

2014 Annual Summary of Reportable Infectious Diseases for Cuyahoga County, Ohio

Report Date: August 10, 2016



CUYAHOGA COUNTY
BOARD OF HEALTH



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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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About the Cover

The cover of the 2014 Annual Summary of Reportable Infectious Diseases contains an image of the ebola virus. In the fall of October 2014, the United States experienced an unprecedented encounter with this disease within the borders of the United States.

This led to enhanced collaborations between healthcare, emergency medical services, public health, and other responders that strengthened the nation's capability to provide care for individuals who were exposed or may have been exposed to this life threatening virus. It also provided a unique opportunity to increase the public's awareness and general knowledge of this virus. A section of this report summarizes how ebola impacted Cuyahoga County and the State of Ohio.

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Introduction

The 2014 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 2014.

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 fifth 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 2009-2013 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 2014 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, 2009-2014

Table 1.
General Infectious Diseases

	2009		2010		2011		2012		2013		Median		Mean		2014	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Aseptic Meningitis	68	5.3	95	7.4	116	9.1	73	5.8	57	4.5	73	5.8	81.8	6.4	33	2.6
Coccidioidomycosis	3	**	3	**	0	**	0	**	1	**	1	**	1.4	**	2	**
Creutzfeldt-Jakob disease (CJD)	7	0.5	1	**	0	**	2	**	1	**	1	**	2.2	**	1	**
<i>Haemophilus influenzae</i> , invasive	7	0.5	9	0.7	12	0.9	10	0.8	17	1.3	10	0.8	11	0.9	16	1.3
Legionnaires' disease	58	4.5	33	2.6	48	3.8	57	4.5	73	5.8	57	4.5	53.8	4.2	64	5.1
Meningitis, bacterial (non- <i>Neisseria</i>)	6	0.5	9	0.7	6	0.5	6	0.5	3	**	6	0.5	6	0.5	7	0.6
Streptococcal disease, Group A, invasive	24	1.9	23	1.8	34	2.7	27	2.1	24	1.9	24	1.9	26.4	2.1	42	3.3
Streptococcal disease, Group B, newborn	8	0.6	5	0.4	17	1.3	18	1.4	13	1.0	13	1.0	12.2	1.0	14	1.1
Streptococcal Toxic Shock Syndrome	0	**	1	**	0	**	0	**	1	**	0	**	0.4	**	2	**
<i>Streptococcus pneumoniae</i> , invasive disease, non-resistant or unknown resistance	71	5.6	55	4.3	70	5.5	62	4.9	74	5.9	70	5.5	66	5.2	59	4.7
<i>Streptococcus pneumoniae</i> , invasive disease, resistant	34	2.7	20	1.6	32	2.5	21	1.7	26	2.1	26	2.1	27	2.1	29	2.3
Toxic Shock Syndrome	0	**	0	**	0	**	0	**	0	**	0	**	0	**	0	**
<i>Staphylococcus aureus</i> , with intermediate resistance to vancomycin (VISA)	2	**	2	**	0	**	0	**	0	**	0	**	0.8	**	0	**

Table 2.
Hepatitis

	2009		2010		2011		2012		2013		Median		Mean		2014	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Hepatitis A	4	**	1	**	4	**	0	**	6	0.5	4	**	3	**	4	**
Hepatitis B, acute	20	1.6	25	2.0	18	1.4	12	0.9	10	0.8	18	1.4	17	1.3	14	1.1
Hepatitis B, chronic	194	15.2	171	13.4	163	12.8	172	13.6	102	8.1	171	13.4	160	12.6	101	8.0
Hepatitis C, acute	6	0.5	5	0.4	9	0.7	6	0.5	2	**	6	0.5	6	0.5	4	**
Hepatitis C, chronic	1222	95.8	1169	91.5	683	53.8	574	45.4	753	59.6	753	59.6	880	69.2	901	71.5
Hepatitis E	0	**	0	**	0	**	0	**	0	**	0	**	0	**	0	**

Selected Reportable Infectious Diseases by Year of Onset, Cuyahoga County, 2009-2014

Table 3.

	2009		2010		2011		2012		2013		Median		Mean		2014	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Enteric Diseases																
Amebiasis	3	**	6	0.5	0	**	1	**	0	**	1	**	2	**	0	**
Botulism, foodborne	1	**	0	**	0	**	0	**	0	**	0	**	0	**	0	**
Campylobacteriosis	172	13.5	172	13.5	151	11.9	136	10.8	64	5.1	151	11.9	139	10.9	60	4.8
Cryptosporidiosis	15	1.2	30	2.3	9	0.7	6	0.5	13	1.0	13	1.0	15	1.1	23	1.8
Cyclosporiasis	0	**	0	**	0	**	0	**	0	**	0	**	0	**	0	**
<i>E.coli</i> O157:H7 and Shiga toxin-producing	11	0.9	7	0.5	9	0.7	16	1.3	23	1.8	11	0.9	13	1.0	14	1.1
Giardiasis	81	6.3	75	5.9	110	8.7	59	4.7	51	4.0	75	5.9	75	5.9	40	3.2
Hemolytic uremic syndrome (HUS)	8	0.6	0	**	0	**	0	**	0	**	0	**	2	**	0	**
Listeriosis	4	**	4	**	4	**	3	**	5	0.4	4	**	4	**	2	**
Salmonellosis	205	16.1	157	12.3	132	10.4	133	10.5	109	8.6	133	10.5	147	11.6	123	9.8
Shigellosis	244	19.1	14	1.1	30	2.4	53	4.2	43	3.4	43	3.4	77	6.0	232	18.4
Typhoid Fever	1	**	0	**	0	**	0	**	3	**	0	**	1	**	1	**
Vibriosis, other (not cholera)	2	**	1	**	3	**	1	**	1	**	1	**	2	**	4	**
Yersiniosis	5	0.4	6	0.5	4	**	2	**	4	**	4	**	4	**	6	0.5

Table 4.

	2009		2010		2011		2012		2013		Median		Mean		2014	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Vaccine Preventable Diseases																
Influenza A - novel virus	59	4.6	0	**	0	**	0	**	0	**	0	**	12	4.6	0	**
Influenza-associated hospitalizations	791	62.0	32	2.5	505	39.8	514	40.6	999	79.1	514	40.6	568	44.8	1420	112.7
Influenza-associated pediatric mortality	3	**	0	**	0	**	0	**	0	**	0	**	1	**	0	**
Meningococcal disease	6	0.5	6	0.5	4	**	4	**	0	**	4	**	4	**	1	**
Mumps	2	**	15	1.2	9	0.7	6	0.5	3	**	6	0.7	7	0.8	24	1.9
Pertussis	20	1.6	29	2.3	29	2.3	48	3.8	24	1.9	29	2.3	30	2.4	30	2.4
Varicella	78	6.1	61	4.8	78	6.1	54	4.3	50	4.0	61	4.8	64	5.1	32	2.5

Table 5.

	2009		2010		2011		2012		2013		Median		Mean		2014	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
Zoonotic Diseases																
Arboviral	1	**	1	**	8	0.6	29	2.3	5	0.4	5	0.6	9	1.1	13	1.0
Brucellosis	1	**	0	**	0	**	0	**	0	**	0	**	0	**	0	**
Dengue	0	**	3	**	0	**	3	**	1	**	1	**	1	**	1	**
Lyme disease	10	0.8	6	0.5	9	0.7	26	2.1	22	1.7	10	0.8	15	1.2	28	2.2
Malaria	5	0.4	4	**	2	**	4	**	3	**	4	**	4	**	6	0.5
Rocky Mountain Spotted Fever	1	**	1	**	0	**	3	**	1	**	1	**	1	**	1	**

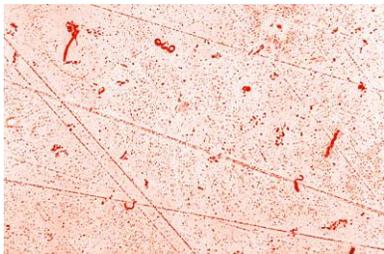
Campylobacteriosis

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

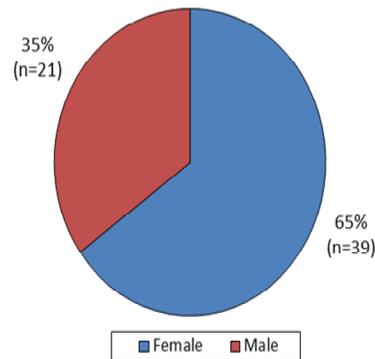
Symptoms: Fever, headache, myalgia, malaise, diarrhea (may contain blood or mucus), vomiting, nausea, and abdominal cramps.



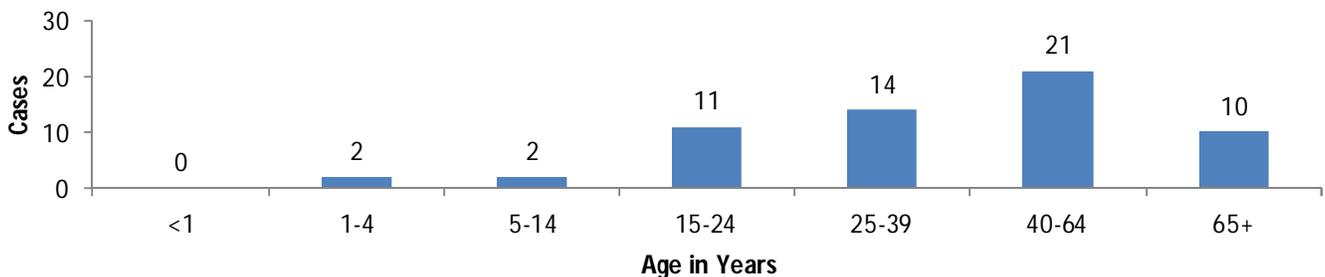
Campylobacteriosis

- There were 60 cases of Campylobacteriosis reported in 2014 for a rate of 4.8 per 100,000. The Healthy People 2020 target is 8.5 per 100,000.
- The methods for Campylobacteriosis testing have recently changed; therefore the number of cases in 2013 and 2014 is lower than reported in previous years.

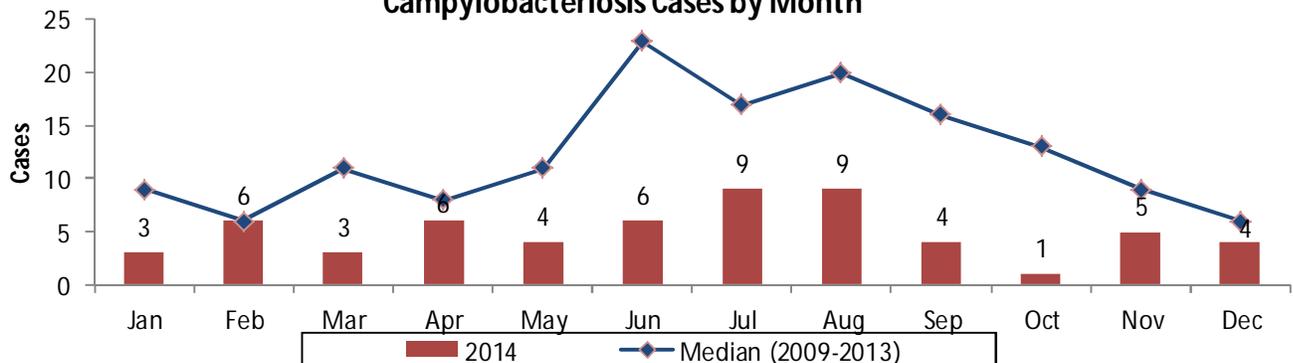
Campylobacteriosis Cases by Gender



Campylobacteriosis Cases by Age

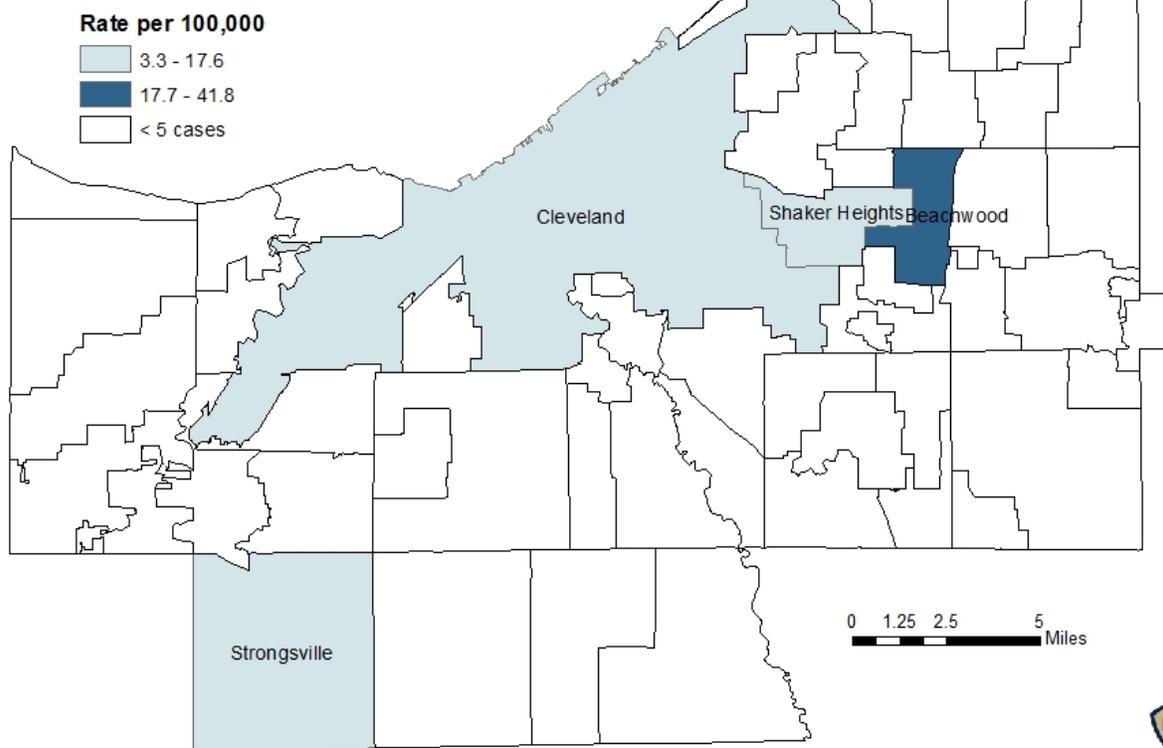


Campylobacteriosis Cases by Month



Campylobacteriosis

Campylobacteriosis Rates by City of Residence Cuyahoga County, 2014



Data source: Ohio Disease Reporting System, Ohio Department of Health; State Plane Ohio North (US Feet)
Prepared by: Epidemiology, Surveillance, & Informatics, Cuyahoga County Board of Health; March 2016



