

Georgia Infectious Disease Outbreaks – Annual Summary 2011

Outbreaks and Clusters

An outbreak is defined as a higher incidence of disease or illness in a specific time and place than expected. Outbreaks can be reported by healthcare providers, including primary care physicians, hospital infection prevention practitioners, school nurses, and nursing home administrators or by the general public. An outbreak may also be reported in the course of a routine surveillance interview. In an outbreak, common exposures among a specific group of people are often known, for example, being at the same picnic at the same time, but the etiology of their symptoms, or the mode of transmission may not be.

A cluster is a group of lab-confirmed cases in a certain place and time *suspected* to be greater than expected. Most often, the clusters investigated in Georgia are detected by laboratory testing. Because of this, the etiologic agent is often known at the start of the investigation, but the commonalities between cases, such as their exposures, are unknown. Clusters are often reported by laboratories, including hospital labs, state public health labs, or the national network of public health and food regulatory agency labs, PulseNet.

A confirmed Georgia outbreak is defined as two or more people with a similar illness following a documented common exposure within the state of Georgia. “Common exposures” may include consumption of a common food item or attendance at the same event. Illnesses occurring at the same facility, students at the same school, etc. are considered to be an “outbreak” if it is clear that more than one resident or student was exposed at the same time or the number of illnesses is greater than what is expected.

Laboratory data such as etiology, serotype, and pulse field gel electrophoresis (PFGE) patterns are available to Georgia Department of Public Health (GDPH) epidemiologists through the Georgia Public Health Laboratory (GPHL) and notifiable disease reporting mechanisms. GPHL performs PFGE testing on *Salmonella*, *Shigella*, *Listeria*, and shiga toxin-producing *E. coli* isolates submitted from hospital and commercial labs to determine the DNA fingerprint of the organism. GPHL then uploads those patterns to the national PulseNet database. All 50 state public health departments participate in PulseNet as well as the US Department of Agriculture (USDA) and the Food and Drug Administration (FDA); all of these labs perform PFGE testing on bacteria.

Characterization of 2011 Georgia Outbreaks

Outbreaks or clusters of illness are dynamic events that may involve a variety of etiologies, settings, and populations. In 2011, 160 events were investigated by Georgia epidemiologists. Of these, 95 (59%) were considered confirmed Georgia outbreaks. Seventy-four (78%) confirmed outbreaks were also laboratory-confirmed.

The most common etiology of confirmed Georgia outbreaks during 2011 was norovirus with 42 (44%) outbreaks, followed by *Salmonella* with 14 (15%) and influenza with 12 (13%) (Figure 1).

