

2016 Annual Summary of Reportable Infectious Diseases for Cuyahoga County, Ohio

Report Date: November 14, 2018

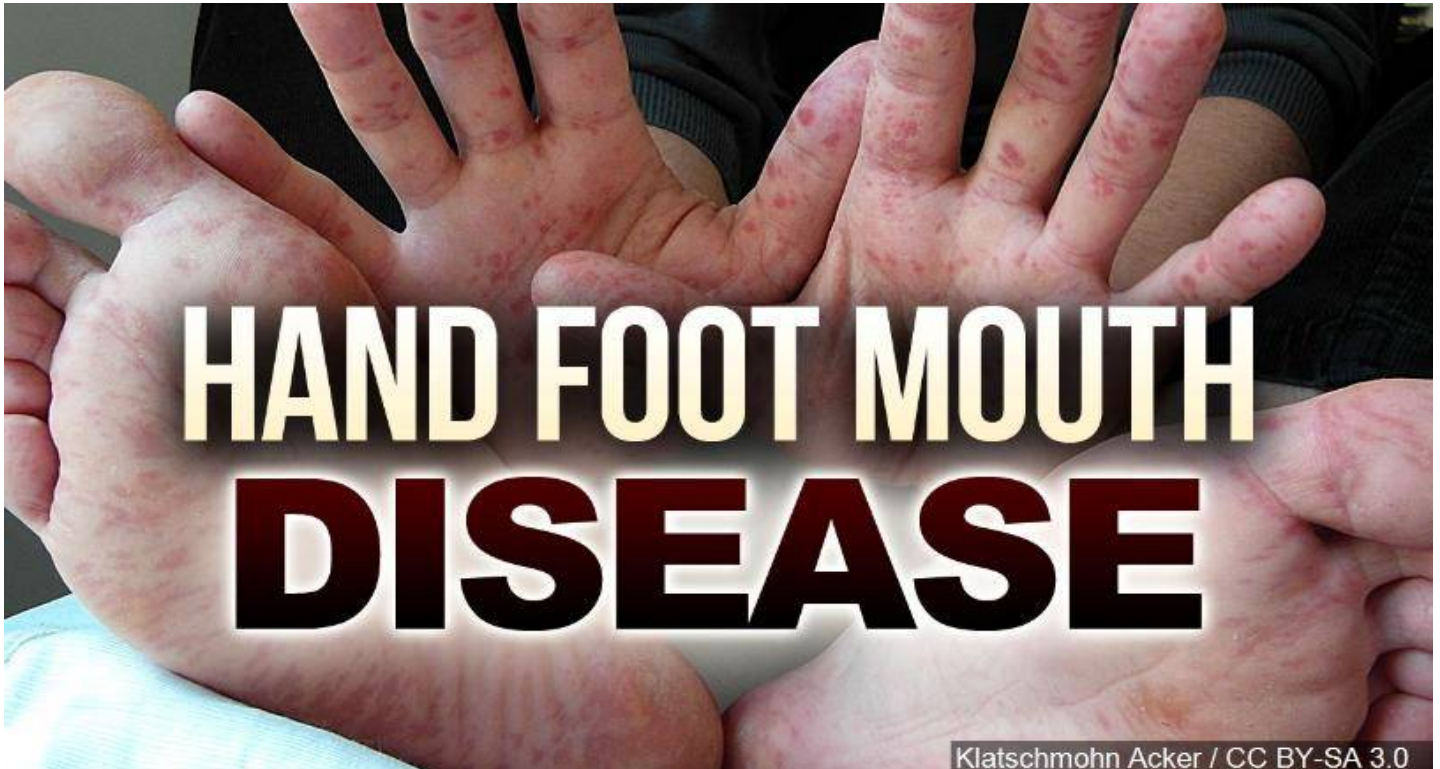


Photo Credit: <http://www.kwch.com/content/news/Wichita-experiencing-outbreak-of-hand-foot-and-mouth-disease->



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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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Electron micrographs of various microorganisms throughout this report were obtained from the Centers for Disease Control and Prevention (CDC) website <https://www.cdc.gov>.

About the Cover

Hand, foot, and mouth disease (HFMD) is a common viral illness that usually affects infants and children under the age of 5. However, it can sometimes occur in older children and adults. Symptoms typically include fever and painful sores in the mouth and on the palms of the hands and soles of the feet. A skin rash may also appear on the knees, elbows, buttocks, or genital area. Most people recover in 1-2 weeks.

HFMD is caused by several different viruses that belong to the Enterovirus genus group. HFMD can be transmitted from person-to-person through multiple exposure routes - close personal contact, the air (through coughing or sneezing), contact with feces, or contaminated objects and surfaces. Generally, a person with HFMD is most contagious during the first week of illness. However, people can sometimes be contagious for days or weeks after symptoms go away. Thorough and frequent handwashing with soap and water is the best way to prevent transmission. There is no specific treatment for HFMD. Over-the-counter medications to reduce fever and relieve pain is often recommended.

Outbreaks of HFMD are very common in childcare centers. This is because of frequent diaper changes and toilet training. Additionally, the virus spreads when little children put toys, hands, etc. in their mouths. Outbreaks of the disease are more common in the summer and fall months in the United States.

In 2016, there were 36 outbreaks reported and investigated by the local public health departments in Cuyahoga County. HFMD represented 39% (n=14) of all reported outbreaks. Of these 14 HFMD outbreaks, 10 (71%) occurred in childcare centers. While HFMD is most common in children under 5 years of age, 4 of the reported outbreaks that occurred in Cuyahoga County in 2016 were in school-aged children.

For more information, please visit the Centers for Disease Control and Prevention (CDC) website at <https://www.cdc.gov/hand-foot-mouth/index.html>.

Source: Centers for Disease Control and Prevention

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Introduction

The 2016 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 2016.

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 eighth 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 July 1, 2014. 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 2010-2014 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 2015 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 Trichinellosis were not included in the tables due to the fact that there were not any reported cases in the previous 5 years.

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/diss/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.

Methods and Limitations

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, 2011-2016

Table 1. General Infectious Diseases	2011		2012		2013		2014		2015		Median		Mean		2016	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Aseptic Meningitis	116	9.1	73	5.8	57	4.5	33	2.6	57	4.5	57	4.5	67	5.3	50	4.0
Coccidioidomycosis	0	**	0	**	0	**	0	**	0	**	0	**	0	**	2	**
Creutzfeldt-Jakob disease (CJD)	0	**	2	**	1	**	1	**	1	**	1	**	1	**	0	**
Haemophilus influenzae, invasive	12	0.9	10	0.8	17	1.3	16	1.3	15	1.2	15	1.2	14	1.1	29	2.3
Legionnaires' disease	48	3.8	57	4.5	73	5.8	64	5.1	106	8.4	64	5.1	70	5.5	79	6.3
Meningitis, bacterial (non-Neisseria)	6	0.5	6	0.5	3	**	7	0.6	3	**	6	0.5	5	0.4	11	0.9
Streptococcal disease, Group A, invasive	34	2.7	27	2.1	24	1.9	42	3.3	51	4.1	34	2.7	36	2.8	73	5.8
Streptococcal disease, Group B, newborn	17	1.3	18	1.4	13	1.0	14	1.1	12	1.0	14	1.1	15	1.2	15	1.2
Streptococcal Toxic Shock Syndrome	0	**	0	**	1	**	2	**	2	**	1	**	1	**	0	**
Streptococcus pneumoniae, invasive disease, non-resistant or unknown resistance	70	5.5	62	4.9	74	5.9	58	4.6	56	4.5	62	4.9	64	5.1	53	4.2
Streptococcus pneumoniae, invasive disease, resistant	32	2.5	21	1.7	26	2.1	28	2.2	24	1.9	26	2.1	26	2.1	40	3.2
Toxic Shock Syndrome	0	**	0	**	0	**	0	**	0	**	0	**	0	**	0	**
Staphylococcus aureus, with intermediate resistance to vancomycin (VISA)	0	**	0	**	0	**	3	**	2	**	0	**	1	**	2	**

Table 2. Hepatitis	2011		2012		2013		2014		2015		Median		Mean		2016	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Hepatitis A	4	**	0	**	6	0.5	4	**	5	0.4	4	**	4	**	1	**
Hepatitis B, acute	18	1.4	12	0.9	11	0.9	16	1.3	9	0.7	12	1.0	13	1.0	7	0.6
Hepatitis B, chronic	165	13.0	172	13.6	113	8.9	140	11.1	230	18.3	165	13.1	164	13.0	227	18.2
Hepatitis C, acute	9	0.7	6	0.5	2	**	4	**	5	0.4	5	0.4	5	0.4	6	0.5
Hepatitis C, chronic	743	58.5	601	47.5	862	68.2	1001	79.5	1117	88.9	862	68.2	865	68.5	2055	164.5
Hepatitis E	0	**	0	**	0	**	0	**	0	**	0	**	0	**	1	**

Selected Reportable Infectious Diseases by Year of Onset, Cuyahoga County, 2011-2016

Table 3.

Enteric Diseases	2011		2012		2013		2014		2015		Median		Mean		2016	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Amebiasis	0	**	1	**	0	**	0	**	2	**	0	**	1	**	4	**
Botulism, foodborne	0	**	0	**	0	**	0	**	0	**	0	**	0	**	0	**
Campylobacteriosis	151	11.9	136	10.8	64	5.1	62	4.9	254	20.2	136	10.8	133	10.6	221	17.7
Cryptosporidiosis	9	0.7	6	0.5	13	1.0	23	1.8	18	1.4	13	1.0	14	1.1	19	1.5
Cyclosporiasis	0	**	0	**	0	**	0	**	0	**	0	**	0	**	0	**
<i>E. coli</i> O157:H7 and other enterohemorrhagic	9	0.7	16	1.3	23	1.8	14	1.1	20	1.6	16	1.3	16	1.3	12	1.0
Giardiasis	110	8.7	59	4.7	51	4.0	39	3.1	36	2.9	51	4.0	59	4.7	41	3.3
Hemolytic uremic syndrome (HUS)	0	**	0	**	0	**	0	**	0	**	0	**	0	**	0	**
Listeriosis	4	**	3	**	5	0.4	2	**	5	0.4	4	**	4	**	6	0.5
Salmonellosis	132	10.4	133	10.5	109	8.6	123	9.8	138	11.0	132	10.5	127	10.1	153	12.2
Shigellosis	30	2.4	53	4.2	43	3.4	232	18.4	59	4.7	53	4.2	83	6.6	23	1.8
Typhoid Fever	0	**	0	**	3	**	1	**	1	**	1	**	1	**	3	**
Vibriosis, other (not cholera)	3	**	1	**	1	**	4	**	5	0.4	3	**	3	**	0	**
Yersiniosis	4	**	2	**	4	**	6	0.5	6	0.5	4	**	4	**	8	0.6

Table 4.

Vaccine Preventable Diseases	2011		2012		2013		2014		2015		Median		Mean		2016	
	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	**	0	**
Influenza-associated hospitalization	505	39.8	517	40.9	1002	79.3	1422	112.9	500	39.8	517	40.9	789	62.5	689	55.1
Influenza-associated pediatric mortality	0	**	0	**	0	**	0	**	0	**	0	**	0	**	0	**
Meningococcal disease	4	**	4	**	0	**	1	**	0	**	1	**	2	**	1	**
Mumps	9	0.7	6	0.5	3	**	24	1.9	5	0.4	6	0.5	9	0.7	7	0.6
Pertussis	29	2.3	48	3.8	24	1.9	30	2.4	14	1.1	29	2.3	29	2.3	16	1.3
Varicella	78	6.1	54	4.3	50	4.0	31	2.5	34	2.7	50	4.0	49	3.9	32	2.6

Table 5.

Zoonotic Diseases	2011		2012		2013		2014		2015		Median		Mean		2016	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Arboviral	8	0.6	29	2.3	5	0.4	14	1.1	9	0.7	9	0.7	13	1.0	5	0.4
Brucellosis	0	**	0	**	0	**	0	**	0	**	0	**	0	**	0	**
Dengue	0	**	3	**	1	**	1	**	1	**	1	**	1	**	2	**
Lyme disease	10	0.8	26	2.1	21	1.7	28	2.2	38	3.0	26	2.1	25	1.9	44	3.5
Malaria	2	**	4	**	3	**	6	0.5	4	**	4	**	4	**	6	0.5
Rocky Mountain Spotted Fever (RMSF)	0	**	3	**	1	**	1	**	0	**	1	**	1	**	4	**

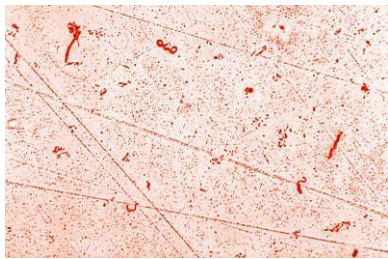
Campylobacteriosis

Infectious Agent: *Campylobacter jejuni* and less commonly, *C. coli* are the usual causes of Campylobacter diarrhea in humans. Other *Campylobacter* 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

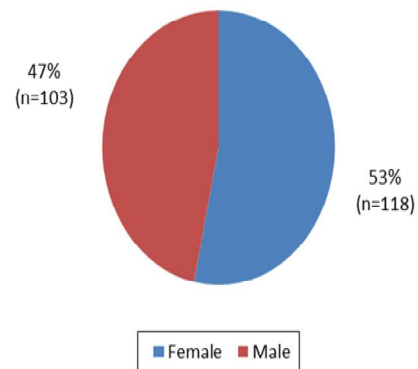
Symptoms: Fever, headache, myalgia, malaise, diarrhea (may contain blood or mucus), vomiting, nausea, and abdominal cramps.



