



Government of Western Australia
Department of Health
Communicable Disease Control Directorate

OzFoodNet—Enhancing Foodborne Disease Surveillance Across Australia

Third Quarter Summary, 2010 Western Australia

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Overview of quarter

During this quarter, the Western Australian (WA) OzFoodNet team conducted enteric disease surveillance and investigations, and was involved with on-going enteric disease research projects. The WA OzFoodNet team investigated three foodborne outbreaks, one caused by norovirus and two by *S. Typhimurium* phage type 170, PFGE type 11. Three suspected foodborne outbreaks were investigated and these were caused by norovirus (one outbreak) and aetiology unknown (two outbreaks). OzFoodNet also conducted surveillance of 28 person-to-person outbreaks in a variety of settings and three outbreaks with an unknown mode of transmission. Research projects included “Burden of gastrointestinal illness in Aboriginal people” and “Case-control study of sporadic cases of Cryptosporidiosis in WA”.

Incidence of notifiable enteric infections

Enteric disease notifications were extracted from the Western Australian Notifiable Infectious Diseases Database (WANIDD) by optimal date of onset (ODOO) for the time period 1 January 2005 to 30 September 2010. 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.

In the third quarter of 2010, *Campylobacter* infection was the most commonly notified enteric disease in WA, with 545 notifications, which is similar to the third quarter mean of the previous five years (n=513) (Table 1).

The second most commonly notified enteric infection in the third quarter of 2010 was rotavirus, with 268 notifications. This was 47% more than the mean number of notifications for this quarter for the previous three years. The increase in notifications was not geographically localised, with cases residing in most of the public health regions of the state (Figure 1). The increase was also observed across all age groups, with the increase greatest in the 0 to 4 years and 70+ age groups (Figure 2).

The number of *Salmonella* notifications in the third quarter of 2010 (n=260) was also higher than the mean number of notifications for this quarter for the previous five years (n=202). As described previously in OzFoodNet WA quarterly reports, the number of *Salmonella* notifications has increased progressively since mid-2008, attributable entirely to an increase in the number of overseas acquired cases (Figure 3). In the first quarter of 2008, 31% of *Salmonella* cases for whom travel history was known had travelled overseas during their incubation period. By contrast, in the third quarter of 2010, 70% of *Salmonella* cases for whom travel history was known had travelled overseas. The majority of the 159 overseas acquired cases in the third quarter reported travel to Indonesia (73%, n=117). The most common serotypes among the 3rd quarter 2010 cases with travel to Indonesia were *S. Enteritidis* (n=76), *S. Weltevreden* (n=7) and *S. Paratyphi B bv Java* (n=6).

For *Cryptosporidium*, *Shigella* and hepatitis A, the number of notifications in the third quarter was lower than the average number of notifications for the same time period in the previous five years.

In the 3rd quarter of 2010 there were two cases of typhoid infection, with infection acquired in India and Indonesia, respectively. There were five paratyphoid cases, two with travel to Nepal, one to Ghana, one to India and one to Indonesia. There were two cases with STEC infection, both from the same rural region of WA, aged 4 and 9 years.

Table 1. Enteric disease notifications for the 3rd quarter of 2010, and comparison to the 3rd quarter of the years 2005 to 2009

Pathogen	Number of Notifications			
	2010 3rd Quarter	Range for 3rd Quarters from 2005 to 2009	Mean of 3rd Quarters from 2005 to 2009	3rd Quarter % Change*
<i>Campylobacter</i>	545	415-663	513	6.2
Rotavirus [#]	268	128-365	96.3	47.2
<i>Salmonella</i>	260	141-283	202	28.6
<i>Cryptosporidium</i>	20	15-63	39.4	-49.2
<i>Shigella</i>	23	14-36	27.4	-16.1
Hepatitis A	3	3-13	6.2	-51.6

Notes: *Percentage change in the number of notifications in the current quarter compared to the historical five-year mean for the same quarter. Positive values indicate an increase when compared to the historical five-year mean of the same quarter. Negative values indicate a decrease when compared to the historical five-year mean of the same quarter.

