

PROFILES OF SELECTED OUTBREAKS

The Outbreak Response and Bioterrorism Investigation Program (ORBIT) assisted local health jurisdictions in Ohio in the investigation of 290 outbreaks. These outbreaks were detected in 57 of 88 counties throughout the state. The number of Ohioans known to be ill from these outbreaks was 4,586. The outbreaks were classified as: foodborne (92), person-to-person (73), outbreaks of individually reportable disease agents (69), staphylococcal skin infections (21), scabies (14), hospital-acquired (12), waterborne (4), pediculosis (4) and conjunctivitis (1). Causative agents identified during the outbreak investigations included: *Acinetobacter baumannii*, *Burkholderia cepacia*, *Clostridium botulinum*, *Clostridium difficile*, *Clostridium perfringens*, Coxsackie virus, *Cryptosporidium* spp., Enterovirus, *Escherichia coli* O157:H7, *Giardia* spp., *Legionella pneumophila*, Norovirus, *Pediculus capitis* (head louse), *Ralstonia pickettii*, *Salmonella* spp., *Sarcoptes scabiei* (scabies mite), *Shigella sonnei*, *Staphylococcus aureus* (including methicillin-resistant) and vancomycin-resistant *Enterococcus*.

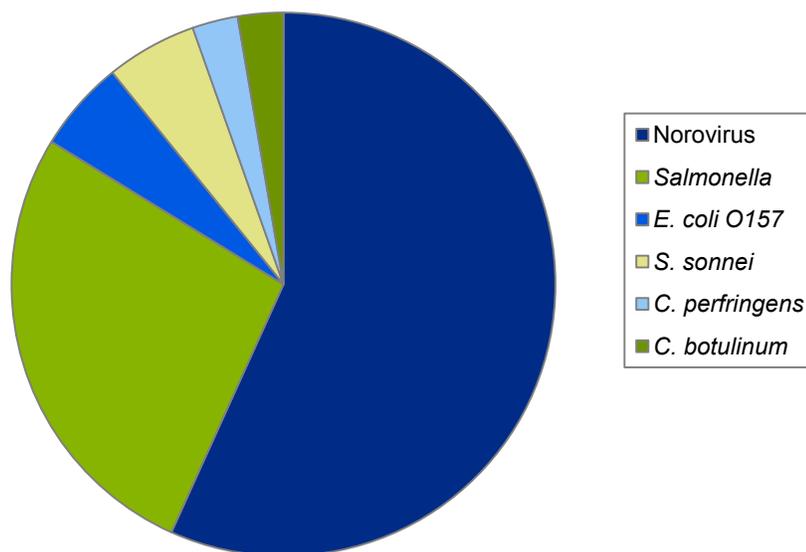
Please note that pursuant to the Ohio Administrative Code (OAC) [Chapter 3701-03](#), the outbreak categories for reporting changed effective Jan. 1, 2009. These are referred to as “[Class C](#): Report an outbreak, unusual incidence or epidemic by the end of the next business day.” The new categories for outbreak reporting are: community outbreak, foodborne outbreak, healthcare-associated outbreak, institutional outbreak, waterborne outbreak and zoonotic outbreak. To report an outbreak or for questions about outbreak reporting, please contact ORBIT at (614) 995-5599 or fax (614) 995-7186 or the Zoonotic Disease Program at (614) 752-1029.

Details on selected types of 2008 outbreaks are discussed below.

FOODBORNE OUTBREAKS

In 2008, 37 of the 92 foodborne outbreaks reported in Ohio were confirmed foodborne disease outbreaks. These outbreaks met the general [definition of a foodborne outbreak](#): “An incident in which two or more persons experience a similar illness after ingestion of a common food, and epidemiologic analysis implicates the food as the source of the illness.” These 37 outbreaks also met the agent-specific [criteria for confirmation](#) of outbreaks. For these 37 foodborne outbreaks, the causative agent was distributed as follows: Norovirus (21), *Salmonella* spp. (10), *E. coli* O157 (2), *S. sonnei* (2), *C. perfringens* (1) and *C. botulinum* (1) (see Figure 1).

Figure 1: Confirmed Foodborne Outbreaks by Etiologic Agent, Ohio, 2008



Source of outbreak data: Ohio Department of Health Outbreak Response and Bioterrorism Investigation Program.

