

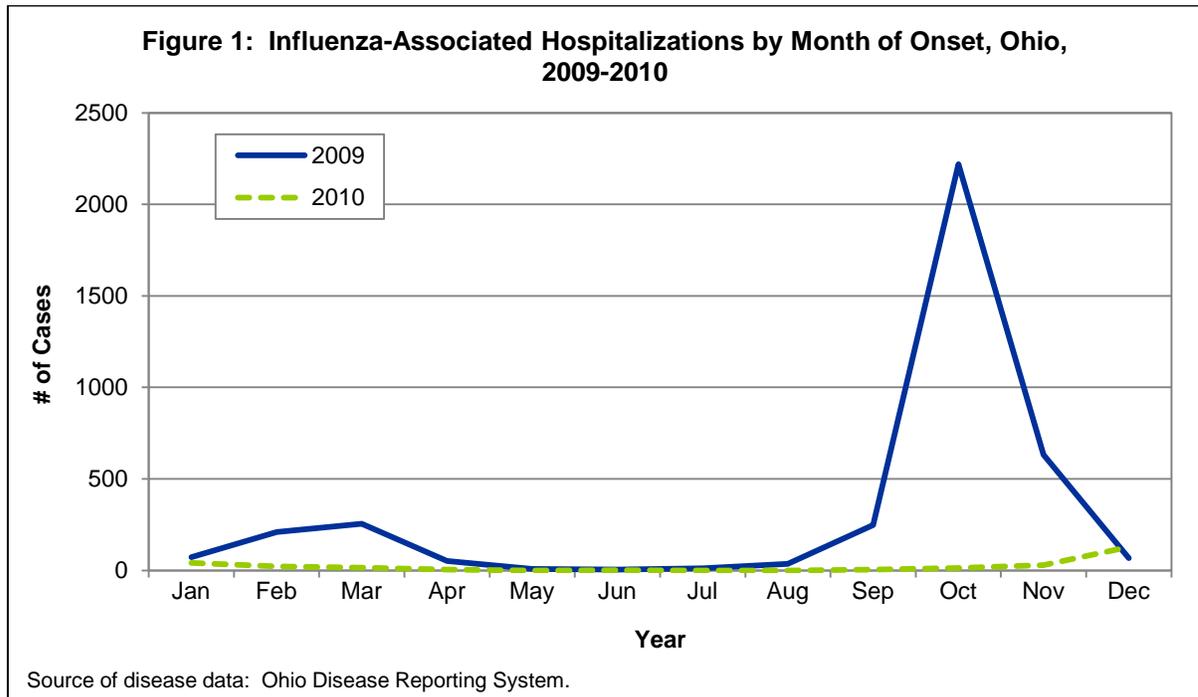
PROFILES OF SELECTED NOTIFIABLE DISEASES

INFLUENZA-ASSOCIATED HOSPITALIZATION

<i>Number of cases in 2010:</i>	259	<i>Rate in 2010:</i>	2.2
<i>Number of cases in 2009:</i>	3,818	<i>Rate in 2009:</i>	33.1

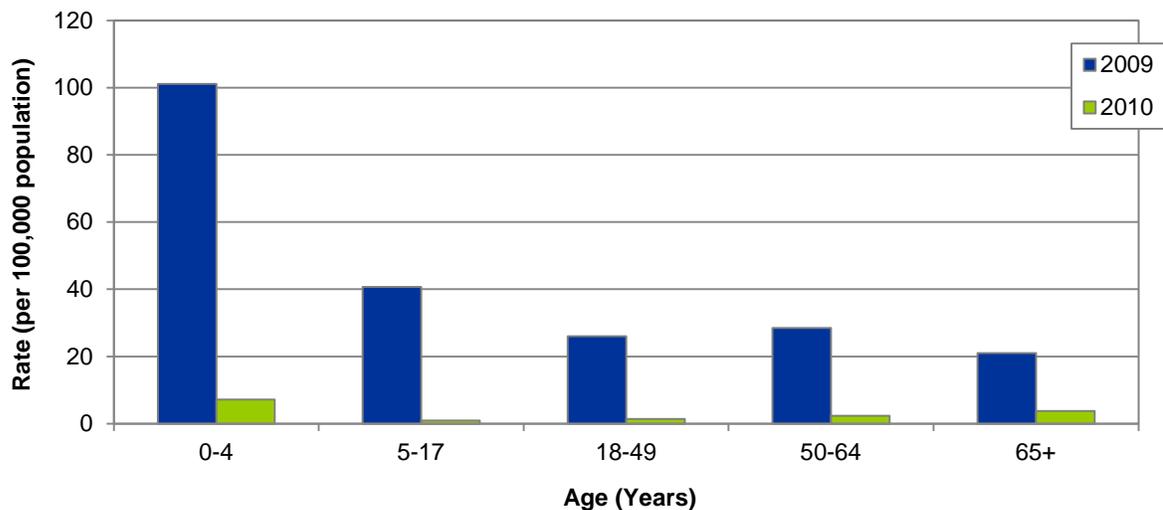
* Rates are based on the U.S. Census 2010 count and the 2009 midpoint estimate and are per 100,000 population.

