

Mumps Outbreak — Connecticut, January – April 2010

During January 2010, the Connecticut Department of Public Health (DPH) identified the first mumps outbreak in the state in more than 25 years. This report summarizes the outbreak, describes the relationship between the outbreak in Connecticut and a larger mumps outbreak ongoing in the Northeast region, and provides general mumps clinical characteristics, as well as transmission and vaccination information.

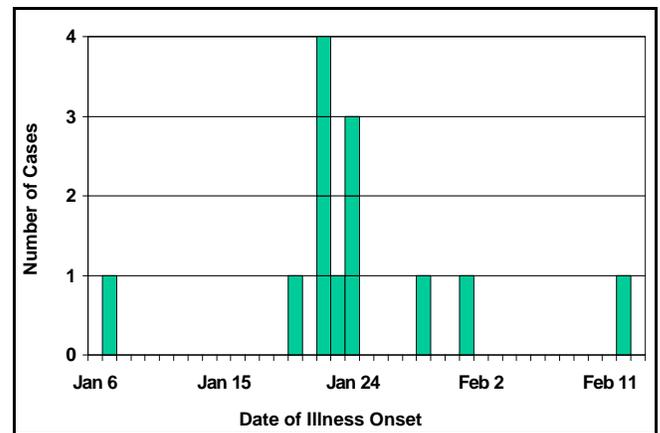
On January 28, 2010 the DPH Immunization Program was notified of several possible mumps cases in a Connecticut residential school providing secondary and post-secondary education to 72 male students from a tradition-observant religious community. Shortly thereafter, a site visit was conducted, case follow-up was initiated, and additional statewide case-finding methods were implemented. Cases were classified using the 2008 national surveillance case definition (1). On February 5, 2010, the DPH issued a mumps advisory to raise awareness among practitioners and enhance surveillance for potential mumps cases; an update was provided on March 16.

As of April 13, 2010, a total of 12 confirmed cases have been reported among students who attend the school, with a corresponding attack rate of 17%. One additional case was reported in a sibling of a day student attendee, for a total of 13 school-associated cases. No further spread associated with the school has been detected. Of the 13 cases, 3 (23%) were laboratory confirmed. Case onset occurred during January 7–February 12, 2010, representing 3 generations of spread at the school (Figure 1). The median age of cases was 15 years, with a range of 11–22 years; no complications or hospitalizations have been reported. Of the cases with known vaccination status, 8 (67%) were fully vaccinated, 3 (25%) were partially vaccinated, and 1 (8%) was unvaccinated. Only 4 mumps cases at this school involved Connecticut residents; the remaining cases were out-of-state residents. The

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Figure 1: Mumps cases associated with a Connecticut residential school (n=13)



mumps outbreak in Connecticut is epidemiologically linked to a larger outbreak occurring in the Northeast region; epidemiologic linkage consisted of travel to an out-of-state area where mumps cases were occurring.

Since January 2010, 4 laboratory confirmed mumps cases have been reported without any epidemiologic links to the residential school outbreak. All are thought to have been imported from other states.

Reported by: J Kattan, MD, MPH, Epidemiology and Emerging Infections Program; K Kudish, DVM, MSPH, L Greengas, MPH, Immunization Program, Connecticut Department of Public Health.

Editorial Note:

Mumps is a contagious viral infection characterized by swelling of one or more salivary glands, usually the parotid glands (parotitis); parotitis occurs in 30–40% of infected individuals and usually persists for 7–10 days. Other symptoms may include headache

and low-grade fever. Of persons infected with the mumps virus, as many as 20% are asymptomatic, and an additional 40–50% have only nonspecific or respiratory symptoms. Complications of mumps include orchitis (inflammation of the testicles), encephalitis/meningitis (inflammation of the brain and/or tissue covering the brain and spinal cord), oophoritis (inflammation of the ovaries), and deafness. Mumps is primarily spread via respiratory droplets, usually when the person sneezes, coughs, or talks. It can also be spread through fomites. An infected person is most contagious from 1–2 days before until approximately 5 days after onset of parotitis. The incubation period for mumps from exposure to onset of illness ranges from 12–25 days (2).

In 1967, the first vaccine against mumps was licensed in the United States. By 2005, high childhood vaccination coverage reduced disease incidence by 99% (2). Currently, individuals in the United States are considered to have age-appropriate vaccinations against mumps if they are aged 1–6 years and have received 1 dose of a mumps-containing vaccine, aged 7–18 years and have received 2 doses of vaccine, or aged 19–53 years and have received 1 dose of vaccine (3). In general, individuals born before 1957 are assumed to have natural immunity to mumps from childhood community exposure. Additional vaccination recommendations apply to special circumstances, such as international travel, a mumps outbreak, adults attending post-high school institutions, and health-care workers (3). Estimates of the effectiveness of the mumps vaccine have varied in previous studies, ranging from 73–91% after 1 dose and from 79–95% after 2 doses (4,5). At least one study found 2 doses to be more effective than 1 dose (4).

