

CUYAHOGA COUNTY BOARD OF HEALTH

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Surrarrer Elementary School Outbreak

An Epidemiological Analysis

January 18-29, 2024

Notification

Thursday, January 18, 2024

- Surrarrer Elementary School in Strongsville
 - 110 students & staff with gastrointestinal illness
 - Vomiting
- First onset Wednesday, January 17, evening
- Mention of a PTA-hosted toboggan event night prior
- Students continually sent home throughout the day for vomiting incidents at school

Suspected Agent

Norovirus – the “Stomach Bug”

- 19-21 million cases / year in U.S.
- Vomiting, diarrhea, nausea, stomach pain
- Highly contagious
- Incubation period: 12 to 72 hours
- Duration: <24 to 48 hours
- Spreads via contact with contaminated
 - Food
 - Water
 - Surfaces and objects
- Prevention
 - Handwashing
 - Disinfection with norovirus-effective cleaners

Timeline of Events

Monday, January 15, 2024

- Surrarrer closed for MLK Day

Tuesday, January 16, 2024

- Surrarrer open with normal operations

Wednesday, January 17, 2024

- Surrarrer closed due to weather
- PTA Toboggan Event at 8:00pm
- Suspected first case onset

Thursday, January 18, 2024

- Surrarrer open with 110 absences of 380 students, plus several staff members out
- CDIs notified
- Investigation initiated and consultation with EPH
- EPH environmental health assessment
- Approximately 20-40 more students sent home due to vomiting incidents

Friday, January 19, 2024

- Case-Control Investigation methods finalized
- Data collection begins via interviews
- Stool/vomit specimen collection kits distributed

Shaping the Questionnaire

ONSET	January 17	Need to Know
<12 Hours Prior	January 17 - Event	<ul style="list-style-type: none">• Attendance• Food history• Vomiting/diarrhea incidents & locations• Restroom use
12 Hours Prior	January 17 - School	<ul style="list-style-type: none">• Verify nobody was at school due to closure
24 Hours Prior	January 16 - School	<ul style="list-style-type: none">• Attendance• Breakfast & lunch food history• Vomiting/diarrhea incidents & locations• School transportation (buses) & numbers
48 Hours Prior	January 15 - School	<ul style="list-style-type: none">• Verify nobody was at school due to closure

Initiation of Interviews

Friday, January 19, 2024

- Lists obtained from school
 - School cooperative with requests
- Case-Control Study
 - Interviews of all associated with Surrarrer, ill or not ill
 - SurveyMonkey
 - Demographics, illness, symptoms, severity, duration, possible exposures
- Laboratory samples
 - EPH delivery of collection kits to volunteers

