PROFILES OF SELECTED NOTIFIABLE DISEASES

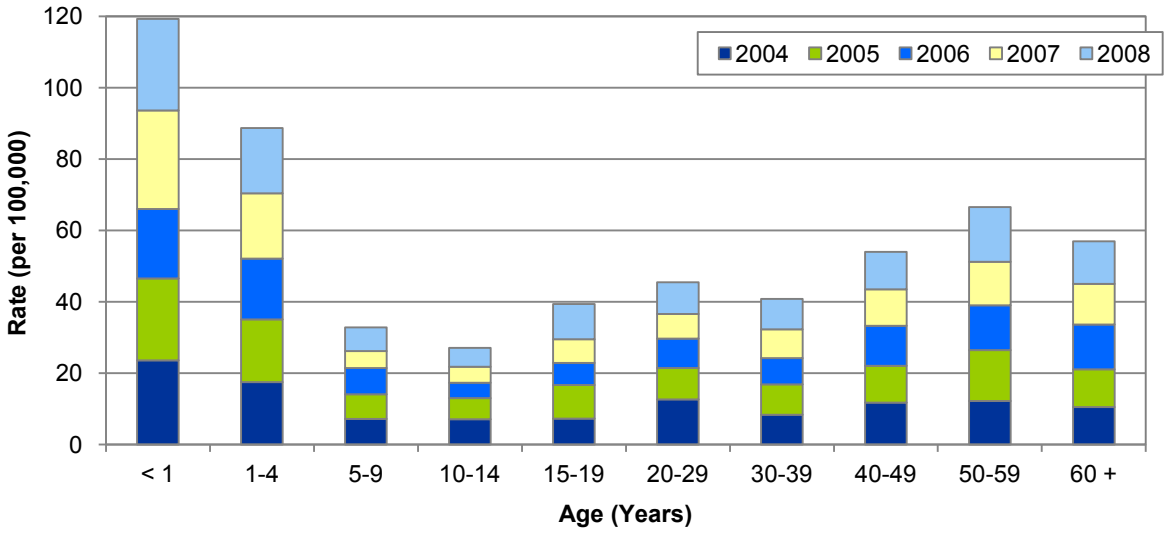
CAMPYLOBACTERIOSIS

Number of cases in 2008:	*1,215*	*Rate in 2008:*	*10.6*
Number of cases in 2007:	*1,083*	*Rate in 2007:*	*9.4*

* Rates are based on U.S. Census midpoint estimates for each year and are per 100,000 population.

Figure 1 demonstrates the burden of campylobacteriosis in Ohio over the past five years by age group. Although a higher incidence of C*ampylobacter* infection was observed among individuals less than 5 years of age (n = 715) for each of the five reporting years analyzed, persons of all ages are at risk. Ohio trends also demonstrated a decline during adolescent years followed by a gradual increase throughout adulthood. This follows national trends of *Campylobacter* infections where the organism is isolated from infants and young adults more frequently than from persons in other age groups.[1]

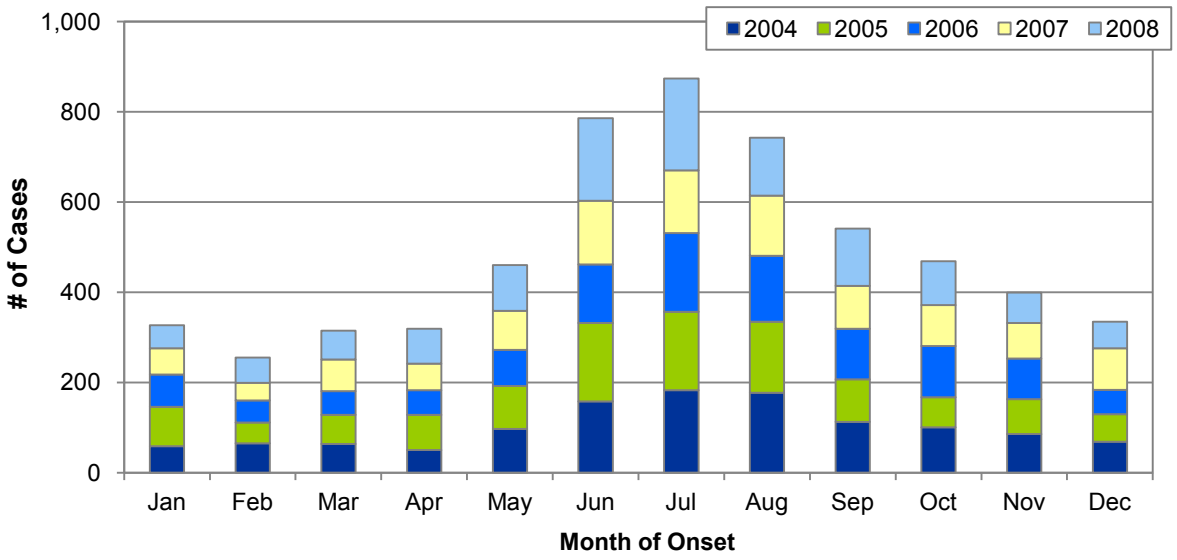
Figure 1: Campylobacteriosis by Age, Ohio, 2004-2008



Source of disease data: Ohio Department of Health Infectious Disease Surveillance.
Source of population data: 2000 U.S. Census.
Less than 1% of ages were unknown 2004-2008 and were excluded.