Brief summaries of these confirmed foodborne outbreaks follow:

***Clostridium botulinum*:** There was an outbreak of type A botulism in Crawford County in September 2008, in which four people were affected. Home-canned green beans and carrots were implicated.

***Clostridium perfringens*:** There was an outbreak of *C. perfringens* in Geauga County in October 2008, in which 50 people were affected. Roast beef was the implicated vehicle.

***Escherichia coli* O157:H7:** Both outbreaks described below became multistate outbreak investigations.

In May and June 2008, an outbreak of *E. coli* O157:H7 was recognized in six counties in Ohio. Pulsed-field gel electrophoresis (PFGE) identified additional cases from six other states. There were a total of 49 cases linked to the outbreak reported nationwide; 21 were from Ohio. This outbreak was associated with the consumption of ground beef purchased at retail grocery stores. The ground beef originated from a single meat supplier in Nebraska. The outbreak investigation contributed to the recall of 5.3 million pounds of ground beef. Additional information about this outbreak and recall can be found on the Web as follows:

- <http://www.cdc.gov/ecoli/june2008outbreak/> (CDC Web update)
- http://www.fsis.usda.gov/News & Events/R01_2008_Expanded/index.asp (Kroger recall)
- http://www.fsis.usda.gov/News & Events/Recall_022_2008_Expanded/index.asp (Nebraska Beef recall)

In July 2008, there was an outbreak of *E. coli* O157:H7 in Montgomery County, in which seven people were affected. The Centers for Disease Control and Prevention (CDC) identified PFGE-matching cases in seven other states. Ground beef purchased at a specialty market in Montgomery County was the implicated vehicle. The ground beef was ground fresh in each store from primal (whole muscle) cuts of meat from a single meat supplier in

Nebraska. This investigation contributed to the recall of 1.36 million pounds of beef. Additional information about this recall can be found on the Web at:

- http://www.fsis.usda.gov/News_&_Events/Recall_029_2008_Expanded/index.asp (Nebraska Beef recall)

Norovirus: There were 21 confirmed foodborne outbreaks attributed to norovirus in 2008. Sixteen were due to norovirus genotype GII and four were due to norovirus genotype GI; one was not determined. They occurred throughout the year. There was a cluster of eight outbreaks which occurred March to May, and a cluster of five outbreaks in December. The implicated vehicle was identified in six outbreaks: salad (3), fruit or vegetable (1), pizza (1) and boxed lunch (1). The median number of people affected was 22 (range 3-509). Two very large foodborne outbreaks of norovirus genotype GII were reported: one in Portage County in April affected 509 people, and one in Scioto County in October affected 225 people. Norovirus reverse transcriptase polymerase chain reaction (RT-PCR) was utilized by ODH Laboratory to confirm all but one of these outbreaks.

Salmonella: Of the 10 *Salmonella* foodborne outbreaks identified in 2008, an infected carrier was identified for two of them. The contaminated vehicle could not be identified for six outbreaks. Chicken was implicated for one. Table 1 contains the distribution and serotype for the *Salmonella* foodborne outbreaks reported in 2008. From October 2008 to April 2009, Ohio reported 103 cases in a multistate outbreak of *Salmonella* serotype Typhimurium that implicated peanuts, peanut butter and other peanut-containing products. More than 3,900 products were recalled as a result of this multistate investigation. Additional information about this outbreak and recall can be found on the Web as follows:

- <http://www.accessdata.fda.gov/scripts/peanutbutterrecall/index.cfm> (FDA recall list)
- <http://www.cdc.gov/salmonella/typhimurium/update.html> (CDC Web update)

PFGE was used by ODH Laboratory in most of these *Salmonella* outbreaks to identify the isolates with the outbreak strain.

Table 1: Serotypes of Foodborne *Salmonella* Outbreaks, Ohio, 2008

Serotype	# of Outbreaks
<i>Salmonella</i> serotype Typhimurium	4
<i>Salmonella</i> serotype Enteritidis	2
<i>Salmonella</i> serotype (I) 4,[5],12:i:-	2
<i>Salmonella</i> serotype Muenchen	1
<i>Salmonella</i> serotype Poona	1
Total	10

Source of outbreak data: Ohio Department of Health Outbreak Response and Bioterrorism Investigation Program.

