

# OzFoodNet

Enhancing Foodborne Disease Surveillance Across Australia

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## NSW SECOND QUARTER REPORT

April – June 2019



NSW OzFoodNet team  
Communicable Diseases Branch  
HEALTH PROTECTION NSW

Locked Mail Bag 961  
North Sydney 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 2, 2019

This report describes data for enteric conditions for quarter 2, 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 3,965 enteric conditions were notified to NSW Public Health Units in quarter 2, 2019. Most conditions were decreased compared to usual levels for the same quarter in previous years.

Notifications of **shigellosis** remained above average, primarily as a result of a change in the national surveillance case definition on 1 July 2018 (see page 7 for detail). Eighty cases met the confirmed case definition, which was above average (50% increase compared to the 5 year quarterly average). An investigation was conducted which identified an increase in transmission among men who have sex with men. Further information is described on page 7.

The number of **Typhoid** notifications in quarter 2 substantially decreased from the high numbers reported in the previous quarter, and was similar to the quarterly average. However, one locally acquired infection was reported in a resident of a metropolitan Sydney local health district. This person had no recent overseas travel, or any contact with recent travellers. Their household contacts, including a young child, had most recently travelled overseas six months prior. The household contacts was assessed to be the most likely source of infection, and the household underwent clearance testing.

A small increase in **Haemolytic Uremic Syndrome** (HUS) was noted this quarter with two cases notified, however only one case was diagnosed with Shiga toxin-producing *E. Coli* (STEC). Notifications of STEC (n=11) were similar to the quarterly average for this period.

An increase in **rotavirus** above average quarterly levels (52%) was reported this period, however remained low overall. Rotavirus typically follows a seasonal pattern peaking in quarter 3 each year, however in 2018 notifications remained constant all year.

**Salmonellosis** notifications decreased slightly in quarter 2, 2019 (down 13%) compared to the five-year quarterly average for the same period. This was due primarily to the continued decline in *Salmonella* Typhimurium cases (n=367, down 44% compared to the 5 year quarterly average of 373 cases). *Salmonella*

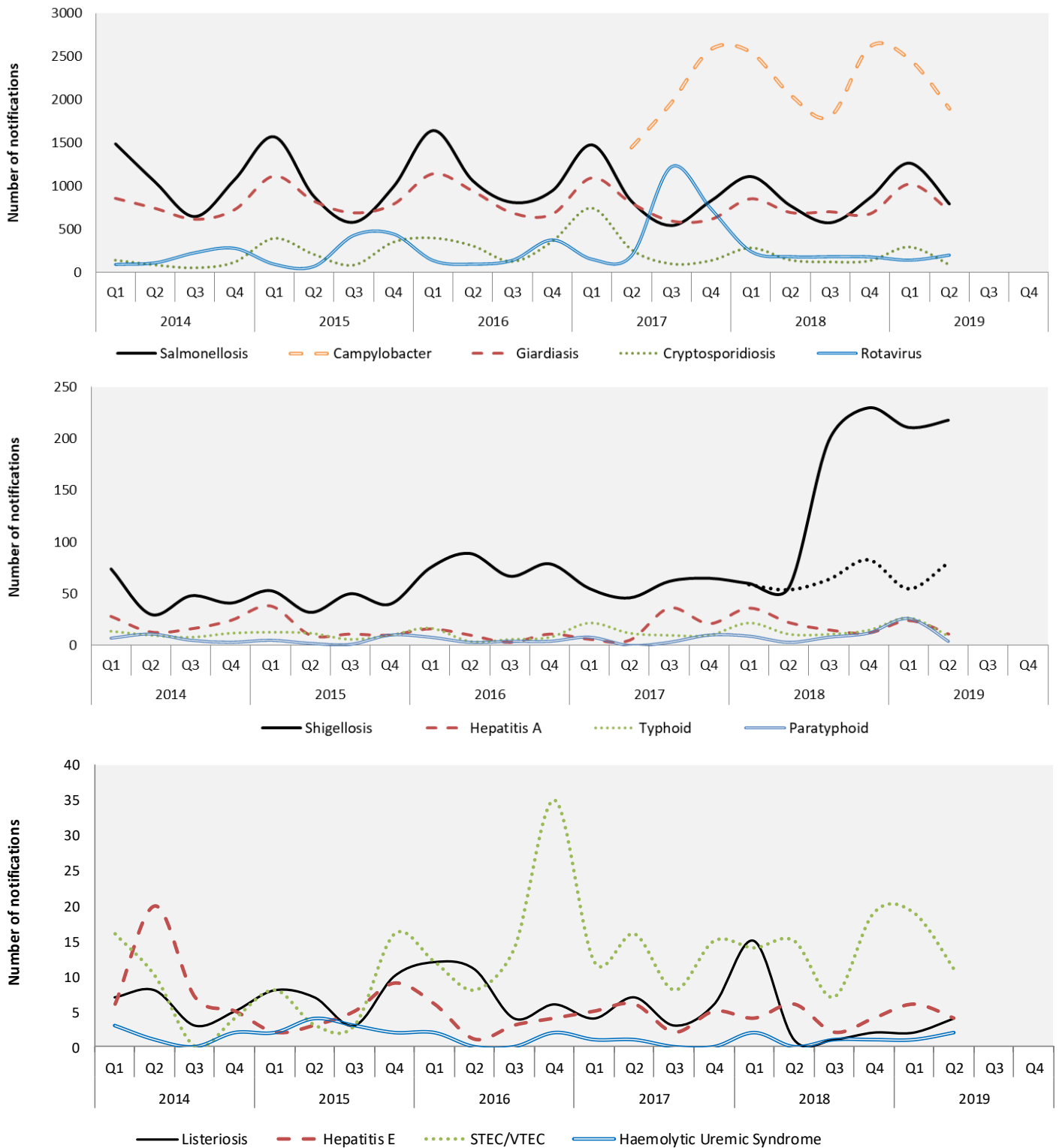
Enteritidis was the second highest notified *Salmonella* serotype in quarter 2, 2019 (n=89). While overseas acquired cases increased (by 121% above the quarterly average), the greatest increase occurred among locally acquired cases (233% above average). This increase is attributed to an outbreak in NSW which commenced in May 2018 and has led to the recall of eggs from multiple egg producers. During quarter 2, an additional 21 cases were linked to the outbreak, for a national total of 235 cases (of which 188 are residents of NSW). Further information is provided on page 9.

