

# OzFoodNet

Enhancing Foodborne Disease Surveillance Across Australia

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## NSW FOURTH QUARTER REPORT

### October – December 2019



NSW OzFoodNet team  
Communicable Diseases Branch  
HEALTH PROTECTION NSW

Locked Mail Bag 961  
St Leonards NSW 2059  
Phone: 02 93919236/93919561  
[NSWH-enteric@health.nsw.gov.au](mailto:NSWH-enteric@health.nsw.gov.au)

SHPN: (HP NSW) 190601  
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# Highlights Quarter 4, 2019

This report describes data for enteric conditions for quarter 4, 2019. The report is divided into four sections: enteric notifiable diseases highlights, *Salmonella* spotlight, foodborne outbreaks and gastroenteritis outbreaks in institutions. Data sources and analytical methods are described at the end of the report. Every endeavour has been made to ensure that the information provided in this document is accurate at the time of writing. However, infectious disease notification data are continuously updated and subject to change.

A total of 5,859 enteric conditions were notified to NSW Public Health Units in quarter 4, 2019. Increases in Rotavirus, Shiga toxin-producing *E. Coli* (STEC) and shigellosis were observed in quarter 4, 2019 compared to the five-year average for the same period. Moderate decreases were noted in cryptosporidiosis, giardiasis, hepatitis A, hepatitis E, listeriosis, salmonellosis and enteric fevers. Long term trends are not available for campylobacteriosis, which became notifiable on 7 April 2017, however notifications received in this quarter (n=2932) were slightly higher than the same quarter in the previous years (n=2607). The long-term trends for 13 notifiable enteric conditions in NSW are shown in Figures 1-3.

Notifications of **shigellosis** remained above average, primarily as a result of a change in the national surveillance case definition on 1 July 2018 to include PCR positive cases only as probable cases. Eighty-one cases met the confirmed case definition, which was above average (31% increase compared to the 5-year quarterly average) and 155 cases that met the probable case definition. Sexual activity between men was the most common risk factor associated with confirmed cases of shigellosis in this quarter (in 58% of cases).

One case of **Haemolytic Uremic Syndrome** (HUS) was noted this quarter, which is similar to the 5 year average. This case was diagnosed with **Shiga toxin-producing *E. Coli* (STEC)**. Notifications of STEC (n=33) were however 85% higher than the quarterly average for this period.

**Rotavirus** notifications were well above average quarterly levels (137%) this period. Rotavirus typically follows a seasonal pattern peaking in quarter 3 each year, however in 2019, the peak occurred later resulting in this higher than usual quarter 4 count.

**Salmonellosis** notifications decreased slightly in quarter 4, 2019 (down 11%) compared to the five-year quarterly average for the same period. This was due primarily to the continued decline in *Salmonella* Typhimurium cases (n=208, down 43% compared to the 5-year quarterly average of 365 cases). *Salmonella* Enteritidis was the second highest notified *Salmonella*

