Government of Western Australia
Department of Health
Communicable Disease Control Directorate

OzFoodNet—Enhancing Foodborne Disease Surveillance Across Australia

First 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 two *Salmonella* clusters and one shiga toxin producing *E. coli* (STEC) serotype O157 cluster. There were also two foodborne outbreaks caused by *Salmonella* Typhimurium phage type 170 and one suspected foodborne outbreak with unknown aetiology. OzFoodNet also conducted surveillance of 22 non-foodborne outbreaks in a variety of settings. Research projects included "Burden of gastrointestinal illness in Aboriginal people", "Norovirus genotyping", and developing the project "Case control study of sporadic cases of Cryptosporidiosis in WA". In addition, the OzFoodNet team continued to upgrade the WA OzFoodNet website page.

Incidence of foodborne disease

Notifications for enteric diseases 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 31 March 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 are available, the date of notification by the doctor or laboratory, or the date of receipt of notification, whichever is earliest.

In the first quarter of 2010, *Campylobacter* infection was the most commonly notified enteric disease in WA, with 575 notifications, which is similar to mean of the previous five years for the first quarter (n=572) (Table 1).

The second most commonly notified enteric disease in the first quarter of 2010 was *Salmonella* infection, with 360 notifications. This was 37% more than the mean number of notifications for this quarter for the previous five years. The increase in *Salmonella* notifications in the first quarter was largely attributable to an increase in the number of overseas acquired cases, with 31% of cases in the first quarter of 2010 overseas acquired compared to 18% for the five year mean for this quarter (Figure 1). Of the overseas acquired cases, 75% had travelled to Indonesia. The serotypes with 60% or more cases with overseas acquisition were *S*. Enteritidis (n=65), *S*. Paratyphi B var Java (n=17), *S*. Corvallis (n=3), *S*. Montevideo (n=3), and *S*. Weltevreden (n=3). The 65 notifications of *S*. Enteritidis in this quarter (94% overseas acquired), was 195% greater than the five year mean for the first quarter (n=22) .

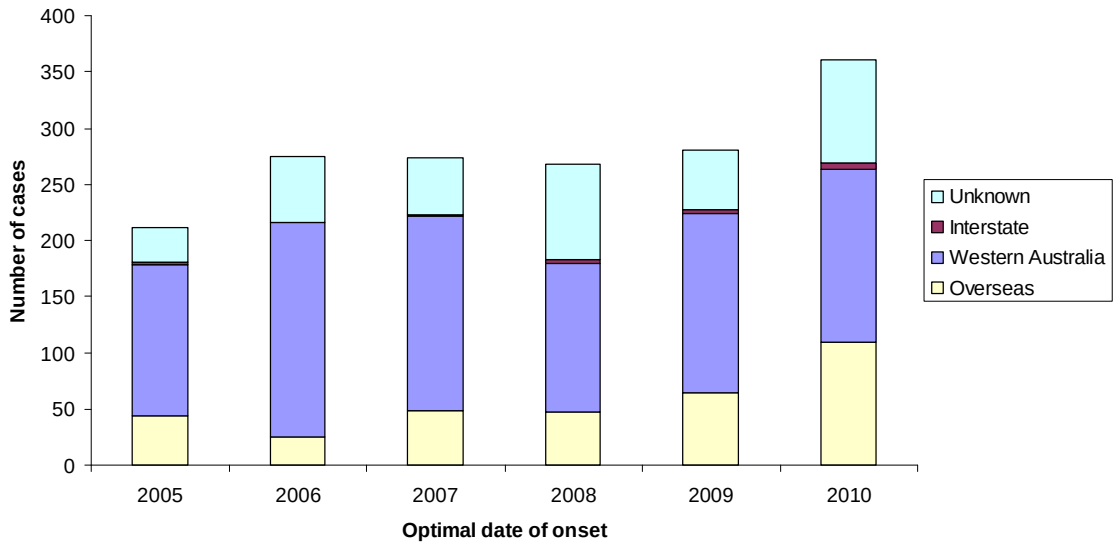
The most commonly reported serotype during this quarter was *S*. Typhimurium, with 109 notifications, which was 26% greater than the first quarter mean. This increase was mostly attributed to outbreaks due to *S*. Typhimurium phage type 170 (WA PFGE type 11) with 44 notified cases. The outbreaks have been associated with the consumption of products containing raw egg,

Table 1. Enteric disease notifications for the first quarter of 2010, with comparison to the first quarter of the years 2005 to 2009