Questionnaire Responses

420 contacted for interview

484 responses received

125
incomplete or
duplicate

359 final responses

81.2%
response
rate

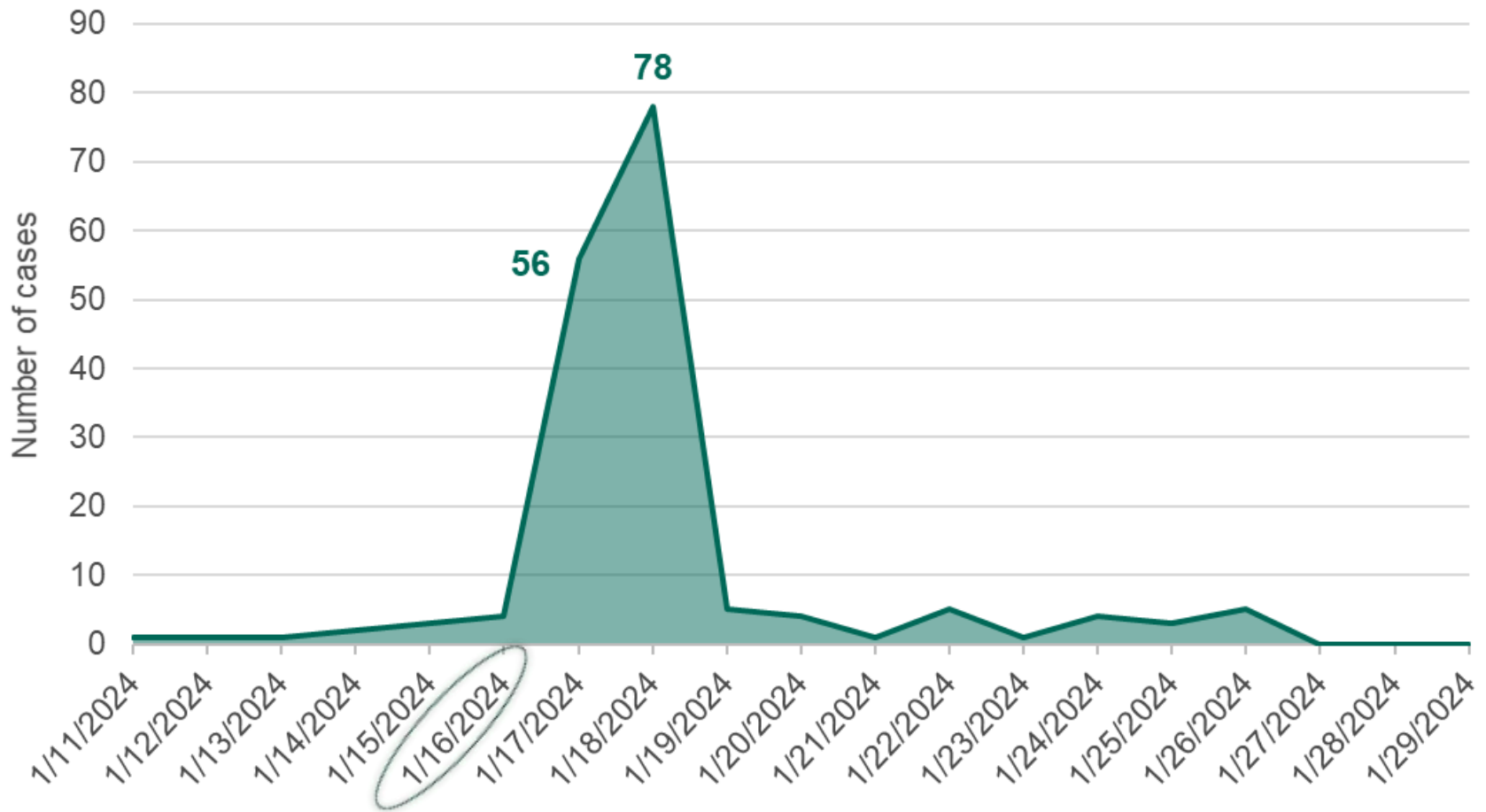
74.2%
completion
rate

17
more
cases
reported
the
following
week

Table 1. Illness attack rates by demographics

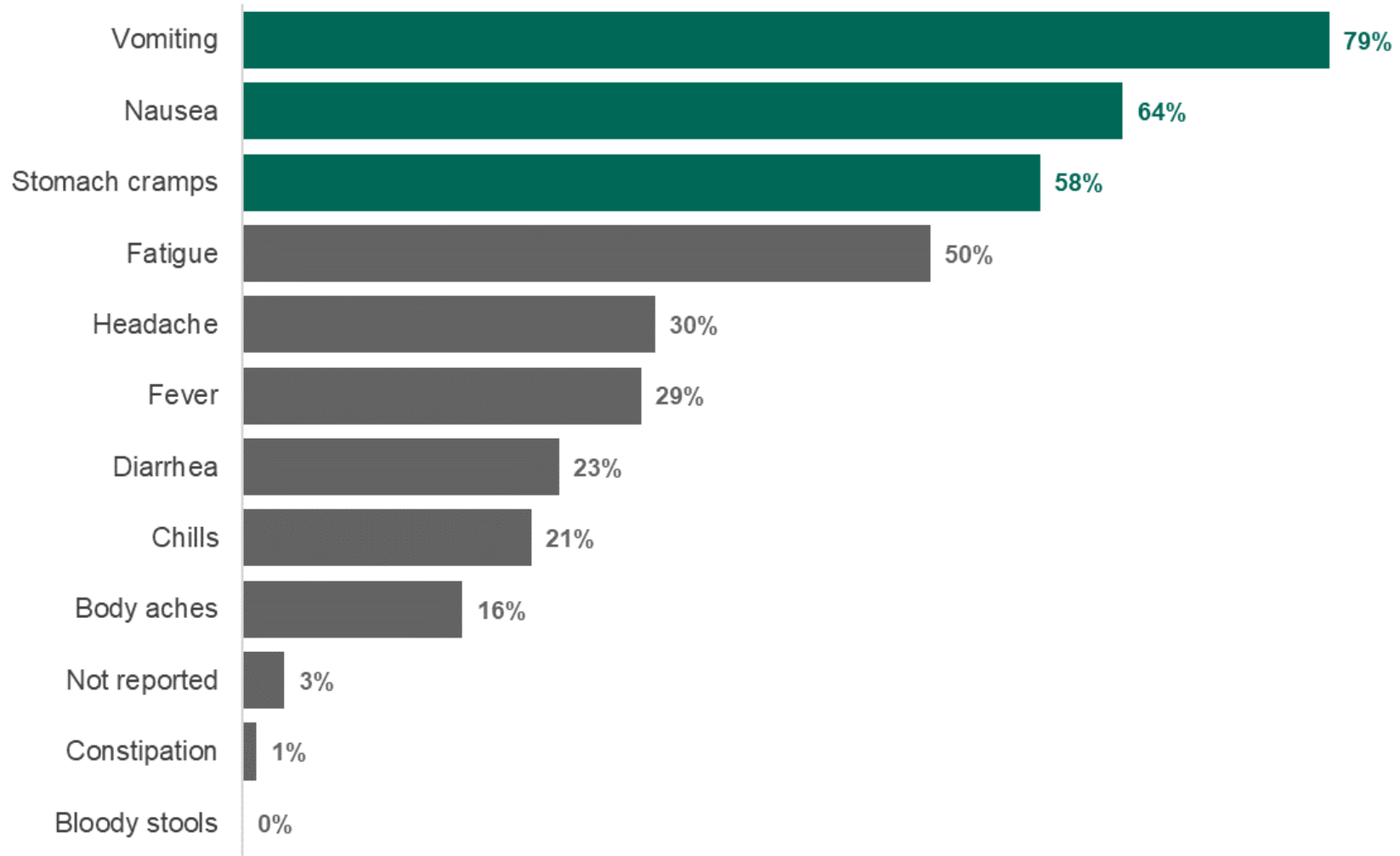
	Ill	Not ill	Total	Attack Rate
	<i>n</i>	<i>n</i>	<i>n</i>	%
Total	175	201	376	46.5
Student	159	154	313	50.8
Staff	12	34	46	26.1
Parent/Guardian	3	9	12	25.0
Sibling	1	4	5	20.0
Male	91	97	188	48.4
Female	78	103	181	43.1
Unknown	6	1	7	85.7
5-9 years	108	106	214	50.5
10-17 years	32	50	82	39.0
18-49 years	6	26	32	18.8
50-64 years	6	13	19	31.6
65-74 years	0	1	1	0.0
Unknown	22	5	27	81.5
White	137	166	303	45.2
Black/African American	3	4	7	42.9
Asian/Asian American	7	14	21	33.3
American Indian/Alaska Native	0	3	3	0.0
Native Hawaiian/Pacific Islander	0	0	0	0.0
Other	6	12	18	33.3
Hispanic	9	10	19	47.4
Non-Hispanic	145	189	334	43.4

Most (134) cases became ill on Wednesday (1/17) and Thursday (1/18).



