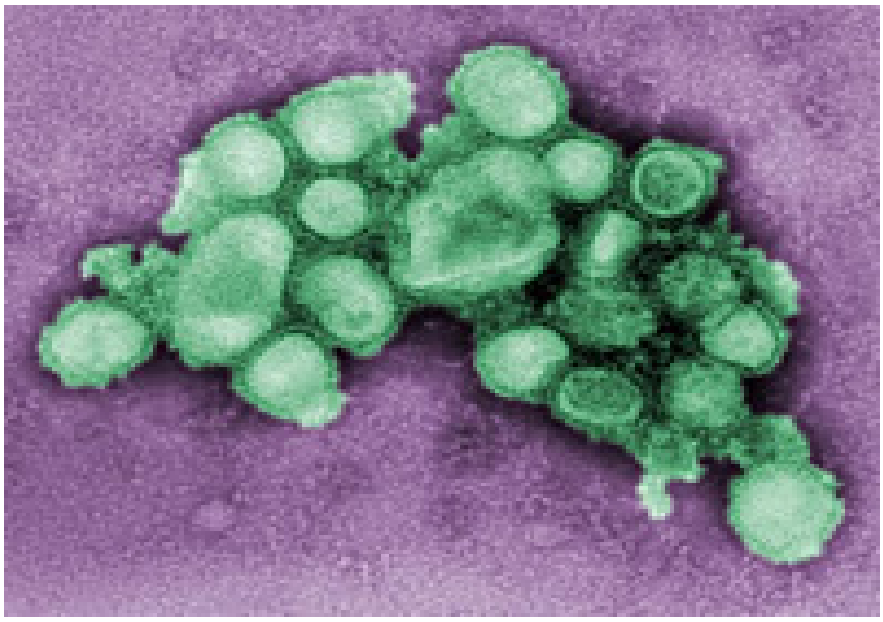
2009
Annual Summary of Reportable Infectious Diseases for Cuyahoga County, Ohio

Report Date: September 27, 2010



2009 H1N1 Influenza. (Photo Credit: C.S. Goldsmith and A. Balish, CDC)

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Acknowledgements

This report was a collaborative effort among the three health departments in Cuyahoga County. The individuals listed below contributed to the creation of the report.

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Table of Contents

Introduction

The 2009 Annual Communicable Disease Report is a collaborative effort between the Cuyahoga County Public Health Collaborative (CCPHC) which consists of the City of Cleveland Department of Public Health, the Shaker Heights Health Department, and the Cuyahoga County Board of Health.

Certain infectious diseases in Ohio are reportable to local and state health departments under Ohio Administrative Code Chapter 3701-3. This report provides historical numbers for reportable diseases along with trends by select demographics (e.g., age, gender, and month of year). Attempts were also made to illustrate the geographic variation in select diseases provided there were enough cases to do so (i.e., at least five cases per city/municipality).

The report also provides a summary of the different type of illness outbreaks that were reported to the health departments in 2009. Lastly, with the emergence of the 2009 H1N1 Influenza virus (swine flu), we provided expanded information on this disease.

The report does not include information on all reportable communicable diseases. Specifically, Tuberculosis data are exclusively managed by the Tuberculosis Clinic at MetroHealth Medical Center. Sexually transmitted disease data including HIV and AIDS are exclusively managed by the City of Cleveland Department of Public Health. Additional data reports for these diseases can be found at: http://clevelandhealth.info/.

The health departments hope you find the information useful as you gain a better understanding of the communicable disease burden in the county. We are hopeful that this will be the first of several annual disease reports that will be provided to the community. The CCPHC also provides quarterly updates on select reportable diseases throughout the year. Although these quarterly updates do provide the number of cases, the scope of the updates is not as extensive as the information contained in the annual report (i.e., it does not include the trends by select demographics or illustrate the geographic variation).

Methods and Limitations

Data in this report are presented primarily as counts of cases or as incidence rates per 100,000 persons. Incidence rates are the number of new cases of a disease within a specified time period divided by the total population at risk in that time period. When the term "rate" is used alone, it can be assumed to be an incidence rate. Rates were calculated by using population estimates from the U.S. Census. The estimates were most recently updated for July 1, 2009. These estimates can be found online at www.census.gov/popest/estimates.html.

The "median" and "mean" presented in Tables 1 through 5 represent the annual median and mean case counts and rates across the 2004-2008 timeframe. This five year timeframe was selected to help establish a baseline (e.g. endemic level) so comparisons can be made with the 2009 data. Additionally, this was done because counts and rates are subject to random variation and often fluctuate from year to year. This is especially the scenario when counts are very low, thus rates can become unstable and sometimes need to be interpreted with caution. For these reasons, rates have not been calculated when there are fewer than five cases in any given category and denoted with a "**".

Data reflect counts and rates for Cuyahoga County residents only, but include diseases acquired by Cuyahoga County residents while traveling outside of the county and Ohio. For example, Lyme disease is not typically found in Cuyahoga County. Data were calculated using event date which is the earliest date associated with the case, usually the onset date.

Tetanus and Trichinosis were not included in the tables due to the fact that there were not any reported cases in the previous 5 years. Influenza-associated hospitalizations did not become reportable until 2009 and Varicella did not become reportable until 2006, thus under reporting was evident in previous years. The mean and median rates for Varicella were calculated from 2005-2008 data. Mean and median numbers for all other years were based on 2004-2008 data.

Case data were obtained from the Ohio Disease Reporting System (ODRS). Data includes confirmed, probable, and suspected cases based on case definitions determined by the Centers for Disease Control and Prevention (CDC). These case

definitions can be found online at www.cdc.gov/ncphi/disss/nndss/casedef. For diseases that do not have a current CDC case definition, cases were determined using criteria from the Ohio Department of Health (ODH) Infectious Disease Control Manual (IDCM). The IDCM can be found online at www.odh.ohio.gov/healthresources/infectiousdiseasemanual.aspx.

The data presented in this report should be interpreted with respect to the following *limitations:*

1. It is known that diseases are often underreported since some cases to do not always seek medical attention. The disease counts presented in this report are only reported cases, which is an underestimate of the amount of true disease. The amount of underreporting likely varies by disease.

2. Rates may be unreliable as described previously above. As the count decreases so does the stability of the rate.

3. Some demographic data may be incomplete. Thus, it may not always be possible to include reported cases in specific demographic analyses such as by age, gender, and/or geographic area. When age, gender, or city for a case was missing or unknown, that case may not be reflected in the corresponding graph.

4. Different dates may be used to classify the case year as mentioned above. Specifically, event date was used which is the earliest date associated with the case and usually the onset date. However, onset date was not always available. When unavailable, other dates such as specimen collection date and date of diagnosis were used as surrogates.

Selected Reportable Infectious Diseases by Year of Onset, Cuyahoga County, 2004-2009

Table 1. General Infectious Diseases	2004		2005		2006		2007		2008		Median		Mean		2009	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Aseptic Meningitis	50	3.7	111	8.4	82	6.3	62	4.8	74	5.8	74	5.7	81	6.2	68	5.3
Cytomegalovirus (CMV), congenital	2	**	2	**	3	**	3	**	4	**	3	**	3	**	1	**
Coccidiodomycosis	0	**	0	**	1	**	0	**	2	**	0	**	1	**	3	**
Creutzfeldt-Jakob disease (CJD)	1	**	1	**	0	**	2	**	2	**	1	**	1	**	7	0.5
***Haemophilus influenzae*, invasive**	15	1.1	14	1.1	13	1.0	18	1.4	12	0.9	14	1.1	14	1.1	7	0.5
Legionnaires' disease	45	3.4	44	3.3	47	3.6	56	4.3	48	3.7	47	3.6	48	3.7	58	4.5
Meningitis, bacterial (non-Neisseria)	13	1.0	8	0.6	10	0.8	8	0.6	11	0.9	10	0.8	9	0.7	6	0.5
Streptococcal disease, Group A, invasive	27	2.0	26	2.0	28	2.1	28	2.2	26	2.0	27	2.1	27	2.1	24	1.9
Streptococcal disease, Group B, newborn	11	0.8	14	1.1	6	0.5	11	0.9	7	0.5	11	0.8	10	0.8	8	0.6
Streptococcal Toxic Shock Syndrome	3	**	5	0.4	3	**	1	**	4	**	3	**	3	**	0	**
***Streptococcus pneumoniae* invasive disease, non-resistant or unknown resistance**	44	3.3	55	4.2	73	5.6	61	4.7	60	4.7	60	4.6	62	4.7	71	5.6
***Streptococcus pneumoniae* invasive disease, resistant**	27	2.0	42	3.2	39	3.0	41	3.2	41	3.2	41	3.2	41	3.1	34	2.7
Toxic Shock Syndrome	0	**	0	**	1	**	1	**	1	**	1	**	1	**	0	**
***Staphylococcus aureus*, with intermediate resistance to vancomycin (VISA)**	0	**	0	**	0	**	0	**	1	**	0	**	0	**	2	**

Table 2. Hepatitis	2004		2005		2006		2007		2008		Median		Mean		2009	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Hepatitis A	5	0.4	3	**	8	0.6	16	1.2	7	0.5	7	0.5	8	0.6	5	0.4
Hepatitis B, acute	26	1.9	34	2.6	29	2.2	26	2.0	32	2.5	29	2.2	30	2.3	19	1.5
Hepatitis B, chronic	310	23.1	177	13.4	113	8.7	206	15.9	183	14.3	183	14.1	172	13.2	181	14.2
Hepatitis C, acute	0	**	3	**	1	**	8	0.6	9	0.7	3	**	5	0.4	5	0.4
Hepatitis C, chronic	2005	149.5	1486	112.2	1295	99.2	1049	81.1	963	75.1	1295	99.7	1218	93.4	1119	87.7
Hepatitis E	0	**	0	**	1	**	1	**	0	**	0	**	0	**	0	**

Selected Reportable Infectious Diseases by Year of Onset, Cuyahoga County, 2004-2009

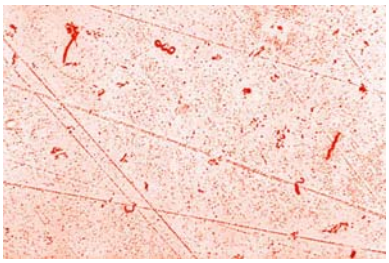
Table 3. Enteric Diseases	2004		2005		2006		2007		2008		Median		Mean		2009	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Amebiasis	1	**	3	**	0	**	2	**	1	**	1	**	1	**	3	**
Botulism, foodborne	0	**	0	**	0	**	1	**	0	**	0	**	0	**	1	**
Campylobacteriosis	155	11.6	161	12.2	151	11.6	163	12.6	169	13.2	161	12.4	161	12.3	172	13.5
Cryptosporidiosis	22	1.6	25	1.9	32	2.5	23	1.8	14	1.1	23	1.8	23	1.8	15	1.2
Cyclosporiasis	1	**	0	**	0	**	0	**	0	**	0	**	0	**	0	**
E. coli O157:H7 and other enterohemorrhagic	4	**	15	1.1	15	1.1	6	0.5	13	1.0	13	1.0	12	1.0	11	0.9
Giardiasis	97	7.2	113	8.5	63	4.8	74	5.7	87	6.8	87	6.7	85	6.5	80	6.3
Hemolytic Uremic Syndrome (HUS)	0	**	2	**	1	**	1	**	0	**	1	**	1	**	8	0.6
Listeriosis	8	0.6	3	**	6	0.5	5	0.4	6	0.5	6	0.5	5	0.4	4	**
Salmonellosis	173	12.9	191	14.4	229	17.5	156	12.1	183	14.3	183	14.1	188	14.4	205	16.1
Shigellosis	31	2.3	36	2.7	21	1.6	101	7.8	217	16.9	36	2.8	82	6.3	244	19.1
Typhoid Fever	0	**	0	**	1	**	1	**	2	**	1	**	1	**	1	**
Vibriosis, other (not cholera)	4	**	1	**	1	**	1	**	2	**	1	**	1	**	2	**
Yersiniosis	11	0.8	0	**	7	0.5	10	0.8	10	0.8	10	0.8	7	0.6	5	0.4

Table 4. Vaccine Preventable Diseases	2004		2005		2006		2007		2008		Median		Mean		2009	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Influenza A - novel virus	0	**	0	**	0	**	0	**	0	**	0	**	0	**	59	4.6
Influenza-associated hospitalizations	0	**	0	**	0	**	0	**	2	**	0	**	0	**	791	62.0
Influenza-associated pediatric mortality	0	**	0	**	0	**	0	**	0	**	0	**	0	**	3	**
Meningococcal disease	7	0.5	8	0.6	6	0.5	7	0.5	6	0.5	7	0.5	7	0.5	6	0.5
Mumps	1	**	4	**	6	0.5	4	**	0	**	4	**	4	**	2	**
Pertussis	24	1.8	29	2.2	23	1.8	39	3.0	21	1.6	24	1.8	27	2.1	20	1.6
Varicella	0	**	2	**	591	45.3	188	14.5	86	6.7	86	6.6	191	14.6	78	6.1

Table 5. Zoonotic Diseases	2004		2005		2006		2007		2008		Median		Mean		2009	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Arboviral	3	**	32	2.4	10	0.8	6	0.5	5	0.4	6	0.5	12	0.9	1	**
Brucellosis	0	**	0	**	0	**	0	**	0	**	0	**	0	**	1	**
Dengue	3	**	3	**	1	**	0	**	0	**	1	**	1	**	0	**
Lyme	4	**	5	0.4	3	**	5	0.4	8	0.6	5	0.4	5	0.4	10	0.8
Malaria	5	0.4	4	**	4	**	5	0.4	3	**	4	**	4	**	5	0.4
Rocky Mountain Spotted Fever	1	**	1	**	1	**	0	**	0	**	1	**	1	**	1	**

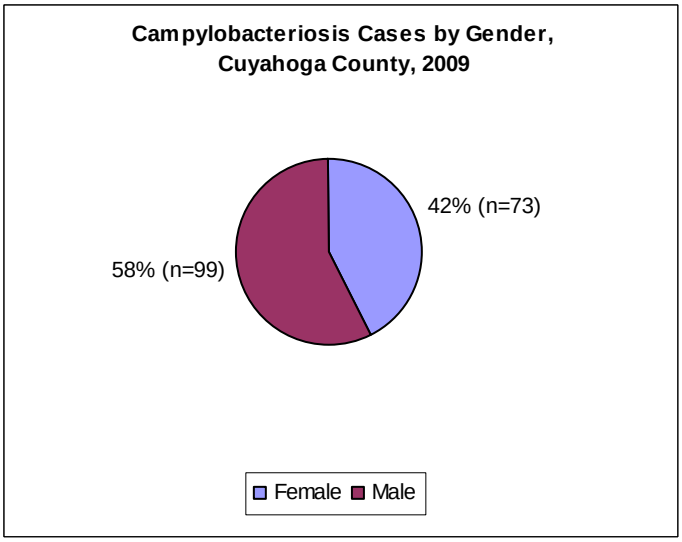
Campylobacteriosis

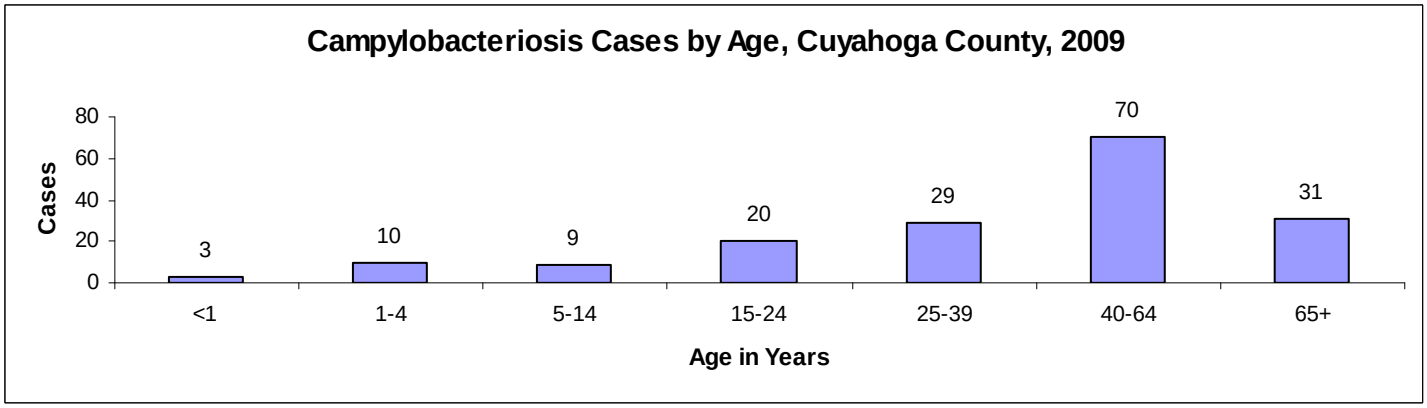
Infectious Agent: *Campylobacter jejuni* and less commonly, *C. coli* are the usual causes of Campylobacter diarrhea in humans. Other *Camplobacter* organisms, including *C. laridis* and *C. fetus spp,* have also been associated with diarrhea in normal hosts.
Mode of Transmission: Eating undercooked meat (especially poultry), and food, water, or raw milk contaminated with *Campylobacter*; contact with the stool (via fecal-oral route) of infected pets, livestock, or infected infants; and foods cross-contaminated from poultry via raw meat juice or misuse of cutting boards.
Incubation Period: 1-10 days, usually 2-5 days
Symptoms: Fever, headache, myalgia, malaise, diarrhea (may contain blood or mucus), vomiting, nausea, and abdominal cramps.

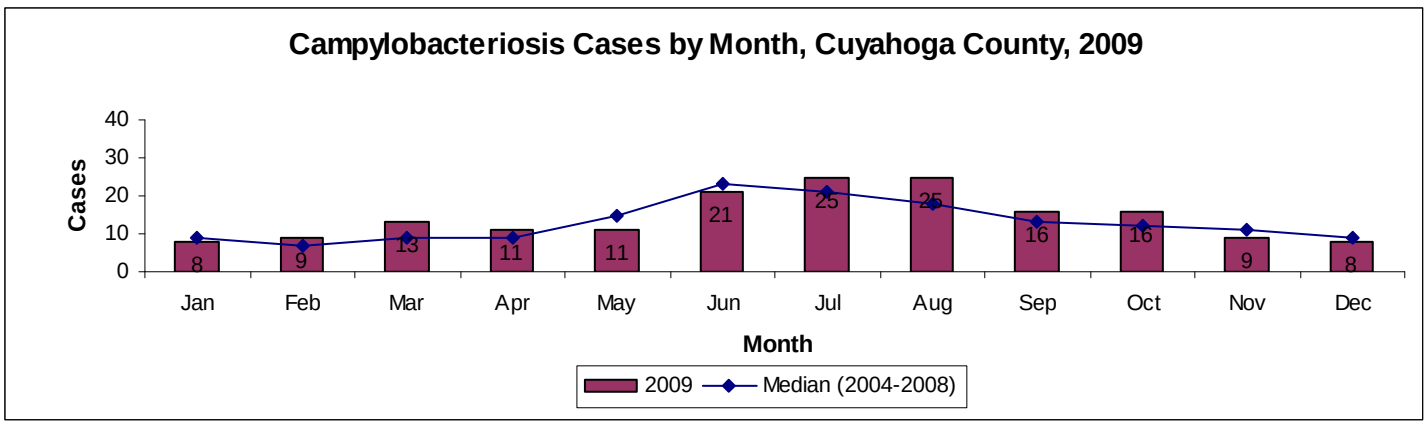


Campylobacteriosis

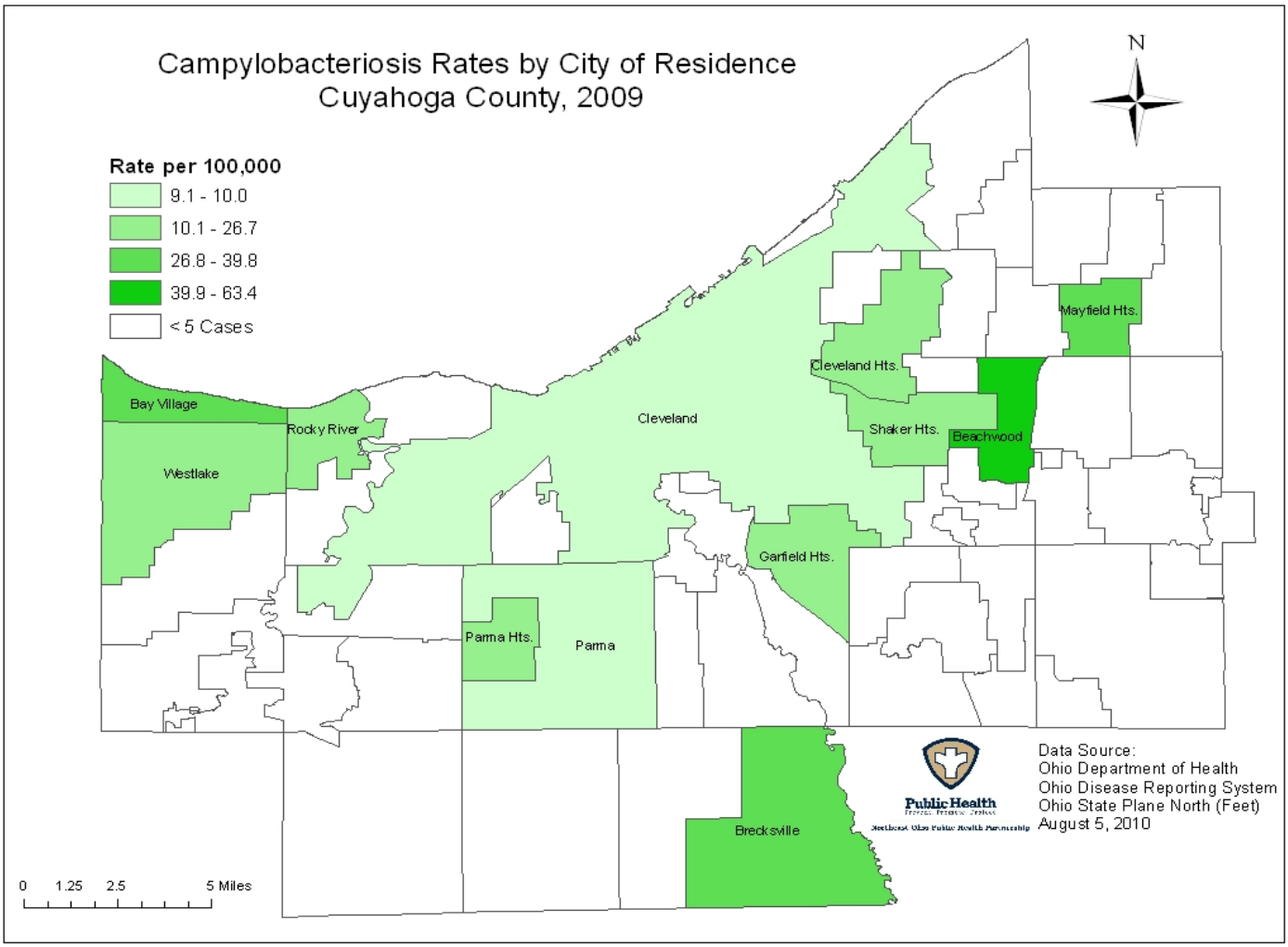
- There were 172 cases of Campylobacteriosis reported in 2009 for a rate of 13.5 per 100,000. The Healthy People 2010 target is 12.3 per 100,000.
- Peak activity occurs in the summer months.
- Seventy of the 172 cases (41%) were 40-64 years old.