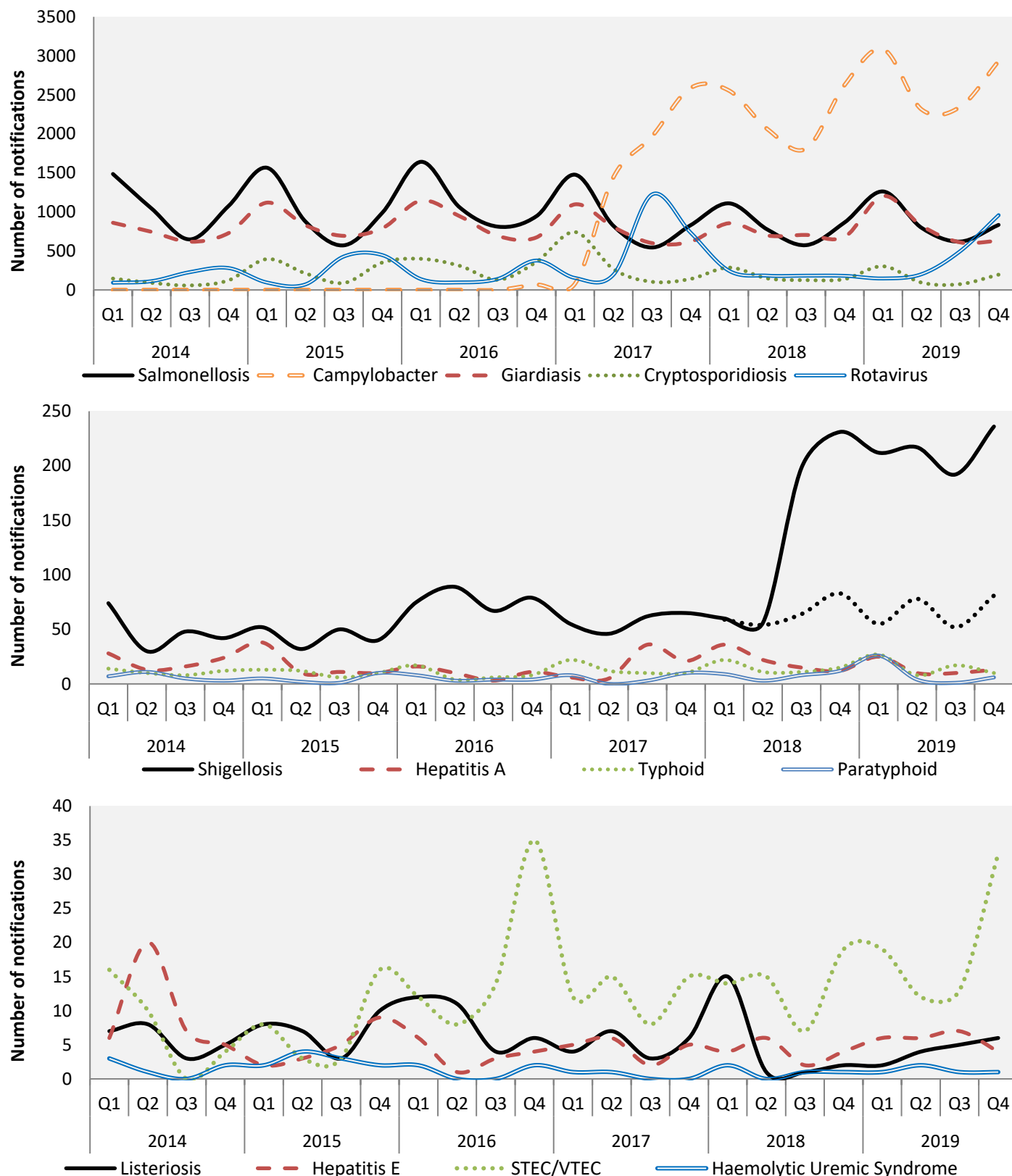
serotype in quarter 4, 2019 (n=67). The number of Enteritidis cases that were overseas acquired increased by 29% above the quarterly average, and the number of locally acquired cases decreased (29% below average).

Fourteen **foodborne or suspected foodborne outbreaks** were reported affecting at least 139 residents of NSW (Table 1), of whom at least 24 were hospitalised (Table 4). A causative agent was linked to a food source in seven outbreaks: Scombroid poisoning linked to consumption of tuna in one outbreak, mahi mahi in one outbreak and Marlin in another outbreak; *Salmonella* Weltevreden linked to consumption of frozen microwave meals; *Salmonella* Typhimurium linked to consumption of raw egg chocolate mousse; *Salmonella* Enteritidis linked to consumption of chicken; and methemoglobinemia linked to misuse of a food processing aid. One Norovirus outbreak in a restaurant was thought to be caused by an infected food handler. There was also a *Salmonella* Wangata outbreak at a restaurant, the source of contamination for this could not be determined. There were also three investigations into clusters of genetically identical strains of Hepatitis E, *Listeria Monocytogenes* and *Salmonella* Enteritidis that was not able to find the source of contamination. The two remaining outbreaks were of unknown aetiology and cause.