The year 2009 exhibited peaks in influenza activity for both the 2008-2009 and the 2009-2010 influenza seasons. The 2009 H1N1 pandemic began in late April and the second wave of influenza activity due to influenza A (2009) H1N1 virus occurred in the fall. Ohio's flu activity for the 2009-2010 influenza season peaked in late October 2009, as demonstrated in influenza-associated hospitalization reporting, where 2,220 cases had a month of onset in October (Figure 1). This fall peak is unusual in that the peak usually occurs in the late winter months of the influenza season.



Nationally, influenza activity was associated with higher hospitalization rates in children and young adults during the second wave of the 2009 H1N1 pandemic than in previous seasons.¹ In Ohio, there was no comparable data because influenza-associated hospitalizations did not become a reportable condition until Jan. 1, 2009. However, lower rates of hospitalizations were observed in 2010 when compared to 2009 (Figure 2). In 2009, 21 percent (518 cases) of influenza-associated hospitalizations reported were between the ages 5 and 17, compared to 7 percent (19 cases) in 2010. Nine percent (340 cases) of those reported in 2009 were over 65 years of age, compared to 24 percent (62 cases) in 2010. This could be attributed to studies indicating that the risk of influenza A (2009) H1N1 infection among persons over 65 years of age was less than the risk of infection for younger age groups.² In addition, the influenza A (2009) H1N1 virus was not the dominant circulating virus in 2010 like it was during the fall of 2009, although it did circulate widely.³

Figure 2: Influenza-Associated Hospitalizations by Age, Ohio, 2009-2010



Source of disease data: Ohio Disease Reporting System.

Source of population data: 2010 U.S. Census counts.

Less than 1% of ages were unknown for 2009.