Ohio's *Campylobacter* trends followed a seasonal pattern throughout 2004-2008 (Figure 2). An increase in cases began in May (n = 460; 4.1 per 100,000 population), peaked in July (n = 874; 7.7 per 100,000 population) and gradually declined thereafter. The incidence in the fall and early winter months was usually higher than in the spring months.

Figure 2: Campylobacteriosis by Month and Year of Onset, Ohio, 2004-2008



Source of disease data: Ohio Department of Health Infectious Disease Surveillance.

CREUTZFELDT-JAKOB DISEASE

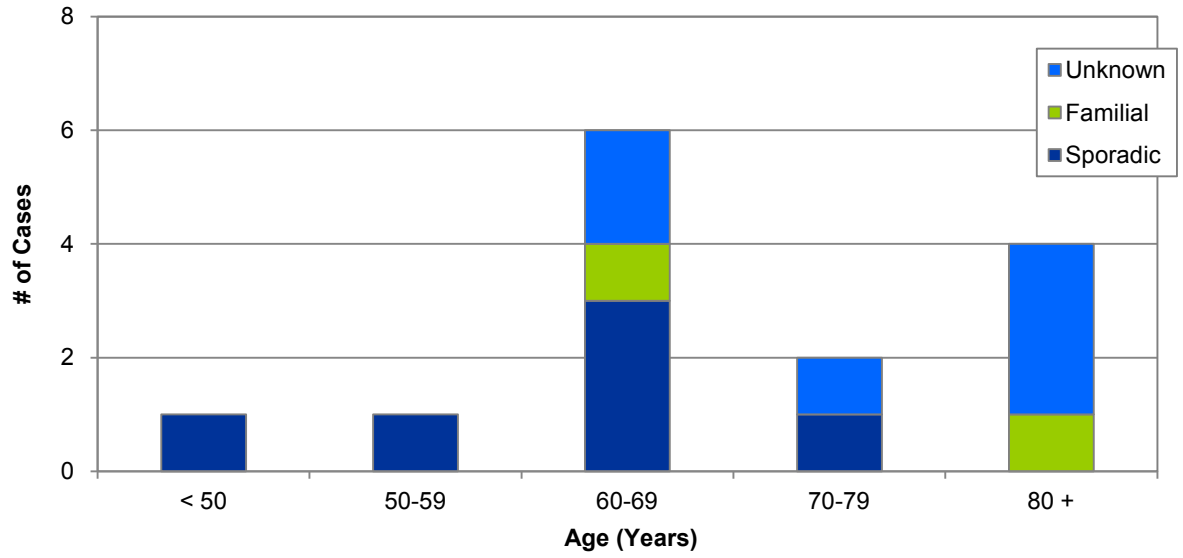
Number of cases in 2008:	*5*	*Rate in 2008:*	*0.0*
Number of cases in 2007:	*10*	*Rate in 2007:*	*0.1*

* Rates are based on U.S. Census midpoint estimates for each year and are per 100,000 population.

Classic Creutzfeldt-Jakob disease (CJD) manifests as one of two types: sporadic or familial cases.[2] Sporadic cases are more common and are due to a spontaneous transformation of normal prion proteins into abnormal prion proteins, whereas familial cases are rarer and are caused by inherited mutations in the gene coding for the prion protein.[2] Classic CJD is different from variant CJD (vCJD), which is an emerging prion disease related to bovine spongiform encephalitis (BSE), or "mad cow" disease.[2] No cases of vCJD have been reported in Ohio, and only three cases have been reported in the United States since 2001.[3]

In Ohio, half of classic CJD cases over the past two years were reported as an unknown type (Figure 3). Among the half of cases whose type was known, most (75 percent) were sporadic. Classic CJD mainly affects those over 50 years of age,[2] and the majority of cases occurred among Ohioans aged 60 years or greater in 2007-2008.

Figure 3: Creutzfeldt-Jakob Disease by Age and Type, Ohio, 2007-2008



Source of disease data: Ohio Department of Health Infectious Disease Surveillance.
7% of ages were unknown 2007-2008.

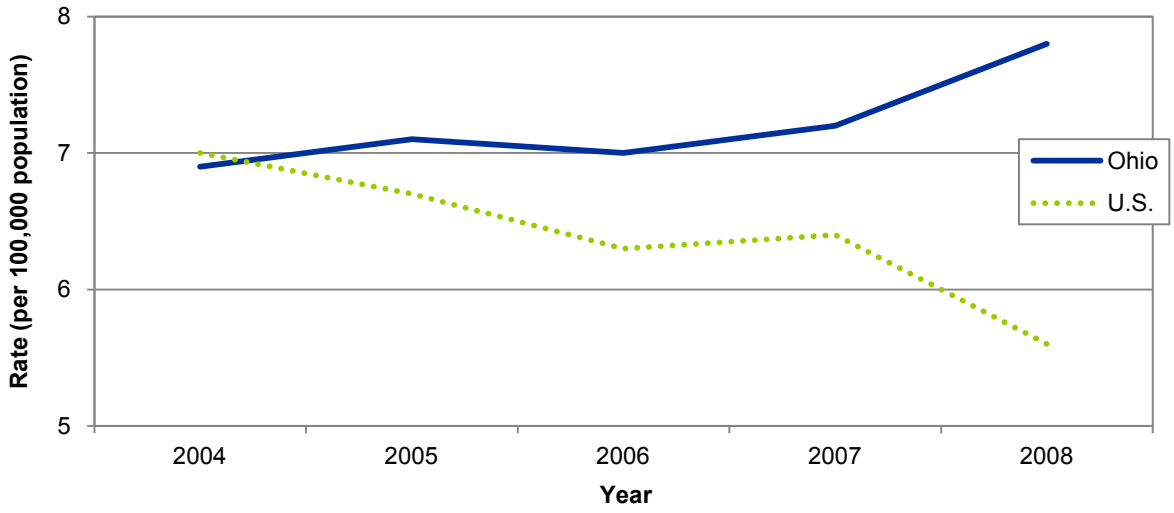
GIARDIASIS

Number of cases in 2008:	*891*	*Rate in 2008:*	*7.8*
Number of cases in 2007:	*833*	*Rate in 2007:*	*7.3*

* Rates are based on U.S. Census midpoint estimates for each year and are per 100,000 population.

