Diarrhetic Shellfish Poisoning Outbreak in BC, 2011

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Outline

- Background
  - Symptom Profile, Causative agent, Historical Outbreaks
- Outbreak investigation in BC
- Lessons learned
- Future Considerations
Diarrhetic Shellfish Poisoning (DSP)

- Mild gastrointestinal symptoms
  - No chronic sequelae
  - Misdiagnosis and under-reporting
- Incubation:
  - 30 minutes – 12 hours
- Duration:
  - Up to 2 – 3 days
- Diagnosis:
  - Clinical
  - Toxin identification in implicated food
DSP cycle of illness

Algae

Okadaic acid (OA), DTX-1, 2 and 3 Toxins

Consumption

Shellfish
Previous outbreaks of DSP

http://www.whoi.edu/website/redtide/home
Previous outbreaks of DSP

- **Canada**
  - 1989: Okadaic acid detected in Gulf of St Lawrence
  - 1990: 13 cases in Nova Scotia consumed local mussels
Outbreak notification

- Aug 3, 2011: Multiple cases of gastrointestinal illness identified, associated with multiple restaurants in 2 Health Authorities
  - Norovirus vs. DSP

- Restaurant complaints ➔ shellfish harvester
Investigation methods

- Case and restaurant investigations
- Collection of tags to assist with traceback
  - Supplier
  - Date of harvest
  - Harvest area
  - Lot #
- Outbreak investigation team identified
  - BC Foodborne Illness Outbreak Response Protocol activated
Case findings

- 62 clinical cases associated with 15 retail locations
  - Restaurants, markets & grocery stores
  - No self-harvesting
  - All consumed cooked mussels
- Signs and symptoms: diarrhea, nausea, vomiting, abdominal pain, cramps
  - Incubation period: 2-15 hours
  - Duration: 1-3 days
- Consumption dates between July 28 - Aug 6
Food safety investigation & traceback

- Single harvest area identified
- Single mussel harvester in harvest area
- Harvest dates associated with cases:
  - July 24 - July 31
- Challenges:
  - Collection of tags; timeliness for actions
  - Specific information on practices in retail locations (e.g., which mussels were served on which dates)
Laboratory findings

- **CFIA**
  - Tests for DTX 1-3, okadaic acid, other toxins
  - 7 mussel samples collected from implicated harvest area between July 31-August 17
  - 2 samples > 20 µg / 100 g DTX-1
  - Presence of DTX-3 in all samples after July 19

- **Public Health**
  - 6 clinical specimens: negative for norovirus & stool culture
  - 4 food samples (2 mussels, 2 sauces): negative for enteric pathogens
Investigation Actions

- Aug 3: Harvester began withdrawing product
- Aug 5: Harvest area closed
  - Re-opened on Aug 24 after 3 samples within 14 day period within acceptable levels
- Aug 6: Health hazard alert and product recall based on risk assessment
- Public communication
  - Website updates
  - Multiple media requests
Lessons learned

How can we improve our response in the event of a future DSP outbreak?

- First documented experience
  - Changes to biotoxin monitoring programs and regulatory standards
- What factors led to this outbreak?
  - Learn and collaborate with experts
- Similar timing and location of first cases of DSP in WA State in 2011
  - Communication with partners
Why Here? Why Now?

- Environmental
- Ecological
- Has it happened before?
Future public health considerations

- Public health actions
  - Communication with public health
    - Use of biotoxin or other monitoring data
    - Communication within BC or with PNW partners
  - Communication with clinicians
    - Awareness and under-reporting
  - Communicating with the public
    - Annual media advisory
    - Improve tag availability in restaurants
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Questions & Thank you