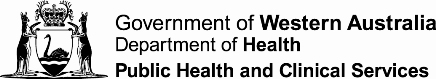
Foodborne disease surveillance and outbreak investigations in Western Australia, third quarter 2018

**Enhancing foodborne disease surveillance across Australia**



**Communicable Disease Control Directorate**



OzFoodNet, Communicable Disease Control Directorate

**Acknowledgments**

Acknowledgement is given to the following people for their assistance with the activities described in this report: the staff from PathWest Laboratory Medicine WA; Mr John Coles and other staff from the Environmental Health Directorate of the Department of Health, Western Australia; Public Health Nurses from the metropolitan and regional Population Health Units; and Local Government Environmental Health Officers.

**Contributors/Editors**

Ben Witham, Nevada Pingault, Darren Westphal, Niki Foster and Steph Tomlin

Communicable Disease Control Directorate

Department of Health, Western Australia

PO Box 8172

Perth Business Centre

Western Australia 6849

Email: [OzfoodnetWA@health.wa.gov.au](mailto:OzfoodnetWA@health.wa.gov.au)

Telephone: (08) 9222 2486

Facsimile: (08) 9222 0227

Web:

OzFoodNet WA Health

https://ww2.health.wa.gov.au/Articles/F\_I/Infectious-disease-data/Enteric-infection-reports-and-publications-OzFoodNet

OzFoodNet Department of Health

[www.ozfoodnet.gov.au/](http://www.ozfoodnet.gov.au/)

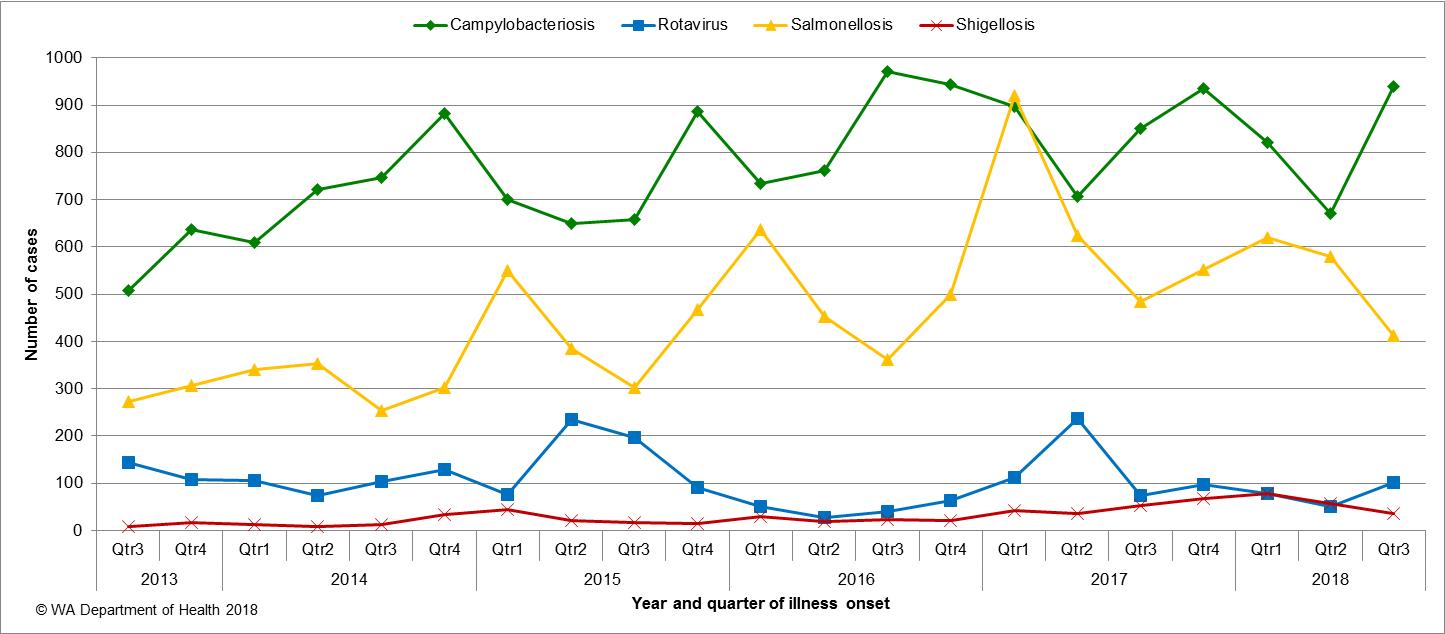
**Disclaimer**:

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.

