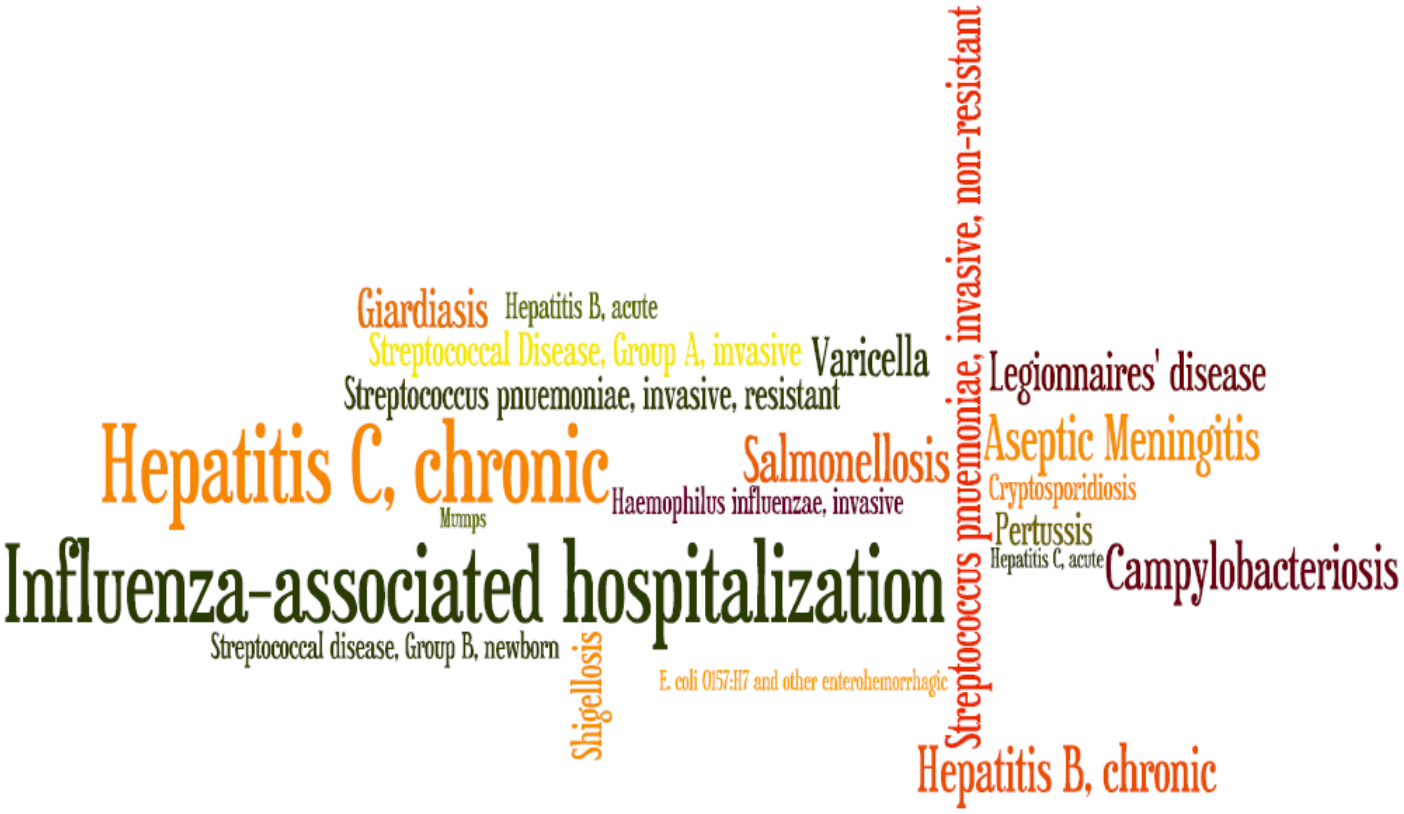
2011
Annual Summary of Reportable Infectious Diseases for Cuyahoga County, Ohio

Report Date: March 29, 2013



Cleveland Department of Public Health

CUYAHOGA COUNTY BOARD OF HEALTH

SHAKER HEIGHTS

Public Health
Prevent. Promote. Protect.
Northeast Ohio Public Health Partnership

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.

Cleveland Department of Public Health
Nathalie Moise, MPH
Jana Rush, MPH, MA
Priyal Shah, MPH

Cuyahoga County Board of Health
Amy Anter, RN
Jim Coates, MS
Tara Hanchar, RS
Chris Kippes, MS
Jackie Napolitano, RS
Richard Stacklin, MEd

Shaker Heights Health Department
Sandi Hurley, RN

About the Cover

The cover of the 2011 Annual Summary of Reportable Infectious Diseases depicts what is known as a Word Cloud. The cloud is designed to provide a quick visualization and should not be utilized as an analytical tool.

The Word Cloud on the cover represents the 20 most reported infectious diseases in Cuyahoga County for 2011. The cloud is an arrangement of randomly positioned words where the size of the word is proportional to its frequency. In 2011, the three most frequent infectious diseases in Cuyahoga County were *chronic Hepatitis C, Influenza-associated hospitalizations, and chronic Hepatitis B.*

Table of Contents

Introduction

The 2011 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 (CDPH), the Shaker Heights Health Department (SHHD), and the Cuyahoga County Board of Health (CCBH).

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 2011.

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 CDPH. Additional data reports for these diseases can be found at: http://clevelandhealth.info/.

The health departments are pleased to provide you with this report for the third consecutive year and anticipate its publication annually into the future. We are hopeful that you find the information useful as you gain a better understanding of the communicable disease burden in the county. 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 2010 U.S. Census. The estimates were most recently updated on May 26, 2011. These estimates can be found online at http://factfinder2.census.gov.

The "median" and "mean" presented in Tables 1 through 5 represent the annual median and mean case counts and rates across the 2006-2010 time frame. This five year time frame was selected to help establish a baseline (e.g. endemic level) so comparisons can be made with the 2011 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. Thus, the mean and median rates for Influenza-associated hospitalizations were not calculated for this report. Mean and median numbers for all other reportable infectious diseases were based on 2006-2010 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 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, 2006-2011

Table 1. General Infectious Diseases	2006		2007		2008		2009		2010		Median		Mean		2011	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Aseptic Meningitis	82	6.4	62	4.8	74	5.8	68	5.3	96	7.5	74	5.8	76	6.0	116	9.1
Cytomegalovirus (CMV), congenital	3	**	3	**	4	**	1	**	5	0.4	3	**	3	**	3	**
Coccidioidomycosis	1	**	0	**	2	**	3	**	3	**	2	**	2	**	0	**
Creutzfeldt-Jakob disease (CJD)	0	**	2	**	2	**	7	0.5	1	**	2	**	2	**	0	**
***Haemophilus influenzae*, invasive**	13	1.0	18	1.4	12	0.9	7	0.5	9	0.7	12	0.9	12	0.9	12	0.9
Legionnaires' disease	47	3.7	56	4.4	48	3.7	58	4.5	33	2.6	48	3.7	48	3.8	48	3.7
Meningitis, bacterial (non-*Neisseria*)	10	0.8	8	0.6	11	0.9	6	0.5	9	0.7	9	0.7	9	0.7	6	0.5
Streptococcal disease, Group A, invasive	28	2.2	28	2.2	26	2.0	24	1.9	23	1.8	26	2.0	26	2.0	34	2.7
Streptococcal disease, Group B, newborn	6	0.5	11	0.9	7	0.5	8	0.6	5	0.4	7	0.5	7	0.6	17	1.3
Streptococcal Toxic Shock Syndrome	3	**	1	**	4	**	0	**	1	**	1	**	2	**	0	**
***Streptococcus pneumoniae* invasive disease, non-resistant or unknown resistance**	73	5.7	61	4.8	60	4.7	71	5.5	55	4.3	61	4.8	64	5.0	71	5.5
***Streptococcus pneumoniae* invasive disease, resistant**	39	3.0	41	3.2	41	3.2	34	2.7	20	1.6	39	3.0	35	2.7	33	2.6
Toxic Shock Syndrome	1	**	1	**	1	**	0	**	0	**	1	**	1	**	0	**
***Staphylococcus aureus*, with intermediate resistance to vancomycin (VISA)**	0	**	0	**	1	**	2	**	2	**	1	**	1	**	0	**

Table 2. Hepatitis	2006		2007		2008		2009		2010		Median		Mean		2011	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Hepatitis A	8	0.6	16	1.2	7	0.5	5	0.4	1	**	7	0.5	7	0.6	4	**
Hepatitis B, acute	29	2.3	26	2.0	32	2.5	19	1.5	23	1.8	26	2.0	26	2.0	18	1.4
Hepatitis B, chronic	113	8.8	206	16.1	183	14.3	181	14.1	173	13.5	181	14.1	171	13.4	162	12.7
Hepatitis C, acute	1	**	8	0.6	9	0.7	5	0.4	5	0.4	5	0.4	6	0.4	9	0.7
Hepatitis C, chronic	1295	101.2	1049	81.9	963	75.2	1119	87.4	1122	87.6	1119	87.4	1110	86.7	569	44.4
Hepatitis E	1	**	1	**	0	**	0	**	0	**	0	**	0	**	0	**

Selected Reportable Infectious Diseases by Year of Onset, Cuyahoga County, 2006-2011

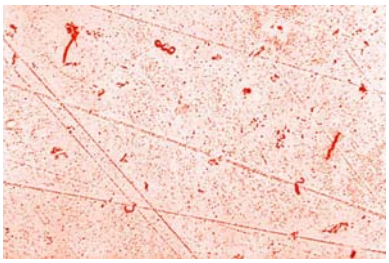
Table 3. Enteric Diseases	2006		2007		2008		2009		2010		Median		Mean		2011	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Amebiasis	0	**	2	**	1	**	3	**	6	0.5	2	**	2	**	0	**
Botulism, foodborne	0	**	1	**	0	**	1	**	0	**	0	**	0	**	0	**
Campylobacteriosis	151	11.8	163	12.7	169	13.2	172	13.4	172	13.4	169	13.2	165	12.9	151	11.8
Cryptosporidiosis	32	2.5	23	1.8	14	1.1	15	1.2	30	2.3	23	1.8	23	1.8	9	0.7
Cyclosporiasis	0	**	0	**	0	**	0	**	0	**	0	**	0	**	0	**
***E. coli* O157:H7 and other enterohemorrhagic**	15	1.2	6	0.5	13	1.0	11	0.9	7	0.5	11	0.9	10	0.8	9	0.7
Giardiasis	63	4.9	74	5.8	87	6.8	80	6.2	75	5.9	75	5.9	76	5.9	110	8.6
Hemolytic uremic syndrome (HUS)	1	**	1	**	0	**	8	0.6	0	**	1	**	2	**	0	**
Listeriosis	6	0.5	5	0.4	6	0.5	4	**	4	**	5	0.4	5	0.4	4	**
Salmonellosis	229	17.9	156	12.2	183	14.3	205	16.0	157	12.3	183	14.3	186	14.5	132	10.3
Shigellosis	21	1.6	101	7.9	217	17.0	244	19.1	14	1.1	101	7.9	119	9.3	31	2.4
Typhoid Fever	1	**	1	**	2	**	1	**	0	**	1	**	1	**	0	**
Vibriosis, other (not cholera)	1	**	1	**	2	**	2	**	1	**	1	**	1	**	3	**
Yersiniosis	1	**	10	0.8	10	0.8	5	0.4	6	0.5	6	0.5	6	0.5	4	**

Table 4. Vaccine Preventable Diseases	2006		2007		2008		2009		2010		Median		Mean		2011	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Influenza-associated hospitalizations	0	**	0	**	2	**	791	61.8	32	2.5	2	**	165	13.0	505	39.4
Influenza-associated pediatric mortality	0	**	0	**	0	**	3	**	0	**	0	**	1	**	0	**
Meningococcal Disease	6	0.5	7	0.5	6	0.5	6	0.5	6	0.5	6	0.5	6	0.5	4	**
Mumps	6	0.5	4	**	0	**	2	**	15	1.2	4	**	5	0.4	9	0.7
Pertussis	23	1.8	39	3.0	21	1.6	20	1.6	29	2.3	23	1.8	26	2.1	28	2.2
Varicella	591	46.2	188	14.7	86	6.7	78	6.1	61	4.8	86	6.7	201	15.7	78	6.1

Table 5. Zoonotic Diseases	2006		2007		2008		2009		2010		Median		Mean		2011	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Arboviral	10	0.8	6	0.5	5	0.4	1	**	1	**	5	0.4	5	0.4	8	0.6
Brucellosis	0	**	0	**	0	**	1	**	0	**	0	**	0	**	0	**
Dengue	1	**	0	**	0	**	0	**	3	**	0	**	1	**	0	**
Lyme	3	**	5	0.4	8	0.6	10	0.8	6	0.5	6	0.5	6	0.5	9	0.7
Malaria	4	**	5	0.4	3	**	5	0.4	4	**	4	**	4	**	2	**
Rocky Mountain Spotted Fever	1	**	0	**	0	**	1	**	1	**	1	**	1	**	0	**

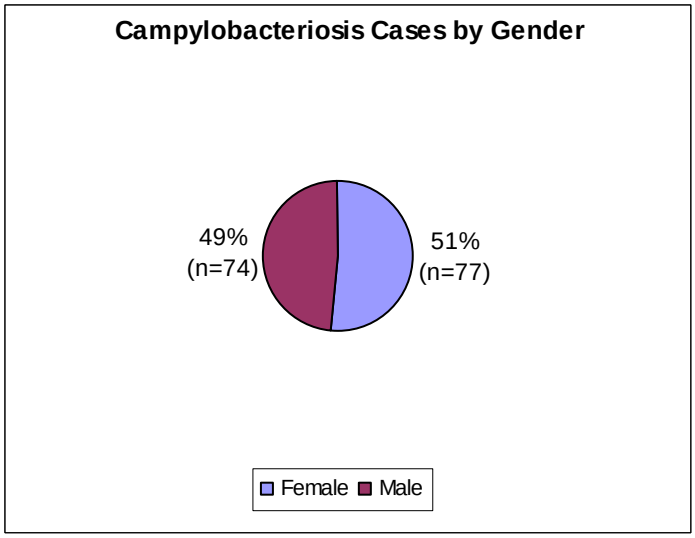
Campylobacteriosis

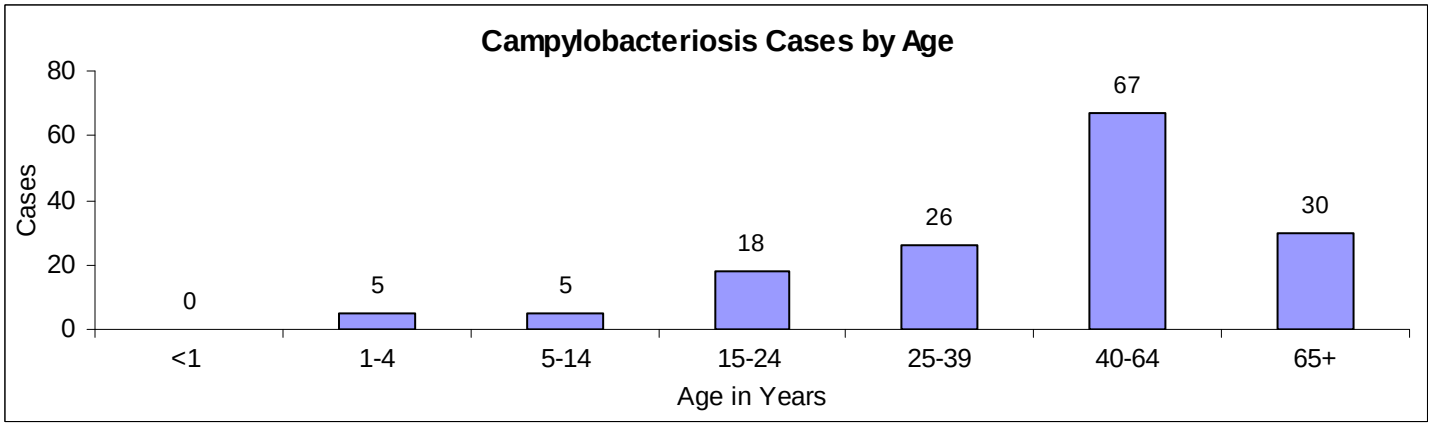
Infectious Agent: *Campylobacter jejuni* and less commonly, *C. coli* are the usual causes of Campylobacter diarrhea in humans. Other *Camplobacter* organisms, including *C. laridis* and *C. fetus spp,* have also been associated with diarrhea in normal hosts.
Mode of Transmission: Eating undercooked 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.

