

**Investigation Number 2014-3203
Summary**

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Summary of outbreak 2014-3203

Background

On Wednesday, March 12, 2014 three individuals called the Deschutes County Health department with complaints of gastroenteritis (nausea, vomiting or diarrhea) following attendance at the Oregon Municipal Finance Officers Association (OMFOA) spring conference at Sunriver Resort from March 9-12, 2014. These individuals had not traveled to the conference together, nor had they stayed in the same rooms; they reported being ill on Monday or Tuesday (March 10-11). Nearly 300 individuals, mostly from Oregon but also representing several other states (Washington, California, Michigan) had registered for the four-day (Sunday – Wednesday) conference event. The conference center did not host other events during the same timeframe.

Methods

Conference organizers shared contact information and menus for the conference events and Deschutes County Environmental Health inspected the conference kitchen facilities on Thursday, March 14. Local (Oregon) health departments of conference attendees, along with state health departments (outside Oregon) of conference attendees were alerted to the outbreak investigation by the Oregon Public Health Division (which took lead of the investigation) on Friday, March 15. An electronic survey was created and sent to conference attendees via their registration email address on Monday, March 17. Specimens from two attendees who had contacted Deschutes County with the initial report of illness were collected and sent to the Oregon State Public Health Laboratory (OSPHL) by Tuesday, March 18 for identification.

Results

OSPHL positively identified the infectious agent in the two specimens as Norovirus.

Responses from the survey were unique by IP address, name and gender. None were excluded from the analysis. Responses from the survey indicated that the majority of people who became ill did so on Tuesday, March 11 (see Figure 1). Although the incubation period (distance between peaks in the epi curve) was suggestive of Norovirus (Table 1) the low proportion of ill attendees with vomiting was uncharacteristic of Norovirus. For the purposes of this analysis, attendees were classified as ill with suspect Norovirus if they reported any vomiting or diarrhea since attending the conference (26/227 respondents; Attack Rate [AR]: 11%).

We defined the first wave of illness as those who experienced illness onset 12-36 hours from the start of the pre-conference reception on Sunday (14 attendees). Exposures for these individuals were compared with exposures for individuals also in attendance Sunday and Monday, but who did not report becoming ill (192 attendees).

Attendance at pre-conference events (on- and off-site) on Sunday and at conference events on Monday were analyzed (including participation in various private parties, consumption of different food and beverage items, along with use of the conference restroom facilities). The clustering of illnesses on Tuesday and the 12-36 hour incubation period for Norovirus indicated that exposure likely happened on Sunday evening. The results of the analysis confirmed this observation: Sunday night attendees had five times the risk of being ill compared with attendees who participated in conference events beginning on Monday or later (Table 2). Additionally, most ill attendees in the first wave of the outbreak reported consuming wine or mixed drinks at the pre-conference event (12 out of 14 people who became ill). The risk of illness was 4-5 times greater for those who consumed these alcoholic beverages compared with those who didn't (see Tables 4 and 5).

After the initial wave of illnesses (Monday and Tuesday) event, the epidemiological curve indicates that subsequent waves of illness were spread person-to-person throughout the rest of the conference event.

Environmental Health inspections did not yield any violations in the kitchen facilities at the conference center; nor did any food handlers report being ill.

Discussion

Results of the analysis were inconclusive as to how people became exposed Sunday night. Although alcoholic beverages at the preconference reception were significant risk factors in the analysis, neither wine nor mixed drinks accounted for all the illnesses and no ill person had consumed both. It could be that alcoholic beverages were a marker for some other environmental exposure (for instance, use of a nearby restroom which could have been contaminated earlier by an ill patron). It's also possible that there was a contaminated food source -- perhaps contaminated with varying doses of the infectious agent -- indicating that not all who consumed the item would become ill.

Conclusion

A single smoking gun was not implicated for the spread of illness at this venue. Although two out of two specimens tested were positive for Norovirus, it's possible (due to the low proportion of attendees ill with vomiting) that another agent caused many or most of the infections. Due to the low number of people ill, the source of exposure was not identified in the investigation. Deschutes County Environmental Health was able to provide general education regarding venue set-up.