This publication has been produced by the **Department of Health, Western Australia**.

# Executive summary

During the third quarter of 2018 (3Q18), the Western Australian (WA) OzFoodNet team conducted surveillance of enteric diseases, undertook investigations into outbreaks and was involved with ongoing enteric disease research projects. The most common notifiable enteric infections in WA were campylobacteriosis (n=940), salmonellosis (n=413), rotavirus infection (n=101) and shigellosis (n=65) (Figure 1). Compared to the applicable 5-year first quarter means (3QM), there were increases in notifications of campylobacteriosis (26%), salmonellosis (23%) and shigellosis (42%). The increase in shigellosis was primarily driven by an increase in *S. flexneri* 2Bnotifications. There were seven foodborne outbreaks investigated in the third quarter, all due to *Salmonella* Typhimurium, which was 1.8 times the 3QM (n=4). OzFoodNet also conducted surveillance of 17 non-foodborne outbreaks. Of these, the most common mode of transmission was person-to-person (13 outbreaks), with a total of 308 people ill. Norovirus was the most commonly reported pathogen in these outbreaks (n=8, 62%).



**Figure 1: Notifications of the four most common enteric diseases by quarter from 2013 to 2018, WA**

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**Notes:**

1. All data in this report are provisional and subject to future revision.
2. To help place the data in this report in perspective, comparisons with other reporting periods are provided. As no formal statistical testing has been conducted, some caution should be taken with interpretation.

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# Introduction

It has been estimated that there are 5.4 million cases of foodborne illness in Australia each year at a cost of $1.2 billion per year1. This is likely to be an underestimate of the total burden of gastrointestinal illness as not all enteric infections are caused by foodborne transmission. Other modes of transmission such as person-to-person, animal-to-person and waterborne transmission are also very important pathways for acquiring enteric infections. Most enteric infections are preventable through interventions at the level of primary production, institution infection control and food handling and hand hygiene at food businesses and in households.

This report describes enteric disease surveillance and investigations carried out during the third quarter of 2018 by OzFoodNet WA, other Western Australian Department of Health (WA Health) agencies and local governments. Most of the data are derived from reports by doctors and laboratories to WA Health of 16 notifiable enteric diseases. In addition, outbreaks caused by non-notifiable enteric infections are also documented in this report, including norovirus, which causes a large burden of illness in residential (mostly aged) care facilities (RCF) and the general community.

OzFoodNet WA is part of the Communicable Disease Control Directorate (CDCD) within WA Health, and is also part of the National OzFoodNet network funded by the Commonwealth Department of Health2. The mission of OzFoodNet is to enhance surveillance of foodborne illness, including investigating and determining the cause of outbreaks. OzFoodNet also conducts applied research into associated risk factors and develops policies and guidelines related to enteric disease surveillance, investigation and control. The OzFoodNet site based in Perth is responsible for enteric disease surveillance and investigation in WA.

OzFoodNet WA regularly liaises with staff from: Public/Population Health Units (PHUs); the Environmental Health Directorate of WA Health (EHD); and the Food Hygiene, Diagnostic and Surveillance laboratories at PathWest Laboratory Medicine WA.

PHUs are responsible for a range of public health activities, including communicable disease control, within their respective administrative regions. The PHUs monitor RCF gastroenteritis outbreaks and provide infection control advice. The PHUs also conduct follow-up of sporadic cases of important enteric diseases including typhoid, paratyphoid and hepatitis A.

The EHD liaises with Local Government (LG) Environmental Health Officers (EHO) during the investigation of food businesses. PathWest Laboratory Medicine WA provides public health laboratory services for the surveillance and investigation of enteric disease.

