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Division of Public Health
Bureau of Communicable Diseases and Emergency Response
Wisconsin Department of Health Services

In this issue:

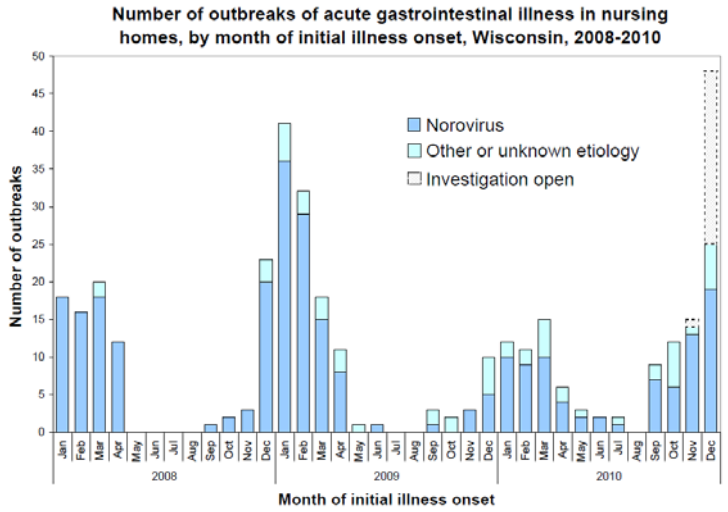
1. Updated protocols for invasive meningococcal disease and *Haemophilus influenzae* infection

The Communicable Disease Epidemiology Section has posted updated guidance and flowcharts for managing confirmed and suspected cases of invasive *Neisseria meningiditis* and *Haemophilus influenzae* infection. The protocols are available in the Provider Resources section of the CDES website at the following links.

- Invasive *Haemophilus influenzae* management protocol
  http://www.dhs.wisconsin.gov/communicable/resources/HaemInflu/HfluProtocol.pdf
- Invasive *Haemophilus influenzae* case investigation flowchart
  http://www.dhs.wisconsin.gov/communicable/resources/HaemInflu/HfluFlowchart.pdf
- Invasive meningococcal disease management protocol
  http://www.dhs.wisconsin.gov/communicable/resources/Mening/MeningProtocol.pdf
- Invasive meningococcal disease case investigation flowchart
  http://www.dhs.wisconsin.gov/communicable/resources/Mening/MeningFlowchart.pdf

2. Outbreaks of norovirus-related acute gastrointestinal illness in long-term care facilities (LTCFs)

During September 1, 2010 through December 31, 2010, 84 outbreaks of acute gastrointestinal illness (AGI) occurring in long-term care facilities (LTCFs) were reported to the Wisconsin Division of Public Health (DPH). This represents a substantial increase when compared to the same periods in 2008 (29 outbreaks) and 2009 (18 outbreaks) (Figure).



The increase in reported AGI outbreaks may be partly explained by improved surveillance, but also indicates greater than expected norovirus activity. Historically, more than 80% of AGI outbreaks in Wisconsin LTCFs are caused by noroviruses.

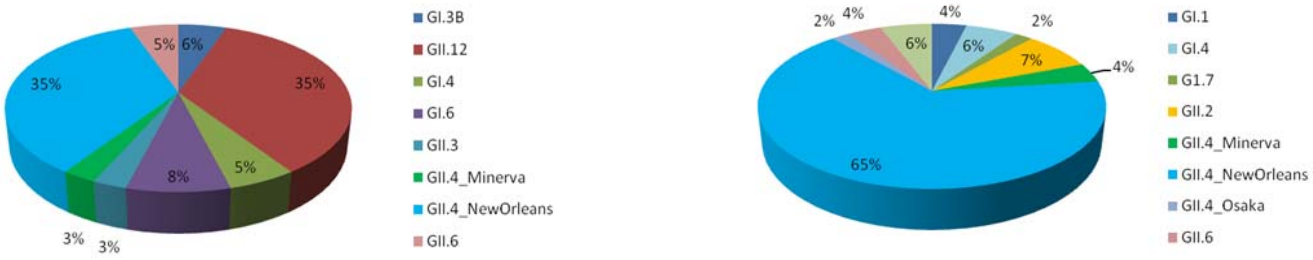
Noroviruses are the most common cause of outbreaks of AGI in the United States. Noroviruses are transmitted by the fecal-oral route and are highly contagious. A very small number of virions can cause human illness (a low infectious dose, as few as 10 virus particles) and the virus replicates rapidly in the gastrointestinal tract.