In addition, 395 **gastroenteritis outbreaks in institutions** with suspected person to person transmission were investigated. This was well above the previous 5-year average for the quarter (n=160), primarily due to increases in childcare centre outbreaks. The viral gastroenteritis pathogens of norovirus and rotavirus were found to be the causes of these outbreaks.

## Highlights continued

Figures 1-3. Number of notifications by year, quarter and disease, January 2014 to December 2019<sup>1,2</sup>



<sup>1</sup> Campylobacteriosis became notifiable on 7 April 2017. Data is likely to be incomplete for this quarterly report due to the methods of notification from laboratories.

<sup>2</sup> The shigellosis case definition changed on 1 July 2018 to include probable cases (PCR positive only). The trend number of confirmed cases only, which is more comparable to previous counts of shigellosis prior to the case definition change, is provided by the black dotted line.

**Table 1.** Notifiable enteric conditions, quarter 3 2019, by local health district

Notifiable Disease		CC	FW	HNE	IS	M	MNC	NBM	NNSW	NS	SES	SNSW	SWS	SYD	WNSW	WS	NSW <sup>1</sup>
Botulism	Notified, Q3 2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5 y Q3 mean, 2014-2018	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Campylobacteriosis <sup>2,3</sup>	Notified, Q3 2019	147	13	329	150	190	87	122	126	472	380	99	182	191	139	304	2932
	5 y Q3 mean, 2014-2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cholera	Notified, Q3 2019	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5 y Q3 mean, 2014-2018	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cryptosporidiosis	Notified, Q3 2019	7	1	26	26	13	4	9	4	27	13	5	17	12	15	17	196
	5 y Q3 mean, 2014-2018	6.2	0.4	52.0	13.4	14.2	5.2	9.2	14.6	27.2	22.6	6.2	10.2	9.2	19.8	12.6	223.0
Giardiasis <sup>3</sup>	Notified, Q3 2019	26	1	63	33	38	8	27	58	95	93	5	61	33	23	66	630
	5 y Q3 mean, 2014-2018	29.0	1.4	88.4	38.6	34.2	22.8	32.0	35.2	103.4	108.8	12.4	49.0	61.0	28.2	54.0	698.4
Hepatitis A	Notified, Q3 2019	0	0	0	0	0	0	0	0	2	1	0	1	1	0	8	13
	5 y Q3 mean, 2014-2018	0.6	0.0	0.4	0.6	0.0	0.4	0.4	0.2	1.2	1.6	0.2	2.2	2.2	0.0	5.6	15.6
Hepatitis E	Notified, Q3 2019	0	0	0	0	0	0	0	0	0	0	0	2	1	0	1	4
	5 y Q3 mean, 2014-2018	0.6	0.0	0.0	0.0	0.0	0.2	0.0	0.2	1.6	0.6	0.0	0.6	0.4	0.0	1.2	5.4
Listeriosis	Notified, Q3 2019	0	0	1	0	0	1	0	0	1	2	0	0	1	0	0	6
	5 y Q3 mean, 2014-2018	0.2	0.0	0.6	0.2	0.0	0.4	0.2	0.2	0.4	0.8	0.4	0.6	0.6	0.2	1.0	5.8
Paratyphoid	Notified, Q3 2019	0	0	0	0	0	0	1	0	0	0	0	1	0	0	4	6
	5 y Q3 mean, 2014-2018	0.4	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.6	1.6	0.0	0.2	0.8	0.2	3.8	7.8
Rotavirus	Notified, Q3 2019	29	0	81	24	31	8	63	41	121	84	8	173	77	56	162	958
	5 y Q3 mean, 2014-2018	10.2	2.4	36.0	11.0	16.2	2.2	16.8	15.0	61.4	53.8	6.0	55.6	42.8	14.8	60.0	404.2
Salmonellosis	Notified, Q3 2019	50	1	87	29	39	34	40	75	94	91	19	99	58	22	96	834
	5 y Q3 mean, 2014-2018	41.8	5.4	116.6	47.0	39.6	33.6	39.8	59.6	124.6	117.0	22.6	94.0	80.2	23.2	96.4	941.4
Shigellosis <sup>4</sup>	Notified, Q3 2019	1	0	12	6	6	7	2	10	35	61	3	21	42	1	29	236
	5 y Q3 mean, 2014-2018	2.8	0.2	5.4	3.6	1.4	0.8	2.4	5.8	10.6	22.6	0.8	6.4	18.6	2.0	8.0	91.4
STEC	Notified, Q3 2019	0	0	2	0	6	0	1	1	0	2	2	2	0	11	6	33
	5 y Q3 mean, 2014-2018	0.2	0.0	2.6	0.6	2.8	0.2	0.2	0.4	0.4	1.8	3.0	0.0	0.0	2.4	3.2	17.8
HUS	Notified, Q3 2019	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	5 y Q3 mean, 2014-2018	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.2	0.4	1.4
Typhoid	Notified, Q3 2019	0	0	0	0	0	0	0	0	1	1	0	3	3	0	2	10
	5 y Q3 mean, 2014-2018	0.0	0.0	0.2	0.2	0.0	0.0	0.2	0.2	0.6	1.8	0.0	2.4	1.6	0.4	3.4	11.0
Foodborne <sup>5</sup> Outbreaks	Notified, Q3 2019	2	0	3	3	1	0	3	1	3	4	0	2	2	0	3	14
	People affected	6	0	49	6	1	0	21	1	16	18	0	5	5	0	7	139
Salmonella Cluster	Notified, Q3 2019	1	0	0	1	1	0	1	0	2	2	1	3	2	1	3	5
	People affected	2	0	0	4	4	0	1	0	2	3	1	6	3	1	4	31