# Incidence of notifiable enteric infections

## Methods

Enteric disease notifications were extracted from the Western Australian Notifiable Infectious Diseases Database (WANIDD) by optimal date of onset (ODOO) for the time period 1st July 2013 to 30th September 2018. The ODOO is a composite 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, and when neither of these dates is available, the date of notification by the doctor or laboratory, or the date of receipt of notification, whichever is earliest. Rates were calculated using estimated resident population data for WA from Rates Calculator version 9.5.5.1 (Epidemiology Branch, WA Health), which is based on 2011 census data. Rates in this report were calculated for the third quarter and presented as the rate per 100 000 population per quarter, using 2018 projection population figures for WA and have not been adjusted for age.

## Campylobacteriosis

Campylobacteriosis was the most commonly notified enteric disease in WA during the third quarter of 2018 (3Q18), with 940 notifications and a rate of 34 cases per 100 000 population (Table 1). There was a 26% increase in campylobacteriosisnotifications in the 3Q18 compared with the 5-year first quarter mean (3QM) of 747 notifications. The increase appeared to be due to sporadic disease, as there were no identified *Campylobacter* outbreaks during the 3Q18. However, two *Campylobacter* clusters were investigated in this quarter (Section 4). Similar to previous quarters, at least some of the increase is likely to be due to the introduction of polymerase chain reaction (PCR) testing of faecal specimens by one large private pathology laboratory in 2014, and another private laboratory in 2016, which has greater sensitivity than culture techniques.

The place of acquisition of infection was reported for 52% (n=490) of cases, of which 67% (n=330) were locally acquired and 32% (n=156) were acquired overseas and 1% (n=4) were interstate acquired.

Table 1: Number of campylobacteriosis notifications, 3rd quarter 2018, WA, by region



**\***Percentage change in the number of notifications in the current quarter compared to the historical 5-year mean for the same quarter. Positive values indicate an increase when compared to the historical 5-year mean of the same quarter. Negative values indicate a decrease when compared to the historical 5-year mean of the same quarter. Percentage change should be interpreted with caution when the number of cases is small.

## Salmonellosis

Salmonellosis was the second most commonly notified enteric disease in WA in the 3Q18, with 413 notifications and a rate of 15 cases per 100 000 population (Table 2). The number of salmonellosisnotifications in the 3Q18 was 23% higher than the 3QM (n=335).

Place of acquisition of infection was reported for 74% (n=305) of cases, of which 71% (n=216) were locally acquired, 28% (n=86) were acquired overseas and 1% (n=3) were acquired interstate.

The most commonly reported *Salmonella* serotype was *S*. Typhimurium (STM) (n=206, 50%), and of those cases with information on place of acquisition (n=166, 81%), 99% of cases (n=164) were locally acquired. Multi locus variable number tandem repeat analysis (MLVA) is used to subtype STM in WA. The most common MLVA types for 3Q18 were 03-17-09-12-523 (n=86, 42%), 03-13-11-10-523 (n=12, 6%) and 03-25-18-11-523 (n=8, 4%). The MLVA type 03-17-09-12-523 emerged in the 4Q16 and has been associated with a number of point source outbreaks (Sections 3 and 4).

Table 2: Number of salmonellosis notifications, 3rd quarter 2018, WA, by region



**\***Percentage change in the number of notifications in the current quarter compared to the historical 5-year mean for the same quarter. Positive values indicate an increase when compared to the historical 5-year mean of the same quarter. Negative values indicate a decrease when compared to the historical 5-year mean of the same quarter. Percentage change should be interpreted with caution when the number of cases is small.

*S*. Enteritidis was the second most common *Salmonella* serotype (n=43, 10%), with most (n=40, 93%) cases acquired overseas, primarily after travel to Indonesia (n=25, 63%), and almost exclusively to Bali.

*Salmonella* Paratyphi B by Javawas the third most common serotype (n=25), and of those cases with known place of acquisition, 67% of cases were acquired overseas, primarily after travel to Indonesia (n= 10, 83%).

There were 11 notifications of *Salmonella* that had no serotype. Most (82%) of these notifications were from one laboratory that first uses PCR screening for enteric pathogens. Specimens that are subsequently culture negative remain as a “PCR only” notification.

## Rotavirus infection

In the 3Q18 there were 101 notifications of rotavirus infection (3.7 cases per 100 000 population), an 8% decrease compared to the 3QM (Table 3). While in most regions there was a decrease in rotavirus infections notified during 3Q18, there was an increase in notifications in the remote areas of the State (Kimberley, Pilbara and Goldfields). These regions also noted a concurrent increase in *Shigella* notifications. On a State-wide basis, of the cases with known Aboriginality status (n=96, 95%), 74% were non-Aboriginal and 26% were Aboriginal people. The median age was 2 years (range <1 years to 93 years).