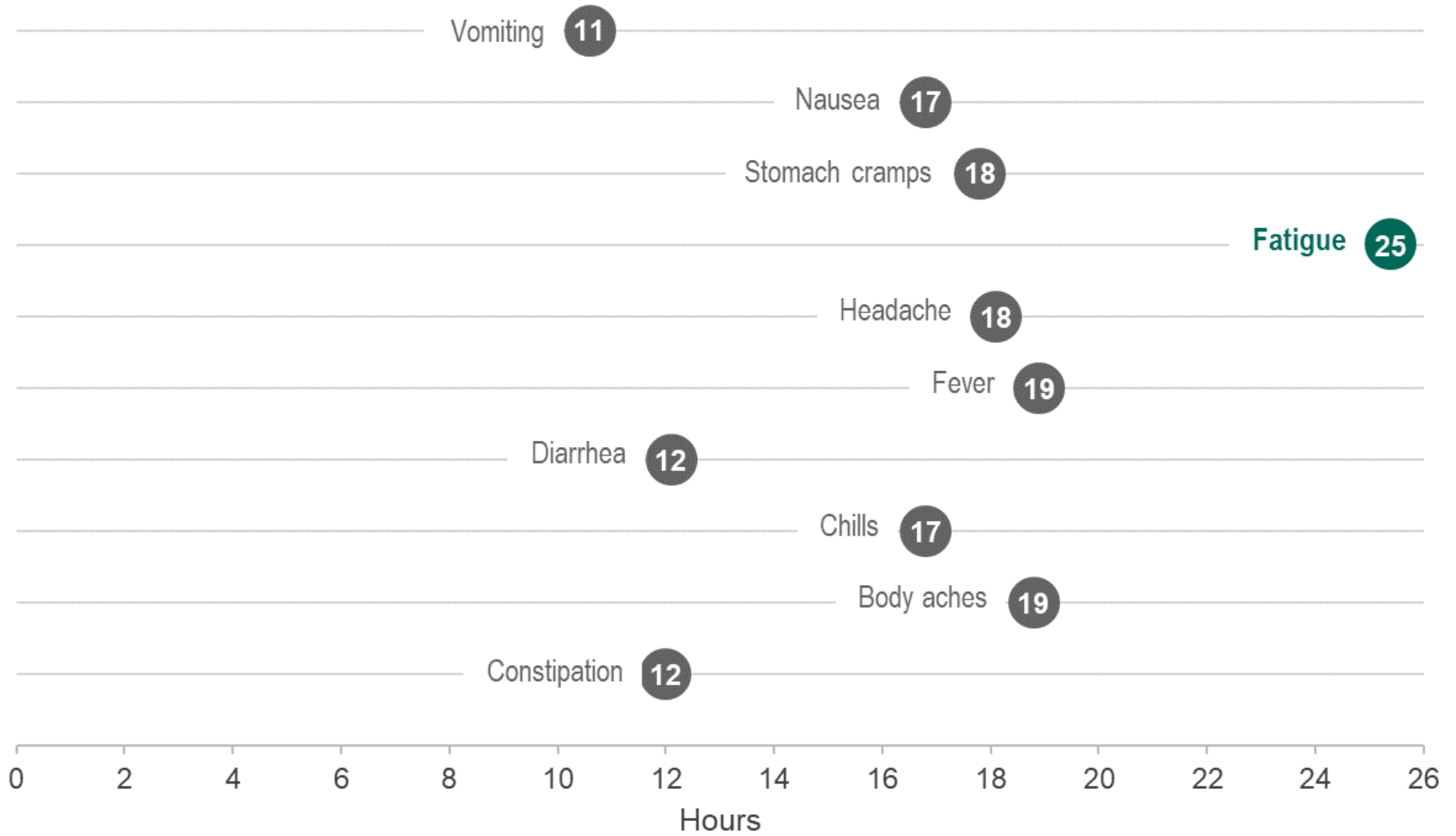
Given that the norovirus incubation period is typically 12-48 hours, the epidemiological curve suggests Tuesday (1/16) was the primary exposure date.