Pathogen	Number of Notifications			1st quarter % change[2]
	2010 1st quarter	Range for 5 year 1st quarters	Mean of 5 year 1st quarters[1]	
Campylobacter	575	498-625	572	0.5
Salmonella	360	211-280	262	37.4
Rotavirus	85	82-98	90	-5.6
Cryptosporidium	48	72-326	131	-63.4
Shigella	34	27-56	47	-27.7
Hepatitis A	9	2-18	9	0
***Salmonella* Typhi**	4	1-7	3	33.3
STEC	4	0-3	1	300
***Salmonella* Paratyphi**	4	0-4	1	300
Listeria monocytogenes	1	1-8	3	-66.7
Yersinia	1	0-4	2	-50
Hepatitis E	0	0-2	1	-100

Notes: [1]Historical five-year mean (i.e. from 2005 to 2009) for the current quarter.
[2]Percentage change of the number of notifications in the current quarter compared to the historical five-year mean of the same quarter. Positive values indicate an increase in comparison to the historical five-year mean of the same quarter. Negative values indicate a decrease in comparison to the historical five-year mean of the same quarter.

Figure 1. *Salmonella* notifications by place of acquisition for the 1^{tst} quarters of each year, 2005 to 2010



Rotavirus has only been notifiable in WA since the third quarter of 2006. The number of notifications in the first quarter of 2010 (n=85) was similar to the first quarter mean for the previous three years (n=90). Other enteric infections with more than 10 notifications for this quarter were *Cryptosporidium* (n=48), and *Shigella* (n=34) and these numbers were lower than the respective first quarter average for the previous five years. There were also nine hepatitis A notifications for this quarter, comparable to the five year average of nine notifications. Of the nine cases, three were locally acquired, and these were investigated as part of a multistate outbreak associated with semi dried tomatoes (see fourth quarter 2009 report).

Non-Foodborne disease outbreak investigations

There were 22 outbreaks of enteric disease in this quarter that appeared to be non-foodborne, 19 of which occurred in residential care facilities (RCFs) (86%), and single outbreaks at each of a hospital (4.5%) a cruise ship (4.5%) and a restaurant (4.5%). The causative agents for 13 (59%) of these outbreaks was confirmed as norovirus, and for one (4.5%) outbreak rotavirus was detected. For eight outbreaks (27%) the causative agent was unknown, either because a pathogen was not detected (n=5) or specimens were not collected (n=3). A total of 710 people were affected in the 22 outbreaks. The number of non-foodborne outbreaks for this quarter was double the five year mean for the first quarter (n=11).

Foodborne/suspected foodborne disease outbreaks

There were two foodborne and one suspected foodborne disease outbreaks investigated in this quarter.

Foodborne outbreaks

Restaurant, *Salmonella* Typhimurium PFGE11 (phage type 170), (Outbreak code: 042-2009-010)

In January, seven cases of gastroenteritis with onset dates from 2/12/09 to 20/12/09, who had eaten food from a metropolitan restaurant were investigated. Six cases were diagnosed with *S*. Typhimurium (STM), pulsed field gel electrophoresis (PFGE) type 11, phage type (PT) 170. The other case had an illness consistent with *Salmonella* infection. Four cases had eaten scrambled eggs, two had pan fried fish and the last case could not recall what they had eaten. In October 2009, this restaurant was associated with an outbreak due to the same *Salmonella* strain, with 39 people ill with gastroenteritis. In the October outbreak a statistical association between illness and consumption of scrambled eggs was found and. food handlers were found to have added raw egg to cooked scrambled egg prior to serving. This practice was subsequently stopped (see 2009 fourth quarter report). The eggs used by the restaurant in October were from the same WA farm as those used in December. Environmental swabs from the restaurant, and eggs and drag swabs from the farm taken during the October outbreak were negative for *Salmonella*. No further foods was collected during the second outbreak and environmental swabs of the food

business were negative for *Salmonella*. In response to this second outbreak the restaurant changed to a different egg supplier.

Restaurant, *Salmonella* Typhimurium PFGE11 (phage type 170), (Outbreak code: 042-2010-001)

In February, 25 cases of gastroenteritis with onset dates from 13/01/10 to 02/02/10, who had eaten food from a restaurant were investigated. Eighteen were diagnosed with STM PFGE type 11 (PT 170) and the remaining seven cases had an illness consistent with *Salmonella* infection. There were 22 cases who had eaten aioli with a variety of foods, two cases who had eaten Caesar salad and one case who had eaten chips and tomato sauce. The common ingredients in the aioli and caesar salad were raw eggs. While samples of aioli and red curry mayonnaise were positive for the *Salmonella* outbreak strain, eggs and other sauces including Caesar salad were negative for *Salmonella*. The environmental investigation showed raw egg products were not stored adequately and batches were used over a long period of time. The eggs used by this restaurant were from the same egg farm which was implicated in two previous outbreaks in 2009 and one outbreak investigated in January 2010 (see above and 2009 fourth quarter report). All these outbreaks were caused by the same *Salmonella* strain. Eggs and drag swabs from this farm were negative for *Salmonella*. It is thought that eggs contaminated with *Salmonella* were used to produce raw egg food products and these products were stored inadequately, allowing the *Salmonella* to grow. In response to the outbreak the restaurant started using pasteurised eggs for sauces and changed its egg supplier. Information on the risks of using raw eggs in mayonnaise and other products has been posted by the Department of Health Food Unit on the Department of Health website and distributed to local government.