Table 3: Number of rotavirus notifications, 3rd quarter 2018, WA, by region



\*Percentage change in the number of notifications in the current quarter compared to the historical 5-year mean for the same quarter. Positive values indicate an increase when compared to the historical 5-year mean of the same quarter. Negative values indicate a decrease when compared to the historical 5-year mean of the same quarter. Percentage change should be interpreted with caution when the number of cases is small.

NA: not applicable as there is a 0 value in the calculation for the 3rd quarter % change.

## Shigellosis

As of 1 July 2018 the national case definition for shigellosis was changed to include notifications that are PCR positive as probable cases and culture positive notifications as confirmed shigellosis cases. In 3Q18 there were 30 probable shigellosis cases (1 cases per 100 000), these were all notified as *Shigella* species. Of the 30 probable cases 90% (n=27) were for Metropolitan residents and of those with known travel 81% (n=17) were acquired overseas.

In the 3Q18 there were 35 confirmed shigellosis cases (1 cases per 100 000 population), a 42% increase compared to the 3QM (Table 4). The place of acquisition of infection was reported for 71% (n=25) of cases, and of these, 68% (n=17) were acquired in WA. Of the 35 confirmed cases, 21 (60%) were Aboriginal people and 14 (40%) were non-Aboriginal people. The median age was 29 years (range <1 year to 88 years).

*Shigella flexneri* was the most commonly notified species (n=26; 74%), with 19 cases of *S. flexneri* 2b, three cases of *S. flexneri* 1a, two cases of *S. flexneri* 2a and one case each of *S. flexneri* 3b and *S. flexneri VAR X*. There were seven cases of *S. sonnei*, including two *S. sonnei* biotype G, two *S. sonnei* biotype F, one *S. sonnei* biotype A and two with biotype unknown. There were also two cases of *S. dysenteriae*, one phage type 3 acquired overseas in Bangladesh and one unknown type acquired in WA. The largest increase in shigellosis was in the Kimberley region, with most cases diagnosed with *Shigella flexneri* 2B (n=10). Increases in S. *flexneri* 2B were also reported in South Australia (SA) and the Northern Territory (NT). The Pilbara and Kimberley PHUs distributed an alert to local health providers in January in response to the *Shigella* increase in these regions. Alerts had also been distributed by the Kimberley and Goldfields PHUs in 2017.

Table 4: Number of culture confirmed shigellosis notifications, 3rd quarter 2018, WA, by region



**\***Percentage change in the number of notifications in the current quarter compared to the historical 5-year mean for the same quarter. Positive values indicate an increase when compared to the historical 5-year mean of the same quarter. Negative values indicate a decrease when compared to the historical 5-year mean of the same quarter. Percentage change should be interpreted with caution when the number of cases is small.

NA: not applicable as there is a 0 value in the calculation for the 3rd quarter % change.

## Other enteric diseases and foodborne illness

During the 3Q18, other enteric disease notifications included:

* **Cryptosporidiosis:** In the 3Q18 there were 17 cryptosporidiosis notifications (0.6 cases per 100 000 population), a 52% decrease compared to the 3QM (Table 5). The place of acquisition of infection was reported for 65% (n=11) of cases of which 45% (n=5) were locally acquired.
* **Hepatitis A infection:** Two hepatitis A cases were notified in 3Q18. Both were acquired overseas in India.
* **Listeriosis:** There was one non-pregnancy related listeriosis case during 3Q18.
* **Paratyphoid fever:** There was one case of paratyphoid fever (phage type 1) notified in 3Q18. The case had travelled to Indonesia during their incubation period.
* **Shiga toxin producing *E. coli* (STEC):** There were 21 cases notified in 3Q18 compared to five cases for the 3QM. Prior to 2016, testing for STEC was only carried out at one laboratory by culture of stool samples with bloody diarrhoea (macroscopic or history), and <1 to 2 cases were notified each year. The increase in cases in subsequent reporting periods, including in 3Q18, was likely due to this one laboratory introducing PCR testing for STEC on stool samples with bloody diarrhoea (macroscopic or history) in 2016, and introduction of PCR testing at another laboratory on any stool sample, if requested by the doctor. The 21 cases included 11 (52%) females and 10 (48%) males, ranging in age from 2-87 years (median 41 years). One case could not be contacted but information was provided through GP follow-up. Of the remaining 20 cases, 14 cases had an acute illness with a specific onset date and five cases reported bloody diarrhoea. Six cases had no acute illness, three had ongoing gastrointestinal issues for the previous two to three months, two had no diarrhoea symptoms and one was unsure if they had diarrhoeal symptoms. Seven cases with acute illness had travelled overseas during their incubation period, five to Indonesia (specifically Bali) and one each to the Philippines and Mozambique.
* **Typhoid fever:** There was one case of typhoid fever notified in the 3Q18. The case had travelled to India during their incubation period (phage type E9).
* ***Vibrio parahaemolyticus*:** There were five notifications of *Vibrio parahaemolyticus* in 3Q18. All five cases acquired their infection overseas following travel to Vietnam (n=2), Thailand (n=1), Tanzania (n=1) and Indonesia (n=1).
* There were no notifications of botulism, cholera, HUS, hepatitis E or yersiniosis in the 3Q18.

Table 5: Summary of number of notified cases of enteric notifiable diseases in WA in the third quarter 2018 compared to historical means



\*Percentage change in the number of notifications in the current quarter compared to the historical 5-year mean for the same quarter. Positive values indicate an increase when compared to the historical 5-year mean of the same quarter. Negative values indicate a decrease when compared to the historical 5-year mean of the same quarter. Percentage change should be interpreted with caution when the number of cases is small.

\**\*Shigella* culture confirmed cases only

NA: not applicable as there is a 0 value in the calculation for the 3rd quarter % change

# Foodborne and probable foodborne disease outbreaks

There were seven foodborne or probable foodborne outbreaks identified and investigated in this quarter. The number of foodborne outbreaks in the 3Q18 was 1.3 fold higher than the 3QM (n=5).

## Restaurant, *Salmonella* Typhimurium (outbreak code 042-2018-021)

Seven people from four independent groups became ill with gastroenteritis after visiting a restaurant on the 1/07/18. All seven diagnosed cases were diagnosed with STMMLVA 03-17-09-12-523. Of the seven people ill, one was male and six were female with a median age of 27 years. The most common symptoms included diarrhoea 7/7(100%), with median duration of 10 days, abdominal pain 7/7(100%) and fever 7/7(100%). Bloody diarrhoea was reported by 2/7 (29%) and five people were hospitalised as a result of their illness. The median incubation period was 65 hours. All cases ordered a high tea which had many shared dishes. The most commonly consumed foods were mini quiches (7/7) and sandwiches (7/7), with chicken sandwiches (4/7) and salad sandwiches (5/7) most commonly reported; raspberry mousse, meringue, and berry crumble were eaten by six out of seven cases. While the EHO reported no significant non-compliances, the raspberry mousse was found to be made with raw eggs. This MLVA type has been associated with other point source outbreaks with the most commonly implicated food being raw or undercooked egg dishes. The food vehicle was recorded as raspberry mousse. The mode of transmission was probable foodborne.

## Restaurant, *Salmonella* Typhimurium (outbreak code 042-2018-022)

Four people in three independent groups became ill with gastroenteritis after visiting the same restaurant between the 30/06/18 and 4/07/18. Three cases were diagnosed with STMMLVA 03-26-16-13-523. Of the four ill people, one was male and three were female with a median age of 6 years. The most common symptoms were diarrhoea 4/4(100%), with median duration of 14 days, abdominal pain 3/4(75%) and fever 4/4(100%). Half of the cases reported bloody diarrhoea, but none were hospitalised. The median incubation period was 6 days. Cases ate a range of dishes including eggs benedict with hollandaise sauce, battered fish and chips, and two shared scrambled eggs. The EHOs inspected the food business and found no significant issues. No raw egg sauces were made by the food business. Mode of transmission was probable foodborne. The food vehicle was recorded as unknown.

