Presentation Overview

- Norovirus characteristics
- Clinical presentation of norovirus
- Norovirus diagnosis
- Treatment of norovirus infection
- Norovirus transmission
- Infection Control in healthcare facilities
Norovirus Basics
Norovirus outbreaks have been linked to:

- Healthcare settings: acute and subacute
- Cruise ships
- Casinos
- Prisons
- Any congregate living facility or group living environments such as camps, dormitories, daycares and assisted care for the elderly
Norovirus in Healthcare Facilities

• Most commonly reported setting of GI outbreaks in the U.S
• Outbreaks pose risk to patients, healthcare personnel, and the efficient delivery of healthcare services
• In the elderly, illness can be severe requiring hospitalization
Symptoms of Norovirus

Most Frequently Reported
– Nausea
– Vomiting
– Diarrhea
– Stomach cramping

Additional symptoms may include:
– Low-grade fever
– Chills
– Headache
– Muscle aches
– Fatigue
Characteristics of Infection

- Highly infectious
- Symptom onset from 12 to 48 hours after exposure
- Sudden onset of symptoms
- Duration of major symptoms is 1 to 3 days
- Infection may occur with no symptoms
  - Persons with asymptomatic infection can shed virus
- Viral shedding up to 3 weeks after clinical symptoms
- Complete recovery – no long term effects
Who is affected?
Vulnerability

- Anyone of all ages can become infected
- No long-lasting immunity due to many strains
  - Infection may recur throughout one’s life
- Genetic differences – some more susceptible
  - Blood group O
Norovirus in the Elderly

- Prolonged symptoms
  - More anorexia and thirst
  - Diarrhea may lead to fecal incontinence
- Usually low grade fevers
- Increase proportion of hospitalizations
- Longer viral shedding in stools
  - Appearance of stools is not a good indicator of presence or absence of norovirus
  - Viral shedding may start prior to onset of symptoms
Norovirus Outbreaks
Los Angeles County
Norovirus in SNFs

• Most outbreaks in LAC reported from Skilled Nursing Facilities (SNFs)

• Only outbreaks are reportable and not individual cases
  – It is likely many outbreaks are not reported
  – Outbreaks – at least 3 cases within a facility
How Norovirus is Diagnosed

• In Los Angeles County, norovirus is detected in stool using reverse transcription polymerase chain reaction (RT PCR)

• Requires fresh (unfrozen) stool

• Stool should be obtained from ill individuals
  – Ideally within 48-72 hrs. post onset
  – Must be kept refrigerated
Treatment
How Norovirus is Treated

• Supportive care
  – Oral hydration if possible
  – IV hydration if unable to take oral hydration
  – Anti-emetics

• No role for antibiotics or antivirals.

• Vaccine in development
True or False?

Prescription antibiotic medication **is not** recommended for the treatment of norovirus.

**TRUE**
Prevention
Norovirus Transmission

• Highly contagious
• Directed contact with an infected person, fecal matter, and/or vomitus droplets
• Environmental cleaning- is critical to control!
Norovirus Transmission

• Role of fomites
  – Transferred to food, water or surfaces by the hands of infected people
  – Frequently isolated from bed rails, divider curtains, local environment
How You Can Prevent the Spread of Norovirus

• Wash your hands **frequently** with warm, soapy water for 20 seconds
• Wash your hands after using the bathroom, changing diapers and before preparing foods
• Note- alcohol based hand sanitizers are not effective to prevent norovirus infection
  – NV is a non-enveloped virus
It’s NOT Just the Hands

- Increase frequency of cleaning of unit, bathroom and toilet to 2 times
- Immediately wash clothing or linens that may be contaminated
- Disinfect any shared equipment
- Clean carpets or furnishings with hot water and detergent or steam clean
- Dispose of any food that may have been contaminated by staff or residents
Environmental Cleaning

• Clean up vomit and fecal spillages promptly
  – Wear a gown, mask, and gloves during NV outbreak season

• Flush any vomit and/or stool in the toilet and disinfect the area

• Increase frequency of cleaning to 2 X the normal practice at facility using EPA approved disinfectants or a fresh solution of sodium hypochlorite
  – Chlorine bleach to water ratio should be 1:50-1:10 (use within 24 hrs) at minimum
  – “Quats” and other common cleaners not effective
Wear Protective Gear

- Gloves required for all patient/environmental contact
- Long sleeved gown required for all patient/environmental contact
- Hand washing after all patient/environmental contact and glove removal
More on Prevention

• Staff should know about patient’s norovirus infection and use appropriate precautions
• Gowns and gloves should be used when in contact with an infected patient or contaminated environment
• Nonessential staff should not enter affected areas
Gastroenteritis Outbreak Scenario
What would your actions be?

- It is Thursday morning, 2 residents in adjoining rooms become abruptly ill with vomiting and loose stools, without fever
- 3 additional residents, in the same wing but several doors down, started to vomit between 3PM-4PM
- By Friday at 4 PM, one nurses aid must leave work due to vomiting
- What are your next actions?
Actions to consider

• Summarize the situation
• Consider: what is the incubation period between cases?
• Where are the cases located?
• What should you tell your direct patient care staff?
• What infection control procedures would you carry out?
• What cleaning recommendations would you recommend to your cleaning staff?
• Who would you call to report?
• What other actions would you consider?
Review of Recommended Steps for Prevention

• Wash your hands frequently with warm, soapy water for at least 20 seconds

• Immediately clean vomit and fecal spillages with EPA approved disinfectants or a fresh solution of sodium hypochlorite

• Immediately report norovirus cases at your facility to DPH

• Practice good hygiene habits:
  – Keep your hands clean
  – Wear protective gear when in contact with patients (long sleeved gowns and gloves)
  – Keep all surfaces clean
  – Wash all linens and curtains
For More Information

- **Norovirus Outbreak Prevention Toolkit:** A Guide for Preventing Norovirus Outbreaks in Skilled Nursing Facilities (10-12-12)

- **Norovirus Presentation:** Norovirus in Skilled Nursing Facilities (12-10-12)

- **Control of Viral Gastroenteritis Outbreaks in Long Term Care Facilities** - California Department of Health Services (12/06)

- CDC-Norovirus in HC Facilities

- Guidelines for Environmental Infection Control in Health Care Facilities
  [www.cdc.gov/ncidod/dhq/p/gi_envirnoninfection.html](http://www.cdc.gov/ncidod/dhq/p/gi_envirnoninfection.html)
Questions
Thank you!