Shigella: Two foodborne outbreaks of shigellosis were reported. An outbreak of *S. sonnei* in Auglaize County in June 2008 affected four people; the vehicle was unknown. An outbreak of *S. sonnei* in Cuyahoga County in August 2008 affected 12 people; the vehicle was unknown.

UNUSUAL INCIDENCE OUTBREAKS

In 2008, local health jurisdictions in Ohio investigated 73 outbreaks classified as “Unusual Incidence.” These outbreaks were detected in 29 of Ohio’s 88 counties. The number of Ohioans known to be ill from these outbreaks was 1,625. Fifty-eight (80 percent) of these outbreaks were gastrointestinal (GI) disease. Thirty-three (57 percent) of these GI outbreaks were confirmed as due to norovirus by stool testing at ODH Laboratory (see Table 2). The remaining suspected norovirus outbreaks could not be confirmed either because no stool specimens were submitted or an inadequate number of stool specimens were positive (i.e., less than 2). The norovirus outbreaks occurred in a variety of settings including assisted living/retirement communities, child care centers, correctional facilities, group homes, hospitals, long-term care facilities, private homes and schools.

Table 2: Unusual Incidence Outbreaks Confirmed as Norovirus by County, Ohio, 2008

County	# of Outbreaks	# of Ill Individuals
Butler	1	33
Columbiana	1	45
Cuyahoga	5	117
Delaware	3	107
Franklin	9	165
Greene	1	32
Hamilton	2	173
Holmes	1	17
Lake	1	34
Lorain	1	38
Mercer	1	26
Montgomery	1	11
Putnam	1	38
Sandusky	1	36
Stark	1	17
Summit	1	79
Union	1	50
Wood	1	23
Total	33	1,041

Source of outbreak data: Ohio Department of Health Outbreak Response and Bioterrorism Investigation Program.

WATERBORNE OUTBREAKS

In 2008, four waterborne outbreaks were reported in Ohio from four counties (see Table 3). Counties reporting included Franklin, Ottawa, Seneca and Stark. The outbreaks affected 70 individuals and ranged in size from 2 to 54 (median = 7). These outbreaks met the [CDC case definition](#).

Table 3: Waterborne Disease Outbreaks by Month of Onset, Ohio, 2008

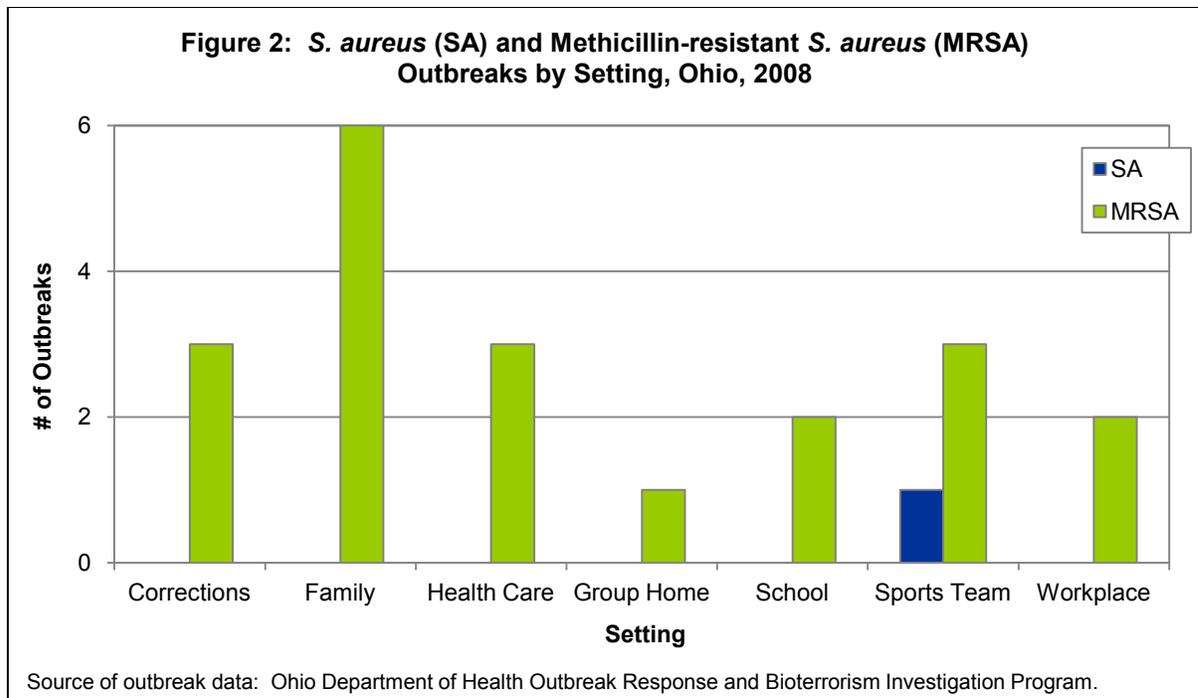
Month	County	Predominant Symptoms	# Cases	Type of Water	Etiology	Setting
June	Seneca	Respiratory	6	Recreational	Chlorine	Pool
July	Stark	Gastrointestinal	54	Recreational	Norovirus and <i>Shigella</i> spp.	Lake
July	Ottawa	Respiratory	2	Recreational	<i>Legionella pneumophila</i>	Hotel hot tub and pool
July	Franklin	Gastrointestinal	8	Recreational	<i>Cryptosporidium</i> spp.	Indoor water park