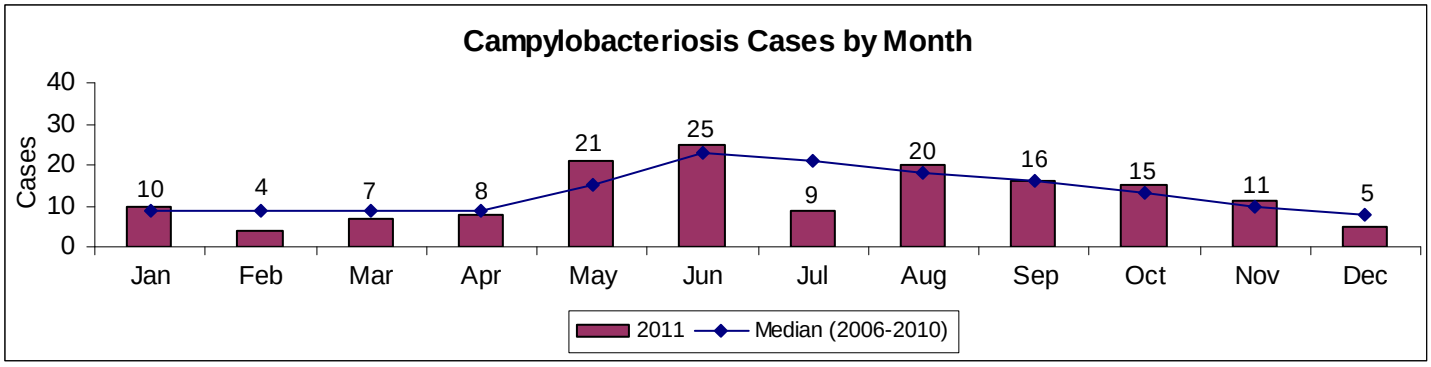


Campylobacteriosis

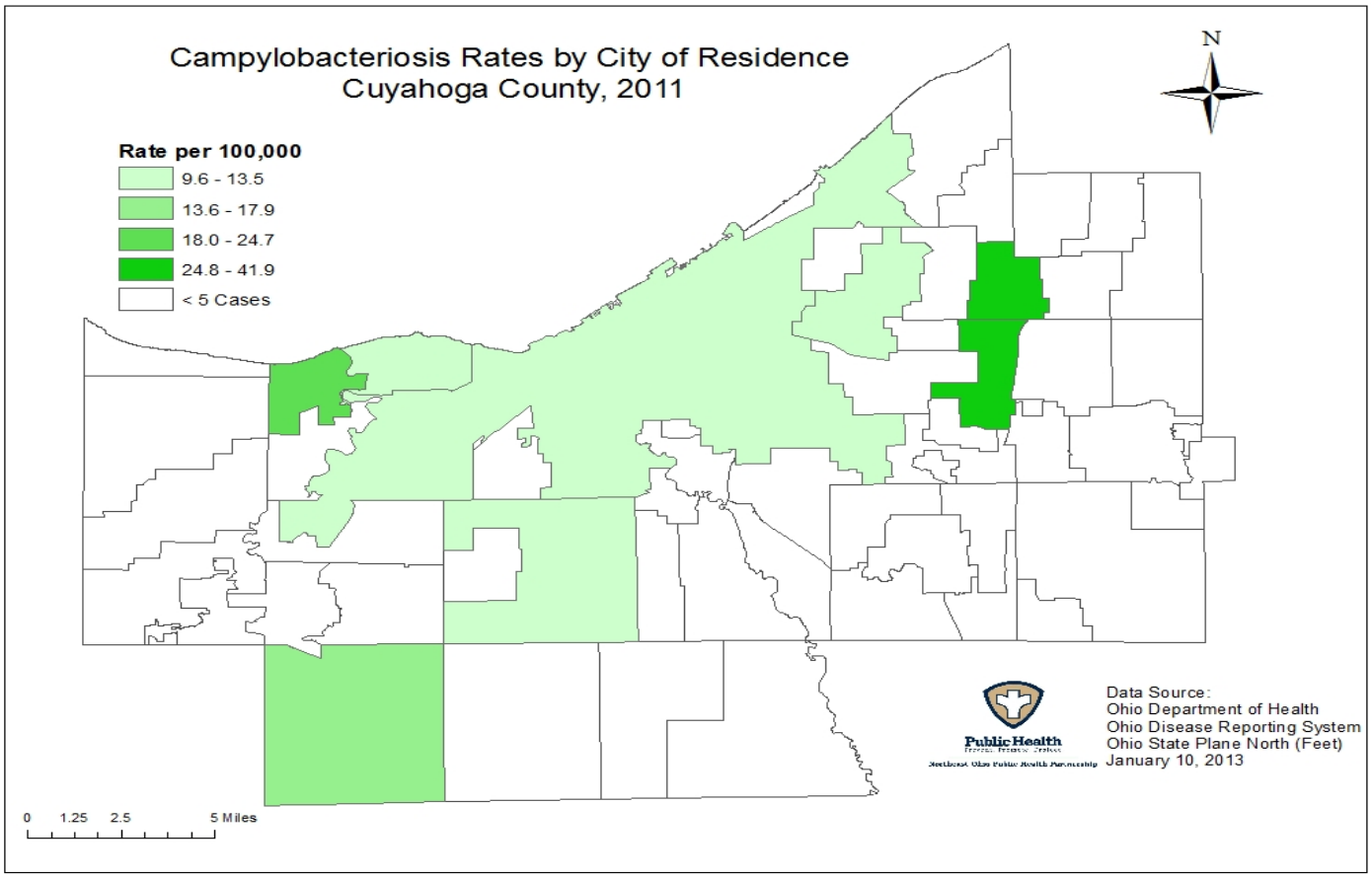
- There were 151 cases of Campylobacteriosis reported in 2011 for a rate of 11.8 per 100,000. The Healthy People 2020 target is 8.5 per 100,00.
- Ninety-seven of the 151 cases (64%) were 40 years old or older.
- Peak activity occurred in the summer months which is consistent with historical trends.





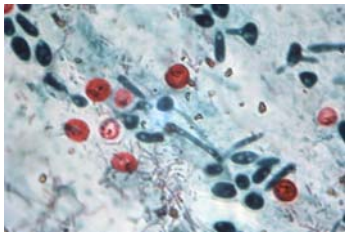


Campylobacteriosis



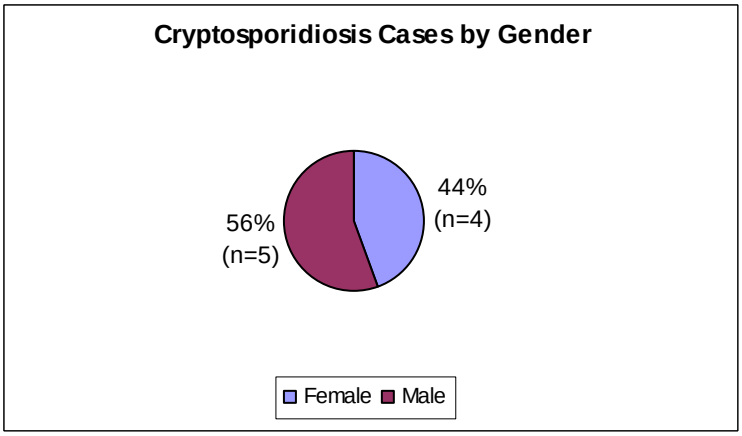
Cryptosporidiosis

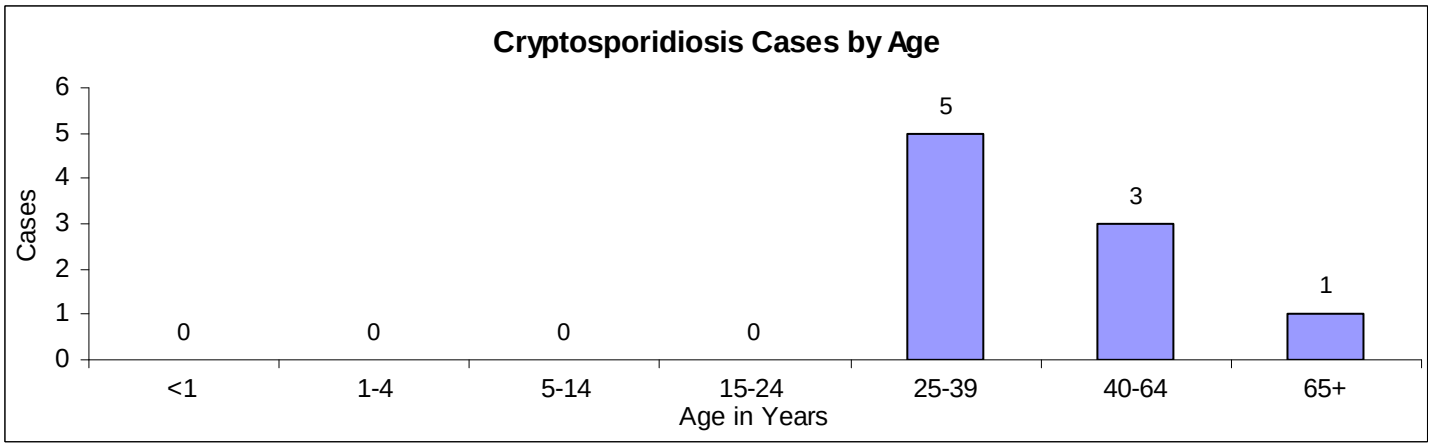
Infectious Agent: *Cryptosporidium hominus* or *Cryptosporidium parvum*, protozoan parasites that produce oocysts. The oocysts are highly infective for humans and most animals. The oocysts are also resistant to chlorine and other disinfectants.
Mode of Transmission: Fecal-oral route, including person-to-person, 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.

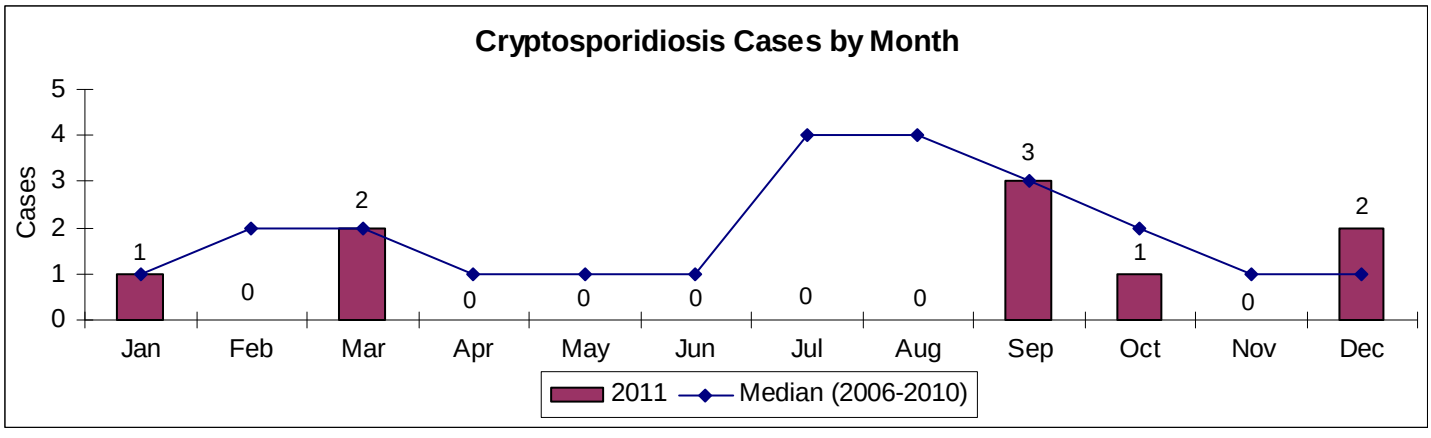


Cryptosporidiosis

- In 2011 there were 9 cases of Cryptosporidiosis reported in Cuyahoga County. This translates to a rate of 0.7 per 100,000.
- All nine cases were 25 years old or older.
- Unlike previous years, no cases of Cryptosporidiosis were reported in the summer months. Historical trends have shown peak activity in July and August.



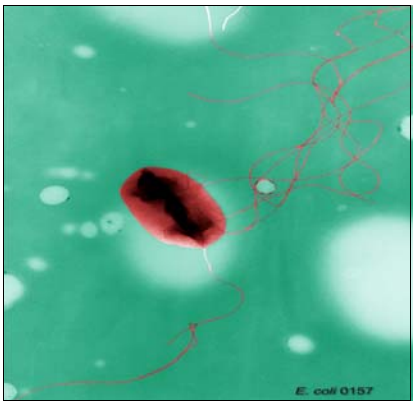




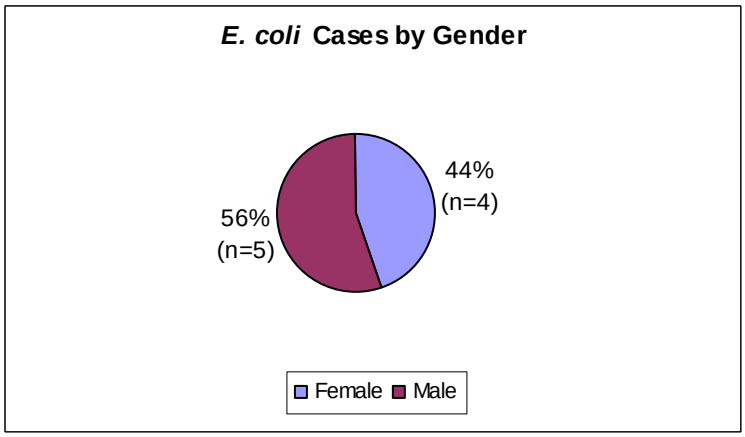
Escherichia coli (E.coli) O157:H7 and other enterohemmor-

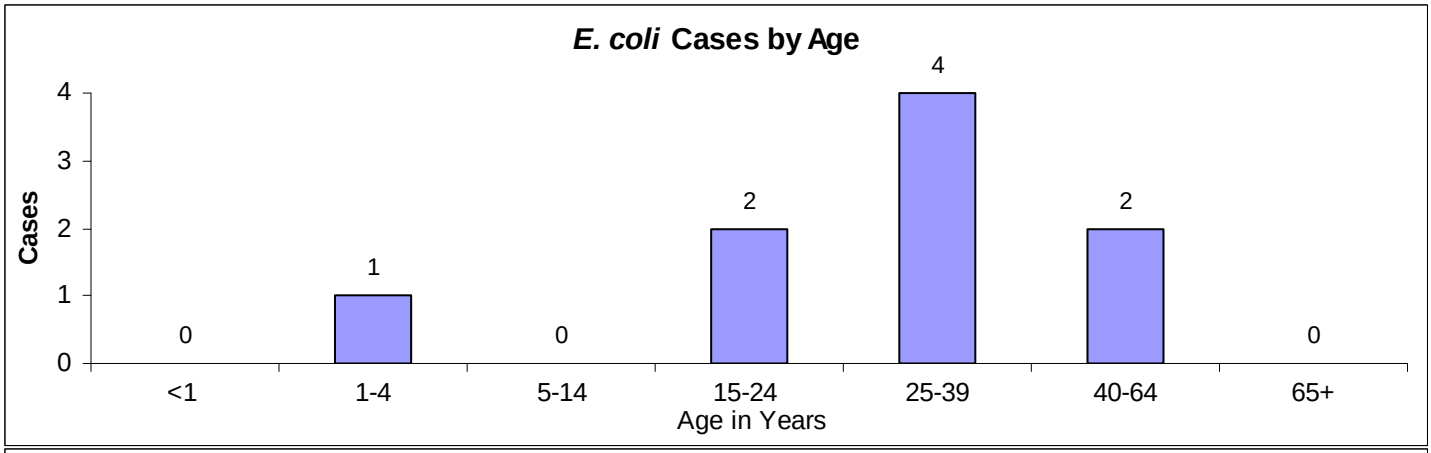
Enterohemorrhagic *E. coli*

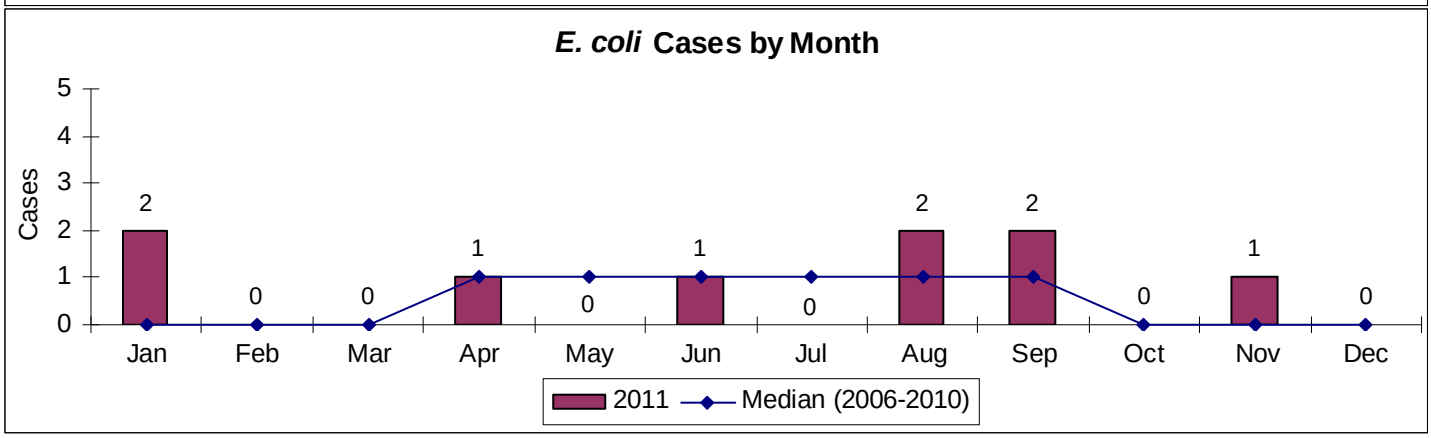
- There were 9 cases of *E. coli* reported in 2011 for a rate of 0.7 per 100,000. The Healthy People 2020 target is 0.6 per 100,000.
- Four of the 9 cases (44%) were 25-39 years old.
- Six of the 9 cases (67%) were identified as serogroup 0157:H7.



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.