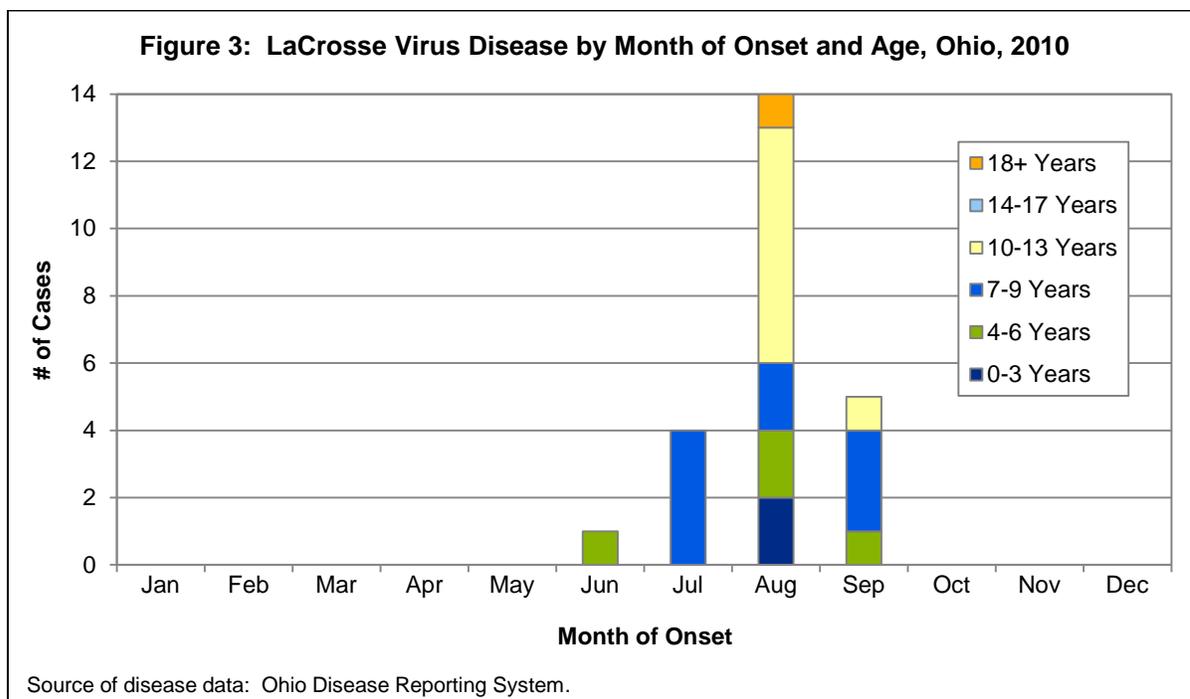
LACROSSE VIRUS DISEASE

<i>Number of cases in 2010:</i>	24	<i>Rate in 2010:</i>	0.2
<i>Number of cases in 2009:</i>	5	<i>Rate in 2009:</i>	0.0

* Rates are based on the U.S. Census 2010 count and the 2009 midpoint estimate and are per 100,000 population.

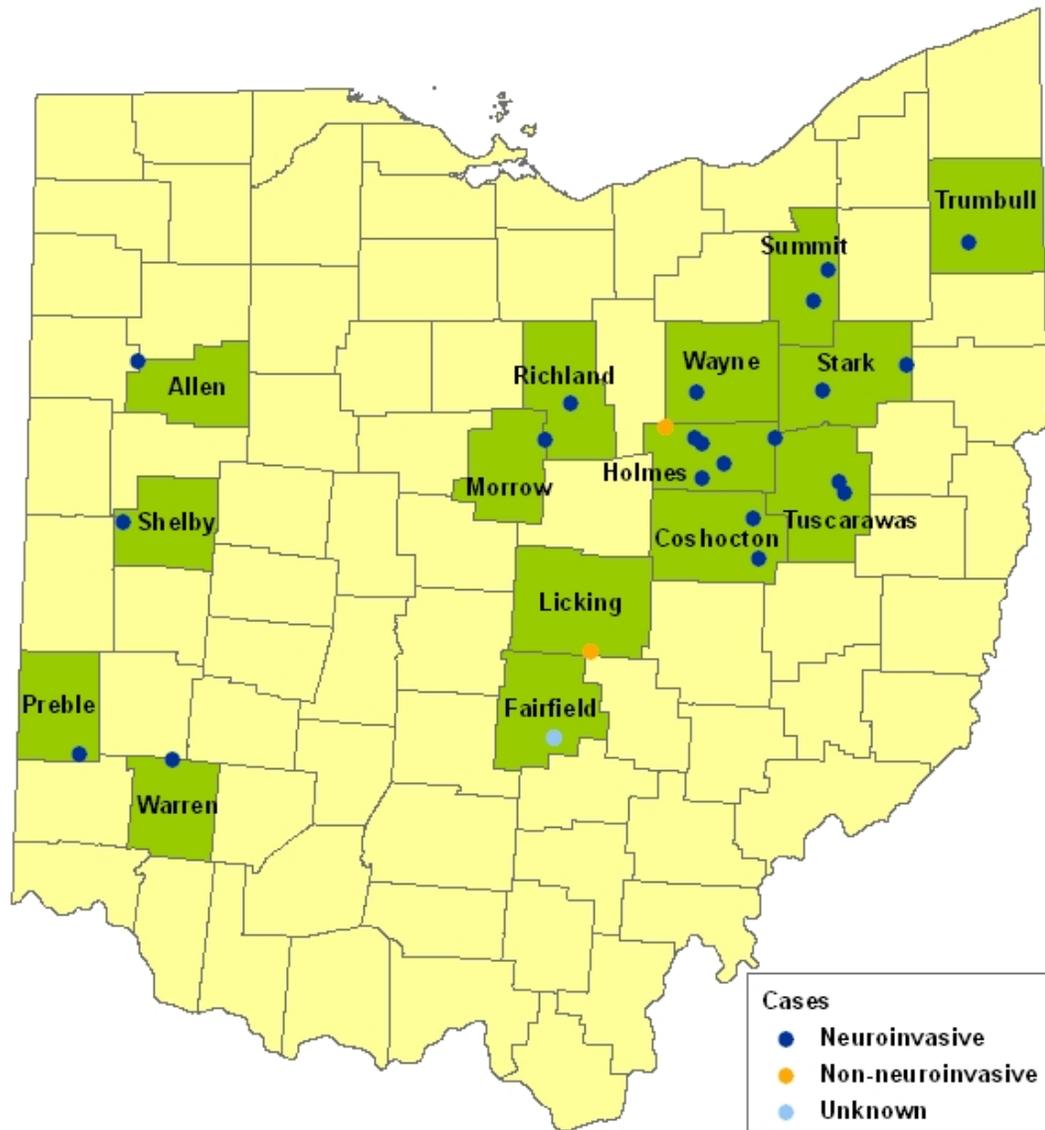
LaCrosse virus disease is a viral illness transmitted through the bite of an infected mosquito, specifically the treehole mosquito, *Aedes triseriatus*. People infected with LaCrosse virus disease usually experience fever, headache, nausea, vomiting and lethargy; however, severe disease can occur in children less than 16 years of age and include seizures, coma, paralysis and neurological sequelae after recovery.⁴ In Ohio, cases occur during the summer and fall, usually from July through October, coinciding with mosquito activity.⁴ More cases have been reported in Ohio than any other state in the U.S.,⁴ where 1,050 cases have been tallied since 1963.

