

# An Outbreak of Norovirus Associated with a Dinner Banquet – April 2018

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**WILLIAMSON COUNTY AND CITIES HEALTH DISTRICT**

# Objectives

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- To identify the steps of investigating a gastrointestinal outbreak related to a closed event
- To discuss investigation limitations and recommendations for future outbreaks



# 8:01 am Report to DCP

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- 5/2/18- received report that dozens of students and families were ill after eating at a catered banquet from restaurant A for a high school baseball team on 4/30/18.
- Ill attendees reported nausea, vomiting, diarrhea, abdominal cramps, fever, and muscle pains within 72 hours after eating at the banquet.
- The Disease Control and Prevention Division (DCP) and Environmental Health Services Division (EHS) initiated an outbreak investigation to define:
  - the extent of the outbreak,
  - identify the causative agent,
  - mode of transmission,
  - source of infection,
  - necessary control measures



# DCP's Initial Steps

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- ✓ Followed up with school to confirm banquet details and go over infection control measures for ill students with nurse
- ✓ Obtained a list of all banquet attendees from school nurse and banquet organizer
- ✓ Developed survey tool in Excel to collect information from attendees via telephone
- ✓ Notified infection preventionists at local hospitals of outbreak and encouraged stool pathogen panel testing for those that mentioned attending banquet and presented with GI symptoms



# DCP's Next Steps

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- ✓ Attempted to interview all attendees (well and ill) via telephone with Excel survey
- ✓ Interviewed many non-banquet Foodborne Illness Complaints (FBICs) that were called in when news broadcasted restaurant name
- ✓ Communicated with doctors to receive lab results of those that had stool tests done
- ✓ Analyzed data in a retrospective cohort study and created report to summarize findings



# EHS' Steps

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- ✓ Conducted FBIC inspection of restaurant A and interviewed manager
- ✓ Restaurant voluntarily closed for “deep cleaning” with EHS present to guide cleaning measures
- ✓ Interviewed restaurant employees to determine if they had been ill in the past week or knew of anyone with GI symptoms
- ✓ Visited the event venue where banquet was held to confirm there was no prep kitchen or food handlers
- ✓ Contributed to report summarizing findings



# Definitions

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- **A confirmed case** - a case reporting diarrhea and/or vomiting  $\leq 72$  hours after eating at a banquet on 4/30/18 with laboratory confirmation of norovirus.
- **A probable case** - a case reporting diarrhea and/or vomiting occurring within 12-72 hours after eating at a banquet on 4/30/18 with no laboratory confirmation.
- **A secondary case** - a case reporting diarrhea and/or vomiting occurring 12-72 hours after encountering a confirmed or probable case.



# DCP Results

**Table 1: Classification of cases (n = 248)**

Case Status	Ill	Not Ill	Did not meet case definition	Total
<b>Confirmed</b>	2	0	0	<b>2</b>
<b>Probable</b>	119	0	0	<b>119</b>
<b>Secondary</b>	0	0	6	<b>6</b>
<b>Not A Case</b>	0	85	36	<b>121</b>
<b>Grand Total</b>	<b>121</b>	<b>85</b>	<b>42</b>	<b>248</b>

*Note: The total number of people included in the investigation is 248 because there were 242 banquet attendees and 6 secondary cases reported*





# DCP Results

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- **28 cases from the banquet sought medical care and 3 submit stool samples (2 with RT-PCR)**
- **No hospitalizations or deaths reported**
- **5/7 - received first and second cases of lab-confirmed norovirus among banquet attendees**
- **5/8 - received first lab confirmed norovirus result from non-banquet restaurant diner (3 cases positive for RT-PCR total)**