Moderate decreases were noted in cryptosporidiosis, listeriosis and giardiasis. No notifications of cholera or botulism were received. Long term trends are not available for campylobacteriosis, which became notifiable on 7 April 2017, however notifications received in this quarter were slightly below the same quarter in the previous year. The long term trends for 13 notifiable enteric conditions in NSW are shown in Figures 1-3.

Twelve **foodborne or suspected foodborne outbreaks** were reported affecting at least 161 residents of NSW (Table 1), of whom at least 5 were hospitalised (Table 4). A causative agent was linked to a food source in six outbreaks: Scombroid poisoning linked to consumption of canned tuna in one outbreak and consumption of marlin-type fish in one outbreak; *Salmonella* Typhimurium linked to eggs in three outbreaks (all linked to the outbreak of *Salmonella* Typhimurium MLVA 5-17-9-13-490 first reported in quarter 4 2018); and *Salmonella* Enteritidis linked to eggs in one outbreak (which was linked to the outbreak of *Salmonella* Enteritidis first reported in quarter 3 2018). One outbreak on a cargo ship arriving in Sydney from South-East Asia was caused by *Salmonella* Enteritidis, however a food source could not be identified. Norovirus was the causative pathogen for two outbreaks linked to restaurants but the vehicles of transmission were unknown. One outbreak at a catered function was thought to be caused by failing to reheat a curry and rice dish prior to being served, with the agent most likely a toxin (not able to be identified). The two remaining outbreaks were of unknown aetiology and cause.

