OzFoodNet—Enhancing Foodborne Disease Surveillance Across Australia.

Third Quarter Summary, 2008
Queensland

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July – September 2008

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Overview of Quarter

This is the third quarterly report for 2008 from the Queensland foodborne disease surveillance site, one of eight sentinel sites around Australia which comprise OzFoodNet. This report summarises the surveillance activities and outbreak/cluster investigations conducted in Queensland between July and September 2008. Surveillance data is summarised for the following nine pathogens/conditions: Salmonella, Listeria monocytogenes, Campylobacter, Shigella spp, Yersinia enterocolitica, Typhoid Fever, Paratyphoid Fever, Shiga toxin-producing E. coli and Haemolytic Uraemic Syndrome (HUS).

The following are key points from this report:

- During the July - September 2008 reporting period 1,415 cases of illness due to the nine foodborne pathogens or conditions under surveillance were notified to Queensland Health. This compares with 1,286 cases notified for the corresponding period in 2007 and 1,472 cases notified for the second quarter 2008.

- Campylobacter notifications increased by 19% in comparison to the same reporting period in 2007 and were 10% higher than the 5-year mean for the same period.

- There were 3 case of listeriosis and 8 cases of STEC infection reported during this quarter.

- There were 44 documented outbreaks of gastrointestinal illness in Queensland during the third quarter 2008 affecting at least 867 people. Two of these outbreaks were due to foodborne transmission. Norovirus was confirmed as the aetiological agent in 14/43 (33%) non-foodborne outbreaks.

Incidence of Foodborne Disease

During the July to September 2008 reporting period 1,415 cases of illness due to the nine foodborne pathogens or conditions under surveillance were notified to Queensland Health (Appendix: Table 1). This compares with 1,286 cases notified for the corresponding period in 2007, an increase of 10%, and 1,472 cases notified in the second quarter 2008. Campylobacter was the most frequently notified foodborne pathogen followed by Salmonella. Campylobacter notifications (1091) for this period were 19% higher than the same period in 2007 and 10% higher than the 5-year mean (2003-2007). Whereas, the number of notifications of Salmonella (272) received during the third quarter of 2008 decreased by 14% in comparison to the same period in 2007 and were 20% lower than the 5-year mean.

Together, these two pathogens contributed more than 96% of the total foodborne illness notifications received during the third quarter. There were no reported outbreaks of salmonellosis or campylobacteriosis during the third quarter in Queensland. There were 20
cases of *Salmonella* Enteritidis infection notified during the third quarter, with all but two cases acquired overseas whilst travelling. The most common phage type reported was PT 6a (8 cases) with 7 cases reporting Thailand or Indonesia as the country of source. Other common overseas acquired phage types included PT 1 (3 cases), PT 1b (2), and PT 4 (2). The locally acquired *S. Enteritidis* isolate was not phage typed.

There were three cases of *Listeria monocytogenes* infection notified during the quarter. The first case occurred in a 71 year old female from the Gold Coast. This patient had a primary underlying illness of ovarian cancer with multiple metastases and died as a result of the cancer. *Listeria monocytogenes* serotype 1/2b was isolated from her blood cultures. A food history was unable to be obtained due to her condition. The second case was notified in a 57 year old male from Cairns on 11/9/2008. Onset of illness was the 8/9/2008 and *Listeria monocytogenes* serotype 4b was isolated from blood cultures. This case had been undergoing treatment for acute myeloid leukaemia in Brisbane and had recently had a bone marrow transplant. High risk foods consumed during the incubation period included pre-prepared salads, ham, chicken, organic fruit and vegetables, liver, and fetta cheese. The third case was notified on 19/09/2008 in a 71 year old male from Brisbane. This case was receiving treatment for myeloma and regularly receives dialysis. Onset of illness was the 14/9/2008 and *Listeria monocytogenes* serotype 4b was isolated from blood cultures. High risk food items consumed during the incubation period included various sandwiches (ham, chicken, salad) purchased from the hospital, fresh produce (including home grown) and cold delicatessen meat. Genotyping of the two serotype 4b isolates (cases 2 & 3) identified identical binary gene types (BT 254). However, no common food exposures could be established between the two cases.