The Northeast region of the United States has been experiencing a large outbreak of mumps that began during the summer of 2009. As of January 29, 2010, a total of 1,521 cases have been reported from New York and New Jersey (1). The socio-demographic characteristics and vaccination histories of the outbreak cases in New York and New Jersey were similar to those of Connecticut cases. The outbreak has primarily affected members of a tradition-observant religious community; the median age was 15 years; 76% were male; the majority of cases were adequately immunized against mumps (1). Much of the current outbreak is occurring in

congregate settings, where prolonged, close contact among persons might be facilitating transmission (1).

The mumps outbreak at the residential school in Connecticut has direct epidemiological links to the larger outbreak in the Northeast region. Mumps surveillance and case follow-up is ongoing in Connecticut. All suspected mumps cases should be reported to the DPH Immunization Program at (860) 509-7929. While mumps activity in the state has not been widespread, the potential for increased transmission exists. The DPH is conducting surveillance and pursuing case-based follow up in order to implement appropriate public health control measures.

For further information regarding mumps, including clinical disease, infection control measures, and updates on vaccinations, visit <http://www.cdc.gov/mumps/clinical/index.html>. Connecticut healthcare providers with questions regarding testing for and reporting of mumps are encouraged to read a memo written in response to the recent mumps cases detailing state-specific recommendations, available at http://www.ct.gov/dph/lib/dph/infectious_diseases/immunization/2010/policy_memos/mumps_2-5-10_dph_provider_letter_re_suspected_mumps_final.pdf.

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Outbreaks of Norovirus Gastroenteritis Associated with a Bakery, Connecticut, 2010

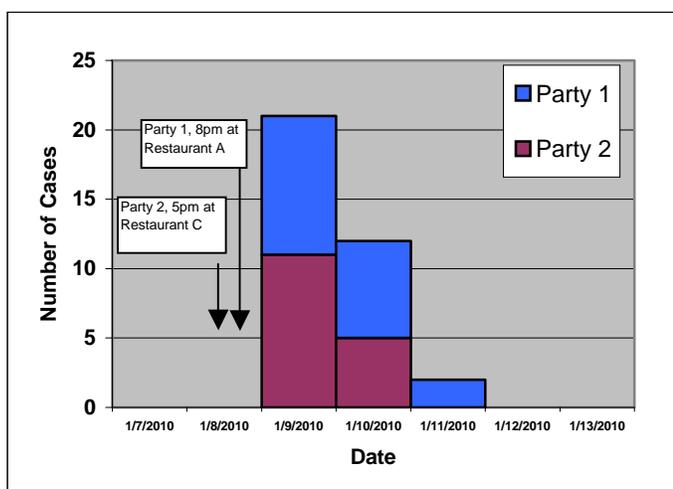
On January 11 2010, the Connecticut Department of Public Health (DPH) was notified of a possible outbreak of gastrointestinal (GI) illness among persons who attended a party (Party 1) held at a restaurant (Restaurant A) several days earlier. All

foods were prepared at Restaurant A with the exception of the dessert, which was purchased from a bakery (Bakery B). An epidemiological and environmental investigation was initiated. On January 22, a second GI outbreak was reported to the local health department (LHD). The complainant had attended a party (Party 2) held at a restaurant (Restaurant C) that had desserts also purchased from Bakery B. Both Party 1 and Party 2 occurred on the same day, however reported illness to the LHD from attendees of Party 2 was delayed by 2 weeks after the event. The DPH and the LHD expanded the ongoing epidemiological and environmental investigation to better characterize the reported illness and to determine a source for both outbreaks.

Epidemiological Investigation. Interviews of attendees of both parties were conducted by telephone or using a web-based survey tool. Questions concerning demographics, illness history, and food consumption were included. A case was defined as vomiting and/or diarrhea (≥ 2 loose stools in a 24 hour period) in a party attendee within 3 days of the events.

Party 1. Of the 59 attendees, 42 (71%) were interviewed. Of these, 21 (50%) had illness consistent with the case definition (Figure 1); 19 (90%) had diarrhea, and 16 (76%) had vomiting. The median age was 26 years (range 22-51 years); 13 (62%) were female. The median incubation period was 27 hours (range 14-70 hours) and the median duration of illness was 48 hours (range 24-48 hours). Of those ill, 2 (10%) sought medical care.

Figure 1: Number of cases by onset of illness and party.



Consumption of cannoli cake was significantly associated with illness (relative risk=4.38, 95% confidence interval [CI] =1.52-12.53, p-value [p] <0.001). Of the 20 cases with known food histories, 17 (85%) consumed the cannoli cake.

Party 2. Of the 78 attendees, 37 (47%) completed the web-based survey. Of these, 16 (43%) had illness consistent with the case definition (Figure 1); 15 (94%) had diarrhea and 15 (94%) had vomiting. The median age was 43 years (range 23-64 years); 14 (88%) were female. The median incubation period was 29 hours (range 16-32 hours) and the median duration of diarrhea was 12 hours (range 3-72 hours). Of those ill, 1 (6%) sought medical care.

