OzFoodNet: enhancing foodborne disease surveillance across Australia: quarterly report, July to September 2004

The OzFoodNet Working Group

Introduction

The Australian Government Department of Health and Ageing established the OzFoodNet network in 2000 to collaborate nationally to investigate foodborne disease. OzFoodNet conducts studies on the burden of illness and coordinates national investigations into outbreaks of foodborne disease. This quarterly report documents investigations of outbreaks of gastrointestinal illness and clusters of disease potentially related to food occurring around Australia. For information on sporadic cases of foodborne illness, see Communicable Disease Surveillance, Highlights for 3rd quarter 2004 in this issue of Communicable Diseases Intelligence.

This report summarises the occurrence of foodborne disease outbreaks and cluster investigations between July and September 2004. Data were received from OzFoodNet representatives in all Australian states and territories and a sentinel site in the Hunter region of New South Wales. The data in this report are provisional and subject to change, as results of outbreak investigations can take months to finalise. We would like to thank the investigators in the public health units and state and territory departments of

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All data are reported using the date the report was received by the health agency.
health as well as public health laboratories and local
government environmental health officers who col-
lected data used in this report.

Foodborne disease outbreaks

During the third quarter of 2004, OzFoodNet sites
reported 313 outbreaks of foodborne or enteric
illness. As usual the vast majority of these (87%,
n=274) resulted from person-to-person spread of
infection. The figure shows the proportion of the dif-
fferent modes of transmission. In total, 6,994 people
were affected with 113 people hospitalised. Twelve
deaths were reported. Ten of the deaths occurred
in aged care facilities during outbreaks of norovirus
infection while the remaining two deaths were asso-
ciated with cases of Listeria infections in severely ill
hospitalised patients.

There were 25 outbreaks of illness where food was
suspected or proven to be the primary mode of trans-
mision. This compares with 24 and 37 outbreaks in
the first and second quarters of 2004, respectively.
Salmonella Typhimurium was the causative agent for
six outbreaks, while Campylobacter and norovirus
were each responsible for three outbreaks. Of the
remaining outbreaks, one each was caused by Clostridium perfringens, Ciguatera toxin, Salmonella
Enteritidis, Salmonella Virchow, Salmonella Stanley
and Listeria monocytogenes. An aetiological agent
was not identified for seven of the outbreaks.

Seven of the outbreaks were associated with meals
served in restaurants and another seven with food
served in private residences. Two were associated
with commercial caterers or take away food outlets.
Nine of the outbreaks occurred in July, six in August
and 10 in September.

To investigate these outbreaks, sites conducted ten
cohort studies and two case control studies. For
11 outbreaks, only descriptive data were collected
and in two outbreaks no individual case data was
collected. In three outbreaks, investigators obtained
microbiological evidence linking a food vehicle to
illness, and analytical epidemiological evidence
in a single outbreak. For the remaining outbreaks,
investigators obtained descriptive epidemiological
evidence implicating the food vehicle or suggesting
foodborne transmission.

In New South Wales there were six outbreaks of
foodborne illness, three of which were associ-
ated with different phage types of Salmonella Typhimurium. One of these was caused by S. Typhimurium U290 linked to homemade Chinese
style minced fish balls, which affected 11 people.
Salmonella Typhimurium 126 was associated with
homemade tiramisu in an outbreak affecting 11
people. A sample of a wash from a raw egg used to
make the dessert tested positive for S. Typhimurium
126. The eggs were traced back to an ‘organic’ egg
farm. There were two outbreaks associated with
restaurants and one with a school where no agent
or food vehicle were identified.

Victoria reported four outbreaks of foodborne
disease. One outbreak of Salmonella Stanley in
a boarding school affected 33 people, with four
admitted to hospital. Food served at the school was
considered the most likely source of the infection
but there was possible person-to-person spread
later in the outbreak. Salmonella Typhimurium 126
was associated with an outbreak at a conference
centre. There were a total of 24 cases from three
groups who attended the conference centre. No
food vehicle was identified, although tiramisu made
with raw eggs was suspected as the source of ill-
ness amongst guests at a wedding reception at the
centre. Twenty-four cases were associated with an
outbreak of campylobacteriosis in an aged care
facility. Most of the cases appeared to contract their
illness at a barbecue, although no specific food was
identified and there may have been some secondary
spread. There was an outbreak of illness associated
with a restaurant that affected 45 people. The time
of onset of illness and the pattern of illness sug-
gested Clostridium perfringens infection and this
organism was isolated in high numbers from one
faecal sample from a restaurant patron but toxin
testing was not carried out. Curries at the restaurant
were served banquet style and may not have been
kept hot enough to prevent bacterial proliferation.

