rainwater tank.

The property has its own private water supply, comprising four rainwater tanks. Private water suppliers are required under the *Public Health Act 2010 (NSW)* to develop and implement a Quality Assurance Program which addresses the risks associated with private drinking water supplies. The PHU conducted a site inspection, taking water samples as authorised under the *Public Health Act*. *E coli* were detected from one tank and *Salmonella enterica houtenae* were found in a second tank. The function centre operator was informed of the results, advised of their obligations under the *Public Health Act*, and directed to rectify the issues of concern. The operator is currently developing a QAP for this water supply which will manage the risks to drinking water quality.

This incident highlighted the potential for contamination of rain tanks and the potential risk to the health of consumers of private water supplies, for example, farm stays, bed and breakfasts, and function venues in rural settings.

Report from Central Coast PHU

Salmonella spotlight.

Salmonella in a child care centre

Interviews with 4 children from Western Sydney with *Salmonella* Typhimurium MLVA 3-14-9-13-523 revealed that they all attended the same childcare centre and became ill at about the same time. Potential risk factors identified at the centre through interviews included serving of high risk foods (eggs and salmon fish cakes) in the day(s) prior to illness onset, and contact with animals. The centre catered for 82 children and had 12 staff.

The PHU conducted an environmental assessment. An inspection of the kitchen, observing serving processes and discussions with the cook revealed that the kitchen and food was unlikely to be the source of infection. Vegetables were grown in an outdoors vegetable garden, but were not used in meal preparation in the centre. There were however other potential vectors for *Salmonella* contamination.

Farm animals. There were a number of farm animals (sheep, alpaca and chickens) that were located in an adjacent paddock and contact between the children and animals was possible through a fence. Contact was unsupervised and hand washing stations were not located in close proximity to where contact occurred.

Pet rooster. A rooster was able to roam freely in the centre. Contact was possible between the children, rooster feathers and faeces.

Water. The centre had two 100,000 litre concrete underground tanks that captured rainwater. The reticulated supply to the centre was drawn up by pump from the tanks and went through taste and odour filters that had not been serviced or replaced in seven years.

Septic waste. Despite the centres size it relied on a small domestic septic system, which had missed its recent regular servicing. pooling of water around the onsite septic system was evident.

Garden soil. A load of garden soil had been donated to the centre. The mix had been used in

the play areas of the centre and some had been taken indoors for the children to play with.

Others. Toileting was unsupervised and practices were poor with unflushed faecal matter in several bowls. Also the sand pit was uncovered and had not been maintained according to guidelines.

Immediate action to mitigate these potential sources of *Salmonella* was commenced.

Written by Nepean Blue Mountains PHU

Figure 4. Proportion of *Salmonella* serovars, quarter 2, 2015 (N=887)

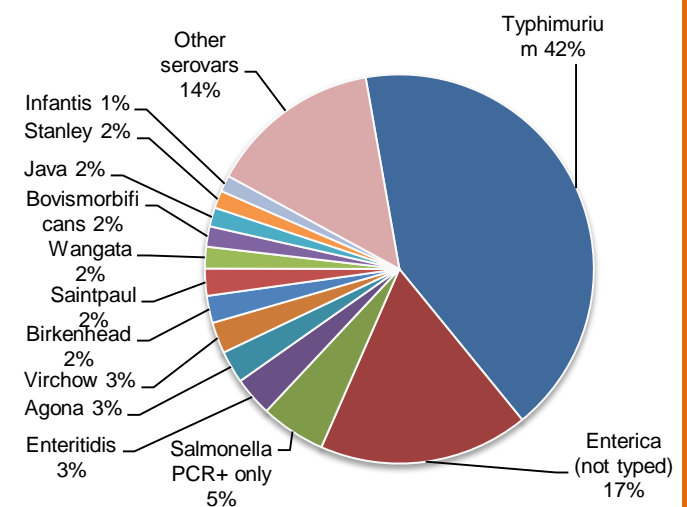


Table 3. Top ten *Salmonella* Typhimurium MLVAs, quarter 2, 2015

MLVA	Notifications	% of Salmonella total
3-12-13-9-523	27	7%
3-17-9-11-523	19	5%
3-12-12-9-523	16	4%
3-17-8-11-523	13	3%
3-9-4-12-523	11	3%
3-14-9-13-523	10	3%
3-13-11-9-523	9	2%
3-24-14-10-523	9	2%
3-9-7-12-523	8	2%
3-24-13-10-523	8	2%
Top ten total	130	35%