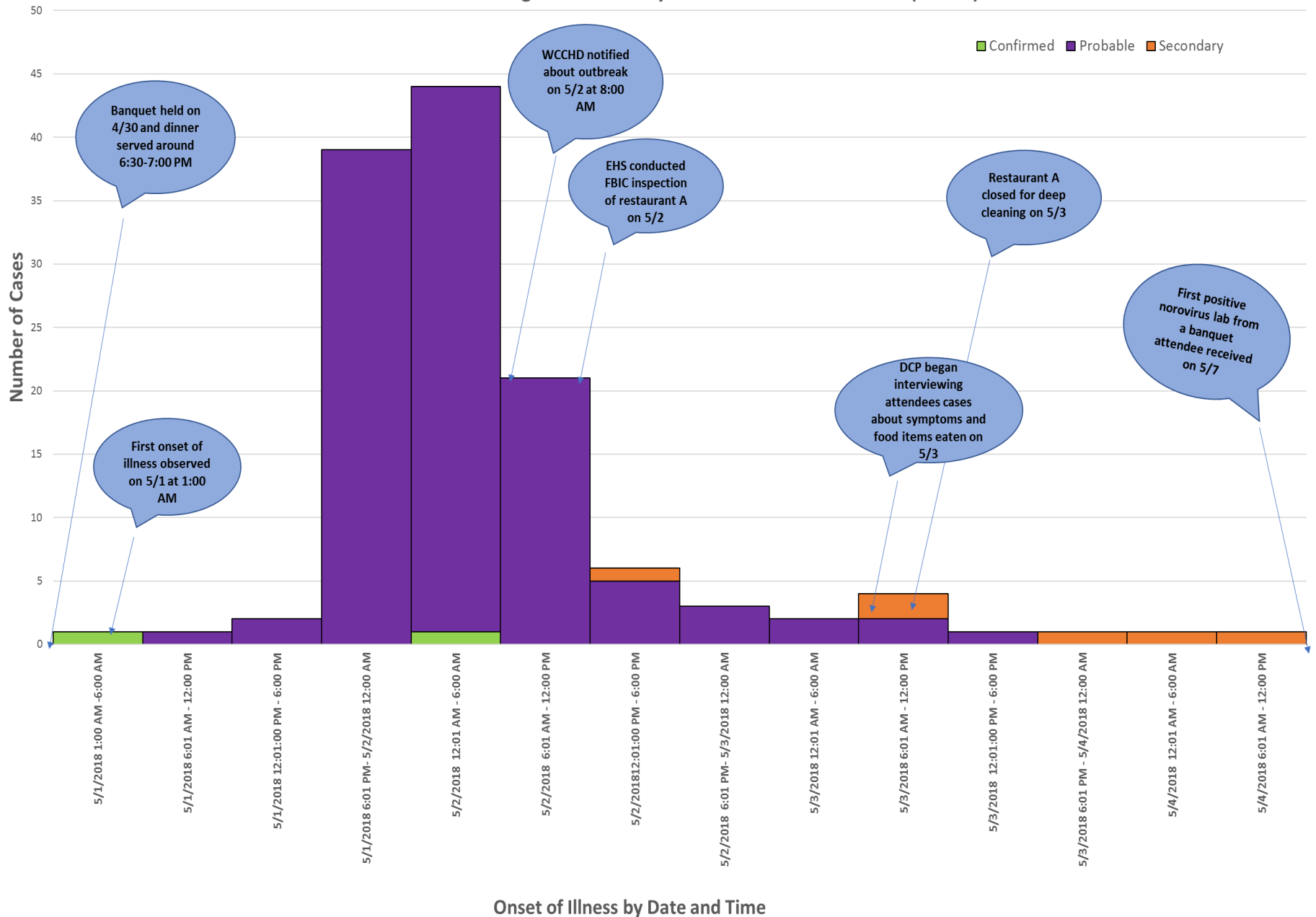
# DCP Results

**Table 2: Symptoms of Confirmed and Probable Cases (n = 121)**

Symptom	Number of Cases Reporting	Number of Cases Info Available	Percent of Cases
Nausea	110	121	90.9
Diarrhea	108	121	89.3
Vomiting	104	121	86.0
Abdominal cramps	100	118	82.6
Muscle pain	73	120	60.3
Fever	59	112	48.8
Bloody stools	3	119	2.5



Figure 1: Cases by Illness Onset Date & Time (n=127)



# DCP Results

**Table 3:  
Relative Risk  
for Foods  
Served at the  
Banquet**

Food/Drink Served	Number of Cases Reporting Consumption	Number of Cases Info Available	Relative Risk	95% Confidence Intervals	P- Values
Guacamole	114	199	1.7	1.30-2.22	0.00003
Pico de gallo	71	198	1.6	1.30-2.01	0.00004
Chicken fajita	159	198	1.5	1.01-2.14	0.03
Lettuce	76	196	1.5	1.22-1.91	0.0002
Iced tea	94	195	1.4	1.14-1.82	0.0002
Salsa	90	193	1.3	1.04-1.66	0.02
Beef fajita	166	200	1.3	0.91-1.98	0.12
Tortilla chips	167	197	1.2	0.89-1.89	0.27
Flour tortillas	178	199	1.2	0.76-1.77	0.48
Rice	150	196	1.2	0.89-1.64	0.23
Refried beans	129	198	1.1	0.87-1.42	0.45
Sautéed peppers and onions	79	196	1.1	0.85-1.34	0.66
Sour cream	65	197	1.1	0.84-1.33	0.64
Queso	159	198	1.0	0.73-1.28	1.00
Cookies	59	190	1.0	0.77-1.26	1.00
Lemon	31	195	1.0	0.66-1.33	0.81
Cheese, shredded	135	196	0.9	0.73-1.15	0.53
Cake	72	194	0.9	0.75-1.26	0.65
Ice	188	198	0.7	0.59-1.23	0.1977

# EHS Results

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- During the inspection on 5/2, EHS noted some holding temperatures were below or above recommended safe temperatures and observed incidences of inadequate handwashing by staff
- Interviewed 36 of the 60 employees (60%) for their contact information, recent GI illness, restaurant position, if anyone in their family was sick
  - 0 reported illness within 2 weeks prior to event
  - 1 employee reported an ill family member with clinically compatible symptoms



# Limitations

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- **Unable to genotype the positive RT-PCR norovirus samples to confirm they were the same strain because there was no remaining stool to forward to DSHS.**
- **Many doctors' offices only collected stool cultures and/or ova and parasite tests from ill attendees. Unfortunately, these tests do not detect norovirus and thus many of the ill individuals' stool tests came back negative for enteric pathogens**
- **Lastly, WCCHD was only able to interview 60% of the restaurant employees, so we may have missed an ill food handler or family member**



# Conclusions

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- **Outbreak of norovirus associated with a catered banquet on 4/30/18.**
- **Two of the ill banquet attendees and one individual who ate at restaurant A, but did not attend the banquet, were positive for norovirus by RT-PCR**
- **Consumption of several ready-to-eat foods, including guacamole, pico, and lettuce were significantly associated with risk of illness**
- **Poor hand hygiene at restaurant A may have contributed to the spread of norovirus at the banquet**
- **EHS provided education on proper hand hygiene practices and the importance of excluding ill employees from work while ill and 24-48 hours after symptom resolution**
- **No new cases have been reported to DCP since deep cleaning and reopening**



# Lessons Learned

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- Have an epi go out with EHS and help with questionnaire for employees
- Come up with a standardized questionnaire that can be tweaked
- Have stool kits readily available