Source of outbreak data: Ohio Department of Health Outbreak Response and Bioterrorism Investigation Program.

STAPHYLOCOCCAL SKIN INFECTION OUTBREAKS

In accordance with OAC 3701-3-02, suspected or confirmed staphylococcal skin infection outbreaks and health care-associated outbreaks, including those caused by staphylococcal bacteria, are reportable to local public health districts.

In 2008, there were 21 outbreaks due to *Staphylococcus aureus* (SA) bacteria reported to ODH. Methicillin-resistant *S. aureus* (MRSA) was identified in 20 (95 percent) of the outbreaks reported in 2008. Ill persons related to these outbreaks numbered 97. The figure below, Figure 2, depicts the number of outbreaks caused by *S. aureus* (SA) and MRSA reported to ODH in 2008. The majority of outbreaks reported in 2008 involved family clusters.



OUTBREAKS OF INDIVIDUALLY REPORTABLE DISEASE AGENTS

These outbreaks involve reportable diseases such as cryptosporidiosis, salmonellosis or shigellosis that were mostly transmitted person-to-person. In the Ohio Disease Reporting System (ODRS), this category is referred to as Outbreak Type: Unspecified.

There were a total 69 of these outbreaks reported in 2008. Sixty-eight of the 69 outbreaks were confirmed. Of the 68 confirmed outbreaks, the causative agents were *Cryptosporidium* spp. (7), *Salmonella* spp. (3), *Shigella sonnei* (55) and mixed agents (3).

Of the seven confirmed cryptosporidiosis outbreaks, one was in Hancock County in February 2008, in which nine people were affected. Contact with young dairy calves was implicated. A similar outbreak of cryptosporidiosis occurred at the same location in February 2007. The remaining six confirmed cryptosporidiosis outbreaks affected 25 people and occurred in day care centers or other group settings; transmission was person to person.

There were 55 confirmed "Outbreaks Unspecified" that were attributed to *Shigella sonnei*. Four of these 55 outbreaks involved families. The remaining 51 outbreaks involved day care centers. These 51 shigellosis outbreaks involving day care centers affected a total of 422 individuals. The median number affected per day care center outbreak was 7 (range 2-23). Thirty-nine percent of these outbreaks (20 of 51) involved five or fewer individuals.

There were three confirmed "Outbreaks Unspecified" that were attributed to *Salmonella* spp. Two were multistate outbreaks of *Salmonella* serotype Typhimurium that were recognized via PFGE, but the contaminated vehicle could not be identified; nine people were affected. The third was a day care center outbreak of *Salmonella* serotype Enteritidis affecting five individuals.

The three mixed agent outbreaks occurred in day care centers and affected 25 individuals. The agents involved in these three outbreaks included *Cryptosporidium* and *Giardia* (4 people), *Cryptosporidium* and *Shigella* (8 people) and *Shigella* and *Giardia* (13 people).