# Highlights continued

**Figures 1-3.** Number of notifications by year, quarter and disease, April 2014 to June 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 2 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, Q2 2019      | 0    | 0   | 0     | 0    | 0               | 0    | 0    | 0    | 0     | 0     | 0    | 0    | 0    | 0    | 0     | 0                |
|                                   | 5 y Q2 mean, 2014-2018 | 0.0  | 0.0 | 0.0   | 0.0  | 0.0             | 0.0  | 0.0  | 0.0  | 0.0   | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0   | 0.0              |
| Campylobacteriosis <sup>2,3</sup> | Notified, Q2 2019      | 75   | 5   | 165   | 109  | 84              | 66   | 74   | 104  | 346   | 274   | 45   | 113  | 143  | 82   | 213   | 1898             |
|                                   | 5 y Q2 mean, 2014-2018 | -    | -   | -     | -    | -               | -    | -    | -    | -     | -     | -    | -    | -    | -    | -     | -                |
| Cholera                           | Notified, Q2 2019      | 0    | 0   | 0     | 0    | 0               | 0    | 0    | 0    | 0     | 0     | 0    | 0    | 0    | 0    | 0     | 0                |
|                                   | 5 y Q2 mean, 2014-2018 | 0.0  | 0.0 | 0.0   | 0.0  | 0.0             | 0.0  | 0.0  | 0.0  | 0.0   | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0   | 0.0              |
| Cryptosporidiosis                 | Notified, Q2 2019      | 3    | 1   | 23    | 5    | 7               | 3    | 3    | 5    | 12    | 9     | 1    | 4    | 9    | 3    | 6     | 94               |
|                                   | 5 y Q2 mean, 2014-2018 | 12.0 | 0.2 | 18.8  | 15.0 | 9.2             | 9.8  | 10.4 | 13.4 | 26.2  | 33.6  | 3.2  | 13.8 | 16.6 | 8.6  | 14.4  | 205.2            |
| Giardiasis <sup>3</sup>           | Notified, Q2 2019      | 34   | 5   | 72    | 39   | 27              | 24   | 41   | 46   | 107   | 95    | 3    | 61   | 48   | 33   | 80    | 715              |
|                                   | 5 y Q2 mean, 2014-2018 | 33.4 | 0.2 | 100.2 | 47.8 | 34.0            | 21.2 | 32.8 | 34.2 | 127.4 | 149.4 | 12.6 | 53.2 | 65.6 | 31.6 | 60.4  | 804.0            |
| Hepatitis A                       | Notified, Q2 2019      | 0    | 0   | 0     | 0    | 1               | 0    | 2    | 0    | 2     | 2     | 0    | 0    | 1    | 1    | 2     | 11               |
|                                   | 5 y Q2 mean, 2014-2018 | 0.2  | 0.0 | 1.0   | 0.4  | 0.2             | 0.0  | 0.2  | 0.4  | 1.0   | 2.0   | 0.0  | 1.4  | 1.4  | 0.8  | 3.0   | 12.0             |
| Hepatitis E                       | Notified, Q2 2019      | 0    | 0   | 0     | 0    | 0               | 0    | 0    | 0    | 1     | 0     | 0    | 1    | 1    | 0    | 1     | 4                |
|                                   | 5 y Q2 mean, 2014-2018 | 0.0  | 0.0 | 0.4   | 0.0  | 0.0             | 0.0  | 0.2  | 0.0  | 1.4   | 0.8   | 0.0  | 1.0  | 1.2  | 0.0  | 2.2   | 7.2              |
| Listeriosis                       | Notified, Q2 2019      | 0    | 0   | 0     | 0    | 1               | 0    | 0    | 0    | 1     | 0     | 0    | 0    | 2    | 0    | 0     | 4                |
|                                   | 5 y Q2 mean, 2014-2018 | 0.2  | 0.0 | 0.6   | 0.6  | 0.6             | 0.0  | 0.2  | 0.0  | 1.4   | 1.0   | 0.2  | 1.0  | 0.4  | 0.4  | 0.2   | 6.8              |
| Paratyphoid                       | Notified, Q2 2019      | 0    | 0   | 0     | 0    | 0               | 0    | 0    | 0    | 1     | 0     | 0    | 0    | 0    | 0    | 3     | 4                |
|                                   | 5 y Q2 mean, 2014-2018 | 0.0  | 0.0 | 0.0   | 0.2  | 0.2             | 0.0  | 0.0  | 0.0  | 0.4   | 0.2   | 0.0  | 0.8  | 0.6  | 0.0  | 1.4   | 3.8              |
| Rotavirus                         | Notified, Q2 2019      | 7    | 0   | 11    | 11   | 3               | 1    | 13   | 8    | 19    | 24    | 3    | 44   | 30   | 2    | 25    | 201              |
|                                   | 5 y Q2 mean, 2014-2018 | 2.0  | 0.2 | 9.0   | 4.0  | 4.4             | 0.6  | 4.0  | 10.2 | 24.0  | 19.0  | 1.6  | 15.4 | 15.6 | 5.6  | 16.6  | 132.2            |
| Salmonellosis                     | Notified, Q2 2019      | 34   | 4   | 93    | 34   | 37              | 31   | 24   | 62   | 118   | 81    | 11   | 94   | 50   | 35   | 86    | 794              |
|                                   | 5 y Q2 mean, 2014-2018 | 37.0 | 3.0 | 94.6  | 38.6 | 30.0            | 37.4 | 39.8 | 71.6 | 143.8 | 113.6 | 21.2 | 92.8 | 67.2 | 25.6 | 100.0 | 916.2            |
| Shigellosis <sup>4</sup>          | Notified, Q2 2019      | 8    | 0   | 8     | 4    | 2               | 0    | 5    | 19   | 38    | 50    | 5    | 15   | 34   | 5    | 25    | 218              |
|                                   | 5 y Q2 mean, 2014-2018 | 3.0  | 0.0 | 2.8   | 1.0  | 0.8             | 1.0  | 1.6  | 0.8  | 6.8   | 12.8  | 0.8  | 2.8  | 11.8 | 0.2  | 4.4   | 50.6             |
| STEC                              | Notified, Q2 2019      | 1    | 0   | 1     | 0    | 4               | 0    | 0    | 0    | 0     | 0     | 0    | 0    | 0    | 1    | 4     | 11               |
|                                   | 5 y Q2 mean, 2014-2018 | 0.4  | 0.0 | 2.2   | 0.0  | 1.4             | 0.2  | 0.0  | 0.0  | 0.0   | 1.2   | 0.8  | 0.2  | 0.0  | 1.8  | 2.2   | 10.4             |
| HUS                               | Notified, Q2 2019      | 0    | 0   | 2     | 0    | 0               | 0    | 0    | 0    | 0     | 0     | 0    | 0    | 0    | 0    | 0     | 2                |
|                                   | 5 y Q2 mean, 2014-2018 | 0.0  | 0.0 | 0.0   | 0.2  | 0.0             | 0.0  | 0.0  | 0.0  | 0.4   | 0.4   | 0.0  | 0.0  | 0.0  | 0.2  | 0.0   | 1.2              |
| Typhoid                           | Notified, Q2 2019      | 0    | 0   | 1     | 0    | 0               | 0    | 0    | 0    | 0     | 0     | 0    | 2    | 1    | 0    | 5     | 9                |
|                                   | 5 y Q2 mean, 2014-2018 | 0.2  | 0.0 | 0.2   | 0.2  | 0.0             | 0.0  | 0.2  | 0.0  | 1.6   | 1.2   | 0.2  | 1.4  | 0.8  | 0.0  | 3.8   | 9.8              |
| Foodborne <sup>5</sup> Outbreaks  | Notified, Q2 2019      | 0    | 0   | 1     | 1    | 1               | 0    | 0    | 0    | 1     | 4     | 0    | 2    | 0    | 0    | 2     | 12               |
|                                   | People affected        | 0    | 0   | 3     | 3    | 44 <sup>6</sup> | 0    | 0    | 0    | 6     | 86    | 0    | 10   | 0    | 0    | 9     | 161              |
| Salmonella Cluster                | Notified, Q2 2019      | 0    | 0   | 4     | 2    | 1               | 1    | 2    | 1    | 4     | 5     | 1    | 4    | 4    | 2    | 6     | 8                |
|                                   | People affected        | 0    | 0   | 15    | 2    | 1               | 1    | 5    | 2    | 22    | 19    | 1    | 28   | 16   | 2    | 19    | 133              |

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; <sup>6</sup> Outbreak investigated by ACT OzFoodNet linked to a venue in MLHD. 44 NSW residents affected from across NSW but LHD of residence not collected.

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

| Notifiable Disease            | Place infection acquired | NSW, Q2 2019   | 5 yr Q2 mean<br>2014-2018 | 2019 % change |
|-------------------------------|--------------------------|----------------|---------------------------|---------------|
| <i>Salmonella</i> Enteritidis | Locally acquired         | 26             | 7.8                       | 233%          |
|                               | Overseas acquired        | 62             | 28.0                      | 121%          |
|                               | Unknown                  | 1 <sup>A</sup> | 3.0                       | -67%          |
| Hepatitis A                   | Locally acquired         | 2              | 5.0                       | -60%          |
|                               | Overseas acquired        | 9              | 6.8                       | 32%           |
|                               | Unknown                  | 0              | 0.2                       | -100%         |
| Hepatitis E                   | Locally acquired         | 0              | 3.0                       | -100%         |
|                               | Overseas acquired        | 4              | 4.2                       | -5%           |
|                               | Unknown                  | 0              | 0.0                       | -             |
| Paratyphoid                   | Locally acquired         | 0              | 0.4                       | 0%            |
|                               | Overseas acquired        | 4              | 3.4                       | 18%           |
|                               | Unknown                  | 0              | 0.0                       | 0%            |
| STEC                          | Locally acquired         | 9              | 8.4                       | 7%            |
|                               | Overseas acquired        | 0              | 0.8                       | -100%         |
|                               | Unknown                  | 2 <sup>B</sup> | 1.2                       | 67%           |
| Shigellosis <sup>1</sup>      | Locally acquired         | 62             | 28.2                      | 120%          |
|                               | Overseas acquired        | 124            | 17.0                      | 629%          |
|                               | Unknown                  | 32             | 5.4                       | 493%          |
| Typhoid                       | Locally acquired         | 1 <sup>C</sup> | 0.2                       | 400%          |
|                               | Overseas acquired        | 8              | 9.0                       | -11%          |
|                               | Unknown                  | 0              | 0.6                       | -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.