Legend: Blue shading refers to a 100% or greater increase in the number of notifications compared to the five year quarterly average. Notes: <sup>1</sup> Total NSW numbers may differ to the sum of cases by LHD due to some cases not being attributed to an LHD; <sup>2</sup> Campylobacteriosis became notifiable on 7 April 2017, 5 year quarterly average data not available (NA); <sup>3</sup> Data is likely to be incomplete for this quarterly report due to changes in the methods of notification from laboratories; <sup>4</sup> Case definition changed on 1 July 2018 to include 'probable' cases; <sup>5</sup> Foodborne or potentially foodborne outbreaks.

**Table 2.** Notifiable enteric conditions, quarter 4 2019, by overseas or local acquisition

Notifiable Disease	Place infection acquired	NSW, Q4 2019	5 yr Q4 mean 2014-2018	2019 % change
<i>Salmonella</i> Enteritidis	Locally acquired	12	16.6	-28%
	Overseas acquired	54	42.8	26%
	Unknown	1	3.2	-69%
Hepatitis A	Locally acquired	4	3.4	18%
	Overseas acquired	9	12.0	-25%
	Unknown	0	0.2	-100%
Hepatitis E	Locally acquired	2	1.4	43%
	Overseas acquired	2	3.4	-41%
	Unknown	0	0.6	-100%
Paratyphoid	Locally acquired	0	0.2	0%
	Overseas acquired	6	7.2	-17%
	Unknown	0	0.4	0%
STEC	Locally acquired	26	13.4	94%
	Overseas acquired	3	1.2	150%
	Unknown	4	3.2	25%
Shigellosis <sup>1</sup>	Locally acquired	80	33.0	142%
	Overseas acquired	113	37.4	202%
	Unknown	43	21.0	105%
Typhoid	Locally acquired	0	0.8	-100%
	Overseas acquired	10	10.0	0%
	Unknown	0	0.2	-100%

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

<sup>1</sup>The Shigellosis case definition changed on 1 July 2018 to include probable cases (PCR positive only). As per the [NSW Shigellosis Control Guidelines for Public Health Units](#), place of infection is only investigated for probable shigellosis cases if (a) they meet criteria for considered to be at greater risk of ongoing transmission, or (b) they subsequently become a confirmed case.

# Foodborne and suspected foodborne outbreaks

NSW Health investigates all potential foodborne disease outbreaks. 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. The most notable outbreaks are described on pages 10-12.