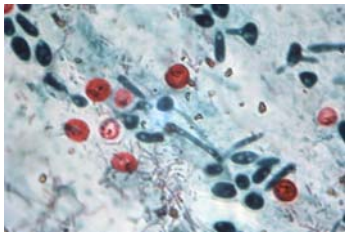


Campylobacteriosis



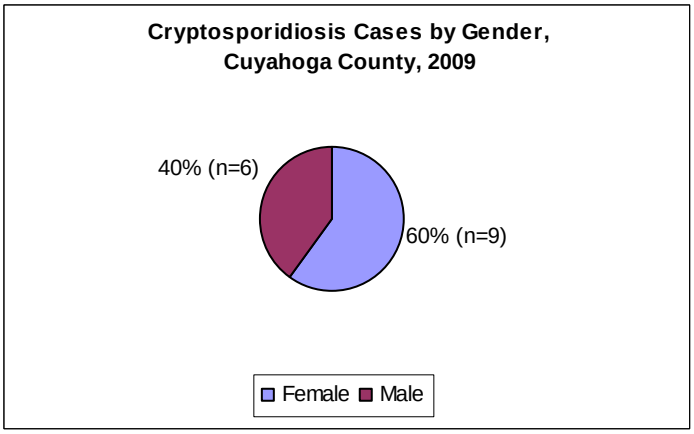
Cryptosporidiosis

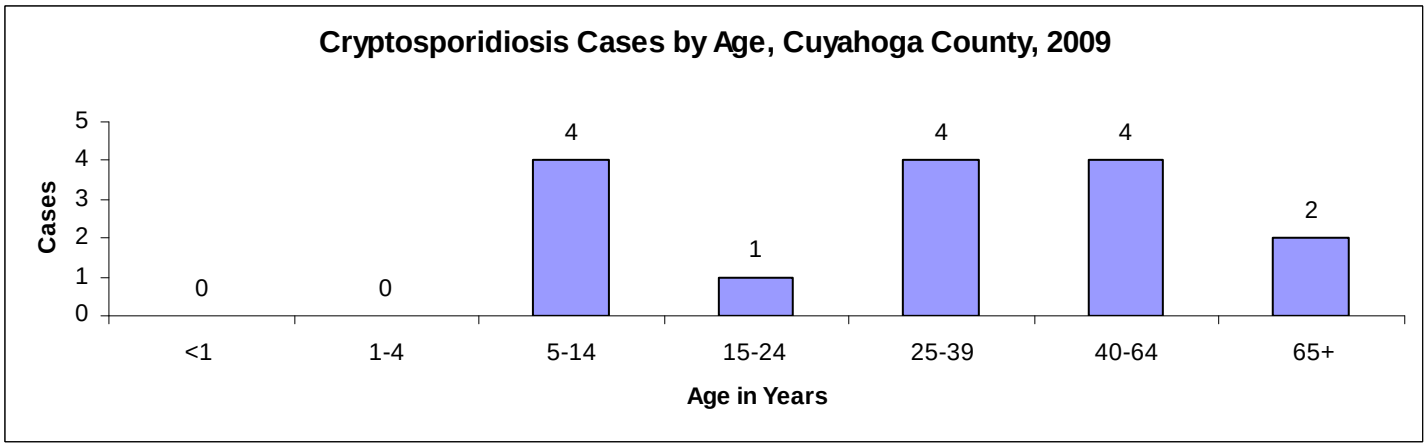
Infectious Agent: *Cryptosporidium hominus* or *Cryptosporidium parvum*, protozoan parasites that produce oocysts. The oocysts are highly infective for humans and most animals. The oocysts are also resistant to chlorine and other disinfectants.
Mode of Transmission: Fecal-oral route, including person-to-person, animal-to-person, waterborne and foodborne transmission.
Incubation Period: 1-13 days, usually 1 week
Symptoms: Watery diarrhea which may contain mucus often accompanied with abdominal pain. Less common symptoms include malaise, low-grade fever, anorexia, nausea, and vomiting.

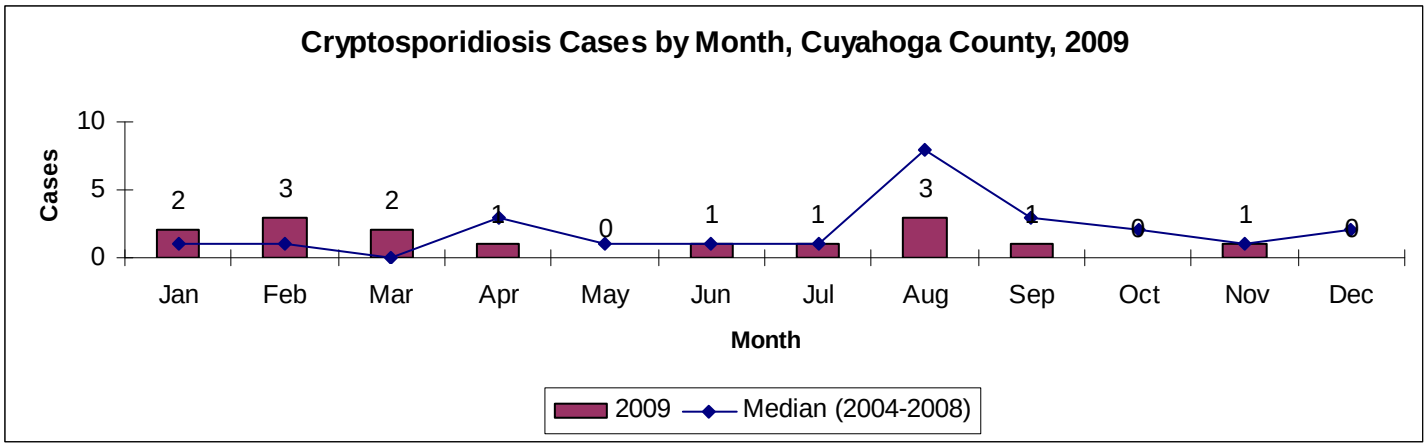


Cryptosporidiosis

- In 2009 there were 15 cases of Cryptosporidiosis reported in Cuyahoga County. This translates into a rate of 1.2 per 100,000.
- In 2006 there was a peak in reported cases (2.5 per 100,000). That year there was a large number of cases reported with swimming pool exposure.
- Cases were fairly equally distributed across the age groups, although there were no cases reported that were under the age of 5 years.





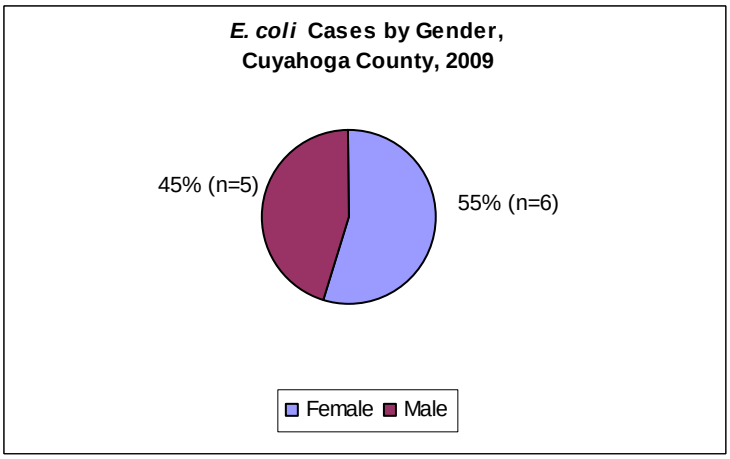


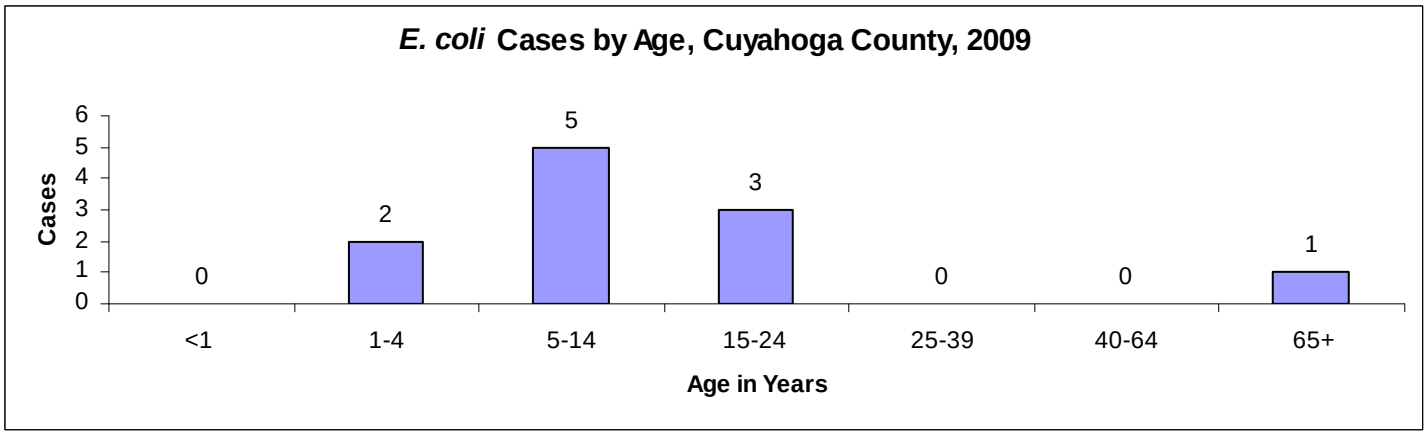
Escherichia coli (E.coli) 0157:H7 and other enterohemmorrhagic

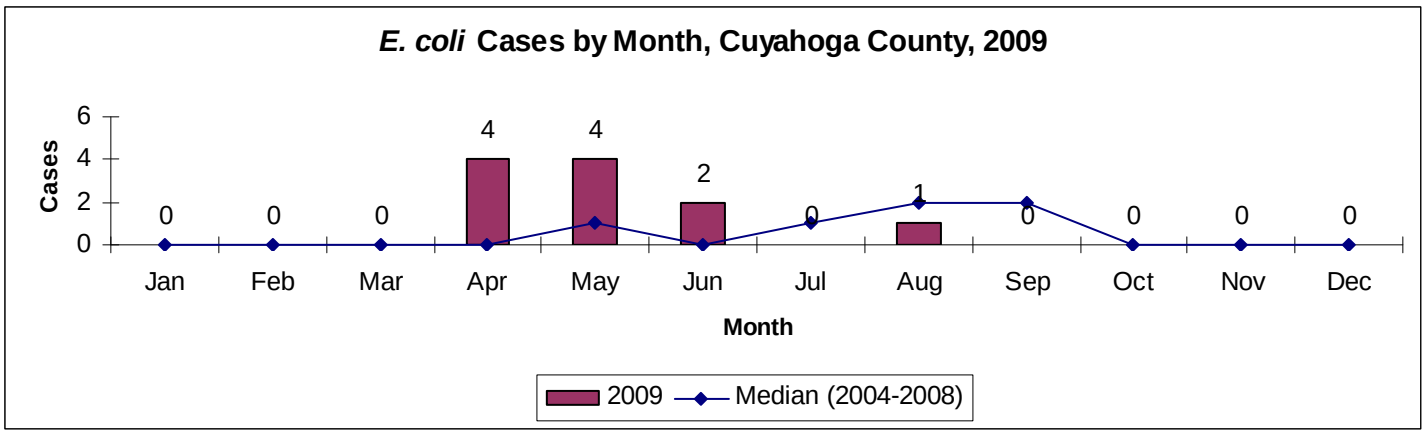
Enterohemorrhagic *E. coli*

- There were 11 cases of *E. coli* reported in 2009 for a rate of 0.9 per 100,000. The Healthy People 2010 target is 1.0 per 100,000.
- The rate has been fairly stable since 2004. However, the rate for Hemolytic Uremic Syndrome (HUS) was significantly higher in 2009 than in previous years. There were 8 cases of HUS reported in 2009 versus a maximum of 2 cases in the previous 5 years. In 2009 there was a cluster of 4 epi-linked HUS cases as well as an outbreak of *E. coli* that included one HUS case.
- The majority of cases occurred in people 24 years of age and younger.
- In 2009 peak activity occurred in the spring and summer. Historically, peak activity has been in late summer and early fall.
- Although other enterohemorrhagic subtypes are considered reportable, all 11 cases of *E. coli* reported in 2009 were 0157:H7.

Infectious Agent: *E. coli* O157:H7 and other enterohemmorrahgic strains.
Mode of Transmission: Person-to-person transmission via the fecal-oral route, eating contaminated beef that has been undercooked, or eating raw fruits and vegetables cross-contaminated with raw meat juices. Transmission has also occurred from swimming in contaminated water.
Incubation Period: 10 hours - 8 days, usually 3-4 days
Symptoms: One may be asymptomatic or have diarrhea ranging from mild to severe.

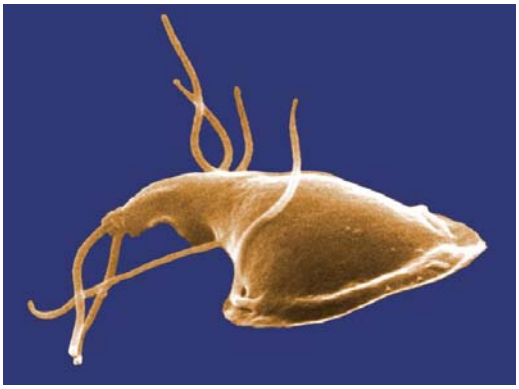






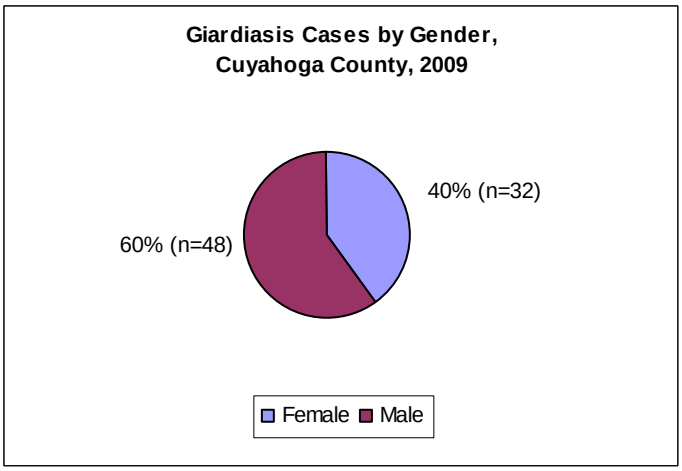
Giardiasis

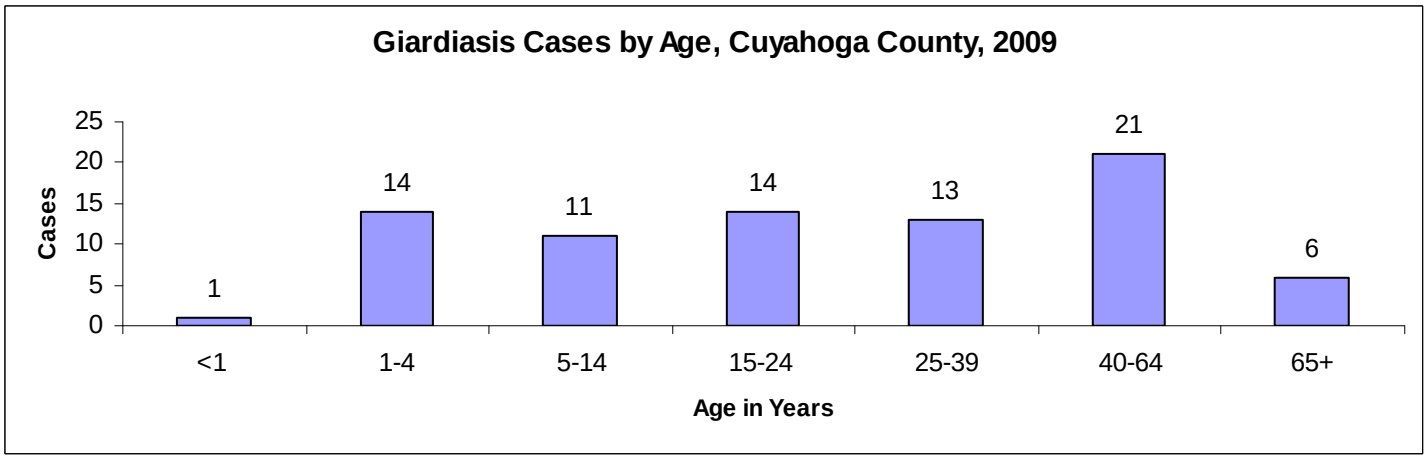
Infectious Agent: *Giardia lamblia*, a protozoan
Mode of Transmission: Person-to-person transmission via the fecal-oral route. Transmission may also occur from contaminated food or water.
Incubation Period: 3-25 days, usually 7-10 days
Symptoms: One may be asymptomatic. Illness may cause chronic diarrhea, cramps, bloating, frequent loose or pale, greasy stools, fatigue and weight loss.