Figure 4 demonstrates an increase in infections with *Giardia* has been observed in Ohio over the past five years, 2004-2008. This differs from general United States trends where a decrease in incidence has been observed over this same period of time. Ohio's rate was above the national average for giardiasis infection in four of the five years compared. In addition, the difference in giardiasis observed between Ohio and the United States continued to widen in each year between 2005 and 2008.

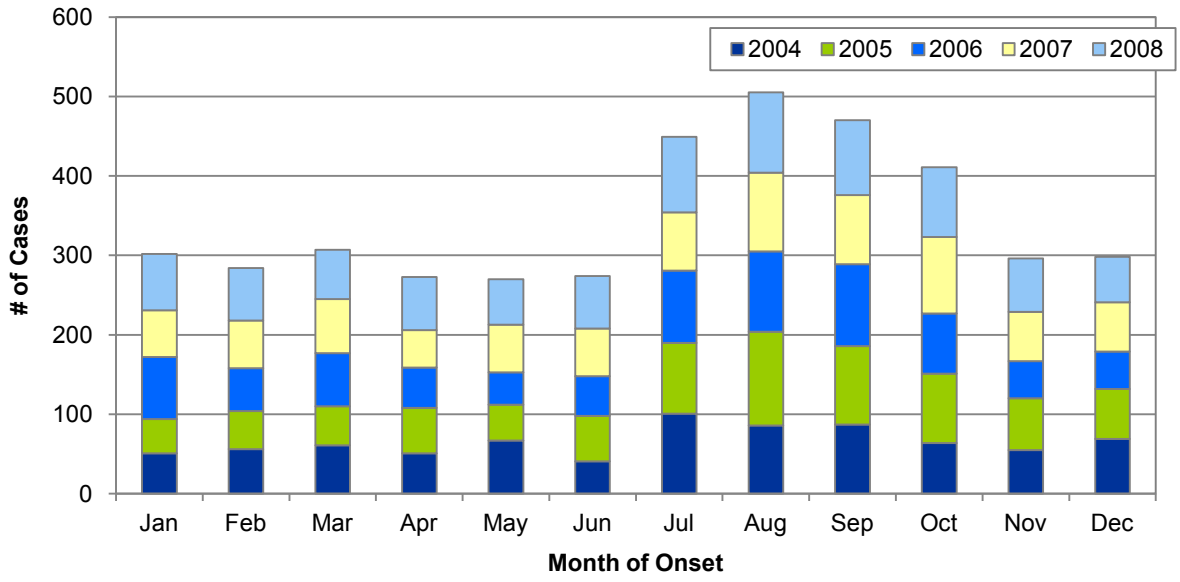
Figure 4: Giardiasis by Year, Ohio and the United States, Ohio, 2004-2008



Source of Ohio data: Ohio Department of Health Infectious Disease Surveillance.
Source of U.S. data: CDC's Nationally Notifiable Disease Surveillance System's (NNDSS) annual summary of notifiable diseases for 2004-2007. U.S. data for 2008 are provisional NNDSS data published in MMWR Vol. 57, No. 53.
Source of population data: U.S. Census midpoint estimates, which are as of December 2008.

Cases of disease due to *Giardia* followed a seasonal pattern in Ohio from 2004-2008 (Figure 5). Nearly half of Ohio's giardiasis cases occurred each year between July and October. This seasonal peak in incidence coincides with the summer recreational water season and may reflect increased outdoor activity and exposures to swimming venues (e.g., swimming pools, water parks, rivers and lakes).[4] Giardiasis cases remained relatively stable in the seasons before and after this four-month window over the five-year period analyzed.

Figure 5: Giardiasis by Month and Year of Onset, Ohio, 2004-2008



Source of disease data: Ohio Department of Health Infectious Disease Surveillance.

