**Georgia Infectious Disease Outbreaks – Annual Summary 2010**

## Outbreaks and Clusters

An outbreak of disease is a higher incidence of disease 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 etiological 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 public health lab system, PulseNet.

Laboratory data such as etiology, serotype, and pulse field gel electrophoresis (PFGE) patterns are available to Georgia Division of Public Health (GDPH) epidemiologists through the Georgia Public Health Laboratory (GPHL) and notifiable disease reporting. GPHL performs PFGE testing on *Campylobacter*, *Salmonella*, *Shigella*, *Listeria*, and *E. coli* isolates submitted from hospital and commercial labs. GPHL then uploads those patterns to a shared national database called PulseNet. 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 DNA fingerprinting on bacteria.

## Characterization of 2010 Georgia Outbreaks

Outbreaks or clusters of illness are dynamic events that may involve a variety of etiologies, settings, and populations. In 2010, 161 events were investigated by epidemiologists in Georgia's 18 health districts and at the state office. Of these, 101 (63%) were considered confirmed Georgia outbreaks, which are defined as epidemiologically-linked cases with a known exposure that occurred in Georgia. Sixty-eight (67%) of confirmed outbreaks were laboratory-confirmed.

The most common etiology of 2010 confirmed Georgia outbreaks was norovirus with 52 (51%) reported outbreaks, followed by unknown etiology with 10 (10%) and Salmonella with 9 (9%) (Figure 1).

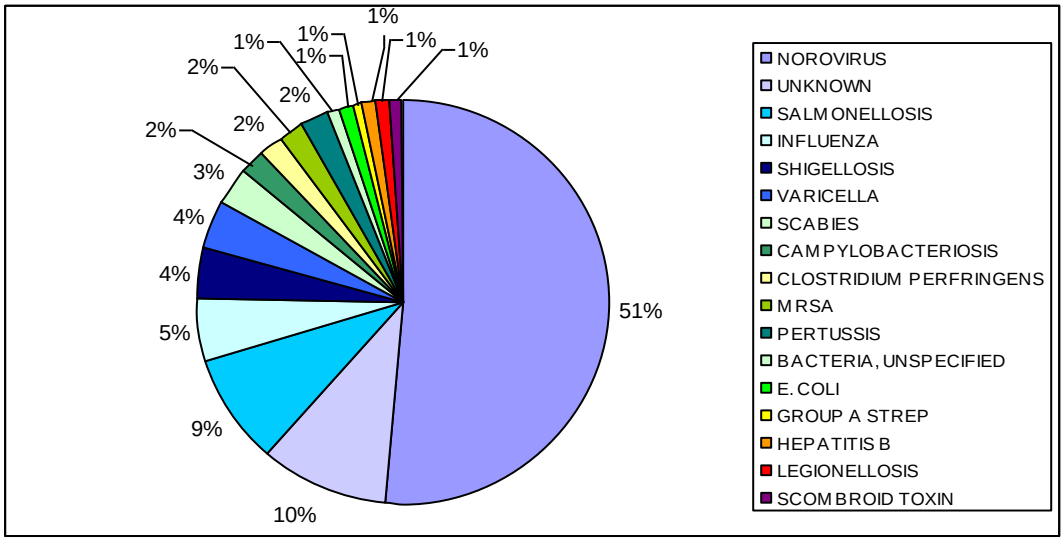


Figure 1. Etiologies of confirmed Georgia outbreaks, 2010

The majority of reported outbreaks (73 outbreaks, 72%) were transmitted person-to-person. These outbreaks were largely due to norovirus (64%) (Figure 2) and influenza (7%). These data reflect a return to the norm after 2009 person-to-person outbreaks were dominated by pandemic strain 2009 H1N1 influenza (influenza accounted for 70% of person-to-person outbreaks in 2009 while norovirus accounted for 23%).