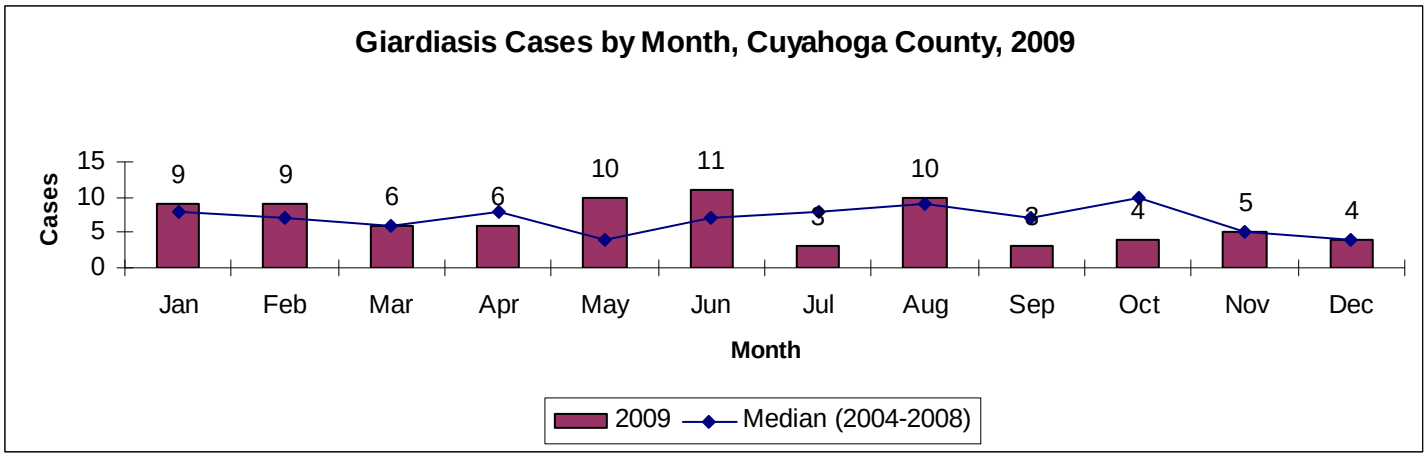


Giardiasis

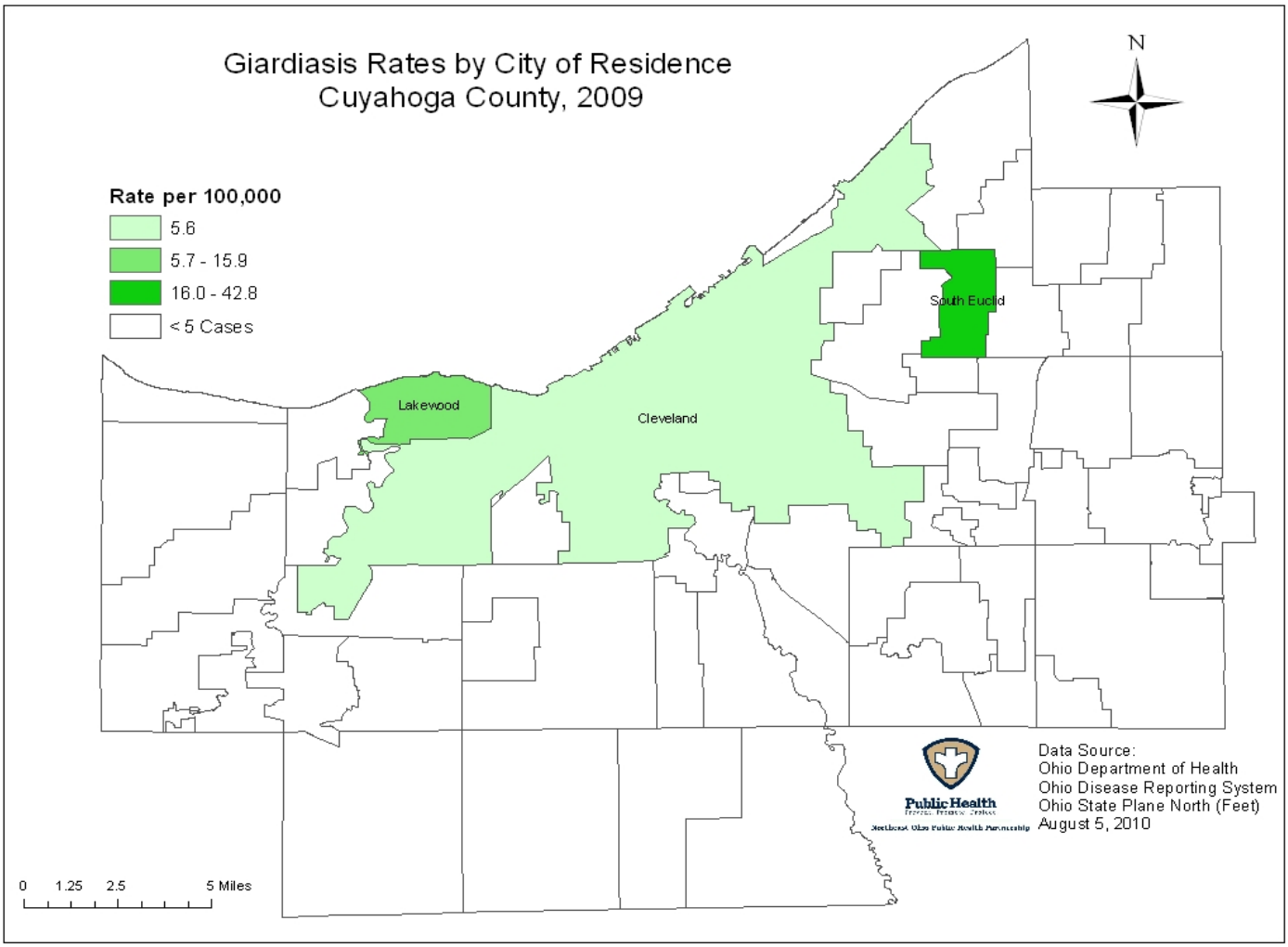
- In 2009 there were 80 cases of Giardiasis reported in Cuyahoga County. This translates to a rate of 6.3 cases per 100,000. The rate has been fairly stable since 2004.
- The cases were fairly equally distributed across age groups, but the largest number of cases occurred in the 40-64 year old age group (26%).







Giardiasis

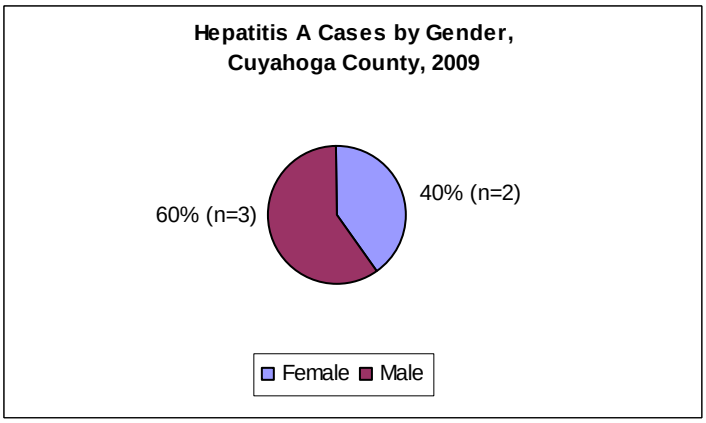

Giardiasis Rates by City of Residence
Cuyahoga County, 2009
N
Rate per 100,000
5.6
5.7 - 15.9
16.0 - 42.8
< 5 Cases
South Euclid
Lakewood
Cleveland
Public Health
Data Source:
Ohio Department of Health
Ohio Disease Reporting System
Ohio State Plane North (Feet)
August 5, 2010
0 1.25 2.5 5 Miles

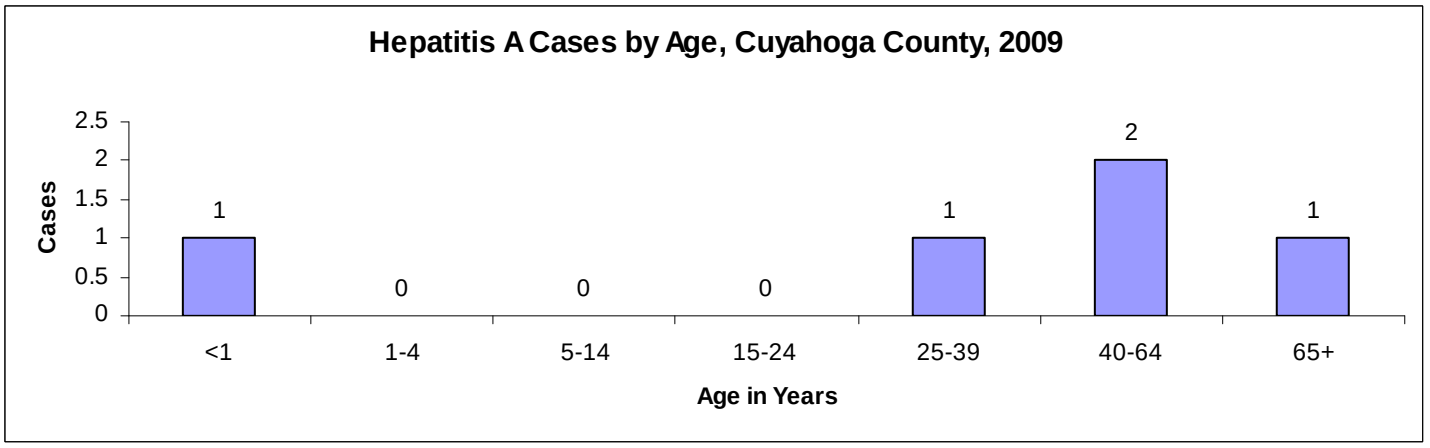
Hepatitis A

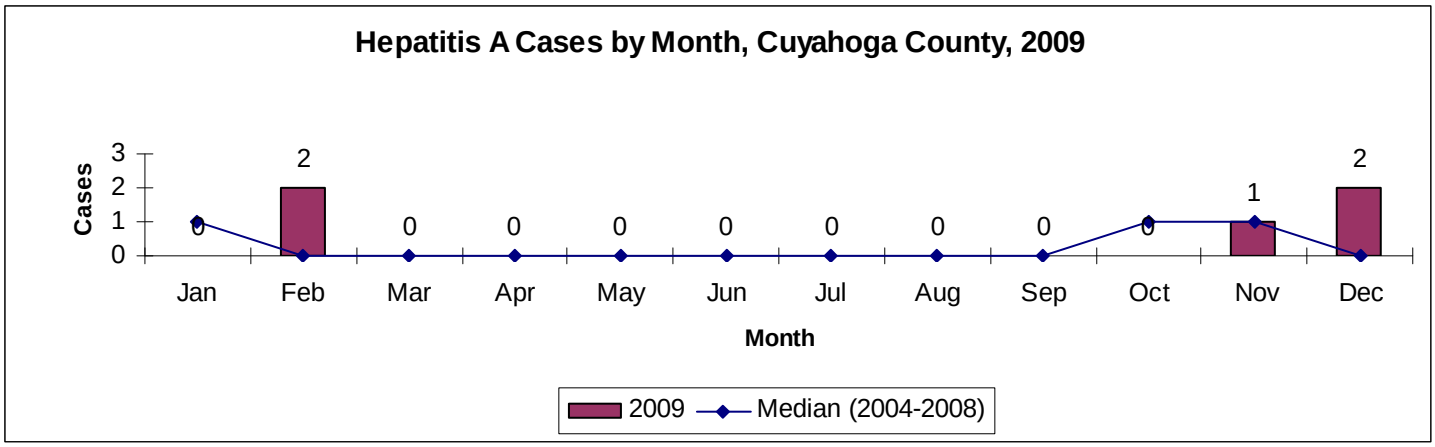
Hepatitis A

- There were 5 cases of Hepatitis A reported in 2009. That translates to a rate of 0.4 per 100,000. This is well below the Healthy People 2010 goal of 4.5 new cases per 100,000.
- The rate of Hepatitis A in Cuyahoga County has been fairly stable since 2004, although there was a peak in 2007 with 16 cases (1.2 cases per 100,000).
- All but one of the cases were 25 years of age or older.
- Three (60%) of the cases had travel outside of the country during their incubation period and one case had no travel. Travel history was unknown for one case.
- Cases in Cuyahoga County usually occur in the fall and winter.

Infectious Agent: Hepatitis A virus (HAV)
Mode of Transmission: Ingestion of the virus via the fecal-oral route. HAV is spread primarily by close person-to-person contact or through contaminated food.
Incubation Period: 15-50 days, usually 28-30 days
Symptoms: Fever, malaise, anorexia, nausea, abdominal pain, dark urine, clay-colored stools, and jaundice. Infected children, particularly infants and toddlers, are often asymptomatic.

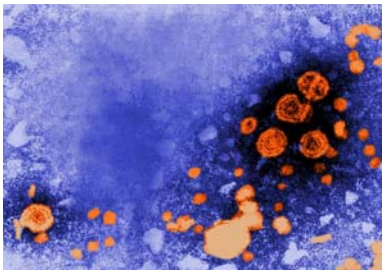






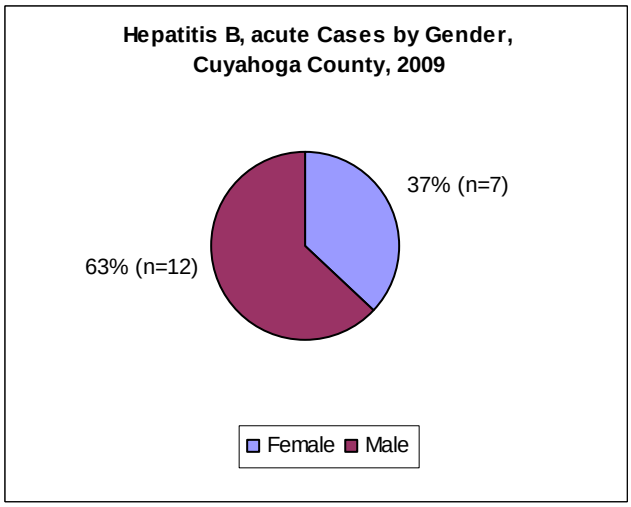
Hepatitis B, acute

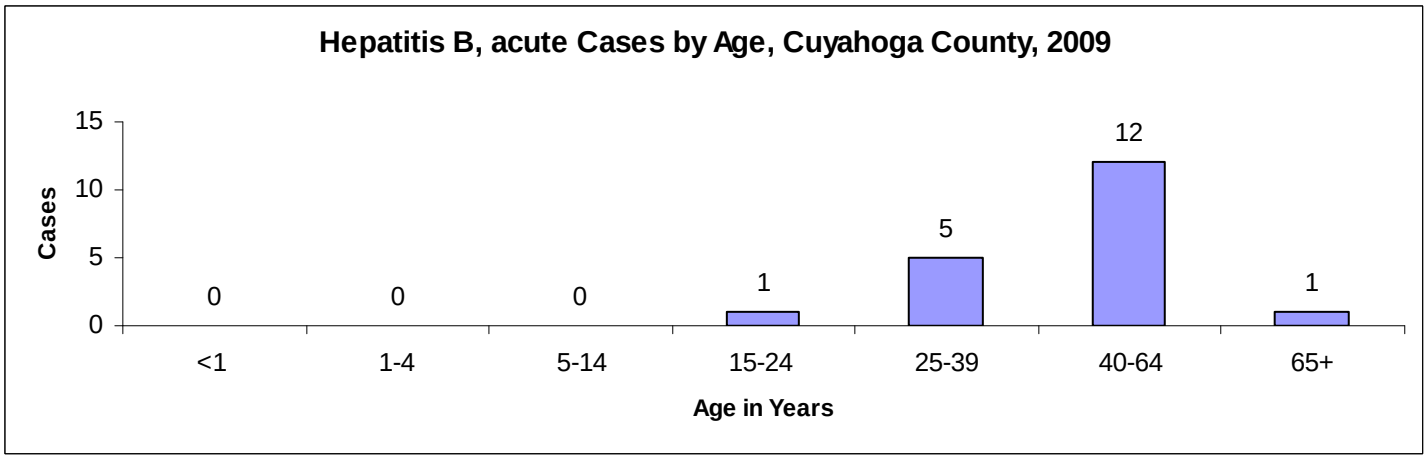
Infectious Agent: Hepatitis B virus (HBV)
Mode of Transmission: Exposure to person with acute or chronic HBV infection. Transmission can occur through sexual contact; percutaneous inoculation by contaminated needles during injection-drug use, tattooing, ear piercing, and acupuncture; contamination of mucosal surfaces with infective serum or plasma during activities such as mouth pipetting; and perinatal transmission.
Incubation Period: 6 weeks - 6 months, usually 2-3 months
Symptoms: Fever, anorexia, malaise, nausea, vomiting, abdominal pain, and jaundice. There may also be occurrences of skin rashes, arthralgia, and arthritis.

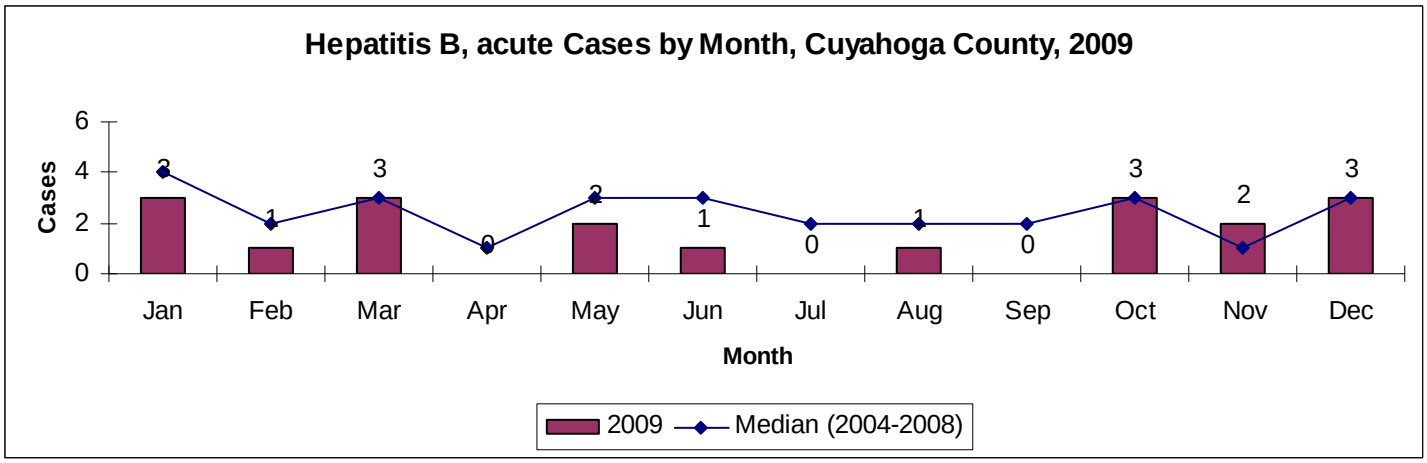


Hepatitis B, acute

- In 2009 there were 19 cases of acute Hepatitis B reported in Cuyahoga County. This translates to a rate of 1.5 cases per 100,000.
- Twelve of the 19 cases (63%) were aged 40-64 years old.
- Sixty-three percent of the cases were male.