Eight cases of Shiga toxin-producing *E. coli* (STEC) infections were reported during the quarter, two of whom subsequently developed Haemolytic Uraemic Syndrome (HUS). The first case of HUS developed in a 33 year old male with a complex medical history including Crohn’s Disease. Case was originally hospitalised for elective bowel surgery, discharged then readmitted due to increased bloody diarrhoea, vomiting and abdominal pain. *E. coli* non-typable:H19 was cultured from his stools. HUS developed subsequently and case required dialysis. Primary risk factors included the consumption of untreated tank water and living on a cattle property. The second HUS case occurred in a 3 year old female; *E. coli* O111:H- was cultured from her stools. Primary risk factor was contact with farm animals at a petting zoo.

There were 2 cases of infection with *E. coli* O128:H2, both from the same household. One of the two cases was asymptomatic and was detected through household screening of contacts. No source of infection was identified.
The final case notified during the quarter occurred in a 10 year old male who had attended a school camp between 10/9/2008 and 12/9/2008 in the Gold Coast hinterland. Onset of illness was 13/9/2008 and *E. coli* O157 was cultured from his stools. No other children who attended this school camp reported illness. Water samples collected from camp showers, kitchen taps, tank water and creek were positive for *E. coli* and other coliforms; water samples from a tank, kitchen tap and shower were positive for STEC genes by PCR. Water to the camp is sourced from a creek with adjacent cattle pastures upstream. Problems were identified with filtration and ultraviolet treatment (no chlorination). Immediate shock-dosing with chlorine of all tanks and a follow-up Public Health Order was issued to the business to modify the water treatment system and remove public health risk.

There were a wide range of STEC serotypes detected during the quarter including 2 x O128, 2 x O111, 2 x O157, 1 x O26 and 1 x non-typable strain. The 2 x O157 isolates were both H-. Seven of the 8 cases had culture positive stools; 6/8 stools tested +ve for shiga-toxin using EIA. The genes for stx1 and/or stx2 were detected by pcr in the stools of all 8 cases. Cases were aged from 3 – 60 years (median 32 years) including 3 males and 5 females. There were no deaths among these cases.

Two cases of Typhoid Fever were reported during the quarter. The first case was a 31 year old male who had been travelling through India prior to illness. Organism was detected in blood cultures taken 3/8/2008. The second case occurred in a 7 year-old male from Papua New Guinea. This case developed fevers and diarrhoea whilst visiting a Torres Strait island.

During the third quarter 2008, a total of 44 outbreaks of gastrointestinal illness affecting at least 867 people were reported to the Queensland OzFoodNet site. Thirty-one (3.6%) cases were hospitalised as a result of their gastroenteritis. There were 31 documented outbreaks of gastroenteritis in aged care facilities during the quarter that affected at least 675 persons, including 17 hospitalisations, and 10 deaths that occurred among elderly cases during the course of their gastroenteritis.

**Foodborne Disease Outbreaks**

Two outbreaks of foodborne illness were investigated during the third quarter of 2008.

Four cases of suspected ciguatera fish poisoning were notified to Brisbane South PHU on 4/7/2008. All cases had consumed steaks from a single Samson fish (2-3 kg) prior to illness. Onset of illness for all cases occurred on 2/7/2008. Symptoms included: nausea, vomiting, diarrhoea, abdominal cramps and numbness / tingling of hands, feet and mouth. The cases were aged 5 – 62 years (median 28.5 years); 3F, 1M. The fish was caught off Saumarez Reef, north east off Gladstone and purchased from a local fish market in Brisbane.
Six cases of suspected ciguatera fish poisoning were notified in Brisbane between 14/7/2008 and 8/8/2008. All notifications were associated with a single distributor in Brisbane. These cases were associated with two different mixed catches (9/7/2008 and 23/7/2008) from the same fishing location, Capel Bank approximately 400 kilometres E/NE of Brisbane. The cases were aged 25 – 63 years (median 38 years) and included four females and two males. One case had reportedly consumed Reef Snapper while the remaining cases all consumed Red Throat Emperor prior to illness. Symptoms included diarrhoea, vomiting, reversed temperature sensation and numbness / tingling of hands, feet and mouth. Onset of illness among the cases were between 11/7/2008 – 5/8/2008 with a median incubation period of 13 hours (range 3 – 18 hours). In total there was 8,654kg fish associated with the two catches and approximately 700kg of fish was also distributed to NSW. No cases were reported from NSW. Retailers disposed of all remaining Red Emperor from the implicated batch of fish.