Incidence of LaCrosse virus disease significantly increased in Ohio from five cases in 2009 to 24 cases in 2010 ($p = 0.0004$). All 2010 cases occurred from June to September, with the peak incidence occurring in August (Figure 3). The greatest proportion of cases occurred in children aged 7-9 years (38 percent), followed by children aged 10-13 years (33 percent). Cases also occurred among children 0-6 years and in one adult; no cases occurred among teenagers aged 14-17 years.



As seen in Figure 4, most LaCrosse virus disease cases in 2010 occurred in northeastern Ohio, particularly Coshocton, Holmes, Stark, Summit and Tuscarawas Counties. It is unclear whether LaCrosse incidence was truly higher in these counties or whether more cases were reported due to heightened awareness and diagnostic testing in this region. Nearly 90 percent of all LaCrosse cases in 2010 were neuroinvasive, meaning the affected individuals had neurological symptoms associated with their infections, such as meningitis, encephalitis or seizures. Non-neuroinvasive manifestations of LaCrosse virus disease include fever, headache, myalgia, arthralgia and/or rash.

Figure 4: LaCrosse Virus Disease Incidence, Ohio, 2010



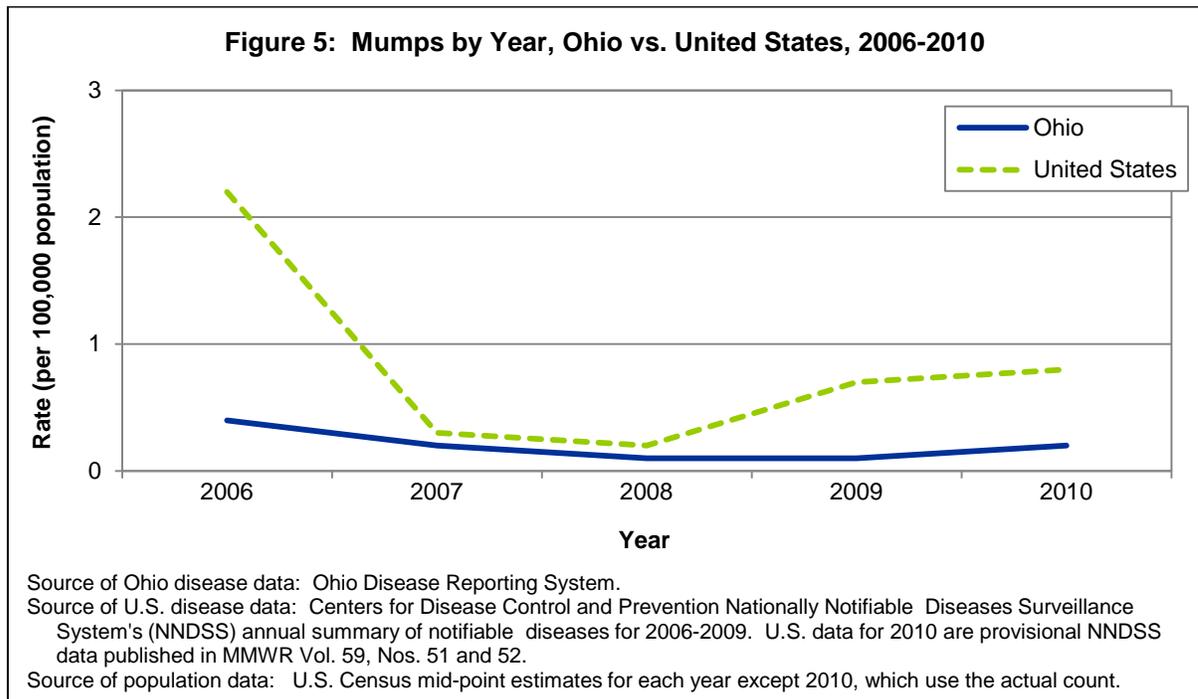
Source of disease data: Ohio Disease Reporting System.

MUMPS

<i>Number of cases in 2010:</i>	<i>27</i>	<i>Rate in 2010:</i>	<i>0.2</i>
<i>Number of cases in 2009:</i>	<i>6</i>	<i>Rate in 2009:</i>	<i>0.1</i>

* Rates are based on the U.S. Census 2010 count and the 2009 midpoint estimate and are per 100,000 population.

As seen in Figure 5, Ohio observed a slight increase in its mumps rate during 2010 (0.2 cases per 100,000 population). This increase can be attributed to an outbreak among a religious community in northeastern Ohio. This outbreak may be associated with the 2009-2010 mumps outbreak reported in New York and New Jersey.⁵ Figure 5 demonstrates the large increase in incidence seen in the United States in 2009 (0.65 cases per 100,000 population) and 2010 (0.82 cases per 100,000 population).



Eighteen cases of mumps reported in Cuyahoga and Lake Counties were associated with the 2010 outbreak (Figure 6). Fifteen of these cases (83 percent) were Ohio acquired, one case was imported from out of state and two had unknown case import status. The out-of-state case was the index case in this outbreak and became symptomatic after attending a religious camp in Michigan.

Figure 6: Mumps Incidence, Ohio, 2010



Source of disease data: Ohio Disease Reporting System.
 3 cases associated with the outbreak had an illness onset in 2011.
 3 individual cases reported in 2010 are not illustrated in Cuyahoga County.