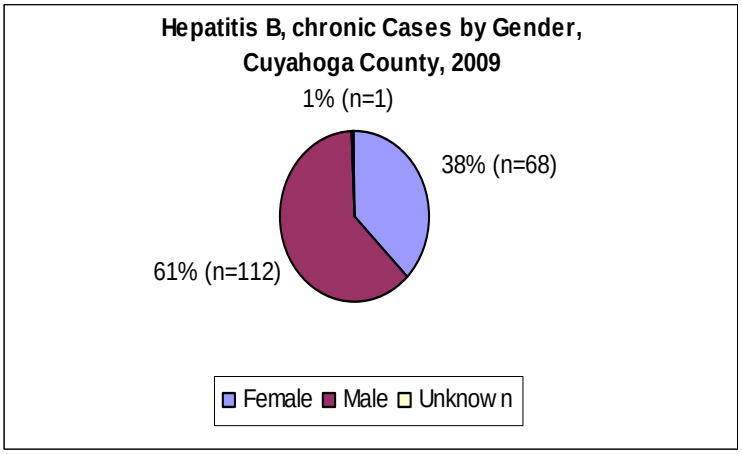


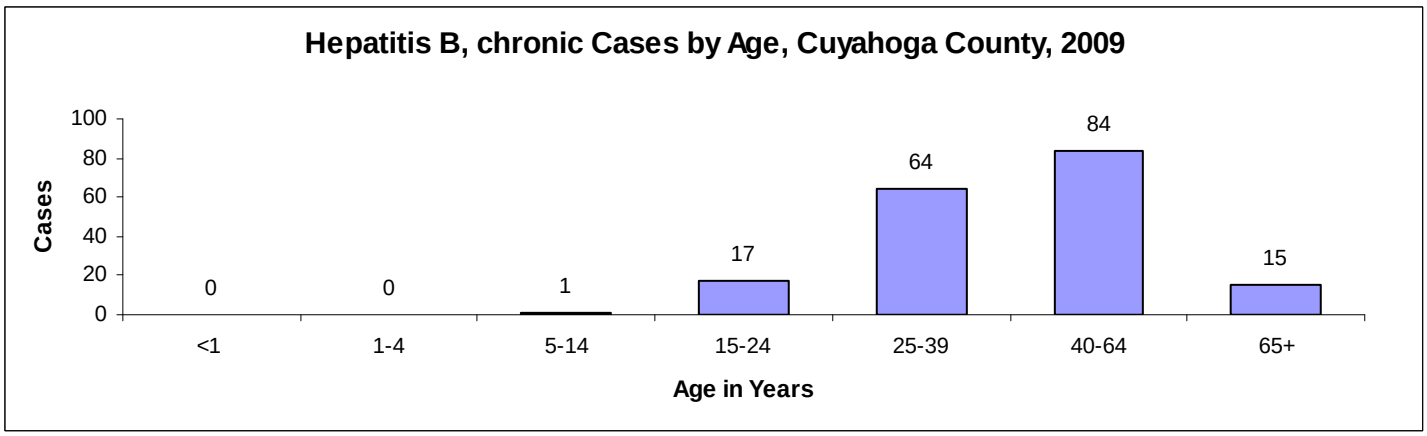
Hepatitis B, chronic

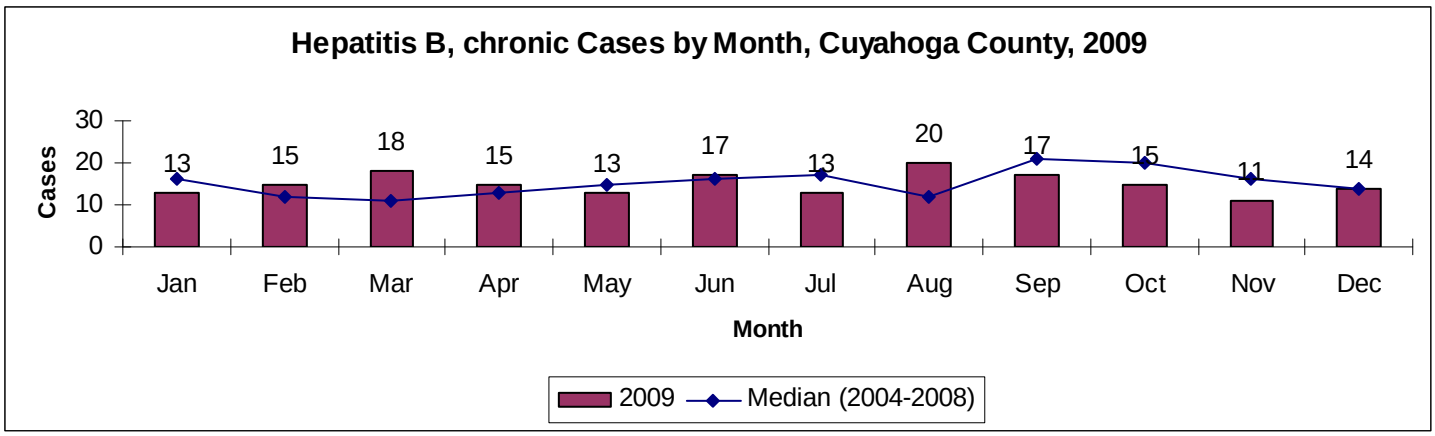
Infectious Agent: Hepatitis B virus (HBV)
Mode of Transmission: Exposure to person with acute or chronic HBV infection. Transmission can occur through sexual contact; percutaneous inoculation by contaminated needles during injection-drug use, tattooing, ear piercing, and acupuncture; contamination of mucosal surfaces with infective serum or plasma during activities such as mouth pipetting; and perinatal transmission.
Incubation Period: 6 weeks - 6 months, usually 3-4 months
Symptoms: Persons may be asymptomatic. There may be no evidence of liver disease or a spectrum of disease ranging from chronic hepatitis to cirrhosis or liver cancer.

Hepatitis B, chronic

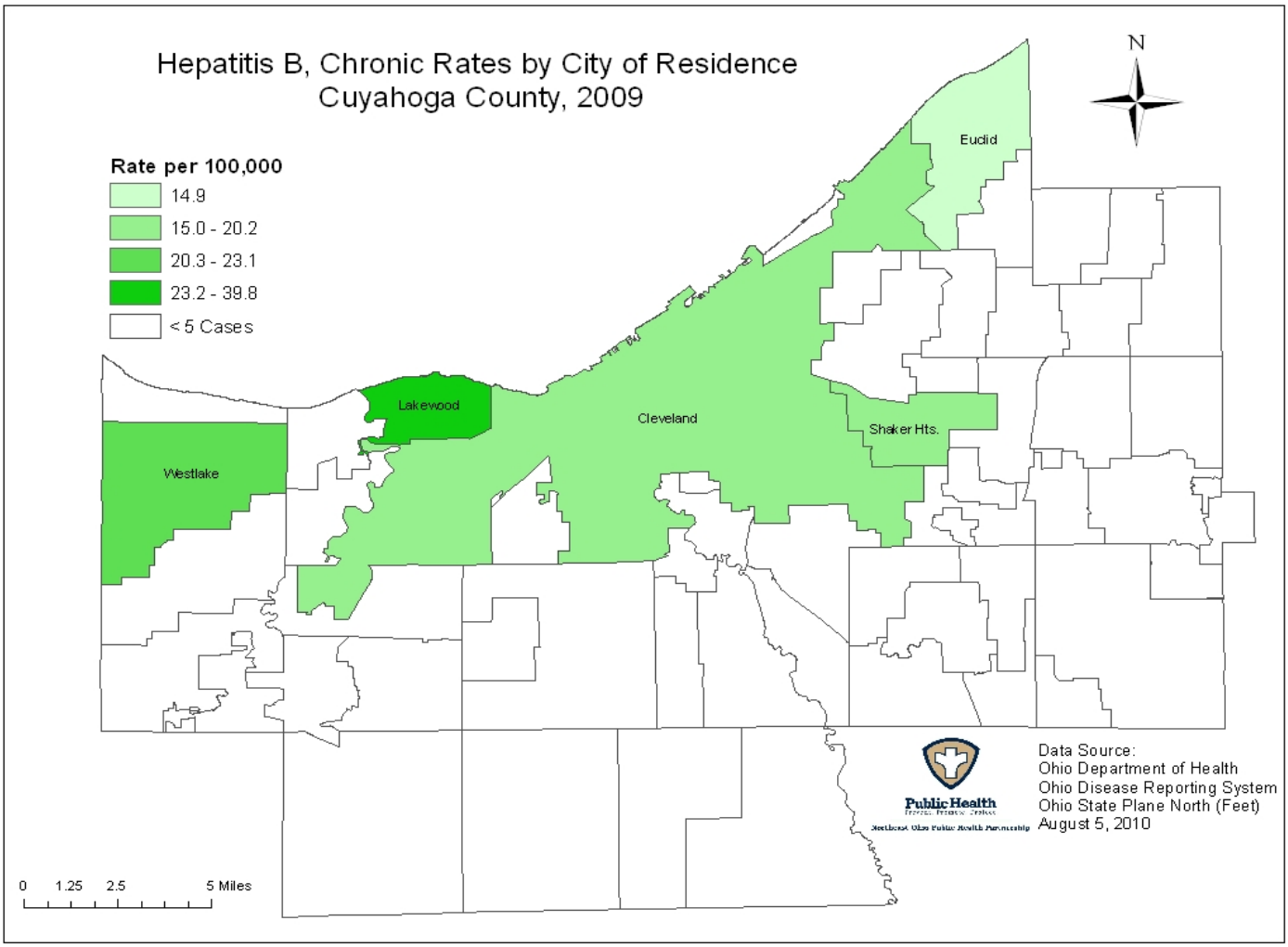
- In 2009 there were 181 cases of chronic Hepatitis B reported in Cuyahoga County. This translates to a rate of 14.2 cases per 100,000.
- The majority of cases are 24-64 years of age with 46% of cases in the 40-64 year age group.
- Sixty-one percent of the cases were male.
- Fifty percent of the cases lived in the city of Cleveland.







Hepatitis B, chronic

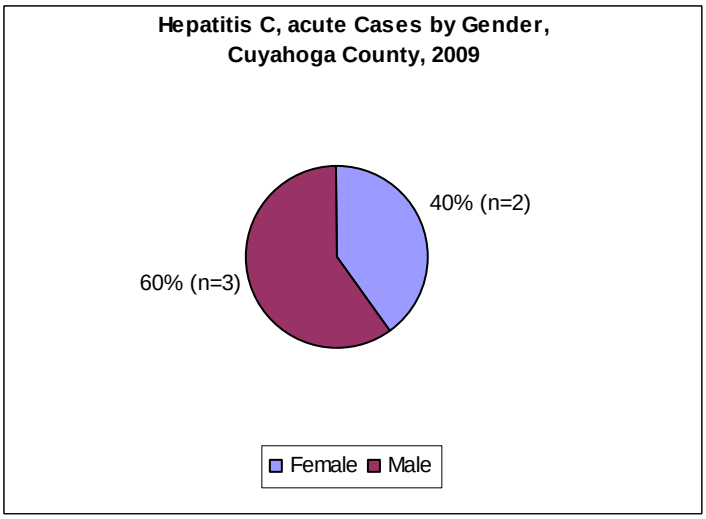


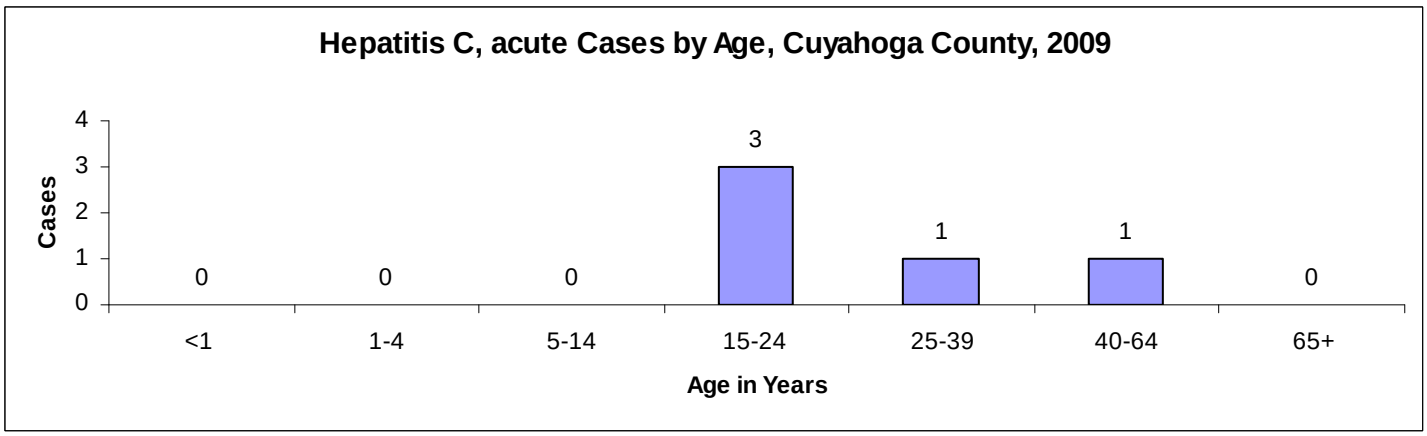
Hepatitis C, acute

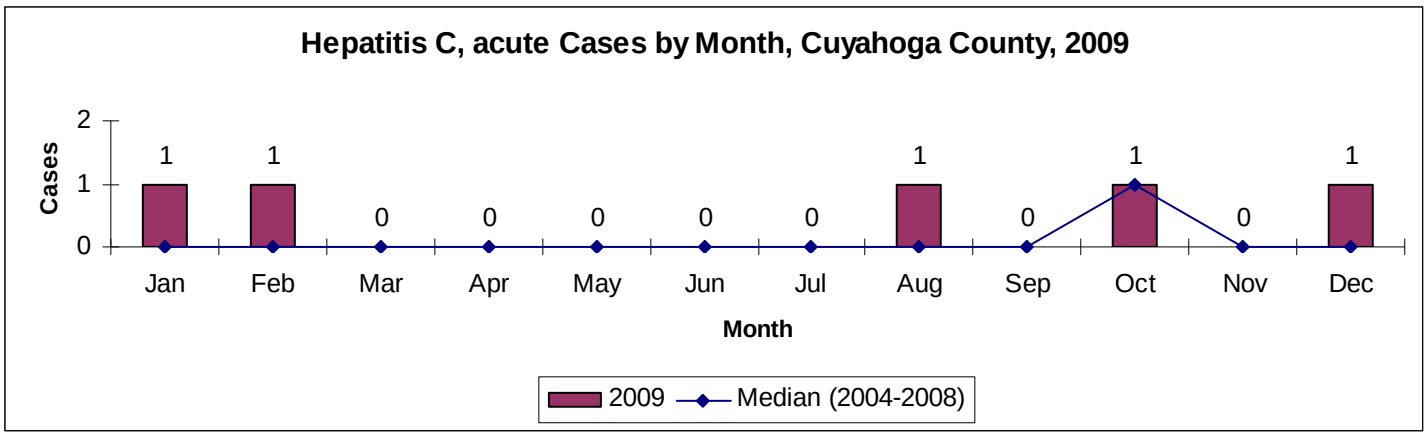
Infectious Agent: Hepatitis C virus (HCV)
Mode of Transmission: Contact with an infected person's blood. Transmission occurs from injection drug use, receiving a blood transfusion or organ transplant before 1992, during child birth, sexual intercourse with an infected person, or sharing infected items such as razors or toothbrushes.
Incubation Period: 2 weeks - 6 months, usually 6-7 weeks
Symptoms: Nausea, vomiting, abdominal pain, diarrhea, jaundice, dark urine, clay-colored bowel movements, joint pain, or abnormal aminotransferase levels (ALT or AST).

Hepatitis C, acute

- In 2009 there were 5 cases of acute Hepatitis C reported in Cuyahoga County. This translates to a rate of 0.4 cases per 100,000 which is below the Healthy People 2010 target of 1 new case per 100,000.
- Three of the 5 acute cases (60%) were aged 15-24 years.





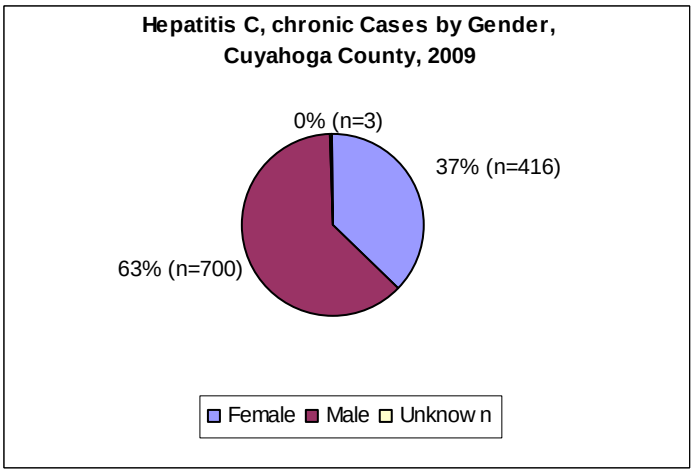


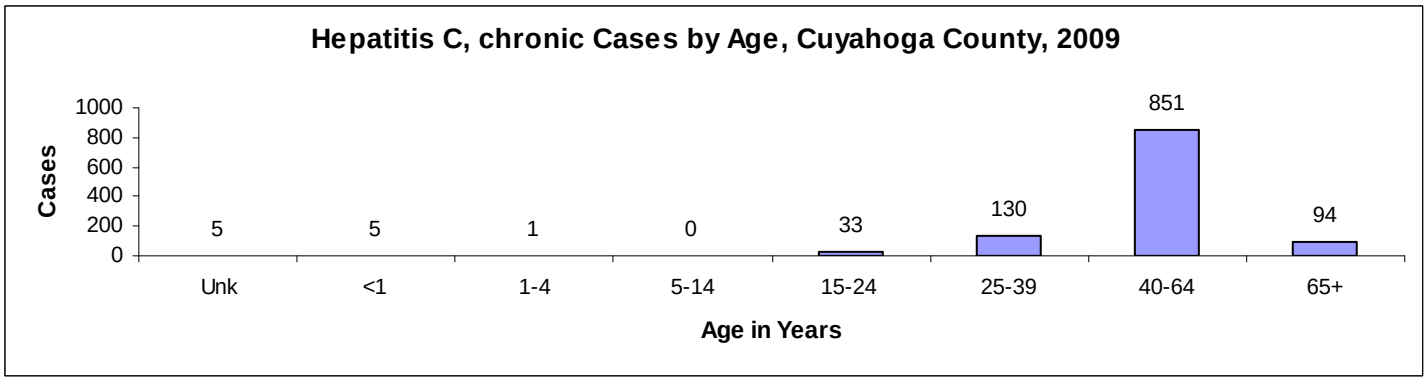
Hepatitis C, chronic

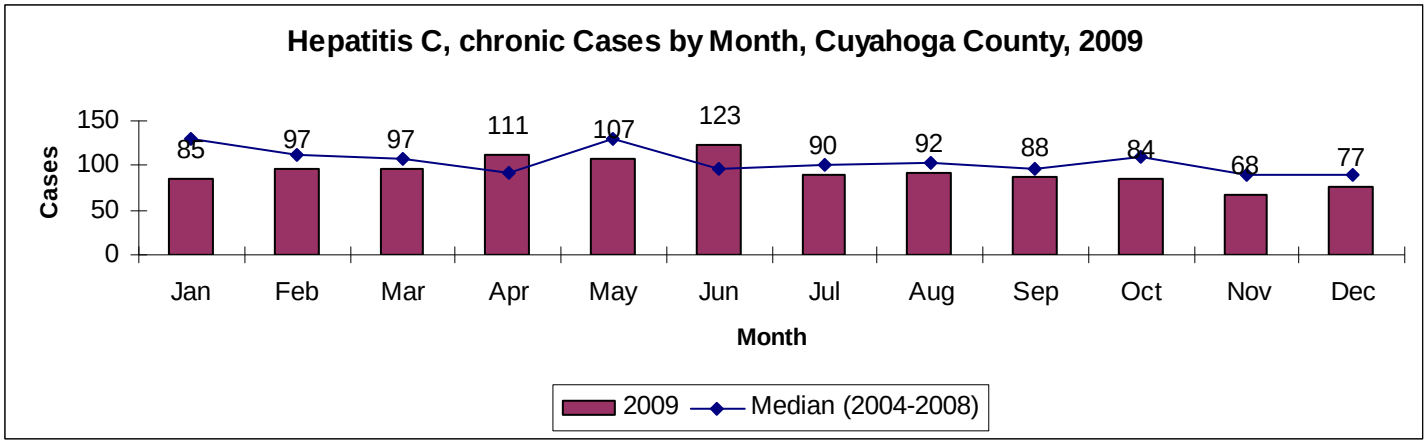
Infectious Agent: Hepatitis C virus (HCV)
Mode of Transmission: Contact with an infected person's blood. Transmission may occur from injection drug use, receiving a blood transfusion or organ transplant prior to 1992, during childbirth, sexual intercourse with an infected person, or sharing infected items such as razors or toothbrushes.
Incubation Period: 2 weeks - 6 months, usually 6-7 weeks.
Symptoms: Persons may be asymptomatic or have a spectrum of disease ranging from chronic hepatitis to cirrhosis or liver cancer.

