WASHOE COUNTY HEALTH DISTRICT
ENHANCING QUALITY OF LIFE

April 13, 2021, Vol. 41, No. 01
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EPI-NEWS

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Introduction

Acute gastroenteritis (AGE) is defined as the rapid onset of diarrhea and/or vomiting.[1] It is a common cause for children to present to providers' offices, emergency rooms and can lead to hospital admission, with the primary concern of complications and death due to dehydradtion.[2] Various etiologies can cause acute gastroenteritis among children.[2] The Washoe County Health District (WCHD) has been receiving increased reports of acute gastroenteritis in children, primarily in group settings (e.g. schools and daycares). It is important for providers and the community to consider ways to prevent the spread of primarily viral causes of AGE in children and also be aware of reporting requirements.

Common Causes of AGE in Children

Viruses account for 75% to 90% of childhood acute infectious gastroenteritis (e.g. norovirus, rotavirus), followed by bacteria causing 20% (e.g. *Shigella*, *Campylobacter*), and less than 5% due to parasites (e.g. *Giardia*).[2] Viral caused outbreaks of gastroenteritis are often transmitted person-to-person, by contaminated surfaces or through contaminated food.[3] Prior to the rotavirus vaccine in 2006, rotavirus was the leading cause of severe diarrhea among infants and young children in the United States.[4] Since then, norovirus has become the most common cause of diarrhea and vomiting, often referred to as the "stomach flu" (although not related to the flu).[5] Both viruses are highly transmissible and cause AGE in children.

Rotavirus is most common in infants and young children under age 5 and symptoms may include severe watery diarrhea, vomiting, fever, and/or abdominal pain.[4] Symptoms typically present two days after exposure to another infected person's stool and can last three to eight days. Persons with rotavirus are most infectious from onset of symptoms through ten days after symptoms stop, although infectious fecal shedding is possible for longer.[6] Rotavirus tends to be most common from January to June. While there is no specific treatment for rotavirus, **vaccination is available for children and is able to prevent 90% of disease.**

Two rotavirus vaccines are currently licensed for infants in the United States:[7]

1. RotaTeq® is given in three doses at ages 2 months, 4 months, and 6 months.
2. Rotarix® is given in two doses at ages 2 months and 4 months.

The first dose of either vaccine should be given before a child is 15 weeks of age. Children should receive all doses of rotavirus vaccine before they turn 8 months old.

Both vaccines are given by putting drops in the child's mouth.

Norovirus On average 19-21 million people become sick with norovirus each year in the United States. Common signs and symptoms include vomiting, watery, non-bloody diarrhea, nausea, and abdominal cramps. Other signs and symptoms can include headache, body aches, and low-grade fever. In general, children with norovirus experience more vomiting than adults.[3] People usually become sick within 12-48 hours of their exposure (must be ingested) to the stool or vomit of an infected individual. Illness is typically self-limiting and lasts 1-3 days.[4] Norovirus can be found in stool even before someone feels sick and remains in stool for as long as 2-3 weeks after people feel better. Noroviruses can remain infectious on environmental surfaces for many days and are relatively resistant to disinfection, heat, and cold. **There is no vaccine or specific medicine to treat norovirus.**

Spread of AGE in Children

Viral causes of AGE are often spread through the oral-fecal route when particles emitted from feces or vomit from an infected person is ingested through contaminated surfaces or foods.[3] The viruses can continue to be present in the feces of infected persons after an infected person has recovered, sometimes for a week or more, or even if they have never been symptomatic. In childhood congregate settings, AGE causing viruses are spread primarily through contamination of the hands of persons who are ill. Vomiting causes viral particles to be suspended in the air, resulting in contamination of the

environment. Norovirus in particular can remain infectious on environmental surfaces for many days and is relatively resistant to disinfection, heat, and cold.

