

Focus on long-term care and behavioral health outbreaks:

Identify the pathogen! Norovirus

BY STEVEN SCHWEON, RN, MPH, MSN, CIC, HEM, FSHEA, FAPIC

Hospital outbreaks are reported more often in the medical literature than occurrences in the long-term care (LTC) or behavioral health setting. By studying and learning from outbreaks in the LTC/behavioral health setting, infection preventionists (IP) will glean additional knowledge and apply this information to hopefully prevent future infections, and infection clusters, in their facility. This quarterly column will assist the IP with heightening awareness of appropriate interventions for preventing an outbreak.

Loury et al¹ discuss a festive lunch that was served at a French nursing home on January 4, 2012. The following day, almost 30 residents and staff members became ill with gastroenteritis.

Based on your education and training, with the rapid illness onset, you suspect the following pathogen:

1. Norovirus
2. Shigella
3. *Staphylococcus aureus*
4. *Clostridium perfringens*

On January 6, French health authorities were notified of the outbreak. The investigators noted that both residents and staff were served raw oysters, shrimp, wild boar, potatoes, cheese, and cake. The standard investigation also included a questionnaire, which collected demographic data, residents' room location, staff member responsibilities, time of illness onset, symptoms, and food ingested. Stool specimens

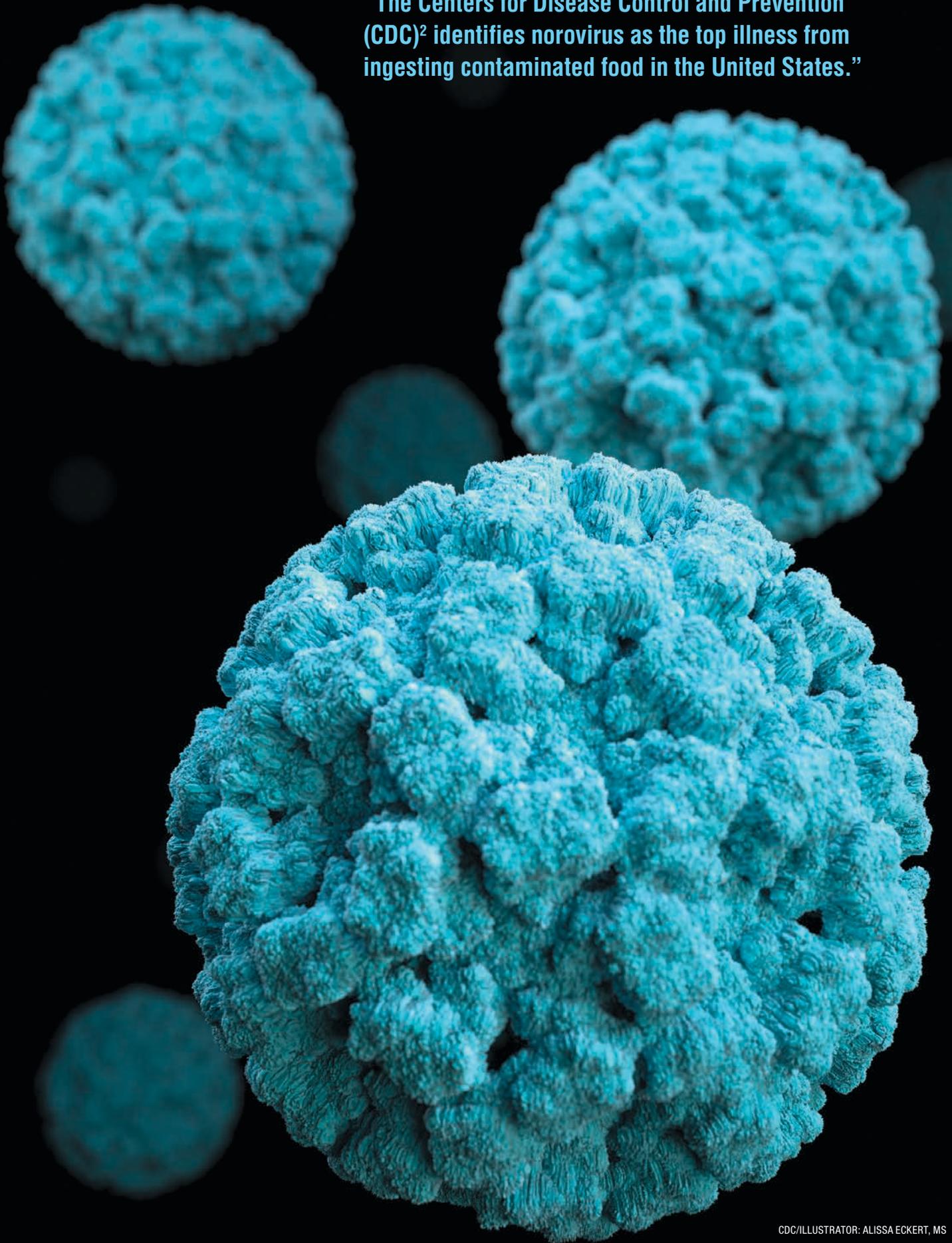


were sent for a pathogen work-up. Uneaten oysters were also sent for additional analysis. Of note, raw oysters are susceptible to norovirus contamination. Stool specimens were positive for norovirus and several other

pathogens. The oysters also tested positive for norovirus.