Hepatitis C, chronic

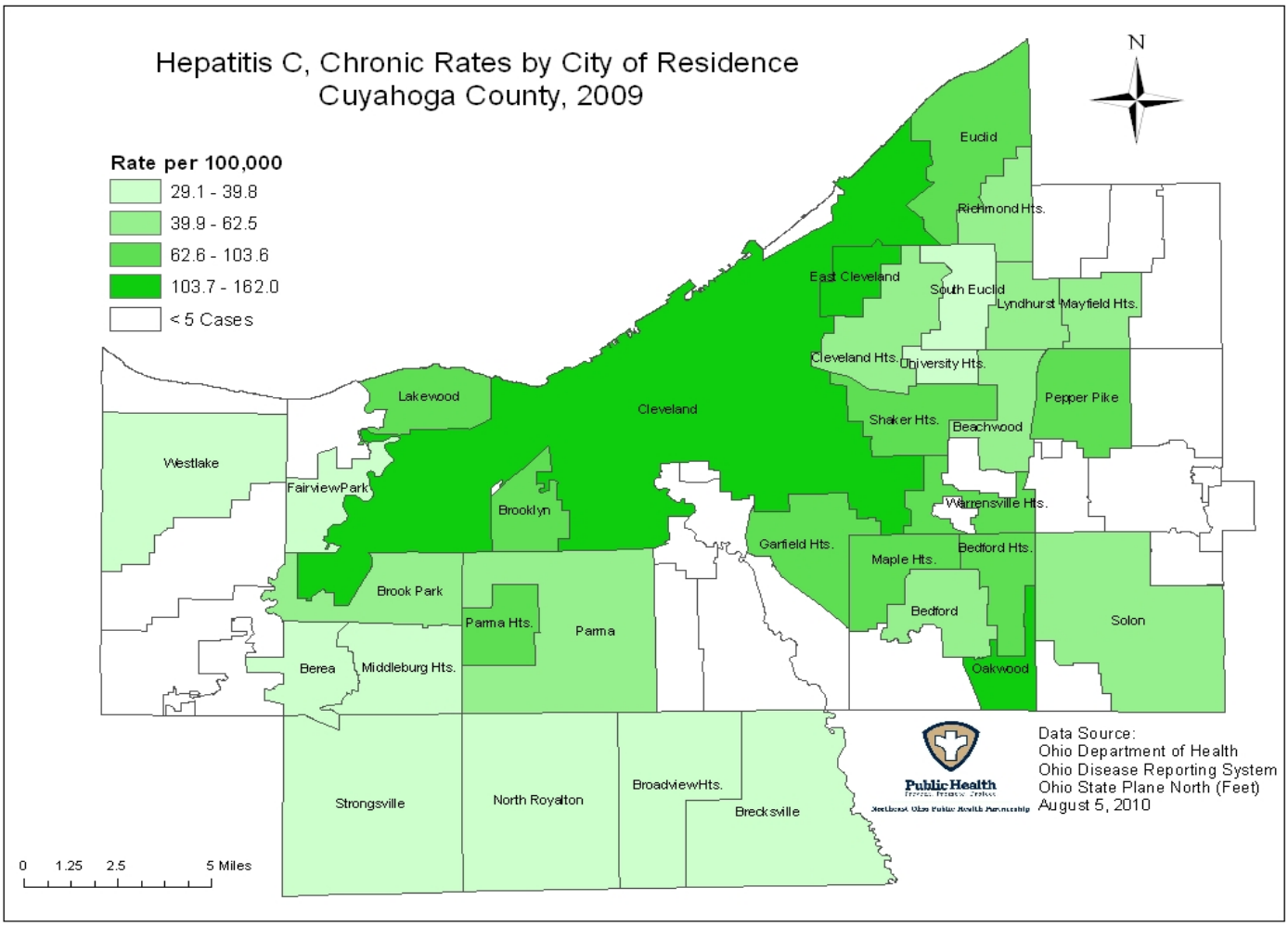
- There were 1119 cases of chronic Hepatitis C reported in 2009. This translates to a rate of 87.7 cases per 100,000. This rate has decreased from a high of 149.5 per 100,000 in 2004.
- Seventy-six percent (n=851) of the cases were 40-64 years of age.
- Sixty three percent of the cases were male.
- Fifty-nine percent of the cases lived in the city of Cleveland.







Hepatitis C, chronic



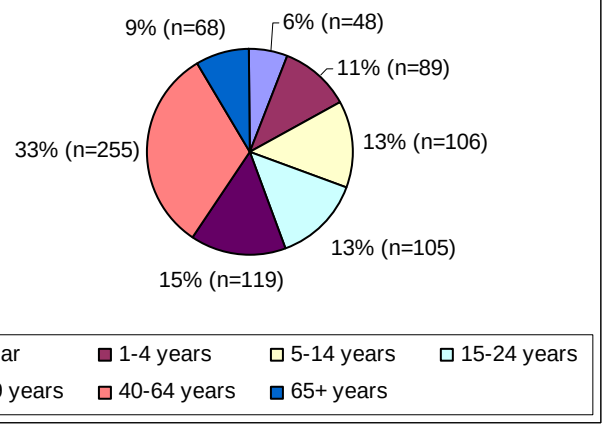
Influenza

Influenza & 2009 H1N1 in Cuyahoga County

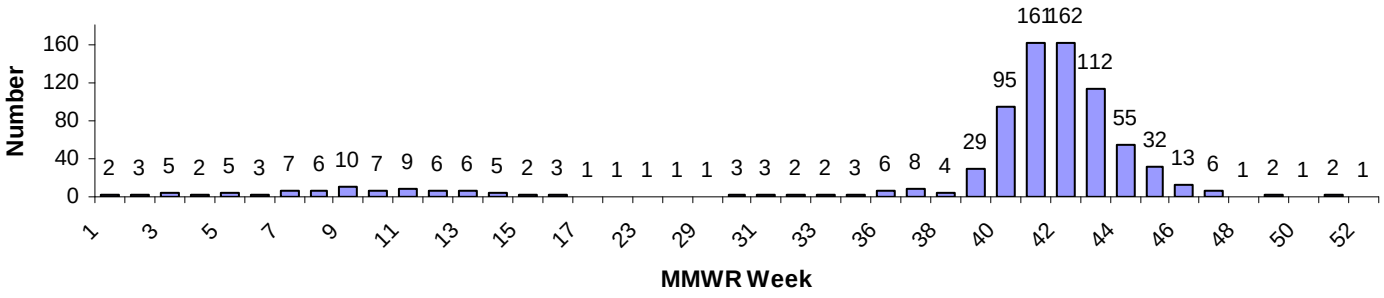
- The first case of the 2009 H1N1 virus in Ohio was confirmed on April 26, 2009. The case was a 9 year old boy who resided in an adjoining county.
- Cuyahoga County confirmed its first two cases on May 12, 2009.
- Between May 12, 2009 and August 5, 2009 there were 59 cases of Influenza A-novel virus reported to the Cuyahoga County Board of Health. The Ohio Department of Health changed the classification of Pandemic H1N1 to a non-novel virus on August 5, 2009.
- In 2009, there were 3 Influenza-associated pediatric deaths in Cuyahoga County. One of these were confirmed with 2009 H1N1, virus typing results were not available for the other two. All three had moderate to severe developmental delay, two had cerebral palsy, and two had scoliosis.

Infectious Agent: Influenza A and B flu viruses of various subtypes; 2009 H1N1.
Mode of Transmission: Airborne via large droplets produced by coughing and sneezing.
Incubation Period: 1-4 days, usually 2 days
Symptoms: Fever, cough, headache, myalgia, and sore throat.

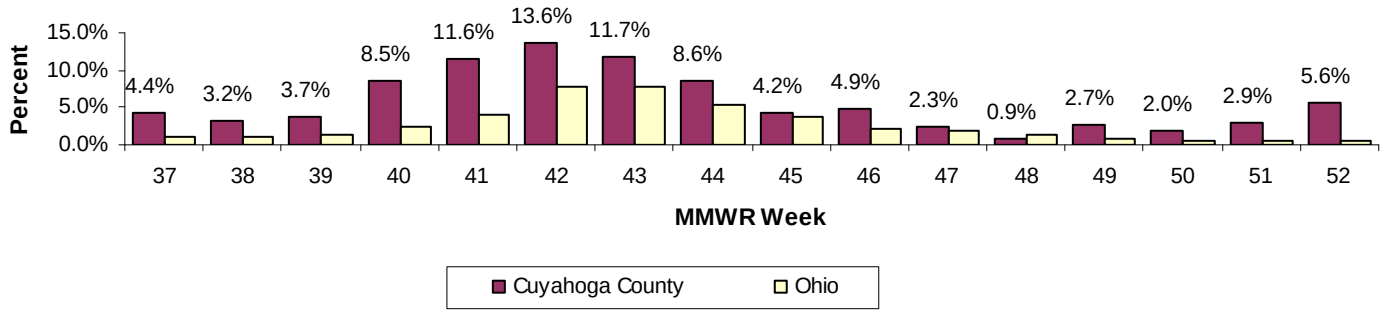
Influenza-Associated Hospitalizations by Age, Cuyahoga County, 2009



Number of Influenza-Associated Hospitalizations in Cuyahoga County by MMWR Week, 2009



Percent Influenza-Like Illness (ILI) Visits, U.S. Influenza Sentinel Provider Surveillance Network, 2009

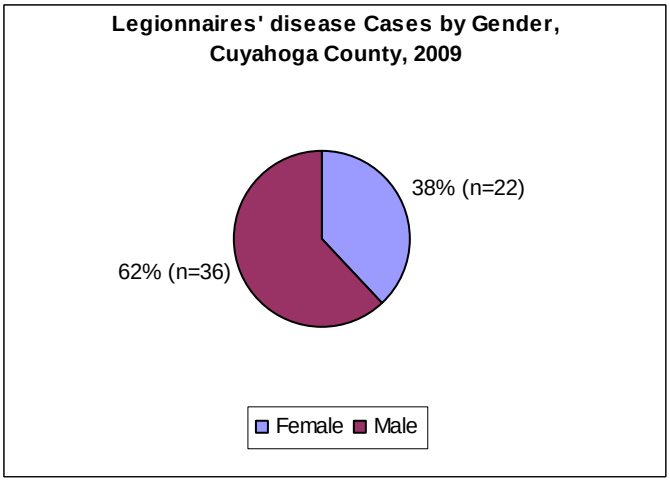


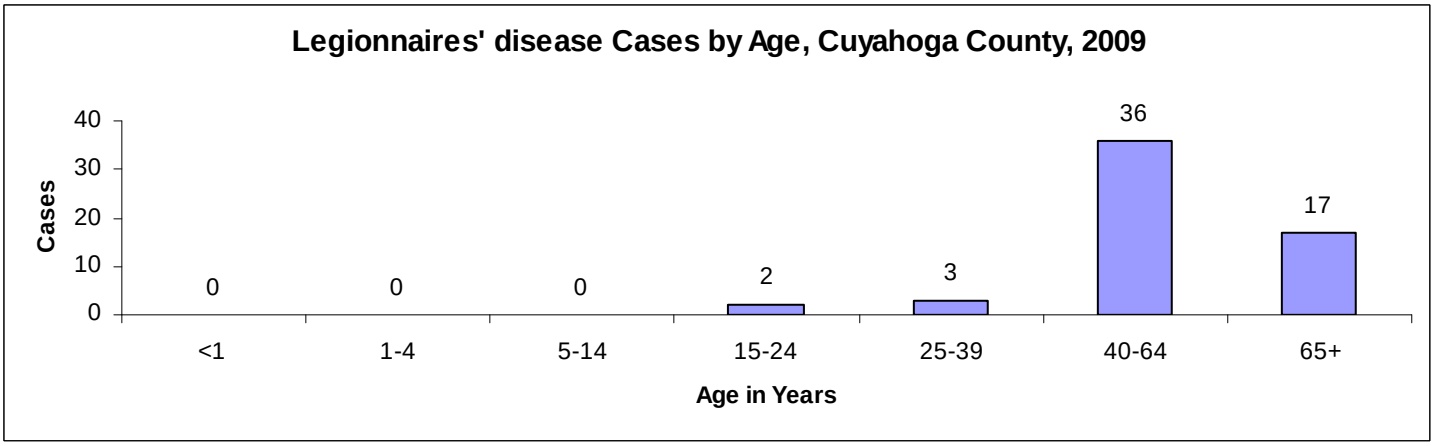
Legionnaires' disease

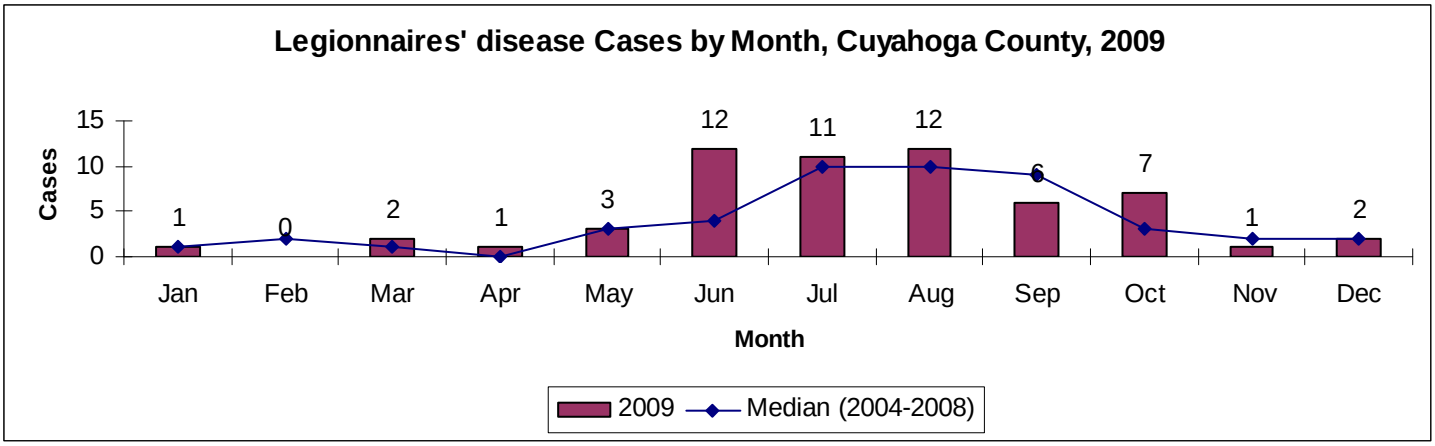
Infectious Agent: *Legionella spp*. Thirteen species have been implicated in causing human disease. The most common species causing infection is *Legionella pneumophila* serogroup 1.
Mode of Transmission: The airborne route appears to be the mode of transmission, most commonly by inhalation of aerosolized contaminated water.
Incubation Period: Legionnaires' disease: 2-14 days, usually 5-6 days. Pontiac Fever: 5-66 hours, usually 24-48 hours.
Symptoms: There are two distinct clinical manifestations associated with *Legionella* infections. Patients with Legionnaires' disease usually have fever, chills, and cough, which may be dry or may produce sputum. Some patients also have muscle aches, headache, tiredness, loss of appetite, and occasionally diarrhea. Chest x-rays often show pneumonia. Persons with Pontiac Fever experience fever and muscle aches and do not have pneumonia.

Legionnaires' disease

- There were 58 cases of Legionnaires' disease reported in 2009 for a rate of 4.5 per 100,000. The rate has been fairly stable since 2004.
- Fifty-three of the 58 cases (92%) were 40 years of age or older and 61% were male.
- Peak activity occurs in the summer and early fall.





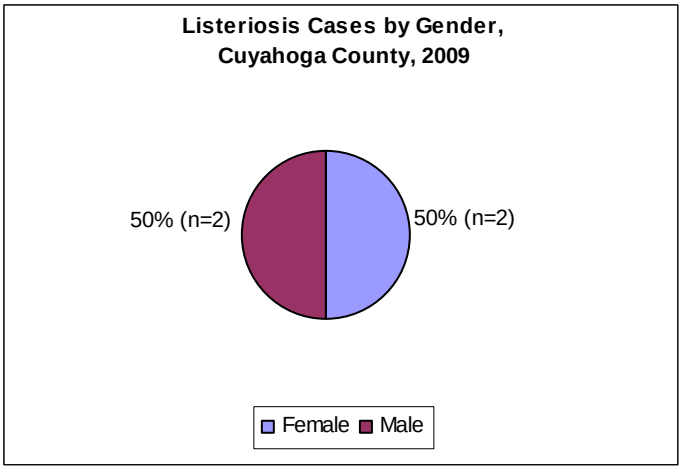


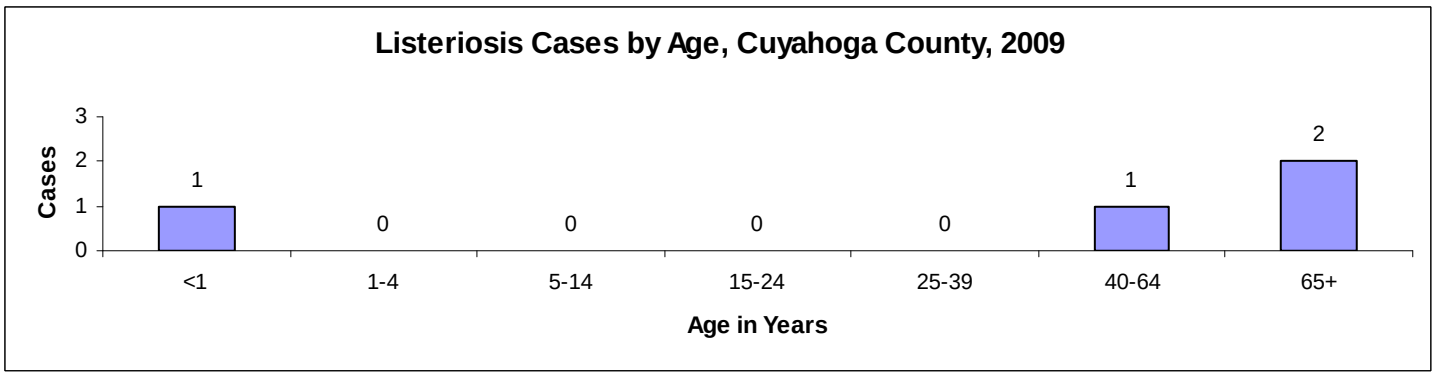
Listeriosis

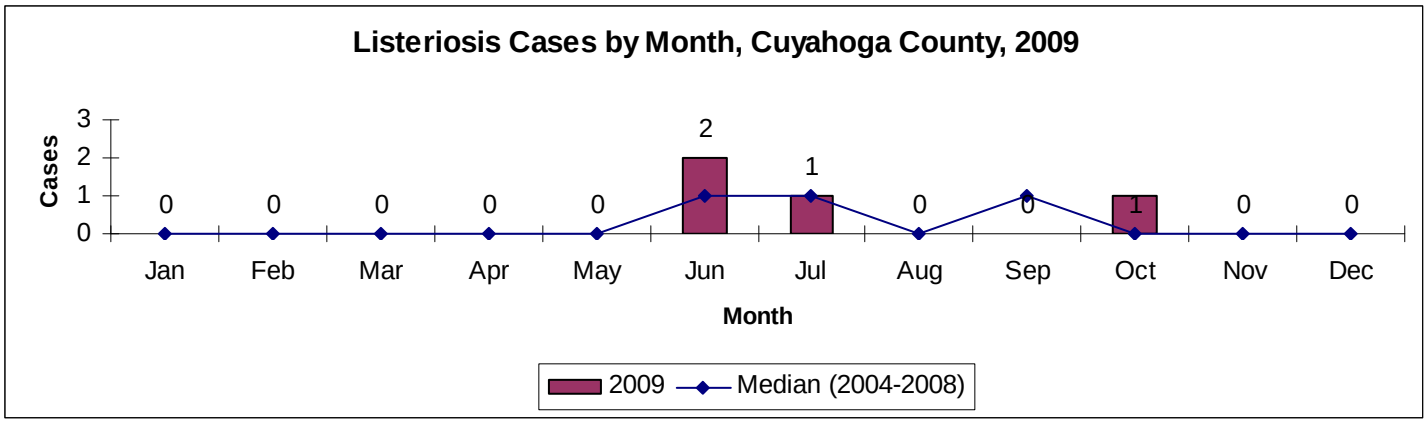
Infectious Agent: *Listeria monocytogenes*; the major serotypes that cause infection are serotypes 1/2a, 1/2b and 4b.
Mode of Transmission: Humans get Listeriosis by eating food contaminated with *Listeria*. Babies can be born with Listeriosis if their mothers eat contaminated food during pregnancy. Although healthy persons may consume contaminated foods without becoming ill, those at increased risk for infection can probably get Listeriosis after eating food contaminated with even a few bacteria. Persons at risk can prevent *Listeria* infection by avoiding certain high-risk foods and by handling food properly.
Incubation Period: 3-70 days, usually 3 weeks. The fetus is usually infected within several days after maternal disease.
Symptoms: There are two main clinical presentations accounting for over 97% of cases, **septicemia** (an acute, mild to severe febrile illness, sometimes with influenza-like and/or gastrointestinal symptoms) and **acute meningoencephalitis** (a sudden onset of fever with intense headache, nausea, vomiting and signs of meningeal irritation, delirium and coma may result).

Listeriosis

- There were 4 cases of Listeriosis reported in 2009 for Cuyahoga County. This translates to a rate of 0.3 per 100,000. This rate has been fairly stable since 2004.
- The Listeriosis rate for Cuyahoga County is slightly above the Healthy People 2010 target of 0.25 per 100,000.
- Three of the 4 cases (75%) were 40 years of age or older.
- Peak activity occurred in the summer which is consistent with historical trends.