Figure 1: Epidemiology Curve of Ill Conference Attendees

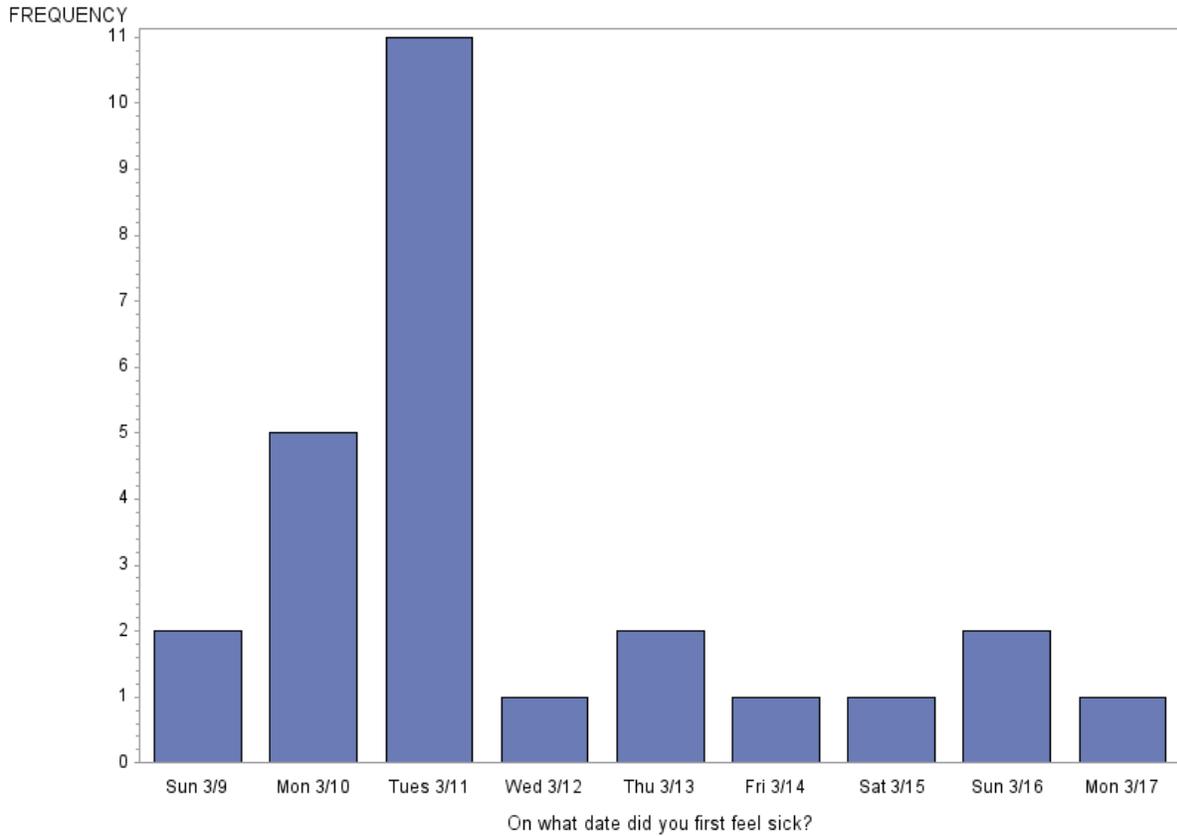


Table 1: Symptom Profile

Symptoms	Percent of ill attendees (%)
Headache	31
Nausea	66
Vomiting	17
Muscle aches	21
Abdominal cramps	48
Unusual fatigue	31
Fever	17
Shaking or chills	24
Any diarrhea or loose stools	86
3 or more loose stools or diarrhea within any 24 hour period	62
Any blood in stools	7

Table 2: Relative Risk (RR) of illness: Attendance at OMFOA Sunday pre-conference reception

Did you attend the pre-conference reception in the Sunriver Conference Hall on the evening of Sunday, March 9th?	Respondents			RR	95% CI
	Ill	Not ill	Total		
Yes	12	99	111	5.1	1.2-22.4
No	2	93	95		
Total	14	192	206		

Table 3: Relative Risk (RR) of illness: Attendance at a private event at Sunriver Resort on Sunday

Did you attend a private event or party at Sunriver Resort on the evening of Sunday, March 9th?	Respondents			RR	95% CI
	Ill	Not ill	Total		
Yes	9	42	51	5.4	1.9-15.3
No	5	147	152		
Total	14	189	203		

Table 4: Relative Risk (RR) of illness: Wine consumption at OMFOA Sunday pre-conference reception

Did you consume wine at the pre-conference reception on Sunday, March 9th?	Respondents			RR	95% CI
	Ill	Not ill	Total		
Yes	7	26	33	4.4	1.2-15.8
No	3	59	62		
Total	10	85	95		

Table 5: Relative Risk (RR) of illness: Mixed drink consumption at OMFOA Sunday pre-conference reception

Did you consume mixed drinks at the pre-conference reception on Sunday, March 9th?	Respondents			RR	95% CI
	Ill	Not ill	Total		
Yes	5	16	21	3.4	1.1-10.6
No	5	66	71		
Total	10	82	92		