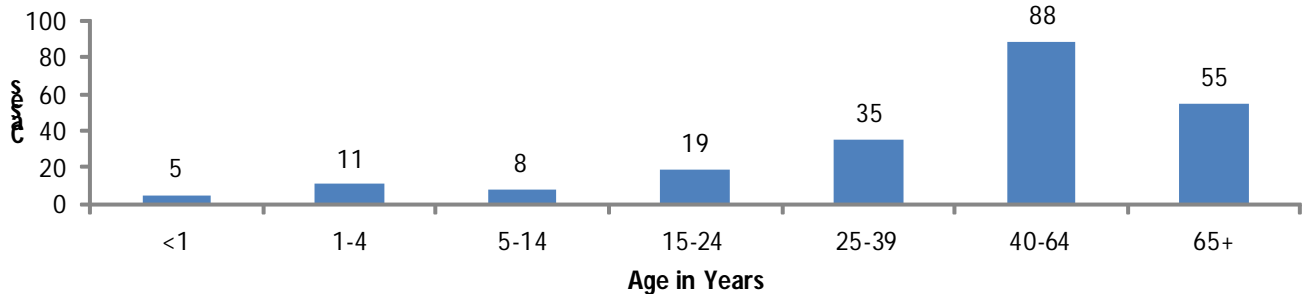
Campylobacteriosis

- There were 221 cases of Campylobacteriosis reported in 2016 for a rate of 17.7 per 100,000. The Healthy People 2020 target is 8.5 per 100,000.
- Fifty-one percent of the cases occurred in the spring and summer months which is representative of the summer cook-out season.

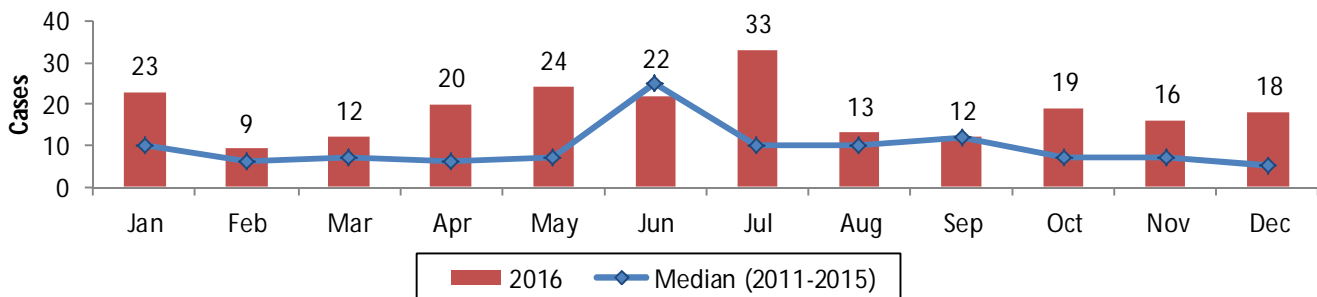
Campylobacteriosis Cases by Gender



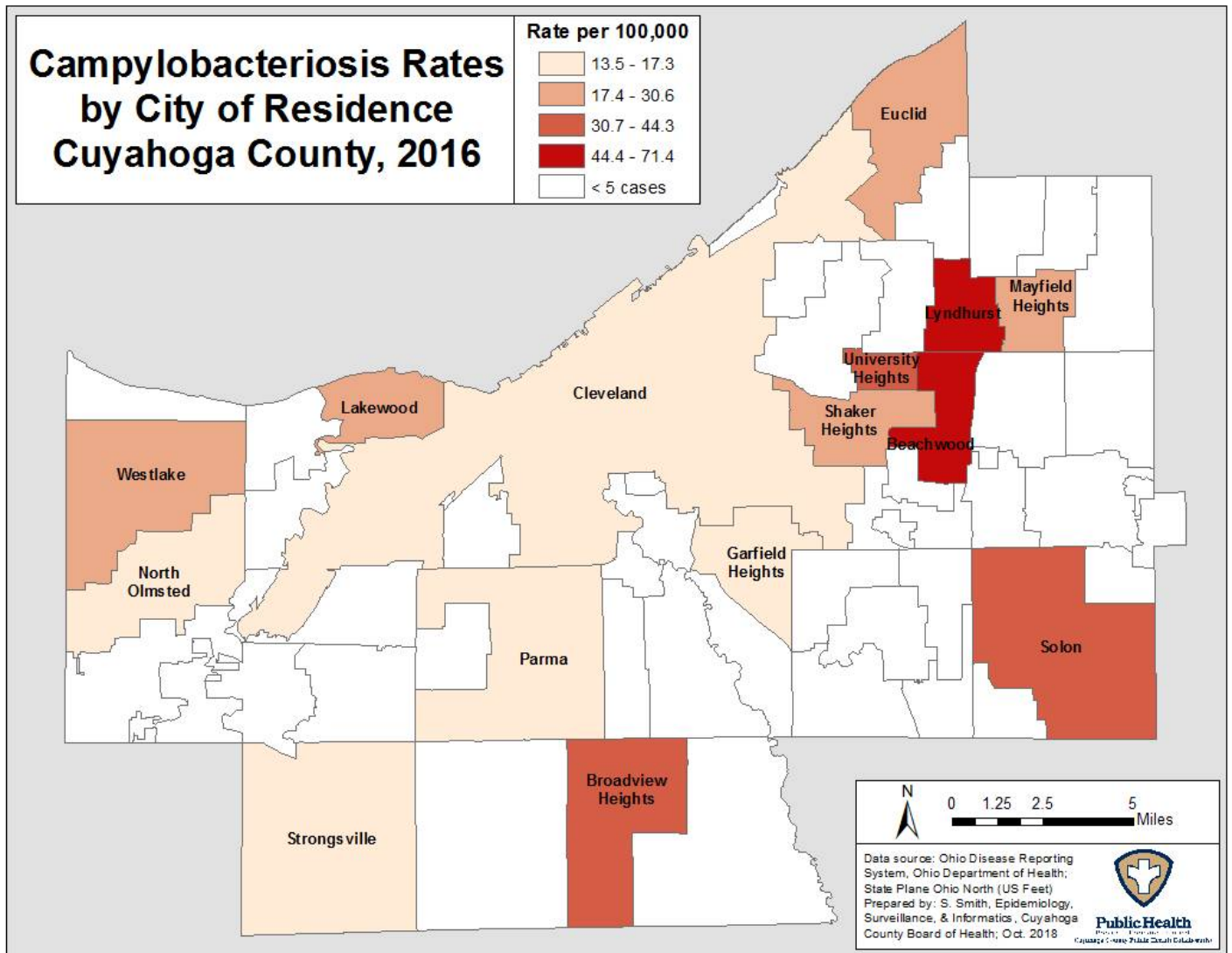
Campylobacteriosis Cases by Age



Campylobacteriosis Cases by Month



Campylobacteriosis



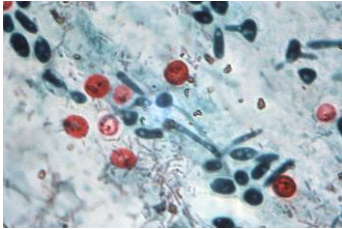
Cryptosporidiosis

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

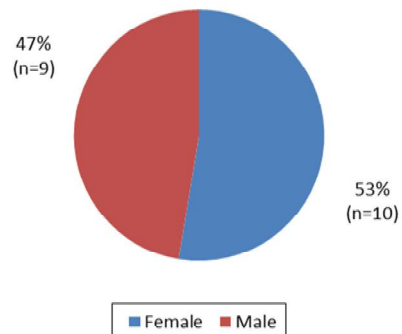
Symptoms: Watery diarrhea which may contain mucus often accompanied with abdominal pain. Less common symptoms include malaise, low-grade fever, anorexia, nausea, and vomiting.



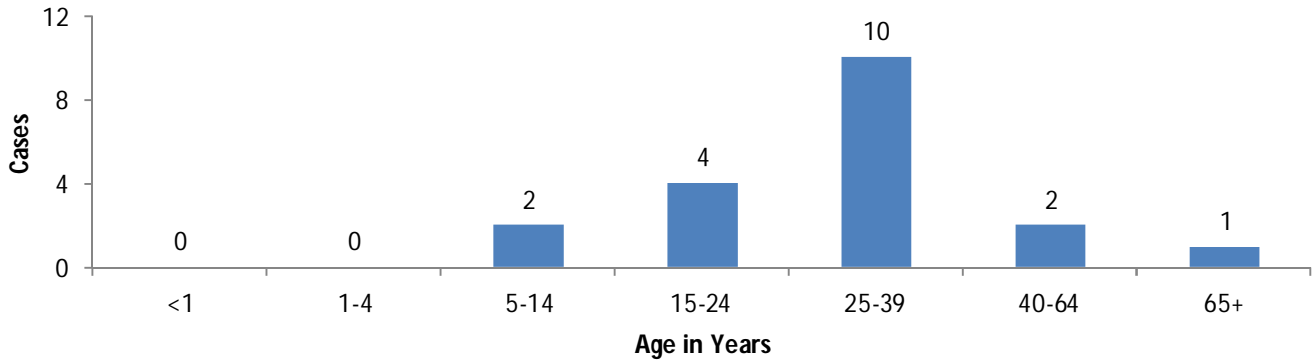
Cryptosporidiosis

- In 2016 there were 19 cases of Cryptosporidiosis reported in Cuyahoga County. This translates to a rate of 1.5 per 100,000.

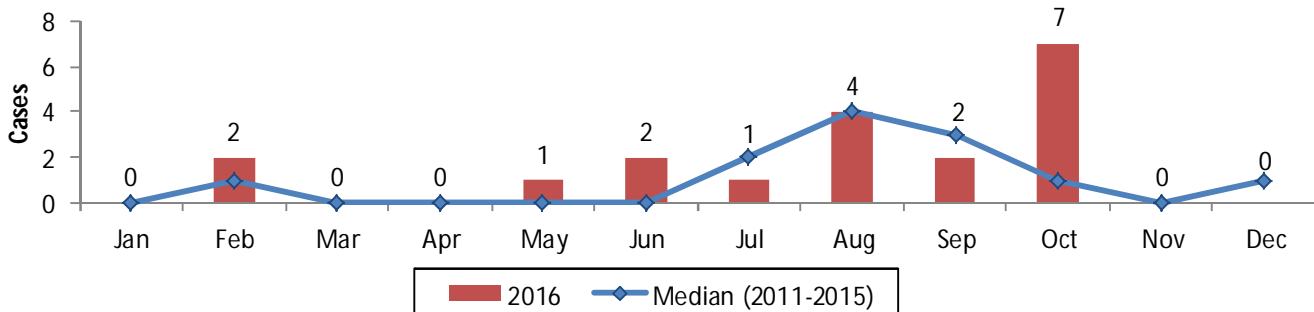
Cryptosporidiosis Cases by Gender



Cryptosporidiosis Cases by Age



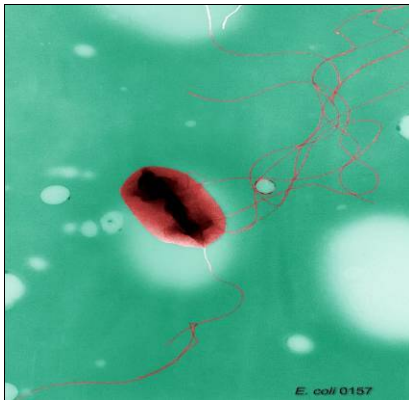
Cryptosporidiosis Cases by Month



Escherichia coli (E.coli) O157:H7 and Shiga toxin-producing

Shiga toxin-producing *E. coli*

- There were 12 cases of *E. coli* reported in 2016 for a rate of 1.0 per 100,000. The Healthy People 2020 target is 0.6 per 100,000.



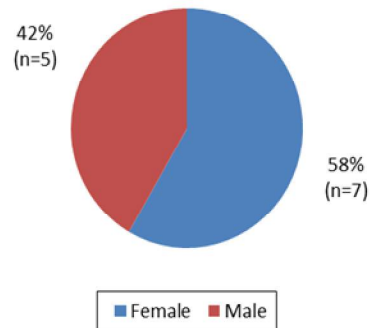
Infectious Agent: *E. coli* O157:H7 and other Shiga toxin-producing strains.

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.

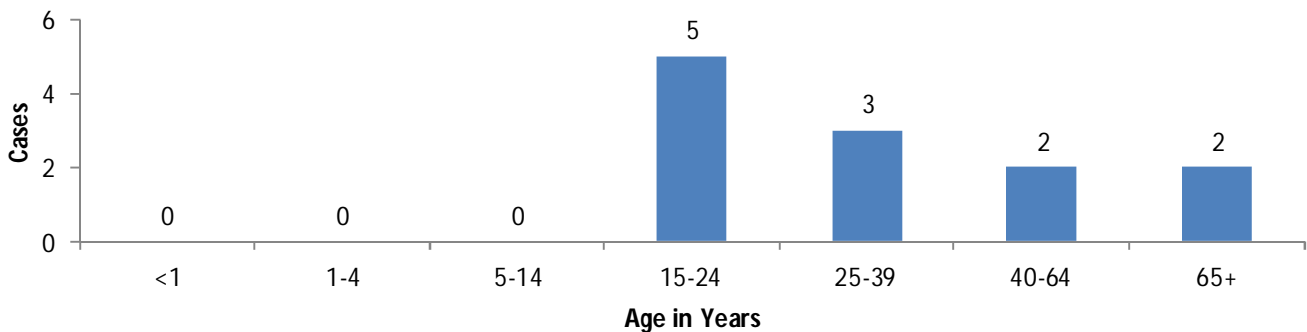
Incubation Period: 10 hours - 8 days, usually 3-4 days

Symptoms: One may be asymptomatic or have diarrhea ranging from mild to severe.