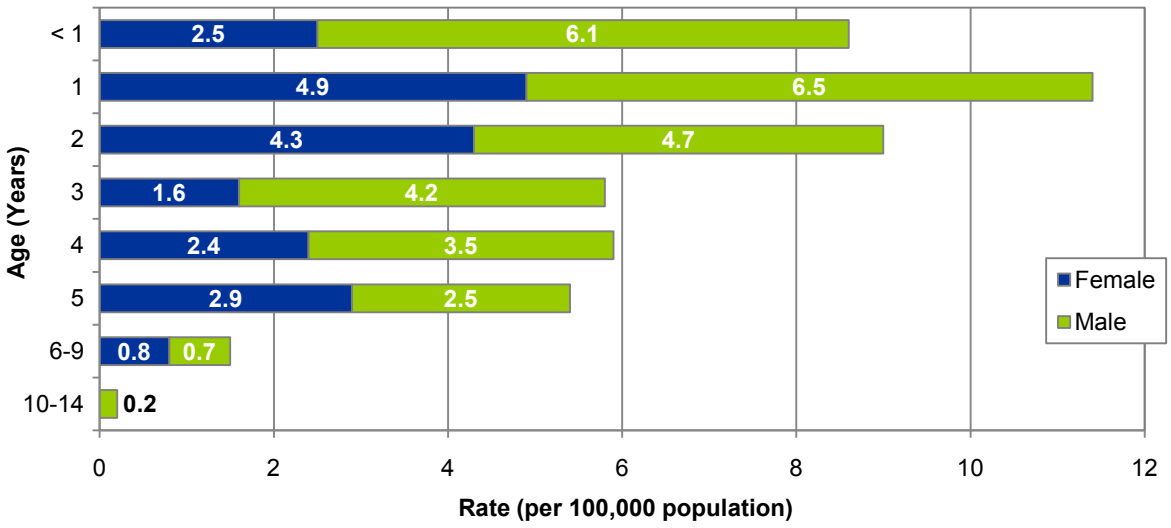
KAWASAKI DISEASE

Number of cases in 2008:	*27*	*Rate in 2008:*	*0.2*
Number of cases in 2007:	*38*	*Rate in 2007:*	*0.3*

* Rates are based on U.S. Census midpoint estimates for each year and are per 100,000 population.

Individual cases of Kawasaki disease (mucocutaneous lymph node syndrome) are no longer reportable in Ohio as of Jan. 1, 2009. An analysis of cases reported in Ohio from 2004-2008 showed Kawasaki disease primarily affecting children under 5 years of age, which is consistent with national trends.[5] The highest incidence occurred among Ohio's 1-year-old population with an increased incidence among infants and 2-year-olds as well (Figure 6). The incidence of disease was lower among children 3-5 years and lowest among children 6-14 years. No cases were reported in children older than 14 years of age 2004-2008. Kawasaki disease is more common in males than females.[5] The incidence in Ohio among males was 1.6 times higher than the incidence among females from 2004-2008. The disparity between the sexes was greater among younger children, especially infants where the incidence rate among males was nearly two and a half times greater than the incidence rate among females. Females aged 5-9 years had a slightly greater rate than males of the same age.

Figure 6: Kawasaki Disease by Age and Sex, Ohio, 2004-2008



Source of disease data: Ohio Department of Health Infectious Disease Surveillance.
Source of population data: 2000 U.S. Census.
Sex data was unknown for less than 1% of cases 2004-2008.

Kawasaki disease is a primary cause of acquired heart disease among children in the United States because it can cause serious cardiac complications such as coronary artery disease and aneurysms.[5,6] From 2004-2008, 13 percent of Ohio's Kawasaki cases reported cardiac complications, 6 percent reported non-cardiac complications and 46 percent reported no complications (Table 1). Each year, one-fourth to nearly one-half of Kawasaki cases did not report complication information.

Table 1: Reported Complications Associated with Kawasaki Disease, Ohio, 2004-2008

Complication	2004	2005	2006	2007	2008	Total
Cardiac	16%	18%	9%	13%	0%	13%
Non-cardiac	8%	2%	6%	8%	7%	6%
None	43%	55%	37%	47%	44%	46%
Unknown	33%	25%	49%	32%	48%	35%

Source of disease data: Ohio Department of Health Infectious Disease Surveillance.

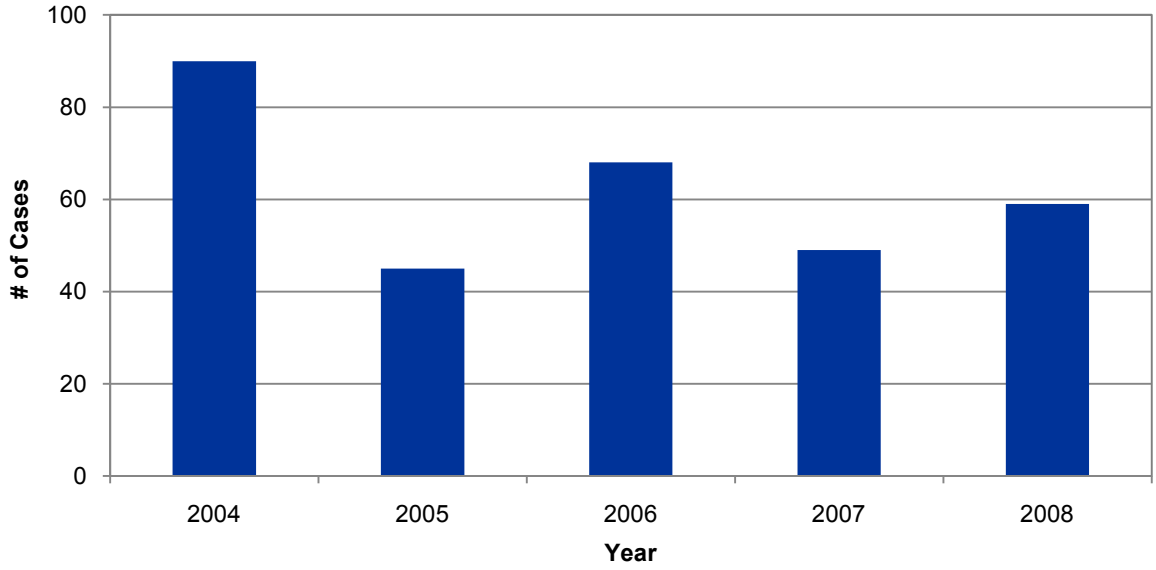
MENINGITIS, OTHER BACTERIAL

Number of cases in 2008:	*59*	*Rate in 2008:*	*0.5*
Number of cases in 2007:	*49*	*Rate in 2007:*	*0.4*

* Rates are based on U.S. Census midpoint estimates for each year and are per 100,000 population.

