

Georgia Infectious Disease Outbreaks – Annual Summary 2012

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. PulseNet is headquartered at the Centers for Disease Control and Prevention (CDC) in Atlanta, GA and includes a network of over 80 laboratories in the United States. Each state is represented in PulseNet in addition to the US Department of Agriculture (USDA) and the Food and Drug Administration (FDA).

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.

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.

Characterization of 2012 Georgia Outbreaks

Outbreaks or clusters of illness are dynamic events that may involve a variety of etiologies, settings, and populations. In 2012, 169 events were investigated by Georgia epidemiologists. Of these, 113 (67%) were considered confirmed Georgia outbreaks. Seventy-six (67%) confirmed outbreaks were also laboratory-confirmed.

Norovirus was the most commonly reported outbreak etiology among confirmed Georgia outbreaks accounting for 62 (55%) outbreaks in 2012. The second most common outbreak etiology was *Salmonella* with 13 (11%) outbreaks and the third most common etiologies were influenza and scabies at 4 each (4%) (Figure 1).

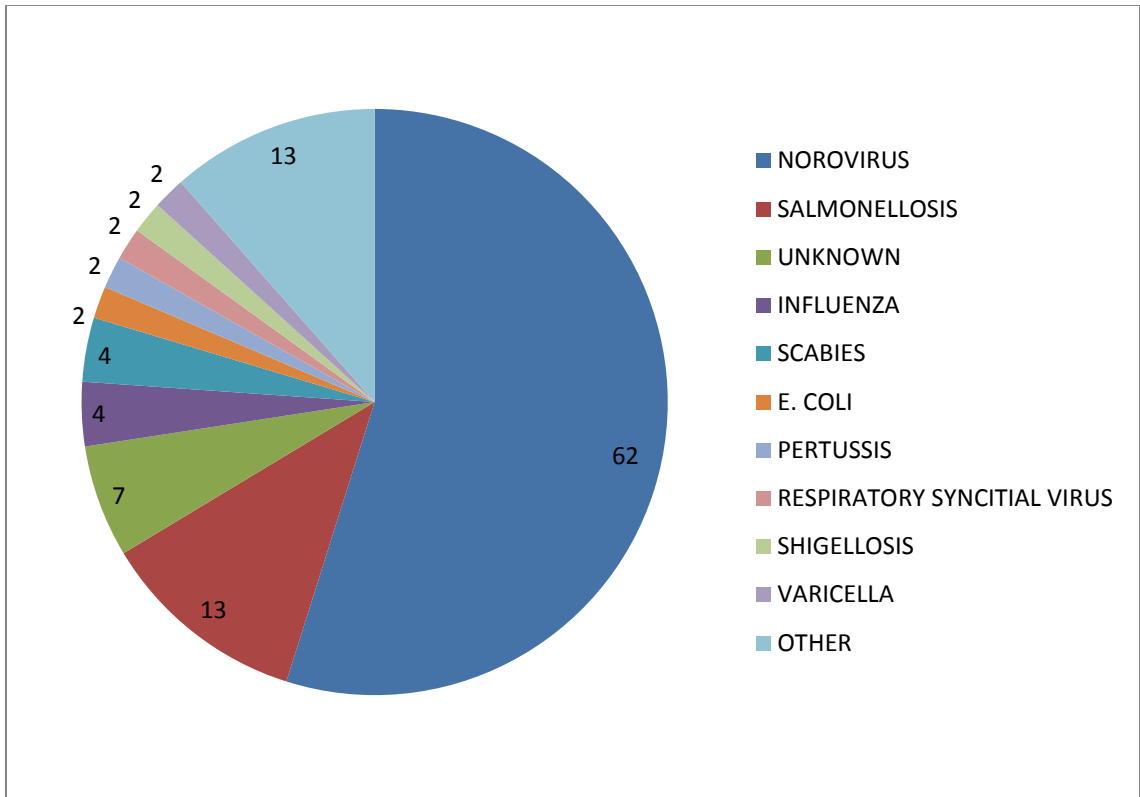


Figure 1. Etiologies of Confirmed Georgia Outbreaks, 2012

The majority of confirmed outbreaks were transmitted person-to-person (81 outbreaks, 72%). These outbreaks were largely due to norovirus (54 outbreaks, 67%); influenza (4 outbreaks, 5%) and scabies (4 outbreaks, 5%) accounted for others. The number of reported norovirus outbreaks remained steady between the 2006-2007 and the 2012-2013 seasons, during which new variants of norovirus circulated nationally (Figure 2).