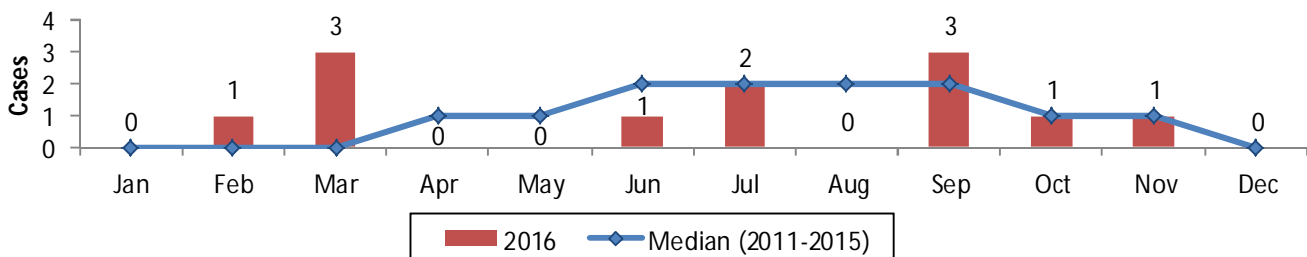
E. coli O157:H7 and Shiga Toxin-producing Cases by Gender



E. coli O157:H7 and Shiga Toxin-producing Cases by Age

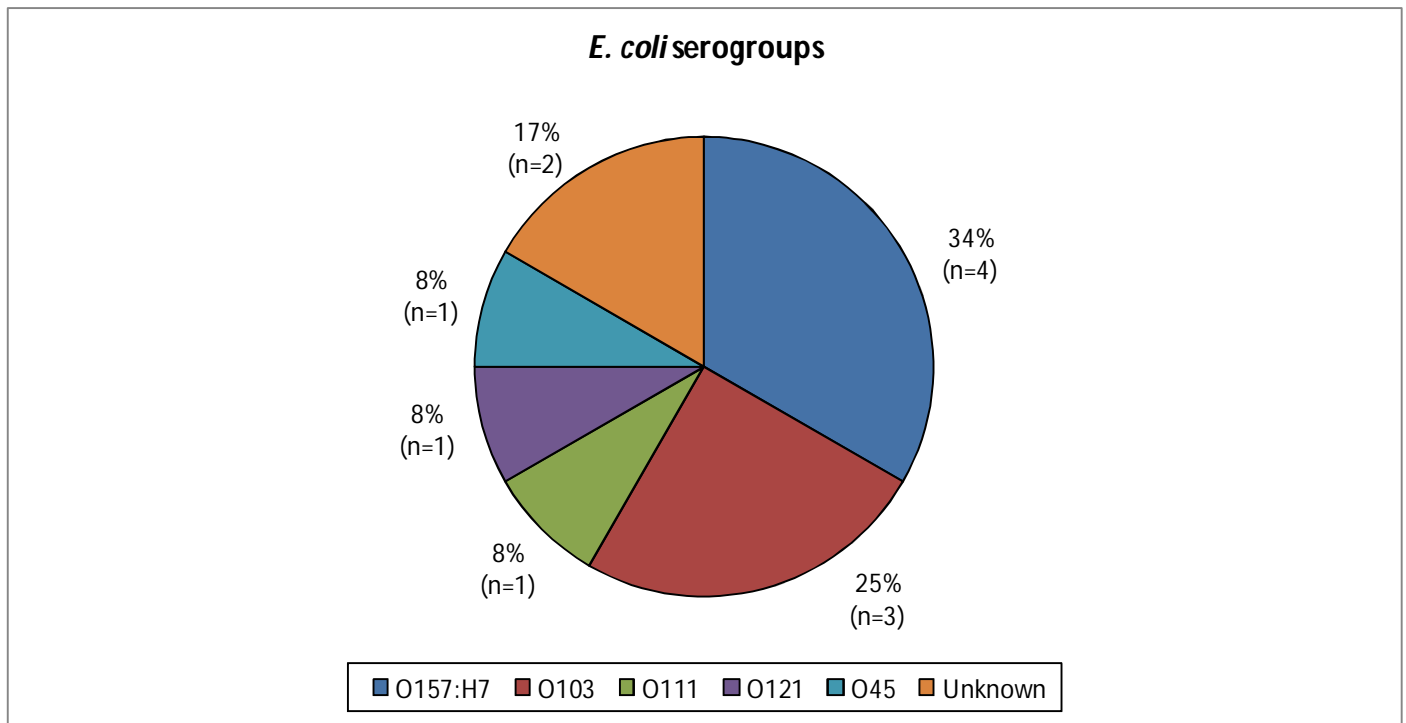


E. coli O157:H7 and Shiga Toxin-producing Cases by Month



Escherichia coli (*E.coli*) O157:H7 and Shiga toxin-producing

E. coli Serogroups in Cuyahoga County Among All Specimens, 2016 (N=12)



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 known as the “Gang of Six”, are O26, O111, O103, O45, O121, and O145.

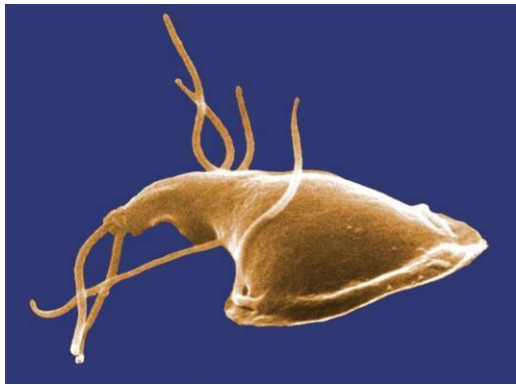
Studies in some states have shown that the prevalence of non-O157 STEC isolates is greater than or equal to that of *E. coli* O157:H7.

Over the past several years, there has been an increase in the number of non-O157 STEC strains reported in Cuyahoga County. 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. Since 2012, non-O157 STEC strains have become increasingly more prevalent in Cuyahoga County accounting for more than 50% of Shiga-toxin producing *E. coli* cases reported.

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

Giardiasis

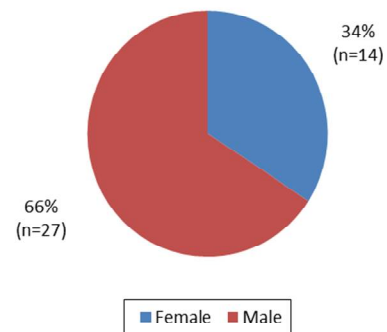
Infectious Agent: *Giardia lamblia*, a protozoan
Mode of Transmission: Person-to-person transmission via the fecal-oral route. Transmission may also occur from contaminated food or water.
Incubation Period: 3-25 days, usually 7-10 days
Symptoms: One may be asymptomatic. Illness may cause chronic diarrhea,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



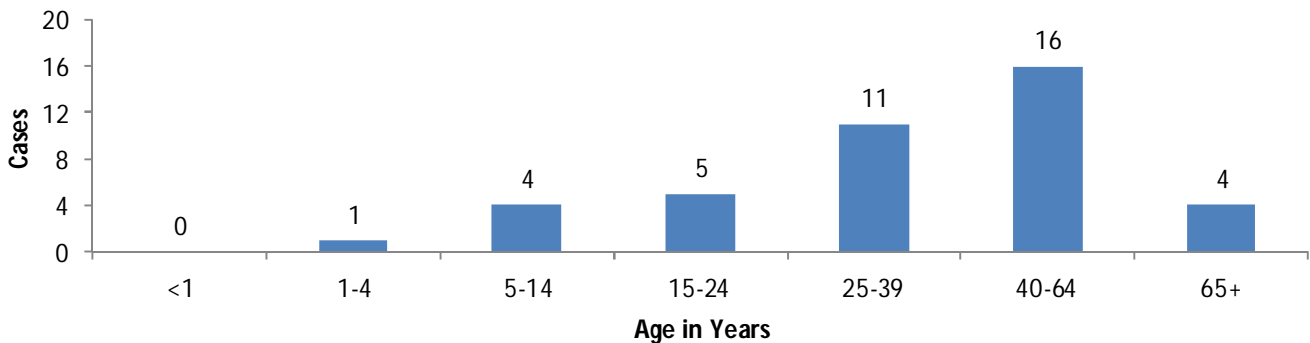
Giardiasis

- In 2016 there were 41 cases of Giardiasis reported in Cuyahoga County. This translates to a rate of 3.3 per 100,000.

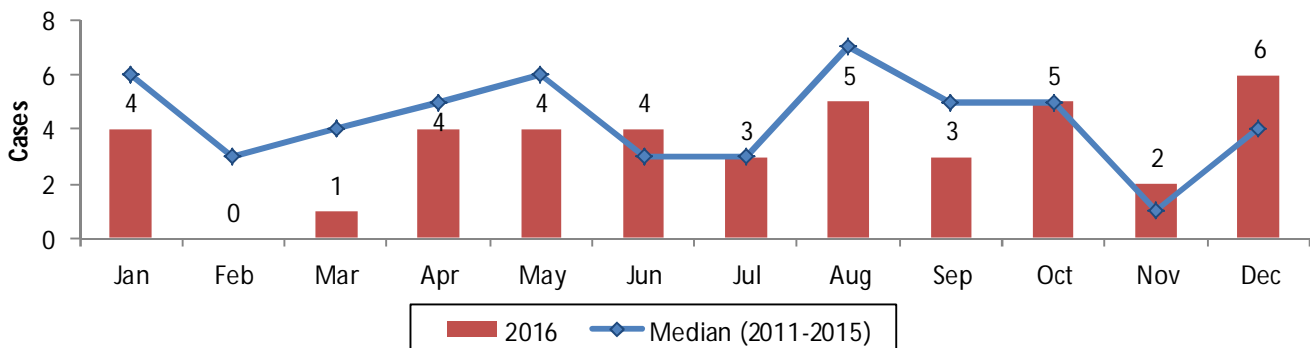
Giardiasis Cases by Gender



Giardiasis Cases by Age



Giardiasis Cases by Month



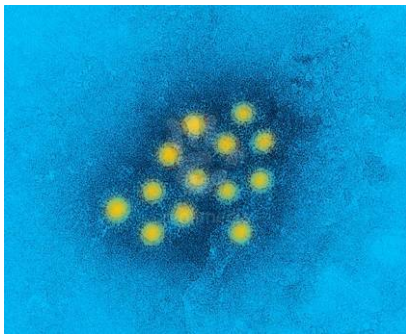
Hepatitis A

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.

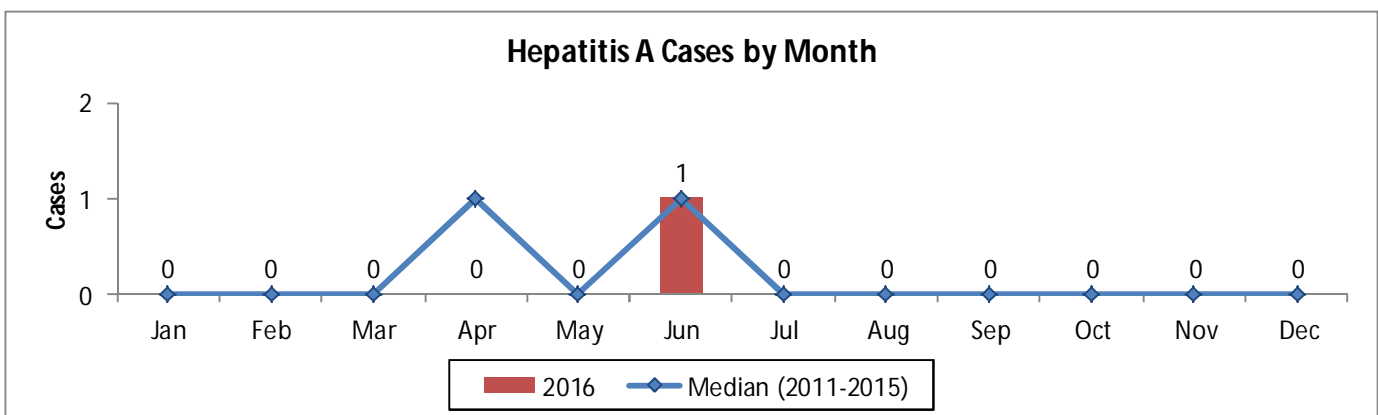


Hepatitis A

- In 2016 there was 1 case of Hepatitis A reported in Cuyahoga County.

Hepatitis A Cases by Gender pie chart intentionally removed from this report.

Hepatitis A Cases by Age bar graph intentionally removed from this report.



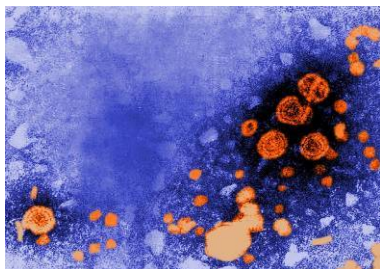
Hepatitis B, acute

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

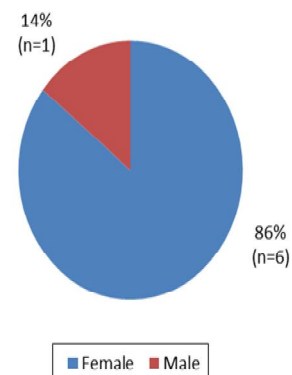
Symptoms: Fever, anorexia, malaise, nausea, vomiting, abdominal pain, and jaundice. There may also be occurrences of skin rashes, arthralgia, and arthritis.