The number of cases of bacterial meningitis reported in Ohio has fluctuated over the past five years. The highest number of reported cases, 90, occurred in 2004; the fewest cases, 45, were reported in 2005 (Figure 7). The incidence rate of bacterial meningitis for each of the five years was less than 1.0 case per 100,000 population (range: 0.39 to 0.79 cases per 100,000 population).

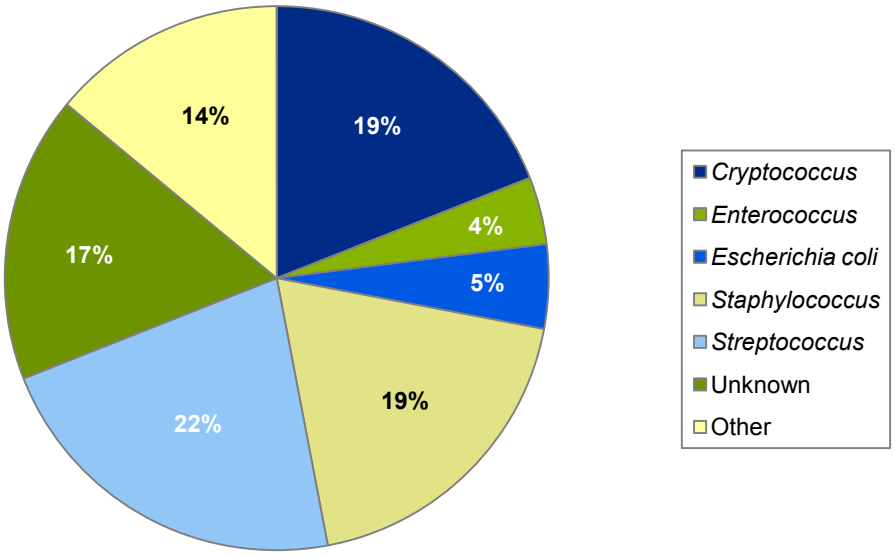
Figure 7: Bacterial Meningitis by Year, Ohio, 2004-2008



Source of disease data: Ohio Department of Health Infectious Disease Surveillance.

Figure 8 demonstrates the proportion of bacterial meningitis cases by the most commonly reported organisms from 2004-2008. The majority of bacterial meningitis cases (22 percent) were caused by *Streptococcus* spp. other than group A *Streptococcus*, group B *Streptococcus* in newborns and *Streptococcus pneumoniae* followed by *Cryptococcus* and *Staphylococcus* (both at 19 percent). Seventeen percent of bacterial meningitis cases reported over the past five years did not indicate an organism. The majority of these cases (24 cases) occurred in 2004; in 2008, only four cases were reported without an identified organism.

Figure 8: Bacterial Meningitis by Organism, Ohio, 2004-2008



Source of disease data: Ohio Department of Health Infectious Disease Surveillance.

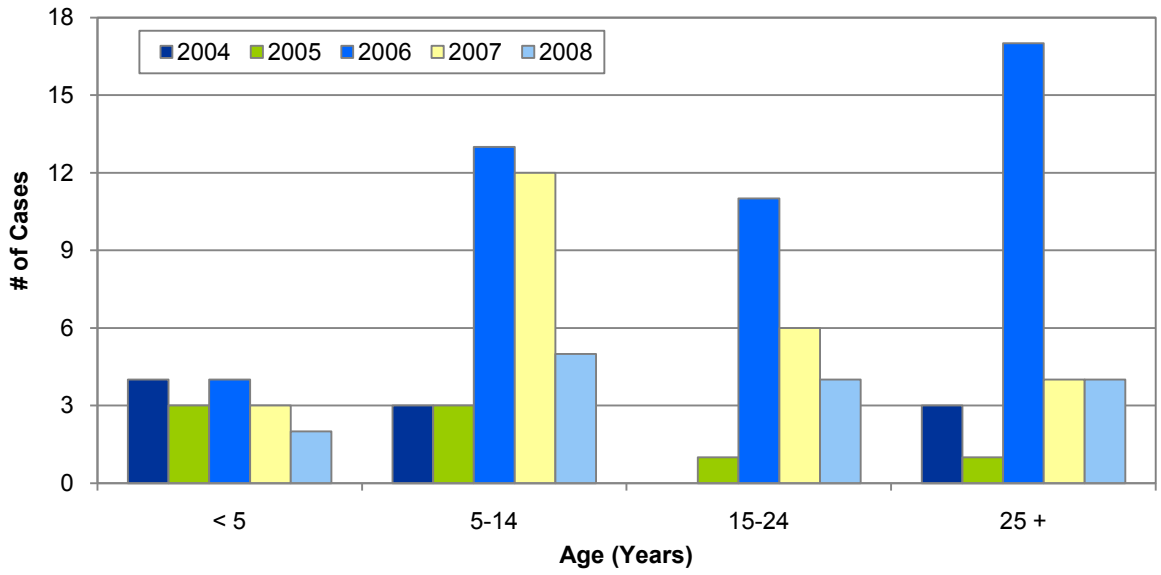
MUMPS

Number of cases in 2008:	*17*	*Rate in 2008:*	*0.1*
Number of cases in 2007:	*26*	*Rate in 2007:*	*0.2*

* Rates are based on U.S. Census midpoint estimates for each year and are per 100,000 population.