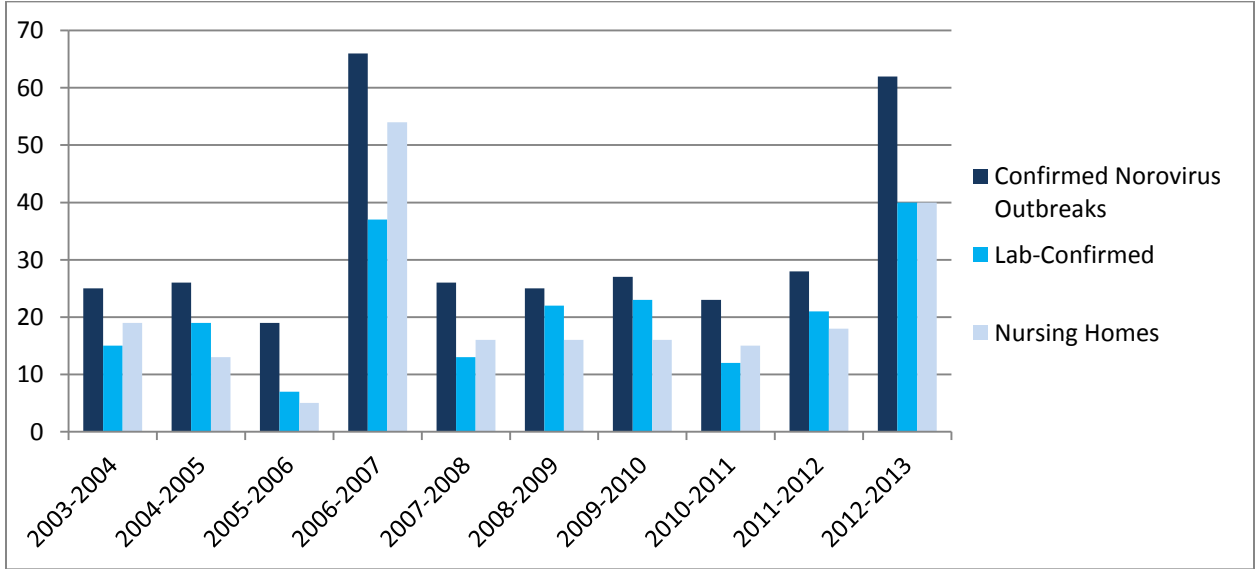


Figure 2. Reported norovirus outbreaks by season, November-February, Georgia, 2003-2013

Food was the probable vehicle in 12 (11%) confirmed outbreaks; 8 (67%) of the foodborne outbreaks were laboratory-confirmed. In 2012, Georgia documented fewer than average foodborne outbreaks (Figure 3).

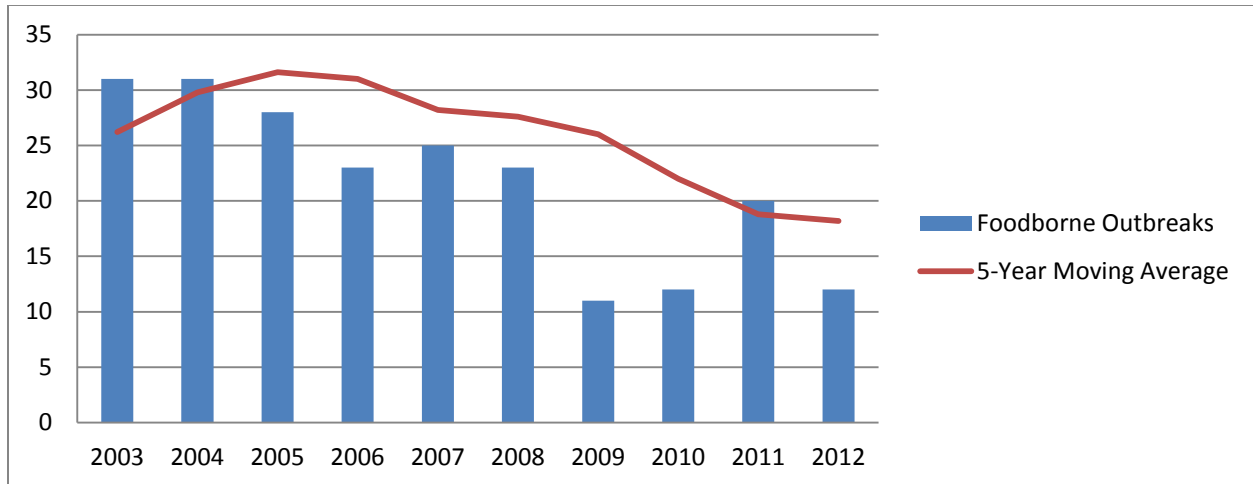


Figure 3. Confirmed Foodborne Outbreaks with 5-year Moving Average, Georgia, 2003-2012

Sixty-two (37%) of the 169 reported events in 2012 were defined as cluster investigations (laboratory-linked cases without a known epidemiologic association). Nineteen (31%) of the 62 cluster investigations were confirmed Georgia outbreaks. Fifty-five (89%) of these clusters were initially detected through laboratory data with 25 (40%) clusters identified by PulseNet.

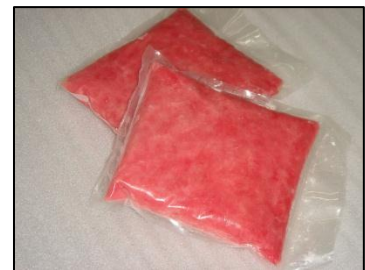
Outbreak Spotlights

In 2012, Georgia participated in many multi-state investigations, managed a large increase in norovirus outbreaks across the state, and investigated a pneumonia outbreak among college students. Here are a few highlights.

