CDC's Vessel Sanitation Program

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Seatrade Cruise Global Public Health Panel

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Mission

- **Prevent the introduction, transmission, or spread of communicable diseases into the United States.**

- **Assist cruise ship industry in developing and implementing comprehensive sanitation programs to minimize the risk for gastrointestinal illnesses.**

Adapted from International Association of Food Protection icon

VSP and Cruise Ship Industry

- **Joint collaboration:**
  - Manuals
  - Training
  - Annual meetings
  - Consultation:
    - New concepts, technology
- **Economic cost of outbreaks.**
  - Per day delayed embarkation: $1.3 million to cruise line.
  - Per no-sail day: $5 million to cruise line.
  - Media and residual impact.

Acute Gastroenteritis on Cruise Ships, 2008-2014

- **From 2008 to 2014, 74 million passengers sailed on cruise ships in VSP's jurisdiction.**
- **Only 129,678 passengers met the VSP case definition for AGE illness.**
- **And only 1 in 10 were part of a norovirus outbreak.**
- **The rate of AGE illness on cruise ships has decreased over time, as has the number and severity of outbreaks by year except 2012, when a new strain of norovirus emerged.**

*Freeland AL, Vaughan GH Jr, Banerjee SN. Acute gastroenteritis on cruise ships—United States, 2008–2014. MMWR. 2016;65(1):1–5.

Acute Gastroenteritis on Cruise Ships, 2008-2014

Centers for Disease Control and Prevention
MMWR
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Acute Gastroenteritis on Cruise Ships — United States, 2008–2014

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From 1990 to 2004, the reported rates of diarrheal disease (three or more loose stools or a greater than normal frequency in a 24-hour period) on cruise ships decreased 2.4%, from 29.2 cases per 100,000 travel days to 28.5 cases (*1,2*). Increased rates of acute gastroenteritis illness (diarrhea or vomiting that is associated with loose stools, bloody stools, abdominal cramps, headache, muscle aches, or fever) occurred in years that novel strains of norovirus, the most common etiologic agent in cruise ship outbreaks, emerged (*3*). To determine recent rates of acute gastroenteritis on cruise ships, CDC analyzed combined data for the period 2008–2014 that were submitted by cruise ships sailing in U.S. jurisdiction (defined as passenger vessels carrying ≥13 passengers and within 15 days of arriving in the United States) (*4*). CDC also reviewed laboratory data to ascertain the causes of acute gastroenteritis outbreaks and examined trends over time. During the study period, the rates of acute gastroenteritis per 100,000 travel days decreased among passengers from 27.2 cases in 2008 to 22.3 in 2014. Rates for crew members remained essentially unchanged (21.3 cases in 2008 and 21.6 in 2014). However, the rate of acute gastroenteritis was significantly higher in 2012 than in 2011 or 2013 for both passengers and crew members, likely related to the emergence of a novel strain of norovirus, GII.4 Sydney (*5*). During 2008–2014, a total of 133 cruise ship acute gastroenteritis outbreaks were reported, 95 (71%) of which had specimens available for testing. Among these, 92 (97%) were caused by norovirus, and among 80 norovirus specimens for which a genotype was identified, 59 (73.8%) were GII.4 strains. Cruise ship travelers experiencing diarrhea or vomiting should report to the ship medical center promptly so that symptoms can be assessed, proper treatment provided, and control measures implemented.

According to U.S. Foreign Quarantine regulations, passenger vessels, including cruise ships, are required to report the number of persons meeting the diarrheal disease case definition to U.S. authorities at CDC's Vessel Sanitation Program (VSP) 24–36 hours before arriving in the United States from a foreign port, even if there are zero cases (*6*). Additional reports are required if VSP's alert threshold is reached (≥2% cumulative attack rate* among either passenger or crew populations) or an outbreak occurs (≥3% cumulative attack rate among either passenger or crew populations); outbreaks of diarrheal disease are posted on VSP's website (http://www.cdc.gov/nceh/vsp). In 2001, VSP and the cruise industry expanded the diarrheal illness case definition to include acute gastroenteritis to more thoroughly detect and respond to illnesses that cause diarrhea and vomiting (*4*).

Data for 2008–2014 were analyzed per ship and voyage, using the most recently submitted report. Only voyages of 3–21 days in duration were included in the analysis, because cruise-associated illnesses associated with voyages of <3 days are more likely to manifest after disembarkation and, among voyages longer than 21 days (such as world cruises), report data often are incomplete. Voyages were included if they carried ≥100 passengers, because small vessels can meet VSP's

*Cumulative attack rate refers to the attack rate for an entire voyage.

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Continuing Education examination available at http://www.cdc.gov/mmwr/cme/conted_info.html#weekly.

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

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Acute Gastroenteritis on Cruise Ships, 2008-2014

- **Fewer and less-severe AGE outbreaks on cruise ships are likely a result of several factors:**
  - Earlier detection of illnesses.
  - Cruise industry diligence in developing and implementing their Outbreak Prevention and Control Plans.
  - Using processes and disinfectants that are effective against a norovirus surrogate.
  - Proactively looking for ways to use the most current science and limit AGE spread.

Where Does Norovirus Come From?

Source: http://www.healthmap.org – *accessed on 12/08/2016*

Outbreak Prevention & Response Plan (OPRP)

Elements of the Infection Control Plan

- Each vessel must have a written OPRP that details standard procedures and policies to specifically address AGE onboard

- Duties and responsibilities of each department and their staff for all passenger and crew public areas

- Steps in outbreak management and control and triggers for required action at each step

Continuous Disinfection

- When total number of AGE cases among passengers or crew members is ≥ 2%
  - Outbreak response must include cleaning and disinfection of all public areas and includes
    - Handrails (corridors, stairs, elevators, etc.)
    - Elevator buttons
    - Toilet rooms
    - Casino
    - Other areas?

- *What is "continuous " in your OPRP?*

The Role of Handwashing

#1 way to prevent illness/disease

Thank You!

For more information, contact NCEH
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The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.