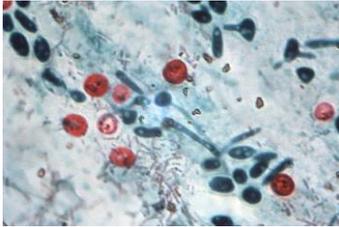
Cryptosporidiosis

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

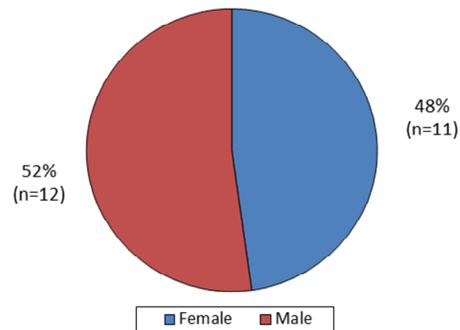
Symptoms: Watery diarrhea which may contain mucus often accompanied with abdominal pain. Less common symptoms include malaise, low-grade fever, anorexia, nausea, and vomiting.



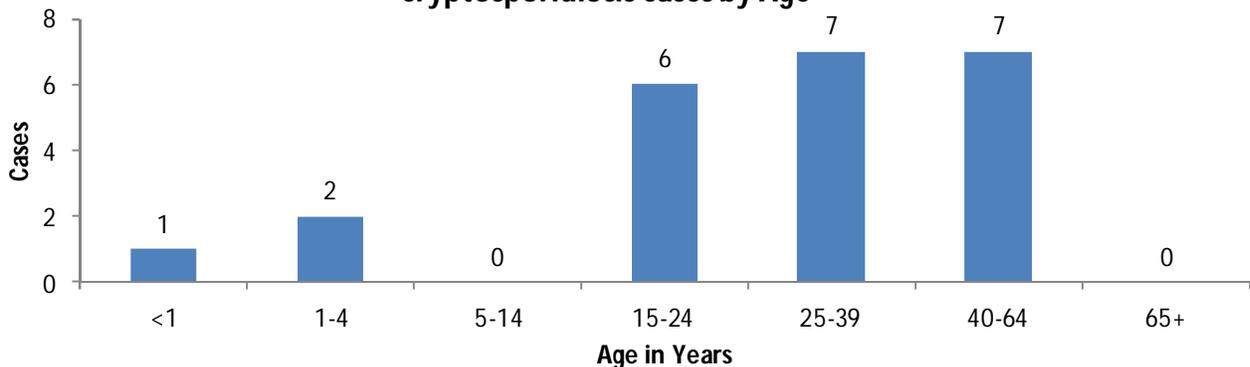
Cryptosporidiosis

- In 2014 there were 23 cases of Cryptosporidiosis reported in Cuyahoga County. This translates to a rate of 1.8 per 100,000.
- Eighteen of the 23 cases (78.3%) occurred between May and September. This time period represents outdoor swimming pool season and is consistent with historical trends.

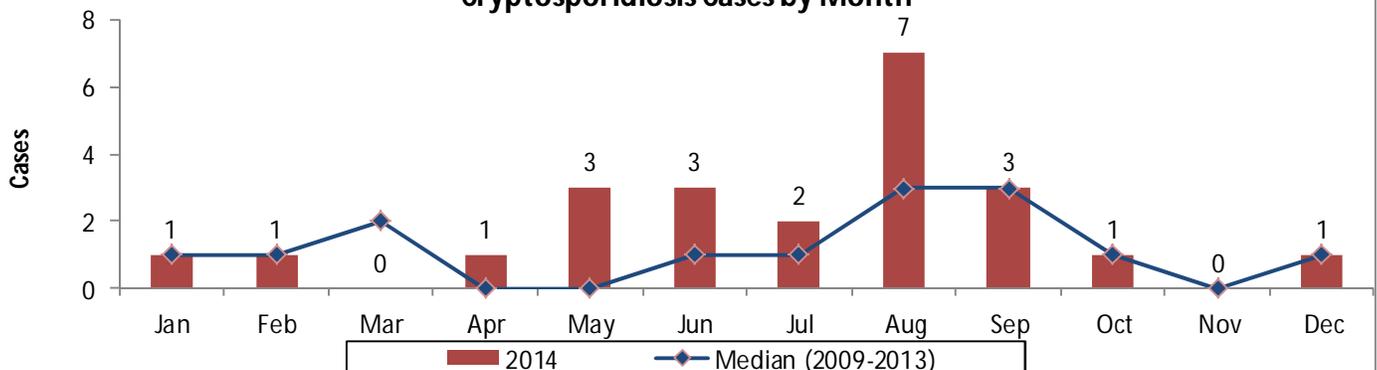
Cryptosporidiosis Cases by Gender



Cryptosporidiosis Cases by Age



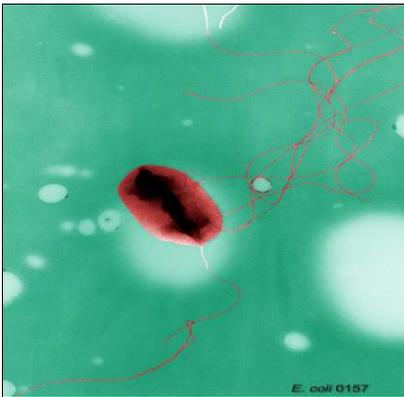
Cryptosporidiosis Cases by Month



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

Shiga toxin-producing *E. coli*

- There were 14 cases of *E. coli* reported in 2014 for a rate of 1.1 per 100,000. The Healthy People 2020 target is 0.6 per 100,000.
- Five of the 14 cases (35.7%) occurred in the 15-24 year old age group.



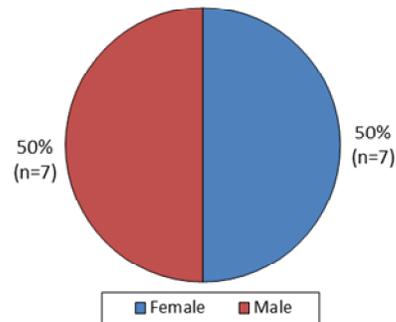
Infectious Agent: *E. coli* O157:H7 and other Shiga toxin-producing strains.

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.

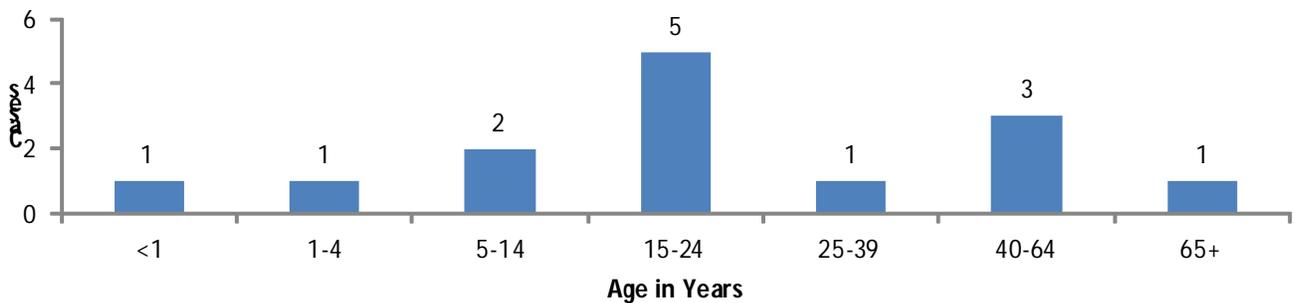
Incubation Period: 10 hours - 8 days, usually 3-4 days

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

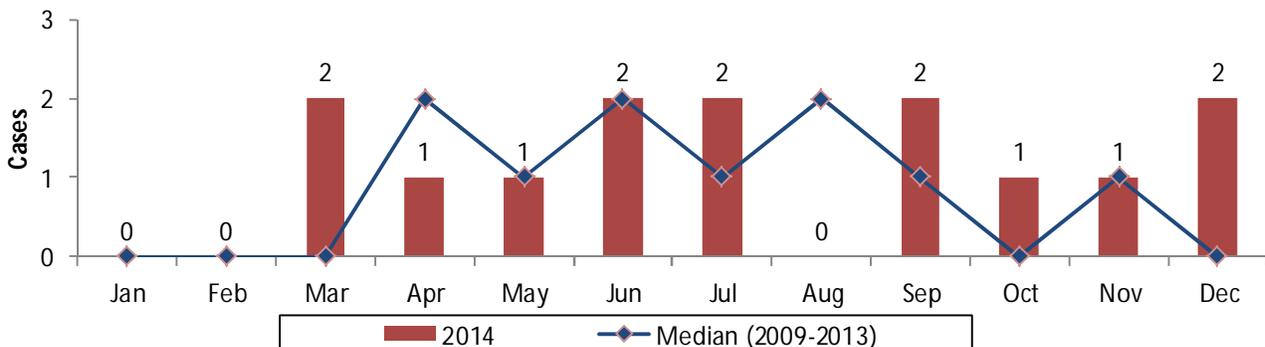
E. coli O157:H7 and Shiga Toxin-producing Cases by Gender



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

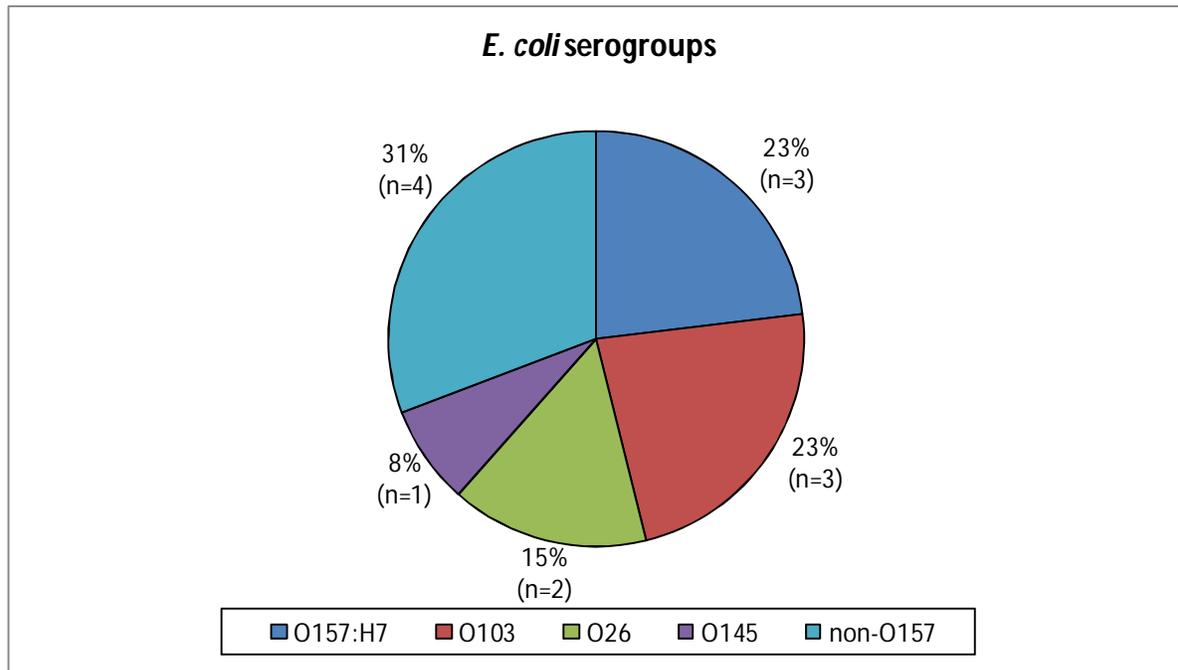


E. coli O157:H7 and Shiga Toxin-producing Cases by Month



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

E. coli Serogroups in Cuyahoga County Among All Specimens, 2014 (N=13)



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.