In Queensland, there were nine outbreaks of
foodborne illness investigated. Six people were ill
from Clostridium perfringens after a meal of take
away pizza. C. perfringens was isolated from vari-
ous meats used as toppings and from the stool of
one case. Inadequate refrigeration of the meats may have contributed to the proliferation of the organism in the food. *Salmonella* Virchow 8 was isolated from the faeces of five people attending a school camp, although no food vehicle was identified. An environmental health inspection of the camp kitchen found several food hygiene issues including time-temperature abuse during food preparation and storage. After sharing a takeaway pizza meal seven of ten people became ill. While pizza was the common food, no particular variety was consumed by cases and person-food-person transmission of norovirus appeared to be the mode of transmission. There was one outbreak of ciguatera poisoning affecting four people after a meal of grey mackerel. There was one outbreak of norovirus associated with a catered wedding. Food handlers working for the catering company reported family members with similar illness, indicating a mixture of person-food-person spread. An ill food handler was suspected as the source of illness in another outbreak of norovirus affecting 16 people.

Queensland also reported five cases of *Salmonella* Typhimurium 135a following consumption of apple tarts and custard fruit tarts from a single bakery. An almond sauce containing raw eggs on the tarts was suspected as the source of the outbreak. An investigation of the farm supplying the eggs found no *Salmonella*, but the farm had no quality assurance program and eggs were inadequately cleaned. Seventeen of 60 people became ill with *Salmonella* Enteritidis 26 infection following a wedding reception held at a private home. A wide variety of foods were served, but no particular vehicle was identified. A kebab shop was associated with two cases of campylobacteriosis. Cases purchased the food during busy periods, possibly indicating inadequate cooking and cross contamination.

<table>
<thead>
<tr>
<th>State</th>
<th>Month</th>
<th>Setting</th>
<th>Agent responsible</th>
<th>Number exposed</th>
<th>Number affected</th>
<th>Evidence†</th>
<th>Responsible vehicles</th>
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<td>NSW</td>
<td>July/August</td>
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<td>11</td>
<td>11</td>
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<td></td>
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<td>D</td>
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<td>14</td>
<td>11</td>
<td>M</td>
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<td>24</td>
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</table>

* No foodborne outbreaks reported from the Australian Capital Territory, the Northern Territory, Tasmania or Western Australia.

† D Descriptive evidence implicating the suspected vehicle or suggesting foodborne transmission.

M Microbiological confirmation of agent in the suspect vehicle and cases.
A total of six outbreaks were investigated in South Australia during the quarter. Two cases of listeriosis were associated with the same hospital. Pulsed field gel electrophoresis profiles of isolates from patients suggested the strains were related but a review of food histories did not identify a common food exposure. Four out of five people became ill with *Salmonella* Typhimurium 9 infection after eating homemade ice cream which contained raw eggs. Tracing back the eggs to an individual farm was not possible due to many farms supplying a single facility. There were four cases of campylobacteriosis associated with a restaurant. No definitive food vehicle was established but an inspection of the restaurant revealed a number of food safety breaches including inadequate temperature control. There were three other outbreaks where foodborne transmission was suspected but no pathogen was identified. One of these was an outbreak associated with a national franchised pizza chain, where illness was investigated in three cohorts of people. The other two involved outbreaks at restaurants.

**Comments**

During the quarter there were two outbreaks of *S. Typhimurium* 126 in two different states with a tiramisu dessert being a possible vehicle of the pathogen for both outbreaks. The raw eggs used to make the dessert for both outbreaks were sourced from different organic egg farms located in each state. A South Australian outbreak of *S. Typhimurium* 9 associated with homemade ice cream also implicated raw eggs. These and other egg-related outbreaks highlight the need for health departments to thoroughly document the sources of contamination. The fact that the South Australian investigation was unable to trace back products to their source highlights a common problem where food ingredients are suspected as the cause of gastroenteritis outbreaks.

There was an outbreak of *Salmonella* Stanley during the quarter in a Victorian boarding school where the source was not identified. *Salmonella* Stanley infections are commonly acquired in Asia, although a small number of infections are acquired in Australia each year. In 2001, this serotype was the cause of an international outbreak associated with Chinese peanuts.²

The outbreak of *C. perfringens* associated with a meal of take away pizza highlights that the length of cooking time for pizza may not kill this anaerobic spore forming organism. It also demonstrates the need to keep ingredients chilled to prevent growth of bacteria. *C. perfringens* is a hardy organism and vegetative organisms can grow at temperatures between 15–50°C.³ There were three outbreaks of illness due to pizza during the quarter. OzFoodNet sites carefully reviewed the results of these investigations to determine if there were any links between the outbreaks, as some franchised chains centralise food preparation and distribution.

**References**