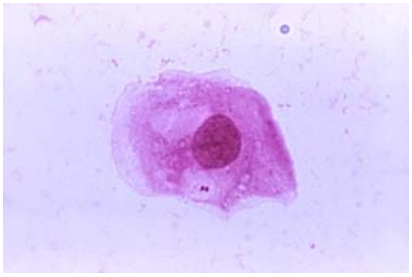






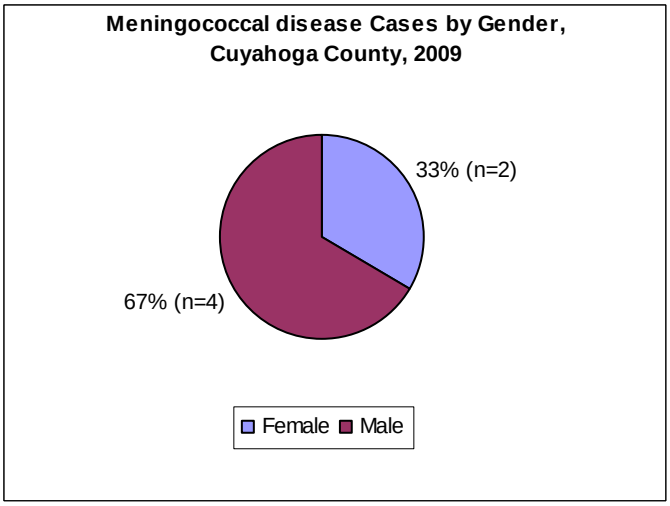
Meningococcal disease

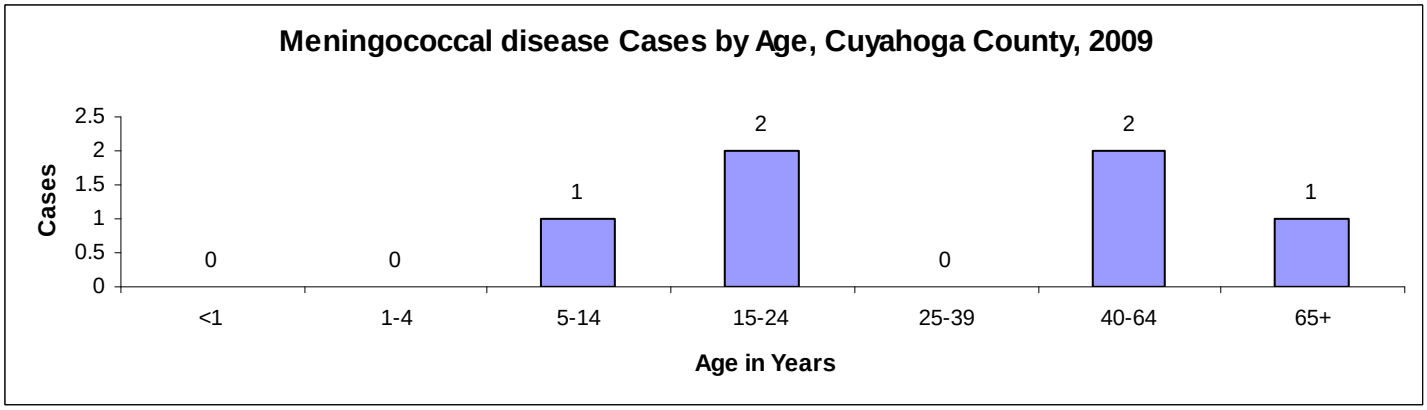
Infectious Agent: *Neisseria meningitides.* Multiple serogroups are known to cause invasive disease (i.e., A, B, C, X, Y, W-135). Serogroups B, C, and Y are the most prevalent in Ohio. Serogroup A has frequently been associated with epidemics in other parts of the world.
Mode of Transmission: Person-to-person through droplets of infected respiratory secretions.
Incubation Period: 1-10 days, usually 3-4 days
Symptoms: Meningitis infection is characterized by a sudden onset of fever, headache, and stiff neck. It is often accompanied by other symptoms such as nausea, vomiting, photophobia (sensitivity to light), and altered mental status.

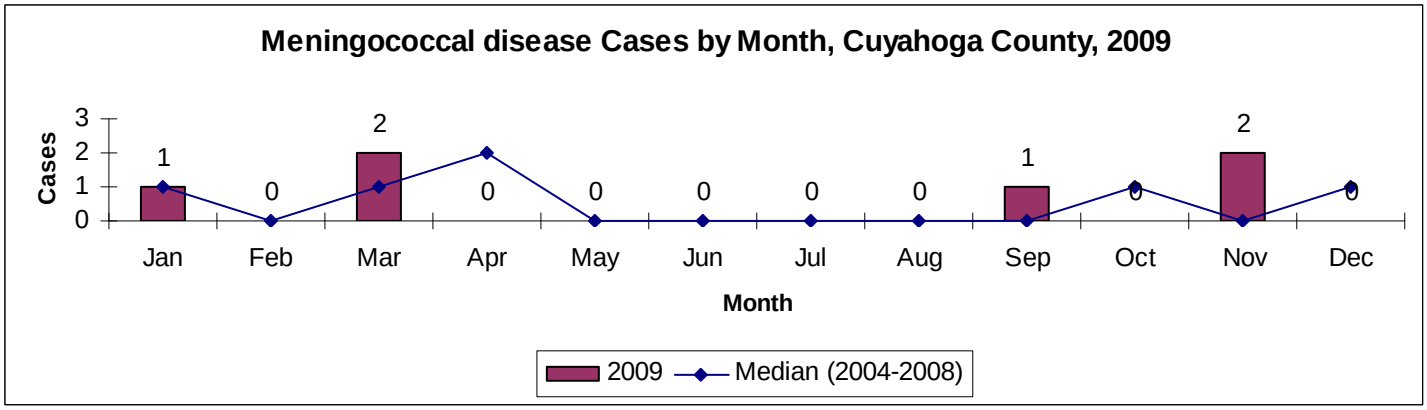


Meningococcal disease

- There were 6 cases of Meningococcal disease reported in 2009 for a rate of 0.5 cases per 100,000. This is below the Healthy People 2010 target of 1.0 case per 100,000. The rate has been fairly stable since 2004.
- Serogroup was known on 3 of the 6 cases. All 3 of the known serogroups were GroupY.
- Cases usually occur in the fall and winter.





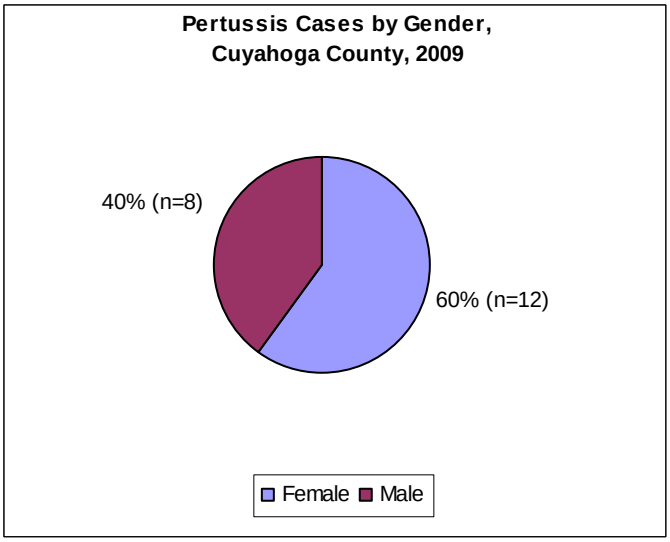


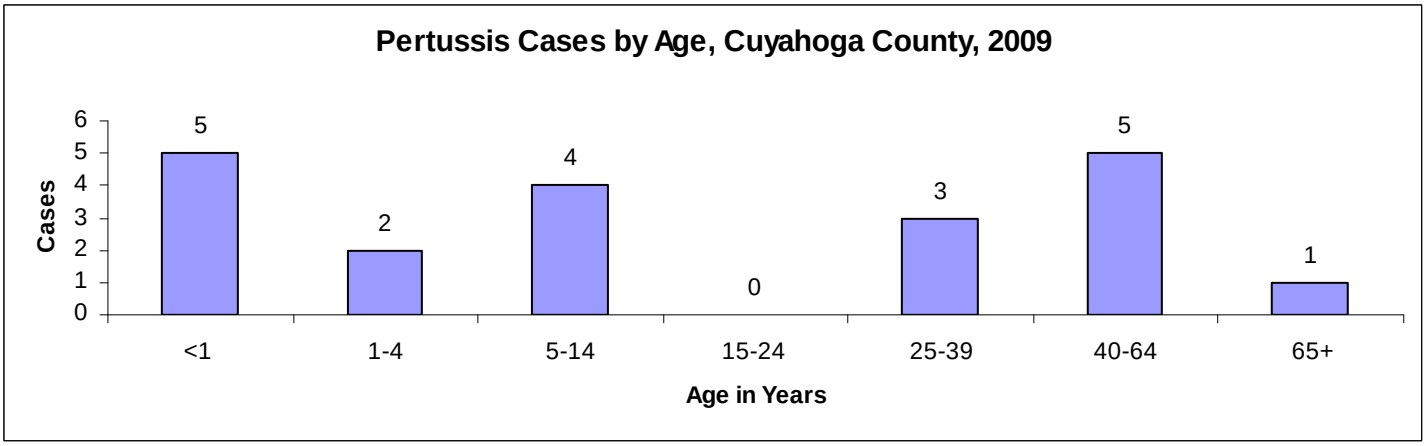
Pertussis

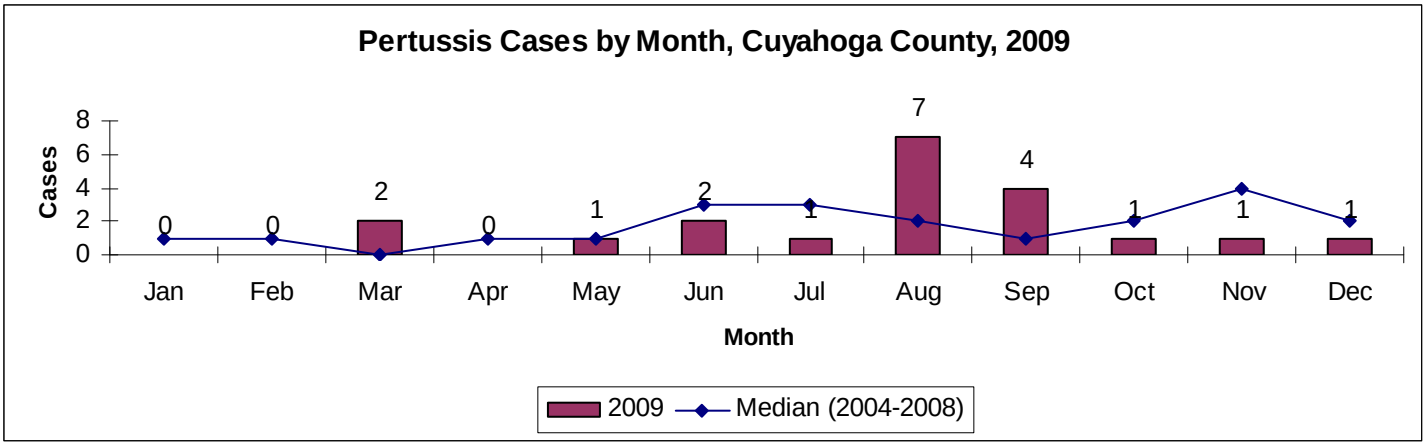
Infectious Agent: *Bordetella pertussis*a. Pertussis-like syndrome can also be caused by *B. parapertussis*. Parapertussis is not reportable in Ohio.
Mode of Transmission: Pertussis is primarily spread by direct contact with the discharges from the nose and throat of infected individuals. Frequently, older siblings or other adult household members who may be harboring the bacteria in their nose and throat can bring the disease home and infect an infant in the household.
Incubation Period: 6-20 days, usually 9-10 days
Symptoms: Begins as a mild upper respiratory infection. Initially, symptoms resemble a common cold including sneezing, runny nose, low-grade fever, and a mild cough. Within two weeks, the cough becomes more severe and is characterized by episodes of numerous rapid coughs followed by a crowing or high-pitched whoop. A thick, clear mucous may be discharged with the coughing.

Pertussis

- Rates of Pertussis have been fairly stable since 2004. The rate peaked in 2007 with a rate of 3.0 per 100,000. There were 20 cases reported in 2009 for a rate of 1.6 per 100,000.
- In 2009 peak activity occurred in August and September.





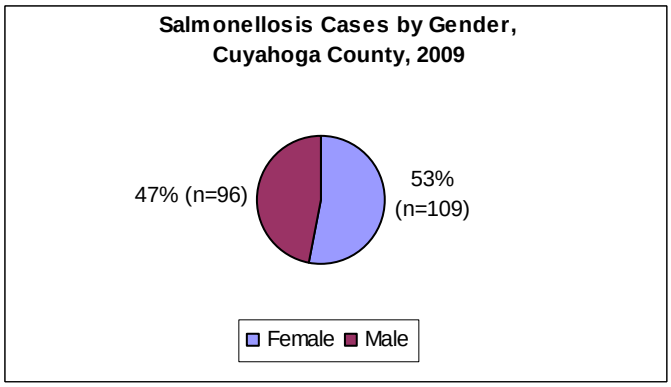


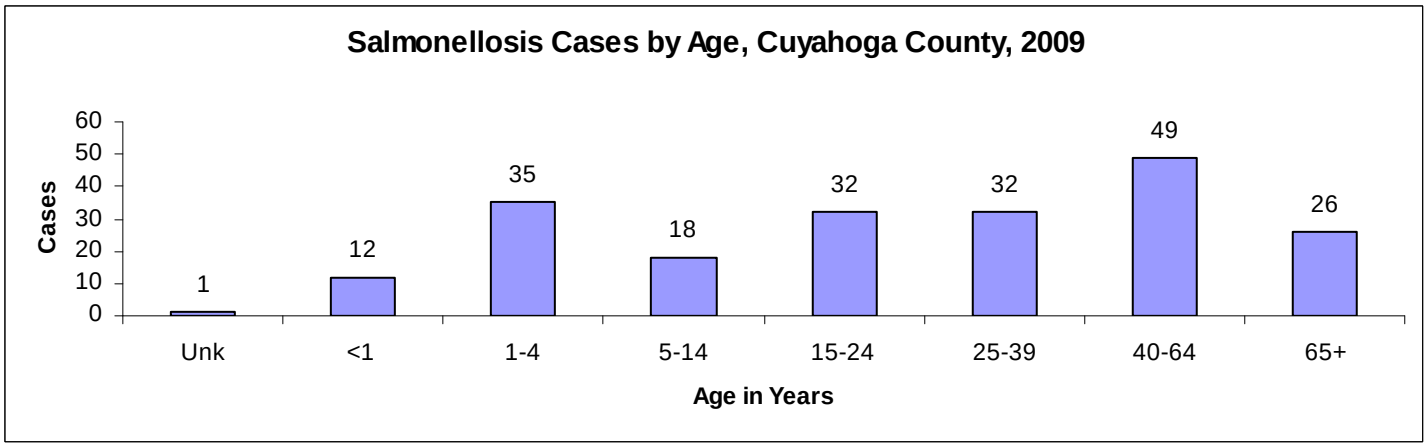
Salmonellosis

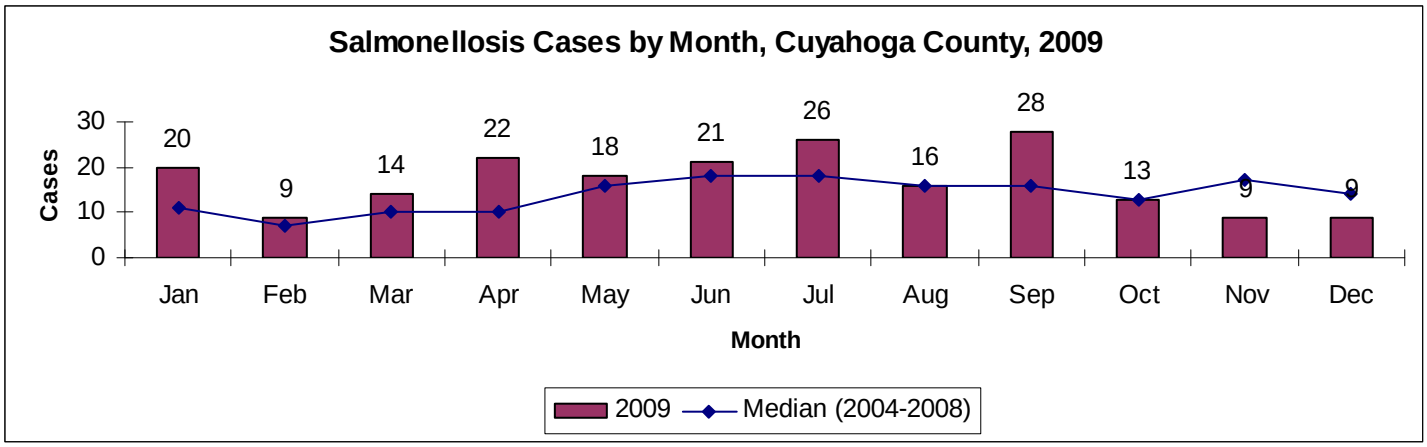
Salmonellosis

- There were 205 cases of Salmonellosis reported in 2009 for a rate of 16.1 per 100,000. This is above the Healthy People 2010 goal of 6.8 new cases per 100,000.
- Rates of Salmonellosis have been fairly stable since 2004. The rate peaked in 2006 with a rate of 17.5 per 100,000. In February of that year there was a large outbreak in the community.
- Serotyping was performed at the Ohio Department of Health Laboratory on 191 (93%) of these cases. The most common serotype reported was *S. enteritidis*.

Infectious Agent: *Salmonella typhimurium* and *Salmonella enteritidis* are the most common in the United States.
Mode of Transmission: Humans may acquire *Salmonella* directly (via the fecal-oral route) from animals or from ingestion of contaminated food or water. Direct person-to-person transmission may occur via the fecal-oral route but is uncommon.
Incubation Period: 6-72 hours, usually 12-36 hours
Symptoms: Headache, nausea, diarrhea, abdominal pain, fever, and sometimes vomiting.