The attack rate was 57 percent (84/147), and the percentage of illness was similar in both the residents and staff. Diarrhea and

“The Centers for Disease Control and Prevention (CDC)² identifies norovirus as the top illness from ingesting contaminated food in the United States.”



CDC/ILLUSTRATOR: ALISSA ECKERT, MS

TAKE HOME MESSAGES FOR THE LTC/BEHAVIORAL HEALTH INFECTION PREVENTIONIST:

- 1 Oysters and other shellfish should be thoroughly cooked before ingestion.⁴ Norovirus can survive the quick steaming process that is sometimes used for cooking.
- 2 Ill staff with norovirus may come to work ill (presenteeism) due to financial concerns, fear of facility consequences for calling out sick, etc.
- 3 Ill food handlers should not prepare food for others. Check with the health department to determine when ill food handlers, including those who have norovirus, can safely return to work.
- 4 Environmental surfaces contaminated with norovirus should be cleaned/disinfected with a chlorine bleach solution or other agent registered as effective against norovirus by the U.S. Environmental Protection Agency (EPA).⁵ It might be beneficial to increase the frequency of environmental cleaning and disinfection.
- 5 Review CDC recommendations for isolation precautions and personal protective equipment, including when to wear a surgical mask.^{5,6}
- 6 Notify the Department of Health of an increased number of gastroenteritis cases, including norovirus.
- 7 Ill residents may need to be separated from healthy roommates during the duration of illness. Cohorting ill residents may be an option.
- 8 Consider suspending group activities, new admissions, and visitors during increased norovirus activity.
- 9 Ensure your facility has signage that promotes hand hygiene, respiratory etiquette, and asking visitors not to visit when ill.

vomiting were the primary symptoms, in addition to abdominal pain and nausea. More residents (76 percent) experienced diarrhea than staff (48 percent). One person was hospitalized after inhaling vomit. A second person died shortly after the diarrhea onset.

The investigation revealed that norovirus transmission occurred from consuming the contaminated oysters, and additional transmission resulted from contact with ill individuals. The authors note vomitus and feces contain a large norovirus concentration. During vomiting, the droplets may spread more than 1 meter (39 inches) through aerosolization.

The Centers for Disease Control and Prevention (CDC)² identifies norovirus as the top illness from ingesting contaminated food in the United States. In addition, the CDC states that food can become contaminated with norovirus when:²

- Ill individuals who have stool or vomit on their hands touch food.
- Food is placed on surfaces contaminated with norovirus.
- Vomitus droplets land on food.
- Oysters are harvested from contaminated water.
- Fruit and vegetables are contaminated in the field.

Norovirus can spread quickly in closed places like nursing homes.³ There are different strains of norovirus, and becoming infected with one type does not offer protection against the other types. There is no norovirus vaccine or anti-viral medication

available. Treatment is supportive, with the goal of preventing dehydration.

Prevention includes using soap and water after using the toilet and changing diapers. Washing hands with soap and water is also recommended before eating, preparing, and handling food.⁴ Individuals ill with gastroenteritis should not prepare food for others. **R**

Steven Schween, RN, MPH, MSN, CIC, HEM, FSHEA, FAPIC, is an infection prevention consultant with a specialized interest in acute care/long-term care/behavioral health/ambulatory care infection challenges, including outbreaks and a member of the Prevention Strategist editorial panel.

References

1. Louri P, Le Guyadere FS, Le Saux JC, Ambert-Balay K, Parrot P, and Hubert, B. A norovirus oyster-related outbreak in a nursing home in France, January 2012. *Epidemiol Infect* 2015;143:2486-2493.
2. Centers for Disease Control and Prevention. *Norovirus. Norovirus and working with food*. 2016. Available at: <https://www.cdc.gov/norovirus/food-handlers/work-with-food.html>. Accessed: December 26, 2016.
3. Centers for Disease Control and Prevention. *Norovirus. Transmission*. 2016. Available at: <https://www.cdc.gov/norovirus/about/transmission.html>. Accessed: December 26, 2016.
4. Centers for Disease Control and Prevention. *Norovirus. Preventing Norovirus infection*. 2016. Available at: <https://www.cdc.gov/norovirus/preventing-infection.html>. Accessed: December 26, 2016.
5. Centers for Disease Control and Prevention. *Key infection control recommendations for the control of Norovirus outbreaks in healthcare settings*. Available at: <https://www.cdc.gov/hai/pdfs/norovirus/229110a-noroviruscontrolrecomm508a.pdf>. Accessed: December 26, 2016.
6. Centers for Disease Control and Prevention. *Guideline for the prevention and control of Norovirus gastroenteritis outbreaks in healthcare settings*. 2011. Available at: <https://www.cdc.gov/hicpac/pdf/norovirus/Norovirus-Guideline-2011.pdf>. Accessed: December 26, 2016.



READ MORE ABOUT NOROVIRUS AND FOODBORNE ILLNESS IN THE AMERICAN JOURNAL OF INFECTION CONTROL

Knowledge of norovirus prevention and control among infection preventionists, Kosa, Cates, et al. *American Journal of Infection Control*, Volume 42, Issue 6, p676-678.

A risk assessment approach to use of antimicrobials in the home to prevent spread of infection, Bloomfield, Scott, *American Journal of Infection Control*, Volume 41, Issue 5, S87-S93.

Community-based infections and the potential role of common touch surfaces as vectors for the transmission of infectious agents in home and community settings, Scott, *American Journal of Infection Control*, Volume 41, Issue 11, p1087-1092.