

Norovirus Infection & Initial Steps to Take for Diarrheal Outbreaks in Nursing Homes

Outbreak Training

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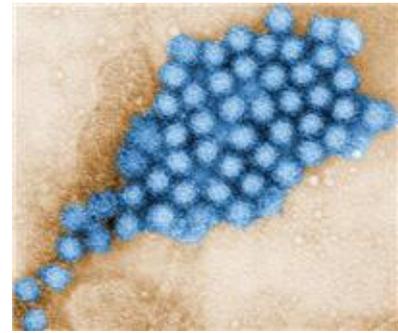
WVDHHR-BPH-Division of Infectious Disease Epidemiology

304-558-5358 or 800-423-1271

Objectives

- Epidemiologic Info on Norovirus
- Steps to take in a diarrheal outbreak
- Difference between point source and person to person outbreaks

Norovirus



- A group of viruses that cause gastroenteritis
 - Belong to the family Caliciviridae
 - 5 genogroups which are further divided into at least 34 genotypes
- The most common cause of acute gastroenteritis and gastroenteritis outbreaks
 - Human disease primarily is caused by GI and GII, with most outbreaks caused by GII.4 strains
- Can affect nearly everyone in the population

Clinical Disease

- Infectious dose: 18-1000 viral particles
- Incubation period: 12-48 hrs
- Acute-onset vomiting and/or diarrhea
 - Watery, non-bloody stools
 - Abdominal cramps, nausea, low-grade fever
 - 30% infections asymptomatic
- Most recover after 12-72 hrs
 - Up to 10% need hospitalization and fluid therapy
 - More severe illness and death possible in elderly and immunocompromised

Viral Shedding

- Primarily in stool, but can also be present in vomitus
- Peaks 4 days after exposure
- May occur for at least 2-3 wks
- May occur after symptoms stop
- Occurs in asymptomatic individuals, but role in transmission is unknown

Immunity to Norovirus

- Short-term after infection
- There is little cross protective immunity (against different genotypes)
- No long-term protection
 - Lasts from few months to one year

Transmission of Disease

- Person to person
 - Direct fecal-oral
 - Ingestion of aerosolized vomitus
 - Indirect via fomites (inanimate object) or contaminated environment
- Food
- Recreational and Drinking Water

In healthcare, the most likely and common modes of transmission are through direct contact with infected persons or contaminated equipment

New Strain of Norovirus

- In 2012, a new strain of norovirus was detected in Australia.
 - Called GII.4 Sydney.
- Affected people in the U.S. and other countries as well
- New GII.4 strains emerge every 2–3 years
 - Often, but not always, leads to increased outbreak activity

Prevention

- Practice good hand hygiene
 - Before eating or preparing food
 - After using the toilet and changing diapers
- Do not prepare food while ill
- Wash fruits and vegetables
- Cook oysters and other shellfish thoroughly before eating
- Clean and disinfect contaminated surfaces

B R E A K

Some things to think about...

- How is the clinical presentation of Norovirus different from what you heard about *C.diff* ?
- How could you tell the difference between a Norovirus or *C.diff* outbreak in a LTCF?

15 MINUTE BREAK

Initial Steps to Investigating a Diarrheal Outbreak in a Long Term Care Facility

Before an Outbreak Occurs Be Prepared!

- Know how to obtain additional resources
- Be educated on clinical features of diarrheal illnesses and the specific factors that contribute to these illnesses – stay current!
- Establish a system for intake and review of complaints and illness reports
- Know your baseline- How many of these do we “normally” get?

When you get the initial report of a diarrheal illness outbreak...

- Create a line list
 - Name and demographics
 - Type of symptoms
 - Date/Time of symptom onset
 - Date/Time recovered

Line Listing...Important tips

- Include ALL ill persons...staff members too!
- Complete for the duration of the outbreak
 - No new cases for 48 hours

Do I really need a line list?