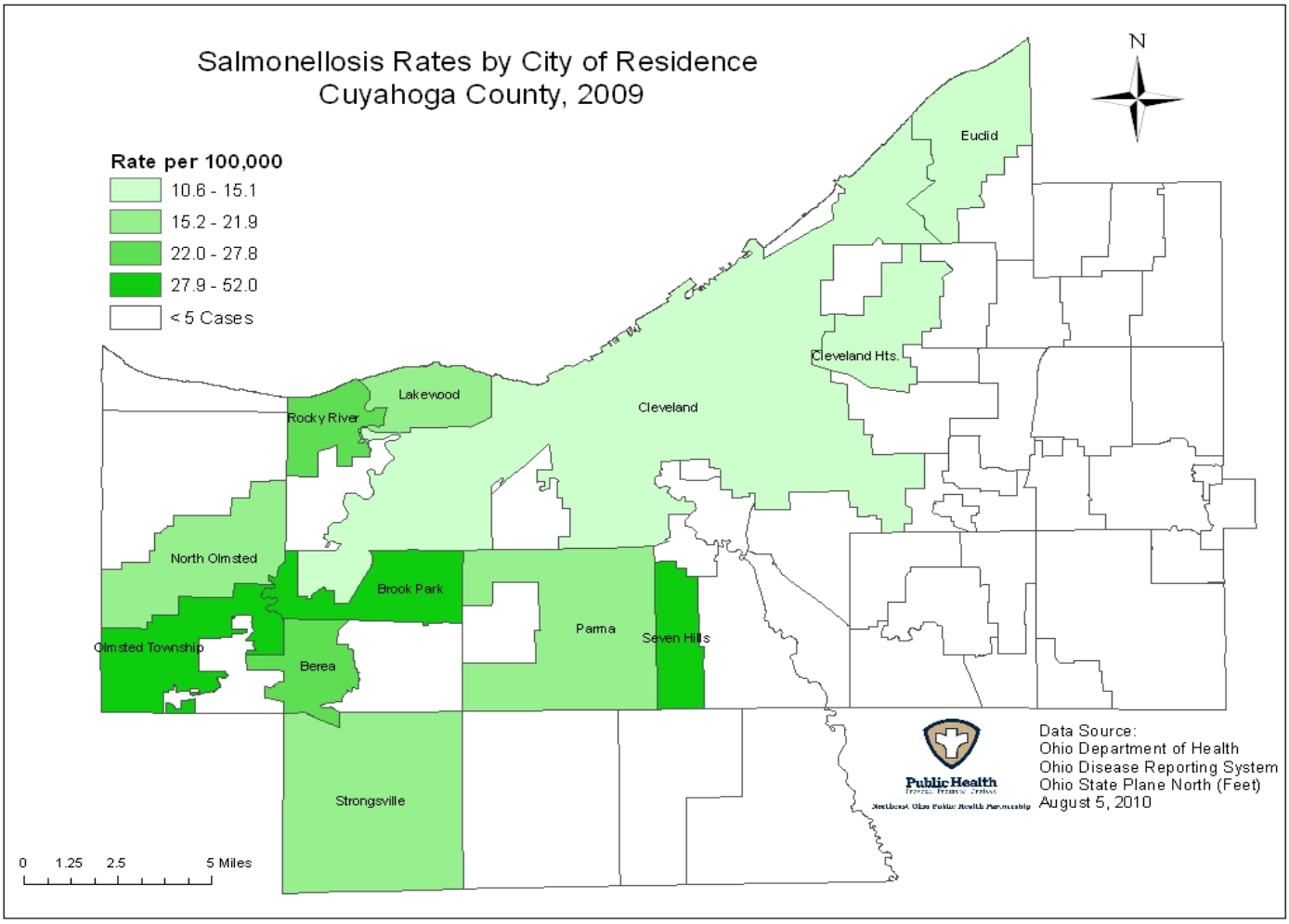






Salmonellosis

Most Frequent *Salmonella* Serotypes in Cuyahoga County among Specimens Typed at the Ohio Department of Health Laboratory, 2009 (N=191)		
Serotype	**Number of Cases**	**Percent**
Enteritidis	67	35.1%
Typhimurium	24	12.6%
Typhimurium, var Copenhagen	15	7.9%
B:i:-(monophasic)	13	6.8%
Oranienburg	13	6.8%
Paratyphi B, var L – Tartrate+	9	4.7%
Newport	8	4.2%
Heidelberg	7	3.7%
St. Paul	7	3.7%
All Other	28	14.7%

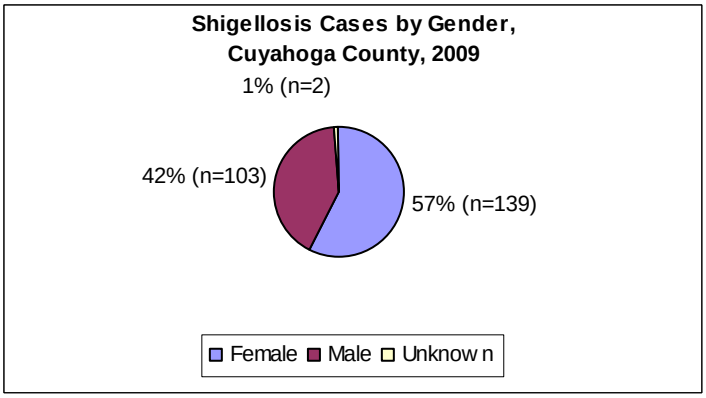


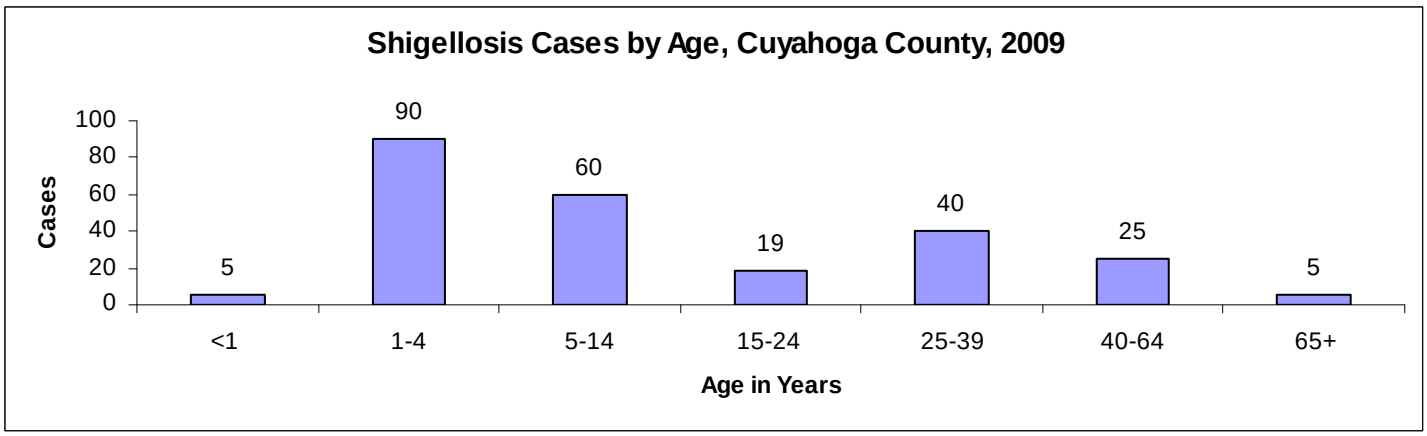
Shigellosis

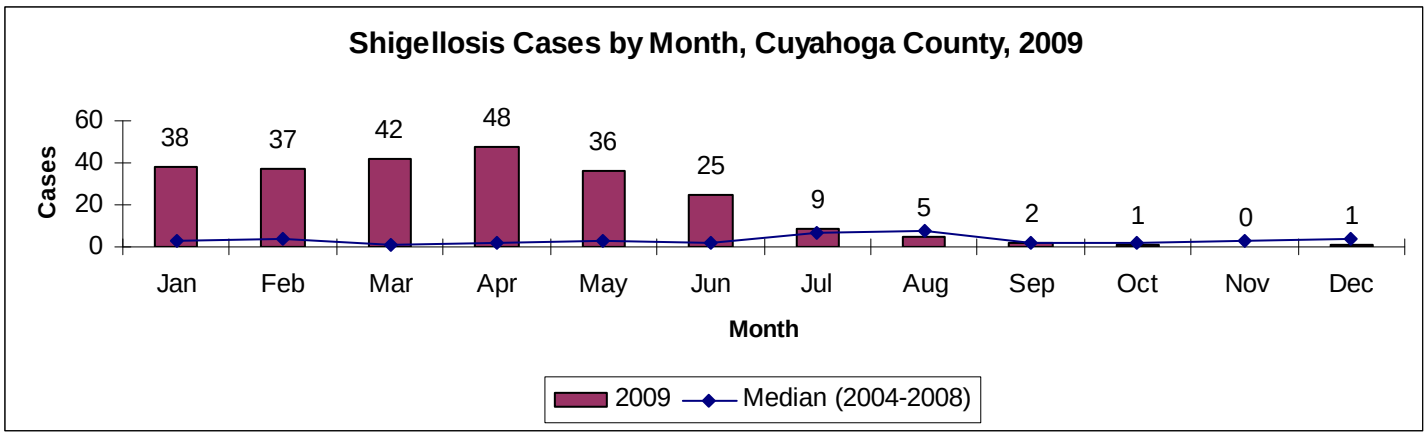
Shigellosis

- In 2007 the rate of Shigellosis increased from 1.6 per 100,000 to 7.8 per 100,000. The rate continued to rise in 2008 (16.9) and 2009 (19.1). Baseline activity resumed in July of 2009.
- Peak activity for 2009 occurred in April. Historically, peak activity has occurred in July and August.
- In 2009 54 (22.1%) of cases attended child care and 7 (2.9%) were child care employees. This may under estimate the percentage of cases associated with child care facilities since it does not take into account persons who are close contacts of a child care attendee or employee.
- Over one third (37%) of cases were 1-4 years old, the population which attends child care.

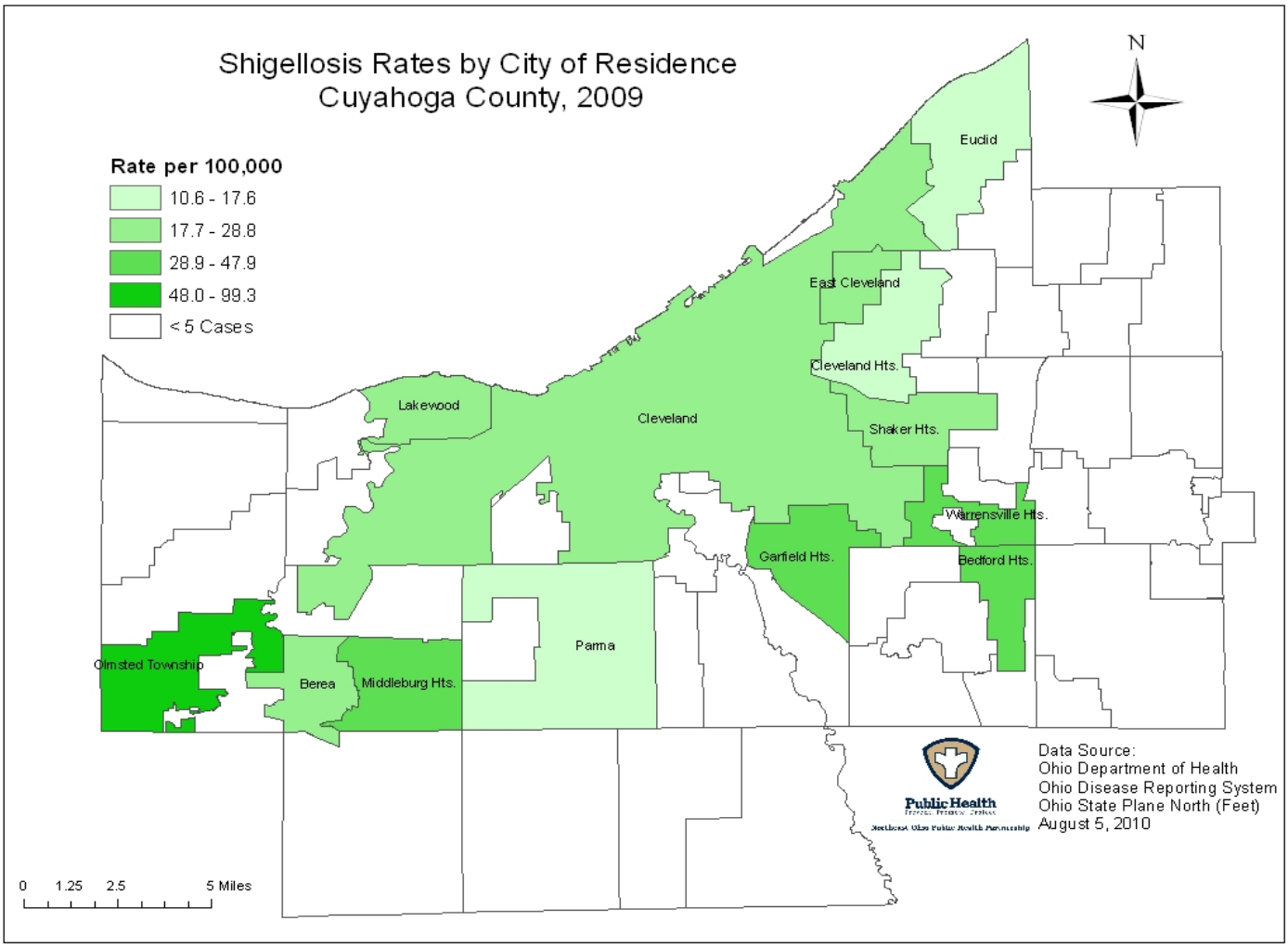
Infectious Agent: *Shigella* bacteria comprise 4 species/serogroups – *S. sonnei, S. flexneri, S. dysenteriae,* and *S. boydii. S. sonnei* account for most cases in Ohio.
Mode of Transmission: *Shigella* is usually transmitted person-to-person by the fecal-oral route. Food that is served raw or is contaminated after cooking can also carry *Shigella*. Swimming in contaminated water is also a vehicle for transmission.
Incubation Period: 12-96 hours, usually 1-3 days
Symptoms: Diarrhea, fever, and sometimes vomiting. Diarrhea can be bloody.







Shigellosis

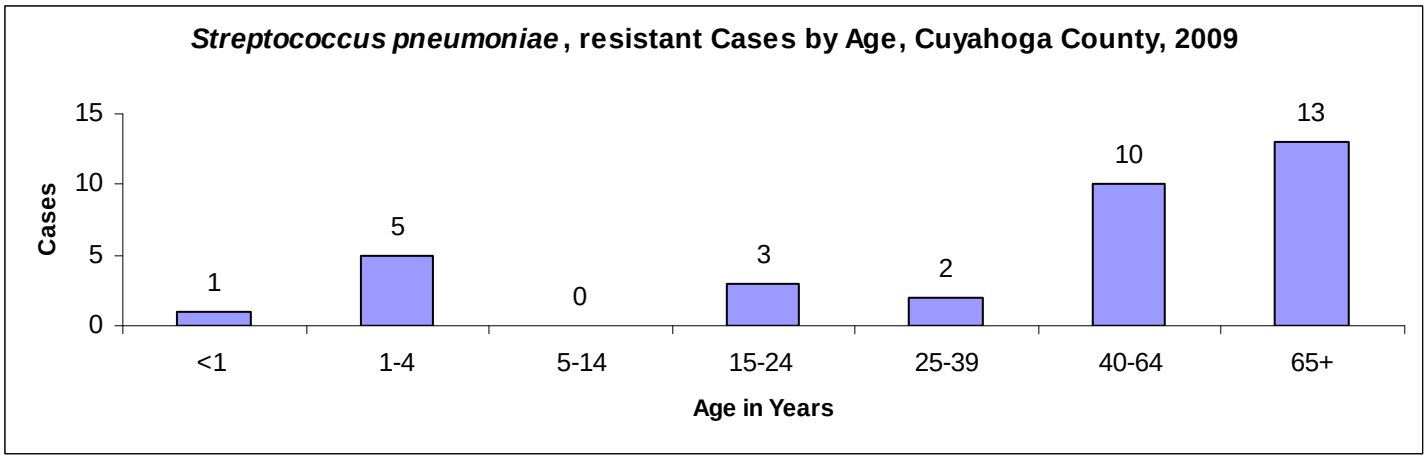


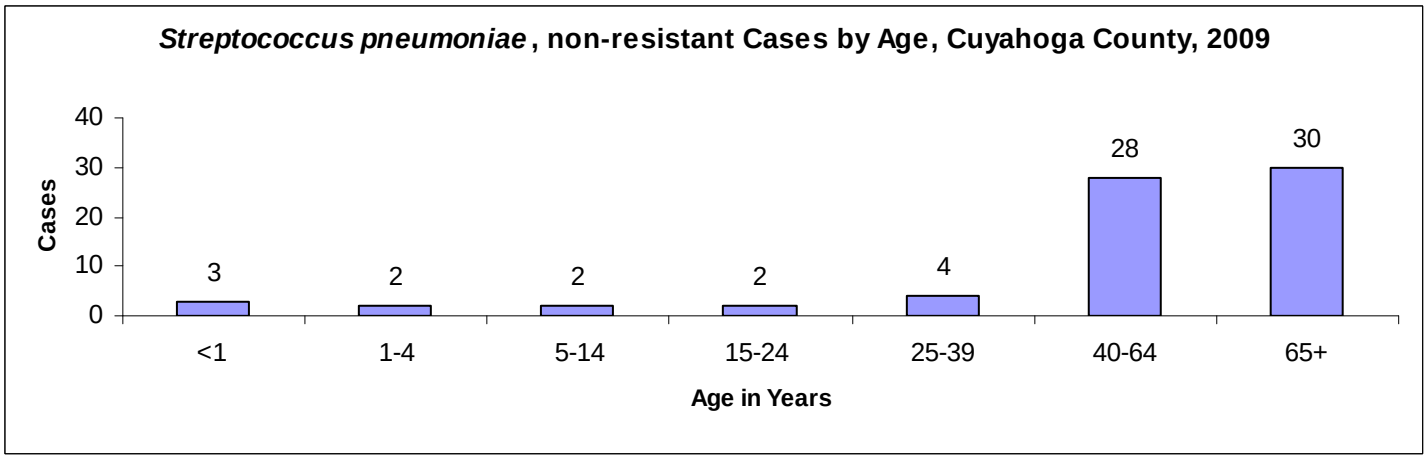
Streptococcus pneumoniae, resistant and non-resistant

Infectious Agent: *Streptococcus pneumoniae* (pneumococci). Ninety pneumococcal serotypes, designated by number, have been identified. Most pneumococcal disease is caused by 23 of these serotypes.
Mode of Transmission: Pneumococci are transmitted from person-to-person by droplet spread, by direct oral contact, and indirectly through articles freshly soiled with respiratory discharges.
Incubation Period: Varies by type of infection and can be as short as 1-3 days
Symptoms: Onset of invasive *S. pneumoniae* disease is usually sudden with high fever, lethargy or coma, and signs of meningeal irritation. Case-fatality rates for some high-risk patients have been reported to exceed 40% for bacteremia and 55% for meningitis, despite appropriate antimicrobial therapy.

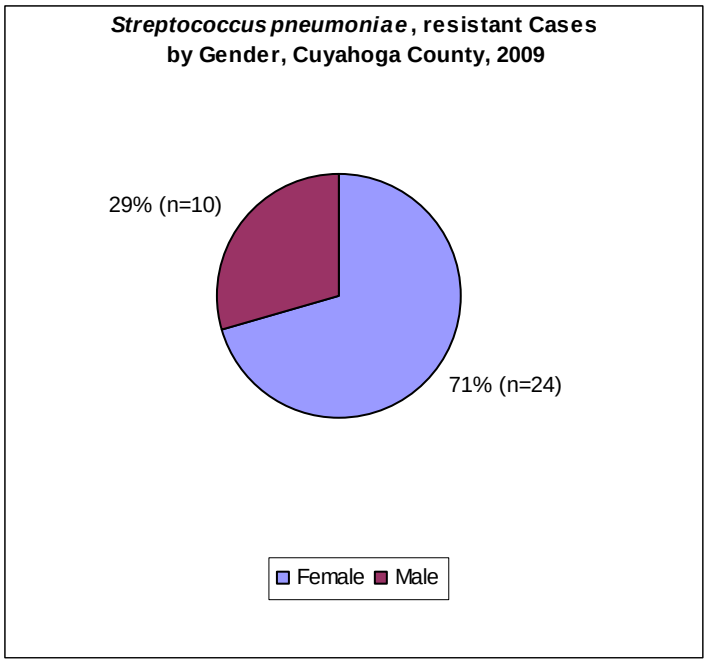
***Streptococcus pneumoniae*, invasive disease**

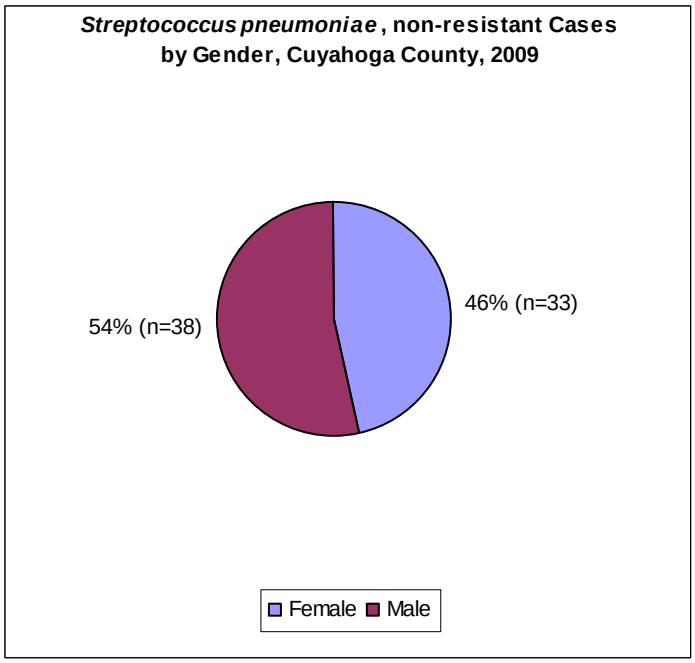
- In 2009 there were 71 cases of non-resistant/unknown resistance invasive *S. pneumoniae* disease and 34 cases of resistant. This translates to a rate of 5.6 and 2.7 cases per 100,000, respectively and a total rate of 8.2.
- The rate of non-resistant cases in 2009 increased over the previous two years. This is potentially associated with the H1N1 pandemic.
- A majority of cases occurred in persons 40 years and older; however, there was a greater percentage of children among the resistant cases.
- The Healthy People 2010 target for children under 5 years is 46 per 100,000 and 6 for resistant cases. The 2009 rate for children under 5 years in Cuyahoga County is 14.0 and 7.6, respectively.
- The Healthy People 2010 target for persons 65 years and older is 42 per 100,000 and 7 for resistant cases. The 2009 rate for persons 65 years and older in Cuyahoga County is 22.1 and 6.7, respectively.