Ohio observed a decline in mumps cases between 2007 and 2008, even though the incidence rate remained unchanged (2007: 0.2 cases per 100,000 population; 2008: 0.1 cases per 100,000 population) between the two years. In 2008, three of Ohio's 17 mumps cases (18 percent) resided in the same household and were epidemiologically linked to one another. As seen in Figure 9, the majority of Ohio's 2008 mumps cases were seen in children 5-14 years of age (five cases, 29 percent). Over the past five years, the greatest burden of mumps disease in Ohio occurred among children 5-14 years of age and adults 25 years of age and older.

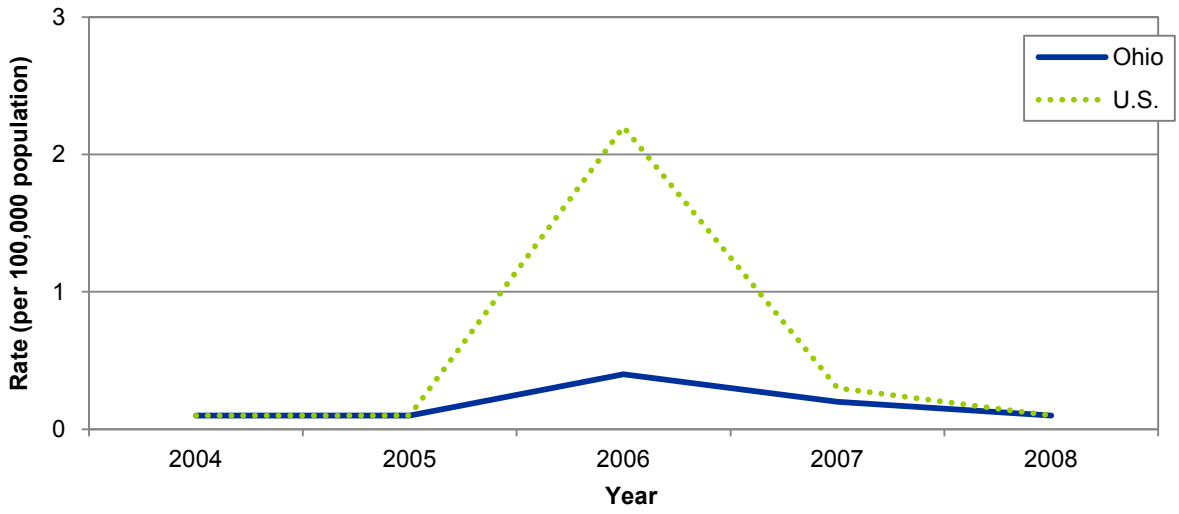
Figure 9: Mumps by Age, Ohio, 2004-2008



Source of disease data: Ohio Department of Health Infectious Disease Surveillance.

As seen in Figure 10, the incidence of mumps in Ohio and the United States remained relatively stable from 2004-2008 except for the large increase observed in the United States in 2006. The 2006 increase was the result of a multistate outbreak of mumps that began in Iowa in late 2005 and continued into 2006. Ohio also saw an increase in its mumps rate during 2006 (0.4 cases per 100,000 population); however, Ohio's 2006 rate was well under the national rate observed in 2006 (2.2 cases per 100,000 population).

Figure 10: Mumps by Year, Ohio and the United States, 2004-2008



Source of Ohio data: Ohio Department of Health Infectious Disease Surveillance.
Source of U.S. data: CDC's Nationally Notifiable Disease Surveillance System's (NNDSS) annual summary of notifiable diseases for 2004-2007. U.S. data for 2008 are provisional NNDSS data published in MMWR Vol. 57, Nos. 51-52.
Source of population data: U.S. Census midpoint estimates, which are as of December 2008.