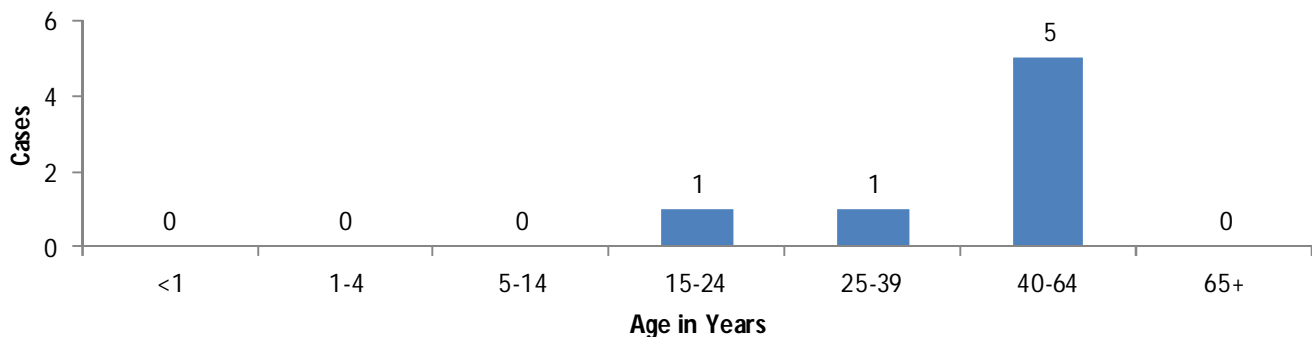
Hepatitis B, acute

- There were 7 cases of acute Hepatitis B reported in Cuyahoga County in 2016. This translates to a rate of 0.6 per 100,000.
- The majority of the cases (86%) were female.

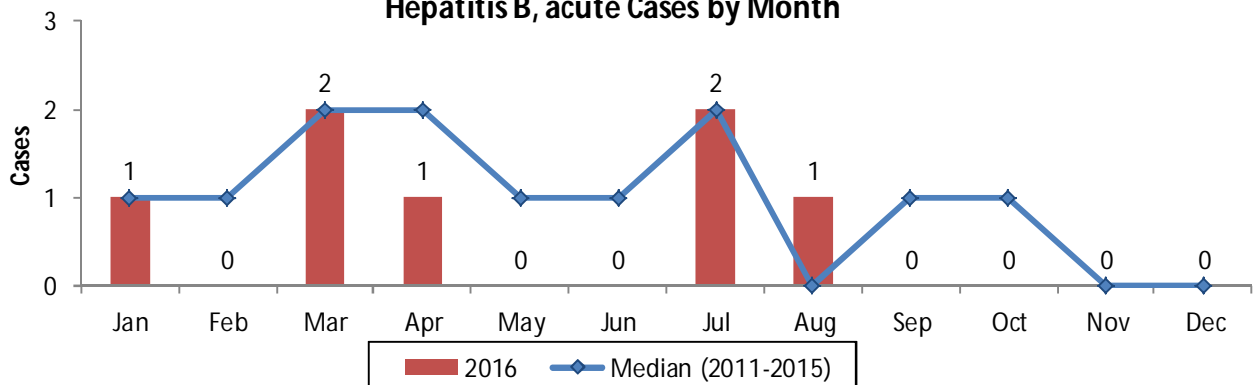
Hepatitis B, acute Cases by Gender



Hepatitis B, acute Cases by Age



Hepatitis B, acute Cases by Month



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.

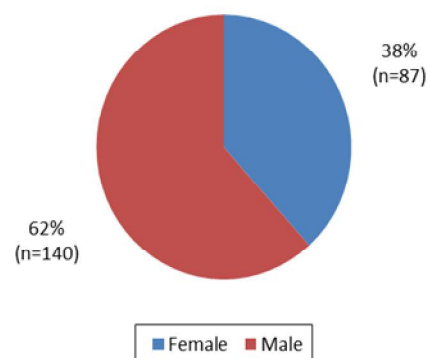
Incubation Period: 6 weeks - 6 months, usually 3-4 months

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.

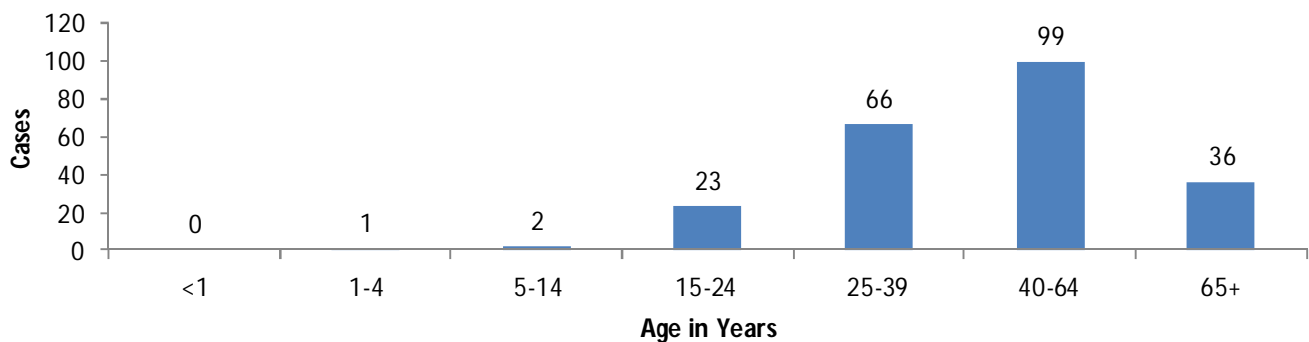
Hepatitis B, chronic

- In 2016 there were 227 cases of chronic Hepatitis B reported in Cuyahoga County. This translates to a rate of 18.2 per 100,000.

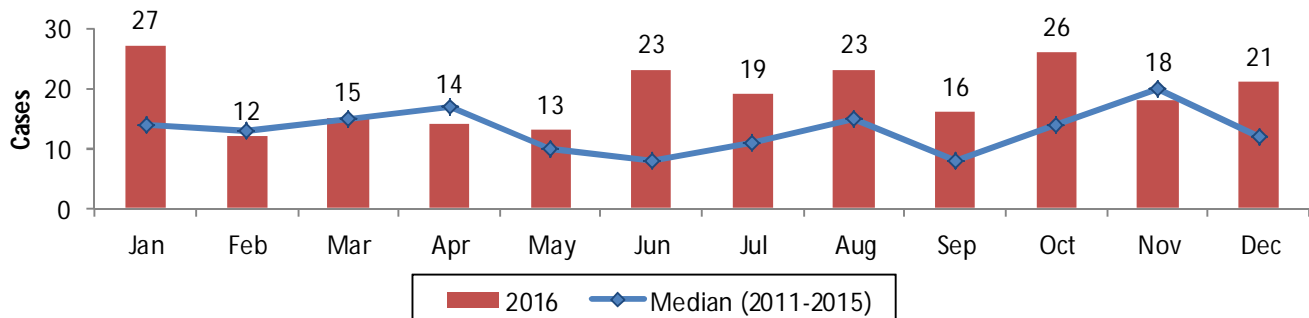
Hepatitis B, chronic Cases by Gender



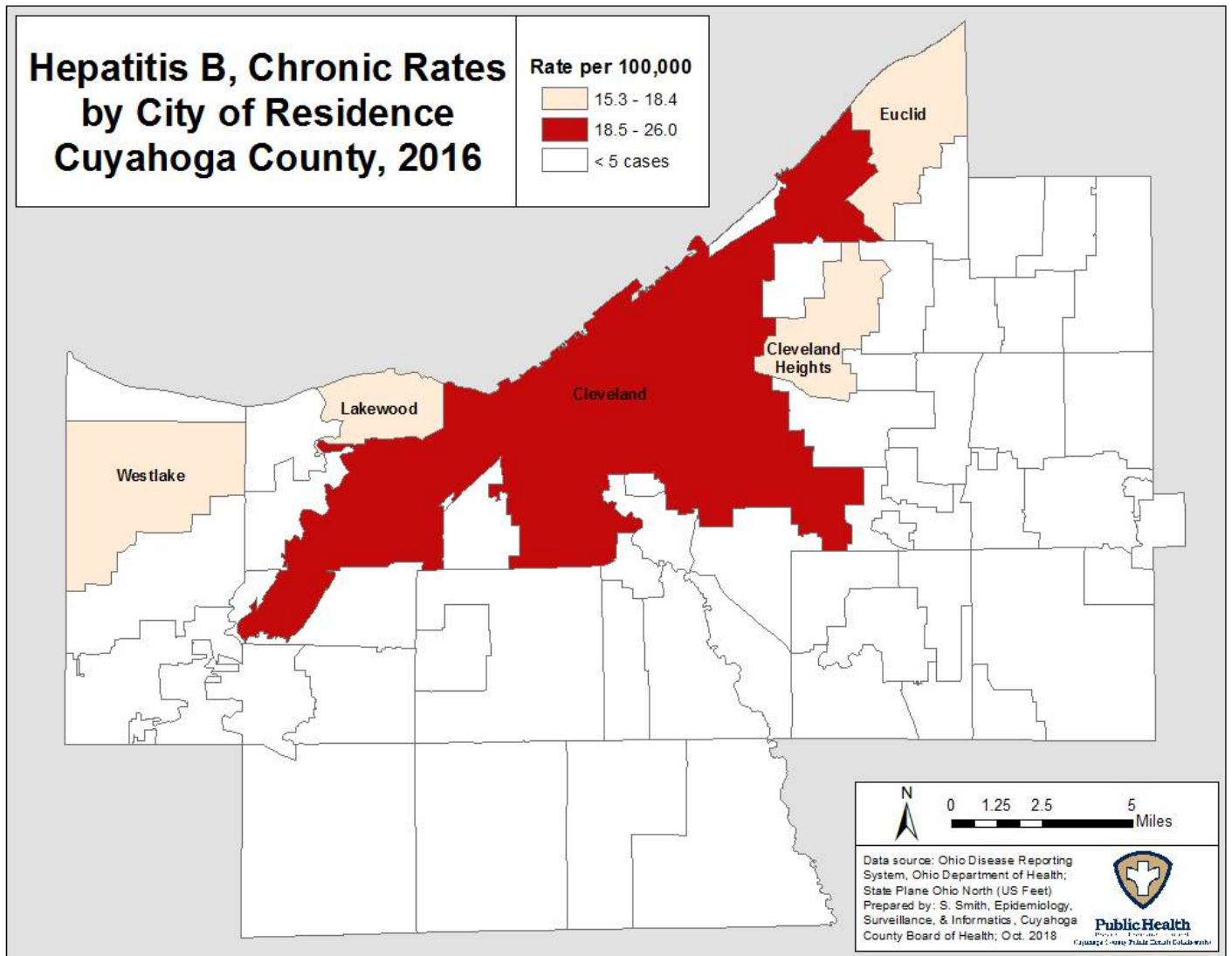
Hepatitis B, chronic Cases by Age



Hepatitis B, chronic Cases by Month



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.

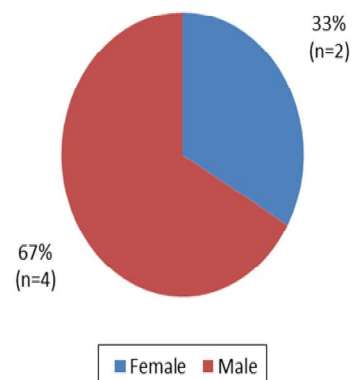
Incubation Period: 2 weeks - 6 months, usually 6-7 weeks

Symptoms: Nausea, vomiting, abdominal pain, diarrhea, jaundice, dark urine, clay-colored bowel movements, joint pain, or abnormal aminotransferase levels (ALT or AST).

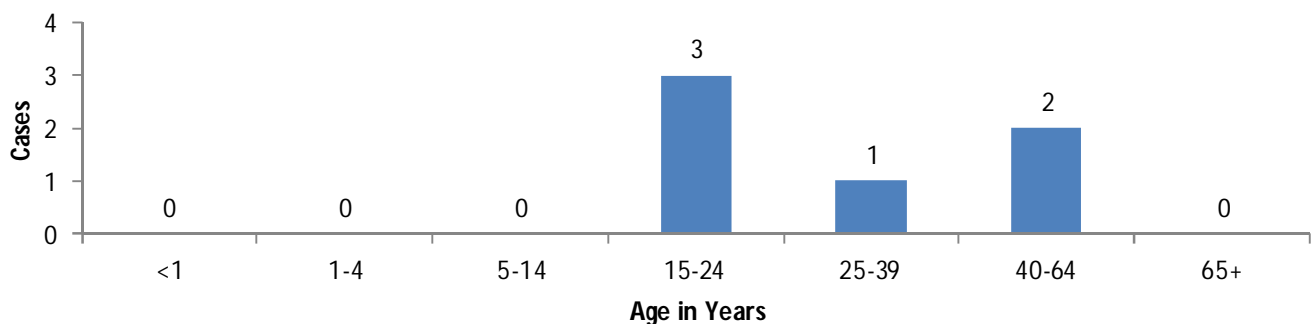
Hepatitis C, acute

- There were 6 cases of acute Hepatitis C reported in 2016 for a rate of 0.5 per 100,000. The Healthy People 2020 target is 0.2 per 100,000.