<sup>A</sup> Case lost to follow-up. <sup>B</sup> Cases lost to follow-up. <sup>C</sup> Thought to have been transmitted from person-to-person in a household

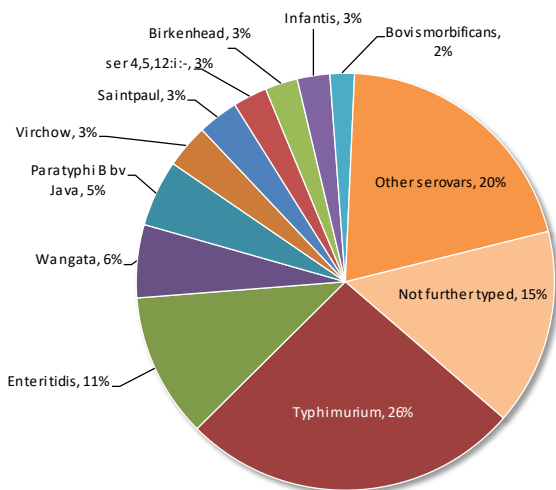
# Salmonella Spotlight

In quarter 2 2019, 20% of notified enteric infections were salmonellosis. The number of salmonellosis notifications was 13% lower in this quarter, compared to the 5 year quarterly average. Of the 794 *Salmonella* notifications, 26% were *S. Typhimurium* (208 cases). This is a 44% reduction in *S. Typhimurium* notifications compared to the five year average for this quarter (373 cases). Since 2011, there has been an overall decline in the number of *S. Typhimurium* notifications (Figure 5). This can in part be attributed to the NSW Food Safety Strategy 2015-2021, which aims to reduce *Salmonella* notifications by 30% through improved food safety practices, verification programs, and training across the retail sector.

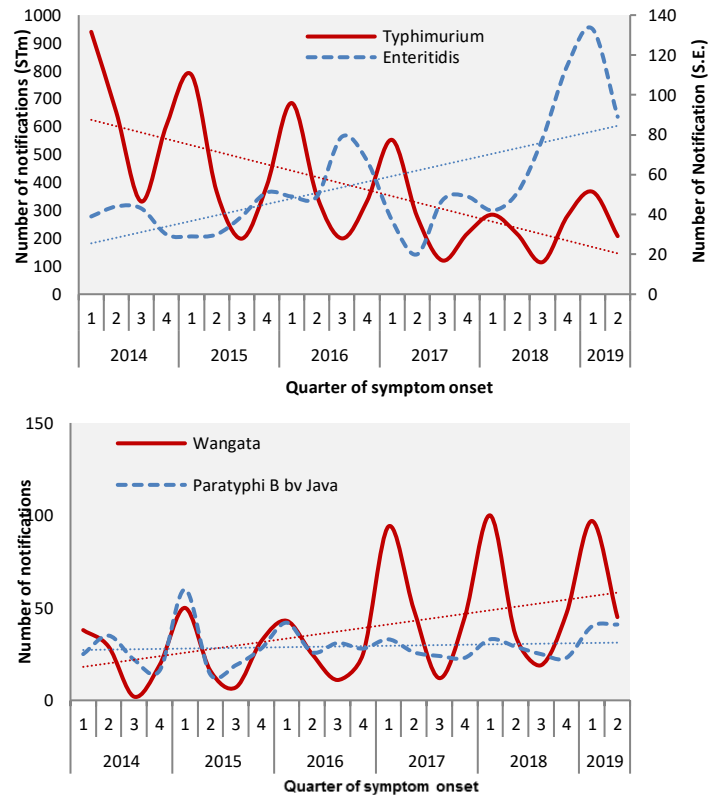
*S. Enteritidis* notifications accounted for 11% of all *Salmonella* notifications in quarter 2, 2019. An increase above the quarterly average occurred among locally acquired cases (233% above the quarterly average). This increase can be attributed to the ongoing outbreak of locally acquired *S. Enteritidis* that was identified in quarter 3, 2018 with cases continuing into quarter 2, 2019. In quarter 2, 81% of locally acquired case could be attributed to the outbreak. The investigation of this outbreak is further described on page 9.

*S. Wangata*, and *Paratyphi B bv Java* were the highest notified serovars following *S. Typhimurium* and *S. Enteritidis* in quarter 2, 2019 (Figure 4). *S. Wangata* is thought to be transmitted primarily via environmental reservoirs and follows a seasonal pattern peaking in January (Figure 5).

**Figure 4.** Proportion of *Salmonella* serovars, quarter 2, 2019 (N=794)



**Figure 5.** Trends, by quarters, for key *Salmonella* serovars in NSW from 2014-2019



The majority (91%) of *S. Typhimurium* isolates were typed using MLVA. In quarter 2, the most common MLVA profile (5-17-9-13-490) made up 17% of all the *S. Typhimurium* typed (Table 3) and was linked to an outbreak that originated in the Hunter New England region in quarter 4, 2018.