Prevention Recommendations

Interrupting person-to-person transmission controls the spread of viral gastroenteritis.[3] WCHD recommends healthcare providers assist by providing the following messages to patients.[5]

- Practice proper hand hygiene (wash hands for 20 seconds with soap and water), especially after using the toilet or changing diapers and before eating. **Hand sanitizers are not as effective as soap and water against norovirus.**
- Handle and prepare food safely (e.g., carefully wash fruits and vegetables before eating them, cook oysters and other shellfish thoroughly before eating them).
- When you are sick, do not prepare food or care for others for at least two days after symptoms stop.
- Clean and disinfect surfaces after someone vomits or has diarrhea. Use a chlorine bleach solution with a concentration of 1,000 to 5,000 ppm (5 to 25 tablespoons of household bleach per gallon of water) or other disinfectant registered as effective against norovirus by the Environmental Protection Agency (EPA) https://www.epa.gov/sites/production/files/2021-02/documents/02-22-2021_list-g.pdf. Leave on the area for at least five minutes, then clean with soap and hot water. **Disinfect areas up to 25 feet from the incident.**
- Wash and dry laundry at the highest and longest setting if contaminated with vomit or feces. Wear gloves while handling contaminated linens.

Outbreak Response & Control

Although there may be challenges in preventing the initial introduction of the virus to a childhood congregate setting, as an infected staff member or student may be shedding the virus even before they are ill or may never be symptomatic. Routine handwashing at all times is key to reduce chances of introduction into these settings.[3] **Note that hand sanitizer alone is NOT effective again norovirus, so proper handwashing is essential.** Staff should monitor student handwashing practices. At all times, staff must use gloves or other method of "no bare hand contact" (e.g., tongs, toothpicks,) when handling "ready-to-eat" foods or snacks for students (e.g., crackers, cookies, cut vegetables, etc.). Practicing good personal hygiene after going to the bathroom may limit the spread of the disease. Three major actions are recommended to control person-to-person transmission in congregate settings:[3]

1. **Report** when an outbreak is suspected (see *Reporting*).
2. **Implement Infection Control**: Clean any fecal and vomiting accidents thoroughly including bathrooms and high touch areas. Separate the sick from well until parents can pick the student up or the staff member can go home.
3. **Staff & Students**: 1) Exclude the ill until 48 hours after symptoms stop (this may be extended to 72 hours during outbreak situations); 2) cohort students and staff and reduce mingling of classes; and 3) suspend group activities.

Reporting

Per NRS/NAC 441A:

- Individual cases of rotavirus are reportable in the State of Nevada and must be reported to WCHD.
- Individual or sporadic cases of norovirus are not reportable in Nevada. **However, if an outbreak of gastroenteritis is suspected, this is reportable to WCHD.**

The list of reportable communicable diseases and reporting forms can be found at **http://tinyurl.com/WashoeDiseaseReporting**.

Report all suspected outbreaks IMMEDIATELY to the Washoe County Health District. To report a communicable disease, please call 775-328-2447 or fax your report to the WCHD at 775-328-3764.

Acknowledgement

We are grateful to all health care providers, infection control practitioners, laboratory staff, as well as schools and daycares for their reporting and collaboration to make this work possible.

[1] Hall A, Wikswo M, Manikona K, et al. Acute Gastroenteritis Surveillance through the National Outbreak Reporting System, United States. Emerging Infectious Disease, Dispatch 2013; 19(8). https://dx.doi.org/10.3201/eid1908.130482.
[2] Hartman S, Brown E, Loomis E, et al. Gastroenteritis in Children. Am Fam Physician. 2019 Feb 1;99(3):159-165. https://www.aafp.org/afp/2019/0201/p159.html
[3] Viral Gastroenteritis Outbreak Guidelines for Washoe County Schools: https://www.washoecounty.us/health/files/ephp/communicable-diseases/WCSD%20guidelines%20for%20norovirus%20Dec17.pdf
[4] Rotavirus: https://www.cdc.gov/rotavirus/index.html
[5] Norovirus: https://www.cdc.gov/norovirus/
[6] Rotavirus: https://www.cdc.gov/vaccines/pubs/pinkbook/downloads/rota.pdf
[7] Rotavirus: https://www.cdc.gov/rotavirus/vaccination.html