**Table 3.** Foodborne and potentially foodborne disease outbreaks investigated in NSW, quarter 4 2019

PHU ID	Month <sup>1</sup>	Setting	Agent responsible	No. ill	Lab confirmed	No. Hospitalised	Evidence	Responsible vehicles	Contributing factors
HNE201902	October	Restaurant	Norovirus	43	2	1	D	Person to person	Inadequate or failed disinfection
IS201902	October	Restaurant	Unknown	4	0	0	D	unknown	Unknown
MJOI-2019-004	October	Community	<i>Salmonella</i> Weltevreden	25	25	9	A,D,M	Frozen microwave meals	Unknown
WS201902	October	Community	Scombroid	5	5	1	A	Marlin	Toxic substance or part of tissue
HNE201903	November	Restaurant	<i>Salmonella</i> Wangata	2	1	1	D	unknown	Unknown
MJOI-2019-005	November	Community	<i>Salmonella</i> Enteritidis	2	2	2	A,M	Chicken linked by WGS	Unknown
NBM201901	November	Camp	Unknown	17	0	0	D	unknown	Unknown
NS201903	November	Restaurant	Scombroid	6	0	1	D	Mahi Mahi	Toxic substance or part of tissue
NSW201902c	November	Community	<i>Listeria monocytogenes</i>	7	4	4	A,D	Unknown	Unknown
SWS201904c	November	Community	Hepatitis E virus	3	3	3	M	unknown	Unknown
Syd201902	November	Restaurant	Methemoglobinemia	2	0	2	D	Prawn dish	Misuse of food processing aid
NS201902	December	Restaurant	<i>Salmonella</i> Typhimurium	9	4	0	A,D	Chocolate mousse and mascarpone	Ingestion of contaminated raw products
NSW201903c	December	Community	<i>Salmonella</i> Enteritidis	2	2	0	M	unknown	Unknown
SES201908	December	Commercial caterer	Scombroid	12	0	0	D, M	Tuna	Toxic substance or part of tissue

<sup>1</sup> Month of outbreak is the month of onset of first case or month of notification/investigation of the outbreak. <sup>2</sup> Interstate outbreak affecting 2 NSW residents led by Qld Health

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.

# Notable Foodborne Outbreaks

## Key points

- Microwaved meals should be cooked until steaming hot to kill any potential pathogens that can survive freezing
- The use of food additives such as sodium nitrate needs to follow strict guidelines, as misuse can have toxic affects

## ***Salmonella* Weltevreden outbreak linked to frozen microwave meals**

During October 2019, an increase in *Salmonella* Weltevreden (S.Weltevreden) was detected through routine surveillance in NSW and several other Australian states. Whole genome sequencing confirmed that this was unique strain indicating a multijurisdictional point source outbreak. Interviews of cases quickly identified that a particular brand of frozen microwave meal as the potential source of the outbreak.

Between 17 September 2019 and 16 December 2019 a total of 83 S.Weltevreden were notified nationally that met the confirmed case definition for the outbreak, including 25 from NSW. 72% of cases that were interviewed could recall eating one of the frozen microwave meals in question. There was a [consumer level recall](#) of the implicated products on 19 October 2019. Samples of the food in retail were tested and were found to contain the same strain of S.Weltevreden. Investigation of ingredients in the meals was conducted but the original source of the salmonella contamination could not be determined. The maker of the product ceased production and instituted cleaning measures, and additional kill step measures in the preparing of the microwave meals to prevent this from occurring again.

## **Methemoglobinemia linked to consumption of prawns at a restaurant**

Two unrelated people from separate dining groups who consumed a king prawn dish at a restaurant on 12 December 2019 both developed dizziness, nausea and fainting episodes within 10-15mins of consuming the dish. Both women attended ED that afternoon and were diagnosed with Methemoglobinemia. There are reports of a third person who fainted in the restaurant but their details weren't collected.

The restaurant reports that this dish was served to about 20 patrons over the course of the day. Sodium nitrite was

found onsite. Sodium nitrite is a processing aid and additive that can be used in limited circumstances but in this instance it was contrary to the Food Standards Code. The restaurant ceased the practice and was fined. Details of [fines issued by the Food Authority are available on their website](#).