When do you need it?

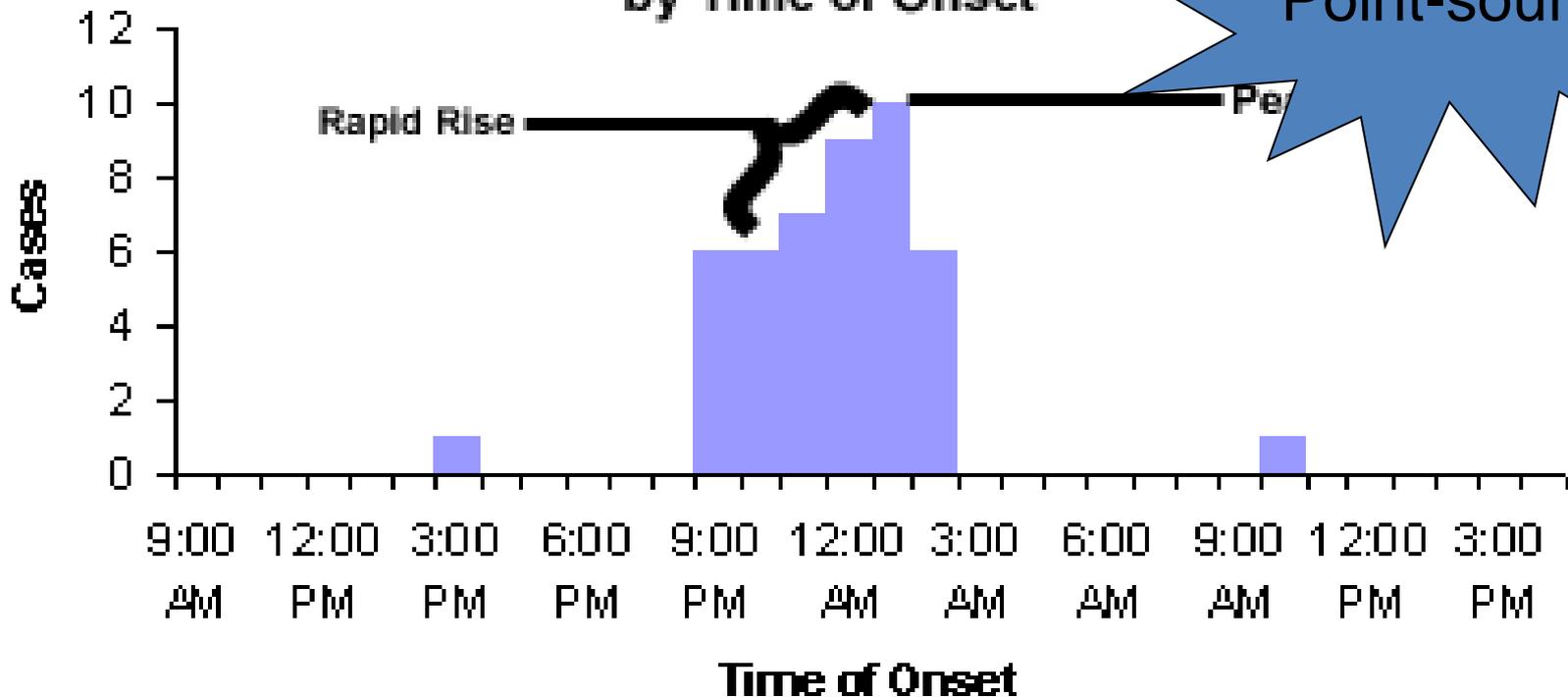
What is the line list used for anyway?

Your best friend...the Line List

- Earlier the better
- Make an epi-curve
 - Determine the mode of transmission
 - Point source
 - Person to person
- Allows you track the progress of outbreak

What does this epi-curve tell you about the outbreak?