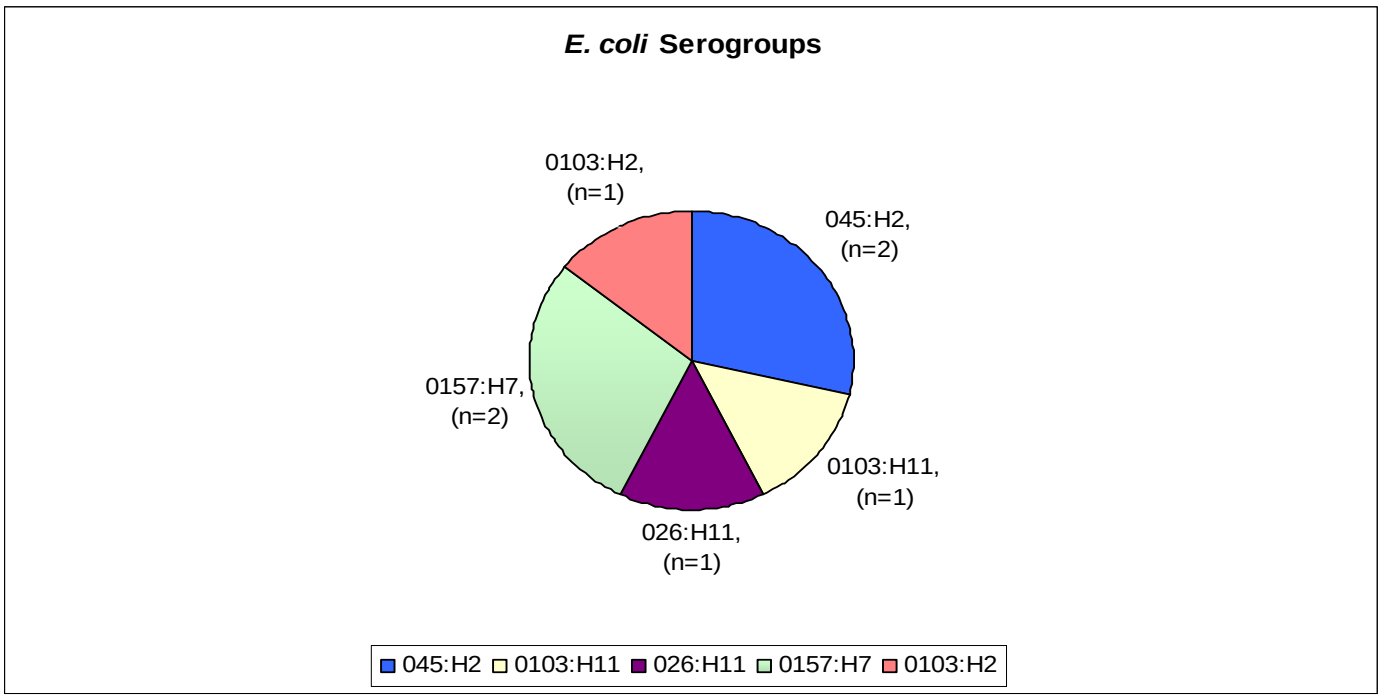






Escherichia coli (E.coli) O157:H7 and other enterohemmor-

***E. coli* Serogroups in Cuyahoga County Among All Specimens, 2011 (N=9)**



In addition to the most common form of Shiga-toxin producing *E. coli (*STEC*), E. coli* O157, the Centers for Disease Control and Prevention (CDC) has identified six other strands, known as non-O157 STECs, that are just as hazardous as *E. coli* O157. The CDC estimates that non-O157 STECs cause 36,700 illnesses, 1,100 hospitalizations and 30 deaths in the United States each year.

The 6 non-O157 STEC strains, also know as the "Gang of Six", are O26, O111, O103, O45, O121, and O145.

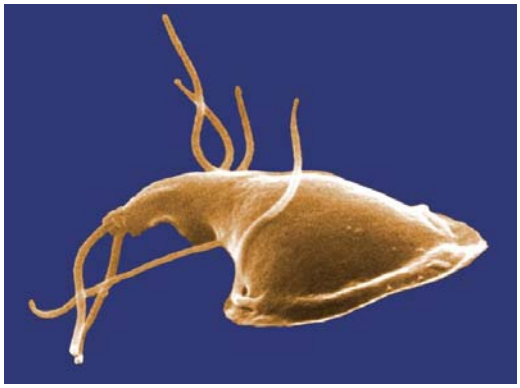
Studies in some states have shown that the prevalence of non-O157 STEC isolates is greater than or equal to that of *E. coli* O157:H7.

In 2009, all 11 cases of *E. coli* reported in Cuyahoga County were O157:H7. However, in 2010 and 2011, 3 of the non-O157 STEC strains belonging to the "Gang of Six" were observed in Cuyahoga County.

References: *fri.wisc.edu/docs/pdf/Kaspar_FRI_FRESH_3_9_10.pdf*
www.foodprotection.org/events/european-symposia/11Ede/Keen.pdf

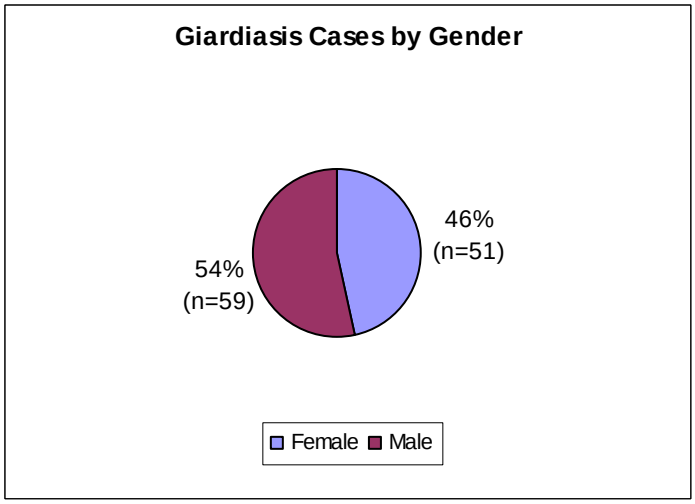
Giardiasis

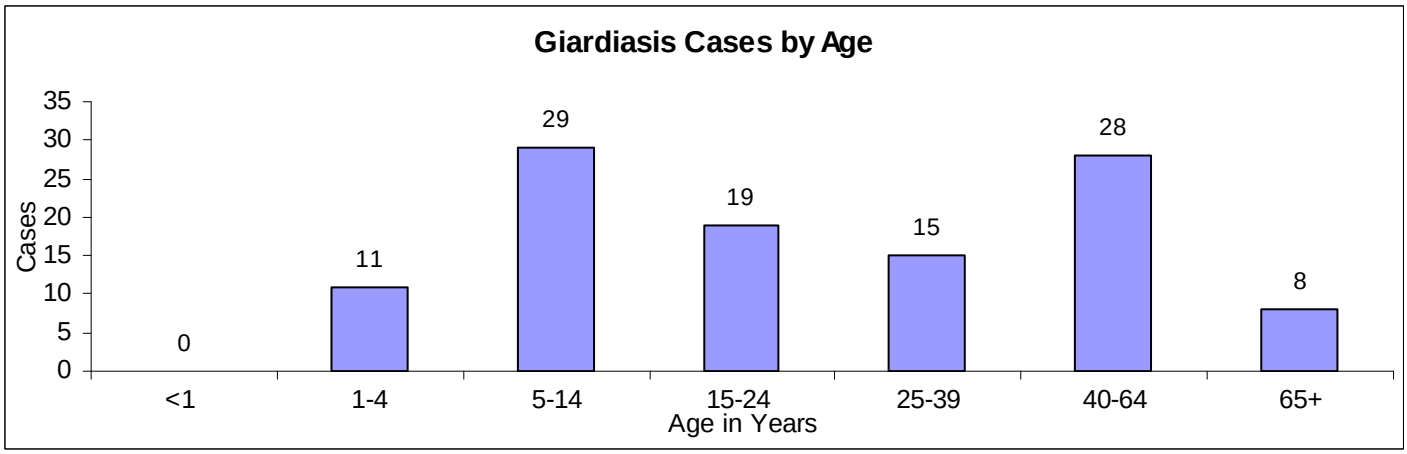
Infectious Agent: *Giardia lamblia*, a protozoan
Mode of Transmission: Person-to-person transmission via the fecal-oral route. Transmission may also occur from contaminated food or water.
Incubation Period: 3-25 days, usually 7-10 days
Symptoms: One may be asymptomatic. Illness may cause chronic diarrhea,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

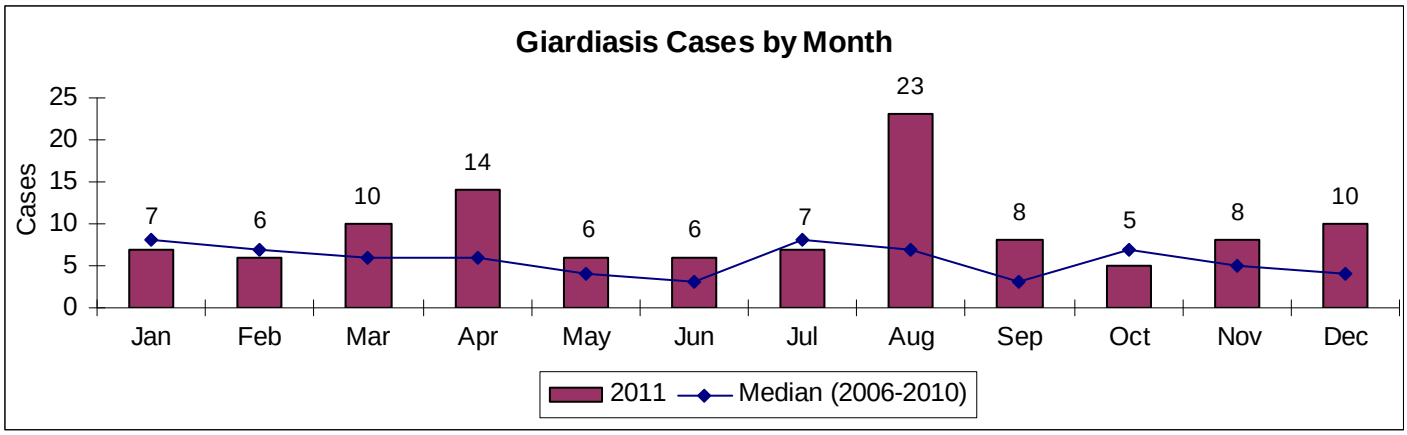


Giardiasis

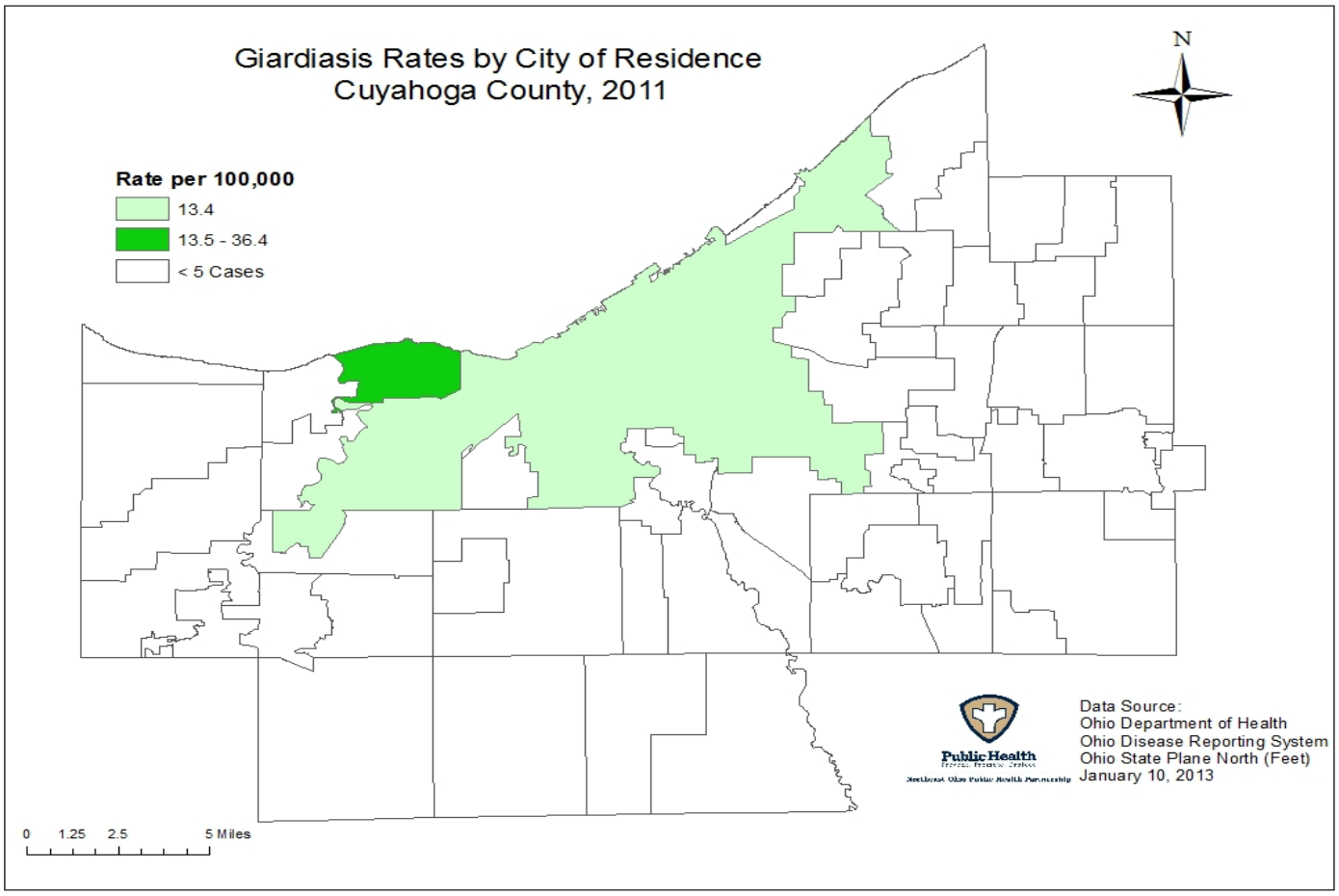
- In 2011 there were 110 cases of Giardiasis reported in Cuyahoga County. This translates to a rate of 8.6 per 100,000.
- Peak activity occurred in August. This increase in cases is not consistent with historical trends; however, no associations were observed among these cases.







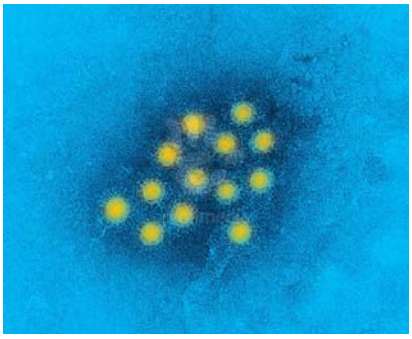
Giardiasis


Giardiasis Rates by City of Residence
Cuyahoga County, 2011
N
Rate per 100,000
13.4
13.5 - 36.4
< 5 Cases
Public Health
Data Source:
Ohio Department of Health
Ohio Disease Reporting System
Ohio State Plane North (Feet)
January 10, 2013
0 1.25 2.5 5 Miles

Hepatitis A

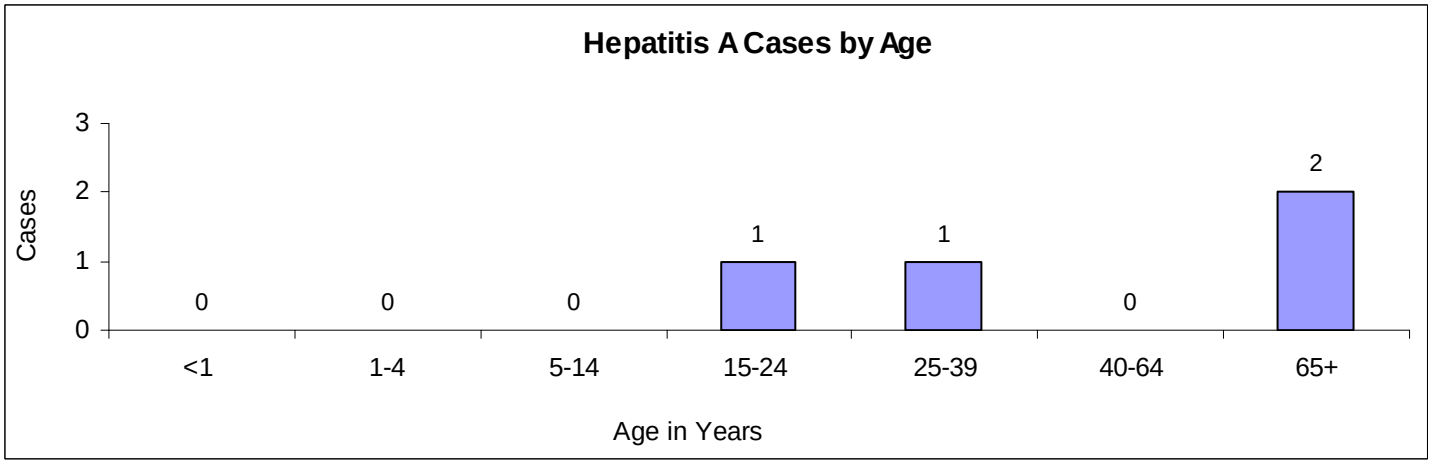
Hepatitis A

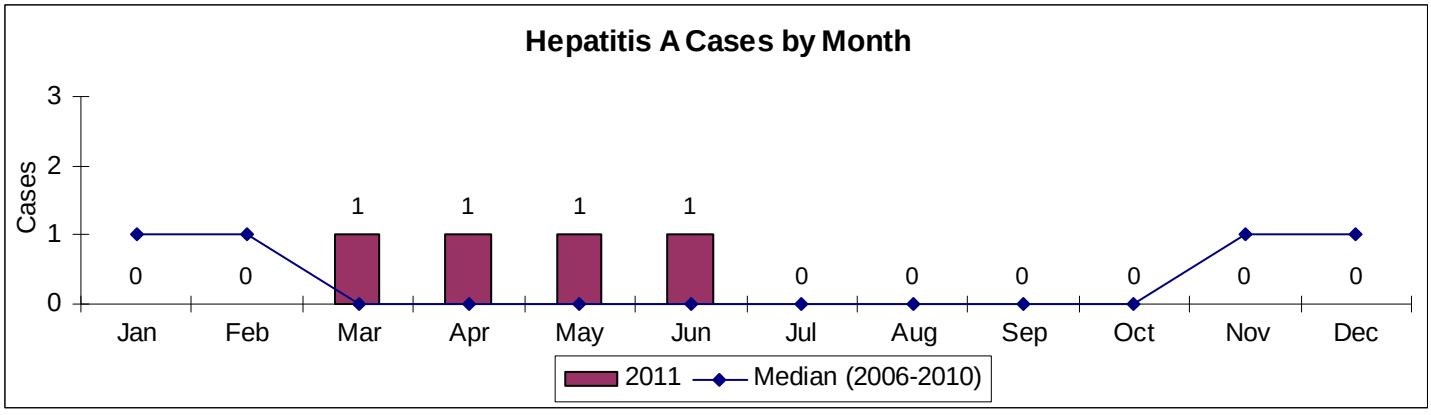
- There were 4 cases of Hepatitis A reported in 2011.
- All 4 reported cases were male.