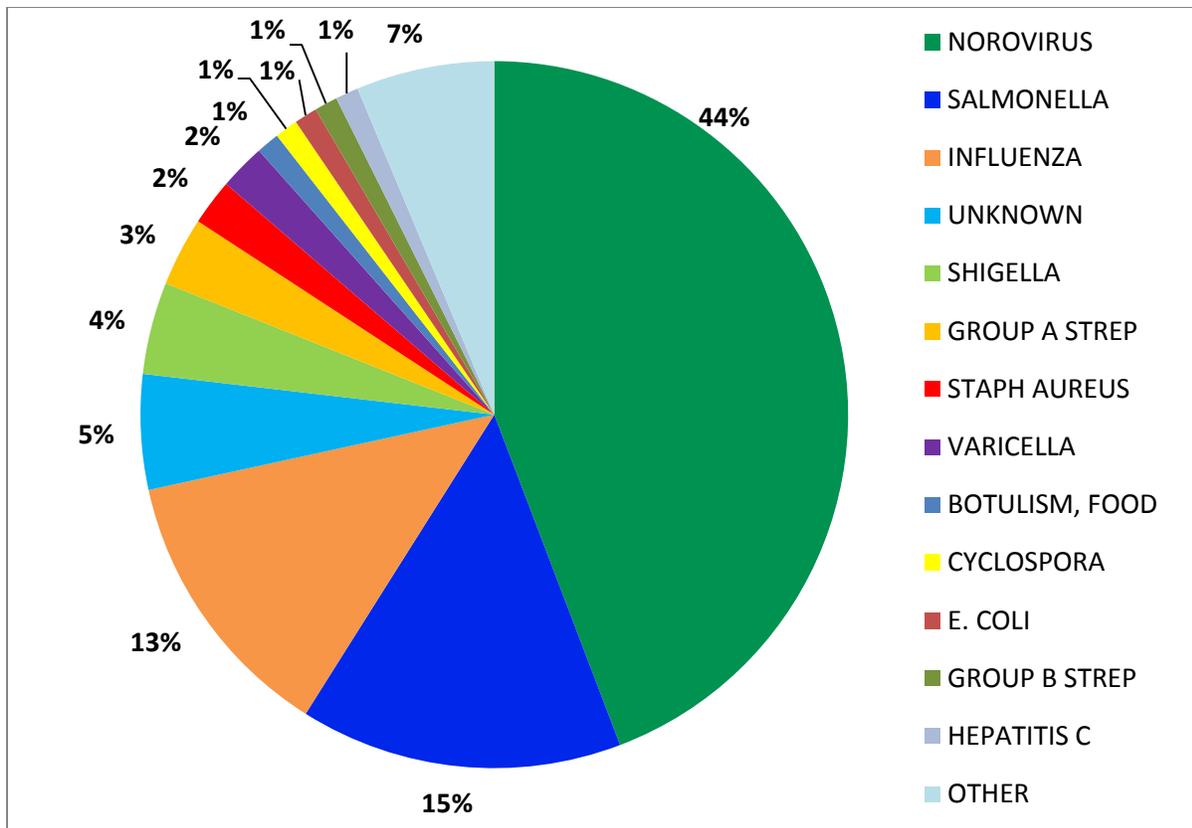


Figure 1. Etiologies of Confirmed Georgia Outbreaks, 2011

The majority of confirmed outbreaks were transmitted person-to-person (62 outbreaks, 65%). These outbreaks were largely due to norovirus (33 outbreaks, 53%) and influenza (12 outbreaks, 19%). The number of reported norovirus outbreaks has remained steady since the 2006-2007 season, during which a new variant of norovirus circulated nationally (Figure 2).

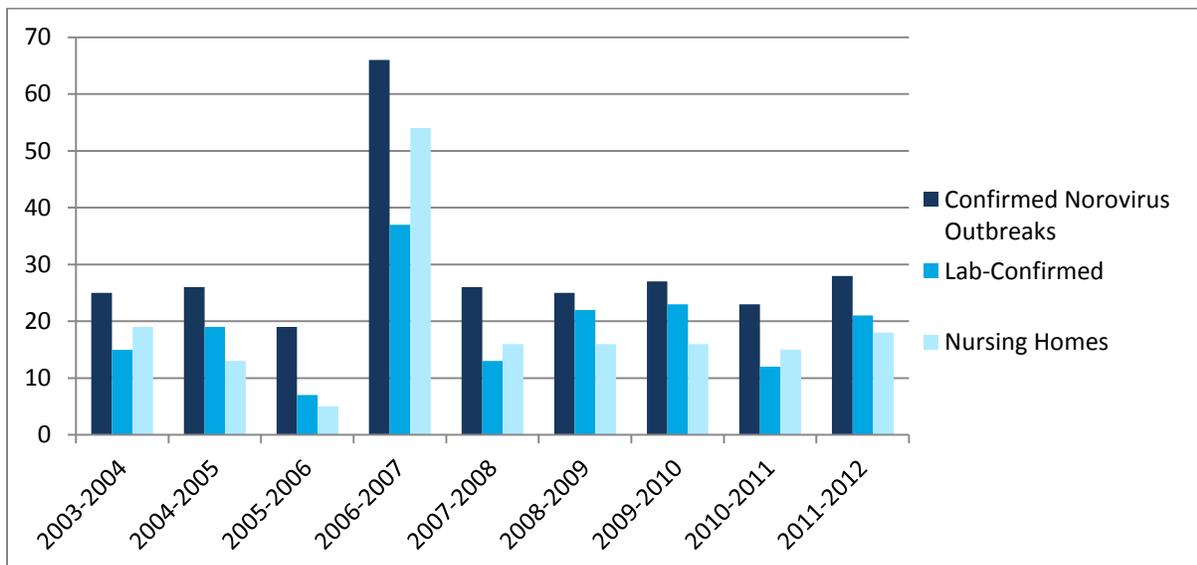


Figure 2. Reported norovirus outbreaks by season, November-February, Georgia, 2003-2012

Food was the probable vehicle in 20 (21%) confirmed outbreaks; 18 (90%) of the foodborne outbreaks were laboratory-confirmed (Figure 3).