**Table 3.** Top 12 *Salmonella* Typhimurium MLVA patterns, quarter 2, 2019 (N=208)

| MLVA                | Notifications | % of <i>S. Tm</i> typed |
|---------------------|---------------|-------------------------|
| 5-17-9-13-490       | 32            | 17%                     |
| 3-17-8-12-523       | 10            | 5%                      |
| 3-17-9-12-523       | 9             | 5%                      |
| 3-10-9-8-523        | 8             | 4%                      |
| 4-16-12-0-517       | 5             | 3%                      |
| 3-15-0-0-517        | 5             | 3%                      |
| 3-17-9-13-523       | 5             | 3%                      |
| 3-20-11-10-523      | 5             | 3%                      |
| 3-12-13-9-523       | 4             | 2%                      |
| 3-15-12-10-523      | 4             | 2%                      |
| 3-9-9-14-523        | 3             | 2%                      |
| 3-16-14-11-523      | 3             | 2%                      |
| <b>Top 12 total</b> | <b>93</b>     | <b>49%</b>              |

# Shigella Spotlight

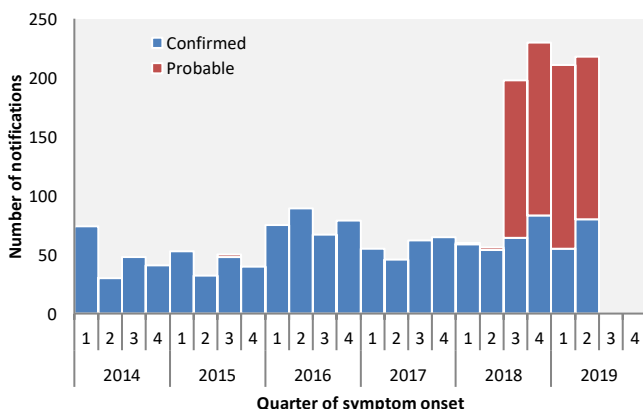
The national Shigellosis case definition changed on 1 July 2018 to include 'probable cases.' Probable cases include those with a detection of *Shigella* on nucleic acid testing only (PCR). The ipaH gene used as the target for all current nucleic acid tests for *Shigella* is common to both *Shigella* species and enteroinvasive *Escherichia coli* (EIEC). Thus, we are unable to differentiate between Shigellosis cases and EIEC cases in probable *Shigella* notifications.

This section describes Shigellosis notifications in NSW by classification (confirmed, probable) to allow comparison with previous years. The number of Shigellosis notifications, by classification, is shown for each quarter in Figure 6.

In quarter 2, 2019, 80 confirmed cases of Shigellosis were notified in NSW. This is a 60% increase compared to the five year average of confirmed Shigellosis notifications for this quarter (50 cases). In quarter 2, 2019, 138 probable cases of Shigellosis were notified in NSW.

The proportion of infections acquired overseas varied among confirmed and probable Shigellosis cases in quarter 2, 2019 (36% and 69% respectively) (Table 4). However, the primary country of acquisition was similar between confirmed cases and probable cases (India, 18% and 23%, respectively) (Table 5).

**Figure 6.** Number of Shigellosis notifications by year, quarter and classification, Jan 2014 to Jun 2019



Additional risk factors identified by confirmed cases include sexual activity with faecal exposure during their incubation (38%) and contact with a confirmed or suspected case (9%). Probable case data will be incomplete for these risk factors as cases are not interviewed, information is obtained from the treating doctor (Table 4).

**Table 4.** Shigellosis cases notified in quarter 2, 2019, by exposure and classification

| Exposures   | Confirmed cases |     | Probable cases |     |
|---|-----------------|-----|----------------|-----|
|   | No              | %   | No             | %   |
| Overseas acquired   | 29              | 36% | 95             | 69% |
| Sexual activity with faecal exposure during incubation period | 30              | 38% | 3              | 2%  |
| Contact with confirmed or suspected case                      | 7               | 9%  | 6              | 4%  |

**Table 5.** Top 5 countries of acquisition, Shigellosis cases notified in quarter 2, 2019, by classification

| Country     | Confirmed cases |                     |
|-------------|-----------------|---------------------|
|             | No              | % overseas acquired |
| India       | 5               | 18%                 |
| Indonesia   | 4               | 14%                 |
| Philippines | 2               | 7%                  |
| Vanuatu     | 2               | 7%                  |
| Turkey      | 2               | 7%                  |

| Country   | Probable Cases |                     |
|-----------|----------------|---------------------|
|           | No             | % overseas acquired |
| India     | 22             | 23%                 |
| Indonesia | 17             | 18%                 |
| Pakistan  | 11             | 11%                 |
| Cambodia  | 5              | 5%                  |
| Fiji      | 5              | 5%                  |

# 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 4.** Foodborne and potentially foodborne disease outbreaks investigated in NSW, quarter 2 2019

| PHU ID               | Month <sup>1</sup> | Setting           | Agent responsible                                  | No. ill | Lab confirmed | No. Hospitalised | Evidence | Responsible vehicles | Contributing factors   |
|----------------------|--------------------|-------------------|--|---------|---------------|------------------|----------|----------------------|--|
| HNE0530              | April              | Bakery            | <i>Salmonella</i> Typhimurium (MLVA 5-17-9-13-490) | 3       | 3             | 1                | D        | Eggs                 | Unknown  |
| IS201901             | April              | Restaurant        | Unknown  | 3       | 3             | 1                | D        | Unknown              | Unknown  |
| NS62767              | April              | Bakery            | <i>Salmonella</i> Typhimurium (MLVA 5-17-9-13-490) | 6       | 6             | 1                | D        | Eggs                 | Inadequate cleaning of equipment                                 |
| SES201903            | April              | Restaurant        | Unknown  | 40      | 0             | Unknown          | D        | Curry or rice        | Foods left at room or warm temperature                           |
| SWS63156             | April              | Restaurant        | <i>Salmonella</i> Typhimurium (MLVA 5-17-9-13-490) | 7       | 6             | 2                | D        | Eggs                 | Inadequate cleaning of equipment                                 |
| M201901 <sup>2</sup> | May                | Restaurant        | Norovirus  | 44      | 4             | Unknown          | D        | Unknown              | Several food safety, temperature control and hand hygiene issues |
| SES201904            | May                | Restaurant        | Scombroid  | 2       | 0             | 0                | D, M     | Tuna burger patties  | Toxic substance or part of tissue                                |
| SES201905            | May                | Restaurant        | Norovirus  | 25      | 2             | 0                | D        | Unknown              | Unknown  |
| SWS201902            | May                | Bakery            | <i>Salmonella</i> Enteritidis                      | 3       | 3             | 0                | D        | Raw egg mayonnaise   | Ingestion of contaminated raw products                           |
| SES201907            | June               | Cargo Ship        | <i>Salmonella</i> Enteritidis                      | 19      | 3             | 0                | D        | Unknown              | Unknown  |
| WS201902             | June               | Private residence | Scombroid  | 5       | 0             | 0                | D        | Marlin type fish     | Toxic substance or part of tissue                                |
| WS201903             | June               | Restaurant        | Unknown  | 4       | 0             | 0                | D        | Unknown              | Unknown  |

