Surviving Norovirus Investigations
A Puking Primer
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What do I do?
Role in Norovirus Outbreaks

• **ROLE**
  - Testing is directed by epidemiology
    – Correct most of the time

• **RESPONSIBILITY**
  - Results in <5 hours, reflex to culture if needed
  - Sequencing complete within 7 days

• OSC
Future Role

- Complete validation of Astro / Sapo assay
- 2 additional microbiologists “cert-ready”
- Figure out new workflow with CIDT – Example, BioFire noro result only, not GI / GII
- “Tweak” norovirus awareness project
  – bumper sticker idea not doing well in focus groups
Teamwork

- Laboratory
- Epidemiology
- Environmental Health
Norovirus Outbreaks in Wisconsin

Traci DeSalvo, MPH
Epidemiologist
Wisconsin Department of Health Services
Division of Public Health
Public Health in Wisconsin

- Population: 5,726,398
- Home-rule state
- 99 Local and Tribal Health Departments
- 5 Public Health Regions
- Wisconsin Division of Public Health (DPH)
Norovirus Outbreaks in Wisconsin

Setting of confirmed norovirus outbreaks, Wisconsin, 2012
- LTCF: 74%
- Restaurant/Caterer: 5%
- School: 6%
- Camp/Youth Recreation: 3%
- Private Home: 3%
- Other: 9%

Primary mode of transmission of confirmed norovirus outbreaks, Wisconsin, 2012
- Person-to-Person: 86%
- Food: 2%
- Water: 3%
- Indeterminate/Other/Unknown: 1%
- Environmental Contamination: 8%
Partnerships for Investigating Norovirus Outbreaks

Epidemiology

DPH – Communicable Disease Epidemiology Section (CDES)
Local Health Departments and Tribes (LHDs)

Environmental Health

DPH – Food Safety and Recreational Licensing (FSRL)
Local Health Departments and Tribes
Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP)

Laboratory

Wisconsin State Laboratory of Hygiene (WSLH) – Virology
Partnerships for Investigating Norovirus Outbreaks

- Provide consultation and technical assistance
- Coordinate investigations when outbreaks are multi-county, multi-state, or beyond the capacity of a LHD
- Authorize testing through the WSLH
- Provide surge capacity for interviewing and data entry (SOS Team)
- Conduct data analysis and prepare final reports
- Submit reports to CDC-National Outbreak Reporting System
Partnerships for Investigating Norovirus Outbreaks

• Compile initial investigation information and coordinate with CDES
• Facilitate collection and submission of clinical specimens
• Conduct interviews and case finding
• Provide education, exclusions from high-risk settings, and other interventions
• Compile line list
Partnerships for Investigating Norovirus Outbreaks

• Provide courier service and specimen collection materials to clinical laboratories and LHDs
• Conduct Norovirus PCR on all outbreak samples
• Sequence positive samples from each outbreak
• Upload sequences to CaliciNet
Partnerships for Investigating Norovirus Outbreaks

Environmental Health

• Coordinate environmental investigation
• Conduct the onsite assessment
  – Interview operator and food handlers
  – Collect samples as appropriate
• Identify contributing factors for the outbreak
Partnerships for Investigating Norovirus Outbreaks

- License and inspect retail food establishments
  - Grocery and convenience stores, bakeries, coffee shops, etc.
- Regulate food and drink manufactured or produced in Wisconsin
- Conduct product traceback during outbreak investigations

- License and inspect restaurants and taverns
- Also schools, campgrounds, tattoo parlors, hotels, pools, etc.
Partnerships for Investigating Norovirus Outbreaks

Epidemiology

Environmental Health

Laboratory
BRIAN COLLINS, MS, REHS, DAAS
DIRECTOR OF ENVIRONMENTAL HEALTH
CITY OF PLANO, TEXAS
CDC INFORM
NOVEMBER 2013
SAN ANTONIO, TEXAS
MISSION:

Provide outstanding citizen services in environmental/public health, sustainability and animal control that provide wellness and prevent disease and pollution in our community.
City of Plano is a Texas “home rule” entity with a “health authority” and “health official”.

MOU with Collin County Health Services

Provide prevention, control and mitigation of certain communicable diseases including norovirus.
PLANO ENVIRONMENTAL HEALTH

PROVIDES:

- Prevention/control/education
- Environmental assessments (pre-post event)
- Inspection services (routine)
- Initial environmental/epi
- Investigation
- Advisement/consultation for prevention/mitigation (post incidence)
- Post event hotwashreview
- Liaison with collin county epi/lab
COLLIN COUNTY PROVIDES

• Medical communication (HIPPA)
• Initial reports/forms
• Lab support
• Epidemiological (macro) overview
WATERTON IN PLANO NOROVIRUS

- Assisted and independent living center
- 60 of 140 residents ill (42.9%)
- 9 of 50 staff ill (18.0%)
- Confirmed norovirus via patient labs
- Initial contact 11/07/12
  Case closed 11/15/12
QUESTIONS ???

