

Chef's Challenge VS. *CHSD's Challenge*

Annual FFIGS Educational Workshop
May 4th, 2011



Janet Bowls, B.A.Sc., C.P.H.I.(C)
Crystal Palleschi, Epidemiologist
Community Health Services Department



Overview

- Background – *Cyclospora cayetanensis*
- Local *Cyclospora* Surveillance
- Overview of Events & Investigation Details
- Surveillance & Epidemiological Analysis
- Conclusions
- Recommendations for special events



Cyclospora cayetanensis

Aetiologic Agent:

The causative agent is *Cyclospora cayetanensis*, which is a sporulating coccidian protozoan parasite that infects the upper small bowel.



Occurrence

- *Cyclospora* is not endemic in Canada.
- It has been associated with diarrhea in travellers to Asia, the Caribbean, Mexico and Peru.
- Outbreaks in the US and Canada during 1996 and 1997 were associated with ingestion of fresh raspberries imported from Central America.

Occurrence cont'd.

- In Ontario, cases of Cyclosporiasis typically occur more often in the spring and summer.
- Previous clusters of Cyclosporiasis have been associated with the consumption of imported produce.

Modes of Transmission

- *Cyclospora* is transmitted through food or water contaminated by human feces.
- *Cyclospora* is not naturally found in or on fresh fruits and vegetables, or any other foods.
- It is suspected that food contamination occurs during cultivation, harvest, packaging or transportation through contact with contaminated water or infected workers.

Modes of Transmission cont'd

- *Cyclospora* oocysts are not infectious in freshly excreted stool.
- Days to weeks outside the host to sporulate and become infectious.
- Currently, there is no documentation of person-to-person spread.

Incubation Period

- The incubation period is approximately 7 days with a range of 1 – 14 days.

Period of Communicability

- The disappearance of symptoms and oocysts usually occurs simultaneously. The mean duration of organism shedding is 23 days.
- Exclude symptomatic cases from food handling for 24 hours after their last symptom(s).

Local Cyclospora Surveillance

- Lab confirmed cases in Lambton:
 - 2007: 1 travel-related case
 - 2008: 0 cases
 - 2009: 0 cases
 - 2010: 43 confirmed cases
167 probable cases



Overview of Events & Investigation Details

May 28, 2010

- A client called to identify 6-8 friends who were experiencing gastroenteric symptoms.
- All attended the Big Sister's Chef's Challenge at Hiawatha Casino on May 12, 2010
- Clients interviewed for any common exposures
- Investigation begins
- Food borne outbreak kits distributed

May 31, 2010

- Big Sisters inquiry
- No other complaints or concerns brought to the attention of CHSD staff.



June 1, 2010

- First positive report for the year for *Cyclospora cayetanensis* is reported to CHSD
- Want to find out this client's risk factors and exposures
- Unable to contact client initially. Client was successfully contacted the next day.
- Client was indeed at the event in question.

June 1, 2010 Afternoon

- 6 lab preliminary confirmed cases all from the group that initially notified CHSD
- Big Sisters co-operate and provides CHSD with pertinent information
- 400 attendees for this event (including volunteers)

June 2, 2010

- All 6 preliminary cases were lab confirmed.
- Management and MOH informed
- Community outbreak declared
- MOHLTC, PHAC, CFIA, PH Labs involvement
- Rationale for declaring the outbreak
- Questionnaire devised
- Case definitions created for both confirmed and probable cases
- Call volume and walk-ins increase

Case Definition

- Confirmed case:
 - 1) demonstration of *Cyclospora cayetanensis* oocysts in a stool specimen;
 - 2) attended and/or consumed food served at the Big Sister's Chef's Challenge charity event held in Sarnia on May 12, 2010; and
 - 3) symptom onset on or after the event date.
- Probable case :
 - Clinically compatible signs and symptoms, including at least two gastrointestinal symptoms, and exposure without laboratory confirmation.

June 3, 2010

- Food samples begin (2 from event)
- On-site visits to food premises-consultation and inspections continued
- Stool sample kits begin to be distributed to community members

June 3-11, 2010

- Collaboration of Staff, Management, Program Support, MOH, PHNs, PHIs, Epidemiologist, Health Promotion
- More than 770 telephone calls
- Unknown documented number of walk-ins
- iPHIS entry of cases
- 43 lab confirmed
- Working with community health care professionals-Identification of cases, treatment and alternative treatments

Potential Food Item Identified

- Epidemiological evidence pointing towards one particular dish
 - Made a plea for WELL persons to contact CHSD to strengthen evidence
- A group of students and a group of teachers consume leftovers from a particular dish from one of the local caterers
 - As a result, 6 persons develop illness (at least 2 were lab confirmed)

Secondary Infections Ruled Out

- CHSD was notified of community members who were experiencing gastroenteritis that DID NOT attend the event nor had any association with the event or cases.
- 21 ill persons contacted CHSD
- 4 stool samples were submitted
- 8 people completed the extended version of questionnaire.
- None of the stool samples came back positive for *Cyclospora*

June 21, 2010

- Outbreak was declared resolved
- Press release to media outlets
- Based on epidemiological analysis and evidence from those eating leftovers from the Chef's Challenge event, the Cool Pesto Crunch dish was the most likely vehicle for *Cyclospora* infection.