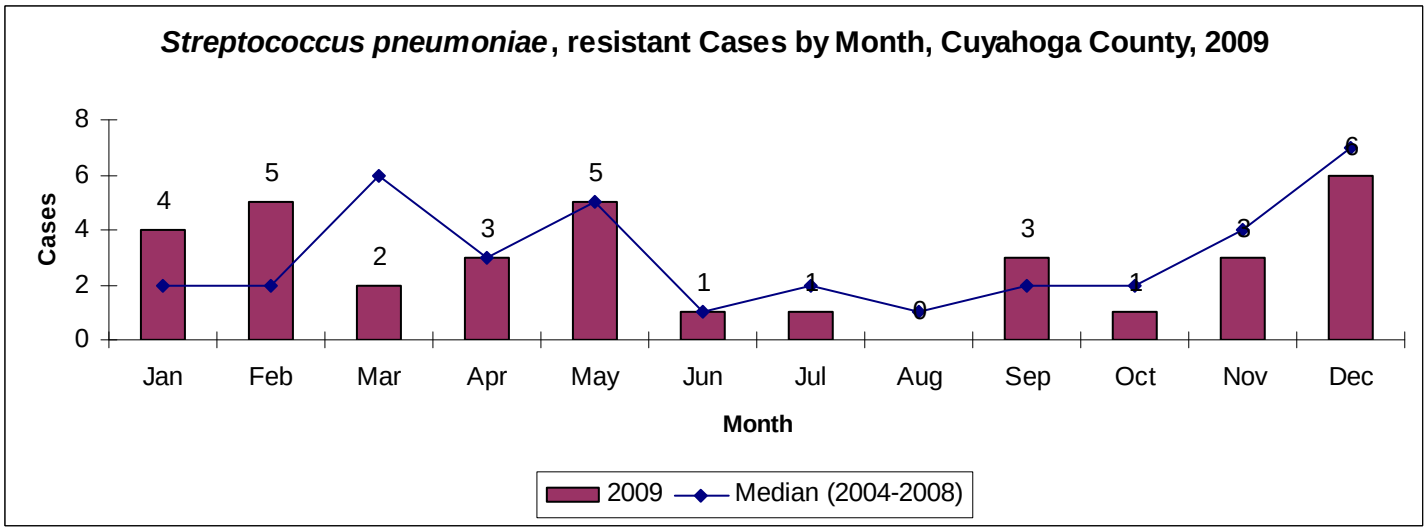


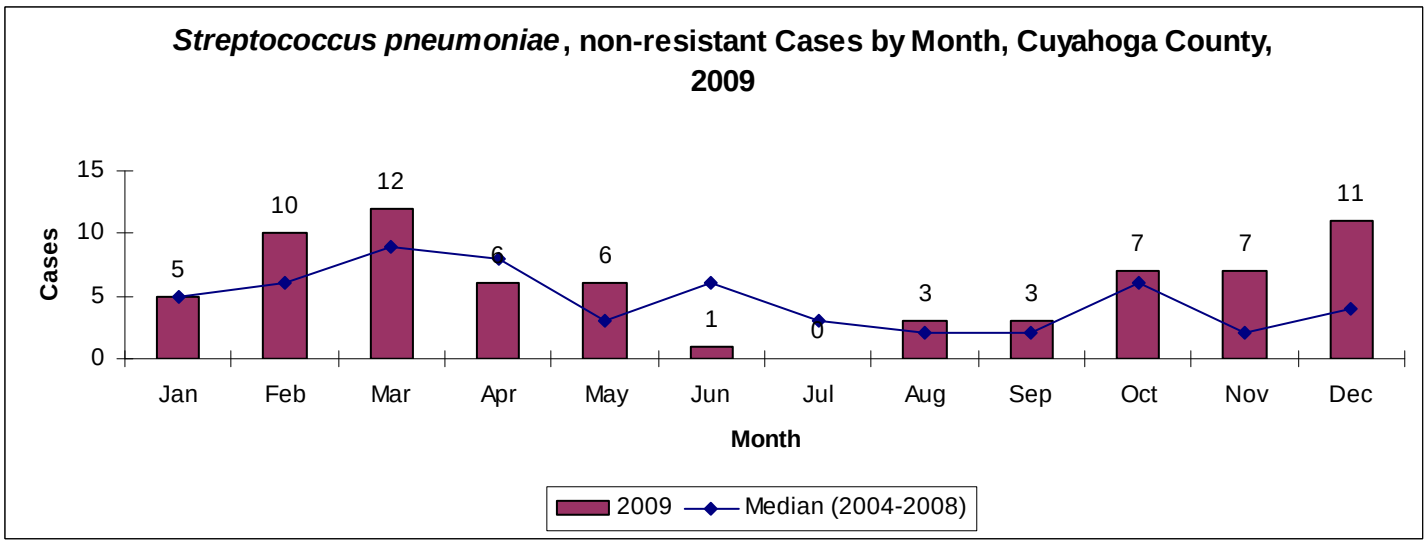


Streptococcus pneumoniae, resistant and non-resistant







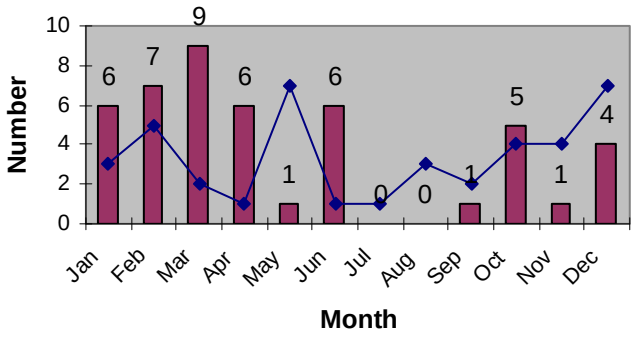


2009 Outbreaks

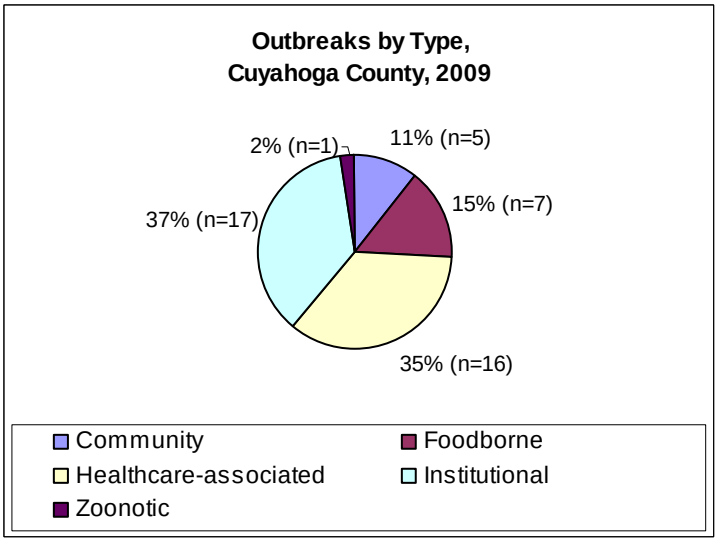
Outbreaks in Cuyahoga County

- In 2009, 46 outbreaks were reported and investigated by the local public health departments in Cuyahoga County.
- Of these 46 reported outbreaks, 72% occurred in an institutional or healthcare setting.
- Norovirus, Influenza (including 2009 Pandemic Influenza A H1N1), and Shigella were the leading causative agents resulting in 65% of all reported outbreaks.
- The 3 outbreaks whose etiology was classified as "unknown" were suspected to be Norovirus; however, clinical specimens were not obtained for confirmation.

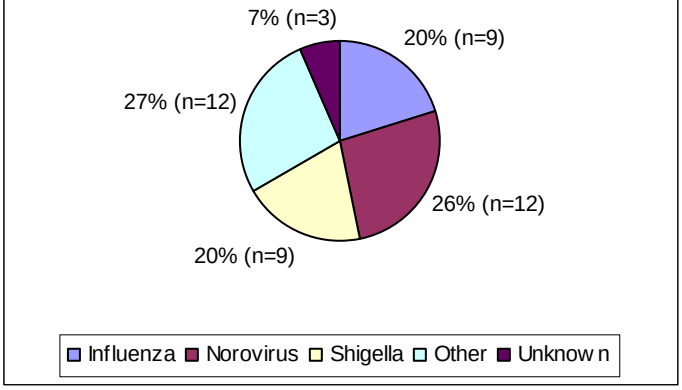
Outbreaks by Month, Cuyahoga County, 2009



Outbreaks by Type, Cuyahoga County, 2009



Outbreaks by Selected Agents, Cuyahoga County, 2009



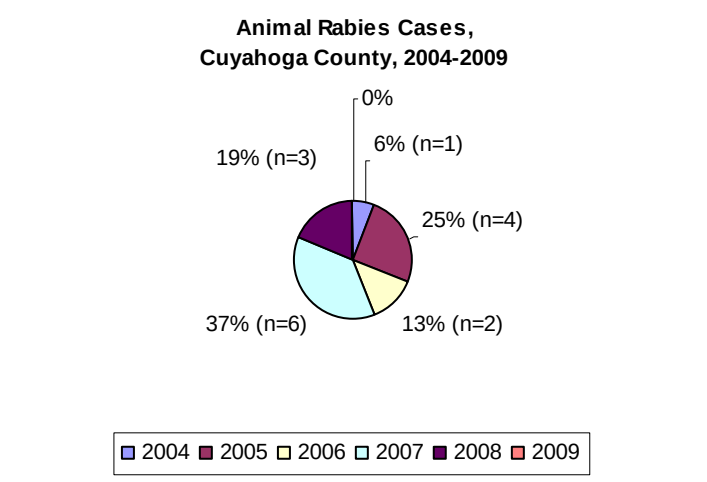
Type of Outbreak	Description
Community	Two or more cases of similar illness with a common exposure in the community and not considered a foodborne or waterborne disease outbreak.
Foodborne	The occurrence of two or more cases of a similar illness resulting from the ingestion of a food in common.
Healthcare-associated	The occurrence of cases of a disease (illness) above the expected or baseline level, usually over a given period of time, as a result of being in a healthcare facility.
Institutional	Two or more cases of similar illness with a common exposure at an institution (e.g. correctional facility, day care center, group home, school) and not considered a foodborne or waterborne disease outbreak.
Waterborne (from drinking water)	Two or more persons that are epidemiologically linked by location of exposure to water, time, and illness. This includes drinking water and water not intended for drinking (excluding recreational water).
Waterborne (from recreational water)	Two or more persons that are epidemiologically linked by location of exposure to recreational water (e.g. swimming pools, wading pools, spas, water slides, interactive fountains, wet decks, and fresh and marine bodies of water), time, and illness.
Zoonotic	The occurrence of two or more cases of a similar illness with a common exposure to an animal source and not considered a foodborne or waterborne disease outbreak.

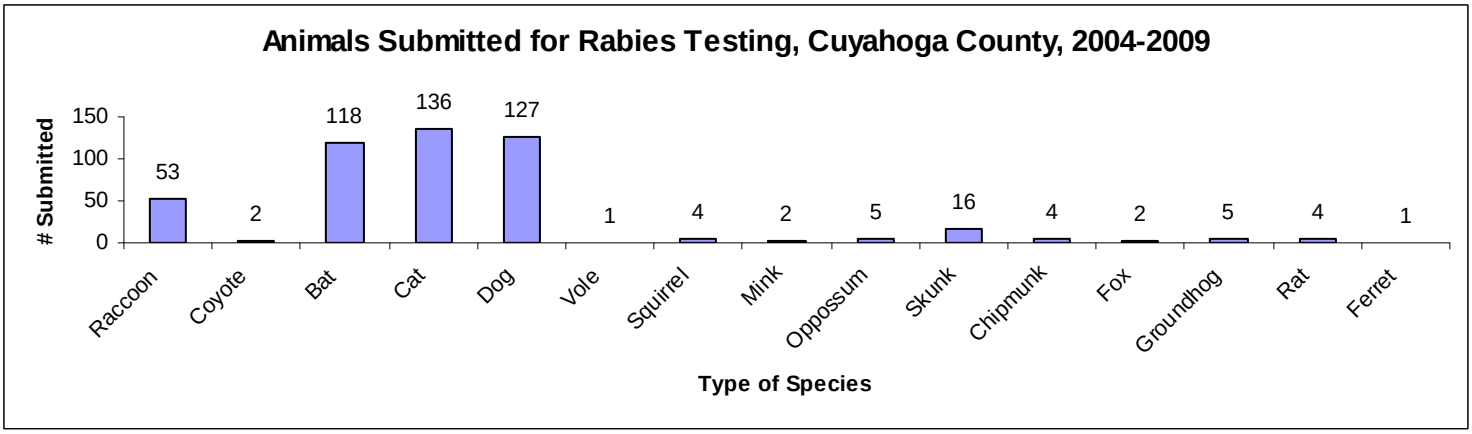
Animal Rabies Cases, Cuyahoga County, 2004-2009

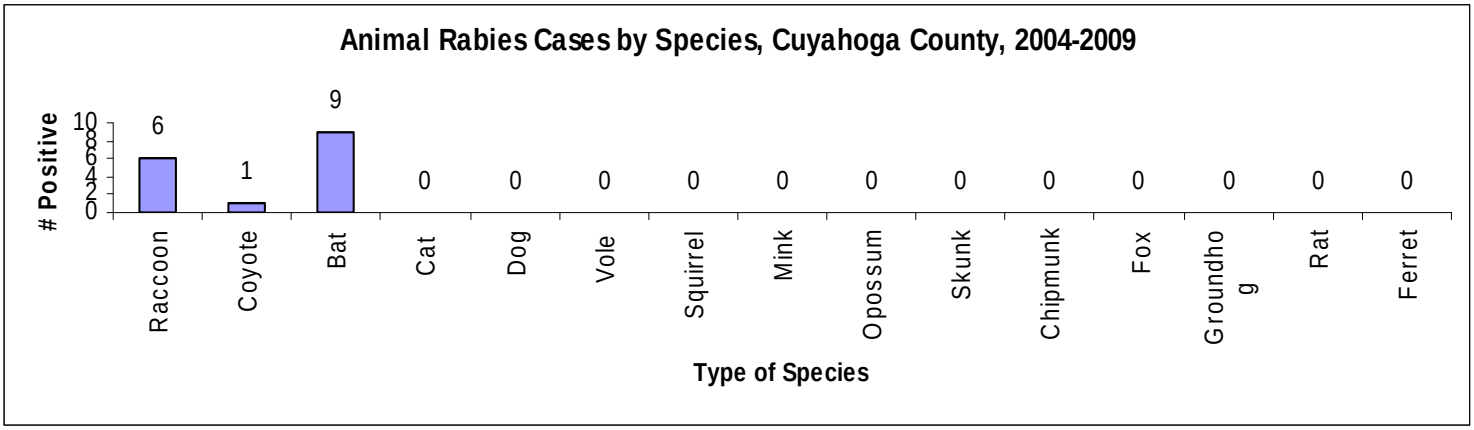
Infectious Agent: Lyssaviruses
Mode of Transmission: The most common form of exposure is virus-laden saliva from a rabid animal introduced through a bite or scratch (and very rarely into a fresh break in the skin or through intact mucous membranes). Person-to-person transmission is theoretically possible, but is rare and not well documented.
Incubation Period: Highly variable but usually 3-8 weeks, and very rarely as short as a few days or as long as several years. The length of the incubation period depends in part on wound severity.
Symptoms: Onset is generally heralded by a sense of apprehension, headache, fever, malaise, and sensory changes (paresthesia) at the site of an animal bite. Excitability, aero- and/or hydrophobia, often with spasms of swallowing muscles, are frequent symptoms. Delirium with occasional convulsions follows.

Animal Rabies

- There were a total of 480 animals submitted for rabies testing. A total of 3% (n=16) of the animals tested were positive for rabies from 2004-2009.
- Fifty six percent (n=9) of the animals that tested positive were bats and 38% (n=6) of the animals that tested positive were raccoons.
- All positive animals were in the Cuyahoga County Board of Health jurisdiction.







Appendix

Know Your ABCs: A Quick Guide to Reportable Infectious Diseases in Ohio

from the Ohio Administrative Code Chapter 3701-3; Effective January 1, 2009

Class A ***Diseases of major public health concern because of the severity of disease or potential for epidemic spread - report by telephone immediately upon recognition that a case, a suspected case, or a positive laboratory result exists***

- Anthrax
- Botulism, foodborne
- Cholera
- Diphtheria
- Influenza A - novel virus
- Measles
- Meningococcal disease
- Plague
- Rabies, human
- Rubella (not congenital)
- Severe acute respiratory syndrome (SARS)
- Smallpox
- Tularemia
- Viral hemorrhagic fever (VHF)
- Yellow fever

Any unexpected pattern of cases, suspected cases, deaths or increased incidence of any other disease of major public health concern, because of the severity of disease or potential for epidemic spread, which may indicate a newly recognized infectious agent, outbreak, epidemic, related public health hazard or act of bioterrorism.

Class B (1) ***Diseases of public health concern needing timely response because of potential for epidemic spread - report by the end of the next business day after the existence of a case, a suspected case, or a positive laboratory result is known***

- Arboviral neuroinvasive and non-neuroinvasive disease:
  - Eastern equine encephalitis virus disease
  - LaCrosse virus disease (other California serogroup virus disease)
  - Powassan virus disease
  - St. Louis encephalitis virus disease
  - West Nile virus infection
  - Western equine encephalitis virus disease
  - Other arthropod-borne disease
- Chancroid
- Coccidioidomycosis
- Cyclosporiasis
- Dengue
- *E. coli* O157:H7 and other enterohemorrhagic (Shiga toxin-producing) *E. coli*
- Granuloma inguinale
- *Haemophilus influenzae* (invasive disease)
- Hantavirus
- Hemolytic uremic syndrome (HUS)
- Hepatitis A
- Hepatitis B, perinatal
- Influenza-associated pediatric mortality
- Legionnaires' disease
- Listeriosis
- Malaria
- Meningitis, aseptic (viral)
- Meningitis, bacterial
- Mumps
- Pertussis
- Poliomyelitis (including vaccine-associated cases)
- Psittacosis
- Q fever
- Rubella (congenital)
- Salmonellosis
- Shigellosis
- *Staphylococcus aureus*, with resistance or intermediate resistance to vancomycin (VRSA, VISA)
- Syphilis
- Tetanus
- Tuberculosis, including multi-drug resistant tuberculosis (MDR-TB)
- Typhoid fever

Class B (2) ***Diseases of significant public health concern - report by the end of the work week after the existence of a case, a suspected case, or a positive laboratory result is known***

- Amebiasis
- Botulism, infant
- Botulism, wound
- Brucellosis
- Campylobacteriosis
- Chlamydia infections (urethritis, epididymitis, cervicitis, pelvic inflammatory disease, neonatal conjunctivitis, pneumonia, and lymphogranuloma venereum (LGV))
- Creutzfeldt-Jakob disease (CJD)
- Cryptosporidiosis
- Cytomegalovirus (CMV) (congenital)
- Ehrlichiosis/Anaplasmosis
- Giardiasis
- Gonococcal infections (urethritis, cervicitis, pelvic inflammatory disease, pharyngitis, arthritis, endocarditis, meningitis, and neonatal conjunctivitis)
- Hepatitis B, non-perinatal
- Hepatitis C
- Hepatitis D (delta hepatitis)
- Hepatitis E
- Herpes (congenital)
- Influenza-associated hospitalization
- Leprosy (Hansen disease)
- Leptospirosis
- Lyme disease
- Mycobacterial disease, other than tuberculosis (MOTT)
- Rocky Mountain spotted fever (RMSF)
- Streptococcal disease, group A, invasive (IGAS)
- Streptococcal disease, group B, in newborn
- Streptococcal toxic shock syndrome (STSS)
- *Streptococcus pneumoniae*, invasive disease (ISP)
- Toxic shock syndrome (TSS)
- Trichinosis
- Typhus fever
- Varicella
- Vibriosis
- Yersiniosis

Class C ***Report an outbreak, unusual incidence, or epidemic (e.g., histoplasmosis, pediculosis, scabies, staphylococcal infections) by the end of the next business day***

Outbreaks:

- Community
- Foodborne
- Healthcare-associated
- Institutional
- Waterborne
- Zoonotic

NOTE: Cases of AIDS (acquired immune deficiency syndrome), AIDS-related conditions, HIV (human immunodeficiency virus) infection, perinatal exposure to HIV, and CD4 T-lymphocytes counts <200 or 14% must be reported on forms and in a manner prescribed by the Director.