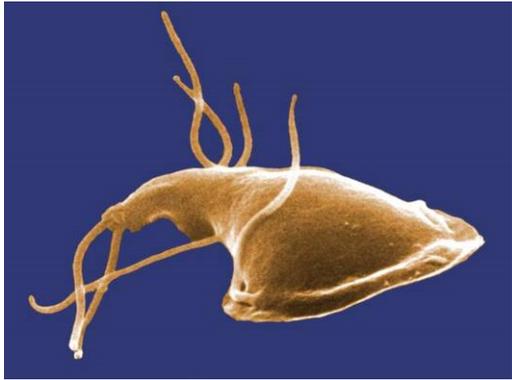
Studies in some states have shown that the prevalence of non-O157 STEC isolates is greater than or equal to that of *E. coli* O157:H7.

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

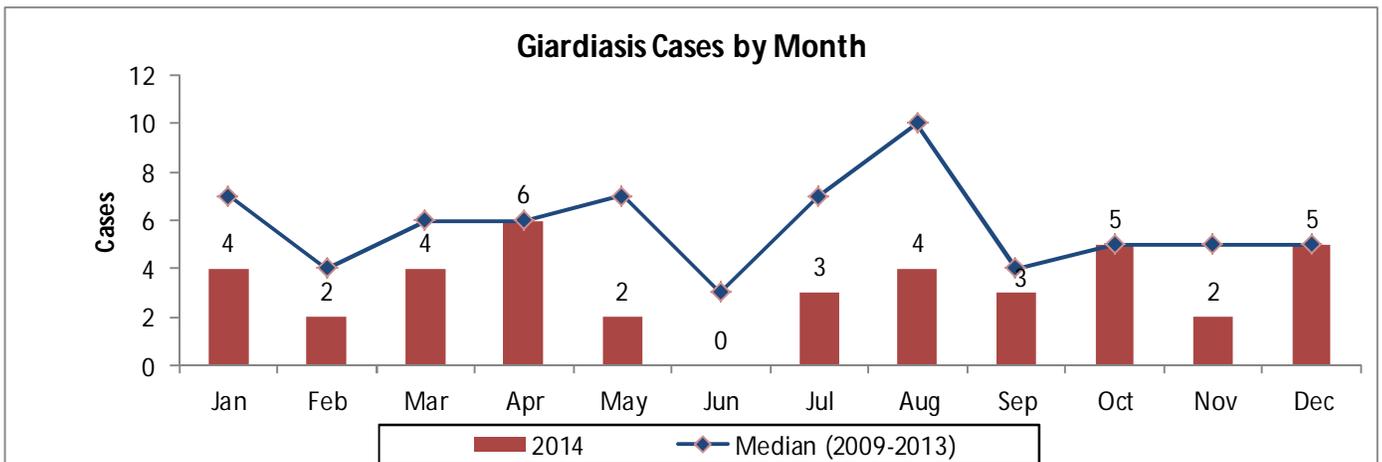
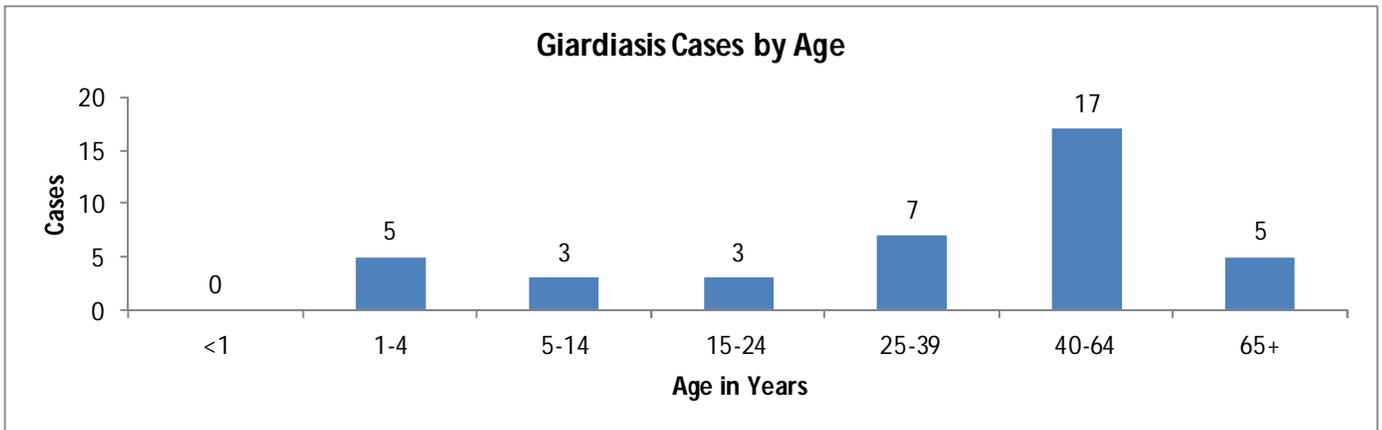
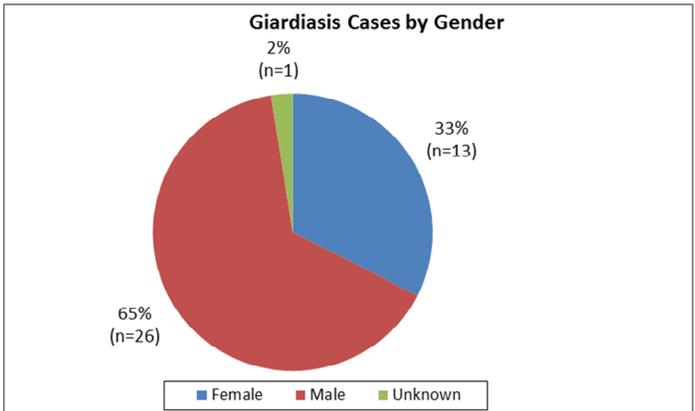
Giardiasis

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 2014 there were 40 cases of Giardiasis reported in Cuyahoga County. This translates to a rate of 3.2 per 100,000.
- As of 2012, asymptomatic cases of Giardiasis are no longer being included in the case count. As a result, the number of cases from 2012 - 2014 is lower than in previous years.



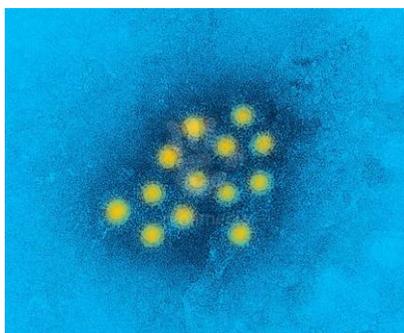
Hepatitis A

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

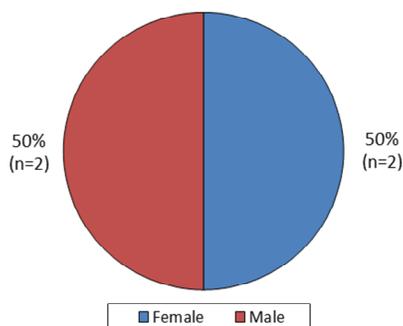
Symptoms: Fever, malaise, anorexia, nausea, abdominal pain, dark urine, clay-colored stools, and jaundice. Infected children, particularly infants and toddlers, are often asymptomatic.



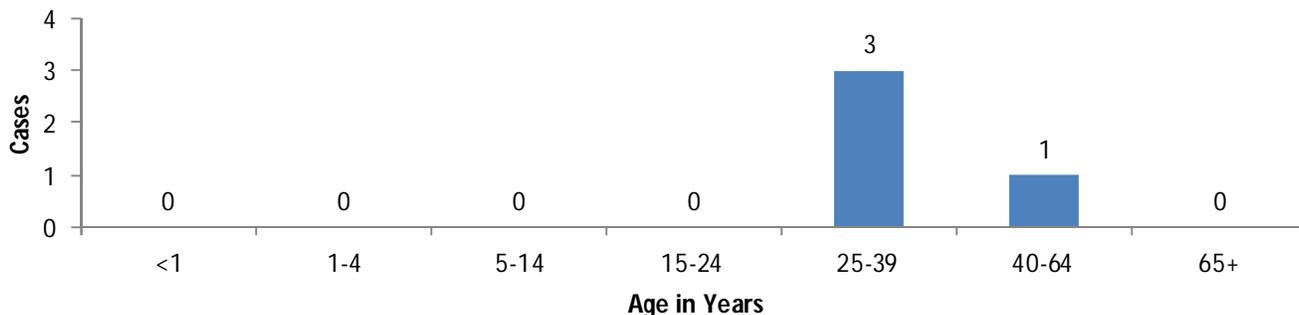
Hepatitis A

- In 2014 there were 4 cases of Hepatitis A reported in Cuyahoga County.
- All 4 cases were 25 years or older.

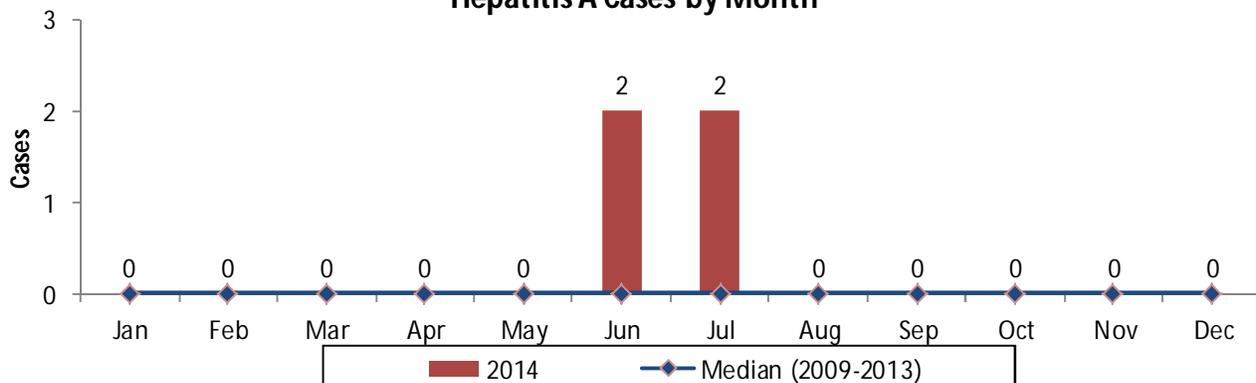
Hepatitis A Cases by Gender



Hepatitis A Cases by Age



Hepatitis A Cases by Month



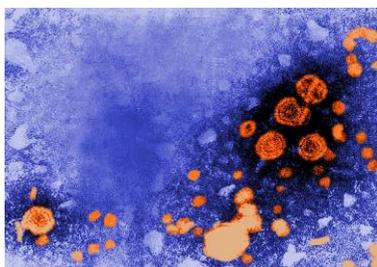
Hepatitis B, acute

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

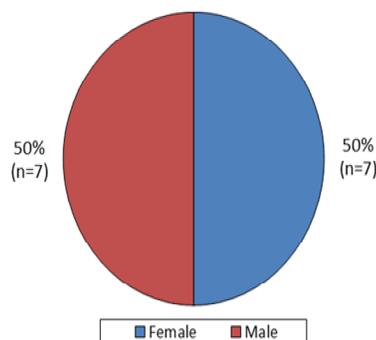
Symptoms: Fever, anorexia, malaise, nausea, vomiting, abdominal pain, and jaundice. There may also be occurrences of skin rashes, arthralgia, and arthritis.



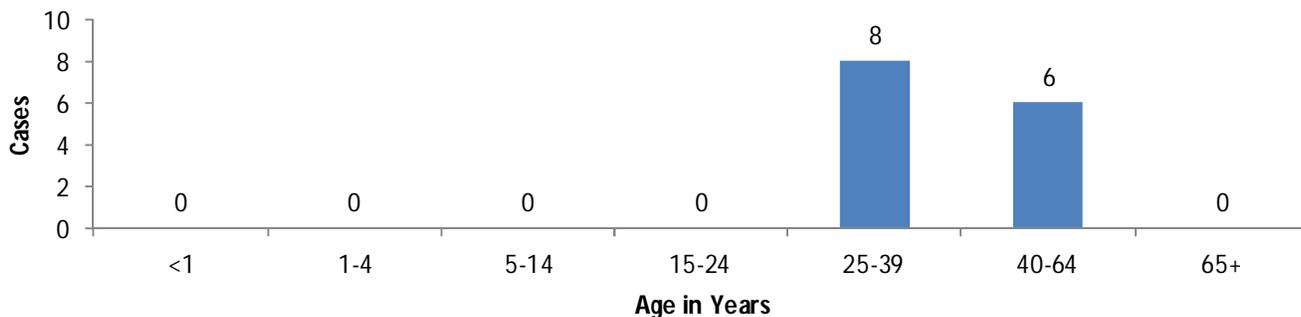
Hepatitis B, acute

- There were 14 cases of acute Hepatitis B reported in Cuyahoga County in 2014. This translates to a rate of 1.1 per 100,000.
- All 14 cases were 25 years or older.