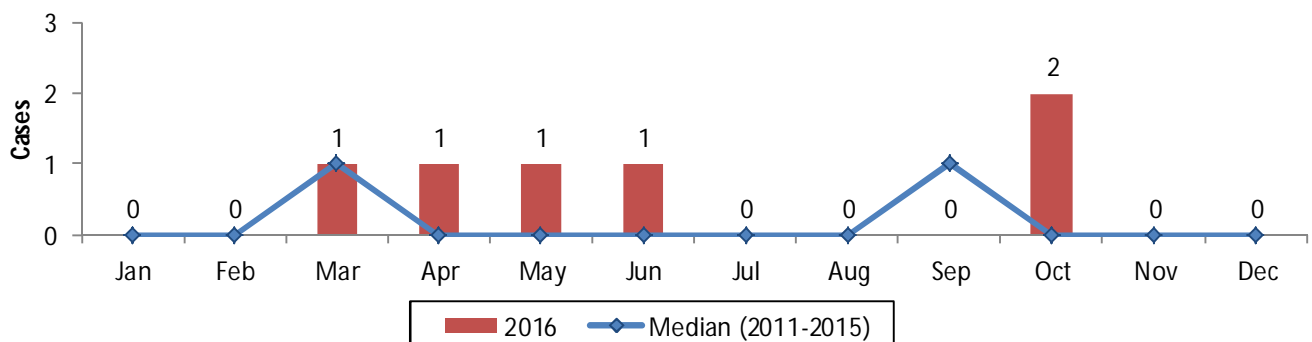
Hepatitis C, acute Cases by Gender



Hepatitis C, acute Cases by Age



Hepatitis C, acute Cases by Month



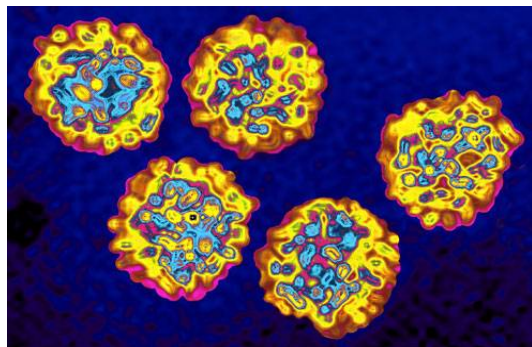
Hepatitis C, chronic

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 child-birth, sexual intercourse with an infected person, or sharing infected items such as razors or tooth-brushes.

Incubation Period: 2 weeks - 6 months, usually 6-7 weeks.

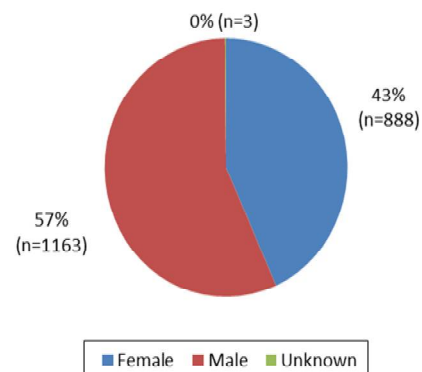
Symptoms: Persons may be asymptomatic or have a spectrum of disease ranging from chronic hepatitis to cirrhosis or liver cancer.



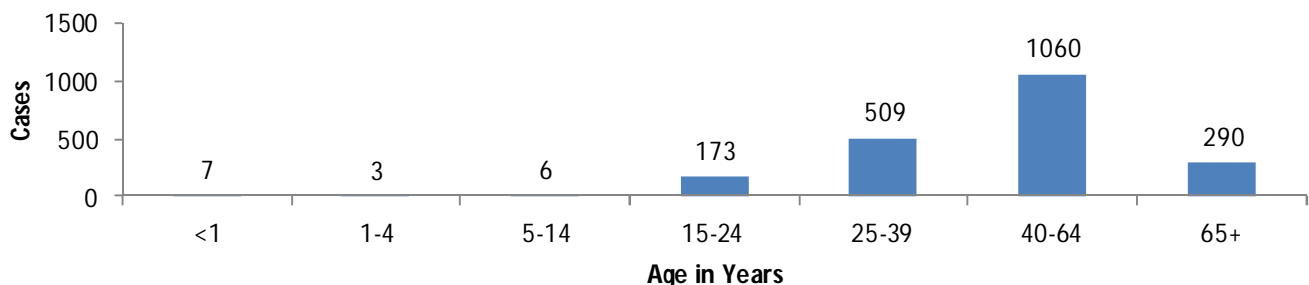
Hepatitis C, chronic

- There were 2055 cases of chronic Hepatitis C reported in Cuyahoga County. This translates to a rate of 164.5 per 100,000.
- This is the largest number of cases reported in the last 5 years.

Hepatitis C, chronic Cases by Gender

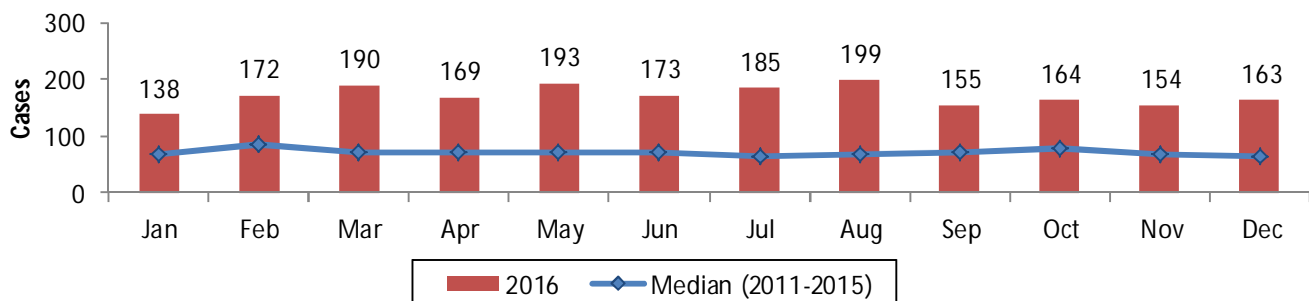


Hepatitis C, chronic Cases by Age

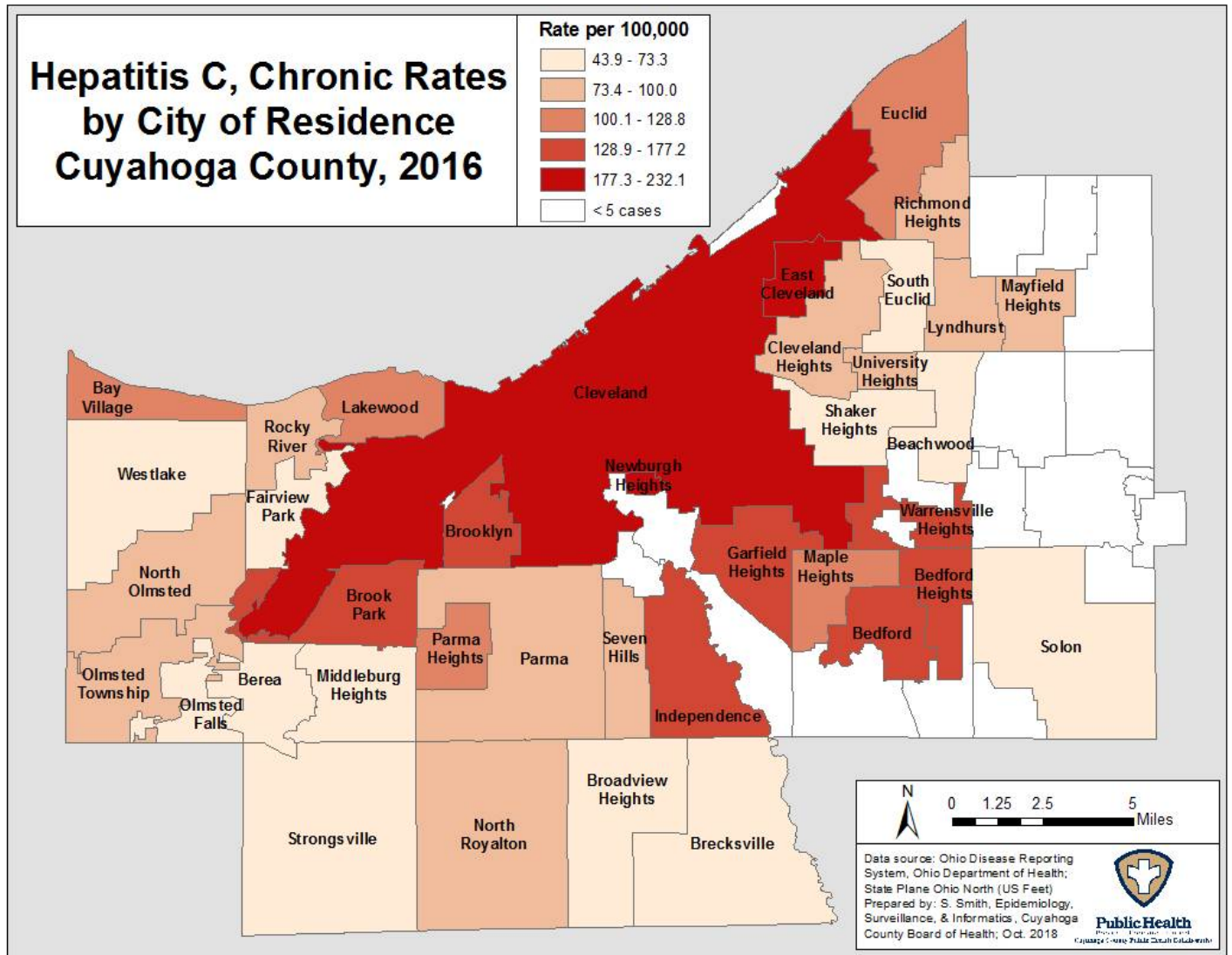


Note: Age unknown/missing for 7 cases

Hepatitis C, chronic Cases by Month

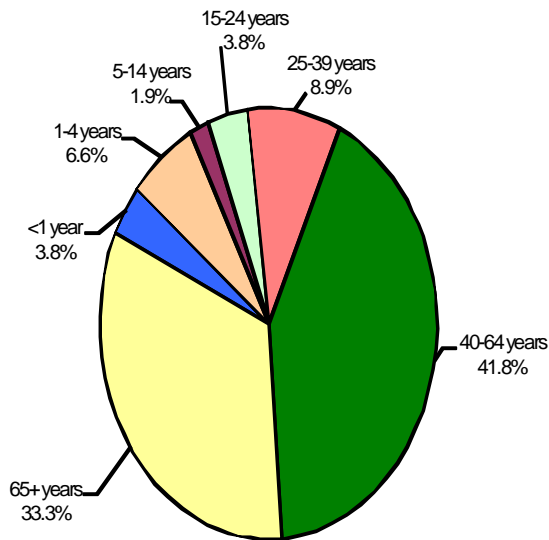


Hepatitis C, chronic



Influenza

Age Distribution of Influenza-Associated Hospitalizations in Cuyahoga County



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.

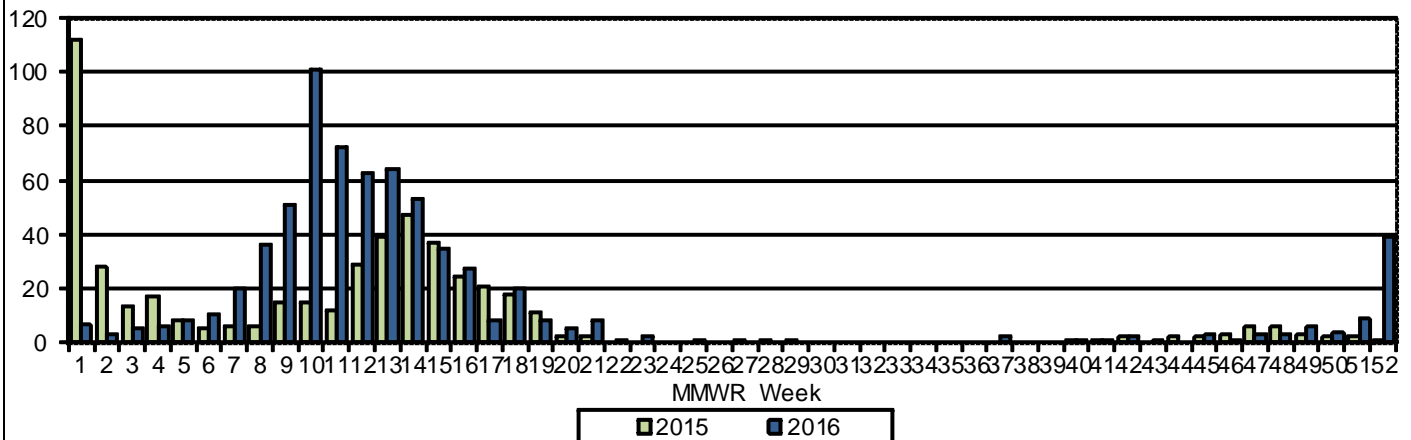
Incubation Period: 1-4 days, usually 2 days

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

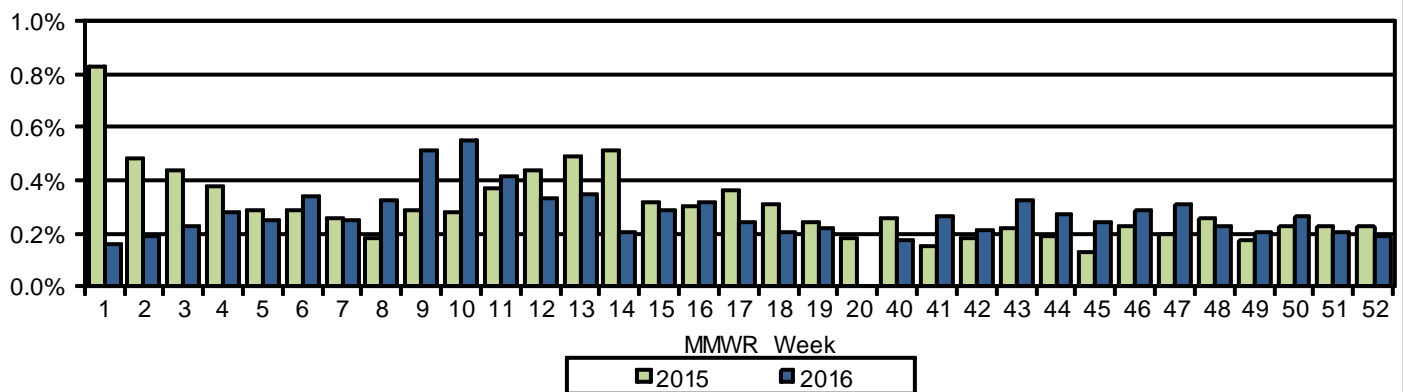
Influenza in Cuyahoga County

- 689 Influenza associated hospitalizations occurred during 2016, which is lower than the 2012-2016 5-year average of 818.
- The 2016 median percentage of Influenza-like illness (ILI) doctor visits was 0.25%, which was nearly the same as the 2015 median of 0.26%. Data was provided by athenahealth.