## Restaurant, *Salmonella* Typhimurium (outbreak code 042-2018-023)

Six cases from four independent groups were ill after visiting the food business. Two of these were diagnosed with STM MLVA type 03-13-11-10-523 and two with STM MLVA type 03-13-13-10-523. Cases were identified in a distinct geographic area in the South West through routine surveillance. Symptom and exposure information was collected for all cases and included diarrhoea (n=6), bloody diarrhoea (n=1), vomiting (n=2), lethargy (n=4), fever (n=6), abdominal pain (n=6), and headache (n=4). All cases reported eating a raw or minimally cooked egg sauce. The EHO investigation identified a number of non-compliances. Food samples collected approximately one month after the first case ate at the restaurant were negative for *Salmonella*. The mode of transmission was probable foodborne and the most likely food vehicle was raw or minimally cooked egg sauce.

## Private residence, *Salmonella* Typhimurium (outbreak code 042-2018-024)

Seven people from five independent groups had gastroenteritis after attending a party at a private residence on the 4/08/18. Six cases were diagnosed with STMMLVA 03-14-10-08-523. Of the seven ill people, one was male and six were female with a median age of 19 years. Cases became ill between 5/08/18 and 10/08/18 with diarrhoea (7/7), fever (6/6), and abdominal pain (7/7), with a median duration of diarrhoea of 7 days. Bloody diarrhoea was reported by 3/6 cases and four were hospitalised. An analytical study was conducted using a structured questionnaire. Of approximately 28 party attendees, 16 responses were received including seven cases and nine controls. Foods served at the party common to most cases were sausage rolls (6/7), ham sandwiches (6/6), lemon meringue pies (6/7) and sponge cake (5/7). No food was statistically associated with illness although the lemon meringue pies had an elevated odds ratio (OR 6, 95% CI 0.35-344). The lemon meringue pies were made by an attendee who reported using free range eggs for the meringue. No environmental investigation was undertaken because the outbreak setting was a private residence. Mode of transmission was probable foodborne. The food vehicle was recorded as unknown.

## Private residence, *Salmonella* Typhimurium (outbreak code 042-2018-025)

Three family members staying together over part of a week were diagnosed with STM MLVA 03-17-09-12-523, with onset dates of 07/08/18, 09/08/18 and 11/08/18. A fourth individual, the partner of one of the family members, visited the family from 03/08/18 and 07/08/18, and was also ill (onset 07/08/18) but was not tested. Of the four ill, two were male and two were female with a median age of 18 years. All cases had diarrhoea with a median duration of 9 days and one reported bloody diarrhoea. No cases were hospitalised. The group shared a number of meals together during their incubation period, including a homemade brownie prepared and consumed on 05/08/18 by the four cases and one other person, not residing at the house, who was not ill. The brownie was made using raw eggs, and two cases had eaten the raw mixture. No environmental investigation was undertaken because the outbreak setting was a private residence. Mode of transmission for the cases was probable foodborne. The food vehicle was recorded as unknown.

## Prison, *Salmonella* Typhimurium (outbreak code 042-2018-026)

An outbreak of gastroenteritis at a regional prison in September identified 33 ill prisoners and three ill staff, with seven people diagnosed with STM MLVA 03-11-15-10-523. One case was hospitalised. This STM MLVA type is epidemiologically linked to the WA prison system, with previous cases linked to the consumption of raw eggs produced by the prison system. The EHO investigation did not identify consumption of raw eggs as a risk factor in this outbreak. The delay in being able to access the prison to conduct the environmental investigation meant that no samples were collected. The mode of transmission was probable foodborne and the vehicle was unknown.

## Restaurant, *Salmonella* Typhimurium (outbreak code 042-2018-027)

Three diagnosed cases of STM MLVA 03-17-09-12-523 from independent groups ate food from the same work cafeteria during their incubation period. The cases had eaten food from the cafeteria between the 21/08/18 and 28/08/18. Of the three people ill, all were male and had a median age of 50 years. Symptoms included diarrhoea (3/3), fever (2/3), and abdominal pain (2/3) with median duration of diarrhoea 6 days. One case experienced bloody diarrhoea and none were hospitalised. The median incubation period was unknown due to two cases eating at the cafeteria on multiple occasions during incubation. Cases reported a number of dishes including a filled roll or sandwich with a variety of fillings (n=2), chicken rice dish (n=2), sausage roll (n=1) and scrambled eggs (n=1). All cases reported eating a dish from the cafeteria containing an egg or mayonnaise. An environmental investigation was conducted by the Local Government. The EHO found the food business made a raw egg mayonnaise and identified possible cross contamination of sausage rolls with egg wash. The eggs used by the food business were reported to be cracked and visibly soiled with faecal matter at time of inspection and were not washed at any stage by the food business. No environmental or food samples were collected. The mode of transmission was probable foodborne. The food vehicle was recorded as unknown.

