



Infectious Disease Epidemiology Report

Norovirus Outbreaks – Maine, 2014



Background

Noroviruses are a group of viruses that cause acute gastroenteritis. What is often referred to as the “stomach flu” is not flu at all and may actually be illness from norovirus infection. Noroviruses are highly contagious, and only a small number of viral particles can cause an infection. Transmission occurs in several ways: the most common is the fecal-oral route, but foodborne transmission, environmental or fomite contamination, and secondary person-to-person transmission also occur. The multiple routes of transmission make it difficult to determine the source of infection during outbreaks. There are several strains of noroviruses. Genogroups I, II, and IV infect humans. Genogroup II (GII) is the most prevalent human genogroup. Immunity to norovirus lasts only a few months and is strain-specific, so individuals may be infected repeatedly throughout their life.

Nationwide, over half of all reported norovirus outbreaks occur in long term care facilities, according to federal CDC. Norovirus is the primary cause of foodborne disease outbreaks in the nation. Norovirus outbreaks usually occur between November and April, but outbreaks may also occur in the summer months.

Methods

Maine’s Infectious Disease Epidemiology Program monitors outbreaks of gastrointestinal illness. All instances of increased incidence or clusters of gastrointestinal illness are reportable, but individual cases of norovirus illness are not. Reports of clusters of gastrointestinal illness are evaluated to determine if there is an outbreak and a need for additional investigation. Symptomatic individuals are asked to submit stool or vomit specimens to confirm norovirus as the cause of illness.

Maine’s Health and Environmental Testing Laboratory (HETL) performs norovirus testing using polymerase chain reaction (PCR) and determines the genogroup of norovirus, reporting either genogroup I or genogroup II.

An outbreak is considered laboratory confirmed if there is at least one case that tests positive for norovirus. Other outbreaks are considered to be

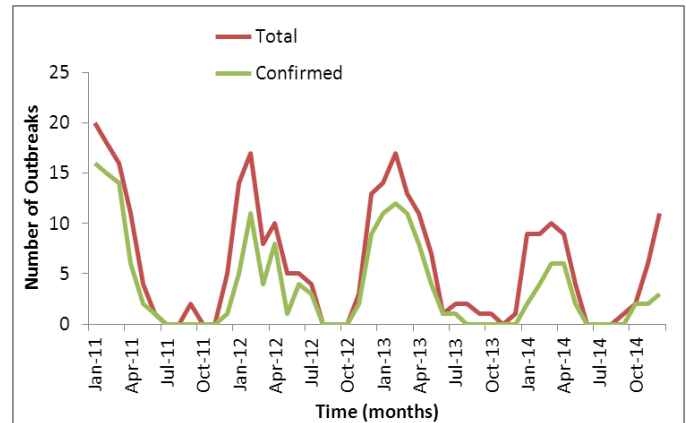
suspect for norovirus if the symptoms, incubation period, and possible routes of transmission are consistent with norovirus infection and there is no laboratory confirmation.

Results

In 2014, there were 61 total norovirus outbreaks reported in Maine resulting in 1860 ill individuals. There were a total of 5 deaths and 19 hospitalizations associated with these outbreaks.

During the previous norovirus season (November 2013 - April 2014), there were 18 laboratory confirmed norovirus outbreaks and 20 suspect outbreaks in Maine (Figure 1).

Figure 1. Norovirus Outbreaks*, Maine, January 2011 - December 2014



*Includes confirmed and suspect outbreaks

During November - December 2014, there were 17 total norovirus outbreaks, 5 of which were laboratory confirmed. This is an increase compared to one suspect outbreak in the same time period in 2013.