Those who became ill mostly experienced **vomiting, nausea, and stomach cramps.**

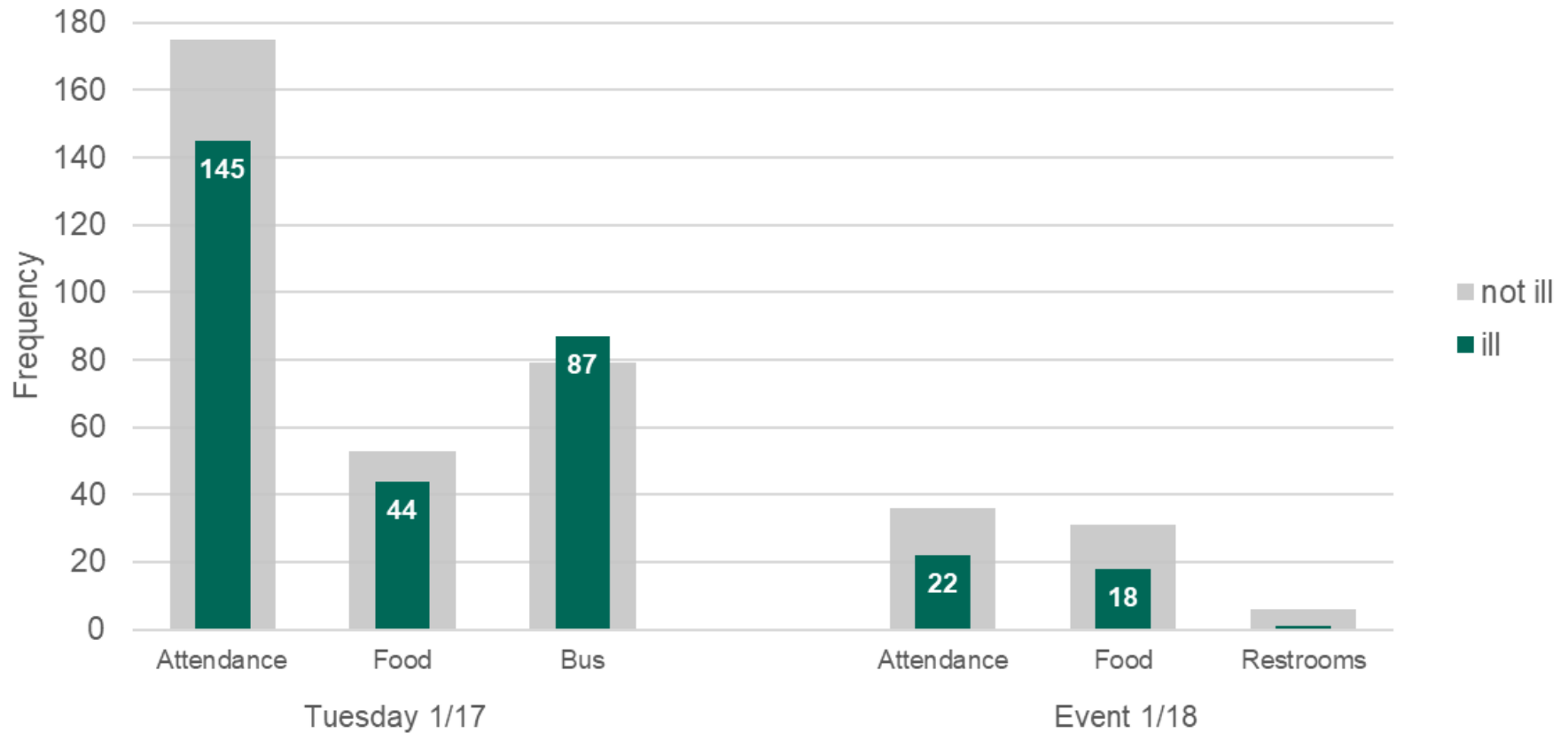


Fatigue lasted the longest, while other symptoms ranged from 11-19 hours.