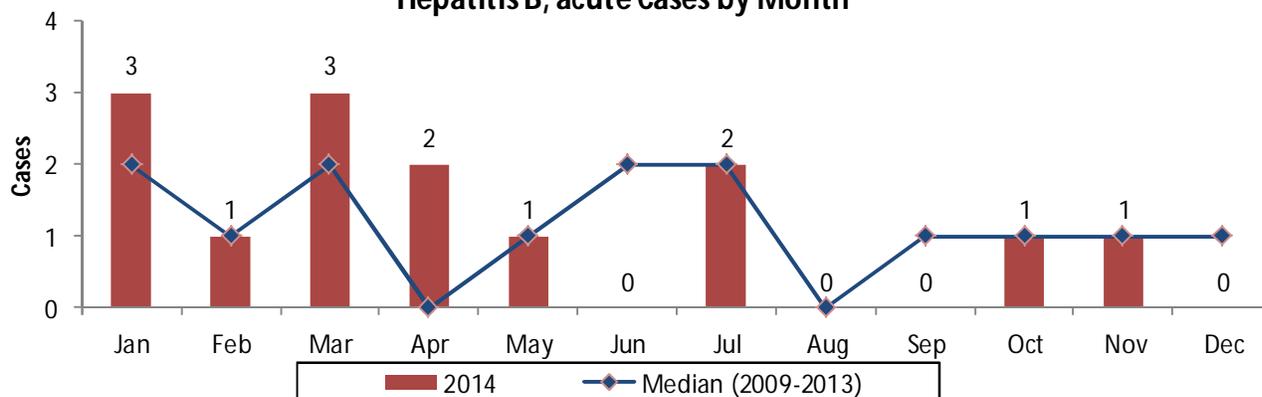
Hepatitis B, acute Cases by Gender



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.

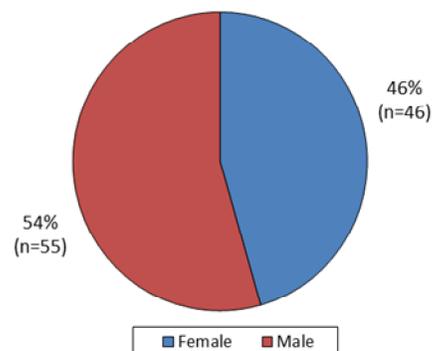
Incubation Period: 6 weeks - 6 months, usually 3-4 months

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.

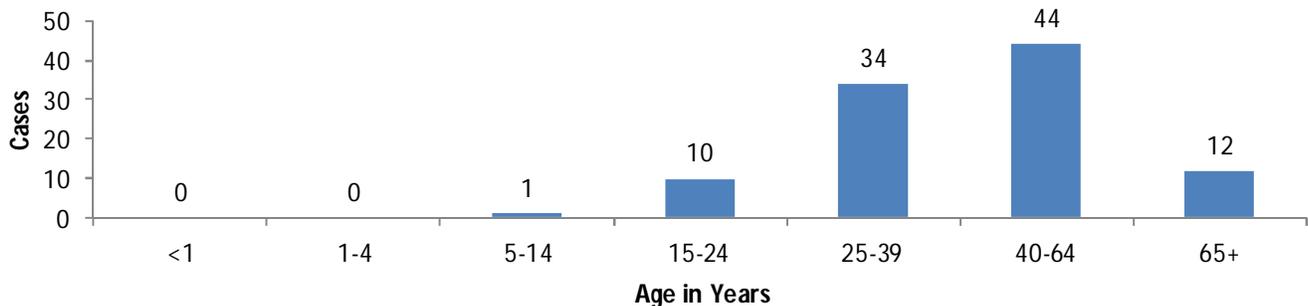
Hepatitis B, chronic

- In 2014 there were 101 cases of chronic Hepatitis B reported in Cuyahoga County. This translates to a rate of 8.0 per 100,000.
- This is the smallest number of cases reported in the past 6 years.

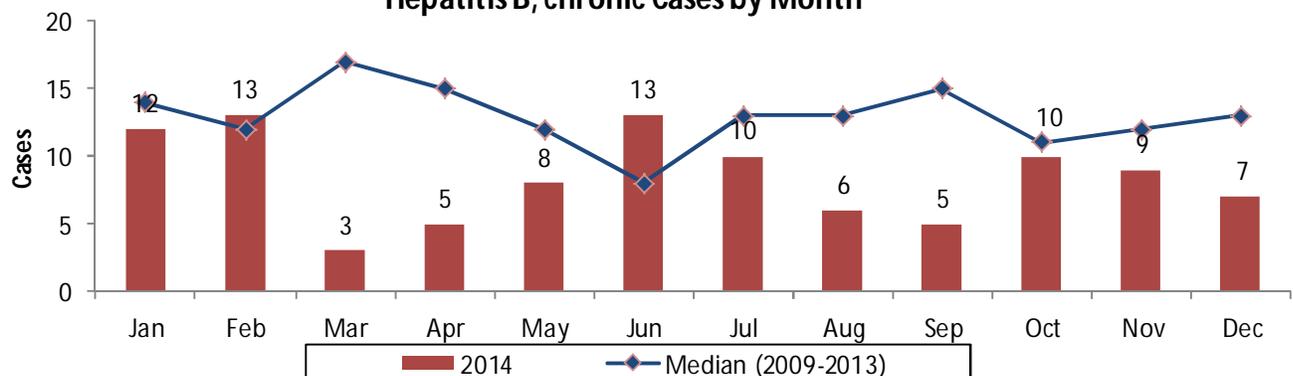
Hepatitis B, chronic Cases by Gender



Hepatitis B, chronic Cases by Age

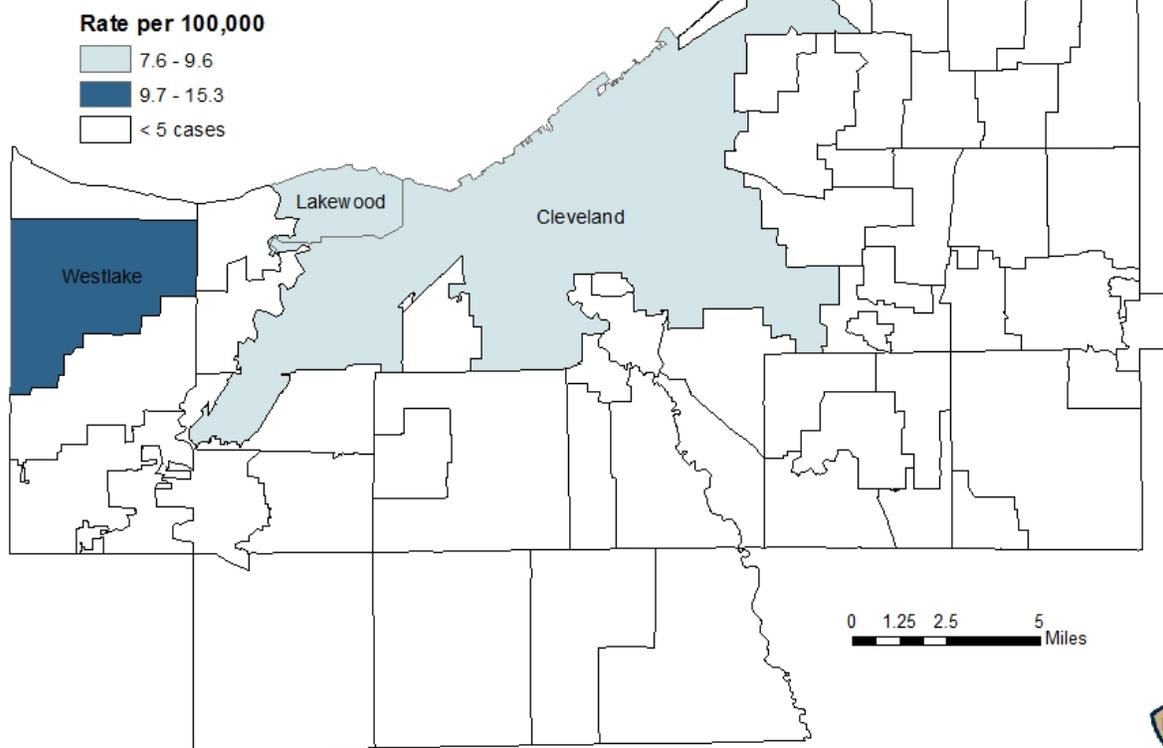


Hepatitis B, chronic Cases by Month



Hepatitis B, chronic

Hepatitis B, Chronic Rates by City of Residence Cuyahoga County, 2014



Data source: Ohio Disease Reporting System, Ohio Department of Health; State Plane Ohio North (US Feet)
Prepared by: Epidemiology, Surveillance, & Informatics, Cuyahoga County Board of Health; March 2016

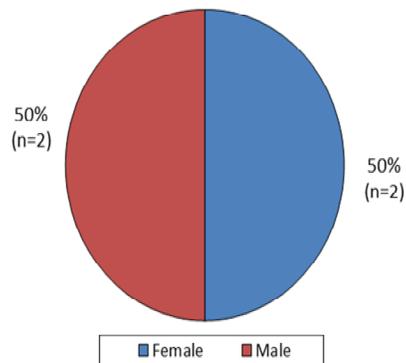
Hepatitis C, acute

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).

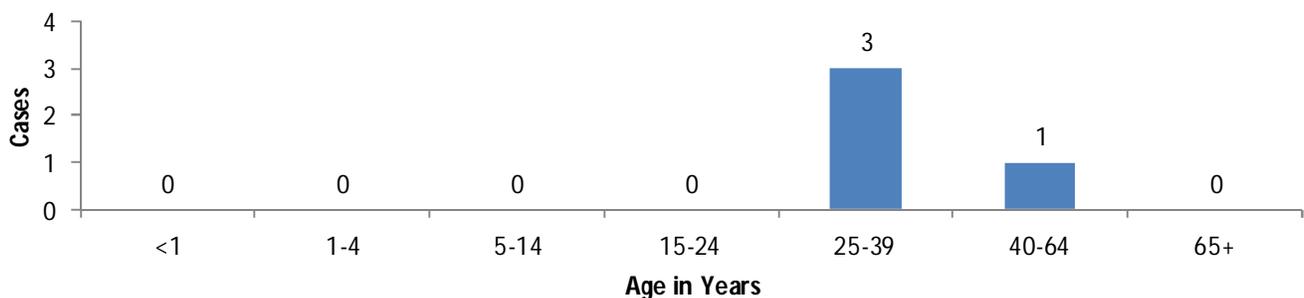
Hepatitis C, acute

- There were 4 cases of acute Hepatitis C reported in 2014 for a rate of 0.3 per 100,000. The Healthy People 2020 target is 0.2 per 100,000.
- Similar to Hepatitis B, acute cases, all 4 cases were 25 years or older.

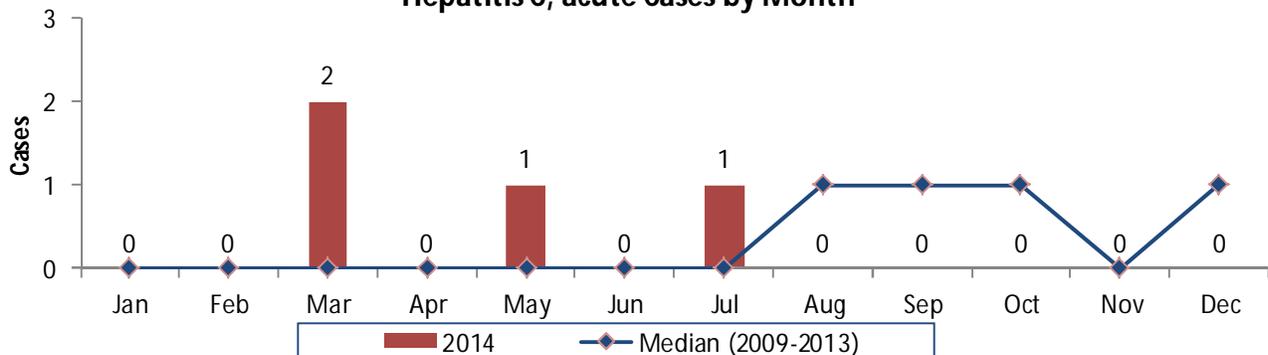
Hepatitis C, acute Cases by Gender



Hepatitis C, acute Cases by Age



Hepatitis C, acute Cases by Month



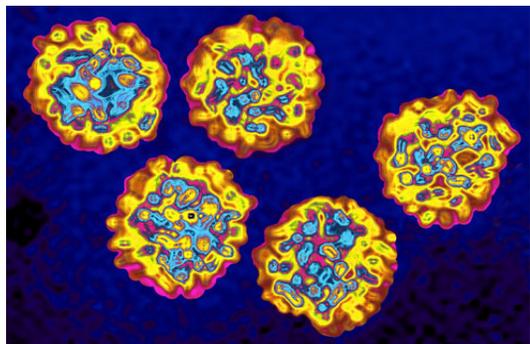
Hepatitis C, chronic

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 childbirth, sexual intercourse with an infected person, or sharing infected items such as razors or toothbrushes.

