



C. perfringens Outbreak at a Summer Camp in Dutchess County, NY

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Background

- ▶ Dutchess County Department of Health notified on July 22nd, 2015 of an outbreak of diarrheal illness at an educational summer camp for high school students
- ▶ 70+ students and staff fell ill over a 24 hour period
- ▶ Camp located at a nearby college
- ▶ No other programs at the college reported any illness



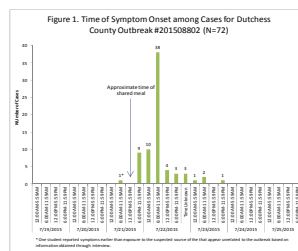
Investigation Methods

- ▶ Preliminary site visit at camp/college
- ▶ Camp activities identified
 - ▶ Educational pre-college classes during the day, use of college recreational facilities
 - ▶ No field trips taken in the days leading up to the outbreak
 - ▶ Catered take-out dinner was ordered for camp July 21st
- ▶ Questionnaire conducted on site (n=121, 96%)
- ▶ Sanitary inspection of restaurant that supplied meal
- ▶ Two stool samples and meal leftovers sent to Wadsworth



Results

Epi Curve and Case Definition



- ▶ 72 ill met case definition of diarrhea or vomiting with onset in past 7 days; all had diarrhea, 11 also had vomiting
- ▶ Epi curve strongly suggested a point source exposure
- ▶ 53% of cases had onset from 6:00 am to noon on July 22nd



Results

Menu Item Attack Rate Ratios

Table 2. Menu items consumed and associated attack rates for cases and controls for Dutchess County Outbreak #201508802

Menu Item	Ill		Well		Total	Total Ill	Attack Rate For	Attack Rate Ratio
	Consumed	Did Not Consume	Consumed	Did Not Consume				
Any Meat	71	1	30	5	101	6	70.29%	4.22
Chicken	25	47	15	19	41	16	39.02%	1.21
Beefsteak	1	49	6	39	46	1	2.17%	0.47
Roast Pork	20	52	0	20	47	20	42.55%	1.17
Salad	22	50	20	25	52	22	42.31%	1.01
Fish	1	71	0	35	106	1	0.94%	1.49
Other Meat	1	71	0	35	106	1	0.94%	0.75
Any Side	71	0	36	1	108	1	0.93%	—
Rice/White Rice	41	31	12	21	53	54	77.36%	1.95
White Rice w/ Peas	22	50	14	21	36	71	54.17%	0.87
Potatoes	31	39	15	21	47	46	97.87%	1.08
Red Beans w/ Saus	14	58	2	31	36	15	41.67%	1.17
Other Side	3	69	7	38	51	10	19.61%	0.87
Any Drink	66	5	31	4	97	32	33.01%	1.11
Water	36	36	7	28	44	44	100.00%	1.04
Hot Tea	30	13	26	7	47	20	42.55%	1.04
Milk	5	72	1	34	40	1	2.50%	0.50
Other Drink	6	46	1	34	41	7	17.07%	1.10
Other Food or Drink	6	46	2	31	44	8	18.18%	1.11
Any Total	101	1	31	4	100	7	6.93%	1.11



Results

Stool and food samples

- ▶ Stool (2 samples)
 - ▶ Both negative for norovirus
 - ▶ Both positive for *C. perfringens*
- ▶ Meal leftovers
 - ▶ Test results pending

Sanitary Inspection

- ▶ No probe thermometer
- ▶ Meal prep began ~ 6:00 am
- ▶ Warming trays reportedly used as items completed
- ▶ Plating started ~ 3:30 pm, meals remained at room temp after this point
- ▶ Delivery ~4:30 pm
- ▶ Consumed ~5:00-6:30 pm



Conclusions

- ▶ Findings suggest outbreak of gastrointestinal illness was due to *C. perfringens* exposure during a common meal
- ▶ Time between meal consumption and peak attack window consistent with bacterial toxin exposure
- ▶ Evidence suggests that food was held at improper hot holding temperatures, allowing for germination and growth of *C. perfringens*
- ▶ Critical violations at restaurant have been corrected, enforcement action is in process.



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