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.

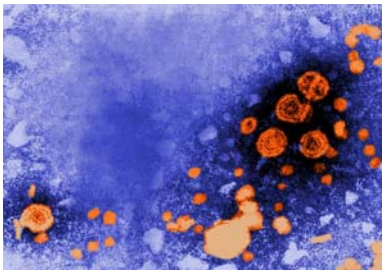
Hepatitis A Cases by Gender pie chart intentionally removed from this report.
This information can be found in the disease summary to the left.





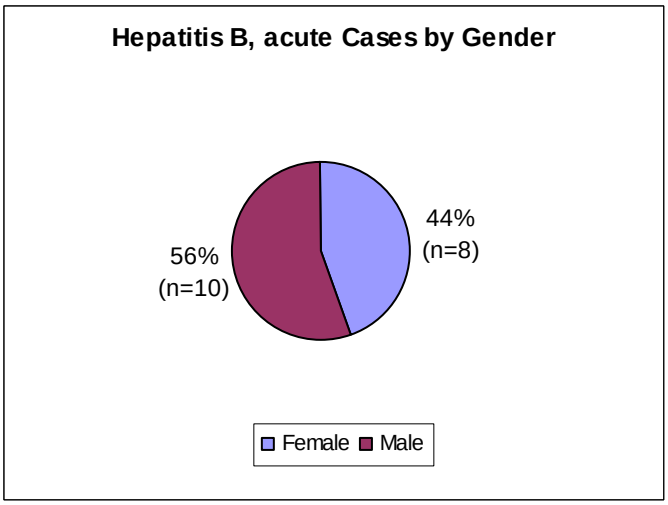
Hepatitis B, acute

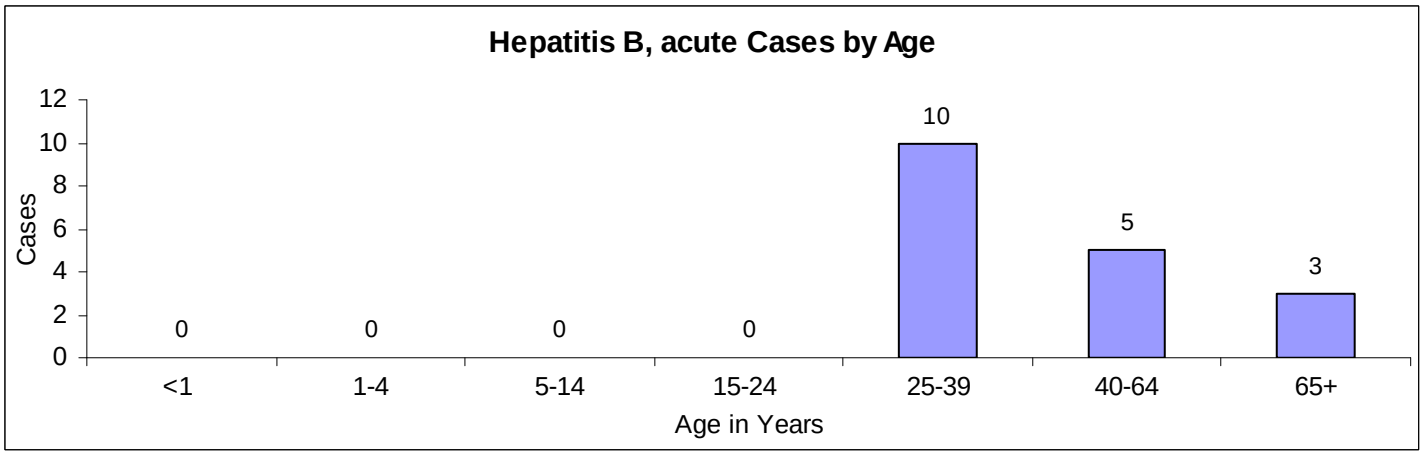
Infectious Agent: Hepatitis B virus (HBV)
Mode of Transmission: Exposure to person with acute or chronic HBV infection. Transmission can occur through sexual contact; percutaneous inoculation by contaminated needles during injection-drug use, tattooing, ear piercing, and acupuncture; contamination of 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.

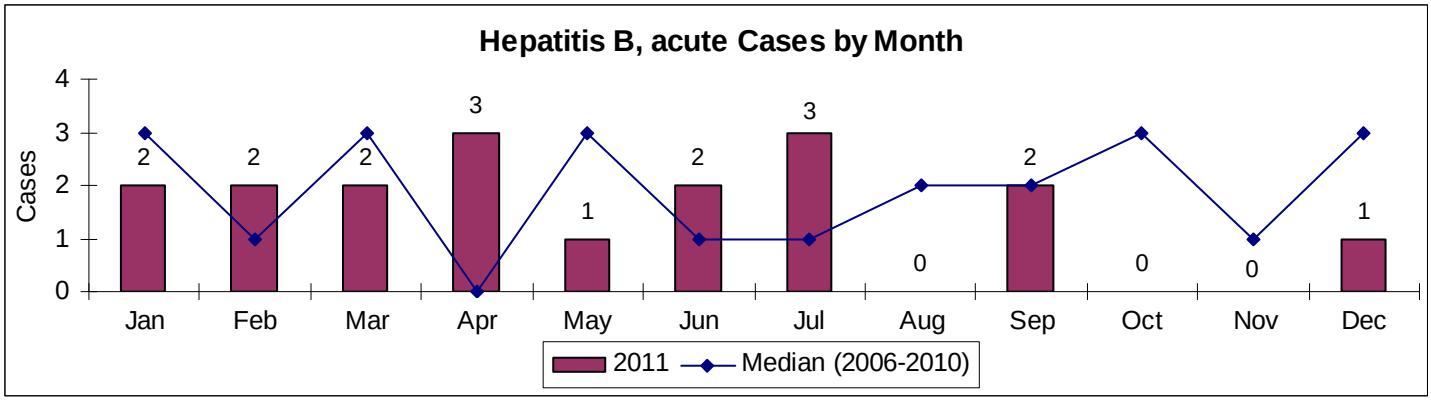


Hepatitis B, acute

- There were 18 cases of acute Hepatitis B reported in Cuyahoga County. This translates to a rate of 1.4 per 100,000.
- All 18 cases were adults 25 years of age and older & the majority (56%) were 25-39 years of age.





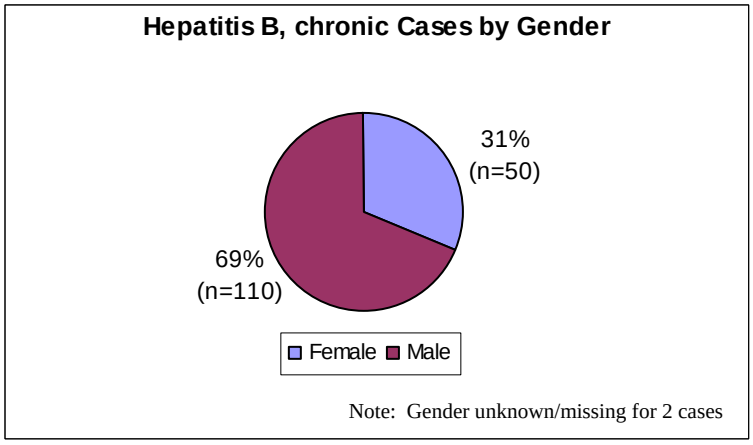


Hepatitis B, chronic

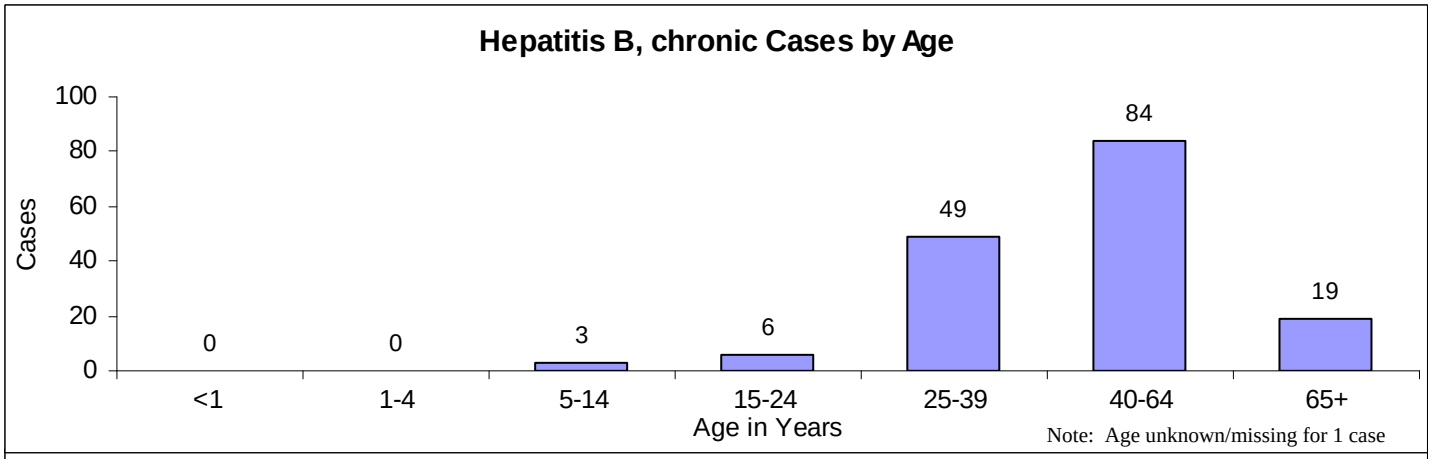
Infectious Agent: Hepatitis B virus (HBV)
Mode of Transmission: Exposure to person with acute or chronic HBV infection. Transmission can occur through sexual contact; percutaneous inoculation by contaminated needles during injection-drug use, tattooing, ear piercing, and acupuncture; contamination of 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

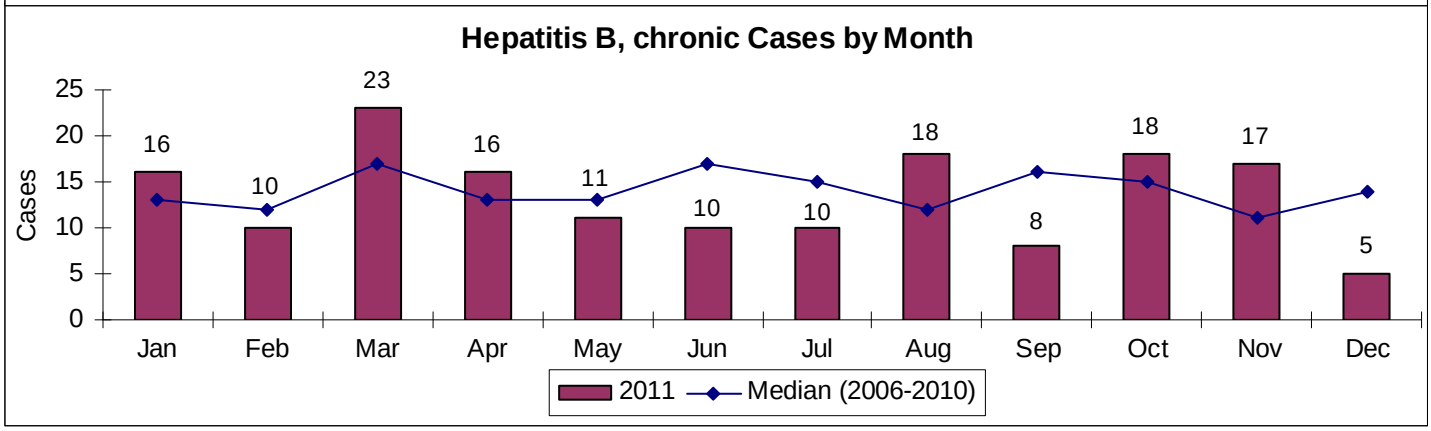
- In 2011 there were 162 cases of chronic Hepatitis B reported in Cuyahoga County. This translates to a rate of 12.7 per 100,000.
- The majority of cases were 25-64 years of age with 52% of cases in the 40-64 year age group.
- Sixty-nine percent of the cases were male.
- Fifty-nine percent of the cases lived in the city of Cleveland.



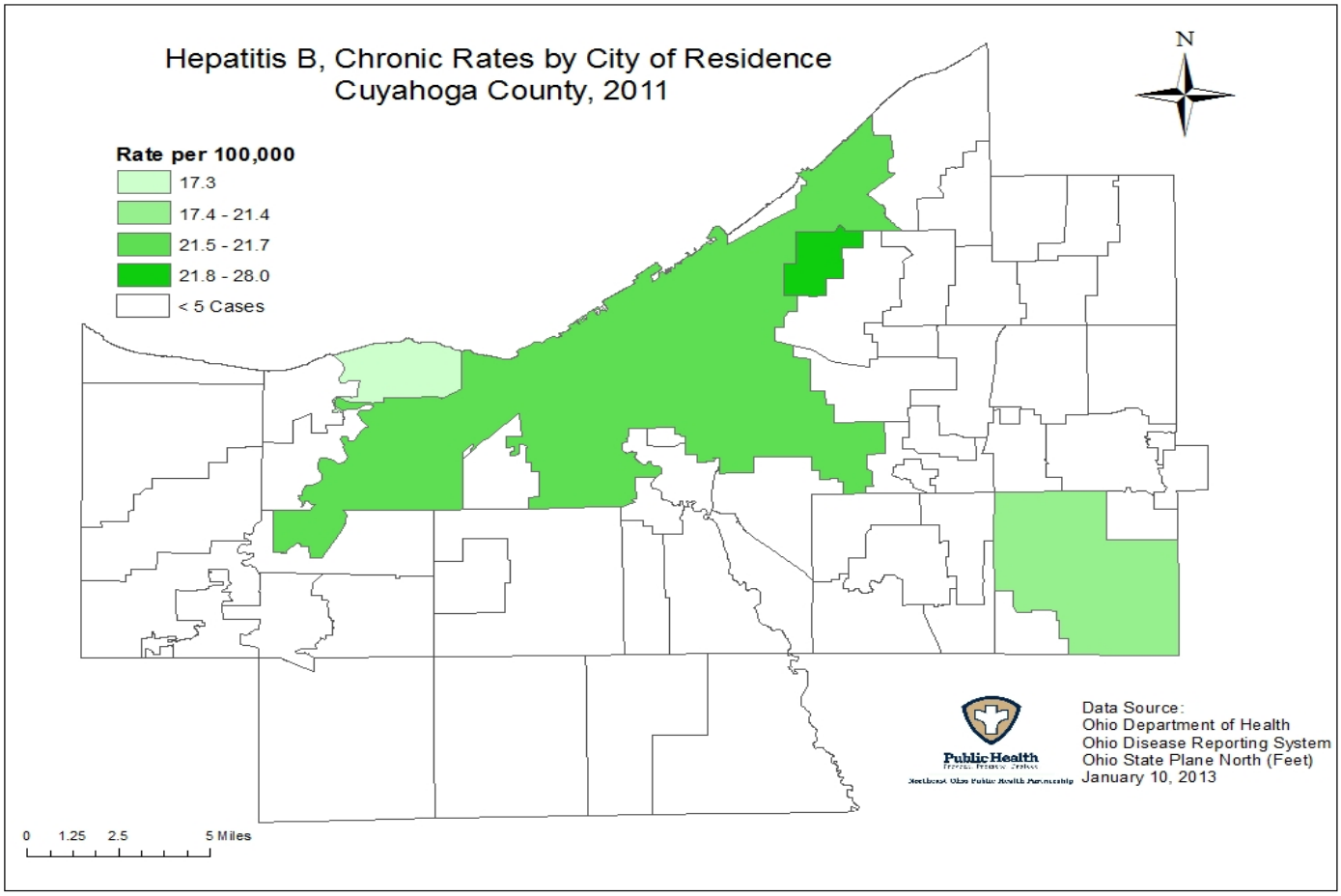
Note: Gender unknown/missing for 2 cases