[#]Rotavirus became a notifiable disease in July 2006, so historical 3rd quarter data was only available for the years 2007 to 2009

Figure 1. Rotavirus notifications for each quarter by population health region, WA, 2006 to 2010

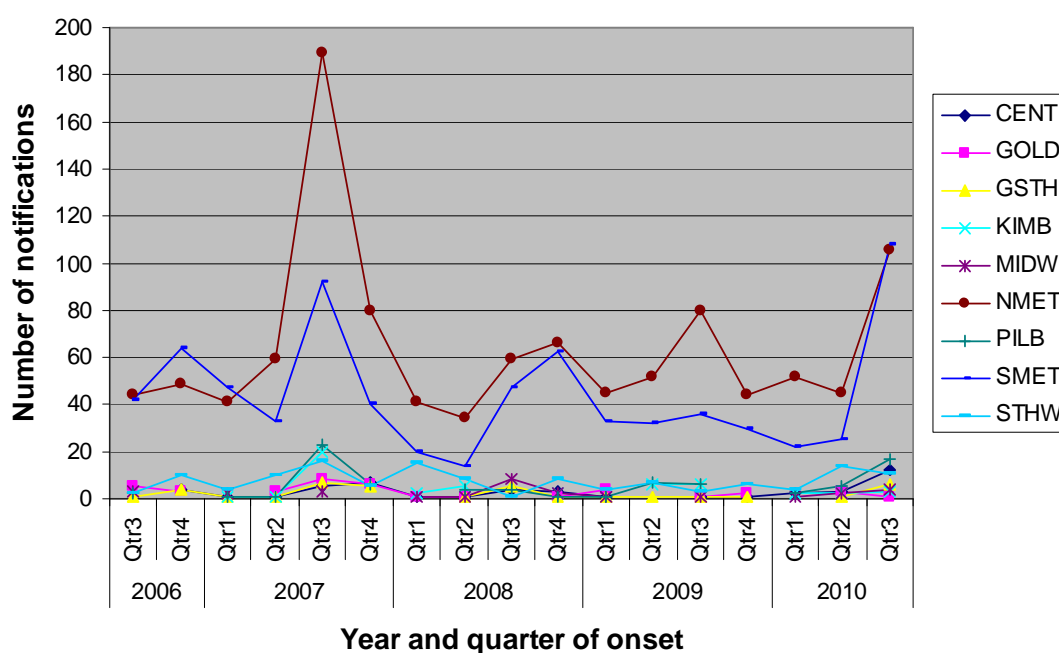


Figure 2. Rotavirus notifications for each quarter by age group, WA, 2006 to 2010

