

Infectious Diarrhea

Norovirus and *Clostridium difficile* in Older Adults



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KEYWORDS

- Norovirus • Gastroenteritis • Long-term care • Elderly • *Clostridium difficile* infection
- Infectious diarrhea • Long-term care facilities • Aging

KEY POINTS

- Norovirus infection is a highly contagious illness which usually results in an acute gastroenteritis, often with incapacitating nausea, vomiting, and diarrhea.
- Community dwelling older adults as well as residents of long-term care facilities are disproportionately affected by complications that may result in hospitalization and/or death.
- *Clostridium difficile* infection is the leading cause of health care-associated diarrhea in the United States; antibiotic use is the most common risk factor for *C difficile* colonization and infection.
- Frail older adults are commonly affected by complications from *C difficile* infection, hospitalization, or death.
- Appropriate preventative and infection control measures can mitigate the morbidity and mortality associated with both these infections.

NOROVIRUS

Introduction

Noroviruses are a group of nonenveloped single-stranded RNA viruses in the Caliciviridae family, and are the leading cause of acute gastroenteritis, with 21 million cases, greater than 70,000 hospitalizations, and 800 deaths in the United States annually (Fig. 1).¹

The norovirus (Fig. 2) was originally called the Norwalk virus, because the first confirmed outbreak occurred in the town of Norwalk, Ohio, in 1968. There are 6 known

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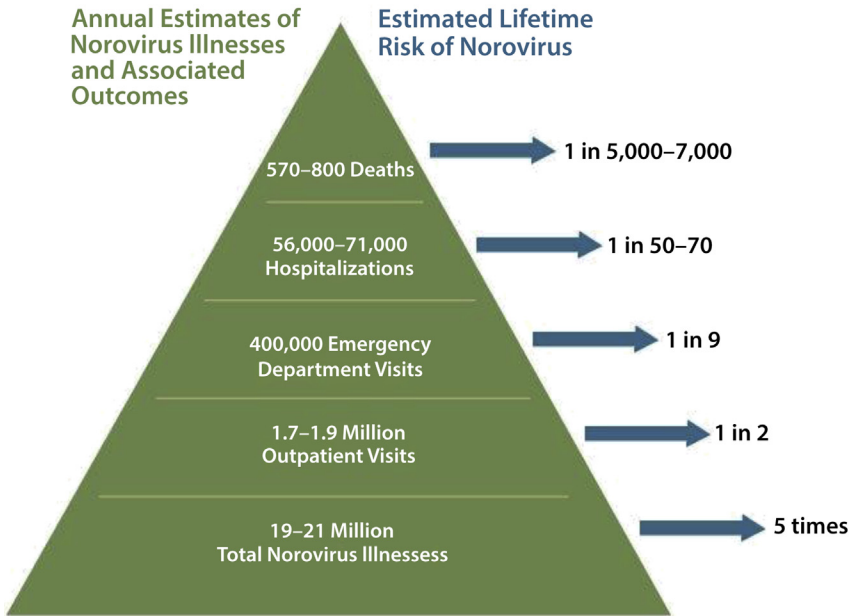


Fig. 1. Burden of norovirus in the United States. Estimates of the annual number of illnesses and associated outcomes for norovirus disease in the United States, across all age groups. Lifetime risks of disease are based on a life expectancy of 79 years of age. Ranges represent point estimates from different studies, not uncertainty bounds. (From Centers for Disease Control. Burden of norovirus illness and outbreaks. Available at: <http://www.cdc.gov/norovirus/php/illness-outbreaks.html>. Accessed April 8, 2016.)

genogroups of the virus, and more than 25 genotypes, but only genogroups I, II, and IV are known to cause disease in people.² Most outbreaks since 2002 have been caused by variations of the genotype GII.4.³ It is not yet possible to grow the human norovirus in a cell culture, and this has hampered the development of a vaccine.⁴

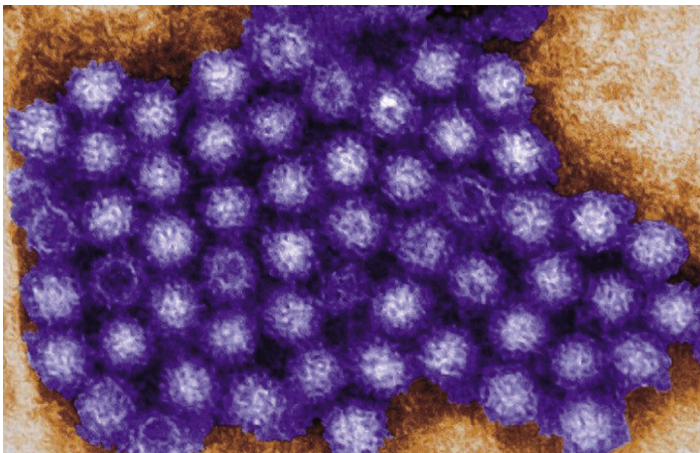


Fig. 2. Transmission electron micrograph of norovirus virions. (Courtesy of Public Health Image Library, no. 10708, CDC, Atlanta, GA. CDC/ Charles D. Humphrey.)

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