Multi-State Outbreak of Salmonella Bareilly and Nchanga Associated with Raw Tuna Consumption

On March 2, 2012, Georgia was notified of a *Salmonella* Bareilly case with an isolate that “matched” a PFGE pattern under national investigation. At that time, there were 10 cases in 6 states around the country. Because this *Salmonella* serotype and PFGE pattern were so rare, CDC launched an outbreak investigation.

When 2 new Georgia cases were reported one month later, CDC already suspected sushi exposure was associated with illness. CDC led a comparison study using data from 4 illness clusters in 4 states. Data from this study showed an association between illness and consumption of sushi made with tuna, specifically “spicy tuna.” FDA was able to traceback the raw tuna used in each of these clusters to one tuna processing facility in India, Moon Fishery Pvt Ltd.



On April 13, 2012, Moon Marine USA Corporation voluntarily recalled almost 60,000 pounds of a frozen raw yellowfin tuna product, labeled as Nakauchi Scrape AA or AAA. On April 26, 2012 FDA detected the outbreak strain of *Salmonella* Bareilly, as well as *Salmonella* Nchanga, in recalled product. Georgia attempted interviews on all outbreak cases. From January through July 2012, there were 425 persons infected with the outbreak strains of *Salmonella* Bareilly and Nchanga; 22 of those cases were Georgia residents. Of those Georgia residents, 16 were reached for interview and 12 reported raw tuna consumption.

Outbreak of Pneumonia among College Students

On October 17, 2012, the Fulton County Department of Health and Wellness (FCDHW) notified the Acute Disease Epidemiology Section (ADES) at the Georgia Department of Public Health of an email from student health services at a local university. The university health system was documenting higher numbers of pneumonia among students than expected. ADES along with FCDHW led an outbreak investigation at University X.



ADES began the investigation with chart abstractions from documented pneumonia patients seen at student health services. Following chart abstractions, ADES attempted to contact pneumonia cases by email and phone to administer a questionnaire on their activities in the weeks leading up to illness. Finally, ADES performed a knowledge, attitudes, and practices (KAP) survey on a convenience sample of 105 students to assess outreach and prevention efforts.

During the first week of November, University X sent emails and posted fliers alerting students and staff to the pneumonia outbreak. Results of the KAP survey showed that only 46% of students were aware of the outbreak after the university outreach. Of those students, 79% were likely to practice good respiratory hygiene as a result of their awareness. Regardless of outbreak awareness, only 30% of students said they would stay home if ill with cough and fever.

Between September 1, 2012 and December 4, 2012, 83 probable (clinical or radiographically-confirmed pneumonia) or confirmed (laboratory-confirmed *Mycoplasma pneumoniae* pneumonia) cases were identified among University X students; five patients were hospitalized and all recovered.

Increase in Norovirus Outbreaks

During the 2012-2013 norovirus season, a new strain of norovirus circulated widely in the US. The new strain of norovirus was first detected in Australia in early 2012 and is called GII.4 Sydney. Prior to this new strain, the predominant strain in circulation was GII.4 New Orleans. The last time a new norovirus strain was circulating (2006-2007), Georgia documented over 3 times the number of confirmed norovirus outbreaks from one season to the next. This year, we documented over 2 times the number of confirmed norovirus outbreaks when compared to the previous year. If past data are a guide, reported norovirus outbreaks should return to more normal numbers in the coming years. The season following the last increase (2007-2008) was comparable to the season preceding that increase (2005-2006).

Health District	Confirmed Outbreaks		Lab Confirmed		Foodborne	
	2011	2012	2011	2012	2011	2012
Rome (1-1)	14	17	9	12	0	0
Dalton (1-2)	5	4	4	1	0	1
Gainesville (2-0)	2	2	1	2	0	0
Marietta (3-1)	3	8	2	5	2	0
Atlanta (3-2)	10	11	7	2	2	2
Forest Park (3-3)	1	2	1	2	0	0
Lawrenceville (3-4)	5	15	3	13	1	4
Decatur (3-5)	8	3	6	2	3	0
La Grange (4-0)	2	2	2	1	0	0
Dublin (5-1)	10	4	8	4	1	0
Macon (5-2)	4	4	3	2	1	0
Augusta (6-0)	1	1	1	0	1	0
Columbus (7-0)	6	12	5	7	1	2
Valdosta (8-1)	4	3	4	1	0	0
Albany (8-2)	8	2	6	0	1	0
Savannah (9-1)	1	5	1	5	0	0
Waycross (9-2)	1	3	1	2	1	0
Athens (10-0)	3	1	2	1	2	0
Multi-State and Multi-District Clusters	8	14	8	14	5	3
Totals	96	113	74	76	21	12

Chart 1. Confirmed, lab-confirmed, and foodborne outbreaks by Health District, Georgia, 2011-2012

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