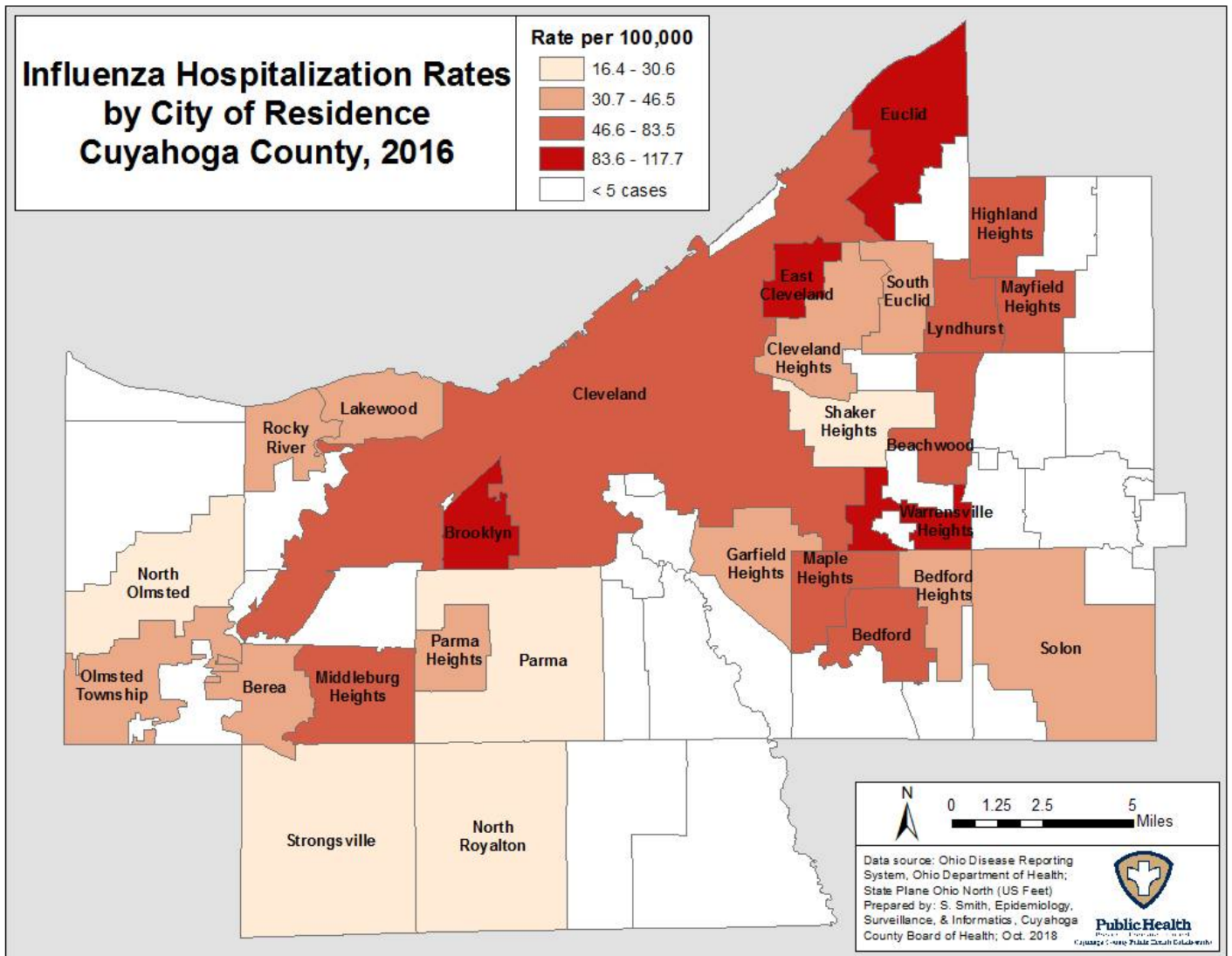
2015-2016 Influenza Associated Hospitalizations



2015-2016 Percent of Doctor Visits with Influenza-Like Illness (ILI) Symptoms



Influenza



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.

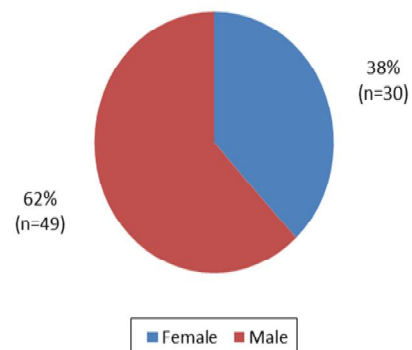
Incubation Period: Legionnaires' disease: 2-14 days, usually 5-6 days. Pontiac Fever: 5-66 hours, usually 24-48 hours.

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.

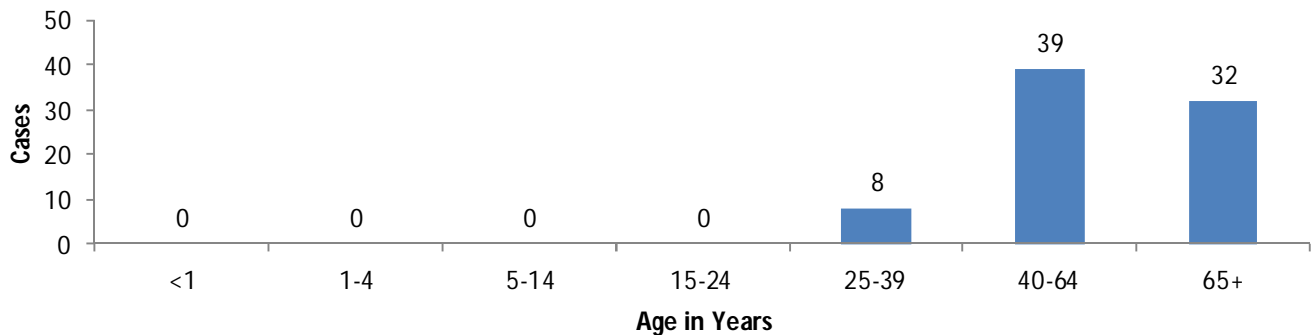
Legionnaires' disease

- There were 79 cases of Legionnaires' disease reported in 2016 for a rate of 6.3 per 100,000.

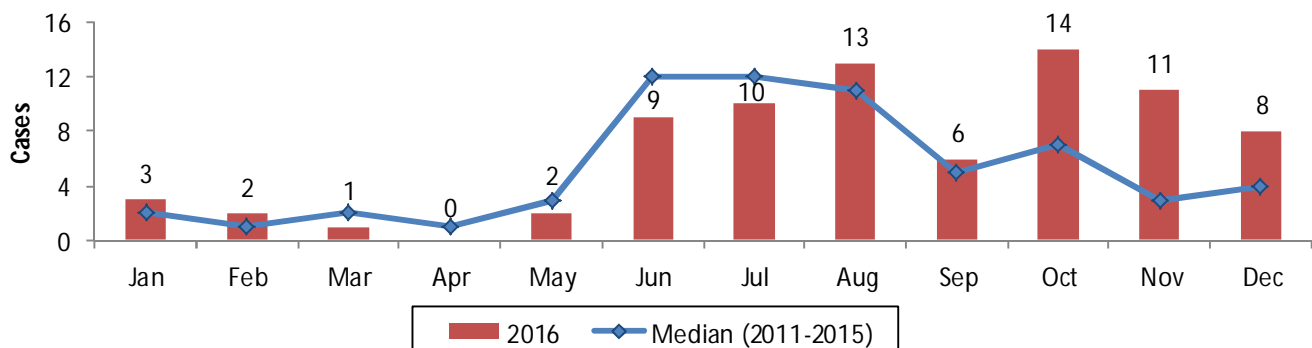
Legionnaires' disease Cases by Gender



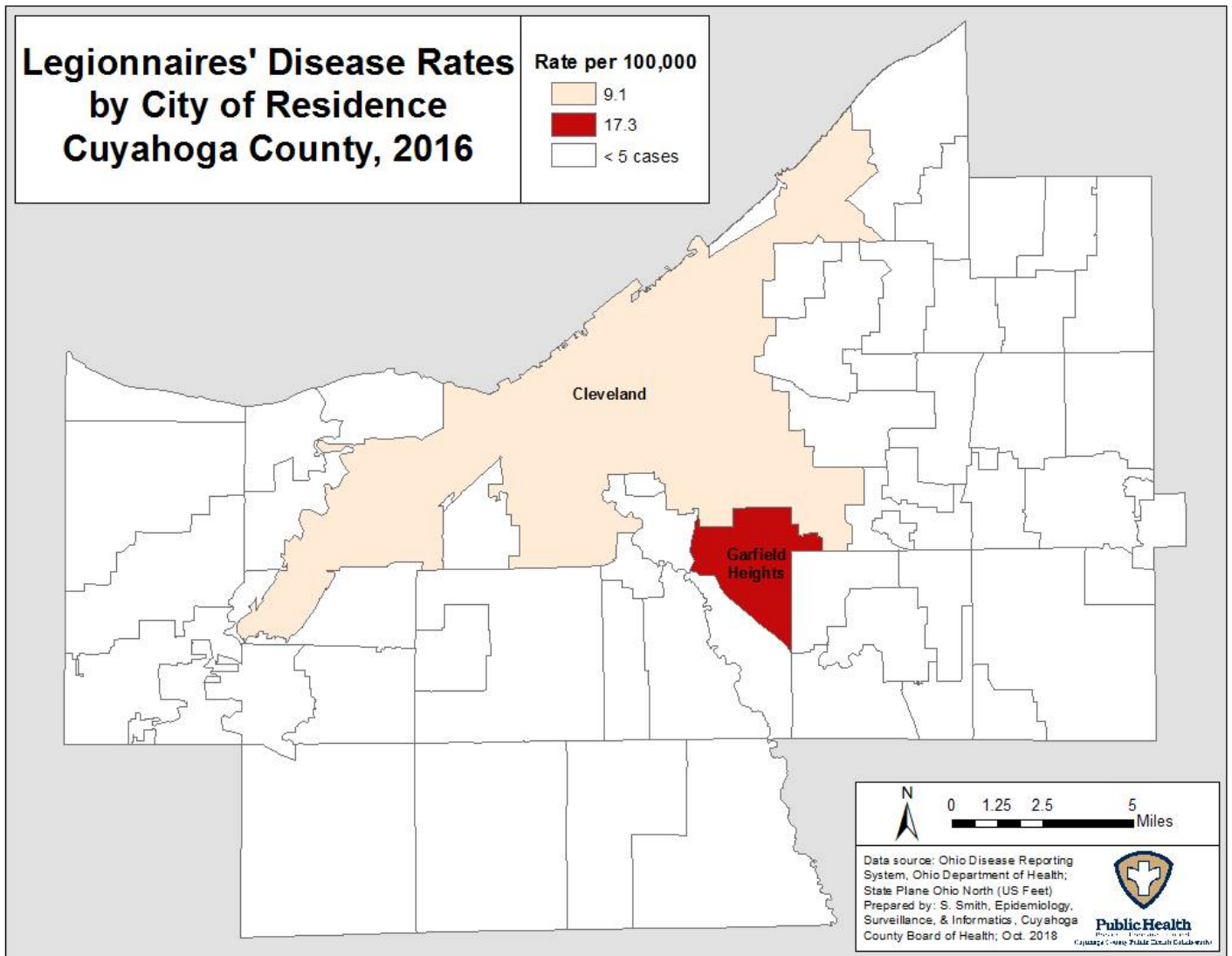
Legionnaires' disease Cases by Age



Legionnaires' disease Cases by Month



Legionnaires' disease



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.

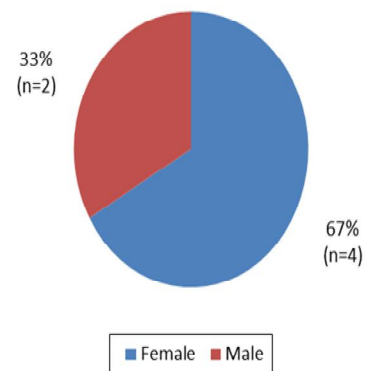
Incubation Period: 3-70 days, usually 3 weeks. The fetus is usually infected within several days after maternal disease.