BRIAN COLLINS
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THANK YOU!
A few days before Thanksgiving...
Time to shop for all the essentials.
What are the typical norovirus symptoms?

A. Sneezing, coughing, headaches
B. Vomiting, diarrhea, nausea, and feeling like you are going to die
C. Fever, skin rash, body and muscle aches
D. Fever, headache, stiff neck, nausea and vomiting
This image is a poll’s place holder. Enter slide show mode (F5) to view your live poll.

You can resize this image to resize where your poll will load in slide show mode.

Make sure you’ve installed the PollEv Presenter app (pollev.com/app) and are connected to the internet!

If you need to duplicate this poll make sure to copy/paste the entire slide (not just the place holder image).
Nausea sudden takes a nasty turn...
What is the infectious dose of norovirus?

A. <20 particles
B. 50-100 particles
C. 100-1000 particles
D. >1000 particles
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Sick and embarrassed she leaves the store immediately.
Store maintenance is paged to clean the mess.
What should be in the mop bucket to clean up the vomit?

A. Soap
B. Ammonia
C. Bleach
D. Hot Water
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Who has been exposed?

Who could be exposed?
How far can vomit travel?

A. Up to 2 feet
B. Up to 8 feet
C. Up to 10 feet
D. Not as far as I can run
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Day before Thanksgiving

preparing food for the Homeless Holiday event
Thanksgiving Day
And elected officials were there, too....
What is the incubation period for norovirus?

A. 12-48 hours
B. 3-5 days
C. 4-7 days
D. >7 days
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Holiday Travel
Two Days after Thanksgiving

How is the Health Department notified?
What is Kaplan’s Criteria

A. Incubation period of 24-48 hours
B. Illness lasting 12-60 hours
C. More than 50% of people with vomiting
D. All of the above
E. Who is Kaplan?
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When should samples be collected for norovirus testing?

A. 48-72 hours after onset
B. 5-7 days after onset
C. 10-14 days after onset
D. Never, who wants to collect stool or vomit samples
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Phylogenetic Tree

Key

2013-SP-0066
2013-SP-0067
GII_5_Hillingdon_GBR90
2013-SP-0230
2013-SP-0246
2013-SP-0247
2013-SP-0248
2013-SP-0249
2013-SP-0250
GII_5_Hokkaido133_JPN03
GII_10_Erfurt546_DEU00

OutbreakDate
2013-09-01
2013-09-01
2013-11-24
2013-11-28
2013-11-28
2013-11-28
2013-11-28
2013-11-28
2013-11-28

Unrelated September Outbreak
Person 1
Thanksgiving Event Participants
Grocery Store employee travels back home...

Crappiest flight ever: 26 passengers with gastroenteritis make 13 hour flight a living hell

From NEWS.COM.AU
Last Updated: 3:33 PM, August 1, 2013
Posted: 10:57 AM, August 1, 2013

Thirteen hours in the air, eight toilets and 26 passengers violently ill with gastroenteritis.

That was the scene when an international flight became the trip from hell after 26 passengers fell sick during a Qantas flight.
How can Lab, Epi, EH
Keep this outbreak from spreading?
When does the media get involved?

How does this shape response?
Options for preventing spread

Clean-up and Disinfection for Norovirus ("Stomach Bug")

These directions should be used to respond to any vomiting or diarrhea accident.

1. **Clean up**
   - Remove soiled or stained clothing right away!
   - Shield protective clothing, such as disposable gloves, apron and/or mask, wipe-up vomit/diarrhea with paper towel and throw away.
   - Clean soiled clothing in hot water with detergent.
   - Place soiled clothing in a tightly sealed plastic bag.
   - Disinfect all soiled surfaces with bleach.
   - Wash your hands with soap and water.

2. **Disinfect surfaces by applying a chlorine bleach solution**
   - Wear rubber gloves or equivalent protection when handling. Chlorine bleach may irritate sensitive skin.
   - Prepare a chlorine bleach solution:
     - Mix 1/2 cup of bleach with 1 gallon of water.

3. **Wash your hands thoroughly with soap and water**
   - Hand washing may not be effective against norovirus.

**Facts about Norovirus**
- Norovirus is a leading cause of disease worldwide.
- Symptoms may include nausea, vomiting, diarrhea, fever, and stomach cramps.
- Norovirus is spread by contact with contaminated surfaces or through respiratory droplets from coughing or sneezing.
- Norovirus infections can occur in outbreaks or in clusters in schools, day care centers, and hospitals.
- Norovirus can be transmitted by food, water, or person-to-person contact.

disinfect-for-health.org

Scientific review from the U.S. Centers for Disease Control and Prevention (CDC) used to develop this guide.
For more information on norovirus prevention, please visit http://www.cdc.gov/norovirus/prevention/index.html.
Norovirus in One Minute
Everyone reach down and pick up one or two pom-poms... unless you wish to take home a souvenir.
NOROVIRUS
ONLY 20
VOMITING
DAYS TO
CHRISTMAS