Surveillance & Epidemiological Analysis

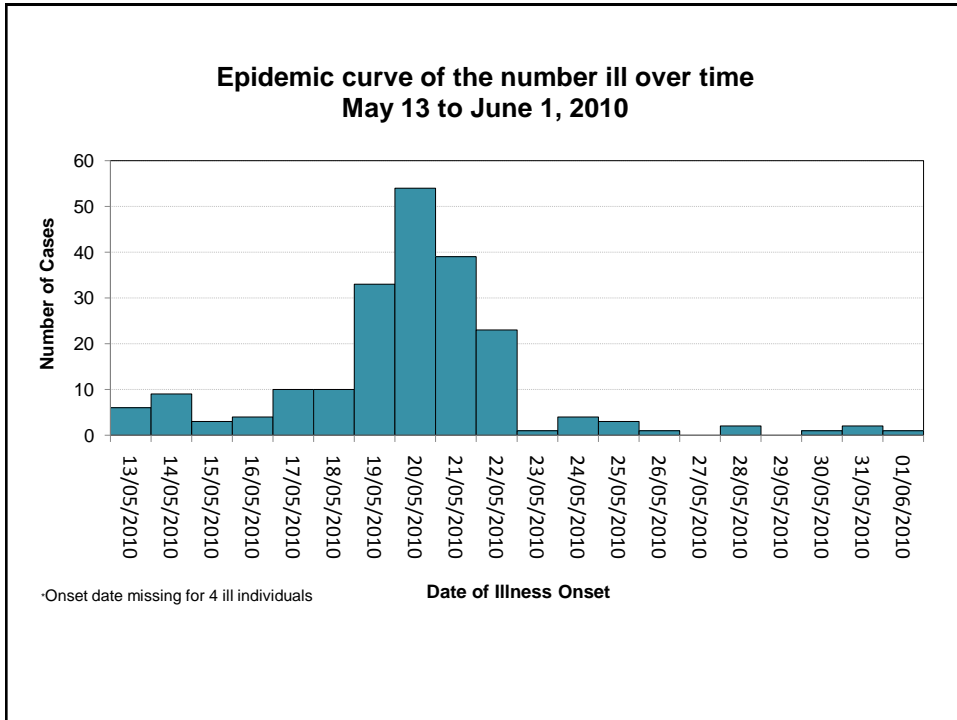
Surveillance & Communication

- Local Level
- Provincial Level
- National Level



Case Details

- 292 interviews conducted
 - 210 ill, 82 well,
 - 43 lab confirmed, 167 probable cases
 - 285 attended event; 7 ate leftovers
- Hospitalizations
 - 23 reported a hospital visit
 - 7 admitted to hospital
- No fatalities reported to CHSD



Symptoms Reported

- Most commonly reported symptoms (n=210)

Diarrhea	95%
Fatigue	87%
Loss of appetite	83%
Gas	82%
Gurgling stomach	79%
Nausea	78%
Cramping	75%
Bloating	73%

Food Specific Attack Rates (AR) with Unadjusted Relative Risks (RR).

Food Item	Exposed (Ate Food Item)			Not Exposed (Did not Eat Food Item)			RR
	Ill	Total	AR (%)	Ill	Total	AR (%)	
Coffee and Jerk Chicken	164	235	69.8	36	47	76.6	0.91
Mexican Turkey Empanuadas	191	264	72.3	15	24	62.5	1.16
Fireball Chicken Sticks	177	248	71.4	26	35	74.3	0.96
Veg Stuffed Mushroom Caps	180	250	72.0	27	39	69.2	1.04
Chicken Summer Roll	191	266	71.8	11	18	61.1	1.17
Red Wine Risotto Arancinis	183	254	72.0	17	25	68.0	1.06
Yia Yia Lamb	165	225	73.3	39	61	63.9	1.15
Roasted Garlic Chevre	175	243	72.0	23	35	65.7	1.10
Cool Pesto Crunch	207	278	74.5	0	11	0.0	∞*
Thai Chicken and Shrimp	154	209	73.7	49	75	65.3	1.13

*None of the individuals who did not eat Cool Pesto Crunch became ill. As a result, the relative risk estimates were not estimable.

Conclusions

- Difficult to obtain laboratory confirmation of food source due to long incubation period of *Cyclospora*
- Evidence from those eating leftovers was valuable due to the nature of the event
- It is unknown why this outbreak was limited to this event
- Successful collaboration at the local, provincial and national levels
- Demonstrates the impact of international trade and risks of importing produce

Recommendations

- Ensure that the health unit is notified about a special event at least 2 weeks prior to the event
- Ensure that Special events co-ordinator(s) or designates are certified in Safe Food Handling and are present during the event
- Encourage reporting of any cluster illnesses from the event to CHSD
- Encourage co-ordinator(s) to save samples of food, if possible

Acknowledgements

- Ministry of Health and Long Term Care
- Ontario Agency for Health Protection and Promotion
- Public Health Agency of Canada
- Canadian Food Inspection Agency
- Toronto Public Health Lab
- London Public Health Lab
- Community Health Services Department
- Local restaurants

References

- Ministry of Health Long Term Care. Infectious Disease Protocol. 2009 - www.health.gov.on.ca
- Centers for Disease Control and Prevention - www.cdc.gov
- Morbidity and Mortality Weekly Report, October 2, 1998/ Vol. 47/No. 38
- Morbidity and Mortality Weekly Report, September 24, 2004/Vol. 53/No. 37



QUESTIONS