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 meningoenzephalitis** (a sudden onset of fever with intense headache, nausea, vomiting and signs of meningeal irritation, delirium and coma may result).

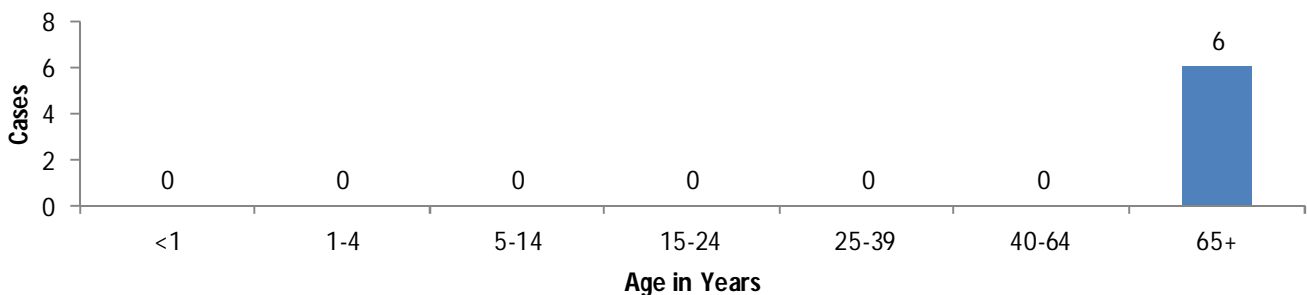
Listeriosis

- There were 6 cases of Listeriosis reported in 2016. This translates to a rate of 0.5 per 100,000.
- All 6 cases were 65 years and older.

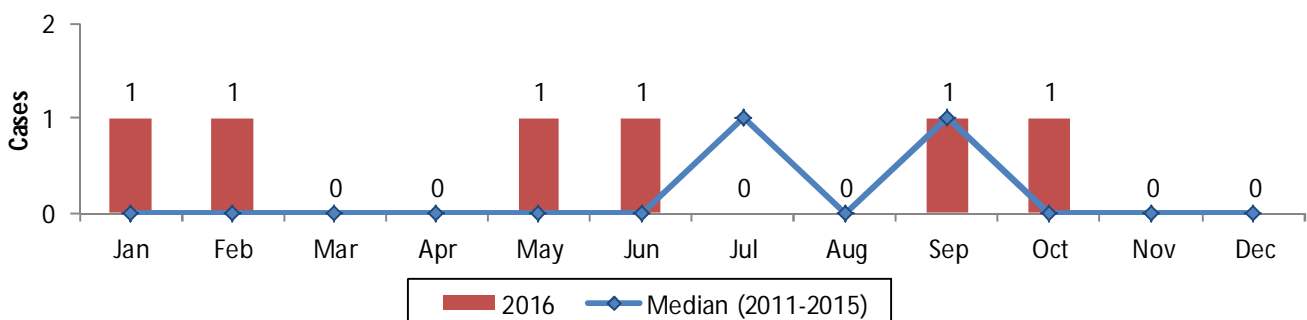
Listeriosis Cases by Gender



Listeriosis Cases by Age



Listeriosis Cases by Month



Meningococcal disease

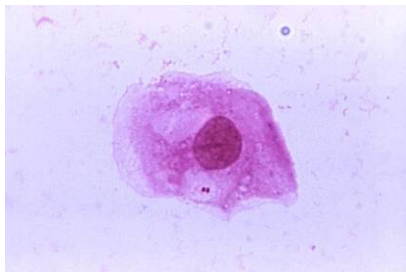
Infectious Agent: *Neisseria meningitides*. Multiple serogroups are known to cause invasive disease (i.e., A, B, C, X, Y, W-135). Serogroups B, C, and Y are the most prevalent in Ohio.

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 no cases of Meningococcal disease reported in Cuyahoga County in 2016.

Meningococcal disease Cases by Gender
pie chart intentionally removed from this report.

Meningococcal disease Cases by Age
bar graph intentionally removed from this report.

Meningococcal disease Cases by Month
bar graph intentionally removed from this report.

Pertussis

Infectious Agent: *Bordetella pertussis*. Pertussis-like syndrome can also be caused by *B. paraper-tussis*. 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.

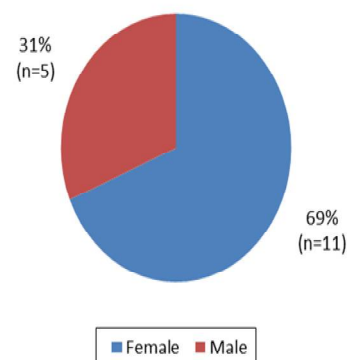
Incubation Period: 6-20 days, usually 9-10 days

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.

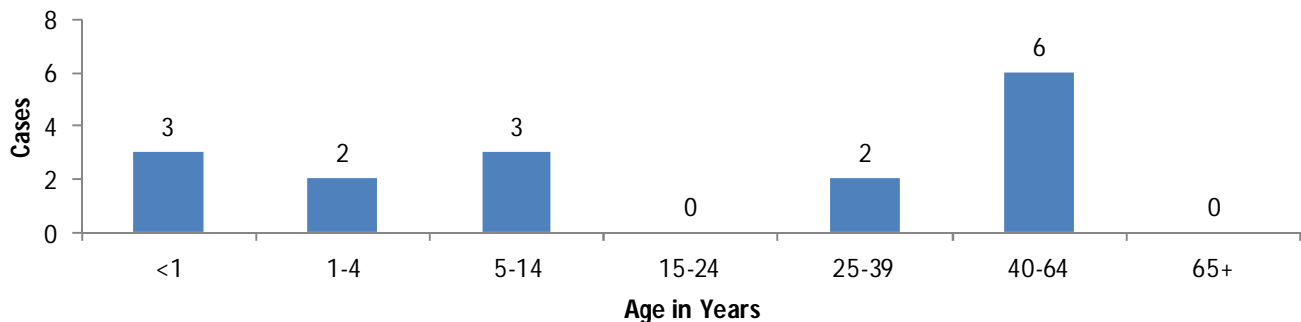
Pertussis

- There were 16 cases of Pertussis reported in 2016. This translates to a rate of 1.3 per 100,000.

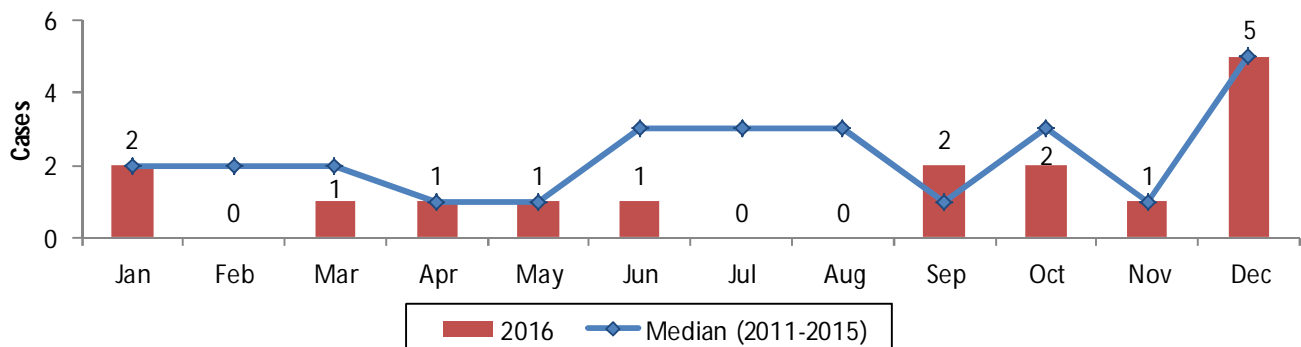
Pertussis Cases by Gender



Pertussis Cases by Age



Pertussis Cases by Month



Salmonellosis

Salmonellosis

- There were 153 cases of Salmonellosis reported in 2016 for a rate of 12.2 per 100,000. The Healthy People 2020 target is 11.4 per 100,000.



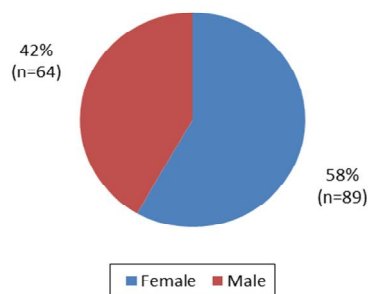
Infectious Agent: *Salmonella typhimurium* and *Salmonella enteritidis* are the most common in the United States.

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.

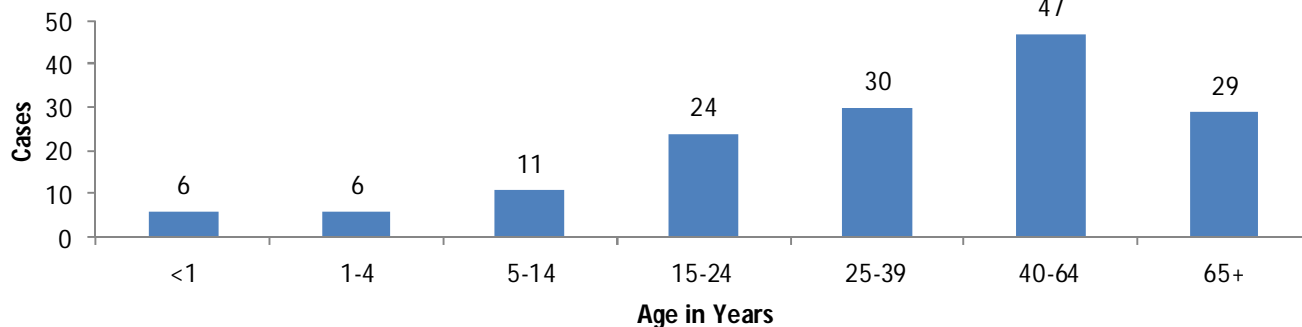
Incubation Period: 6-72 hours, usually 12-36 hours

Symptoms: Headache, nausea, diarrhea, abdominal pain, fever, and sometimes vomiting.