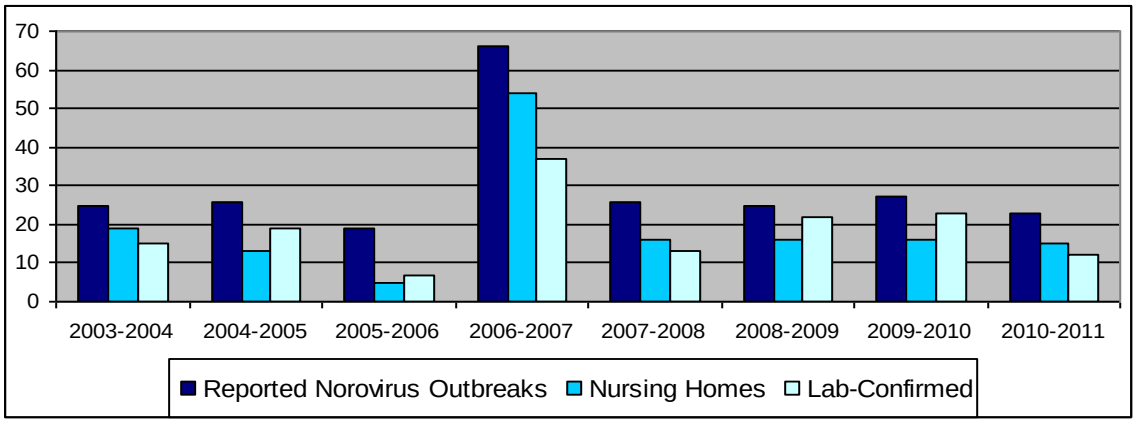


Figure 2. Reported norovirus outbreaks by season, November-February, Georgia, 2003-2011

Food was the probable vehicle in 12 (12%) outbreaks; nine (75%) of the foodborne outbreaks were laboratory-confirmed (Figure 3). Forty-six (29%) of the 161 reported events were defined as cluster investigations (laboratory or disease-linked cases without a known epidemiologic association). Seven (15%) of the 46 cluster investigations were confirmed Georgia outbreaks. Forty-two (91%) of these clusters were initially detected through laboratory data with 29 (63%) clusters identified by CDC's PulseNet.

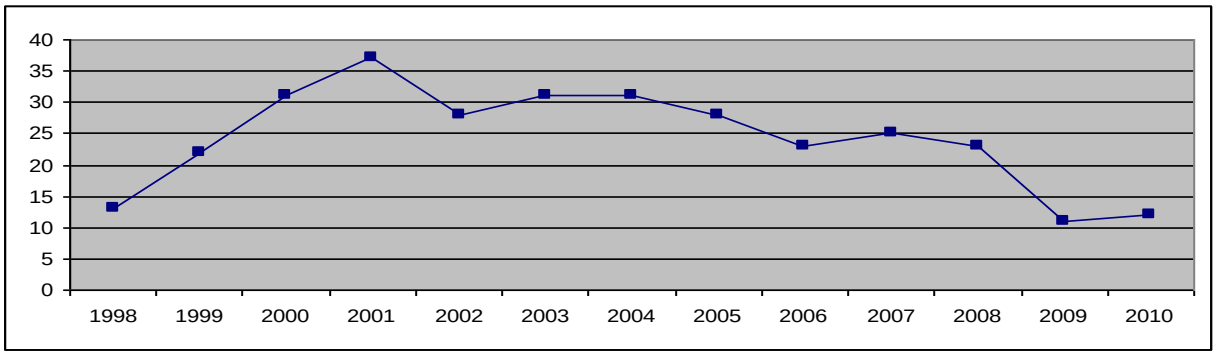
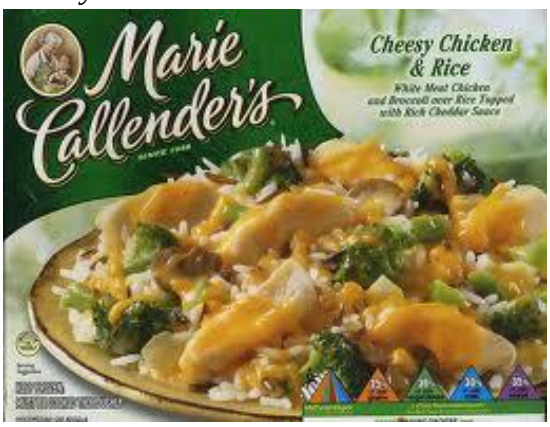


Figure 3. Confirmed foodborne outbreaks, Georgia, 1998-2010

In 2010, no national bacterial clusters dominated the public health scene as some have in recent years, like peanut butter did in 2007 and again in 2009. Instead, Georgia contributed to national investigations of several smaller outbreaks, including ones associated with exposures to frozen dinners, baby chickens, frozen rodents intended as reptile feed, and a national chain restaurant. Clusters are detected, reported, and investigated using the same steps as outbreak investigations, but require diligent communication and collaboration because of possible involvement at the federal, state, and local levels. As our population becomes more fluid and our food supply more global, relationships among food safety agencies and Public Health will be vital in preventing and minimizing foodborne disease outbreaks.