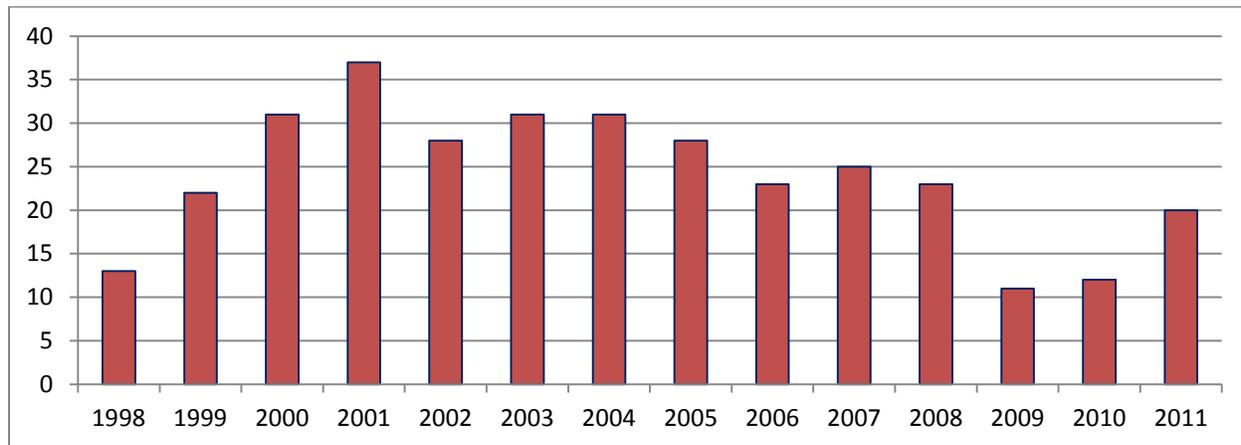


Figure 3. Confirmed Foodborne Outbreaks, Georgia, 1998-2011

Sixty-one (38%) of the 161 reported events in 2011 were defined as cluster investigations (laboratory-linked cases without a known epidemiologic association). Fifteen (25%) of the 61 cluster investigations were confirmed Georgia outbreaks. Fifty-three (87%) of these clusters were initially detected through laboratory data with 33 (54%) clusters identified by CDC's PulseNet.

Outbreak Spotlights

In 2011, Georgia participated in many multi-state investigations, performed large Georgia-specific investigations, and investigated the first adult foodborne botulism case since 2006. Here are a few highlights.

Multi-State Outbreak of Salmonella Agona Associated with Papaya Consumption

On May 14, 2011, Georgia was notified of a *Salmonella Agona* case with an isolate that "matched" a PFGE pattern under national investigation. At that time, there were 18 cases in 10 states around the country. Over the next 2 months, Georgia continued to identify cases that matched the outbreak PFGE pattern. Interviews were attempted on all cases. In the course of the multi-state investigation, CDC noticed a higher than expected incidence of Hispanic case-patients and of those reporting tropical fruit consumption.

On June 30, a Georgia case-patient reported mango, papaya, and banana, which were purchased from an international market. GDPH Epidemiology requested that the GA Department of Agriculture determine the source of those tropical fruits. FDA used traceback information from Georgia and a few other states to identify a single common Texas distributor of Mexican papayas. On July 23, the Texas distributor issued a recall of several varieties of papayas imported from Mexico. In total, Georgia reported 8 cases (0 deaths) of *Salmonella Agona* matching the outbreak PFGE pattern from February 26-June 5, 2011.



Single Case of Adult Botulism Associated with Potato Soup Consumption

On April 11, the Gwinnett County Health Department was contacted by a local physician to request botulism testing and release of antitoxin for a 41-year-old female patient. The case-patient presented to a Brunswick, GA hospital on April 6 after onset of muscle weakness, difficulty swallowing, and slurred speech the day prior; she was discharged the same day. Upon returning to Atlanta on April 8, she presented to an Atlanta ED with difficulty swallowing and slurred speech. She was admitted at that time, eventually transferred to the ICU, and intubated on April 11. CDC released botulism antitoxin and treatment began the day of the physician inquiry. The patient's stool tested positive for *Clostridium botulinum* toxin type A on April 18.