Cases of Gastrointestinal Illness
by Time of Onset



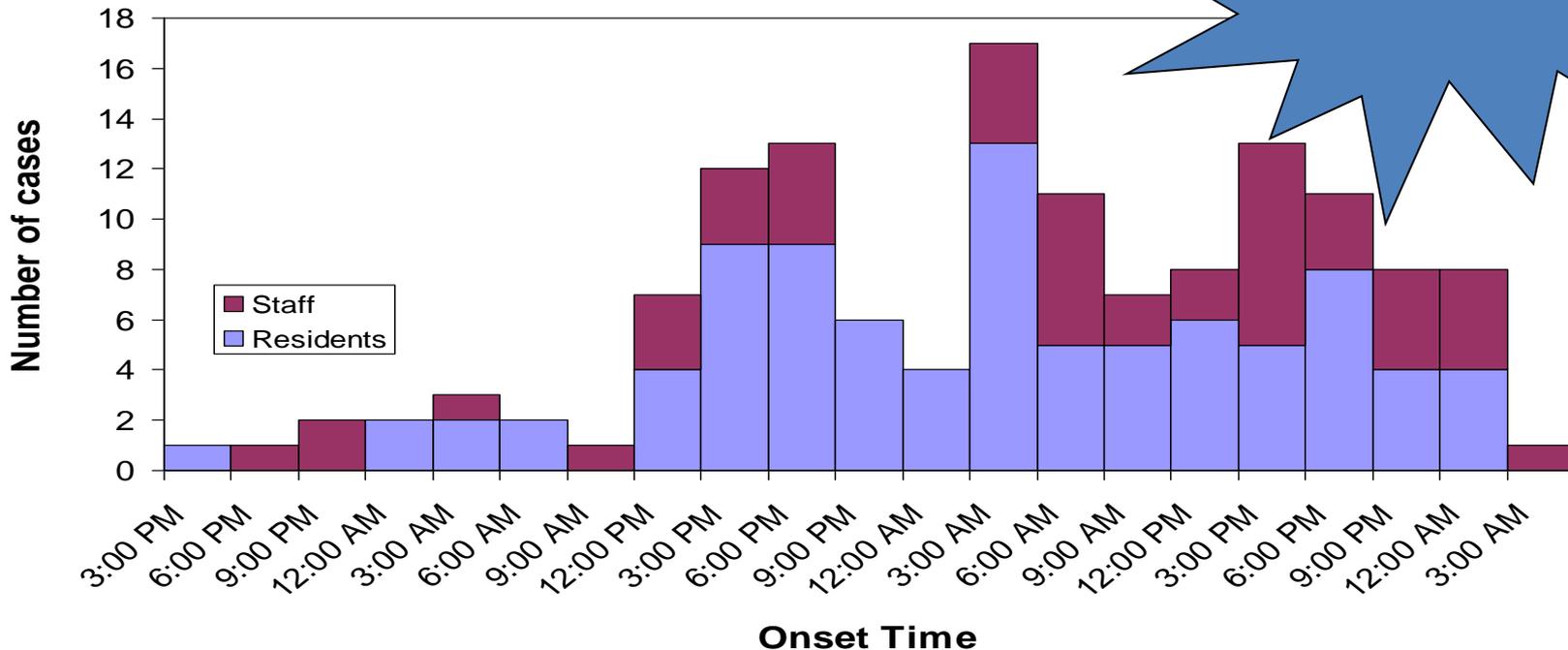
If you appear to have a point-source outbreak...

- Question cases about activities within the previous 48 hours
- Obtain a 72 hour food history from cases
- Conduct an environmental assessment of food preparation facilities
- Find out if any ill staff work in food preparation or delivery

Look for a common link between the cases

What does this epi-curve tell you about the outbreak?

Gastroenteritis in Nursing Home



Person-to-Person

Defining the outbreak...