**Non-foodborne Investigations**

There were 42 non-foodborne outbreaks affecting a total of 857 people notified during the third quarter 2008, with 31 suspected to have been propagated by person-to-person transmission. The remaining 11 outbreaks were of unknown transmission. The outbreaks occurred in aged care facilities (31), child care facilities (8), a hospital, restaurant and at a catered work function. Norovirus was confirmed as the aetiological agent in 14/42 (33%) outbreaks and Rotavirus in four (10%) outbreaks. Norovirus GII was confirmed in 11/14 outbreaks; only one outbreak strain had genotyping completed at the time of this report (GII.4 2006b). No agent was identified in the remaining outbreaks, however all were suspected to have a viral aetiology. Thirty hospitalisations were reported among the 42 outbreaks. Seventeen hospitalisations were associated with aged care facilities and thirteen hospitalisations occurred during child care centre outbreaks. Ten deaths were also reported during the third quarter 2008. All were associated with aged care facility outbreaks. Norovirus was the confirmed aetiological agent in 12/31 (39%) aged care facility outbreaks reported this quarter.

**Cluster Investigations**

There were five cluster investigations conducted during the quarter. These included three Salmonella Typhimurium clusters, one Salmonella Enteritidis cluster and one Salmonella Ruiri cluster. No common food vehicle or source of infection could be identified during these investigations.

The first Salmonella Typhimurium cluster investigation was conducted in July. Four cases of S. Typhimurium PT9 with the same MLVA profile (1-1-8-29) were notified between 12/7/2008...
and 17/7/2008. The cases were aged 23 – 29 years involving three males and one female. Two cases were notified from the Gold Coast and two cases from Brisbane. Three cases were interviewed; however no common exposures were identified.

The second investigation was also conducted in July after six cases of S. Typhimurium PT29 with the same MLVA profile 1-2-4-1-3 were notified between 28/7/2008 and 4/8/2008. The cases were aged between 6 – 44 years (median 12.5 years) and included four males and two females. Four cases were from Brisbane and two from the Sunshine Coast. Three of the six cases were interviewed but no common exposures could be identified.

The third cluster investigation involving Salmonella Typhimurium was conducted in July/August. Eight cases of S. Typhimurium PT 44 with the same MLVA profile 1-1-19-14-3 were notified between 25/7/2008 and 22/8/2008. The cases were aged between 23 – 66 years (median 34.5 years) and included four males and four females. Five cases were notified from Brisbane, two from the Sunshine Coast, and one from the Gold Coast. Four cases were interviewed but no common exposures were identified. The investigation ceased at this point.

Three cases of Salmonella Ruiri were notified between 15/9/2008 and 17/9/2008. All cases were female; aged 6, 53 and 92 years. Onsets of illness were 3/9/2008 and 8/9/2008. Only two cases were interviewed and no common exposures identified. The third case (92 y/o F) was unable to be interviewed. No further cases of this serotype were notified since this initial cluster.

Five cases of Salmonella Enteritidis were notified between 19/9/2008 and 25/9/2008. Cases were aged between 29 – 48 years (median 40 years); 4F, 1M. All five cases had travelled to Bali. Four cases were interviewed. Onset dates of illness were reported between 3/9/2008 and 17/9/2008. The only common exposure was identified among three cases in that all had stayed at an area called Seminyak. Subsequent phage typing results indicated a mixture of strains among these cases - phage types 1b (2 cases), 1, and 6a (2 cases) were reported among the five cases.