<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> Investigation affecting 44 NSW residents in MLHD led by ACT 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

- Eggs are a healthy and nutritious food, however eggs need careful handling to keep them safe.
- To reduce the risk of *Salmonella* infection from eggs at home, people are advised to follow the NSW Food Authority's egg safety recommendations. Restaurants, cafes, bakeries, caterers and manufacturers that use raw (unpasteurised) egg to make dressings, desserts and sauces are required to follow Food Safety Guidelines for the Preparation of Raw Egg Products or use alternatives to raw eggs in ready to eat foods. Safer alternatives include commercially produced dressings and sauces, or pasteurised egg products.
- Strong food safety knowledge and practices, adequate sanitisation, and frequent hand washing are essential to prevent the spread of bacterial and viral enteric pathogens in the environment.

## NSW *Salmonella* Enteritidis outbreak linked to local eggs – MJOI201901

The initial investigation and subsequent action relating to an increase in locally acquired *S. Enteritidis* cases in the metropolitan Sydney area was described in the quarter 3 and 4 2018, and quarter 1 2019, reports. Following the first egg recall in September 2018, locally acquired *S. Enteritidis* cases with the outbreak strain continued to be detected during quarter 2 2019 and the outbreak remained under active investigation.

NSW Department of Primary Industries (DPI) and NSW Local Land Services (LLS) continued to work with egg farmers to address the risk of *S. Enteritidis* on farm. This included issuing biosecurity directions that limited access to and movement on affected farms as well as depopulation.

One point source cluster was linked to the outbreak during quarter 2 2019. Three unrelated cases of *Salmonella* Enteritidis were identified as having consumed Vietnamese rolls from the same bakery in metropolitan Sydney. Symptom onsets ranged between 17 and 21 May 2019. All cases reported consuming either a pork, chicken or salad Vietnamese style roll containing mayonnaise. The NSW Food Authority inspected the venue and found the business was making a raw egg mayonnaise and not following raw egg guidelines. Swabs and samples collected

during the inspection did not return any positives for *Salmonella*. A prohibition order regarding raw egg use was issued. The egg distributor which supplied the eggs to the business was subsequently found to have positive detections of *S. Enteritidis* on site and an [egg recall](#) was issued on 14 June 2019.

Three additional egg recalls occurred in NSW during quarter 2 as a result of NSW DPI and LLS active surveillance of egg farms and grading facilities for *S. Enteritidis*: [Southern Highland Organic Eggs](#) on 6 April 2019, [Steve's Farm Fresh Eggs](#) on 16 April 2019, and [Port Stephens Eggs](#) on 7 May 2019.

To the end of quarter 2 2019, there were a total of 235 *Salmonella* infections linked to this outbreak strain of *S. Enteritidis*, including 224 cases confirmed by Whole Genome Sequencing (WGS), six cases positive by *Salmonella* PCR only and five secondary infections. Of these, 188 were residents of NSW. Seven egg recalls (six in NSW and one in Victoria) and one consumer advisory (in NSW) had been issued, and a number of egg production properties and grading facilities were subject to biosecurity directions following detection of *S. Enteritidis*.

*Salmonella* Enteritidis is endemic in commercial poultry farms in most countries, but it is not thought to be endemic in Australia. The serovar has the potential to affect the internal egg contents, meaning that the way to prevent infection is by thorough and complete cooking; by contrast, more common *Salmonella* strains in NSW such as *S. Typhimurium*, are thought to be transmitted on the external surface of the egg (either by faecal contamination or cracks in the egg shell).

Investigation into the source of introduction and the spread of the infection continued into the third quarter of 2019. Further information will be provided in the next quarterly report. Complementing the NSW Health activities, which continued, an ongoing program of active surveillance for and investigation of locally-acquired *S. Enteritidis* was established by NSW DPI.

## *Salmonella* Typhimurium outbreak with MLVA profile 5-17-9-13-490 linked to an egg farm

The initial investigation into an outbreak of *Salmonella* Typhimurium with novel MLVA profile 5-17-9-13-490 was described in the NSW OzFoodNet quarter 4 2018 and

quarter 1 2019 reports. The outbreak strain continued to be detected during quarter 2 2019 and remained under active investigation.

Three point source clusters linked to the outbreak were identified during quarter 2 2019, of which two occurred in bakeries and one in a restaurant. The clusters affected between three and seven people each (Table 4, page 8).

In the first point-source cluster, six cases of *S. Typhimurium* MLVA 5-17-9-13-490 became unwell with gastrointestinal illness after consuming items purchased at a bakery chain in metropolitan Sydney during March and April 2019. Half of the cases were male, and ages ranged from 10-74 years of age (median age 19 years). Onset of symptoms occurred between 7 March and 20 April 2019. One case was admitted to hospital. The range of items consumed by cases varied but included custard/fruit tarts, a custard filled chocolate bun and a profiterole cake. Cases reported purchasing the items from five different shop fronts associated with the bakery chain. The NSW Food Authority inspected the central kitchen, and found no raw egg ready to eat product was being made, yet issues were found with sanitisation, cleaning, hygiene and pest control. However, swabs and samples collected from the central kitchen did not confirm a link to the outbreak as *Salmonella* Typhimurium was not detected.