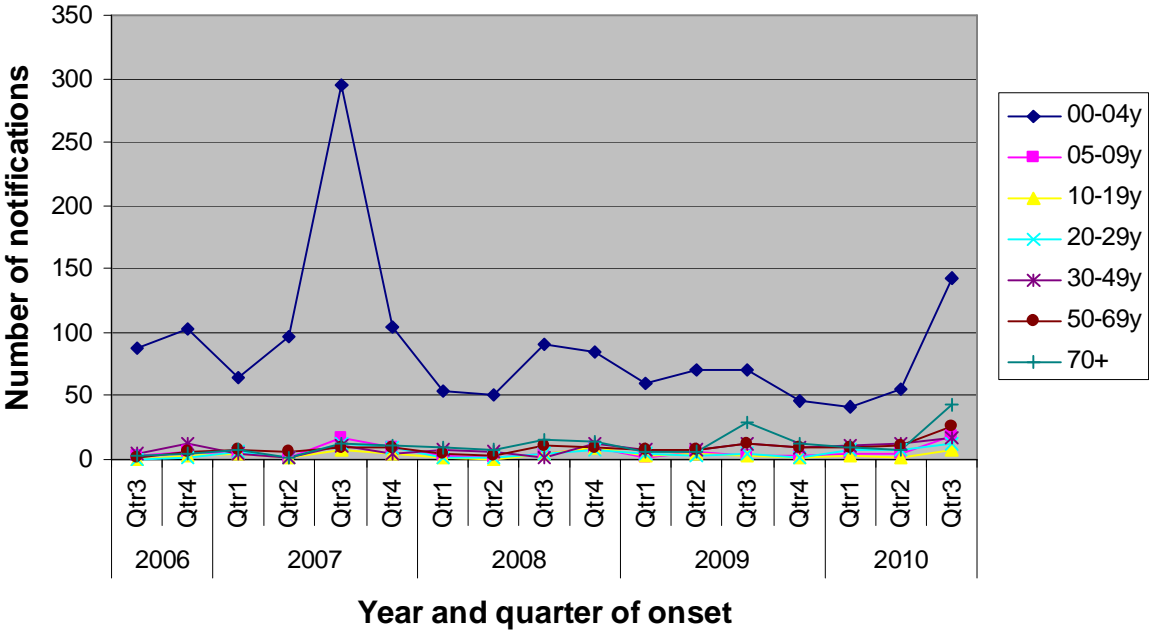
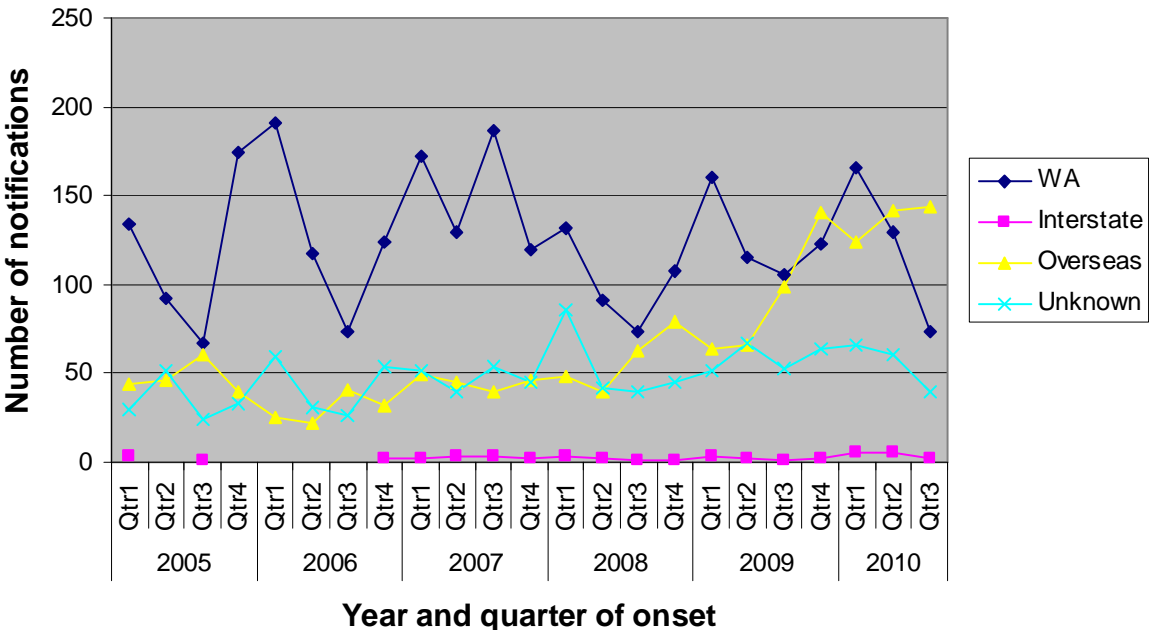


Figure 3. Salmonella notifications by quarter and place of acquisition, WA, 2005 to 2010



Non-foodborne disease outbreak investigations

There were 28 outbreaks of enteric disease in this quarter that appeared to be non-foodborne, 21 of which occurred in aged care facilities (75%), three in hospitals (11%), two in child care centres (7%), one in a hospice (3%) and one in a dialysis clinic (3%). The causative agent for 12 (43%) of these outbreaks was confirmed as norovirus, and for 8 (29%) outbreaks rotavirus was the causative agent. For the remaining 8 outbreaks (29%) the causative agent was unknown, either because a pathogen was not detected (n=4), viral testing was not requested (n=1) or specimens were not collected (n=2). For one outbreak specimen results were pending at the time of writing. A total of 413 people were affected in the 28 outbreaks. The number of non-foodborne outbreaks for this quarter was similar to the five year mean for the third quarter (n=32).