Table 4: Foodborne and Suspected foodborne outbreaks for quarter 2, 2015

PHU ID	Month	Setting	Agent responsible	No. affected	No. Hospitalised	No. Deaths	Evidence	Responsible vehicles	Contributing factors
CC201501	Apr	Private residence	<i>Ciguatera poisoning</i>	4	1	0	D	Spanish mackerel	Biotoxins in fish flesh
Syd44475	Apr	Restaurant	<i>Clostridium perfringens</i>	4	0	0	D	Unknown	Cooked food storage at improper temperature
NC44782	May	Restaurant*	<i>Salmonella</i> Typhimurium MLVA 3-12-12-9-523	11	0	0	D	Dessert containing raw egg	Use of raw eggs
Syd44808	May	Restaurant	<i>Campylobacter jejuni</i>	2	1	0	D	Likely chicken liver pate	Insufficient cooking
CC45161	May	Commercial caterer	Unknown	12	1	0	D	Unknown	Suspected food handler contamination
NBM45571	Jun	Take away	Unknown	6	0	0	M	Kebabs	Suspected cross contamination
WS45433	Jun	Take away	<i>Salmonella</i> Agona	3	0	0	M	Tuna sushi rolls	Cross contamination
Outbreaks of gastrointestinal illness without enough evidence to classify the cause									
WS201501	May	Child care centre	<i>Salmonella</i> Typhimurium MLVA 3-14-9-13-523	4	1	0	D	Unknown	Multiple potential sources
NS45038	May	Restaurant	Unknown	7	0	0	D	Unknown	Unknown
SES45198	Jun	Restaurant	Unknown	9	0	0	D	Unknown	Unknown

Month of outbreak is the month of onset of second 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 March, 2015 to 30 June, 2015, a total of 88 outbreaks of gastrointestinal illness in institutions were reported in NSW, affecting at least 1,272 people. This represents a decrease of 41% compared to the five year mean (n=148), for the same quarter and a decrease of 49% compared to the mean number of people affected as a result of the outbreaks (n=2,505).

Of the 88 outbreaks of viral gastroenteritis in institutions reported in NSW, 45 (51%) occurred in child care centres, 32 (36%) in aged care facilities, 9 (10%) in hospitals and 2 (2%) in other residential facilities (figure 5).

Overall, 13% of staff members and 17% of non-staff became sick during gastroenteritis outbreaks in quarter 2. The highest attack rate for gastrointestinal disease for staff was child care centre staff (15%) and for non-staff were patients on hospital wards (20%). On average outbreaks lasted 8 days; it was shortest in aged care facilities (6 days) and longest in child care centres (10 days) (table 5).

One or more stool samples were collected in 38 (43%) of the outbreaks. Norovirus was identified from 18 of these outbreaks and rotavirus was identified in three. The results of the other samples were negative, or not reported (table 6).

Figure 5: Number of reported outbreaks of gastrointestinal illness in institutions; quarter 2, 2015 and average of the previous 5 years by month and facility type