Note: Age unknown/missing for 1 case



Hepatitis B, chronic

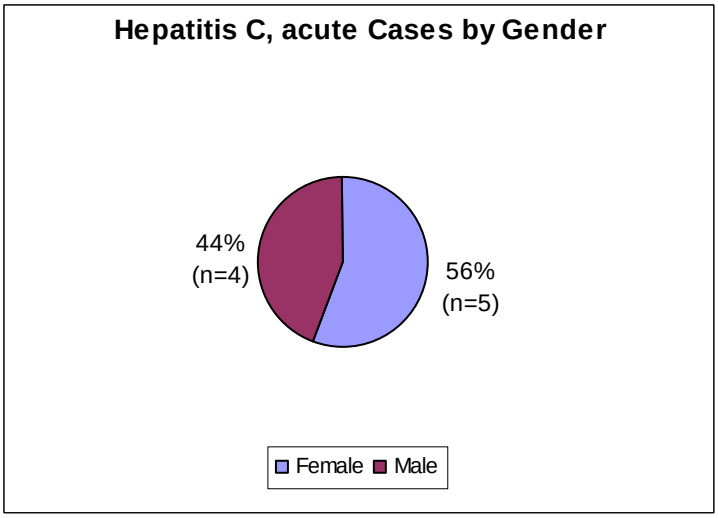


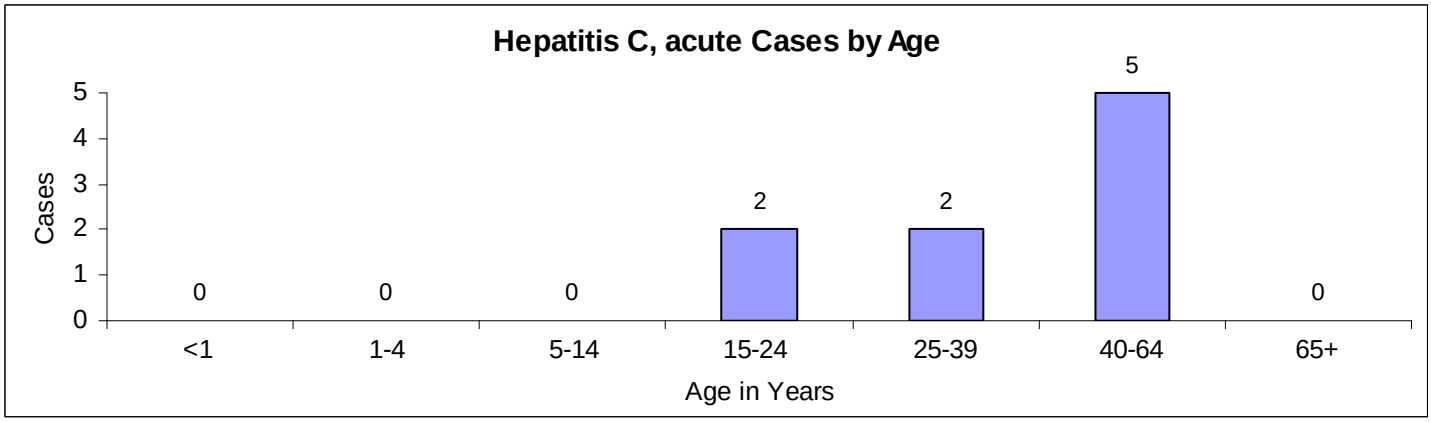
Hepatitis C, acute

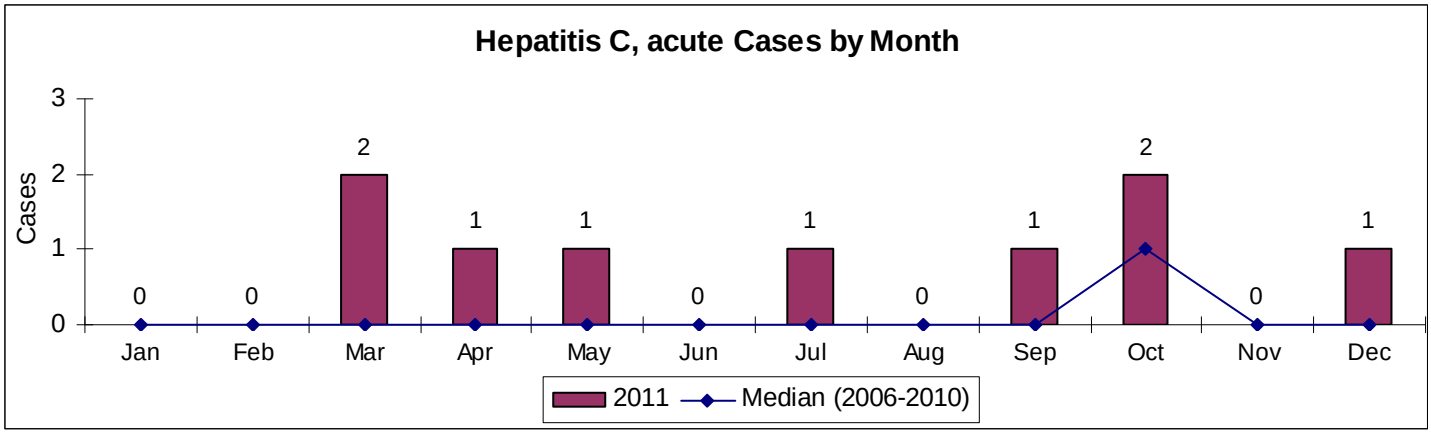
Infectious Agent: Hepatitis C virus (HCV)
Mode of Transmission: Contact with an infected person's blood. Transmission occurs from injection drug use, receiving a blood transfusion or organ transplant before 1992, during child birth, sexual intercourse with an infected person, or sharing infected items 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

- There were 9 cases of acute Hepatitis C reported in 2011 for a rate of 0.7 per 100,000. The Healthy People 2020 target is 0.2 per 100,000.
- Five of the 9 cases (56%) were female and 40-64 years old.





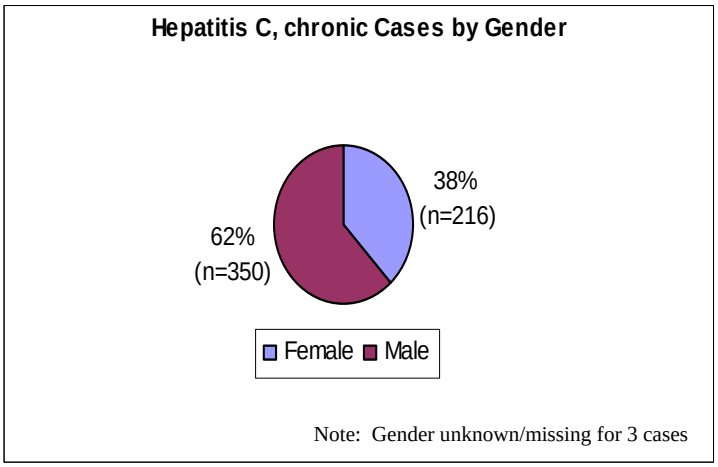


Hepatitis C, chronic

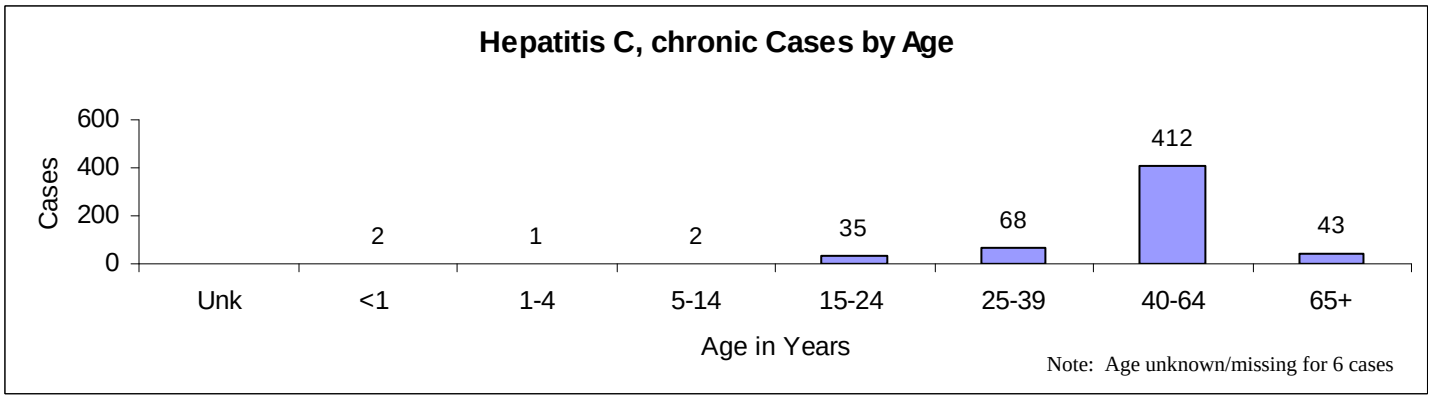
Infectious Agent: Hepatitis C virus (HCV)
Mode of Transmission: Contact with an infected person's blood. Transmission may occur from injection drug use, receiving a blood transfusion or organ transplant prior to 1992, during childbirth, sexual intercourse with an infected person, or sharing infected 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

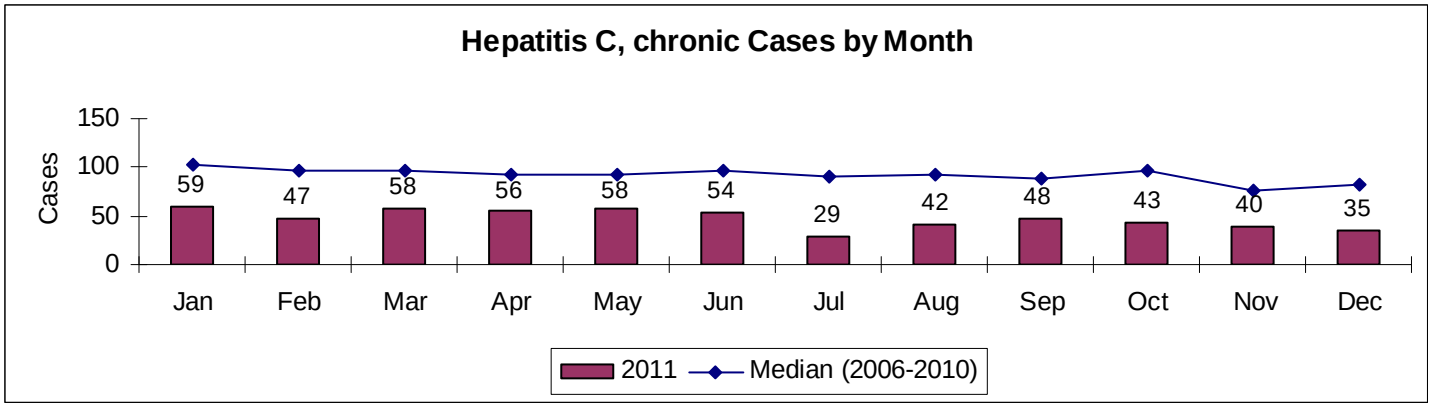
- There were 569 cases of chronic Hepatitis C in Cuyahoga County. This translates to a rate of 44.4 per 100,000.
- This is the smallest number of cases reported in the past 6 years.
- Seventy-two percent of the cases were 40-64 years of age.
- Fifty-eight percent of the cases lived in the city of Cleveland.



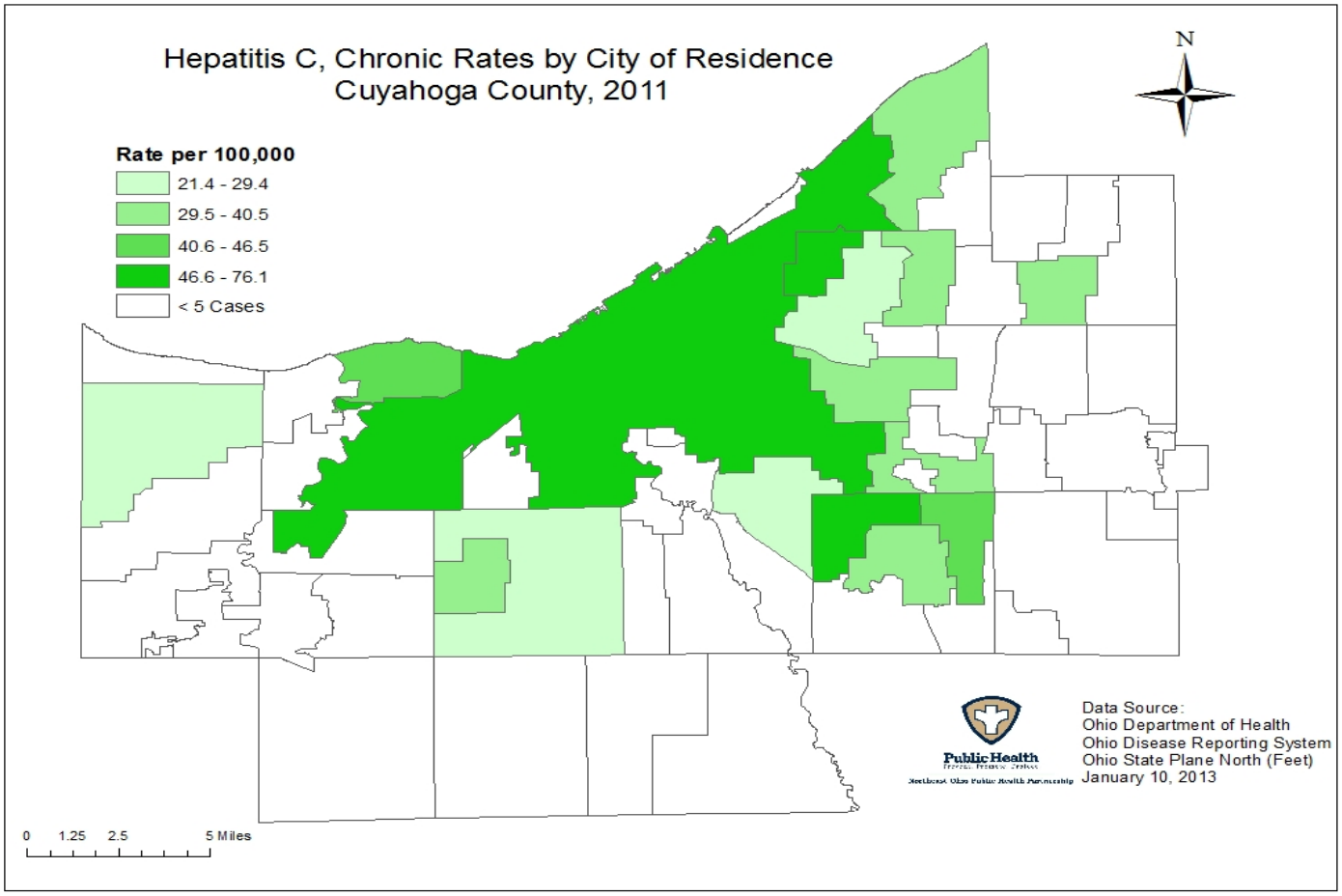
Note: Gender unknown/missing for 3 cases



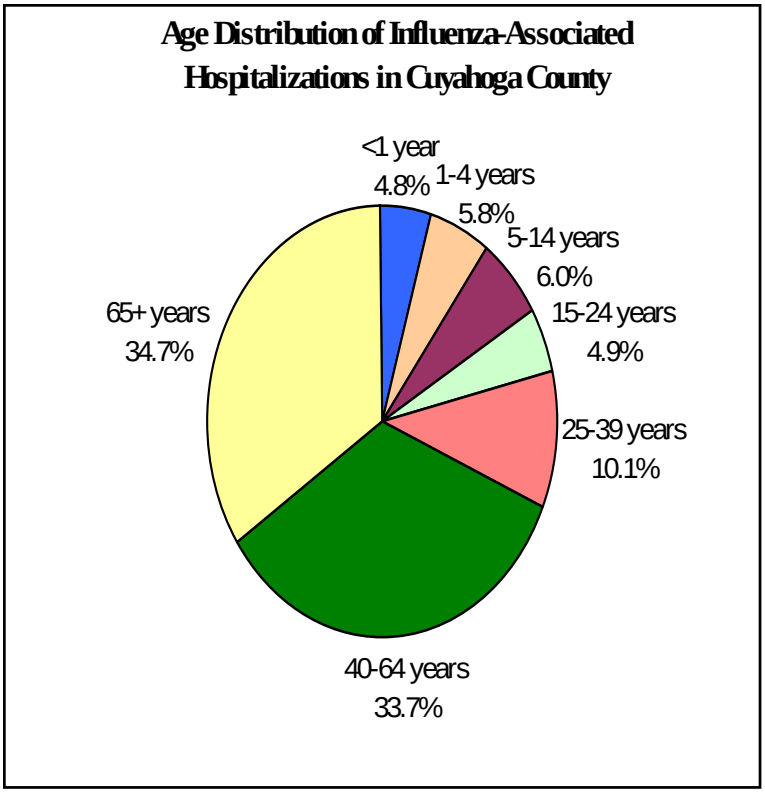
Note: Age unknown/missing for 6 cases



Hepatitis C, chronic



Influenza



Infectious Agent: Influenza A and B flu viruses of various subtypes; 2009 H1N1.