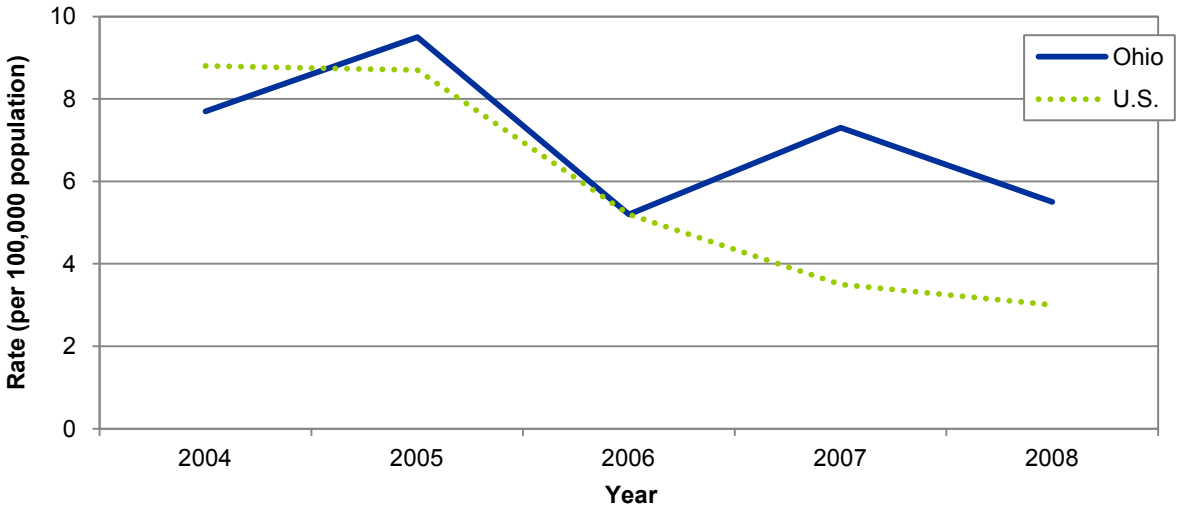
PERTUSSIS

Number of cases in 2008:	*628*	*Rate in 2008:*	*5.5*
Number of cases in 2007:	*837*	*Rate in 2007:*	*7.3*

* Rates are based on U.S. Census midpoint estimates for each year and are per 100,000 population.

As seen in Figure 11, while the incidence of pertussis has decreased in the United States over the past five years, it continued to fluctuate in Ohio. Ohio and national pertussis rates followed a similar pattern from 2004-2006. However, from 2007-2008, the difference in Ohio and national pertussis rates continued to widen. Ohio had a higher rate than the national rate of pertussis in three of the five years. The biggest difference in rates was seen in 2007 when Ohio had a rate of 7.3 per 100,000 population, compared to the national rate of 3.5 per 100,000 population.

Figure 11: Pertussis by Year, Ohio and the United States, 2004-2008



Source of Ohio data: Ohio Department of Health Infectious Disease Surveillance.
Source of U.S. data: CDC's Nationally Notifiable Disease Surveillance System's (NNDSS) annual summary of notifiable diseases for 2004-2007. U.S. data for 2008 are provisional NNDSS data published in MMWR Vol. 57, Nos. 51-52.
Source of population data: U.S. Census midpoint estimates, which are as of December 2008.

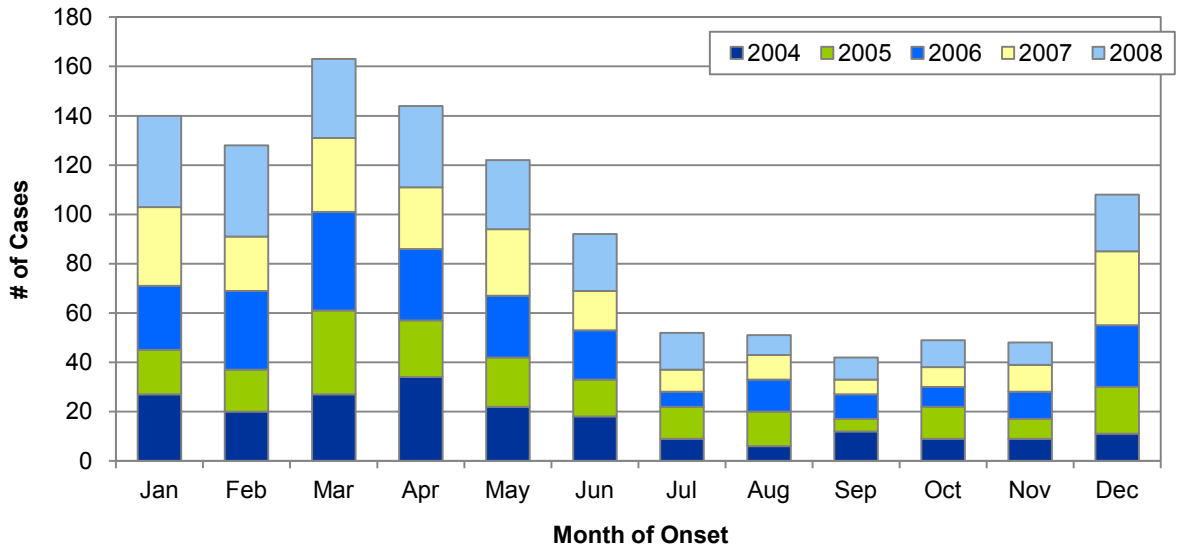
STREPTOCOCCAL DISEASE, GROUP A, INVASIVE

Number of cases in 2008:	*265*	*Rate in 2008:*	*2.3*
Number of cases in 2007:	*226*	*Rate in 2007:*	*2.0*

* Rates are based on U.S. Census midpoint estimates for each year and are per 100,000 population.

In Ohio, invasive group A streptococcal disease experienced a noticeable seasonal trend each year from 2004-2008 (Figure 12). Like trends seen in the rest of the United States, the majority of cases occurred during the winter and spring months.[7] Incidence peaked in March and was at its lowest July to November. Cases began increasing again in December, especially in more recent years.

Figure 12: Invasive Group A Streptococcal Disease by Month and Year of Onset, Ohio, 2004-2008



Source of disease data: Ohio Department of Health Infectious Disease Surveillance.