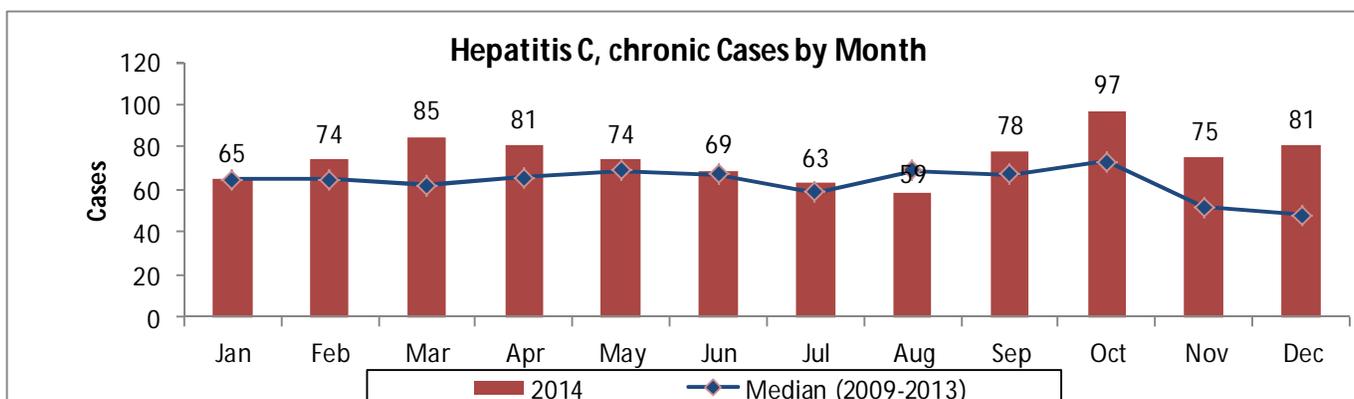
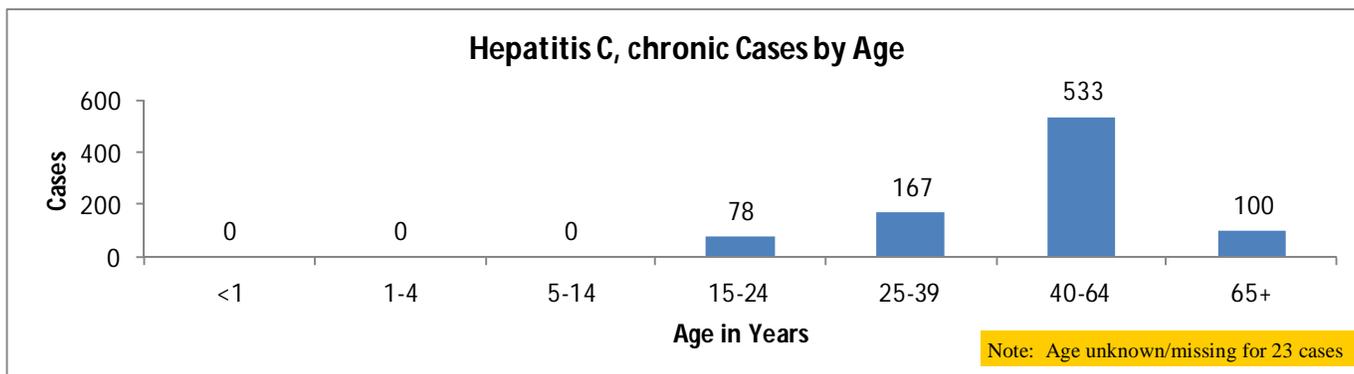
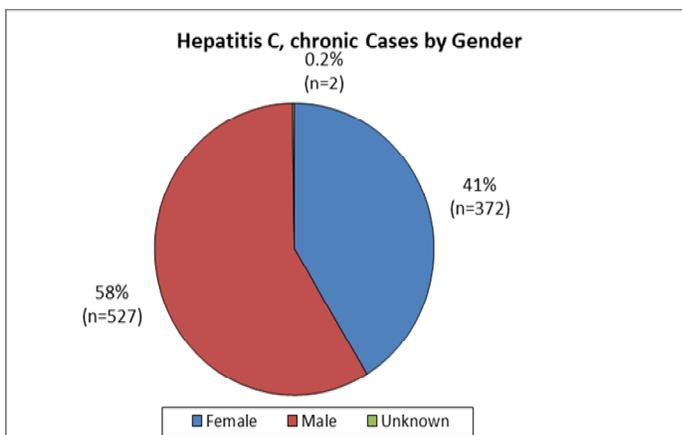
Incubation Period: 2 weeks - 6 months, usually 6-7 weeks.

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



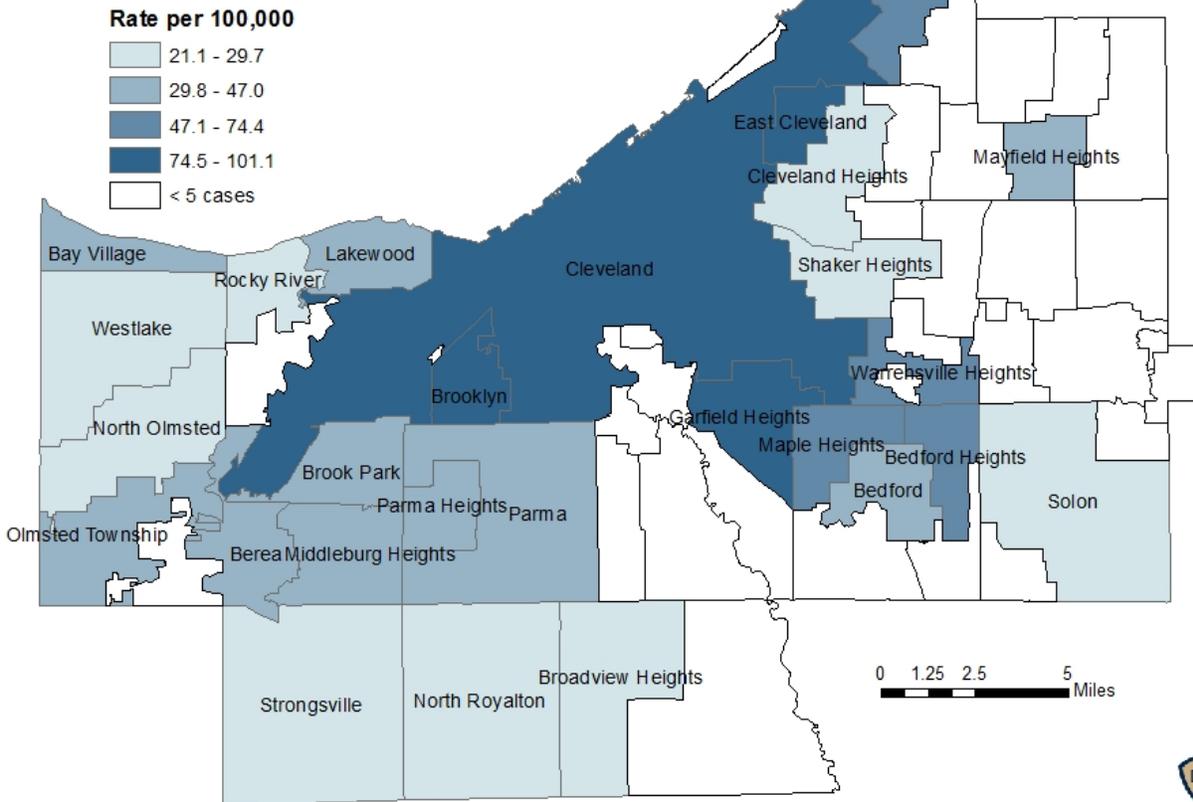
Hepatitis C, chronic

- There were 901 cases of chronic Hepatitis C reported in Cuyahoga County. This translates to a rate of 71.5 per 100,000.
- This is the largest number of cases reported in the past 4 years.



Hepatitis C, chronic

Hepatitis C, Chronic Rates by City of Residence Cuyahoga County, 2014

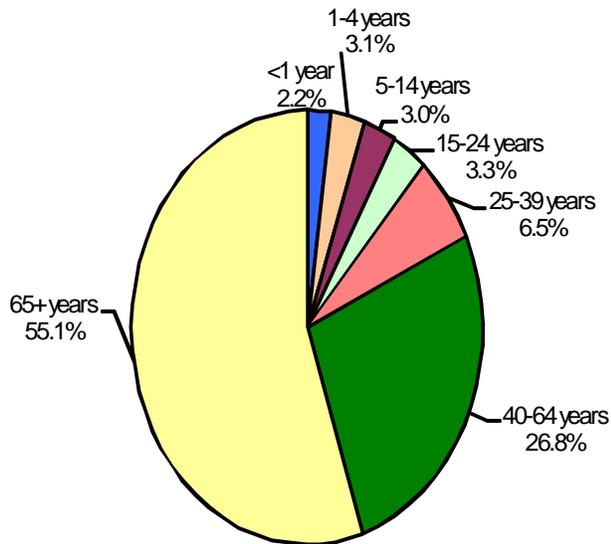


Data source: Ohio Disease Reporting System, Ohio Department of Health; State Plane Ohio North (US Feet)
Prepared by: Epidemiology, Surveillance, & Informatics, Cuyahoga County Board of Health; March 2016



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.

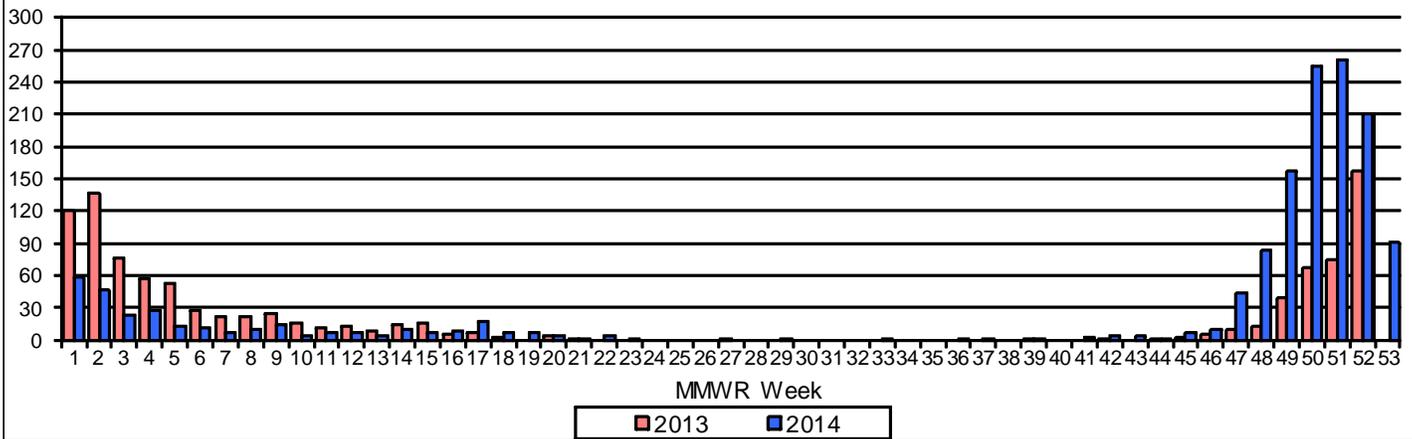
Incubation Period: 1-4 days, usually 2 days

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

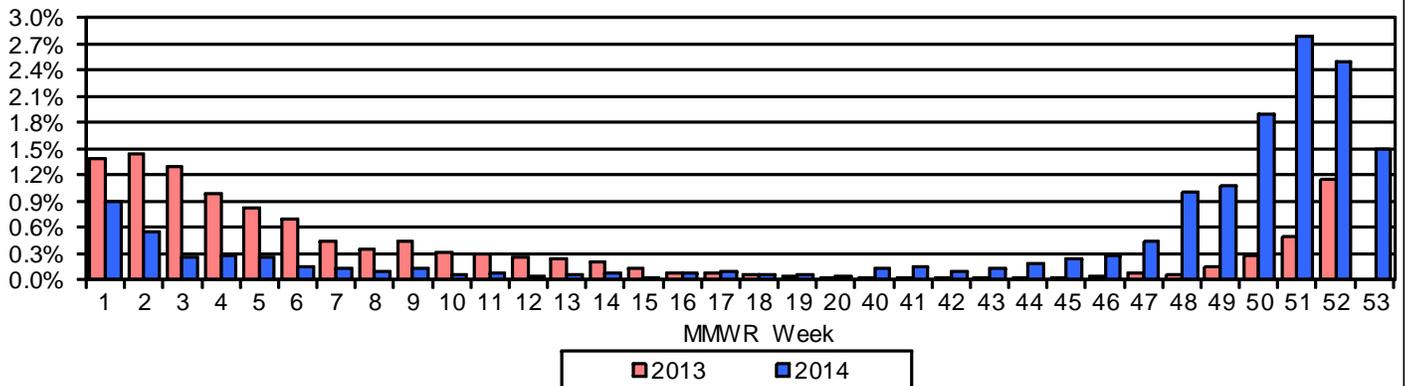
Influenza in Cuyahoga County

- 1,423 influenza-associated hospitalizations occurred during 2014. Most hospitalizations since mandatory reporting started in 2009.
- The 2014 median percentage of influenza-like illness doctor visits was 0.21% while the 2013 median was 0.21%. Data was provided by athenahealth.