**Highlighted 2010 Outbreaks**

*National Outbreak of Salmonella Chester Associated with Consumption of Marie Callender's Cheesy Chicken and Rice Frozen Entrée*




Between April 29, 2010 and June 6, 2010, onsets of 8 Georgia cases of *Salmonella* Chester were reported (the highest case count of any individual state). Nationally, 44 onsets of cases were reported from April 4 to June 16, 2010. Six Georgia cases were able to be interviewed for exposures; three of five who were specifically asked about frozen entrées reported eating Marie Callender's frozen entrées in the week before illness. A multi-state case-control investigation was conducted by CDC and several states in which ill persons (89%) were significantly more likely than well persons (14%) to eat a frozen meal in the week before illness. Also, two state health departments (Tennessee and Minnesota) were able to test unopened Marie Callender's Cheesy Chicken and Rice frozen entrées leftover from case patient's freezers, from which they reported isolating the outbreak strain of *Salmonella* Chester. On June 17, 2010 ConAgra Foods announced a recall of Marie Callender's Cheesy Chicken and Rice single-serve frozen entrées.

*Outbreak of Campylobacter and Shiga-toxin producing Escherichia coli 0157:H7 Infections and Co-infections in a Women's Prison in Habersham County, Georgia, August 2010*

In a women's prison, 16 of 1575 inmates began experiencing gastrointestinal illness on August 1, 2010 and began presenting at the prison infirmary on August 3, 2010. Seven of those women were admitted to the local hospital from August 4 through August 9. Three of the hospitalized cases tested positive for *Campylobacter* and 2 of those 3 also tested positive for *E. coli* 0157:H7. The outbreak was first reported to the district health department on August 10 and a questionnaire was distributed to prison medical staff on August 12 to be administered to all cases seen through the prison infirmary. Stool collection kits for cases were also distributed. Upon interview, 15 cases did not report any common exposures unique to the group (one of the cases could not be interviewed), although common exposures that were against prison rules may have occurred and not been reported. Meat served at the prison is produced and distributed by the Georgia Department of Corrections, which tests their products regularly. No meat product distributed by the Georgia Department of Corrections had tested positive for *E. coli* this calendar year. An incident of kitchen-wide food contamination was highly unlikely due to the low attack rate for the outbreak (1.0%). A common exposure for this outbreak was not confirmed, although rumored, prohibited activities among cases, which could have lead to illness, abounded.

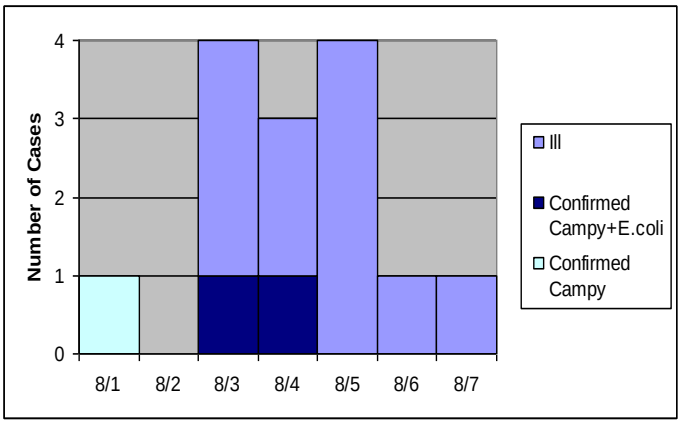



Figure 4. Cases of Gastrointestinal Illness at a Women's Prison by Illness Onset Date, Habersham County, Georgia, August 2010

*Outbreak of Salmonella Infantis Infections Associated with Barbeque Restaurant A in Wayne County, Georgia, August to September 2010*

On August 26, 2010, the Georgia Acute Disease Epidemiology Section (ADES) learned of a group of ill Wayne County residents who attended an engagement party at a private home on August 21, 2010. Foods served at the party were both homemade and catered from Barbeque Restaurant A in Wayne County. Approximately 31 of 45 party attendees became ill with gastrointestinal illness; three stool specimens collected from party attendees tested positive for *Salmonella*. Those specimens were sent to the Georgia Public Health Laboratory (GPHL) and were reported positive for *Salmonella* Infantis. While investigating the engagement party outbreak, the district epidemiologist received reports of other cases of Salmonellosis in the community, some of whom reported symptoms beginning 12-48 hours after eating food from Barbeque Restaurant A. From August 4 to September 25, 50 probable and 24 lab-confirmed cases of *Salmonella* associated with eating food from Barbeque A were reported. Twenty-two of the 24 lab-confirmed cases were serotyped and all were reported as *Salmonella* Infantis with matching pulsed-field gel electrophoresis (PFGE) patterns. Epidemiologic information did not implicate any specific food item, although the establishment served a limited menu. No employees at Barbeque A reported any symptoms of gastrointestinal distress in the month prior to illness onsets in the community, but all employees submitted stool specimens for testing. Four