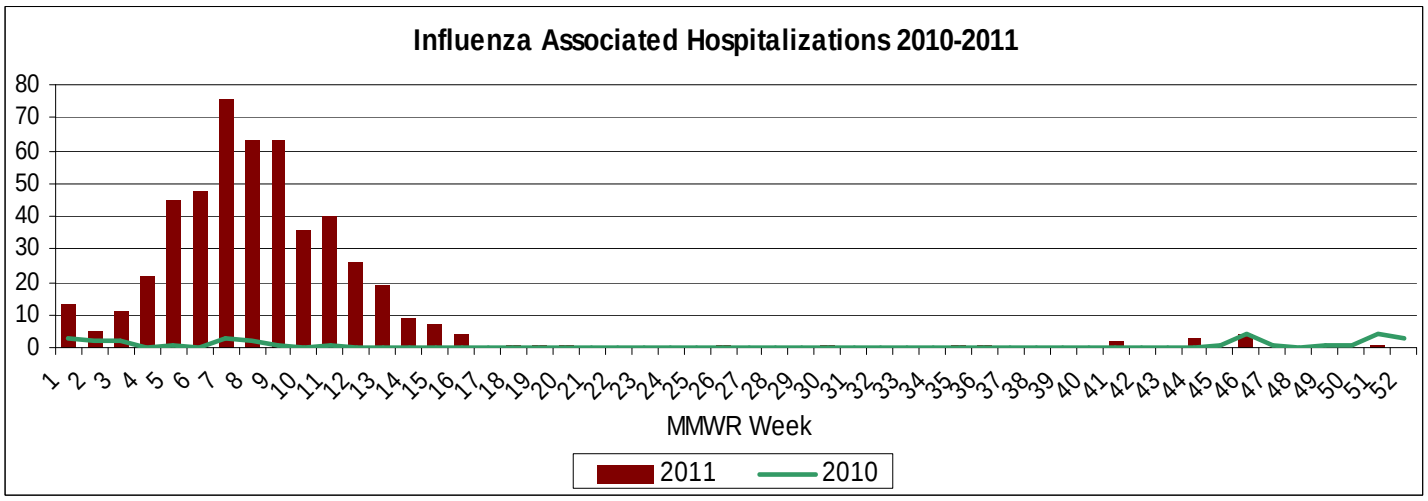
Mode of Transmission: Airborne via large droplets produced by coughing and sneezing.

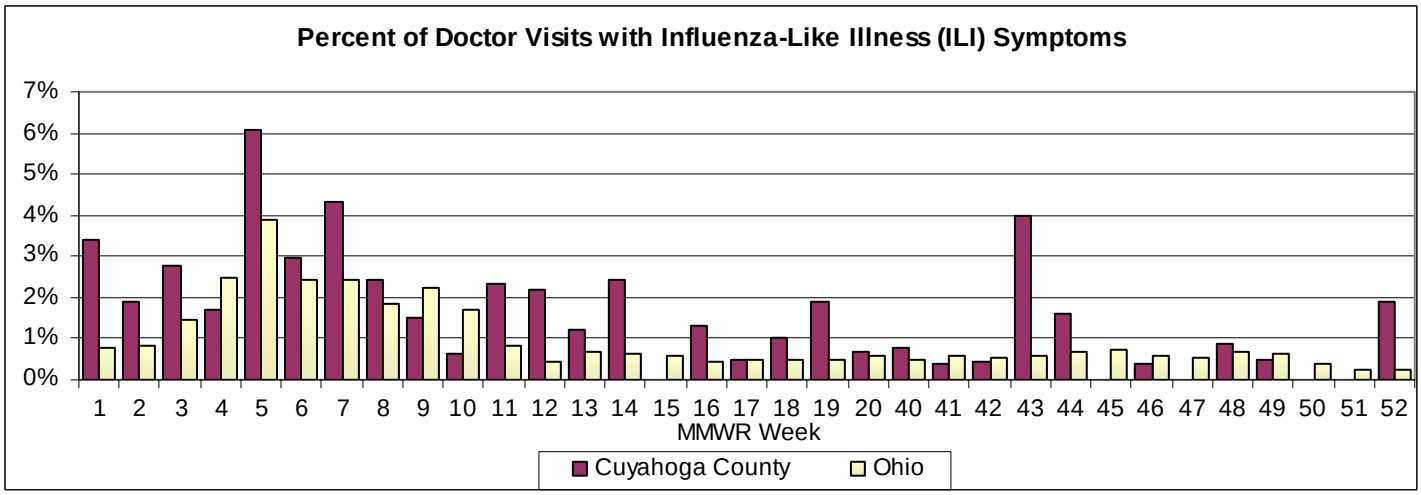
Incubation Period: 1-4 days, usually 2 days

Symptoms: Fever, cough, headache, myalgia, and sore throat.

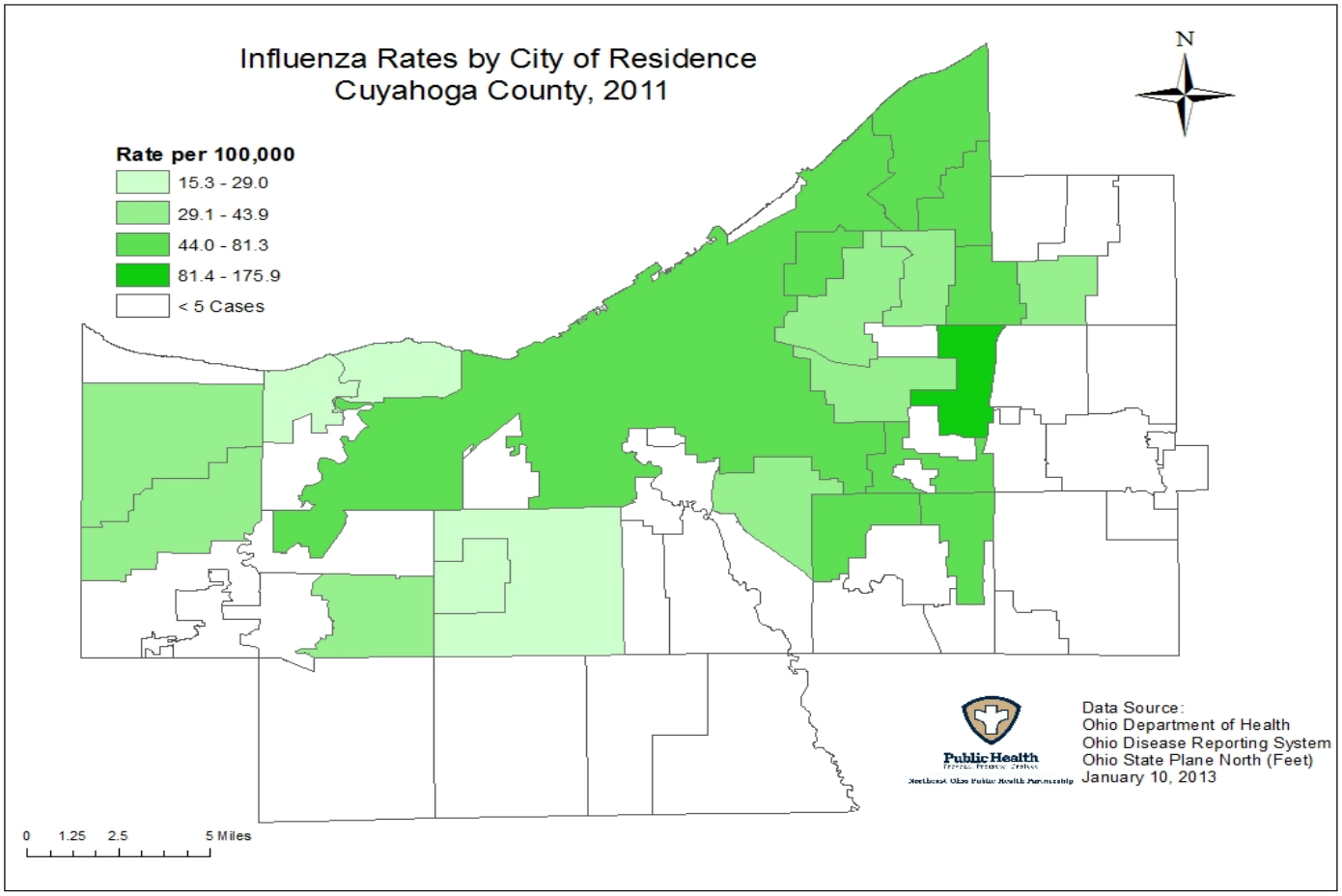
Influenza in Cuyahoga County

- 504 influenza-associated hospitalizations occurred during 2011. 440 were subtype A and 64 were subtype B.
- Median percentage of influenza-like illness visits to Cuyahoga County sentinel providers was 1.3% while the median was 0.6% for sentinel providers throughout Ohio.





Influenza

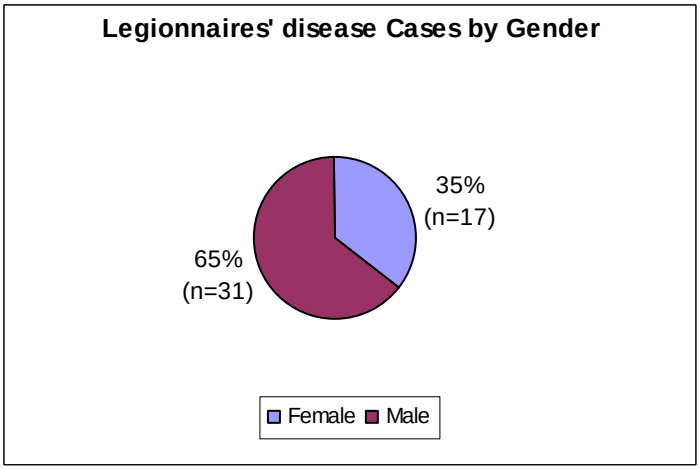

Influenza Rates by City of Residence
Cuyahoga County, 2011
N
Rate per 100,000
15.3 - 29.0
29.1 - 43.9
44.0 - 81.3
81.4 - 175.9
< 5 Cases
Public Health
Data Source:
Ohio Department of Health
Ohio Disease Reporting System
Ohio State Plane North (Feet)
January 10, 2013
0 1.25 2.5 5 Miles

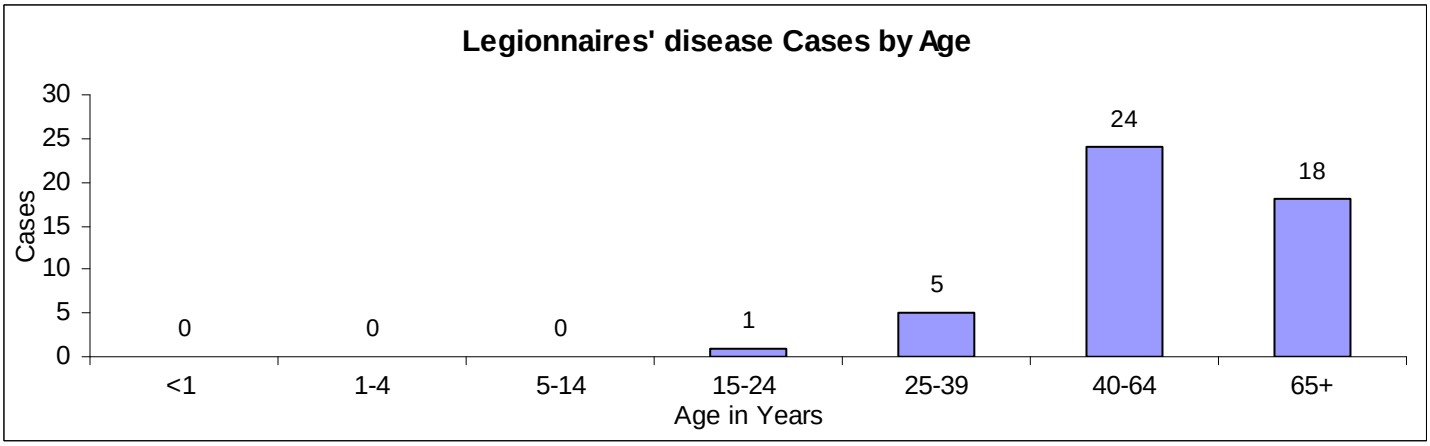
Legionnaires' disease

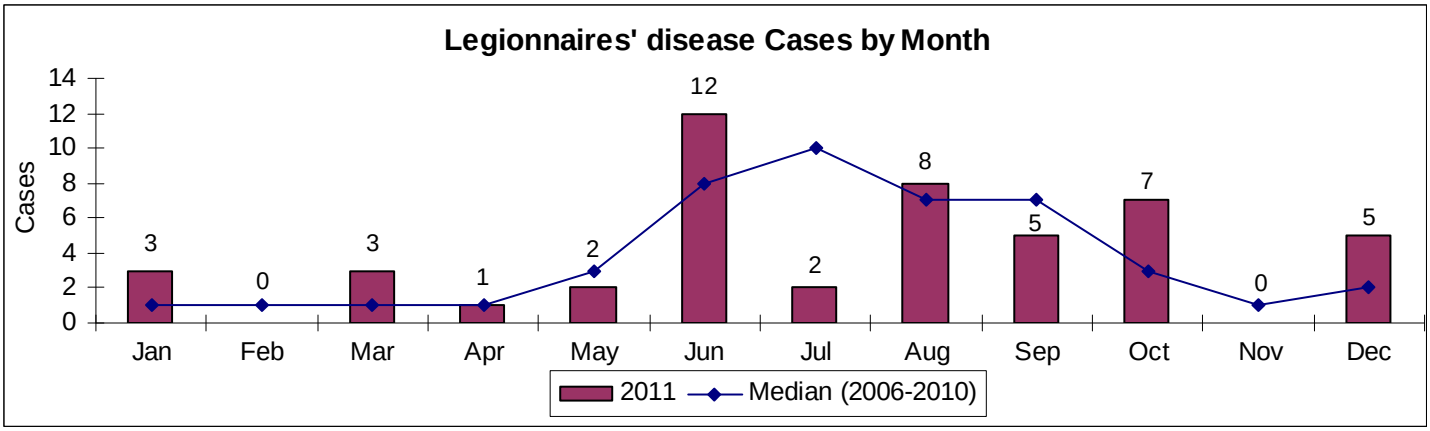
Infectious Agent: *Legionella spp*. Thirteen species have been implicated in causing human disease. The most common species causing infection is *Legionella pneumophila* serogroup 1.
Mode of Transmission: The airborne route appears to be the mode of transmission, most commonly by inhalation of aerosolized 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 48 cases of Legionnaires' disease reported in 2011 for a rate of 3.7 per 100,00.
- Forty-two of the 48 cases (88%) were 40 years of age or older.
- Peak activity occurred in the summer months which is consistent with historical trends.





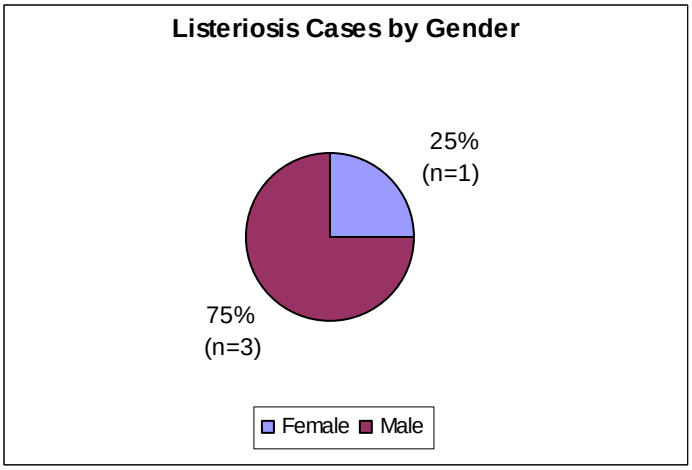


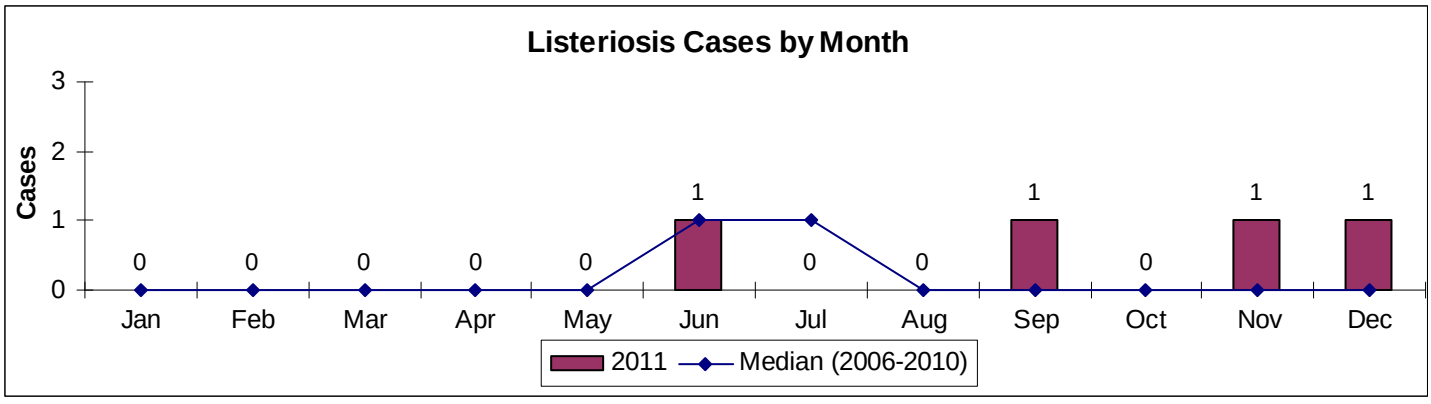
Listeriosis

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

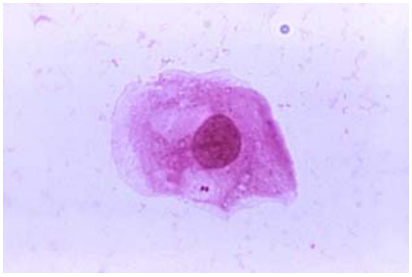
- There were 4 cases of Listeriosis reported in 2011.
- All 4 reported cases were 65 years old or older.
- Unlike previous years, the majority of cases (75%) occurred in the fall and winter months. Historical trends have shown peak activity in June and July.