Influenza Associated Hospitalizations 2013-2014

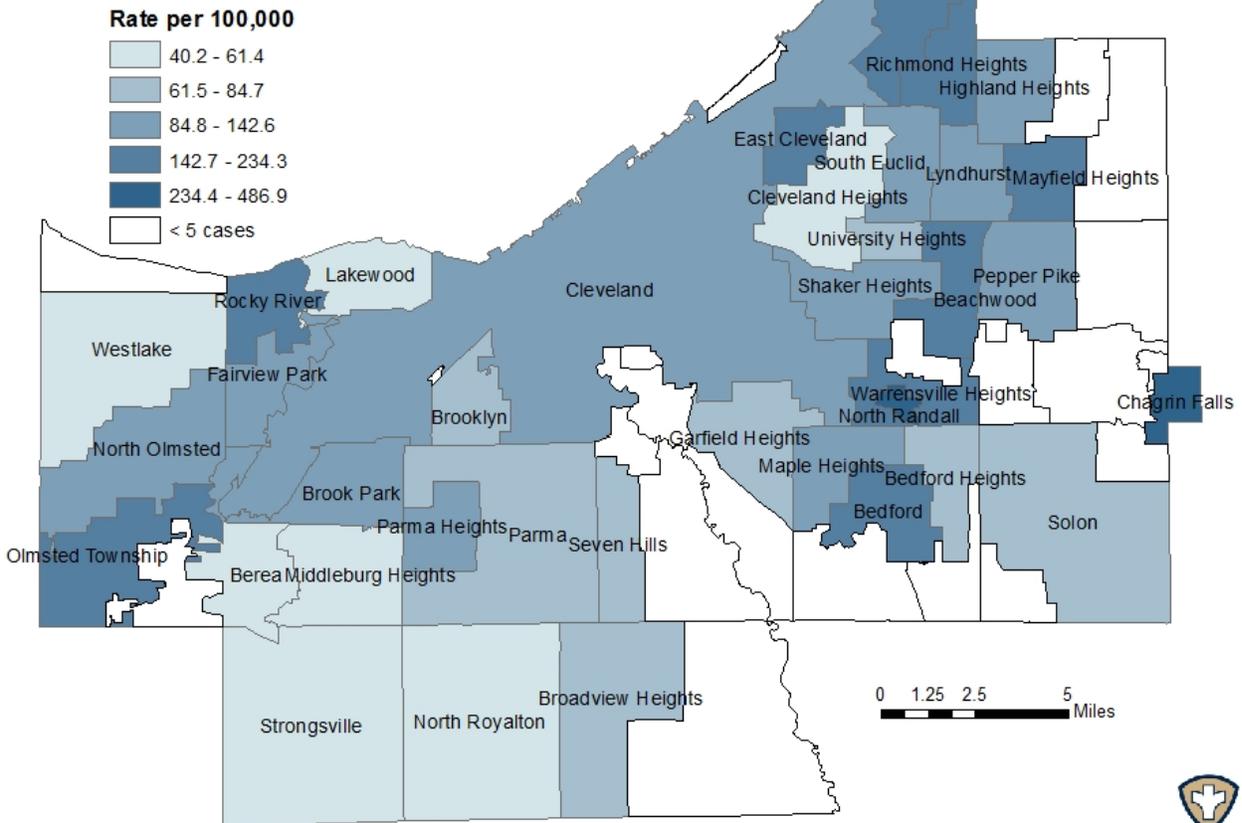


Percent of Doctor Visits with Influenza-Like Illness (ILI) Symptoms 2013-2014



Influenza

Influenza Hospitalization Rates by City of Residence Cuyahoga County, 2014



Data source: Ohio Disease Reporting System, Ohio Department of Health; State Plane Ohio North (US Feet)
Prepared by: Epidemiology, Surveillance, & Informatics, Cuyahoga County Board of Health; March 2016



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.

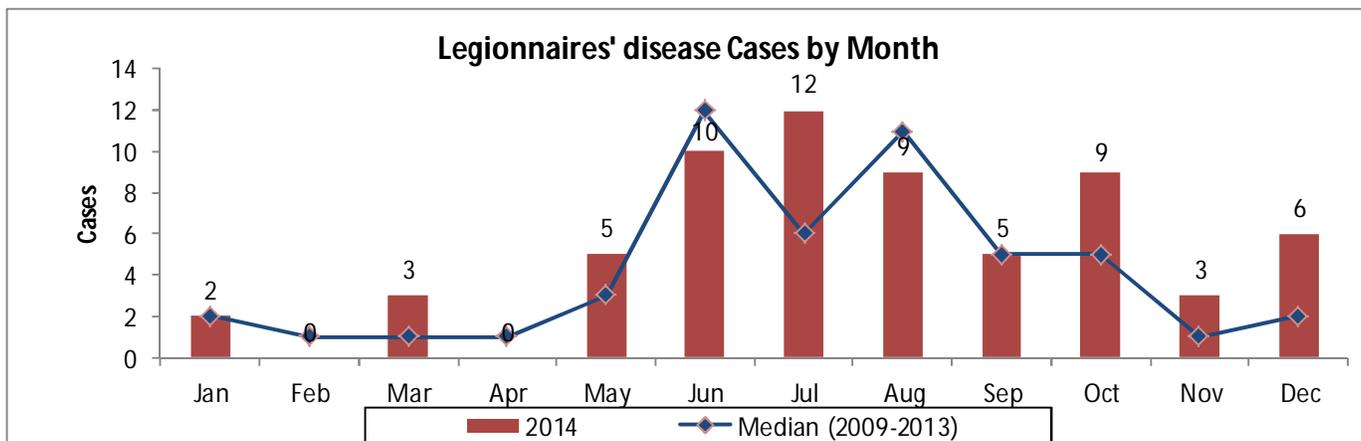
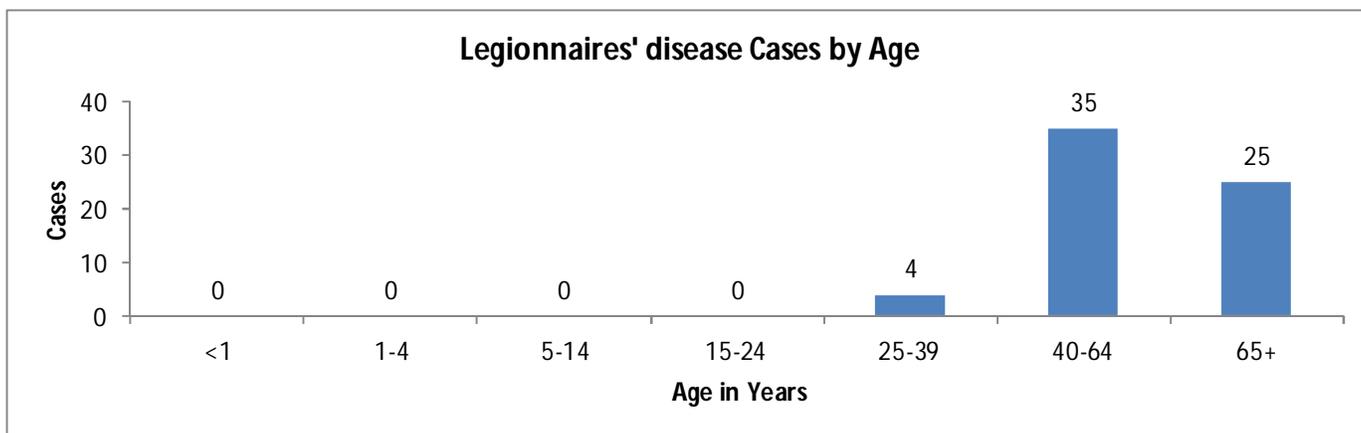
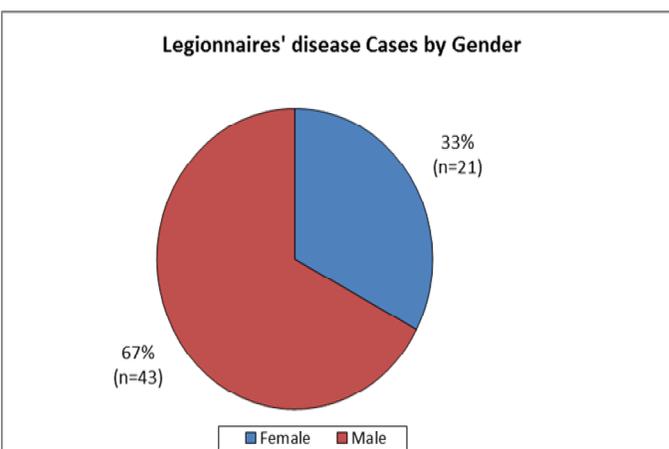
Mode of Transmission: The airborne route appears to be the mode of transmission, most commonly by inhalation of aerosolized contaminated water.

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 64 cases of Legionnaires' disease reported in 2014 for a rate of 5.1 per 100,000.
- 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.

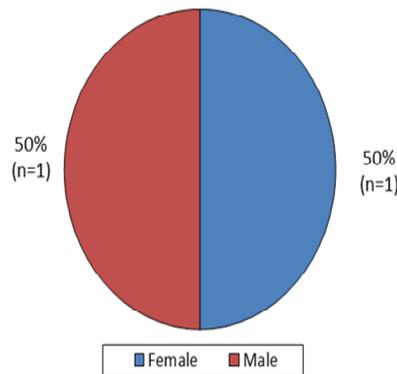
Incubation Period: 3-70 days, usually 3 weeks. The fetus is usually infected within several days after maternal disease.

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

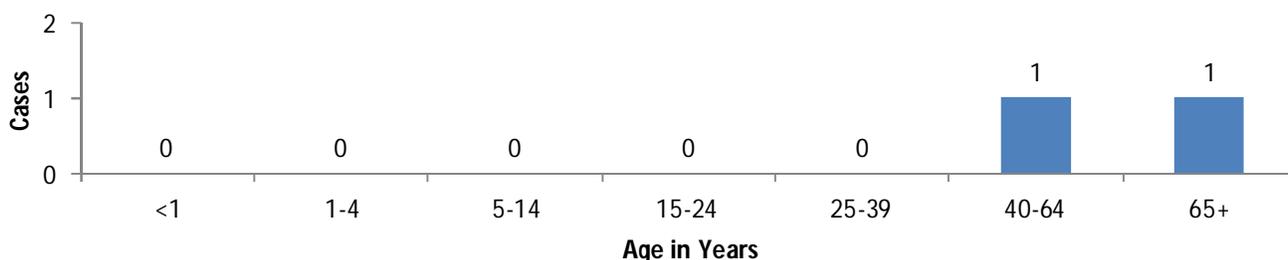
Listeriosis

- There were 2 cases of Listeriosis reported in 2014.
- Both cases occurred in persons 40 years or older.

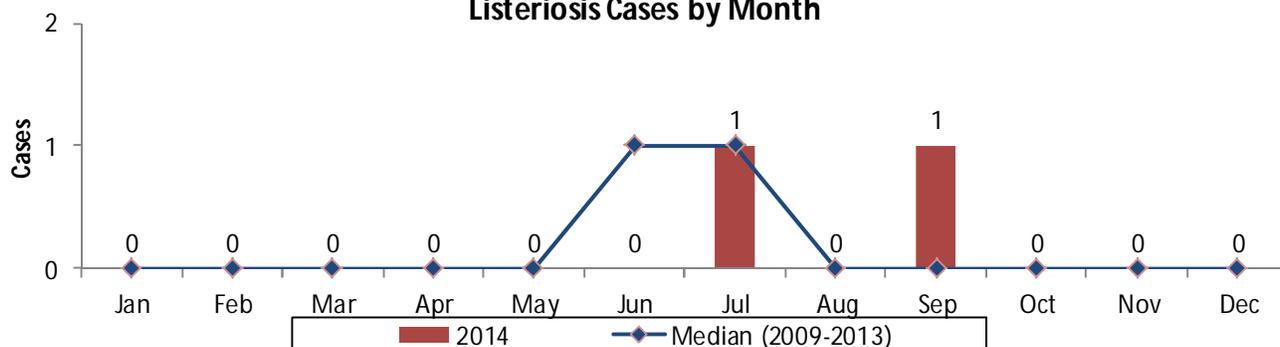
Listeriosis Cases by Gender



Listeriosis Cases by Age



Listeriosis Cases by Month



Meningococcal disease

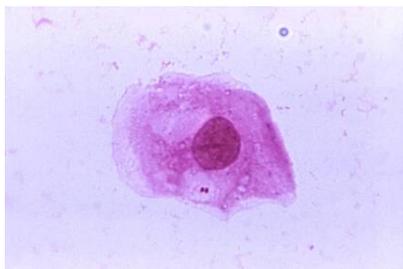
Infectious Agent: *Neisseria meningitidis*. Multiple serogroups are known to cause invasive disease (i.e., A, B, C, X, Y, W-135). Serogroups B, C, and Y are the most prevalent in Ohio.

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.