# Cluster investigations

There was one ongoing and two new cluster investigations during the third quarter of 2018.

## *Salmonella* Typhimurium MLVA 03-17-09-12-523

STM MLVA 03-17-09-12-523 has been under investigation since the type emerged in 2016 following a single case in September 2016 (see 4Q16 report). From September 2016 to September 2018 there were 1039 cases notified, including 86 cases in 3Q18 (Figure 3). This MLVA type was the single most common MLVA type notified in 3Q18, constituting 42% of STM notifications for the quarter. Of the 86 cases, 10 (12%) were part of two point source outbreaks investigated in 3Q18. The two outbreaks investigated in 3Q18 are detailed in Section 3. The remaining 76 cases, comprising 43% males and 57% females, ranged in age from <1 to 90 years (median 29 years), and most (86%) resided in the Perth metropolitan area. Hospitalisation data was confirmed for 74 community cases; 27% were hospitalised.

Raw or undercooked egg dishes were the implicated food vehicle in one of the two point source outbreaks of STM 03-17-09-12-523 investigated in the 3Q18. The DoH WA recommends the use of safer alternatives to raw egg based ready to eat foods, to both eliminate and control risks associated with consuming food which may be contaminated with food poising bacteria, including *Salmonella.* A WA egg brand was implicated in this outbreak. This brand has been linked to this MLVA type in previous point-source outbreaks. The food vehicle in the other 3Q18 outbreak could not be identified, however, the food business made its own raw egg mayonnaise and a number of Food Standards Code compliance matters were found, including potential cross contamination and the presence of soiled ‘dirty’ eggs in kitchen at time of inspection.



Figure 2: Notifications of *Salmonella* Typhimurium MLVA 03-17-09-12-523 in WA, 2016 to September 2018

## *Campylobacter*

The OFN co-ordinating epidemiologist contacted OFN WA on 15/08/18 regarding an enquiry from a chicken producer about a report of a significant increase in campylobacteriosis in WA in July. There was an increase above expected in cases in the metropolitan area in the week ending 22/07/18, with no or unknown travel history. These were predominantly in the south and east metropolitan areas. A new trial was conducted by the producer between the 21/05/18-29/06/18, where produce would have been on the market 22/05/18-13/07/18.

The data was reviewed and four clusters of 3-4 cases of same or neighbouring postcodes with unknown or no travel were followed up to obtain travel history. Cases in Cluster 1 and Cluster 2 were interviewed.

Cluster 1: Three cases were interviewed, who were aged 11-28 years. Two were male and one was female; none were hospitalised. Onset dates were between 11/07/18-15/07/18, with duration of diarrhoea 5-9 days. The main high risk exposure in common was that all cases had consumed chicken meat or mince purchased fresh from a number of different supermarkets. No common brand was identified, and the chicken meat had been prepared at home, with none reported undercooked. One case also ate chicken prepared outside the home but with a partner who was well; this case had also spent time on a rural property.

Cluster 2: There were four cases that lived in one geographical area, one case had recent travel, of the remaining three cases only one could be contacted (parents of a 6 month old female). For this case onset date was 16/07/18, duration of diarrhoea was 7 days, and this case was not hospitalised. The sister of this case was also ill with diarrhoea (7 days duration), with the same onset, but the sister was not tested. The case did not eat any chicken at home. The case ate chicken at restaurant on 14/07/18. The case shared chicken rice and deep fried squid with their sister who also became unwell; the chicken was reported to be undercooked).

## *Campylobacter*

On 6/09/18, routine surveillance of *Campylobacter* identified that one public health region had 10 cases notified in the previous week compared to 26 cases in the last four weeks and 20 cases over the corresponding four week period in the previous year. Cases had onset dates from 27/08/18-1/09/18, all had no or unknown travel history and six were residents of the same postcode. Follow up was undertaken with hospitals and/or GP clinics to determine if any cases with that postcode had recent overseas travel. Of five cases that were able to be followed up, three reported recent travel overseas including to Bali (n=2) and Thailand (n=1). No further follow-up was therefore conducted.