Average duration of symptoms: 17 hours

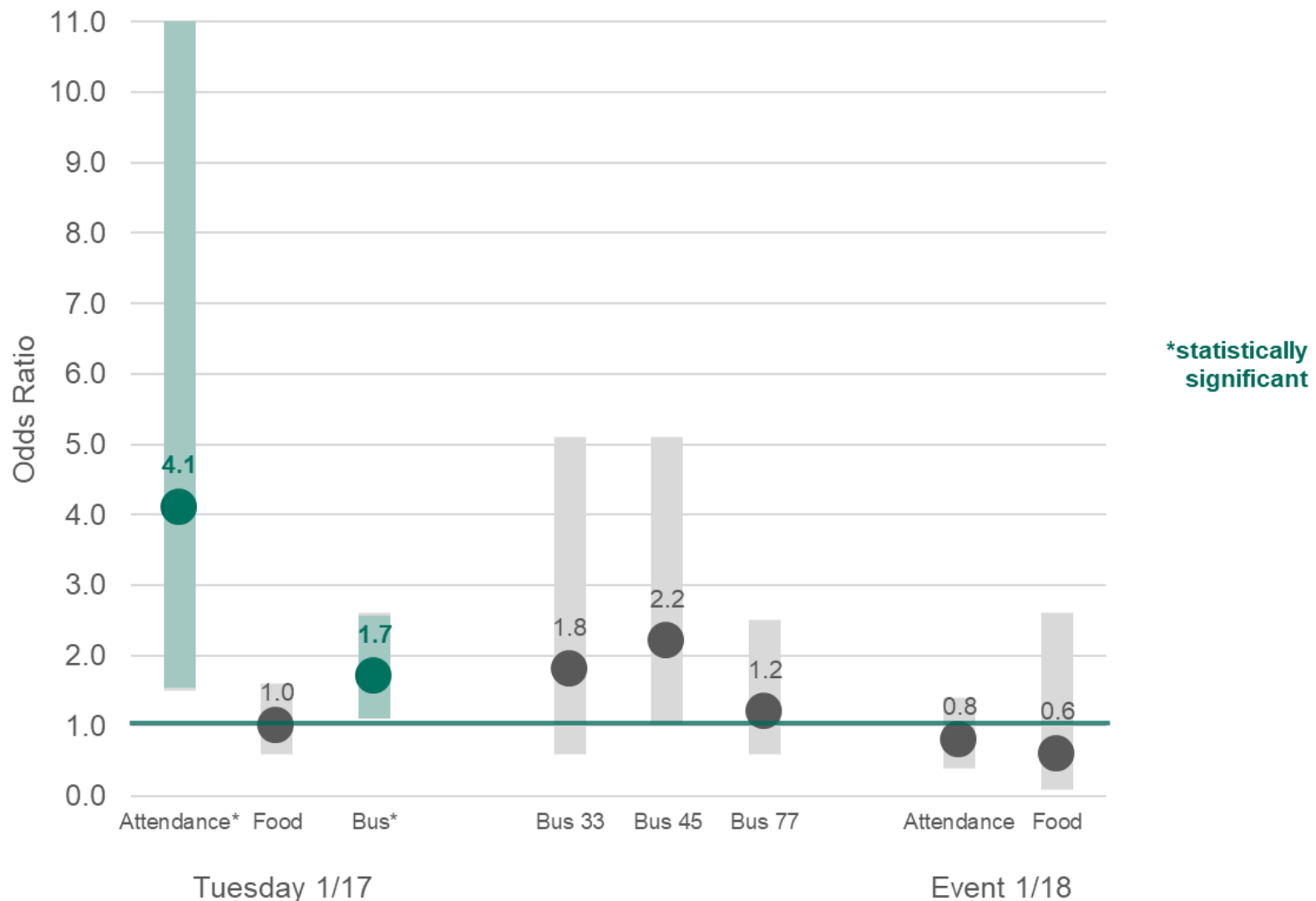


More people who were exposed to the **school** or **bus** on **Tuesday** became ill compared to those with other exposures.



*Dataset does not control for confounding factors. Cases may have had multiple exposures.

Those who attended school on Tuesday were **4 times** more likely to become ill than those who did not.



Additional Comments

7 mentions of the bus 4 mentions of bus #45	<ul style="list-style-type: none">• <i>A lot of kids that were sick were on bus 45.</i>• <i>3 of my 5 students absent on Thursday rode bus 45.</i>• <i>[A student] got sick on the bus, bus #45.</i>
16 respondents witnessed somebody become ill with vomiting or diarrhea on Tuesday.	<ul style="list-style-type: none">• <i>Outside while getting off the bus [respondent] witnessed [a student] vomiting by the flag pole.</i>
8 mentions of various other activities outside of school	<ul style="list-style-type: none">• <i>Kids were getting together outside of school on the snow day (Wednesday).</i>• <i>[Respondent] attended home day care with other Surrarrer students on Tuesday morning.</i>

Environmental Health Findings

Investigators: Tara Hanchar and Ashley Ruminski

- Recently switched to a disinfectant not effective against norovirus
- Bodily fluid cleanup procedures potentially increased spread of virus
 - Vomiting done in trashcans that were carried out and not disinfected after use
- Students responsible for wiping down cafeteria tables after lunch
 - Inability to ensure sufficient disinfection of tables
- Buses shared throughout the district