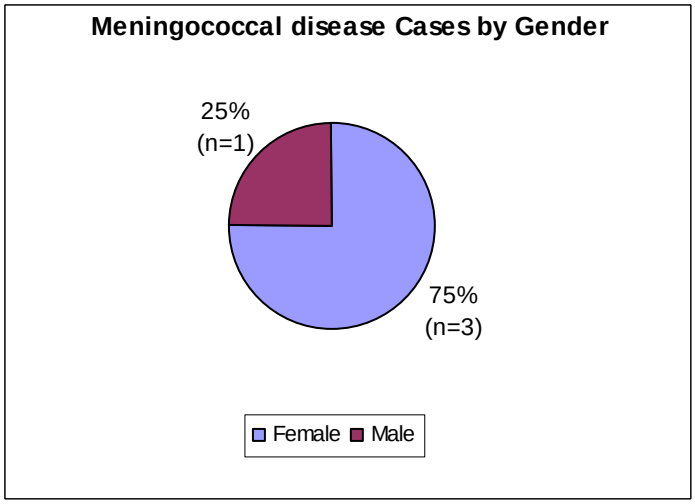
Meningococcal disease

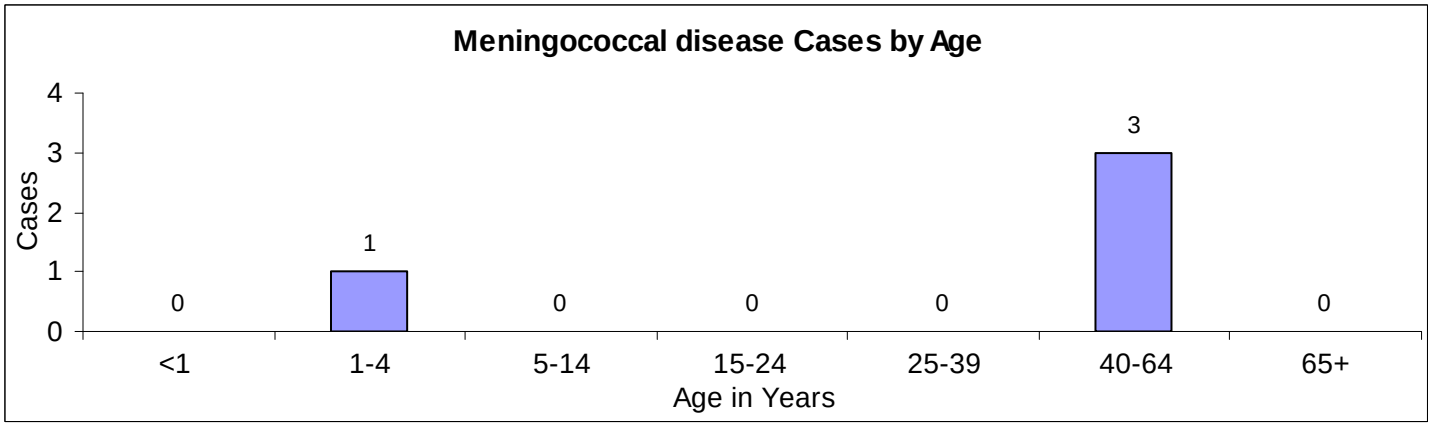
Infectious Agent: *Neisseria meningitides.* Multiple serogroups are known to cause invasive disease (i.e., A, B, C, X, Y, W-135). Serogroups B, C, and Y are the most prevalent in Ohio. Serogroup A has frequently been associated with epidemics in other parts of the world.
Mode of Transmission: Person-to-person 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.

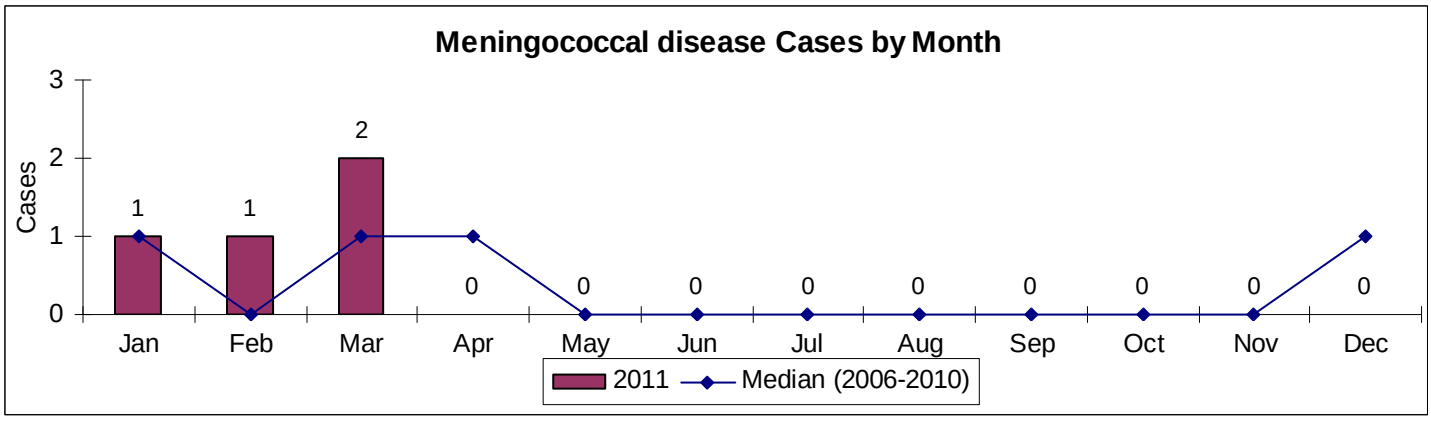


Meningococcal disease

- There were 4 cases of Meningococcal disease reported in 2011.
- Serogroup was known on all 4 cases. All were identified as Group C.





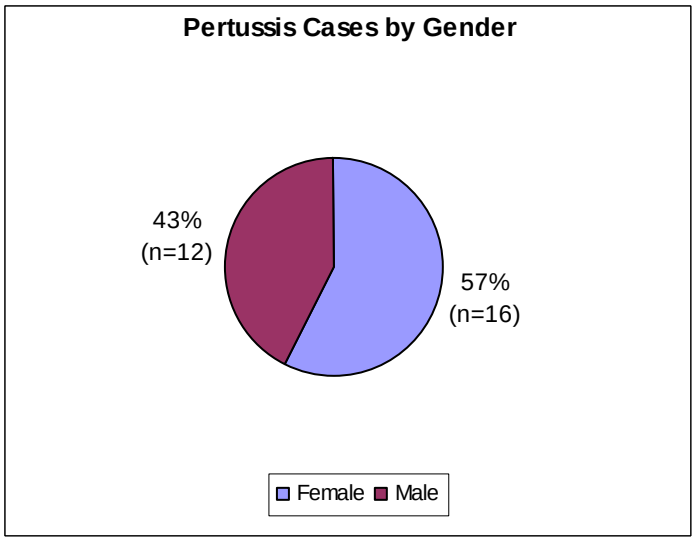


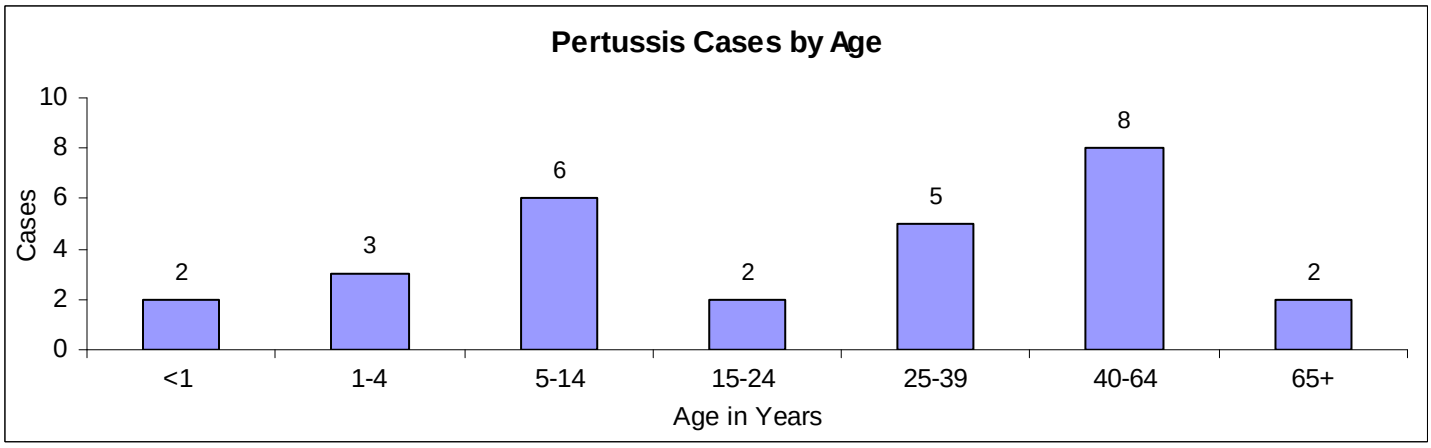
Pertussis

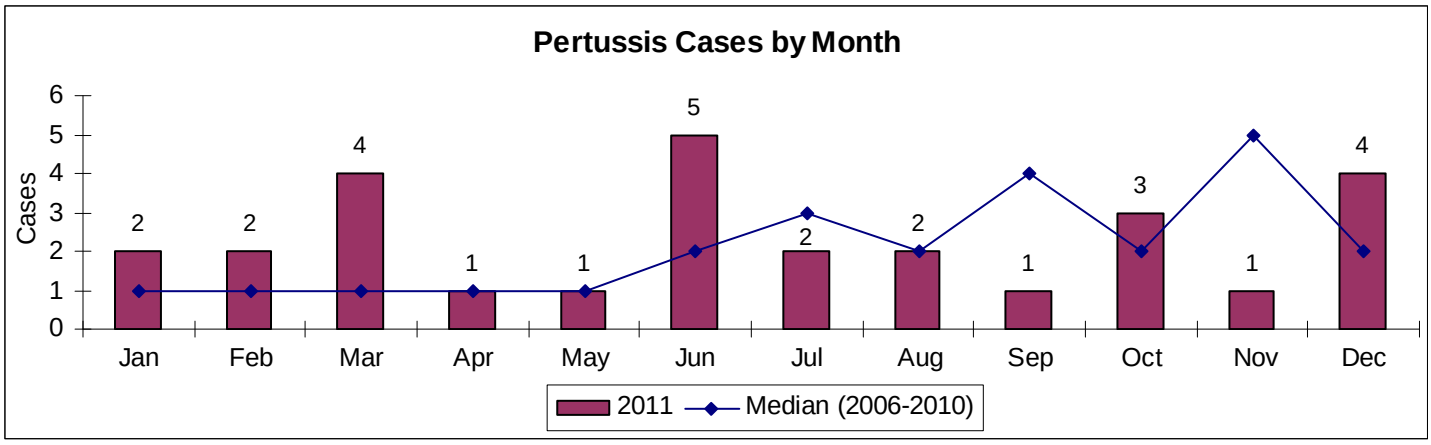
Infectious Agent: *Bordetella pertussis*. Pertussis-like syndrome can also be caused by *B. parapertussis*. Parapertussis is not reportable in Ohio.
Mode of Transmission: Pertussis is primarily spread by direct contact with the discharges from the nose and throat of infected individuals. Frequently, 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

- There were 28 cases of Pertussis reported in 2011. This translates to a rate of 2.2 per 100,000.
- Sixteen of the 28 cases (57%) were female.
- There was no seasonal variation among the reported cases in 2011.





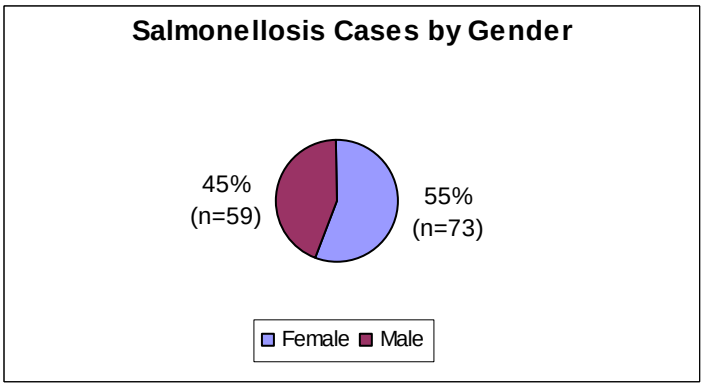


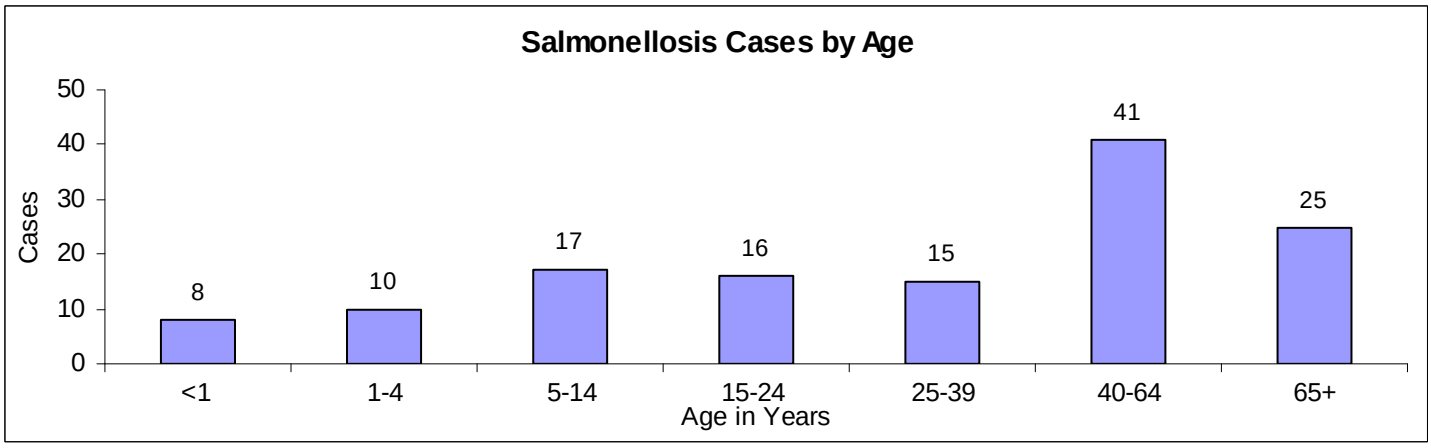
Salmonellosis

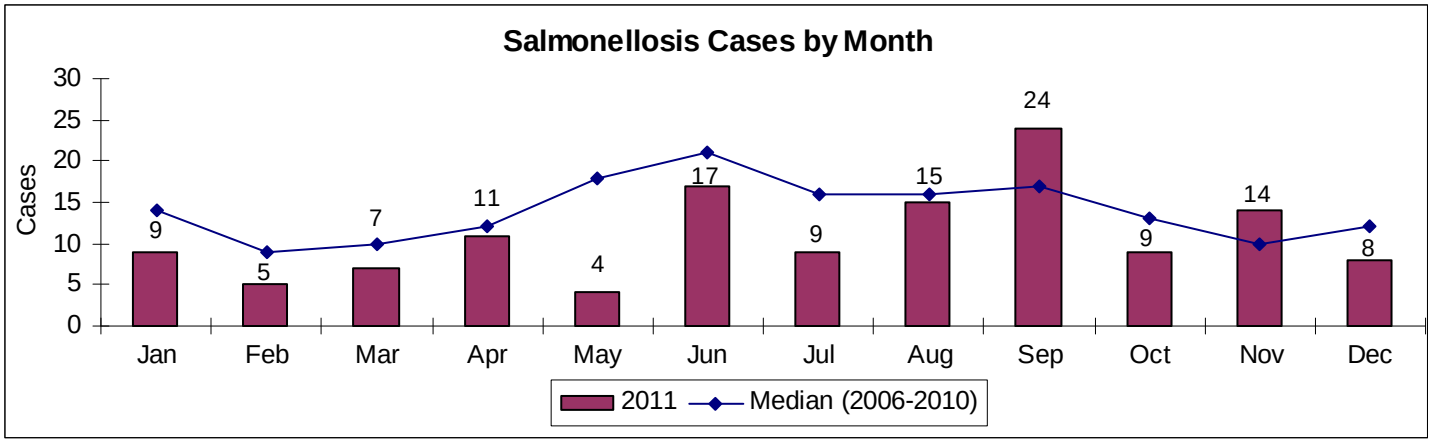
Salmonellosis

- There were 132 cases of Salmonellosis reported in 2011 for a rate of 10.3 per 100,000. This is below the Healthy People 2020 target of 11.4 per 100,000.
- Serotyping was performed at the Ohio Department of Health Laboratory on 129 cases. *S. enteritidis* was the most common serotype reported.

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.