- Case Definition (McGeer's):
 - 2 or more episodes of vomiting or 3 or more episodes of diarrhea in a 24 hour period
- Outbreak Definition:
 - Onset of 2 or more cases within a 3 day period

Control Measures

- Contact precautions
 - All symptomatic residents
 - 48hrs after symptoms resolve
- Meticulous hand hygiene
- Patients in private room (when possible)
 - Cohort ill and separate from non-ill
- Exclude ill staff members for minimum of 48hrs after symptoms resolve

Control Measures (cont)

- Minimize patient movements within a ward or unit
 - Consider restricting symptomatic and recovering patients from leaving the patient care area unless for essential care/treatment
- Suspend group activities for the duration of the outbreak
- Consider the closure of affected wards to new admissions or transfers

Control Measures (cont)

- Increase frequency of cleaning/disinfection of patient care areas and high touch surfaces
 - Use commercial cleaning and disinfections products registered with the US EPA as effective against Norovirus.

http://www.epa.gov/oppad001/list_g_norovirus.pdf

Environmental Cleaning Details

- Clean surfaces with detergent to remove particulate matter, then disinfect
- 1:10 solution of hypochlorite (bleach) to water is the preferred disinfectant when the setting and/or item to be cleaned allows it
- Increase the frequency of cleaning and disinfection of patient care areas and frequently touched surfaces
- Use disposable patient items whenever possible

Norovirus Toolkit for Healthcare Facilities-Attachment Environmental Cleaning Recommendations

*(Recommendations are for increased environmental cleaning **during** a norovirus outbreak, and are not intended as routine cleaning procedures)*

- Clean surfaces with detergent to remove particulate matter, then disinfect with hospital-approved disinfectant that is EPA registered with activity against norovirus. List is available at: http://www.epa.gov/oppad001/list_g_norovirus.pdf. A 1:10 solution of hypochlorite (bleach) to water is the preferred disinfectant when the setting and/or item to be cleaned allows it.
- Increase the frequency of cleaning and disinfection of patient care areas and frequently touched surfaces
 - Disinfect all high-touch surfaces (e.g., doorknobs, light switches, tables, counter tops, computer keyboard frequently (every shift and whenever visibly soiled) with a solution of 1:10 hypochlorite (bleach) to water
 - Clean bathrooms every shift and anytime visibly soiled, with special attention to toilets and fixtures
 - Clean common areas and staff rooms, including refrigerators and freezers on a regular schedule and anytime visibly soiled
 - Clean rooms every 24 hours and on patient discharge
- Use disposable patient items whenever possible. When disposable items are not available, clean and disinfect shared equipment between patients using EPA-registered products with activity against norovirus. Follow the product's manufacturer's guidelines for application and contact times.
- Clean and disinfect surfaces that are less likely to be contaminated first (e.g. tray tables, countertops), then move to areas of higher contamination (e.g. toilets, bathroom fixtures)
 - Clean rooms of symptomatic patients **LAST!** After all other rooms have been cleaned
 - Ensure the mop head and solution are changed after cleaning rooms of infected patients
 - Clean floors with an approved disinfectant and change solution and mop head every 3 hours
- Change privacy curtains if soiled or contaminated and after discharge of patient. Launder according to usual procedures. Use standard precautions and appropriate PPE (e.g. gloves and gowns) to handled soiled linens.
- Remove all supplies from a room before an infected patient is housed in the room; any supplies left in these rooms after the infected patient's release should be discarded. All unused linens in the room after patient's discharge should be laundered according to usual practices.

References: Said, M et al. Gastrointestinal Flu: Norovirus in Health Care and Long-Term Care Facilities. *Clinical Infectious Diseases* 2008; 47:1202-8
CDC/HICPAC. *Guideline for the Prevention and Control of Norovirus Gastroenteritis Outbreaks in Healthcare Settings*, 2011.