## **Scombroid outbreak served by a commercial caterer**

Twelve employees at company A developed flushing, headache and tachycardia 30 minutes after eating lunch served to them by the company. The food was tuna steak off cuts that was breaded then fried. Most of the tuna had been consumed and was not in distribution. The remaining tuna steak was quarantined, and samples were submitted for histamine testing. Three tested samples contained histamine at levels in excess of that permitted in the Food Standards Code. As the fish could have been mishandled at any point in the supply chain, the factors contributing to the incident could not be identified.

## ***Salmonella* Typhimurium outbreak associated with raw egg chocolate mousse**

A metropolitan Sydney public health unit investigated two complaints of illness following a meal at a restaurant on 6 December 2019. The complaints were from two separate dining groups of 25 people each, eight people in the first and four in the second group developed illness a day later. *Salmonella* Typhimurium was confirmed in two people from each group, whole genome sequencing confirmed it was the same salmonella strain involved. The diners ate a variety of dishes, but what was common to all ill people was a chocolate mousse. NSWFA were notified and inspected the restaurant. The business was using raw eggs in the chocolate mousse. Specimens and swabs were taken at the restaurant, but no salmonella was detected. The outbreak was likely due to the use of a contaminated egg in the raw egg chocolate mousse. If food businesses are to use raw egg, they must take steps to ensure Salmonella can't grow, such as acidification or using a pasteurised product. This business ceased using raw egg to prepare the chocolate mousse.

# Institutional gastrointestinal outbreaks

From 1 October 2019 to 31 December 2019, a total of 395 outbreaks of suspected viral gastrointestinal illness in institutions were reported in NSW affecting at least 4763 people (Table 4). This represents an increase of 247% compared to the average number of outbreaks reported during the same quarter from 2014 to 2018 (n=160), and an increase of 206% compared to the mean number of people affected as a result of the gastroenteritis outbreaks during the same quarter from 2014 to 2018 (n=2313).

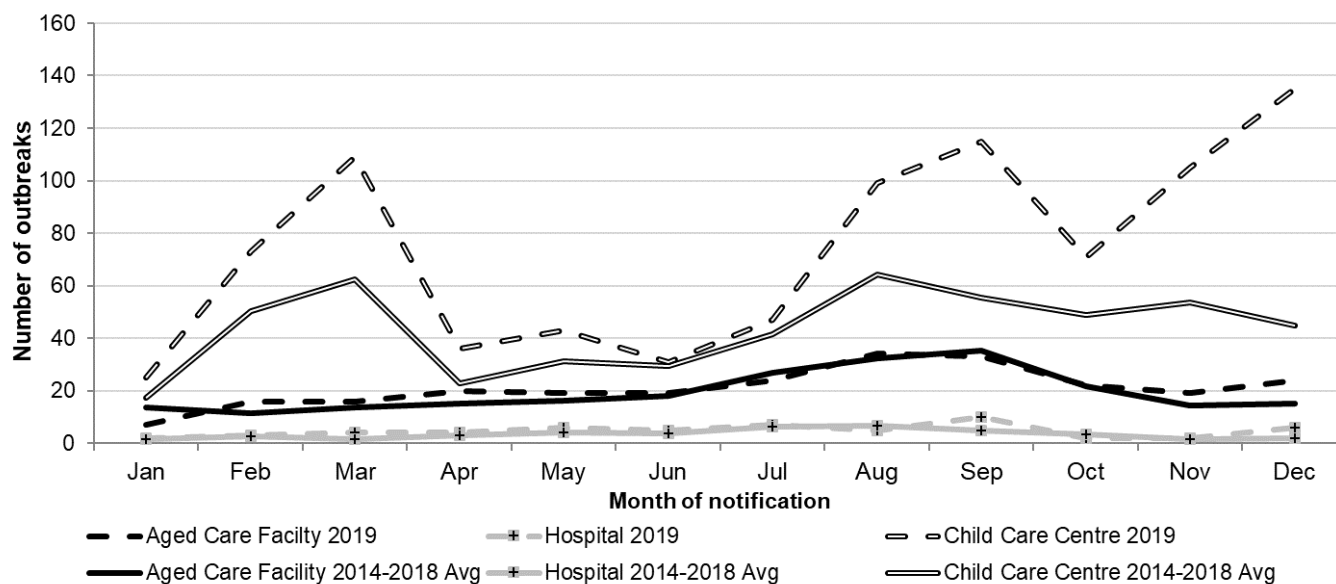
Of the 395 outbreaks, 311 (79%) occurred in childcare centres, 65 (16%) in aged care facilities, 10 (3%) in hospitals and nine (2%) in other facilities (Table 4). The number of outbreaks during quarter 4 was higher than the five-year quarterly average across all institution types: outbreaks in childcare centres were 213% above average, outbreaks in hospitals were 43% above average, and outbreaks in aged care facilities were 31% above average. (Figure 4).