In the second point-source cluster, three people aged between 14 to 67 years old developed *S. Typhimurium* MLVA 5-17-9-13-490 infection with symptoms commencing between 20 April and 22 April. The three people were linked through interviews to one bakery. No product was reported in common across the cases, and none appeared to contain eggs. The central kitchen had been recently inspected, and no issues that could have contributed to the outbreak were identified. However, a review of the premises found that the eggs used on site were supplied by the implicated egg farm linked to other point-source clusters of this *Salmonella* type.

In the third point-source cluster, at least seven people from six different dining groups were reported to have become unwell with gastrointestinal illness after consuming meals at a restaurant in metropolitan Sydney in April 2019. Six people were confirmed to have an infection with *S. Typhimurium* MLVA 5-17-9-13-490, and one person was not tested. All of those unwell were female, aged 18-34 years of age (median 24 years). Onset of symptoms from 25 April to 27 April 2019. Two cases were admitted to hospital. One case was identified as both working at the venue and having consumed a meal at the

venue, however this person had not worked while symptomatic. Items consumed by cases included: French toast, eggs, avocado on toast, bacon & eggs, and pancakes with chocolate sauce. The NSW Food Authority inspected the venue and found the business did not make or supply ready to eat raw egg products. Swabs and samples collected did not confirm a link to the outbreak as *Salmonella* Typhimurium was not detected, however, the dishwasher on site was not reaching an adequate sanitisation temperature (60°C).

To the end of quarter 2 2019, there were a total of 233 confirmed cases of this outbreak strain of *S. Typhimurium* with MLVA pattern 5-17-9-13-490 and related MLVA patterns, and two *Salmonella* PCR positive cases linked to this outbreak. Of these, 215 cases were residents of NSW. There have been five deaths during the outbreak (two in the community and three in residents of an Aged Care Facility) in persons who had acquired a *Salmonella* infection.

A common egg supplier was identified during the NSW Food Authority investigation. The NSW Food Authority continued to work with the farm to reduce *Salmonella* transmission risks, including the implementation in May 2019 of significant improvements to the sanitisation of eggs during the grading process.

Eggs are a healthy and nutritious food, however this outbreak highlights that eggs need careful handling to keep them safe. Foods containing undercooked eggs and contamination of foods with raw egg during food preparation are the most common source of salmonellosis in NSW. To reduce the risk of *Salmonella* infection from eggs at home, people are advised to follow the NSW Food Authority's [egg safety recommendations](#). Restaurants, cafes, bakeries, caterers and manufacturers that use raw (unpasteurised) egg to make dressings, desserts and sauces are required to follow [Food Safety Guidelines for the Preparation of Raw Egg Products](#) or use alternatives to raw eggs in ready to eat foods. Safer alternatives include commercially produced dressings and sauces, or pasteurised egg products.

### **Outbreak of Norovirus at a regional NSW restaurant, investigated by ACT OzFoodNet**

The NSW Food Authority, local council and ACT Health received three complaints from separate groups of people relating to gastrointestinal illness after consuming food at a common venue in regional NSW in May 2019. The public health investigation was led by ACT OzFoodNet with the support of the local NSW Public Health Unit.

The investigation found at least 71 people experienced gastrointestinal illness after dining at the venue between 24 and 26 May 2019, of which 44 were residents of NSW. Over 160 patrons and staff attending the venue were contacted by phone or electronic survey. Three people presented to hospital, and two were admitted. Four people returned positive detections of norovirus.

Environmental Health Officers inspected the venue at the time of the complaint and identified a number of compliance issues and an improvement notice was issued. This was followed by return visits to ensure compliance issues were addressed.

The investigation was not able to determine any common food vehicle, and a definitive source of the outbreak could not be established. However, poor food safety knowledge and practices along with inadequate sanitisation and poor hand hygiene likely contributed to the spread of norovirus once introduced to the environment. The business has since complied with the improvement notice and there is no ongoing risk to the public.

During all of the above investigations compliance and enforcement action was taken against food business where they did not meet regulatory requirements. That action was taken in accordance with the [NSW Food Authority compliance and enforcement policy](#).

# Institutional gastrointestinal outbreaks

From 1 April to 30 June 2019, a total of 185 outbreaks of suspected viral gastrointestinal illness in institutions were reported in NSW affecting at least 2,334 people (Table 6). This represents an increase of 31% compared to the average number of outbreaks reported during the same quarter from 2014 to 2018 (n=141), and an increase of 13% compared to the mean number of people affected as a result of the gastroenteritis outbreaks during the same quarter from 2014 to 2018 (n=2056).