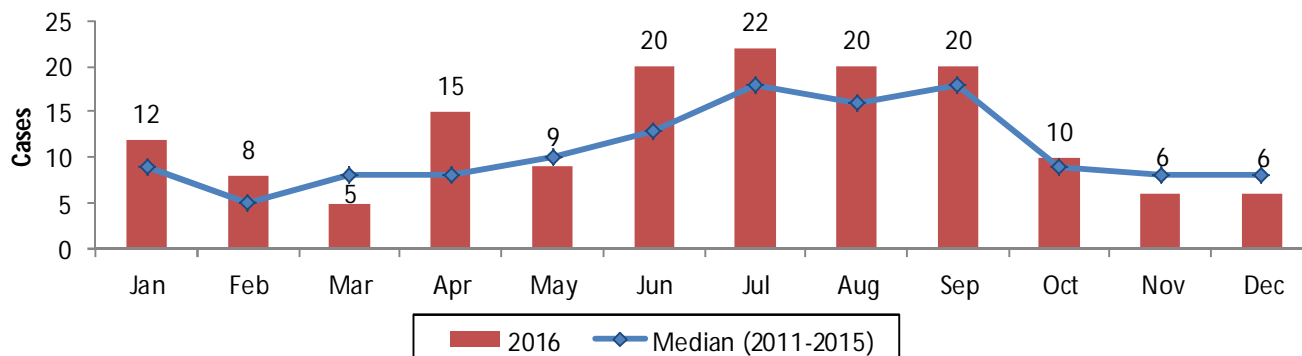
Salmonellosis Cases by Gender



Salmonellosis Cases by Age



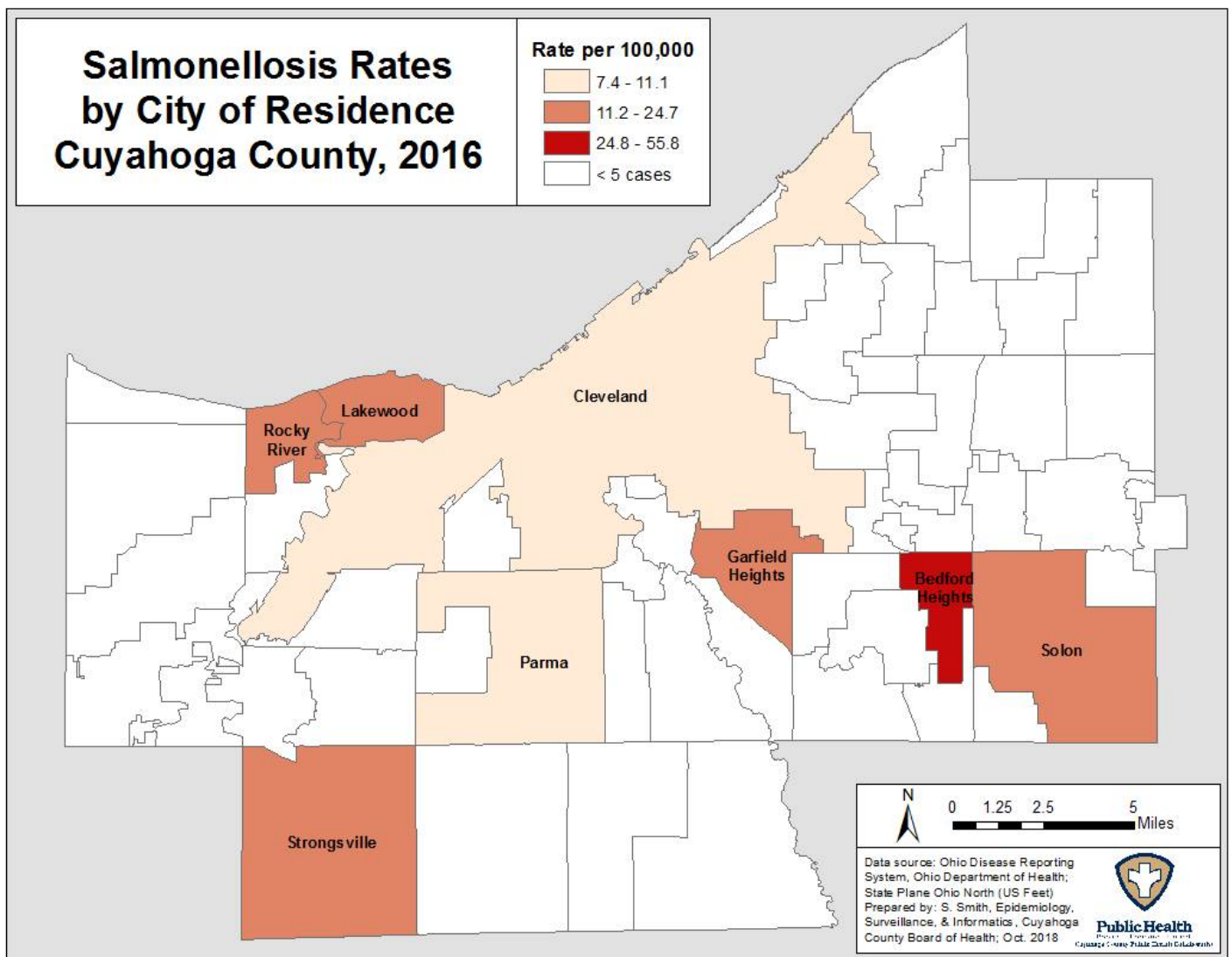
Salmonellosis Cases by Month



Salmonellosis

Most Frequent *Salmonella* Serotypes in Cuyahoga County among Specimens Typed at the Ohio Department of Health Laboratory, 2016 (N=152)

Serotype	Number of Cases	Percent
Enteritidis	32	21.1%
(I) 4, 5, 12:i:-	14	9.2%
Newport	14	9.2%
Typhimurium	11	7.2%
All Other	81	53.3%



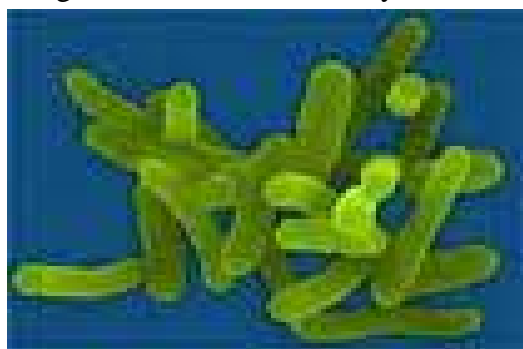
Shigellosis

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

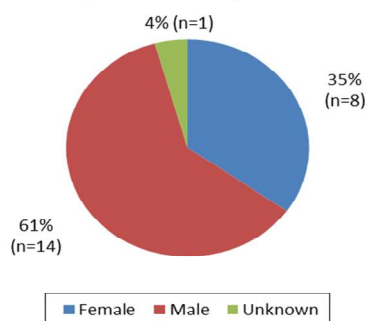
Symptoms: Diarrhea, fever, and sometimes vomiting. Diarrhea can be bloody.



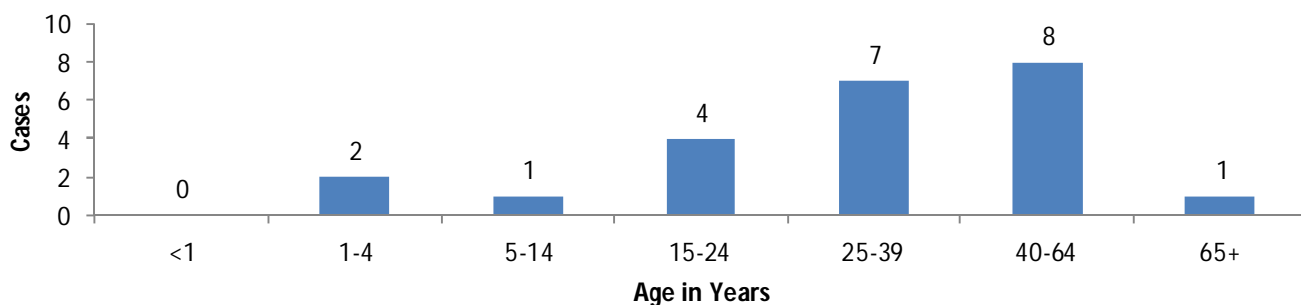
Shigellosis

- There were 23 cases of Shigellosis reported in 2016 for a rate of 1.8 per 100,000.
- This is below the 5 year median of 53 cases.

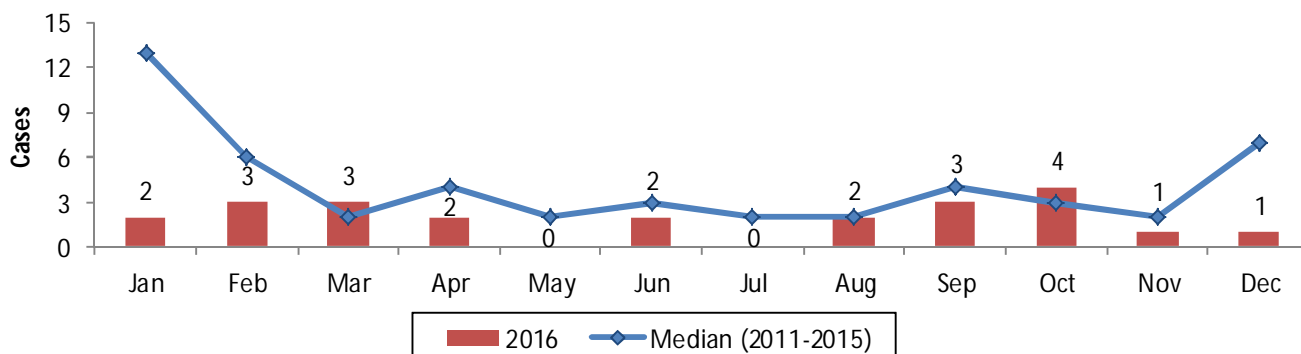
Shigellosis Cases by Gender



Shigellosis Cases by Age



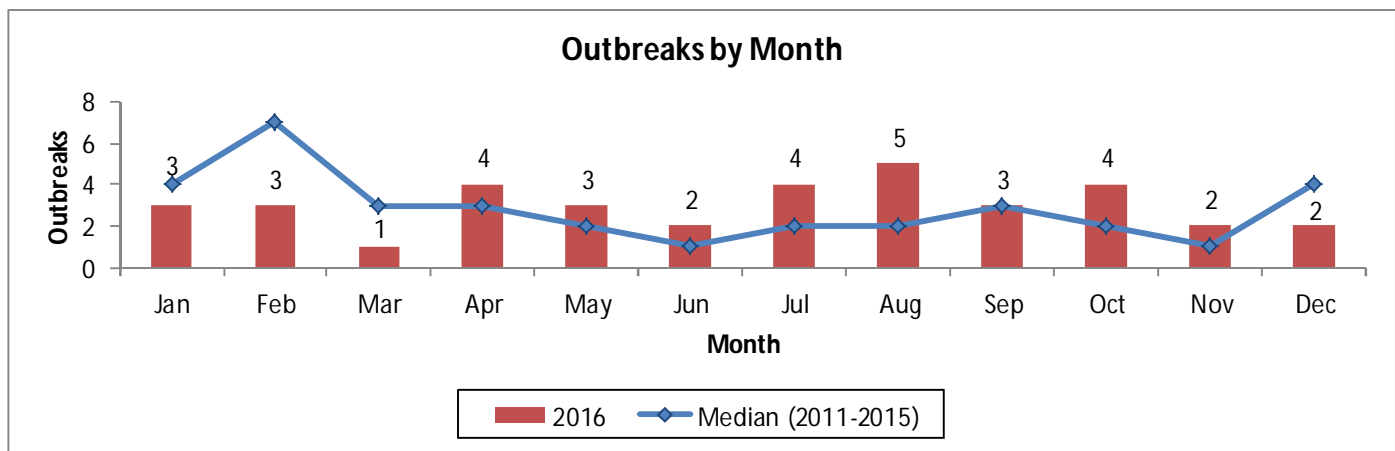
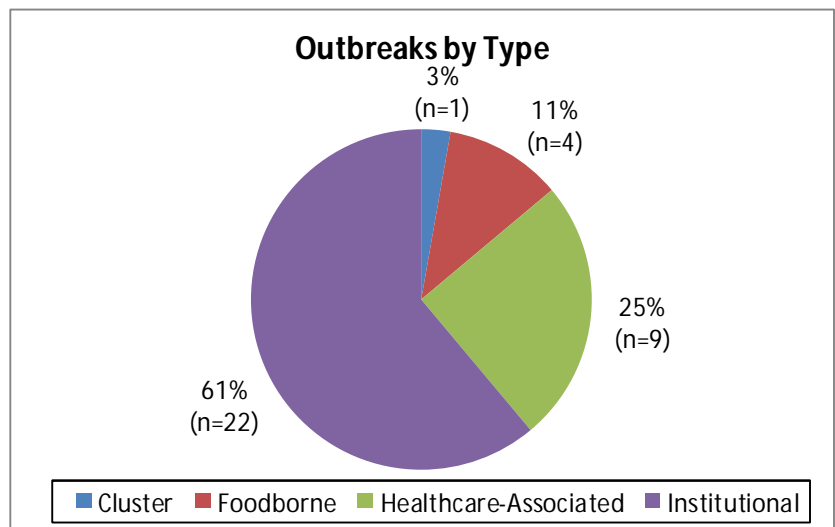
Shigellosis Cases by Month



2016 Outbreaks

Outbreaks in Cuyahoga County

- In 2016, there were 36 outbreaks reported and investigated by the local public health departments in Cuyahoga County.
- Hand, foot, and mouth disease (HFMD) was the leading causative agent resulting in 39% of all reported outbreaks.



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.

Know Your ABCs: A Quick Guide to Reportable Infectious Diseases in Ohio From the Ohio Administrative Code Chapter 3701-3; Effective May 1, 2015

Class A:

Diseases of major public health concern because of the severity of disease or potential for epidemic spread – report immediately via telephone upon recognition that a case, a suspected case, or a positive laboratory result exists.

- Anthrax
- Botulism, foodborne
- Cholera
- Diphtheria
- Influenza A – novel virus infection
- Measles
- Meningococcal disease
- Middle East Respiratory Syndrome (MERS)
- Plague
- Rabies, human
- Rubella (not congenital)
- Severe acute respiratory syndrome (SARS)
- Smallpox
- Tularemia
- Viral hemorrhagic fever (VHF), including Ebola virus disease, Lassa fever, Marburg hemorrhagic fever, and Crimean-Congo hemorrhagic fever
- 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:

Disease 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.

- Amebiasis
- Arboviral neuroinvasive and non-neuroinvasive disease:
 - Chikungunya virus infection
 - 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 diseases
- Babesiosis
- Botulism
 - infant
 - wound
- Brucellosis
- Campylobacteriosis
- Chancroid
- *Chlamydia trachomatis* infections
- Coccidioidomycosis
- Creutzfeldt-Jakob disease (CJD)
- Cryptosporidiosis
- Cyclosporiasis
- Dengue
- *E. coli* O157:H7 and Shiga toxin-producing *E. coli* (STEC)
- Ehrlichiosis/anaplasmosis
- Giardiasis
- Gonorrhea (*Neisseria gonorrhoeae*)
- *Haemophilus influenzae* (invasive disease)
- Hantavirus
- Hemolytic uremic syndrome (HUS)
- Hepatitis A
- Hepatitis B (non-perinatal)
- Hepatitis B (perinatal)
- Hepatitis C
- Hepatitis D (delta hepatitis)
- Hepatitis E
- Influenza-associated hospitalization
- Influenza-associated pediatric mortality
- Legionnaires' disease
- Leprosy (Hansen disease)
- Leptospirosis
- Listeriosis
- Lyme disease
- Malaria
- Meningitis:
 - Aseptic (viral)
 - Bacterial
- Mumps
- Mycobacterial disease, other than tuberculosis (MOTT)
- Pertussis
- Poliomyelitis (including vaccine-associated cases)
- Psittacosis
- Q fever
- Rubella (congenital)
- Salmonellosis
- Shigellosis
- Spotted Fever Rickettsiosis, including Rocky Mountain spotted fever (RMSF)
- *Staphylococcus aureus*, with resistance or intermediate resistance to vancomycin (VRSA, VISA)
- Streptococcal disease, group A, invasive (IGAS)
- Streptococcal disease, group B, in newborn
- Streptococcal toxic shock syndrome (STSS)
- *Streptococcus pneumoniae*, invasive disease (ISP)
- Syphilis
- Tetanus
- Toxic shock syndrome (TSS)
- Trichinellosis
- Tuberculosis (TB), including multi-drug resistant tuberculosis (MDR-TB)
- Typhoid fever
- Typhus fever
- Varicella
- Vibriosis
- Yersiniosis

Class C:

Report an outbreak, unusual incident or epidemic of other diseases (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, all CD4 T-lymphocyte counts and all tests used to diagnose HIV must be reported on forms and in a manner prescribed by the Director.