Consumption of cannolis from the pastry platter was found to be the only risk factor significantly associated with illness (odds ratio=18.67, CI=1.89-184.02, p =0.005). Of the 14 ill persons with known food histories, 13 (93%) consumed cannolis.

Laboratory Investigation. Stool samples were collected from 7 ill attendees from Party 1, 7 food workers at Restaurant A, and 6 food workers at Bakery B. No specimens were available from food workers at Restaurant C or ill attendees of Party 2. Of the 7 samples from attendees of Party 1, there were 6 (86%) that tested positive for Norovirus genotype II. One food worker each from Restaurant A and Bakery B also tested positive for Norovirus genotype II. All specimens tested negative for *Campylobacter*, *Escherichia coli* O157:H7, *Salmonella*, and *Shigella*.

Environmental Investigation. The LHD conducted environmental investigations at both restaurants and Bakery B, which included interviews of all food workers, an evaluation of food-handling practices, and collection of stool specimens (Restaurant A and Bakery B only). Of food workers at Restaurant A, 1 reported onset of illness that was consistent with the onset date of ill patrons from Party 1 and reported eating only the cannoli cake. During interviews, no GI illnesses were reported by food workers at Restaurant C. Due to the 2-week lapse in time between the event and notification to the LHD no stool specimens were collected.

On the day of both parties, 1 food worker from Bakery B reported onset of GI illness at the end of the work shift following the delivery of the pastries to Restaurant C. This ill food worker, who tested positive for Norovirus genotype II, prepared and

handled the cannoli cake and pastries consumed by patrons of Party 1 and Party 2. Food handling practices were assessed and multiple risk factors were identified, particularly barehanded contact with ready-to-eat foods. Inadequate hand washing was also noted, particularly after use of the restroom, and between touching soiled and cleaned dishes.

Reported by: K Desy, MPH, J Brockmeyer, MPH, Q Phan, MPH, Epidemiology and Emerging Infections Program; L Bushnell, RS, Food Protection Program; M Mandour, BS, MT (ASCP), State Laboratory, Connecticut Department of Public Health; Local Health Department staff.

Editorial Note:

Norovirus is the most common cause of reported GI outbreaks accounting for 54% of nationally reported outbreaks (1). Symptoms caused by norovirus infection include: vomiting, diarrhea, abdominal cramps, nausea, and low-grade fever. Illness is generally self-limited with symptoms lasting 24-72 hours. The median incubation period of illness in norovirus outbreaks is 33-36 hours (2).

Norovirus is highly contagious with an infectious dose of 10 viral particles. Norovirus is transmitted through the fecal-oral route and commonly spread through fecal contamination of food or water, and person-to-person transmission. Transmission can also occur through contact with contaminated environmental surfaces (2). From 1991-2000, 91% of reported norovirus outbreaks were associated with restaurants, and 48% implicated food worker contamination (3). Ready to eat foods, particularly semi-liquid foods such as cake icings and fillings, are commonly documented sources of contamination in norovirus outbreaks (4).

This outbreak investigation identified cannoli cream as the vehicle for illnesses among guests of both parties. The cannoli cream was the only common ingredient used in both the cannoli cake and cannoli pastries on the pastry platter. The environmental investigation identified a link between a food worker from Bakery B who tested positive for norovirus and the cannoli cream.

As a result of the investigation multiple control measures were implemented at Bakery B. Food worker training was conducted and a policy was implemented aimed at reducing barehanded contact with ready to eat foods through the use of single use gloves. Additionally, an employee health policy was implemented that requires food workers to report all GI illness to their supervisor and exclusion from work until 72 hours after resolution of symptoms.

This investigation highlights the importance of timely reporting of suspected outbreaks by the public. Upon suspicion of a foodborne outbreak, the organizer of Party 2 notified Bakery B and Restaurant C on January 12, 2010. The LHD was not notified of the attendees' illnesses until January 22, 2010. This demonstrates a need to educate the public about notifying public health officials about suspected foodborne illnesses. If the illnesses associated with both Party 1 and Party 2 were reported in a timely manner, Bakery B would have been identified as a common food source earlier in the investigation. Prompt notification would have allowed the epidemiological and environmental investigations to focus on Bakery B resulting in implementation of control measures at an earlier date.

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<p>J. Robert Galvin, MD, MPH, MBA Commissioner of Health</p> <p>Matthew L. Cartter, MD, MPH State Epidemiologist</p> <p>Lynn Sosa, MD Deputy State Epidemiologist</p>	<p>HIV/AIDS Surveillance (860) 509-7900 Epidemiology (860) 509-7994 Immunizations (860) 509-7929 Pulmonary Diseases (860) 509-7722 Sexually Transmitted Diseases (STD) (860) 509-7920</p>	<p>Connecticut Epidemiologist</p> <p>Editor: Matthew L. Cartter, MD, MPH</p> <p>Assistant Editor & Producer: Starr-Hope Ertel</p>
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