Suspected foodborne outbreaks

Tourist group outbreak, unknown aetiology (Outbreak code: 03/10/DOA)

A gastroenteritis outbreak of unknown aetiology in a tour group in Perth was investigated in March. The group consisted of 12 tourists and a guide who arrived from Japan at 12.40 am on 19/3/10, a local guide and a driver. Eleven tourists and the local guide developed diarrhoea and/or vomiting on the afternoon of 19/3/10 and all had recovered by 21/3/10. There were no reports of prior illness among tourists or guides. Food eaten by the group included karaage chicken, rice balls and pickles purchased hot from a Japanese restaurant at 1.00 am, 19/3/10 and stored in a polystyrene box with ice bricks until served for lunch at 1.00 pm on 19/3/10. Meals were not reheated. Information could only be obtained from the tour organisers as the group had returned to Japan prior to the commencement of the investigation. No left over food was available for testing and no stool samples were collected. There were no other reports of illness associated with the restaurant. Inspection of the premises did not find any deficiencies. This outbreak was a suspected toxin mediated illness resulting from inappropriate storage of food.

Cluster investigations

S. Hvittingfoss cluster

Nine cases were notified between 5/2/10 and 20/2/10, with six females and three males, aged 17-68 years, compared to a five year average of three cases per year. Eight cases lived in the metropolitan area, with seven cases residing in the northern suburbs; while one case lived in the Midwest region. PFGE of isolates showed seven cases with an indistinguishable pattern, while the Midwest case had a closely related pattern to the main cluster. The case with a different pattern reported travel to Zimbabwe prior to onset. No common venues were identified, however six cases reported eating fried rice or pad Thai at Chinese or Thai restaurants prior to onset of illness.

S. Typhimurium PFGE type 1, PT 9

Twelve cases of STM phage type 9, PFGE type 0001 with onset dates from 15/1/2010 to 3/2/2010 were investigated. Seven females and five males aged 6 to 52 years were affected. Of the ten metropolitan cases, eight had eaten eggs and of these five had eaten raw or runny free range eggs. Two cases lived in the same rural area and visited the same restaurant during their incubation period and a common food was fried rice. There were no further cases in February to help formulate an hypothesis for the cause of illness.

Shiga toxin producing *E. coli* (STEC) serotype O157

There were four cases of STEC investigated with onset dates from 17/2/10 to 21/2/10. Cases were aged between 24 and 66 years, and included one male in a rural area and three females in the metropolitan area. No common food or food premises were identified. STEC isolates from cases had different PFGE types indicating a common source of infection was not likely.

Site activities

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

- Ongoing surveillance of foodborne disease in WA.
- Ongoing monthly meetings with the Department of Health Food Unit to improve foodborne disease surveillance and investigation in WA.
- As described above, investigation of two foodborne outbreaks, one suspected foodborne outbreak, two *Salmonella* clusters and one STEC cluster.
- Investigation of three locally acquired Hepatitis A cases, and a single *Listeria monocytogenes* case.

- Investigation of 22 non-foodborne gastroenteritis outbreaks, 19 of which occurred in RCFs, and single outbreaks in each of a hospital, restaurant and on a cruise ship.

- Continued involvement in an OzFoodNet funded collaborative research project with PathWest Laboratory Medicine - a retrospective survey of norovirus genotypes in faecal samples from 2005 to 2008.

- Continuation of project on “Burden of gastrointestinal illness in Aboriginal people”.

- Approval obtained to commence a *Cryptosporidium* Case Control study in the 2nd quarter 2010.

- Involvement in a National OzFoodNet working group on food handler exclusion guidelines.

- Assisted with a national investigation into thyroid dysfunction due to the consumption of soya milk.

- Participated in national OzFoodNet teleconferences and Newcastle face to face meeting.

- Supervision of a UWA Masters of Infectious Disease student on a project examining the epidemiology of rotavirus in Western Australia.

- Responded to a media query on *Listeria* infections in WA.

- Response to parliamentary question on a gastroenteritis outbreak on a cruise ship.

- Media statement on egg related outbreaks.

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