Another possible cluster of Campylobacter was identified on 19/09/18 in the same regional area; there were nine cases in the week ending 16/09/18, including four from the same postcode. Their travel history was reviewed and 2/4 recent cases were overseas acquired. The remaining two cases and one other case from the area with onset just prior to these cases were interviewed. No common exposures were identified.

# Non-foodborne disease outbreaks and outbreaks with an unknown mode of transmission

There were 17 outbreaks of enteric disease in this quarter that appeared to be non-foodborne (Table 6). Of these, 13 outbreaks were ascribed to person-to-person transmission and four outbreaks had an unknown mode of transmission. A total of 345 people were affected in these 17 outbreaks.

Table 6: Outbreaks with non-foodborne transmission, 3rd Quarter 2018, WA



1 Not all cases are diagnosed with the pathogen

2 Deaths temporally associated with gastroenteritis, but contribution to death not specified

## Person-to-person outbreaks

Of the 13 non-foodborne outbreaks that were suspected to be due to person-to-person transmission, eight (62%) outbreaks occurred in RCFs, four (31%) were in child care centres, and one (8%) at a minesite. The causative agent for eight (62%) of these outbreaks was confirmed as norovirus, while the causative agent for the remaining five (38%) was unknown, due to specimens not being collected.

A total of 308 people were affected in these 13 outbreaks, with three people hospitalised and one death. The number of person-to-person outbreaks in the 3Q18 was 65% lower than the third quarter 5-year mean (n=37).

## Outbreaks with unknown mode of transmission

There were four outbreaks in this quarter with an undetermined mode of transmission, with 37 people ill and two reported hospitalisations. All four of these outbreaks were in RCFs, where the predominant symptom was diarrhoea. These outbreaks were unlikely to be caused by norovirus due to no or limited vomiting reported. In two of the four outbreaks, the specimens collected were negative for common bacterial and viral pathogens. The other two of these outbreaks were investigated as possible foodborne outbreaks.

* For one outbreak onsets occurred over a two day period with only 2/11 cases reporting vomiting. All five specimens collected were negative for bacterial and viral pathogens including *B. cereus* and *C. perfringens*.
* In one outbreak onsets occurred over a three day period with all seven cases reporting diarrhoea and no vomiting. One specimen was positive for norovirus however this case did not match the other six who were all ill on the same day and resolved within 24 hours. The norovirus positive case was ill two days prior and their symptoms lasted for a longer period. The other specimens were all negative, of the four specimens collected, three were tested for viruses and one was tested for *C. perfringens* and *B. cereus*. The aetiology of the outbreak is reported as unknown as the other cases did not appear to be caused by norovirus.

# Site activities

During third quarter of 2018, the following activities were conducted at the WA OzFoodNet site:

* Ongoing surveillance of foodborne disease in WA.
* Monitoring culture-independent nucleic acid amplification diagnostic testing in private laboratories and impact on notification rates.
* Investigation of seven foodborne outbreaks.
* Investigation and monitoring of 13 person-to-person gastroenteritis outbreaks and four outbreaks with an unknown mode of transmission.
* Ongoing investigation of the community-wide increase in STMMLVA 03-17-09-12-523, and investigation of two other clusters.
* Part of an inter-agency working group developing the WA Foodborne Illness Reduction Strategy that aims to reduce the record levels of foodborne salmonellosis.
* Interviewing *Salmonella* Enteritidis cases regarding travel status and possible risk factors in locally acquired cases.
* Participation in monthly national OzFoodNet teleconferences.
* Provision of data for the National *Salmonella* Reference Network annual meeting.
* Provided enteric disease data, interpretation and advice upon request to local government environmental health officers, laboratory and public health unit staff.
* Lectured and conducted an outbreak scenario workshop on foodborne pathogens to Masters level students at University of Western Australia in September
* Membership of OzFoodNet and other National working groups on:
  + Foodborne disease tool kit
  + *Shigella* Series of National Guidelines
  + Enhanced hepatitis A surveillance project

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