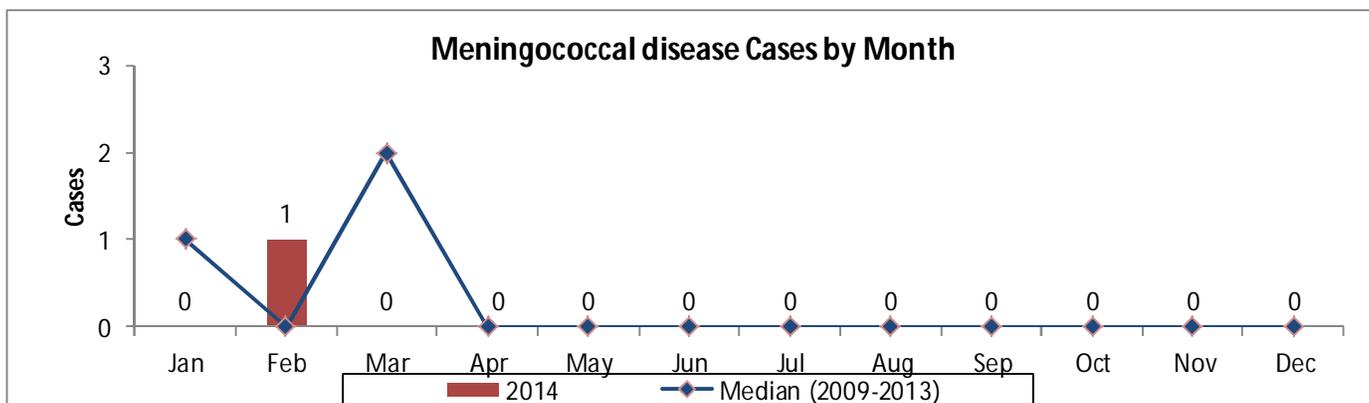


Meningococcal disease

- There was 1 case of Meningococcal disease reported in Cuyahoga County in 2014.

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

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



Pertussis

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

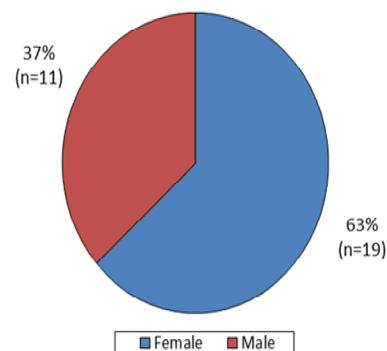
Incubation Period: 6-20 days, usually 9-10 days

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.

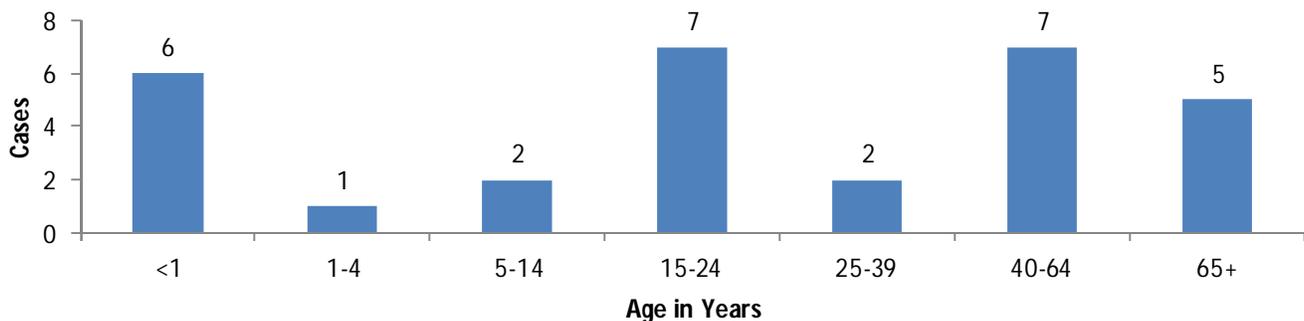
Pertussis

- There were 30 cases of Pertussis reported in 2014. This translates to a rate of 2.4 per 100,000.
- A majority of the cases (63%) were female.

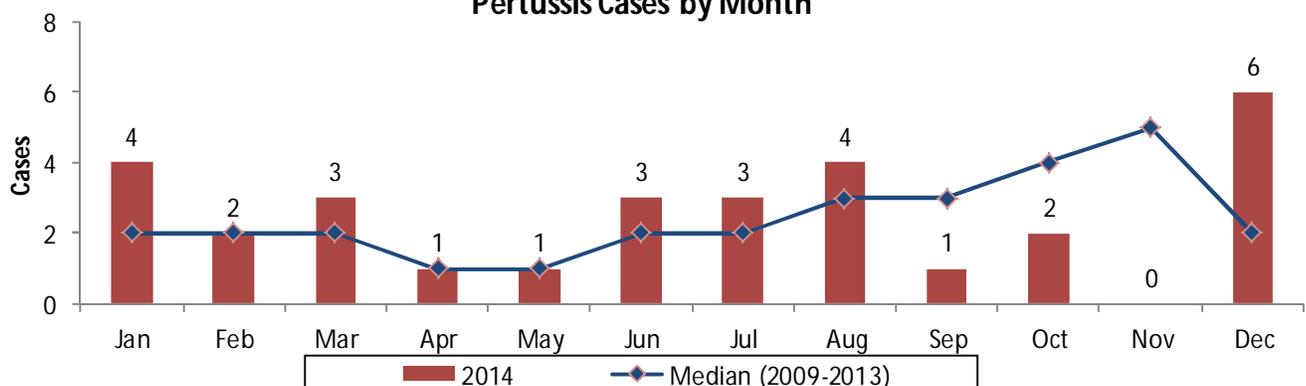
Pertussis Cases by Gender



Pertussis Cases by Age



Pertussis Cases by Month



Salmonellosis

Salmonellosis

- There were 123 cases of Salmonellosis reported in 2014 for a rate of 9.8 per 100,000. This is below the Healthy People 2020 target of 11.4 per 100,000.
- A majority of the cases (63%) were female.



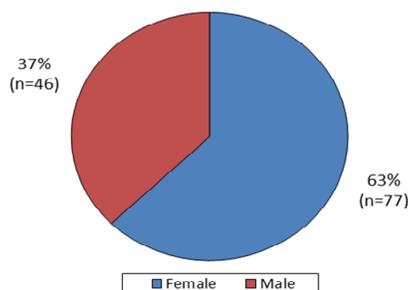
Infectious Agent: *Salmonella typhimurium* and *Salmonella enteritidis* are the most common in the United States.

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.

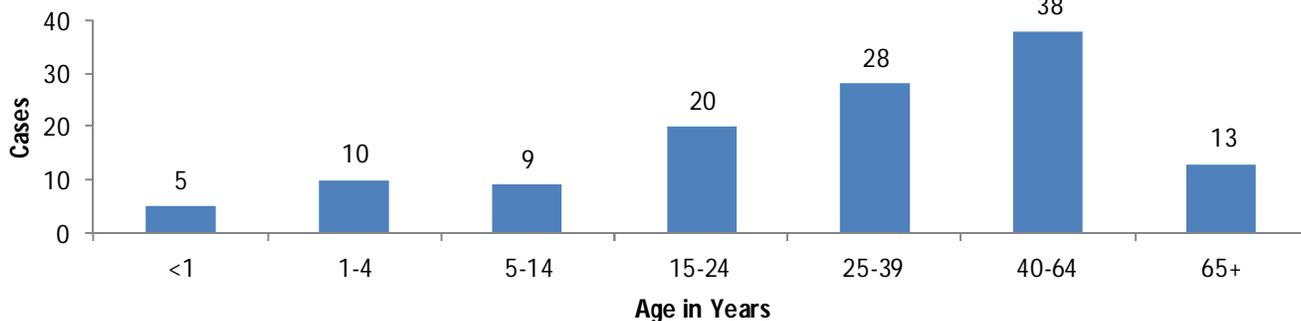
Incubation Period: 6-72 hours, usually 12-36 hours

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

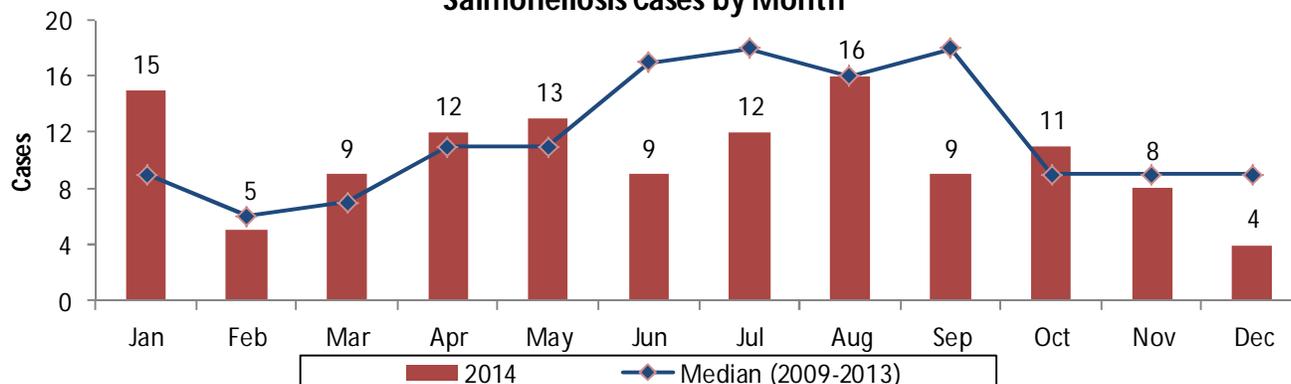
Salmonellosis Cases by Gender



Salmonellosis Cases by Age



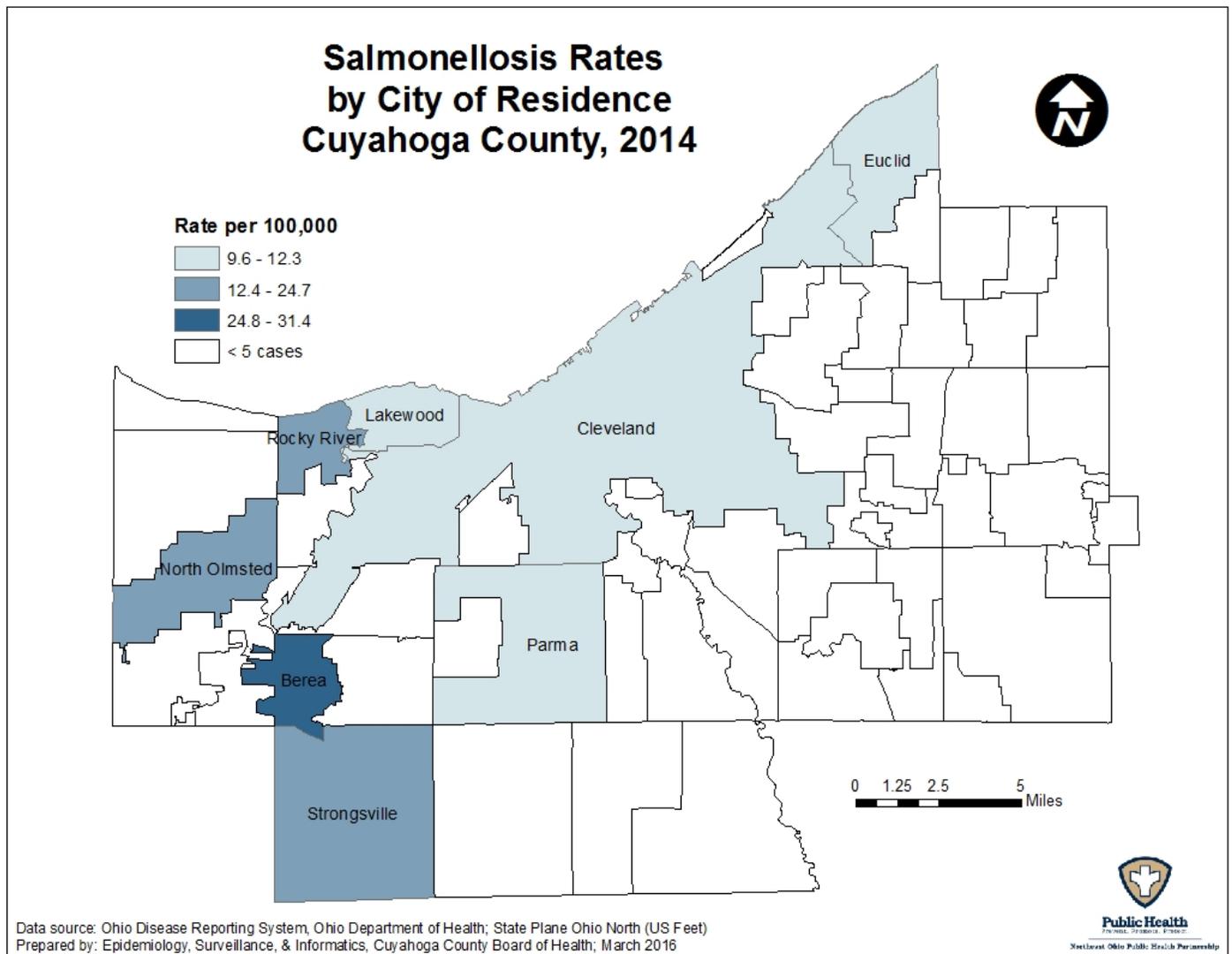
Salmonellosis Cases by Month



Salmonellosis

Most Frequent *Salmonella* Serotypes in Cuyahoga County among Specimens Typed at the Ohio Department of Health Laboratory, 2014 (N=109)

Serotype	Number of Cases	Percent
Enteritidis	31	28.4%
B:i:-(monophasic)	14	12.8%
Typhimurium	12	11.0%
Javiana	7	6.4%
All Other	45	41.3%



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.