Noroviruses are resistant to levels of chlorine routinely present in public water systems, and can survive on environmental surfaces for extended periods. Persons with norovirus AGI shed large numbers (tens of millions) of virions in stool and vomitus, and continue to shed virus after symptoms have resolved. Infection caused by one strain of norovirus confers relatively short-lived immunity and provides limited cross-protection against other strains. Norovirus activity typically increases during the late fall, remains elevated and peaks during the winter months, and decreases during the spring.

As noroviruses mutate, new strains emerge and can spread globally to susceptible populations. A predominant strain will typically remain prevalent for a year or two before being replaced by newer strains [1]. This pattern contributes to the cyclical occurrence of more severe norovirus seasons every few years. For example, during the 2006-2007 season, Wisconsin and other areas of the United States experienced unusually high norovirus activity associated with the emergence of GII.4 norovirus Minerva and Laurens variants [2].

During 2009, a new norovirus variant (GII.4 New Orleans) emerged in the United States. Specialized testing at the Wisconsin State Laboratory of Hygiene (WSLH) initially detected this new strain in Wisconsin in January 2010, and by autumn GII.4 New Orleans had become the predominant strain in Wisconsin. During September 1, 2010 to January 12, 2011 approximately 65% of outbreak-associated cases of norovirus AGI in Wisconsin tested at the WSLH were caused by this strain (Figure). The introduction and spread of the norovirus GII.4 New Orleans variant has likely contributed to the greater than usual number of outbreaks of AGI reported in Wisconsin.

Figure. Distribution of norovirus genotypes identified by the Wisconsin State Laboratory of Hygiene during September 2009 to May 2010 (left graph) and September 2010 to January 12, 2011 (right graph).



Outbreaks of norovirus AGI occur frequently in group settings and person-to-person transmission of noroviruses can be very difficult to control. Outbreaks in nursing homes and other LTCFs are of particular concern due to the vulnerability of patient populations to severe disease and death. There are no effective antiviral agents to treat norovirus infections and no vaccines to help prevent them. Therefore hygienic and sanitation measures are the primary means of preventing norovirus infections and reducing the disease burden. During January 2009 the Bureau of Communicable Diseases and Emergency Response, DPH, released a revised version of its “Recommendations for the Prevention and Control of Viral Gastroenteritis Outbreaks in Wisconsin Long-Term Care Facilities.” These guidelines are available online at the link provided below.

Outbreaks of norovirus infection must be reported to local public health officials; however, individual cases are not reportable and there is no systematic surveillance for norovirus infection in the community. The DPH monitors trends in emergency department (ED) visits for diarrhea and vomiting at 41 hospitals participating in the Wisconsin Health Information Exchange. Recent trends demonstrate no unusual increase in ED visits for GI illness beyond seasonal increases typically observed during winter months.

The DPH recommends that individuals with confirmed or suspected norovirus illness stay home until they are asymptomatic. Persons with vomiting or diarrhea who handle food, work in child care centers or who care for patients in a health care setting should stay home until they are symptom-free for at least 48 hours.

For more information regarding norovirus infection in healthcare settings please access:

Wisconsin Division of Public Health Recommendations for the Prevention and Control of Viral Gastroenteritis Outbreaks in Wisconsin Long-Term Care Facilities
http://www.dhs.wisconsin.gov/rl_dsl/Publications/pdfmemos/10-033attach.pdf

Wisconsin Division of Public Health Fact Sheet Series
http://www.dhs.wisconsin.gov/communicable/factsheets/norovirus.htm

Centers for Disease Control and Prevention (CDC) Norovirus in Healthcare Settings
http://www.cdc.gov/HAI/organisms/norovirus.html#a4

References:

1. Lopman B, Armstrong B, Atchison C, Gray JJ (2009) Host, Weather and Virological Factors Drive Norovirus Epidemiology: Time-Series Analysis of Laboratory Surveillance Data in England and Wales. PLoS ONE 4(8): e6671. doi:10.1371/journal.pone.0006671
2. Centers for Disease Control and Prevention (CDC). Norovirus Activity --- United States, 2006—2007. MMWR 2007;56(No. 33):842-846.

The Wisconsin Epi Express is posted online at http://www.dhs.wisconsin.gov/communicable/EpiExpress/index.htm and distributed by email to local, tribal, regional and state public health officials and infection preventionists in Wisconsin. To be added or removed from the distribution list please contact: Barbara Anderson: anderba@dhfs.state.wi.us