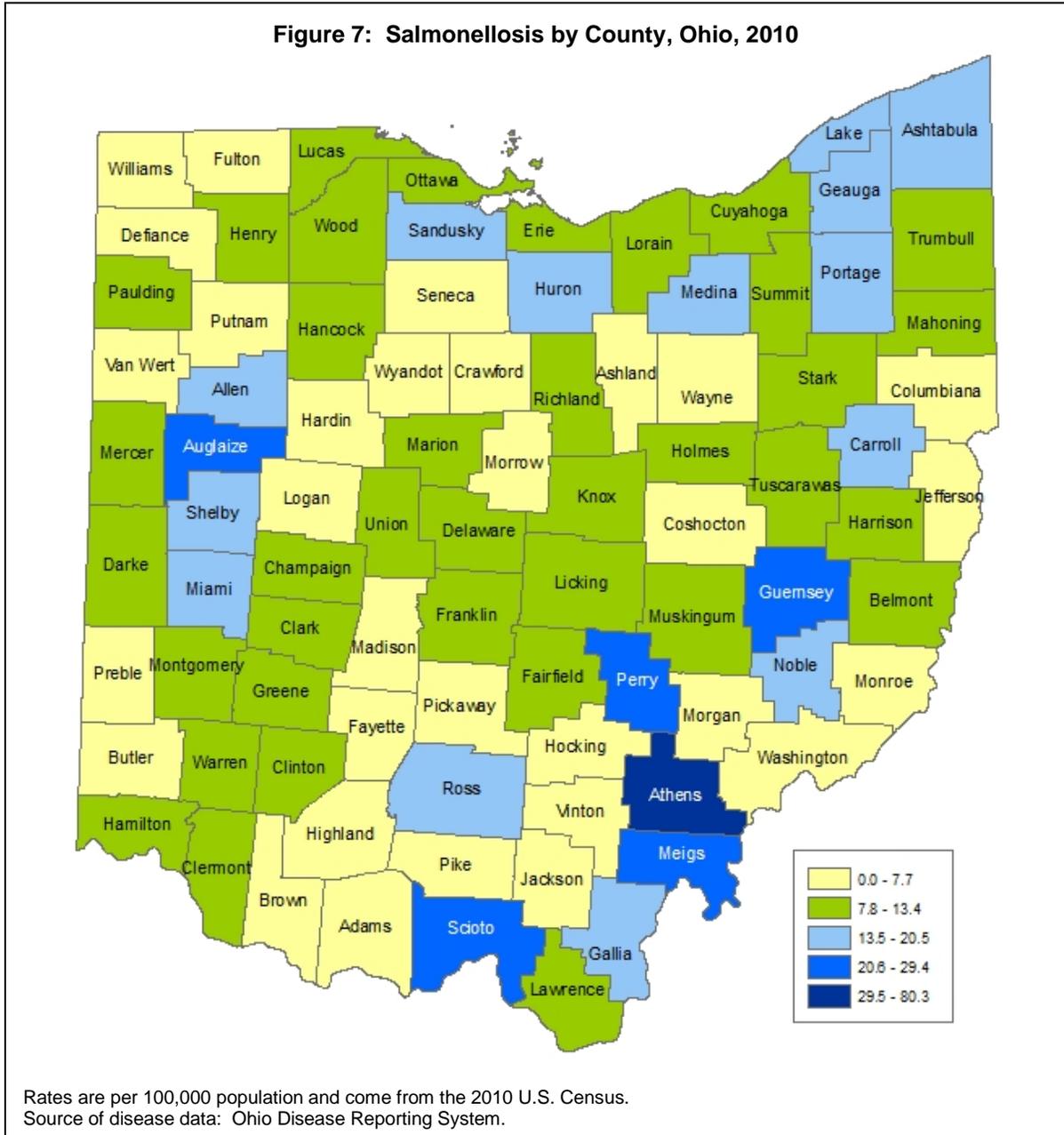
SALMONELLOSIS

<i>Number of cases in 2010:</i>	1,309	<i>Rate in 2010:</i>	11.3
<i>Number of cases in 2009:</i>	1,377	<i>Rate in 2009:</i>	11.9

* Rates are based on the U.S. Census 2010 count and the 2009 midpoint estimate and are per 100,000 population.

Figure 7 demonstrates the incidence of salmonellosis in Ohio for 2010 by county. Athens County had the highest rate of salmonellosis at 80.3 cases per 100,000 population. However, 77 percent of all cases reported in Athens County during 2010 were linked to a single foodborne outbreak.