In addition, there were three outbreaks of gastroenteritis at aged care facilities where the likely mode of transmission was unclear.

- For one outbreak, there were two cases on consecutive days with diarrhoea and vomiting followed by seven cases with diarrhoea only on the third day. No specimens were collected.
- For the second outbreak, there were 12 cases with diarrhoea and only one case vomited but onsets of illness were over four days. Five specimens were negative for routine bacterial and viral pathogens, including *Clostridium perfringens* culture.
- For the third outbreak, six residents had diarrhoea only with onset of illness over two days but three staff were also ill with diarrhoea and/or vomiting. No specimens were collected.

Foodborne and suspected foodborne disease outbreaks

There was three foodborne and three suspected foodborne disease outbreaks investigated in this quarter.

Foodborne outbreaks

Reception centre outbreak, norovirus (Outbreak code: 07/10/TAW)

A foodborne norovirus outbreak was investigated in July, with 30 of 45 people from a club becoming ill after attending a dinner at a reception centre. One specimen was collected and was positive for norovirus. The dinner was a buffet with 38 cold and hot food and drink exposures. Of the 45 people who attended, 29 were enrolled in a case control study and there was a significant association between illness and consumption of lasagne (OR 7.2, CI 1.2-42.6). It was reported that the lasagne was hot when served. Diners reported that the plates used for main meals were dirty underneath. The median incubation period was 47 hours (range 11-60 hours). No

staff at the reception centre reported illness and an environmental investigation found staff had good general knowledge about safe food handling practices.

Restaurant outbreak, *Salmonella* Typhimurium phage type 170, PFGE type 11 (Outbreak code: 042-2010-003)

A foodborne outbreak was investigated in August, with three people ill due to *S. Typhimurium* (STM) phage type 170, PFGE type 11, after eating dinner independently of each other at an Italian restaurant on the 16th July, 2010. Duration of illness was 6 to 8 days. One case could not recall what food was eaten, two cases ate squid and one of these cases ate raw egg aioli with the squid. The median incubation period was 14.5 hours. An environmental investigation did not detect any food handling malpractices and the raw egg aioli was made fresh each day. The eggs used at the restaurant were from two egg producers, one of which has been linked previously to several other raw egg outbreaks due to *S. Typhimurium* phage type 170, PFGE type 11. The implicated egg producer is cooperating with the Department of Health to assess the risk of STM contamination of eggs and assisting with the identification of any possible system improvements.

Aged care facility, *Salmonella* Typhimurium phage type 170, PFGE type 11 (Outbreak code: 042-2010-002)

In August, a foodborne outbreak was investigated at an aged care facility. Of the 63 residents, seven had diarrhoea with onsets on 7/8/2010 (1 case), 10/08/10 (4 cases) and 11/8/2010 (2 cases). Of the seven cases, four were diagnosed with *S. Typhimurium* phage type 170, PFGE type 11. One case with an onset on the 7/8/10, was symptomatic with gastroenteritis when they died on the 10/08/10 from myocardial infarction (cause of death as reported on the death certificate). This type of *S. Typhimurium* has been identified in egg-associated outbreaks linked to food premises in 2009 and 2010 which had been supplied with eggs by one WA producer (also see above). However, in this instance the eggs used in the aged care facility were from a different supplier from another jurisdiction. From the information obtained, residents did not consume any raw egg food products. The ill residents lived in three different wings of the facility and it was reported that these residents would not have had contact with each other. The environmental investigation found that the head chef had unsatisfactory hand hygiene and food handling practices. No swabs of the food preparation area were positive for *Salmonella*.

Suspected foodborne outbreaks

Aged care facility, aetiology unknown (Outbreak code: 07/10/BAL)

In July, a suspected foodborne outbreak was investigated at an aged care facility. There were 6 of 109 residents with diarrhoea only, with onset of illness over a 24 hour period and the duration of diarrhoea was ≤ 1 day. Cases resided in three different wings of the facility. Two faecal samples were negative for common bacterial and viral pathogens and *Clostridium perfringens*. Stool toxin testing was not done. Food is prepared on site.