Rev: Jan 2013

Collection of Specimens

- Testing available at OLS
 - For outbreak confirmation only
- Discuss need for testing with DIDE
- Collect 5 -10 stool specimens
 - Submit in a labeled, clean (preferably sterile) container
 - Needs to be refrigerated
- Include outbreak number on submission form

Guidelines for collection and shipment are available at:
<http://www.wvdhhr.org/labservices>

Follow up & Closing the Outbreak

- Schedule times to check in with the facility
- Adjust control measures if necessary
- Outbreak considered over when there have been no new cases for 48 hours
 - Use Person-to-person outbreak reporting form (submit to DIDE within 30 days of OB closure)

www.dide.wv.gov



Office of Epidemiology & Prevention Services

OEPS

STD, HIV, Hepatitis

Cancer Epidemiology

Immunization Services

Infectious Disease Epidemiology

Needlestick Injury Prevention

Hemophilia

Tuberculosis Elimination



[f](#) [t](#) DHHR | BPH | Text size [A](#) [A](#) [A](#)

A to Z List of Diseases

Resources For Reporting Diseases

Food and Water-borne Diseases

Healthcare Associated Infections

Influenza

Invasive Bacterial and Vaccine Preventable Diseases

Outbreaks

Zoonotic Diseases

WVEDSS

WV Law Related To Reporting and Confidentiality

WV Reportable Disease Manual

DHHR > Office of Epidemiology and Prevention Services > Infectious Disease Epidemiology > Food and Water-borne Diseases > Viral Diseases > Norovirus

Norovirus

Reporting Guidelines

- Report outbreaks immediately to local health department

Norovirus Outbreak Toolkit for Healthcare Facilities (HCF)

- Guidelines for Suspected Norovirus Outbreaks in a Healthcare Facility **UPDATED**
- Norovirus GI Outbreak Linelisting for HCF [Excel Download](#)
- Office of Laboratory Services Collection and Transportation Guidelines for Norovirus Specimens
- Environmental Cleaning Recommendations
- CDC Norovirus in Healthcare Facilities Fact Sheet
- Outbreak Reporting Form

Outbreak Toolkit for School or General Settings

- Guidelines for Suspect Norovirus Outbreak in Schools or General Settings
- Outbreak Linelist for General Settings [Excel Download](#)
- Office of Laboratory Services Collection and Transportation Guidelines for Norovirus Specimens
- Environmental Cleaning Recommendations
- Outbreak Reporting Form

General Information

Guidelines for Suspected Norovirus Outbreaks in Healthcare Facilities

Define the outbreak...

Case Definition: 2 or more episodes of vomiting or 3 or more episodes of diarrhea in a 24 hour period

Outbreak Definition: Onset of 2 or more cases within in a 3 day period

When you have an outbreak...

1. Begin a line listing of ill persons (including staff and residents)
 - Complete for the duration of the outbreak (until you have no new cases for 48 hours)
 - Use the line listing to track the progress of the outbreak and to adjust your control measures.
 - An example can be found at following website: <http://www.dhhr.wv.gov/oeps/disease/ob/Pages/norovirustoolkit.aspx>
2. Implement appropriate control measures (see below)
3. Report the outbreak to your local health department and stay in touch throughout the outbreak.
4. Collect specimens
 - Discuss the need for testing with your local health department or Infectious Disease Epidemiology Division.
 - If you collect specimens, we recommend collecting 5-10 stool specimens from recently ill persons. Information on collection and shipment can be found on the Office of Laboratory Services website. (http://www.wvdhhr.org/labservices/shared/docs/Micro/Collection_and_Transport_Guidelines_for_Noroviruses.pdf)

To help control the spread of infection...