Laboratory Sample Findings

- 32 respondents volunteered to submit a stool or vomit sample to CCBH for laboratory testing
- Kits dropped off at homes by EPH on Friday (1/19) and Tuesday (1/23)
- 4 samples were sent to ODH enteric laboratory
- All 4 came back positive for Norovirus Genogroup 2, subtype P8

Conclusions

- Primary exposures on Tuesday (1/16) due to vomiting incidences
 - **Buses**
 - Front doors
 - Cafeteria
 - Flag pole
 - Hallway(s)
 - Classrooms
- Secondary spread likely occurred at school Thursday (1/18) and in households

Recommendations

- Immediate: disinfection of entire school, buses, and other district schools
- Encouragement of proper hand hygiene
- Using an approved norovirus-effective disinfectant, especially for bodily fluid cleanup
- Adjustments to bodily fluid cleanup procedures

Special Thanks

CDIs: Dedonte Cheatham, Kiley Findley, Blaise Soberano

Jennifer Barno

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Heather Grisez

Megan Mementowski

Kathy Schoch

Brooke Biedron

Jeff Hanchar

Kenya Moyers

Gerald Scott

Margaret Case

Tara Hanchar

Thomas Murach

Samantha Smith

Fallon Carl

Matt Johnson

Jackie Napolitano

John Sobolewski

Brian Carroll

Christine Kang

Rick Novickis

Stephanie Sutila

Priscilla Clark

Amelia Kaylor

Vinothini Panakkal

Zenobia Tayeb

Harrison Cohn

Stacey Koltas

Savannah Porter

Dane Tussel

Elisa DeRose

Natalie Kracker

Yancey Quinn

Joyous Van Meter

Thomas Fink

Caroline Lambrix

Ashley Ruminski

Scott Zele

Takisha Fuller

Elizabeth Ludtke

Jana Rush

Questions?

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