



# Infectious Disease Epidemiology Report

## Norovirus Outbreaks – Maine, 2009-2012



### Introduction

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, the federal CDC estimates that more than 21 million cases of acute gastroenteritis each year are due to norovirus infection, and more than 50% of all foodborne disease outbreaks are due to noroviruses. In Maine, outbreaks are typically seen from late fall through early spring.

### Methods

The 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.

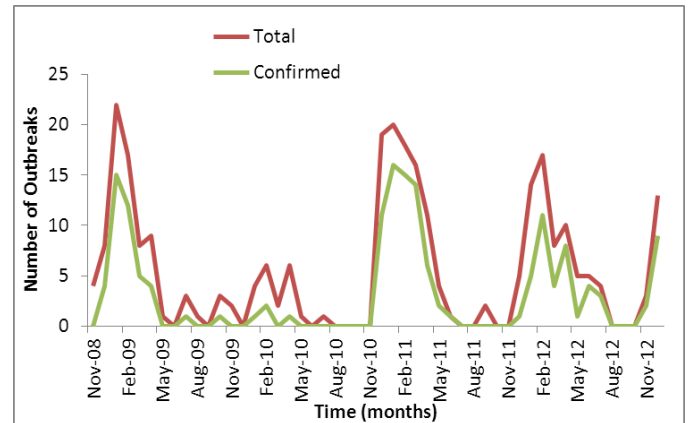
An outbreak is considered laboratory confirmed if there is at least one case that tests positive for norovirus. Other outbreaks are considered to be

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

Between November 1, 2011 and April 30, 2012, there were 29 laboratory confirmed norovirus outbreaks and 25 suspect outbreaks in Maine (Figure 1).

Figure 1. Norovirus Outbreaks\*, Maine, November 2008 - December 2012



\*Includes confirmed and suspect outbreaks

During November - December 2012, there were 16 reports of norovirus outbreaks; 11 (69%) were laboratory confirmed. During December 2011, there were five reports of norovirus outbreaks, and only one was laboratory confirmed (20%).

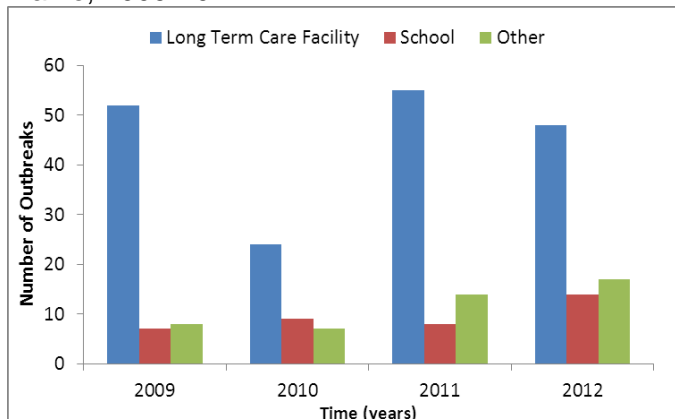
Outbreaks are most often reported by long term care facilities. Schools, day care centers, hospitals, summer camps, and events such as weddings have also reported outbreaks (Figure 2).

Outbreaks occur throughout the state but are more frequent in the highly populated counties in Maine (Table 1).

Three outbreaks reported in December 2012 had additional laboratory testing (DNA sequencing). Two of the outbreaks were caused by norovirus GII.4 Sydney, a new strain of norovirus that is circulating. These outbreaks occurred in long term care facilities in York and Androscoggin counties.

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Figure 2. Norovirus Outbreaks\* by Type of Facility, Maine, 2009-2012



\*Includes confirmed and suspect outbreaks

Table 1. Norovirus Outbreaks\* Reported to Maine CDC by County, Maine, 2009-2012

County	2009	2010	2011	2012
Androscoggin	11	5	4	7
Aroostook	5	0	0	7
Cumberland	12	14	17	12
Franklin	2	1	2	3
Hancock	1	1	4	6
Kennebec	14	2	11	8
Knox	1	1	0	1
Lincoln	1	0	2	2
Oxford	3	4	3	4
Penobscot	7	2	12	12
Piscataquis	2	3	1	1
Sagadahoc	0	0	1	0
Somerset	1	4	3	0
Waldo	0	1	2	1
Washington	0	1	4	1
York	6	0	11	14
<b>Total</b>	<b>66</b>	<b>39</b>	<b>77</b>	<b>79</b>

\*Includes confirmed and suspect outbreaks

### Prevention and Control

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 under 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
- Immediately clean and disinfect contaminated surfaces by using a bleach-based household cleaner
- Immediately remove and wash clothing or linens that may be contaminated with vomit or feces on the longest cycle setting and dry on the hottest setting

Long term care facilities continue to report more norovirus outbreaks than other facilities in Maine. 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 symptomatic individuals or cohort cases
- 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 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.mainepublichealth.gov/](http://www.mainepublichealth.gov/)
- HETL website [www.mainepublichealth.gov/lab](http://www.mainepublichealth.gov/lab)
- Federal CDC norovirus website <http://www.cdc.gov/norovirus/>