Figure 7: Salmonellosis by County, Ohio, 2010



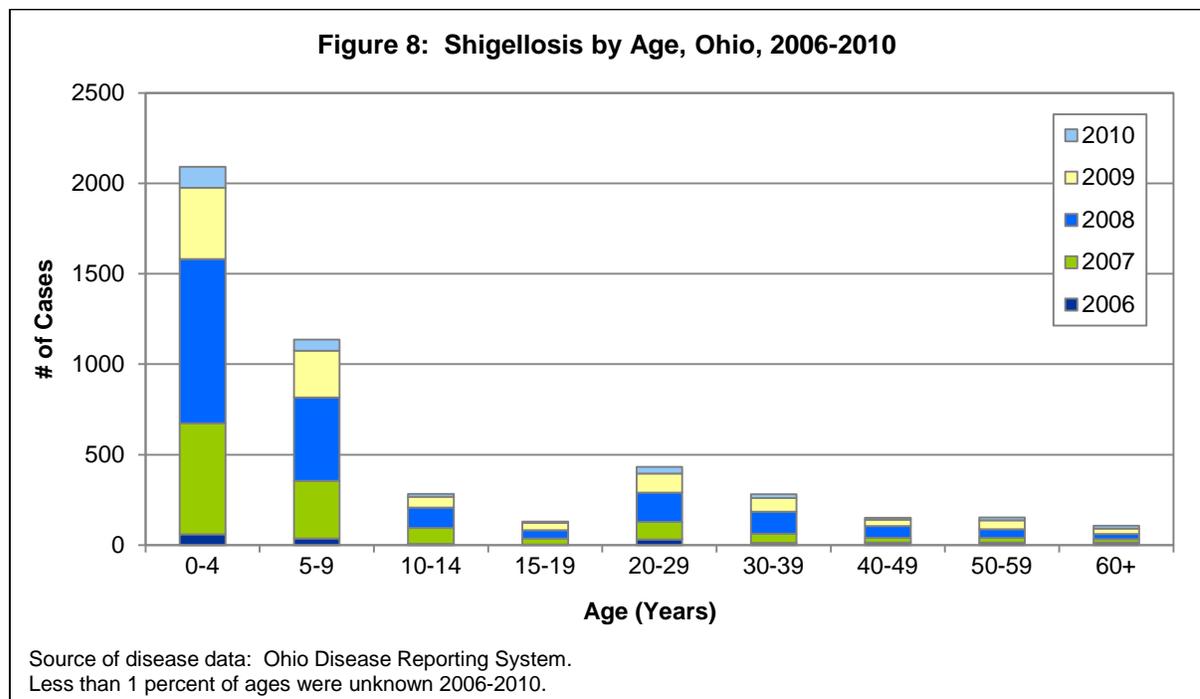
SHIGELLOSIS

<i>Number of cases in 2010:</i>	304	<i>Rate in 2010:</i>	2.6
<i>Number of cases in 2009:</i>	1,050	<i>Rate in 2009:</i>	9.1

* Rates are based on the U.S. Census 2010 count and the 2009 midpoint estimate and are per 100,000 population.

Shigellosis is an infectious disease caused by a group of bacteria known as *Shigella*.⁶ There are four species of *Shigella*: *Shigella boydii*, *Shigella dysenteriae*, *Shigella flexneri* and *Shigella sonnei*. *Shigella* species primarily infect the large intestine, causing clinical manifestations that range from loose or watery stools to more severe symptoms, including fever, abdominal tenderness or cramps and mucoid stools with or without blood.⁷ *Shigella* is spread directly via person-to-person contact by the fecal-oral route.¹⁰ Transmission by eating contaminated foods and/or swallowing contaminated water may also occur.

Figure 8 demonstrates the burden of shigellosis in Ohio over the past five years by age group. Although a higher incidence of *Shigella* infection was observed among individuals less than 5 years of age (2,092 cases) for each of the five reporting years analyzed, persons of all ages were at risk. Among *Shigella* isolates reported in Ohio 2006-2010, 88 percent were *S. sonnei*, 3 percent were *S. flexneri* and less than 1 percent of cases were identified as either *S. boydii* or *S. dysenteriae*. In addition, approximately 9 percent of shigellosis cases did not have a species reported.



In Ohio, the incidence of *Shigella* significantly decreased from 2009 to 2010 by 71 percent. Outbreak-associated cases occurred in all age groups during 2009 and 2010, especially in persons under 9 years of age (Table 1).

Table 1: Shigellosis by Age and Outbreak Status, Ohio, 2009-2010

Age	2009				2010			
	Outbreak-Associated		Sporadic		Outbreak-Associated		Sporadic	
0-9	170	26%	481	74%	52	29%	127	71%
10-19	14	14%	87	86%	4	17%	19	83%
20-29	14	13%	91	87%	3	8%	34	92%
30-39	5	7%	70	93%	0	0%	22	100%
40-49	4	11%	32	89%	0	0%	11	100%
50-59	7	14%	41	85%	1	6%	15	94%
60+	0	0%	30	100%	0	0%	16	100%
Unknown	0	0%	4	100%	0	0%	0	0%
Total	214	20%	832	80%	60	20%	244	80%

Source of disease data: Ohio Disease Reporting System.