Site Activities
During the Quarter the Queensland Site:

- Continued surveillance for outbreaks of foodborne and other enteric pathogens including the conduct of five cluster investigations.
- Continued the review of the Queensland Foodborne Illness Outbreak Management Guidelines.
- Continued formal surveillance of norovirus genotypes in viral enteric outbreaks in Queensland (in conjunction with the Virology unit, Queensland Health Forensic & Scientific Services).
- Completed data collection and analysis for a state-wide aged care outbreak management survey.
- Documented and submitted the second quarter 2008 summary report for the Queensland OzFoodNet site
- Participated in the OzFoodNet outbreak register working group to enhance data collection of outbreak summary reports.
- Attended the PHLN Salmonella Subtyping Workshop in Melbourne in September (15th/16th) which was sponsored by OzFoodNet. Purpose of meeting was to establish a national network among State Salmonella/Enteric Reference Laboratories to formalise collaboration among members, develop standardised laboratory methodologies for serotyping, phage typing, antimicrobial susceptibility testing of Salmonella, thereby greatly facilitating epidemiological surveillance for OzFoodnet.
- Continued development of and prepared documents for the Queensland OzFoodNet Website

**Publications/Reports/Conference Presentations**

**Third Quarter 2008 Journal Publications**

Nil

**Posters/Presentations/Seminars**

Nil
APPENDIX

Table 1. Number of notified cases of foodborne pathogens in Queensland, third quarter 2008

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</thead>
<tbody>
<tr>
<td></td>
<td>Jul</td>
<td>Aug</td>
<td>Sep</td>
<td>Jul-Sep</td>
<td>Jul-Sep</td>
<td>YTD‡</td>
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<tr>
<td>Salmonella</td>
<td>99</td>
<td>80</td>
<td>93</td>
<td>272</td>
<td>316</td>
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<tr>
<td>Listeria – materno-foetal</td>
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<td>0</td>
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<td>Listeria – other</td>
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<tr>
<td>Campylobacter</td>
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<td>347</td>
<td>364</td>
<td>1091</td>
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<tr>
<td>Typhoid</td>
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<td>Paratyphoid</td>
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<td>Yersinia</td>
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<td>12</td>
<td>5</td>
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<td>Shigella</td>
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<td>8</td>
<td>3</td>
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<tr>
<td>STEC</td>
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<td>3</td>
<td>3</td>
<td>8</td>
<td>2</td>
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<tr>
<td>HUS</td>
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<td>2</td>
<td>0</td>
<td>2</td>
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<tr>
<td>Total</td>
<td>491</td>
<td>453</td>
<td>471</td>
<td>1415</td>
<td>1286</td>
<td>5234</td>
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* STEC : Shiga-toxin producing E. coli
** H.U.S : Haemolytic Uraemic Syndrome
‡ YTD: Jan-Sep 2008 / 2007

Table 2. Gastrointestinal illness outbreaks in Queensland third quarter 2008, by aetiology.

<table>
<thead>
<tr>
<th>Aetiology / agent</th>
<th>No. of Outbreaks</th>
<th>Cases</th>
<th>Hospitalised</th>
<th>Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BACTERIAL</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>bacterial</td>
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</tr>
<tr>
<td><strong>VIRAL</strong></td>
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<td></td>
</tr>
<tr>
<td>Norovirus - person to person</td>
<td>14</td>
<td>524</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>Rotavirus - person to person</td>
<td>4</td>
<td>64</td>
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<tr>
<td><strong>CHEMICAL</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Ciguatoxin - foodborne</td>
<td>2</td>
<td>10</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td><strong>UNKNOWN / OTHER</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unknown - Non-foodborne</td>
<td>24</td>
<td>269</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>44</td>
<td>867</td>
<td>31</td>
<td>10</td>
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