of 8 of the employees tested positive for *Salmonella* Infantis with the outbreak PFGE pattern. Positive employees were excluded from work pending a negative stool specimen. Barbeque A was closed on September 20 for 18 days; no reported illnesses associated with eating food from the establishment were reported in the remainder of 2010.

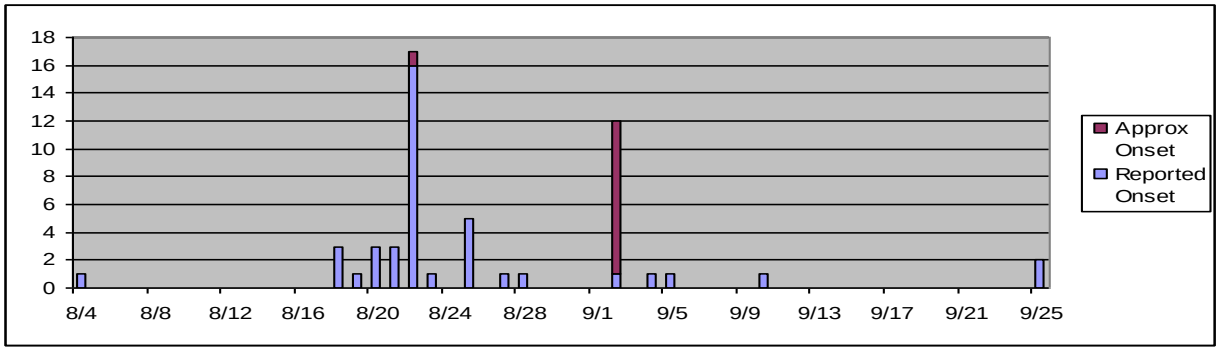
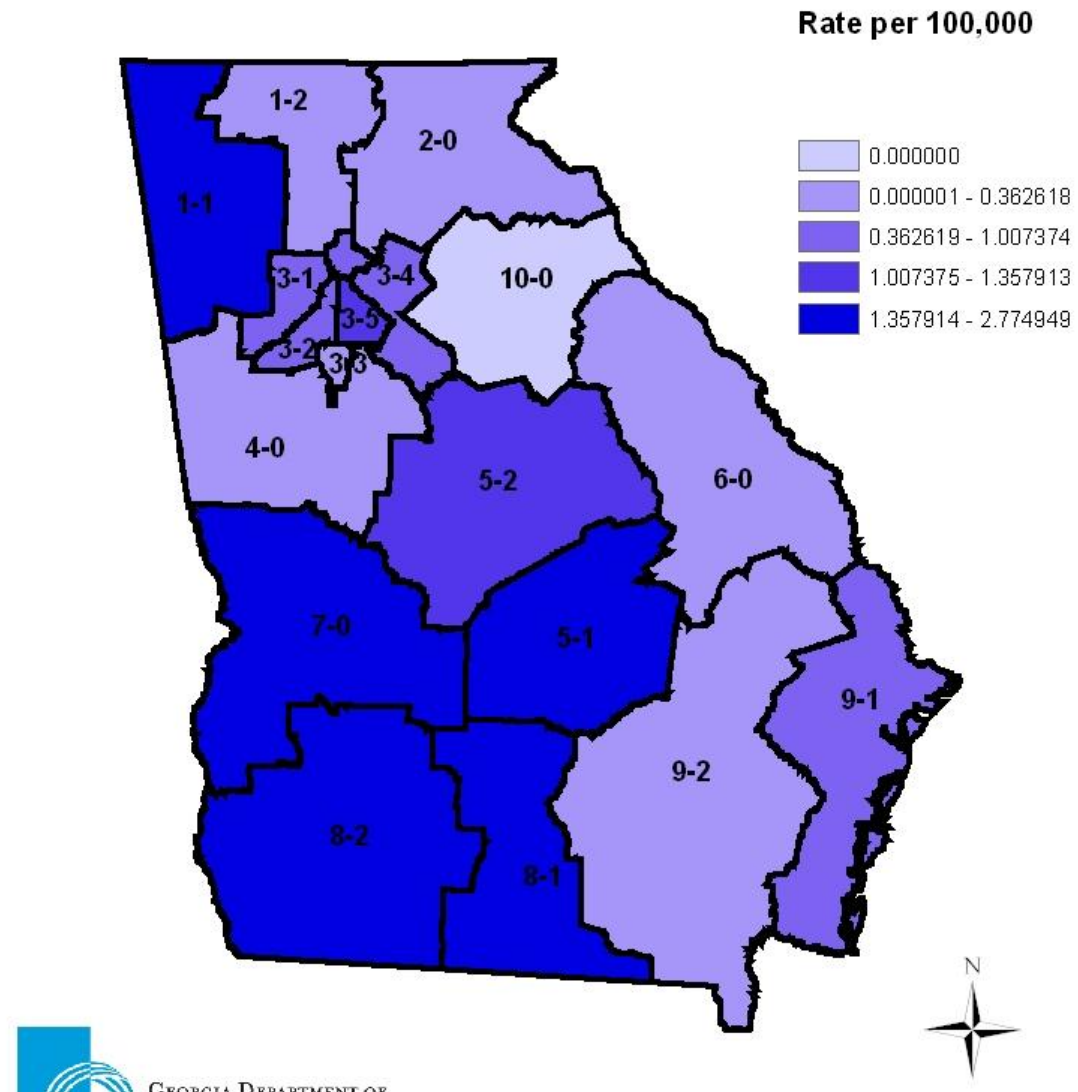