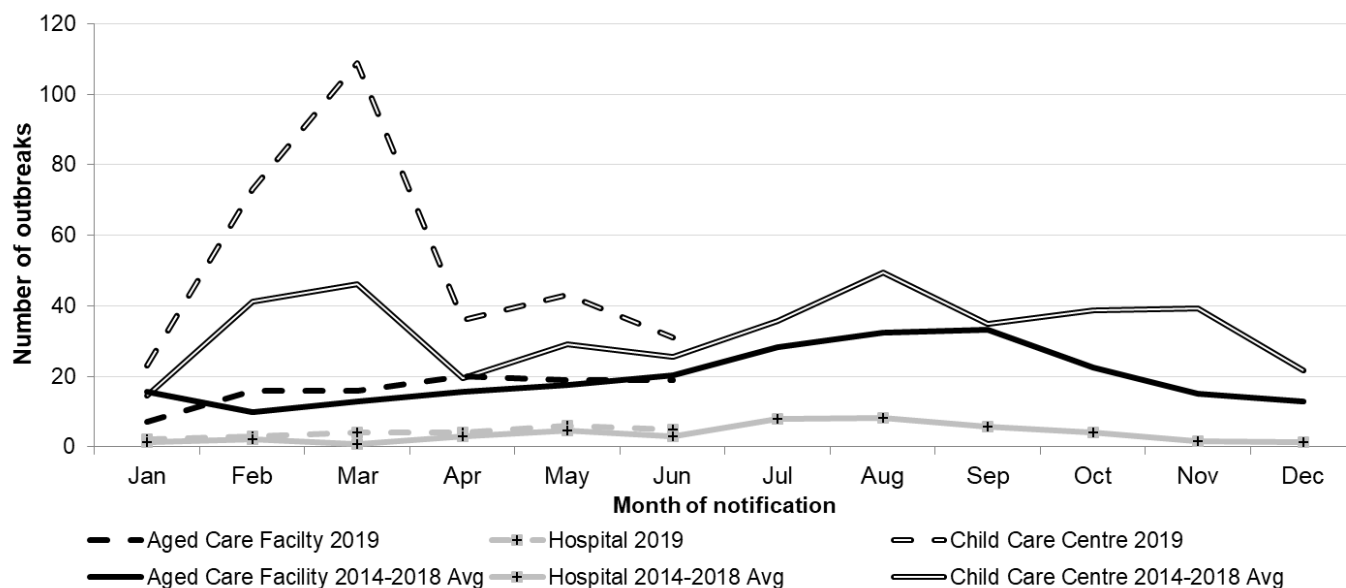
Of the 185 outbreaks, 110 (59%) occurred in child care centres, 58 (31%) in aged care facilities, 15 (8%) in hospitals and two (1%) in other facilities (Table 6). The number of outbreaks during quarter 2 was higher than the five year quarterly average across all institution types: outbreaks in child care centres were 49% above average, outbreaks in hospitals were 42% above average, and outbreaks in aged care facilities were 9% above average. (Figure 8).

Overall, 11% of staff members and 16% of non-staff became sick during gastroenteritis outbreaks in quarter 2 (Table 6). The highest attack rate for gastrointestinal disease for staff was in other facilities (17%) and for non-staff was in hospitals (46%). Outbreaks lasted seven days on average (Table 6).

One or more stool samples were collected in 72 (39%) of the outbreaks. Norovirus was identified in 35 (49%) of these outbreaks and rotavirus was identified in two (3%) of these outbreaks. The majority of results of the other samples were negative, or not reported (Table 6).

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

**Figure 8.** Number of reported outbreaks of gastrointestinal illness in institutions, quarter 2 2019 compared to the 5 year quarterly average, by month and facility type



**Table 5.** Outbreaks of gastroenteritis in institutions reported in NSW, quarter 2 2019, by local health district<sup>2</sup>

| Facility type      | Q2 2019             | HNE | IS  | M  | MNC | NBM | NNSW | NS | SES | SNSW | SWS | SYD | WNSW | WS  | NSW |
|--------------------|---------------------|-----|-----|----|-----|-----|------|----|-----|------|-----|-----|------|-----|-----|
| ACF                | No. of outbreaks    | 13  | 9   | 5  | 1   | 3   | 1    | 4  | 9   | 1    | 3   | 2   | 2    | 5   | 58  |
|                    | Staff affected      | 67  | 74  | 46 | 2   | 13  | 4    | 7  | 25  | 2    | 4   | 2   | 21   | 8   | 275 |
|                    | Non-staff affectede | 184 | 127 | 81 | 4   | 33  | 15   | 36 | 90  | 6    | 49  | 20  | 31   | 36  | 712 |
| CCC                | No. of outbreaks    | 27  | 9   | 6  | 1   | 19  | 0    | 3  | 10  | 4    | 5   | 6   | 1    | 19  | 110 |
|                    | Staff affected      | 70  | 29  | 11 | 0   | 36  | 0    | 1  | 14  | 8    | 3   | 12  | 4    | 43  | 231 |
|                    | Non-staff affectede | 220 | 77  | 65 | 8   | 159 | 0    | 26 | 90  | 38   | 34  | 60  | 8    | 193 | 978 |
| Hospital           | No. of outbreaks    | 0   | 5   | 2  | 1   | 0   | 0    | 1  | 3   | 0    | 0   | 3   | 0    | 0   | 15  |
|                    | Staff affected      | 0   | 12  | 6  | 2   | 0   | 0    | 6  | 7   | 0    | 0   | 0   | 0    | 0   | 33  |
|                    | Non-staff affecte   | 0   | 18  | 20 | 2   | 0   | 0    | 8  | 29  | 0    | 0   | 12  | 0    | 0   | 89  |
| Other <sup>1</sup> | No. of outbreaks    | 1   | 0   | 0  | 0   | 0   | 0    | 1  | 0   | 0    | 0   | 0   | 0    | 0   | 2   |
|                    | Staff affected      | 0   | 0   | 0  | 0   | 0   | 0    | 2  | 0   | 0    | 0   | 0   | 0    | 0   | 2   |
|                    | Non-staff affecte   | 8   | 0   | 0  | 0   | 0   | 0    | 6  | 0   | 0    | 0   | 0   | 0    | 0   | 14  |

<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 6.** Outbreaks of gastroenteritis in institutions reported in NSW, quarter 2 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                | 58                  | 275: 7%                         | 712: 18%                            | 7                                   | 45: 78%                               | 24: norovirus                                     |
| CCC                | 110                 | 231: 13%                        | 978: 12%                            | 8                                   | 11: 10%                               | 4: norovirus & 2: rotavirus                       |
| Hospital           | 15                  | 33: 8%                          | 89: 46%                             | 5                                   | 14: 93%                               | 6: norovirus                                      |
| Other <sup>1</sup> | 2                   | 2: 17%                          | 14: 40%                             | 2                                   | 2: 100%                               | 1: norovirus                                      |
| Total              | 185                 | 541: 11%                        | 1793: 16%                           | 7                                   | 72: 39%                               | 35: norovirus & 2: 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 2 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.

<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  |