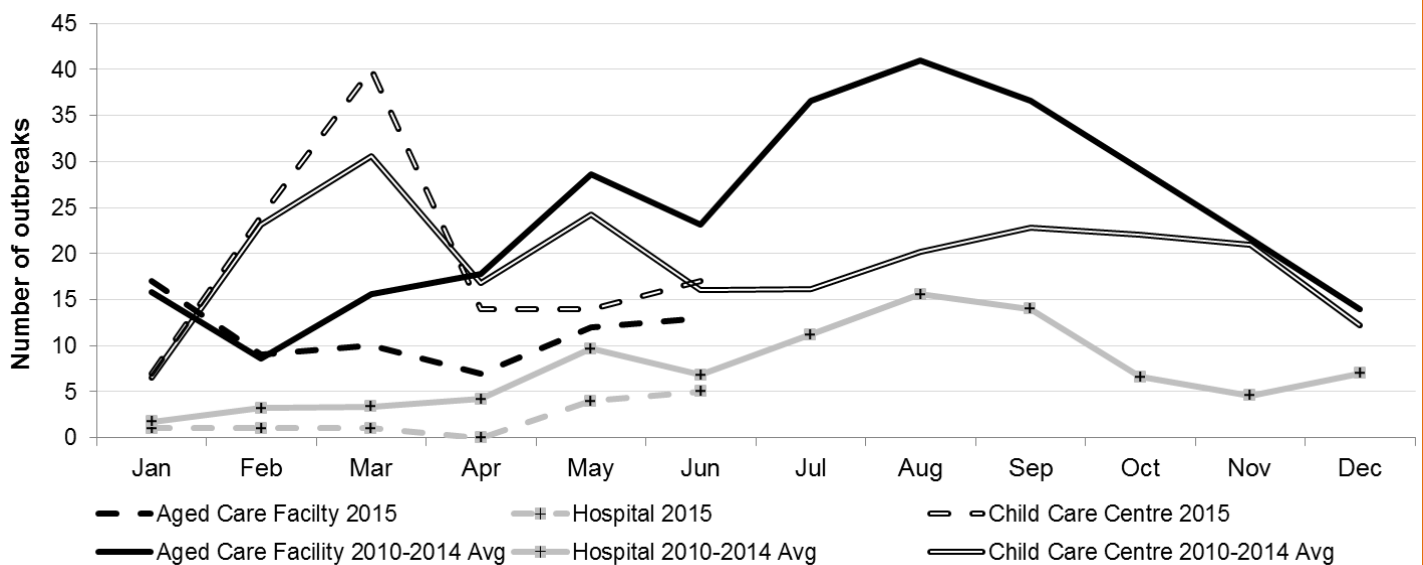


Table 5: Characteristics of outbreaks of gastrointestinal illness in institutions reported to NSW in quarter 1, 2015

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	32	135: 8%	399: 20%	6	26: 81%	10:norovirus & 2:rotavirus
CCC	45	96: 15%	504: 15%	10	3: 7%	1:rotavirus
Hospital	9	31: 13%	83: 20%	6	8: 89%	7:norovirus
Other	2	8: 12%	16: 17%	5	1: 50%	1:norovirus
Total	88	270: 13%	1,002: 17%	8	38: 43%	21

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

Table 6: Outbreaks of gastroenteritis in institutions reported to NSW for quarter 2, 2015 by Local Health District*

Facility type	Q2 2015	M	WNSW	Syd	SNSW	NS	NNSW	SWS	HNE	WS	NBM	SES	IS	NSW
ACF	No. of outbreaks	3	3	3	2	5	1	2	6	2	1	2	2	32
	Staff affected	11	15	9	3	9	29	5	40	3	2	2	7	135
	Non-staff affectedd	20	50	47	12	39	50	10	107	30	4	17	13	399
CCC	No. of outbreaks	0	0	7	3	5	0	6	3	11	5	0	5	45
	Staff affected	0	0	10	18	14	0	5	9	17	11	0	12	96
	Non-staff affectedd	0	0	76	58	103	0	38	33	106	43	0	47	504
Hospital	No. of outbreaks	0	0	1	1	3	0	0	1	0	0	0	3	9
	Staff affected	0	0	10	17	1	0	0	2	0	0	0	1	31
	Non-staff affectedd	0	0	3	13	32	0	0	6	0	0	0	29	83
Other	No. of outbreaks	0	0	1	0	1	0	0	0	0	0	0	0	2
	Staff affected	0	0	6	0	2	0	0	0	0	0	0	0	8
	Non-staff affectedd	0	0	13	0	3	0	0	0	0	0	0	0	16

*CC, FW & 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).