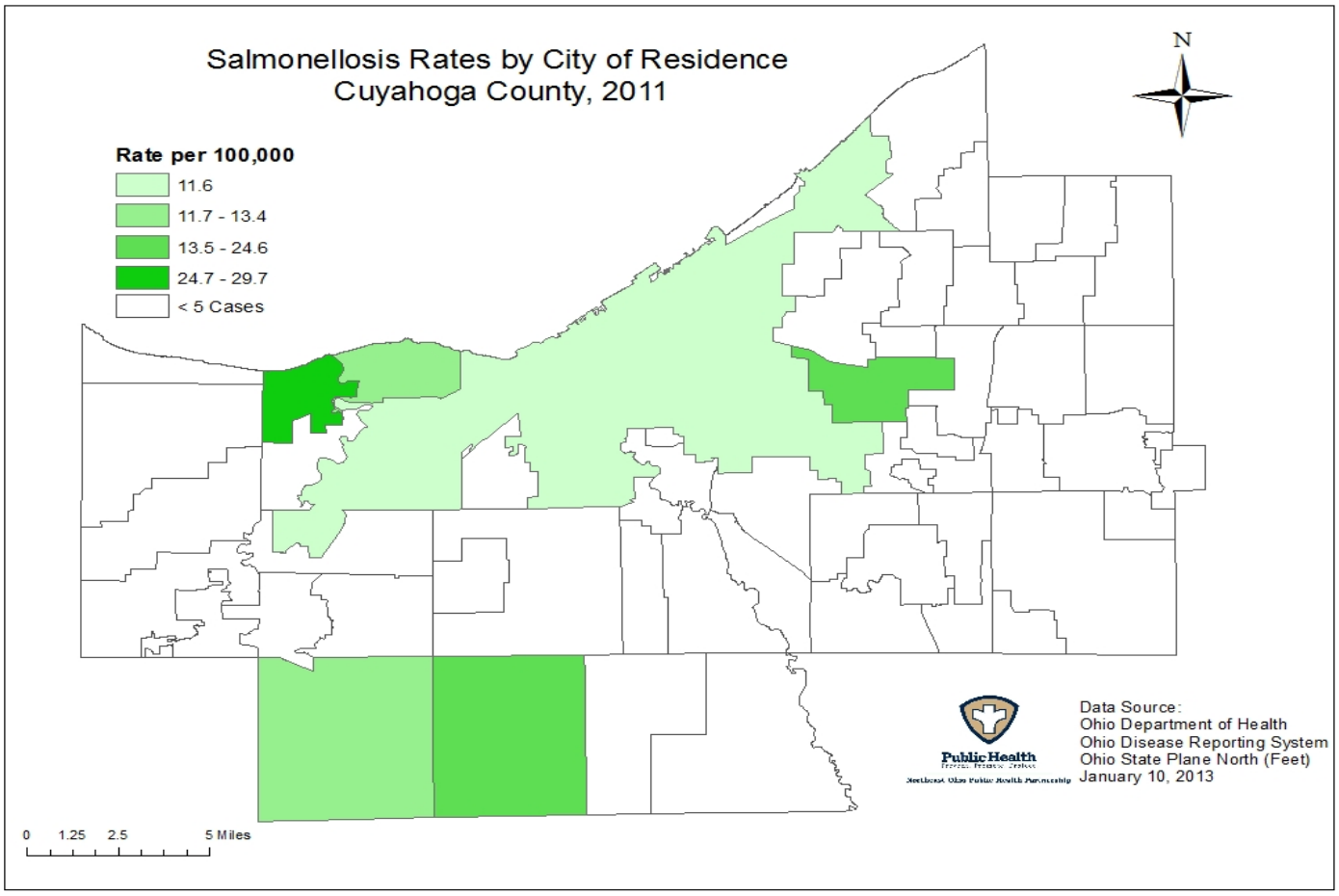






Salmonellosis

Most Frequent *Salmonella* Serotypes in Cuyahoga County among Specimens Typed at the Ohio Department of Health Laboratory, 2011 (N=129)		
Serotype	**Number of Cases**	**Percent**
Enteritidis	48	37.2%
Typhimurium	9	7.0%
Newport	8	6.2%
Typhimurium, var Copenhagen	7	5.4%
All Other	57	44.1%

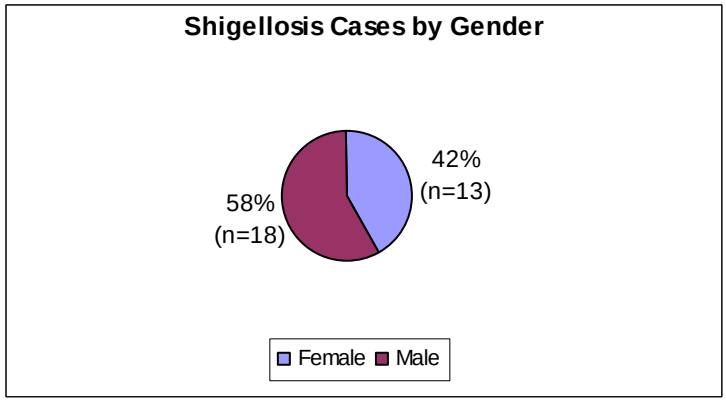


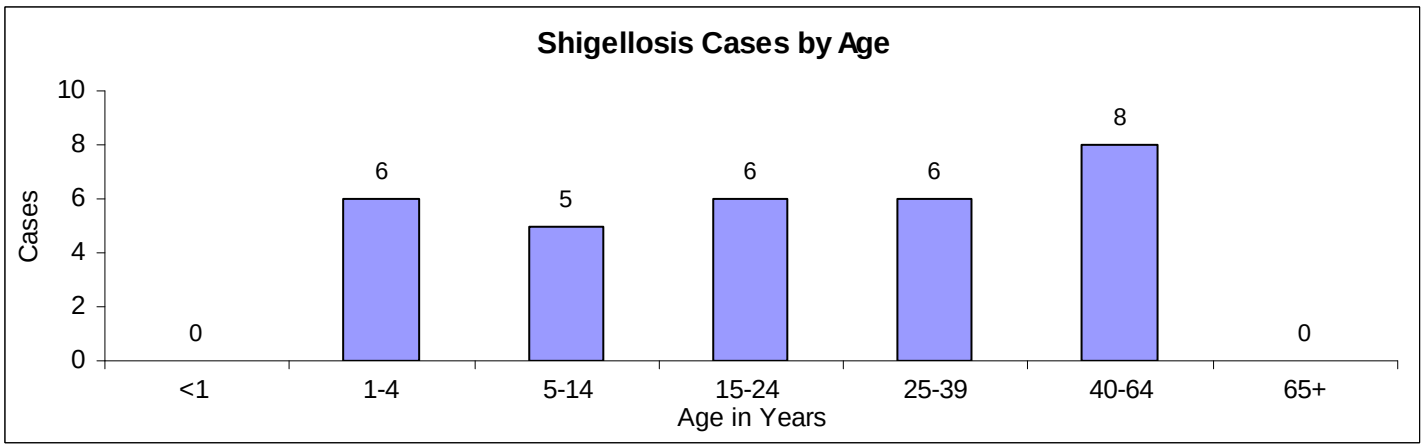
Shigellosis

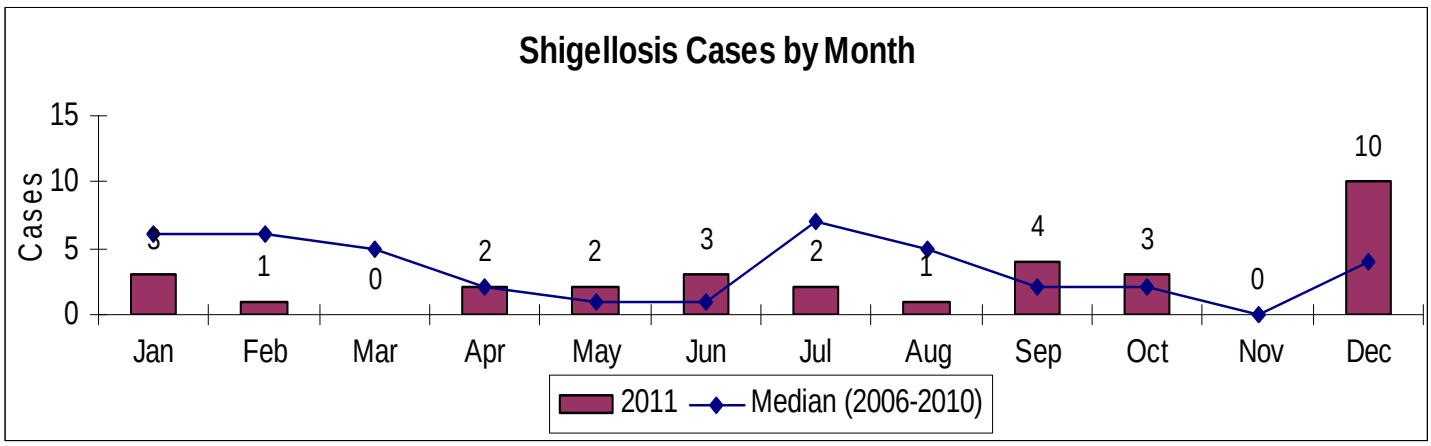
Shigellosis

- There were 31 cases of Shigellosis reported in 2011 for a rate of 2.4 per 100,000.
- In 2011 peak activity occurred in December which is not consistent with historical trends. This increase of cases marked the beginning of an outbreak of Shigellosis in the Orthodox Jewish Community which would continue into 2012.

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.



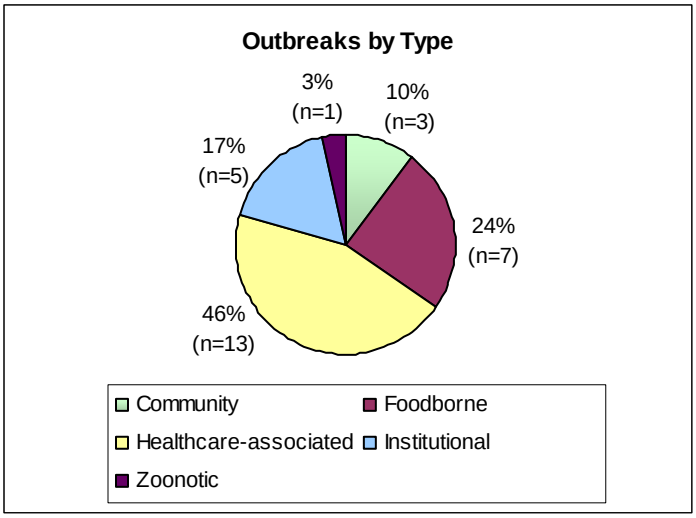


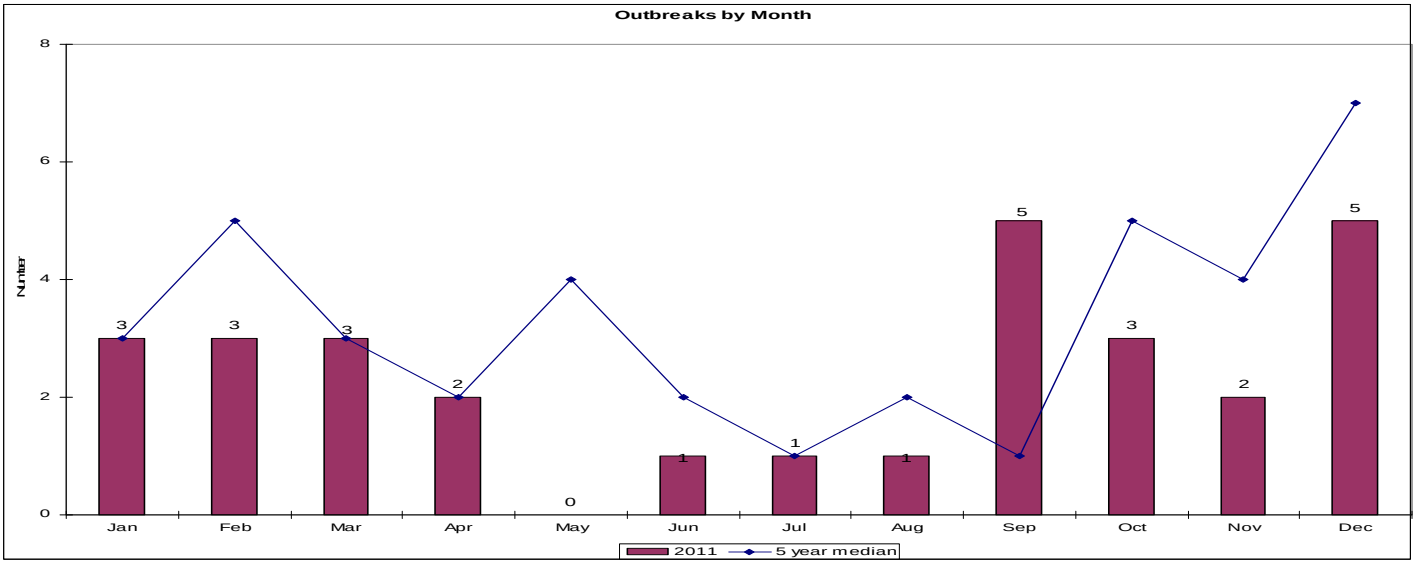


2011 Outbreaks

Outbreaks in Cuyahoga County

- In 2011, there were 29 outbreaks reported and investigated by the local public health departments in Cuyahoga County.
- Of these 29 reported outbreaks, 63% occurred in a healthcare or institutional setting.
- Scabies was the leading causative agent resulting in 28% of all reported outbreaks.
- 21% of all reported outbreaks were the result of enteric pathogens (Salmonella n=3, Shigella n=2, Campylobacter n=1).





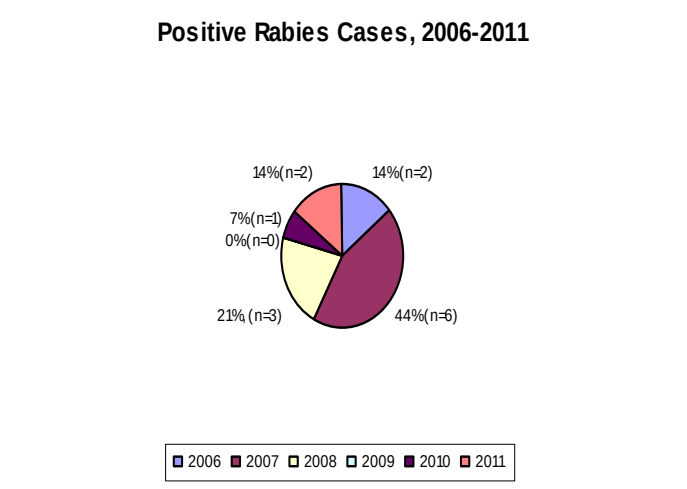
Type of Outbreak	Description
Community	Two or more cases of similar illness with a common exposure in the community and not considered a foodborne or waterborne disease outbreak.
Foodborne	The occurrence of two or more cases of a similar illness resulting from the ingestion of a food in common.
Healthcare-associated	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.

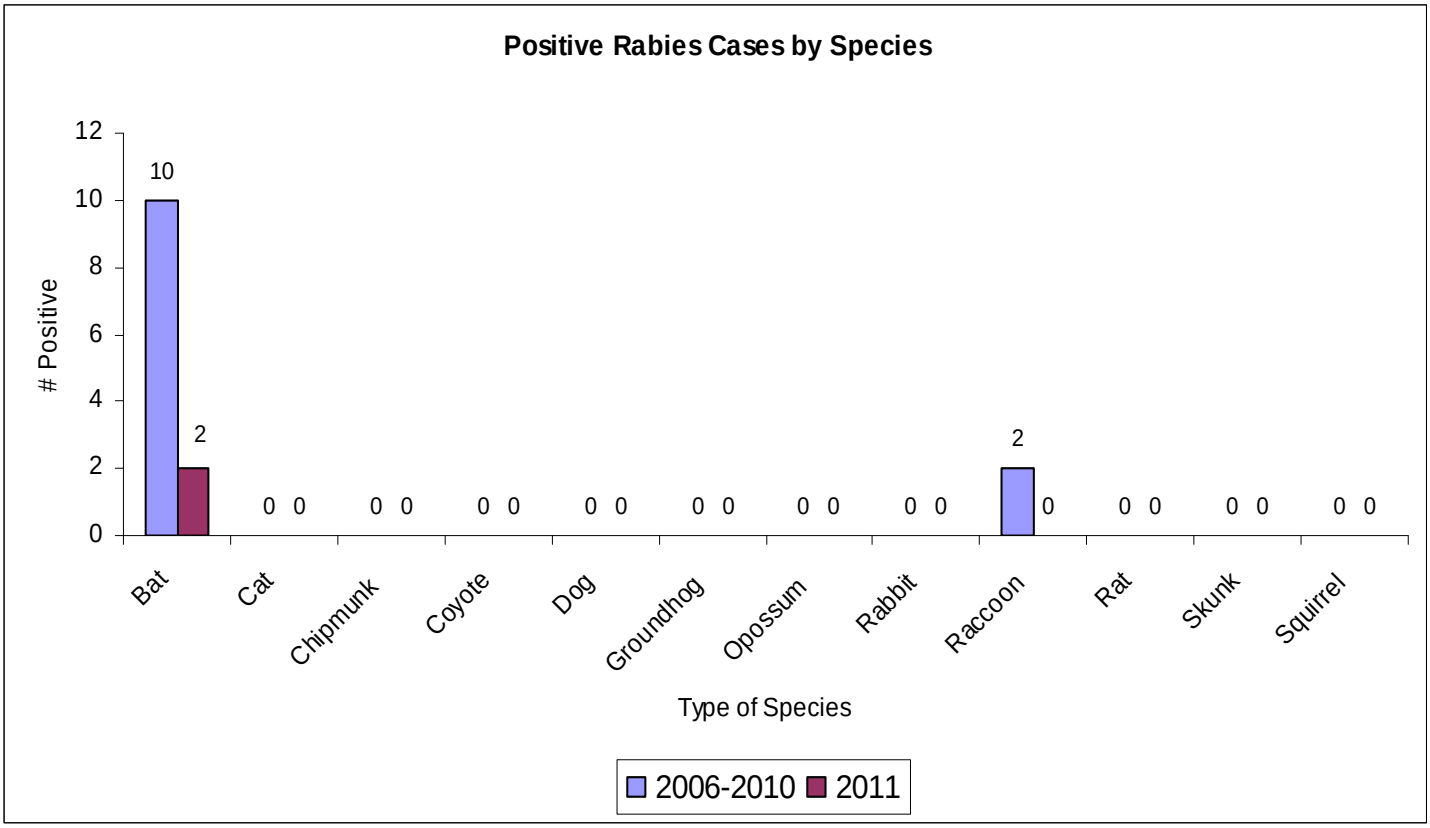
Animal Rabies Cases, Cuyahoga County, 2006-2011

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 665 animals submitted for rabies testing from 2006-2011. A total of 2% (n=14) of the animals tested positive for rabies.
- Eighty six percent (n=12) of the animals that tested positive were bats and 14% (n=2) of the animals that tested positive were raccoons.
- Two animals, both bats, tested positive for rabies in 2011. These animals were from 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.