A thorough exposure history was obtained for the case-patient after the disease report by the physician. There were only a few items consumed solely by the case-patient: white wine, single-serve jelly, potato soup, and meals at two St. Simons restaurants. Working with the Georgia Department of Agriculture, Gwinnett County epidemiologists were able to obtain all Kroger receipts from March 1-April 2 using the family's Kroger Plus card.

The item likely associated with illness was potato soup. It was purchased on March 16 from Kroger as a refrigerated item with instructions to keep refrigerated until consumption. It was stored at room temperature until April 2, when it was packed on ice and transported to St. Simons. After consuming a portion of the soup on April 3, the case-patient reported it tasted spoiled and discarded the rest. Although this was an isolated case in Georgia, a similar case of adult foodborne botulism was identified in Ohio in January 2011 who had also consumed potato soup that was meant to be refrigerated but was left at room temperature for several weeks.

Outbreak of Cyclosporiasis Associated with Multiple Events at a Georgia Catering Facility
During the week of August 15, 2011, the Georgia Department of Public Health (GDPH) was notified of 2 possible outbreaks of gastrointestinal (GI) illness associated with catered events held at Facility A on July 25 (Event 1) and July 30 (Event 2), respectively. Early illness reports described high attack rates, incubation periods of 1 week, and diarrhea lasting at least 3 days. The GDPH worked with the Fulton County Department of Health and Wellness (FCDHW) and Cobb & Douglas Public Health to distribute electronic questionnaires (n=150) to document attendees' symptoms and food items consumed. FCDHW also received reports of 4 Facility A employees with symptoms similar to attendees. FCDHW environmentalists inspected Facility A, collected menus and invoices for both events, and determined that 3 raw fresh produce items were common to both events: field mix, fresh basil, and cherry tomatoes.

Approximately 100 people attended Event 1; of the 70 survey respondents, 66 (94%) reported illness after the event. Approximately 130 people attended Event 2; of the 39 respondents, 30 (77%) reported illness after the event. For both events, the median incubation period was 7 days and median illness duration was 10 days. The most common symptoms reported were diarrhea (median of 10 stools on worst day of symptoms), fatigue, and abdominal cramps. The Georgia Department of Agriculture visited the produce



supplier and sampled the three common items; tests were negative for bacteria and parasites.

On August 23, the Georgia Public Health Laboratory (GPHL) confirmed *Cyclospora cayetanensis* in an Event 2 attendee's stool specimen. On August 30, the GPHL identified *Cyclospora* in specimens from 2 Facility A employees who were not food handlers but consumed food prepared at Facility A. The field mix, basil, and cherry tomatoes were used to make salads served at both events. When salad consumption data were combined from both events, event attendees who ate salad (104, 97%) were 1.17 (0.93-1.48) times more likely to become ill than those who did not (3, 3%) ($p=0.038$). Salad was the most likely vehicle of foodborne transmission, although the exact contaminated ingredient was not determined. This finding is consistent with past *Cyclospora* outbreaks in the United States, which have been linked to "stealth vehicles" such as garnishes or other ingredients not listed on menus or in recipes.

Health District	Confirmed Outbreaks		Lab-Confirmed		Foodborne	
	2010	2011	2010	2011	2010	2011
Rome (1-1)	15	14	10	9	1	0
Dalton (1-2)	1	5	1	4	1	0
Gainesville (2-0)	1	2	1	1	1	0
Marietta (3-1)	6	3	4	2	0	2
Atlanta (3-2)	10	10	4	7	0	2
Forest Park (3-3)	1	1	1	1	0	0
Lawrenceville (3-4)	10	5	8	3	1	1
Decatur (3-5)	9	8	6	6	2	3
La Grange (4-0)	2	2	0	2	0	0
Dublin (5-1)	3	10	3	8	0	1
Macon (5-2)	7	4	4	3	0	1
Augusta (6-0)	1	1	1	1	0	1
Columbus (7-0)	10	6	6	5	0	1
Valdosta (8-1)	5	4	2	4	0	0
Albany (8-2)	10	8	9	6	1	1
Savannah (9-1)	4	1	2	1	1	0
Waycross (9-2)	1	1	1	1	1	1
Athens (10-0)	0	3	0	2	0	2
Multi-State and Multi-District Clusters	5	8	5	8	3	5
Total	101	96	68	74	12	21

Chart 1. Confirmed, lab-confirmed, and foodborne outbreaks by Health District, Georgia, 2010-2011

Rate of Confirmed Georgia Outbreaks by Health District, Georgia, 2011