Aged care facility, aetiology unknown (Outbreak code: 09/10/KOL)

In September, a suspected foodborne outbreak was investigated at an aged care facility. There were 10 of 41 residents with diarrhoea only with onset of illness over a 12 hour period and a duration of diarrhoea reported as ≤ 1 day. Ill residents lived on four different floors and ate a range of food consistencies (vitamised, soft and normal). Four of the 10 residents had meals in the dining room and the others had meals in their rooms. Food was prepared onsite. Two faecal samples were negative for common bacterial and viral pathogens and *Clostridium perfringens* culture. Stool toxin testing was not done.

Defence force base outbreak, norovirus (Outbreak code: 09/10/STI)

A suspected foodborne norovirus outbreak in September affected 21 out of 2000 people who worked at a defence force base. Two specimens were positive for norovirus. Of the 21 cases, 17 were interviewed, and the common exposure was salad sandwiches prepared in a central mess, and consumed during one lunch time at different venues. Onset times for cases ranged from 7.5 to 35 hours after consuming the sandwiches. It was suspected that a salad ingredient contaminated by an infected food handler was the source of illness, although this was not investigated further. After the outbreak an education session on safe food handling practices was conducted with all food handlers who worked at the base.

Cluster investigations

Two apparent time-related clusters identified in notification data were investigated in the third quarter of 2010.

***Salmonella* Typhimurium PFGE type 104**

Seven cases with notification dates from 08/6/2010 to 13/08/2010 were interviewed. Six of the cases were aged from 3 to 6 years, the other case was aged 58 years. Six of the cases were male. Five of the cases lived in metropolitan Perth, and the other two lived in rural towns. No common exposures were identified.

***Salmonella* Typhimurium PFGE type 138**

Seven cases with notification dates from 25/5/2010 to 07/07/2010 were interviewed. Six cases lived in metropolitan Perth and one in a rural area. Three cases were male and four female, aged from 1 to 68 years. No common exposures were identified.

Site activities

During the third quarter of 2010, the following activities were conducted at the WA OzFoodNet site:

- Ongoing surveillance of foodborne disease in WA.
- As described above, investigation of three foodborne and three suspected foodborne outbreaks.
- Investigation of cases with specific *Salmonella* serotypes with unknown travel history, including: *Salmonella* Enteritidis, *Salmonella* Paratyphi B va java, *Salmonella* Hadar, *Salmonella* Hvittingfoss, *Salmonella* Corvallis, *Salmonella* Stanley, *Salmonella* Newport, *Salmonella* Livingstone, *Salmonella* Saintpaul, *Salmonella* Montevideo, *Salmonella* Virchow, *Salmonella* Weltevreden and *Salmonella* Muenchen.
- Investigation and monitoring of 28 non-foodborne gastroenteritis outbreaks, 21 of which occurred in aged care facilities, three in hospitals, two in child care centres, one in a hospice and one in a dialysis clinic.
- Ongoing monthly meetings with the Department of Health Food Unit to improve foodborne disease surveillance and investigation in WA.
- Continuing development work for a survey to obtain information on jurisdictional practices for STEC diagnosis and surveillance.
- Development and approval of WA Department of Health exclusion guidelines for people with enteric infections.
- Membership of a National OzFoodNet working group on “Developing exclusion guidelines for foodhandlers”.
- Continuation of a project on “Burden of gastrointestinal illness in Aboriginal people”.
- Continuation of the WA *Cryptosporidium* Case-Control study.
- Participation in national OzFoodNet teleconferences.
- Attendance at an OzFoodNet face to face meeting in Melbourne in September. Presentation on ‘*Cyclospora* outbreaks on a cruise ship’ at this meeting.
- Conducting a tutorial for Public Health Registrars on the investigation of foodborne outbreaks.
- Joint author on two papers submitted to the journal Foodborne Pathogens & Disease.
 - Food- and waterborne disease outbreaks in Australian long-term care facilities, 2001–8. MD Kirk, K Lalor, J Raupach, B Combs, R Stafford, GV Hall, N Becker

- Economic costs of Shiga toxin producing *E. coli* infection, Australia. M. McPherson, M. D. Kirk, J. Raupach, B. Combs, J.R.G. Butler.

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