Overall, 11% of staff members and 12% of non-staff became sick during gastroenteritis outbreaks in quarter 4 (Table 5). The highest attack rate for gastrointestinal disease for staff was in Childcare centres (13%) and for non-staff was in hospitals (29%). Outbreaks lasted eight days on average (Table 5).

One or more stool samples were collected in 81 (21%) of the outbreaks. Norovirus was identified in 28 (35%) of these outbreaks and rotavirus was identified in 18 (22%) of these outbreaks. The results of the other samples were negative, or not reported (Table 5).

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

**Figure 4.** Number of reported outbreaks of gastrointestinal illness in institutions, quarter 4 2019 compared to the 5 year quarterly average, by month and facility type





**Table 4.** Outbreaks of gastroenteritis in institutions reported in NSW, quarter 4 2019, by local health district<sup>2</sup>

Facility type	Q3 2019	HNE	IS	M	MNC	NBM	NNSW	NS	SES	SNSW	SWS	SYD	WNSW	WS	NSW
ACF	No. of outbreaks	11	3	4	0	2	1	9	4	3	6	9	4	9	65
	Staff affected	26	23	6	0	15	0	6	59	4	3	32	2	4	180
	Non-staff affectede	138	43	54	0	47	5	70	120	15	44	63	41	61	701
CCC	No. of outbreaks	65	6	34	1	39	0	18	14	10	27	8	59	30	311
	Staff affected	161	11	29	0	92	0	33	46	13	43	21	121	68	638
	Non-staff affectede	609	60	238	3	385	0	180	180	53	310	78	563	310	2969
Hospital	No. of outbreaks	0	0	1	0	0	0	1	1	0	2	1	0	4	10
	Staff affected	0	0	2	0	0	0	13	0	0	4	4	0	12	35
	Non-staff affectede	0	0	7	0	0	0	12	3	0	29	4	0	19	74
Other <sup>1</sup>	No. of outbreaks	0	1	0	0	1	0	1	0	2	2	0	1	1	9
	Staff affected	0	0	0	0	1	0	0	0	2	6	0	0	1	10
	Non-staff affecte	0	23	0	0	17	0	8	0	6	76	0	2	22	154

<sup>1</sup> Other= family and community services facility, respite hospice

<sup>2</sup> CC and FW did not report any outbreaks of gastroenteritis in institutions in this period

**Table 5.** Outbreaks of gastroenteritis in institutions reported in NSW, quarter 4 2019, 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	65	180: 4%	701: 15%	6	45: 69%	20: norovirus, 7: rotavirus
CCC	311	638: 13%	2969: 11%	9	26: 8%	4: norovirus, 11: rotavirus
Hospital	10	35: 10%	74: 29%	6	10: 100%	4: norovirus
Other <sup>1</sup>	9	10: 5%	154: 14%	9	7: 78%	0
Total	395	863: 11%	3989: 12%	8	81: 21%	28: norovirus, 18: rotavirus

<sup>1</sup> Other= family and community services facility, respite hospice

# METHODS

The data in this report are derived from disease surveillance and outbreak investigation activities undertaken by staff from NSW public health units, Communicable Diseases Branch (CDB), Health Protection NSW, OzFoodNet (OFN) staff and the NSW Food Authority (NSWFA).