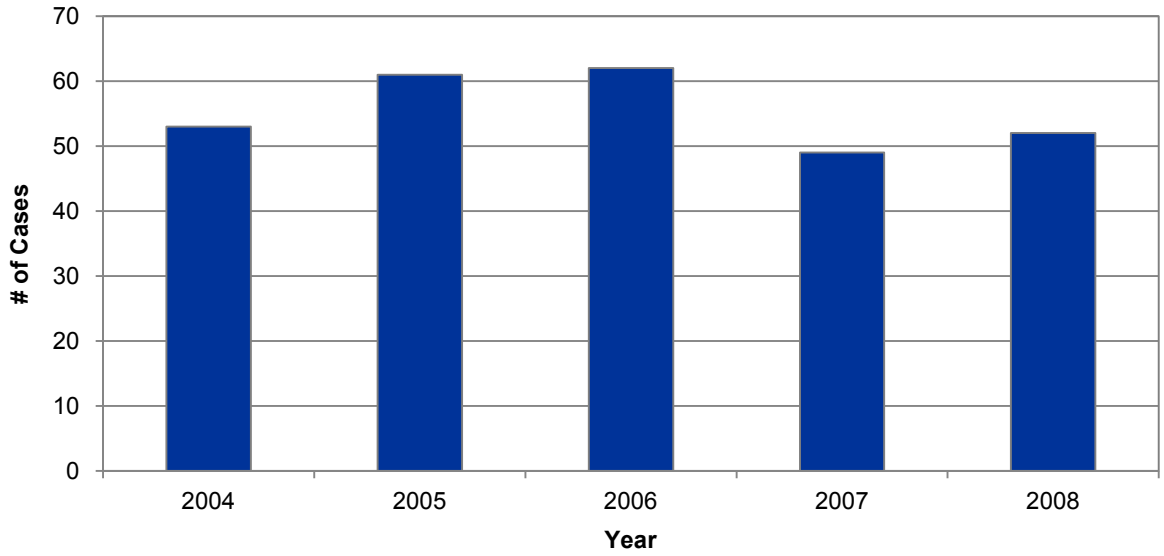
STREPTOCOCCAL DISEASE, GROUP B, IN NEWBORN

Number of cases in 2008:	*51*	*Rate in 2008:*	*34.9*
Number of cases in 2007:	*49*	*Rate in 2007:*	*32.5*

* Rates are based on the CDC's National Vital Statistics System's preliminary birth data for 2007 and are per 100,000 live births.[8]

Group B streptococcal disease in newborns incidence has ranged from 32.5 to 41.2 cases per 100,000 live births over the past five years. The reported number of cases increased between 2004 and 2006 (52, 2004; 60, 2005; 61, 2006), declined in 2007 (49 cases) and increased again in 2008 (52 cases) (Figure 13).

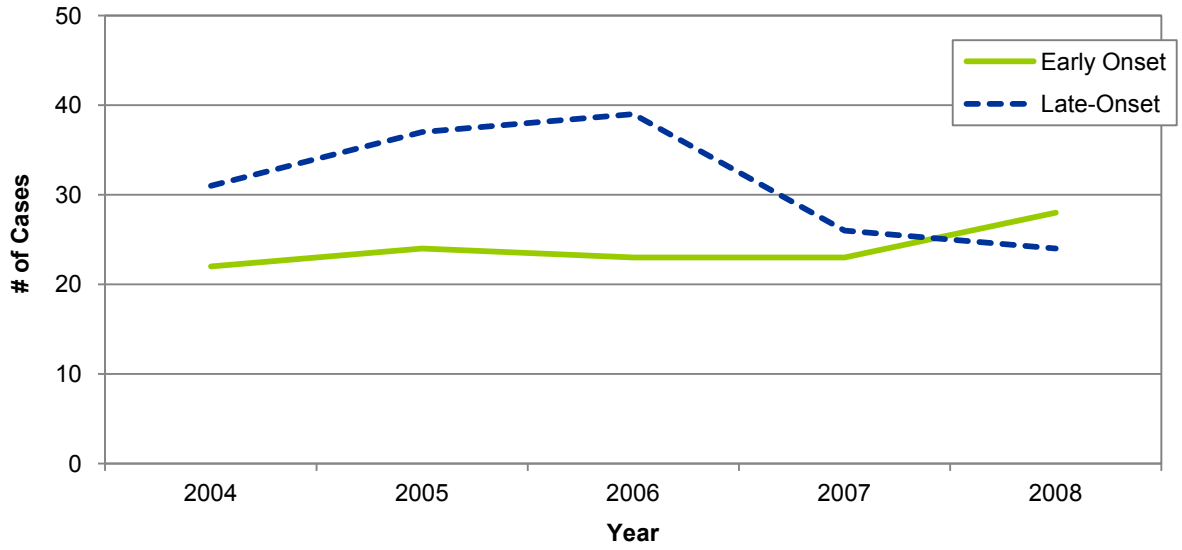
Figure 13: Group B Streptococcal Disease in Newborns by Year, Ohio, 2004-2008



Source of disease data: Ohio Department of Health Infectious Disease Surveillance.

Group B streptococcal infections in newborns can be separated into two categories. Early-onset affects infants less than 7 days old. Late-onset affects infants with onset dates of infection seven days or more from the date of birth. Between the years 2004 and 2007, late-onset infections comprised the majority of Group B *Streptococcus* infections in infants (58.5 percent, 2004; 60.7 percent, 2005; 62.9 percent; 2006 and 53.1 percent, 2007). For the first time in 2008, it appeared the majority of cases, 53.8 percent, occurred in infants less than 7 days. The increase in the percentage of early-onset cases is due to a declining number of reported late-onset cases. The number of early-onset infections has remained fairly constant for the previous five years, demonstrating a slight increase in cases in 2008 (Figure 14).

Figure 14: Group B Streptococcal Disease by Age at Onset, Ohio, 2004-2008



Source of disease data: Ohio Department of Health Infectious Disease Surveillance.