1. Practice good hand hygiene. Promote adherence among healthcare personnel, patients and visitors
 - Wash hands frequently and thoroughly with soap and water
 - Ensure individuals wash hands before eating or drinking, after going to the bathroom, or after contact with an ill patient
2. Place patients on Contact Precautions for a minimum of 48 hours after resolution of symptoms
3. Cases should be placed in a private room when possible. If not possible, cohort ill and separate them from asymptomatic patients.
4. Minimize patient movements within a ward or unit
 - Consider restricting symptomatic and recovering patients from leaving the patient care area unless for essential care/treatment
 - Suspend group activities for the duration of the outbreak
5. Consider the closure of affected wards to new admissions or transfers.
6. Exclude ill personnel from work for a minimum of 48 hours after resolution of symptoms. Establish protocols for staff cohorting.
 - Staff who have recovered from recent infection may be best suited to care for symptomatic patients until outbreak resolves.
7. Increase frequency of cleaning/disinfection of patient care areas and high touch surfaces with commercial cleaning and disinfections products registered with the US Environmental Protection Agency as effective against Norovirus. (*See Environmental Cleaning Attachment for more details*)
8. Instruct visitors on appropriate hand hygiene and contact precautions. Discourage visitation to the facility during the course of the outbreak, and recommend that ill persons not enter the facility.

REMEMBER: Outbreaks are immediately reportable to your local health department!

For further questions or information contact the Infectious Disease Epidemiology Division at 304-558-5358 or 800-423-1271

References: Said, M et al. Gastrointestinal Flu: Norovirus in Health Care and Long-Term Care Facilities. *Clinical Infectious Diseases* 2008; 47:1202-8
CDC/HICPAC. Guideline for the Prevention and Control of Norovirus Gastroenteritis Outbreaks in Healthcare Settings, 2011.

Rev: Apr 2013

Use this form only for outbreaks that are determined NOT to be foodborne.

Person-to-Person Viral Gastroenteritis Outbreak Report Form

Instructions: Please complete this report form for all person-to-person viral gastroenteritis outbreaks. Be sure to fill in all fields to ensure completeness of the report. Completing this report will meet Threat Preparedness grant requirements and reporting elements needed for evaluation of how outbreaks are investigated throughout WV. Once completed, please email it to Melissa.A.Scott@wv.gov or fax to the Division of Infectious Disease Epidemiology at 304-558-8736.

Outbreak number: Region:
Contact information for person who first notified health department about the outbreak:
Reported By: Date Reported: [Click here to enter a date.](#)
Date investigation initiated by the agency: [Click here to enter a date.](#)
Name(s) Report Prepared By: Title(s):
County: Telephone:

INTRODUCTION AND BACKGROUND (info in this section should be what is reported in the initial call about the outbreak)

At the time of the initial report:

# of Ill Residents/Attendees	<input type="text"/>	<input type="text"/>
Total # of Residents/Attendees	<input type="text"/>	<input type="text"/>
# of Ill Staff	<input type="text"/>	<input type="text"/>
Total # of Staff	<input type="text"/>	<input type="text"/>

Facility name: Name of Facility Contact:
Facility address:
Facility type: Nursing home Assisted living School Other, specify:
Date of first onset: [Click here to enter a date.](#) Date of most recent case: [Click here to enter a date.](#)

METHODS

Case Definitions (check definition used for this outbreak):

Probable Case Definition

- 2 or more episodes of vomiting or 3 or more episodes of diarrhea in a 24 hour period. (For Healthcare Facilities)
 Vomiting or two or more episodes of diarrhea in a 24 hour period (For School/General Settings)

Confirmed Case Definition

- Meets probable case definition and is laboratory confirmed

Investigation Methods (check all that apply):

- Spoke with infection preventionist Confirmed diagnosis or lab results
 Visited facility Performed environmental assessment
 Defined & Identified Cases Reviewed charts or other documents
 Conducted interviews or survey Other (specify):

Steps to Take with a Suspected Norovirus Outbreak

- Line listing – Determine transmission mode
- Make control measure recommendations
- Collection of specimens
- Report outbreak to DIDE
 - 304-558-5358
 - 800-423-1271

Questions?