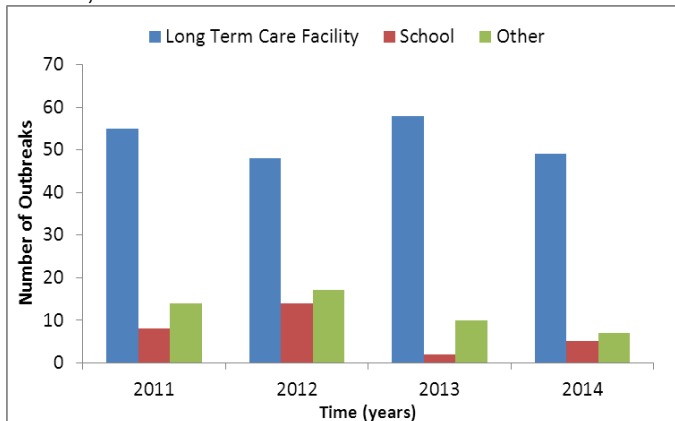
Outbreaks are most often reported by long term care facilities. Schools, day care centers, hospitals, restaurants, and summer camps have also reported outbreaks (Figure 2). Outbreaks occur throughout the state but are more frequent in the highly populated counties in Maine (Table 1).

Eighteen laboratory confirmed outbreaks were GII and eight were GI. Additional DNA sequencing testing found that there were 6 GII.4 Sydney, 5

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GI.3B, 4 GII.7, and 1 GII.6A outbreaks in Maine in 2014.

Figure 2. Norovirus Outbreaks* by Type of Facility, Maine, 2011-2014



*Includes confirmed and suspect outbreaks

Table 1. Norovirus Outbreaks* Reported to Maine CDC by County, Maine, 2011-2014

County	2011	2012	2013	2014
Androscoggin	4	7	4	8
Aroostook	0	7	5	3
Cumberland	17	12	15	15
Franklin	2	3	1	3
Hancock	4	6	2	1
Kennebec	11	8	3	11
Knox	0	1	7	2
Lincoln	2	2	4	1
Oxford	3	4	4	3
Penobscot	12	12	8	2
Piscataquis	1	1	1	0
Sagadahoc	1	0	0	1
Somerset	3	0	3	3
Waldo	2	1	2	1
Washington	4	1	2	1
York	11	14	9	6
Total	77	79	70	61

*Includes confirmed and suspect outbreaks

Discussion

Increasing knowledge about norovirus among the public and implementing disease control measures at the facility level are essential for controlling the spread of norovirus. Prevention measures for norovirus include but are not limited to the following:

- Wash hands with soap and water before and after eating or preparing food, after using the toilet, and after changing diapers

- Using alcohol based hand sanitizers may provide some benefit, but should not be used as a substitute for thorough hand washing

- Rinse all fresh fruits and vegetables with clean running water
- Cook all foods, including oysters and other shellfish, thoroughly before eating
- Do not prepare food for others while symptomatic and for at least 48-72 hours after recovering. See the Maine Food Code for more information on exclusions.
- Immediately clean and disinfect contaminated surfaces by using a bleach-based household cleaner
- Immediately remove clothing or linens that may be contaminated with vomit or feces, wash on the longest cycle setting, and dry on the hottest setting

Guidance to control norovirus outbreaks in healthcare settings, including long term care facilities, is available from federal CDC and Maine CDC. These control measures include but are not limited to:

- Isolate or cohort symptomatic individuals
- Consider closing the facility to new admissions or limiting new admissions
- Post signs notifying visitors of the outbreak or limit visitors, to prevent spread of illness
- Exclude symptomatic staff from work for at least 48 hours after symptoms have resolved
- Wear surgical masks and gloves when cleaning vomit or feces
- Use EPA approved disinfectants for cleaning

Increased incidence or suspect outbreaks of gastrointestinal illness should be reported to Maine CDC by calling 1-800-821-5821. Specimens collected in an outbreak setting can be sent to HETL for norovirus testing.

For more information on norovirus:

- Maine CDC norovirus website www.maine.gov/idepi
- Federal CDC norovirus website <http://www.cdc.gov/norovirus/>