## Notifiable enteric diseases in NSW

Under the Public Health Act 2010 (NSW), the following enteric diseases and conditions are notifiable in NSW: botulism, *Campylobacter*, cholera, cryptosporidiosis, giardiasis, hepatitis A, haemolytic uraemic syndrome (HUS), hepatitis E, listeriosis, paratyphoid, rotavirus, Shiga toxin producing *Escherichia coli* (STEC/VTEC) infections, shigellosis, salmonellosis, typhoid, institutional gastroenteritis in two or more people, and foodborne disease in two or more people. Individual cases of other enteric diseases such as norovirus infection are not notifiable in NSW.

NSW laboratories report cases of notifiable enteric diseases to public health units (PHUs). Outbreaks of foodborne or suspected foodborne illness and institutional gastroenteritis are reportable by doctors, hospitals, child care centres and aged care facilities. Notifiable disease data are routinely entered by public health unit staff into the NSW Notifiable Conditions Information Management System (NCIMS).

## Data sources for this report

Data in this report has been extracted from the NSW Notifiable Conditions Information Management System, NSW OFN Outbreak Database and the NSW Gastroenteritis in Institutions Database, all held by Health Protection NSW.

Data for outbreaks of suspected point-source foodborne enteric diseases were collected from the

NSW Food Authority Notification of Foodborne Illness Outbreak Form, the Public Health Unit Environmental Request Form and the OFN Outbreak Summary Form and entered into an MS Access database. Data for enteric disease outbreaks in institutions with suspected person-to-person transmission of a viral pathogen were entered directly into NCIMS by public health units.

## Methods

Data for all notifiable enteric diseases and conditions was extracted from NCIMS using Secure Analytics for Population Health Research and Intelligence (SAPHARI)<sup>i</sup> using the calculated date of onset of disease. This is a composite field of the true date of onset provided by the notifying doctor or obtained during case follow-up, the date of specimen collection for laboratory notified cases, the date of notification by the doctor or laboratory, or the date of receipt of notification, whichever is earliest.

The counts of each notifiable enteric disease for quarter 4 2019 were compared with the average annual count for the same quarter for the years 2014 to 2018 using SAS Enterprise Guide and MS Excel at Health Protection NSW.

Individual factors such as possible risk exposures are reported for cases where that information has been collected by the public health unit. "Unknown" place of acquisition usually indicates that the person was in more than one place during their exposure period, so that the place of acquisition cannot be definitively assigned. Possible risk factors are those reported by the case on questioning, and cannot be attributed as the source unless further investigation is undertaken.

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<sup>i</sup> NSW Health Notifiable Conditions Information Management System (NCIMS), Communicable Diseases Branch and Centre for Epidemiology and Evidence, NSW Ministry of Health.

# GLOSSARY

ACF	Aged-care facility	NBM	Nepean Blue Mountains LHD
CC	Central Coast LHD	NNSW	Northern NSW LHD
CCC	Childcare centre	NS	Northern Sydney LHD
FW	Far West LHD	NSW	New South Wales
HNE	Hunter New England LHD	NSWFA	NSW Food Authority
HUS	haemolytic uraemic syndrome	Q	Quarter
ICPMR	Institute of Clinical Pathology and Medical Research	SES	South Eastern Sydney LHD
IS	Illawarra Shoalhaven LHD	SNP	single nucleotide polymorphisms
LHD	Local Health Districts	SNSW	Southern NSW LHD
M	Murrumbidgee LHD	STEC	Shiga toxin-producing <i>Escherichia Coli</i>
MLVA	Multi-locus variable number tandem repeat analysis	SWS	South Western Sydney LHD
MLST	Multi-locus sequence typing	SYD	Sydney LHD
MNC	Mid North Coast LHD	WNSW	Western NSW LHD
N	Number	WS	Western Sydney LHD
NA	Not available	Yr	Year