Figure 5. Cases of Gastrointestinal Illness Associated with eating at Barbeque A by Onset Date, Wayne County, Georgia, August-September 2010

| District | Confirmed Outbreaks | | Lab Confirmed | | Foodborne | | Norovirus | |
|---|---|---|---|---|---|---|---|---|
| | 2009 | 2010 | 2009 | 2010 | 2009 | 2010 | 2009 | 2010 |
| **Rome (1-1)** | 7 | 15 | 5 | 10 | 1 | 1 | 4 | 10 |
| **Dalton (1-2)** | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 |
| **Gainesville (2-0)** | 8 | 1 | 8 | 1 | 0 | 1 | 0 | 0 |
| **Marietta (3-1)** | 5 | 6 | 5 | 4 | 0 | 0 | 2 | 2 |
| **Atlanta (3-2)** | 10 | 10 | 5 | 4 | 0 | 0 | 5 | 3 |
| **Forest Park (3-3)** | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 |
| **Lawrenceville (3-4)** | 8 | 10 | 8 | 8 | 2 | 1 | 8 | 6 |
| **Decatur (3-5)** | 3 | 9 | 3 | 6 | 0 | 2 | 1 | 7 |
| **La Grange (4-0)** | 5 | 2 | 4 | 0 | 1 | 0 | 2 | 2 |
| **Dublin (5-1)** | 2 | 3 | 2 | 3 | 0 | 0 | 1 | 2 |
| **Macon (5-2)** | 2 | 7 | 2 | 4 | 0 | 0 | 1 | 5 |
| **Augusta (6-0)** | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| **Columbus (7-0)** | 37* | 10 | 31 | 6 | 0 | 0 | 3 | 4 |
| **Valdosta (8-1)** | 5 | 5 | 5 | 2 | 0 | 0 | 0 | 0 |
| **Albany (8-2)** | 8 | 10 | 8 | 9 | 1 | 1 | 5 | 6 |
| **Savannah (9-1)** | 4 | 4 | 4 | 2 | 1 | 1 | 1 | 3 |
| **Waycross (9-2)** | 7 | 1 | 7 | 1 | 0 | 1 | 1 | 0 |
| **Athens (10-0)** | 2 | 0 | 2 | 0 | 0 | 0 | 2 | 0 |
| **Multi-State** | 5 | 5 | 5 | 5 | 4 | 3 | 0 | 0 |
| **Unknown** | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **121** | **101** | **107** | **68** | **11** | **12** | **36** | **52** |

Chart 1. Confirmed outbreaks by health district, Georgia, 2009-2010
*The majority of these outbreaks were due to 2009 H1N1 influenza.

# Rate of Confirmed Georgia Outbreaks, by Health District, 2010




Georgia Department of Community Health
*Division of Public Health*

0 90,000 180,000 360,000 540,000 720,000 Feet

Created: March 24, 2011
Classification: Natural Breaks
Source: Georgia Division of Public Health
Projection: Georgia Coordinate Systems OHIP_Lambert