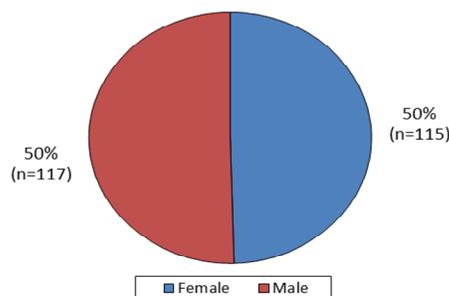
Incubation Period: 12-96 hours, usually 1-3 days



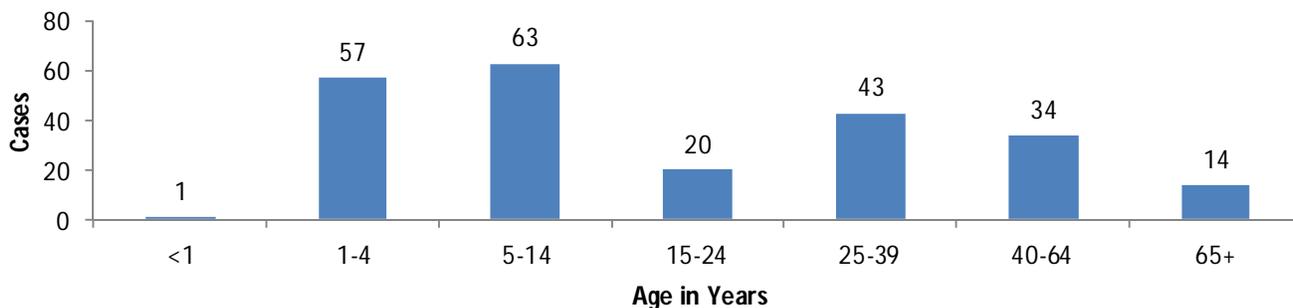
Shigellosis

- There were 232 cases of Shigellosis reported in 2014 for a rate of 18.4 per 100,000.
- This is the largest number of cases reported in the past 5 years.
- The Cuyahoga County Public Health Collaborative investigated 6 outbreaks of Shigellosis. Five of the outbreaks occurred in daycare centers and the other occurred in an elementary school.

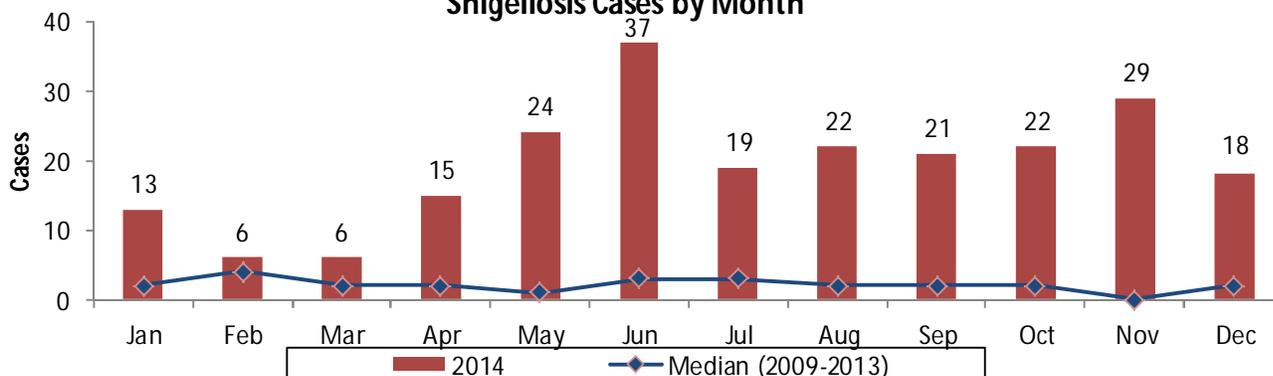
Shigellosis Cases by Gender



Shigellosis Cases by Age

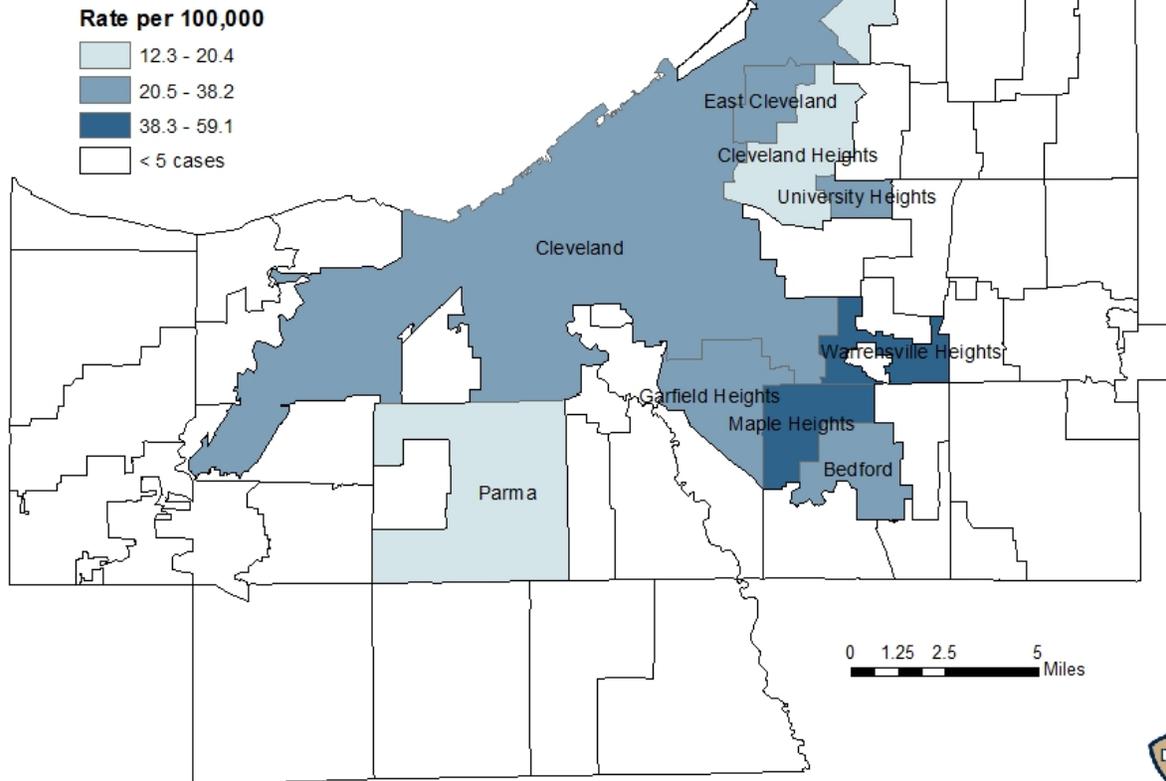


Shigellosis Cases by Month



Shigellosis

Shigellosis Rates by City of Residence Cuyahoga County, 2014



Data source: Ohio Disease Reporting System, Ohio Department of Health; State Plane Ohio North (US Feet)
Prepared by: Epidemiology, Surveillance, & Informatics, Cuyahoga County Board of Health; March 2016



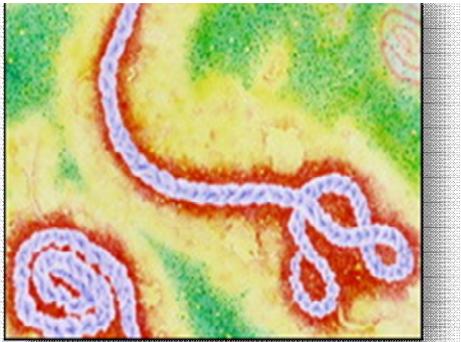
Ebola Summary

Infectious Agent: Ebola virus disease (EVD).

Mode of Transmission: EVD is spread through direct contact with blood or body fluids (such as saliva, sweat, semen, stool or urine) of an infected person or animal or through contact with objects that have been contaminated with the blood or other body fluids of an infected person.

Incubation Period: 2 to 21 days after exposure to Ebola, usually 8-10 days.

Symptoms: Fever, severe headache, muscle pain, weakness, fatigue, diarrhea, vomiting, abdominal (stomach) pain, and/or unexplained hemorrhage



Additional Facts

- Ebola virus disease (also known as Ebola hemorrhagic fever) is a rare, but severe disease that is often-fatal.
- Ebola viruses are found in several African countries. The first Ebola virus species was discovered in 1976 in what is now the Democratic Republic of the Congo near the Ebola River.
- Since March 2014, West Africa has experienced the largest outbreak of Ebola in history.
- Infected persons are not contagious until onset of symptoms.
- Infectiousness of body fluids (e.g., viral load) increases as patient becomes more ill.
- The remains from deceased infected persons are highly infectious requiring special burial procedures.

The United States Experience

- On September 30, 2014, the Centers for Disease Control (CDC) confirmed the first laboratory-confirmed case of Ebola to be diagnosed in the United States in a man who had traveled to Dallas, Texas from Liberia.
- On October 10, 2014, a healthcare worker at Texas Presbyterian Hospital who provided care for the first case (mentioned above) tested positive for Ebola.
- On October 15, 2014, a second healthcare worker who provided care for the first case at Texas Presbyterian Hospital tested positive for Ebola.
- On October 23, 2014, the New York City Department of Health and Mental Hygiene reported a case of Ebola in a medical aid worker who had returned to New York City from Guinea, where the medical aid worker had served with Doctors Without Borders.
- CDC, state, and local public health departments in Texas, Ohio, and New York took precautions to identify people who had close personal contact with the patients monitoring them to see if they would develop EVD.
- Among the 829 persons monitored (Texas = 177, Ohio = 164, and New York = 117), no additional cases of EVD developed in the United States.
- Monitoring efforts in the United States increased among persons who had travel history to countries experiencing EVD outbreaks. The efforts continued well into 2015 until the outbreak in Africa was controlled.

Ebola Summary

The Northeast Ohio and the Cuyahoga County Experience

- The healthcare worker who tested positive for EVD on October 15, 2014, had traveled to Northeast Ohio days before testing positive for EVD.
- As a result of this travel, local health departments in the Northeast Ohio region worked with federal and state partners to identify persons who may have come into contact with this healthcare worker.
- Local healthcare systems and emergency medical services agencies increased planning and preparedness efforts to be ready to assist with identifying and treating persons who may develop EVD.
- Public health officials assessed the risk of exposure and conducted daily monitoring of individuals who may have been exposed for the entire incubation period (i.e. 21 days).
- Of the 164 persons monitored in Ohio, 59 persons were monitored by the health departments in Cuyahoga County. No individuals monitored developed EDV.
- Monitoring efforts continued for persons who had travel history to countries experiencing EVD outbreaks. The last person monitored in Cuyahoga County concluded in January 2016.
- Planning efforts continue among healthcare and public health officials in order to help be prepared should EVD emerge in the United States in the future.

For more information on Ebola , please visit the CDC website at:

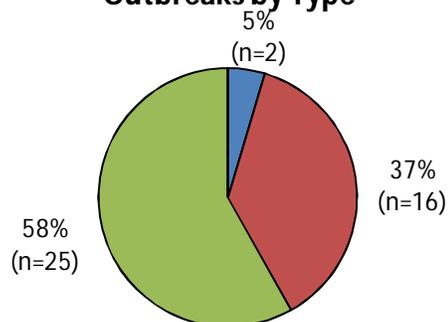
<http://www.cdc.gov/vhf/ebola/index.html>

2014 Outbreaks

Outbreaks in Cuyahoga County

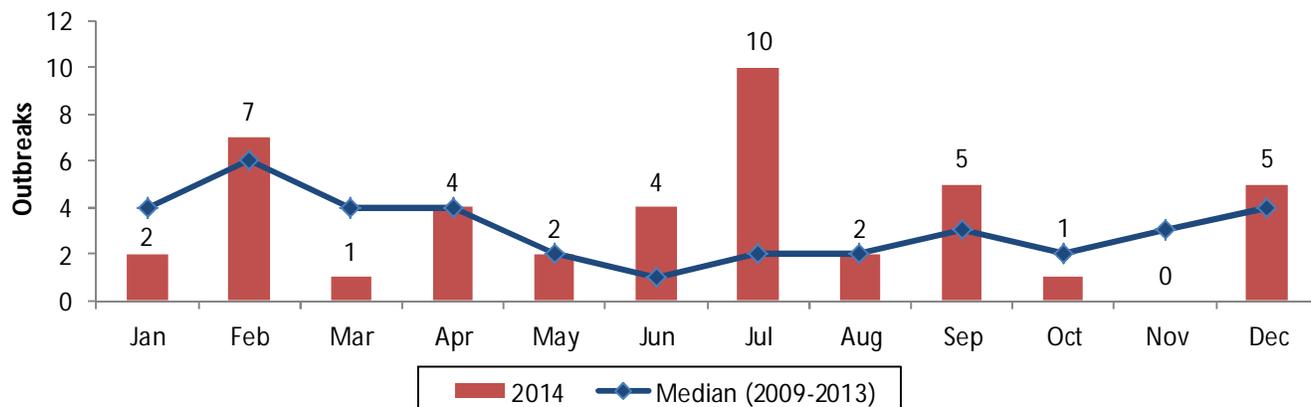
- In 2014, there were 43 outbreaks reported and investigated by the local public health departments in Cuyahoga County.
- Coxsackie virus (Hand, foot, and mouth disease) was the leading causative agent resulting in 21% of all reported outbreaks followed by Norovirus resulting in 19% of all reported outbreaks.

Outbreaks by Type



■ Community ■ Healthcare-associated ■ Institutional

Outbreaks by Month



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.

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	Influenza A - novel virus	Rabies, human	Smallpox
Botulism, foodborne	Measles	Rubella (not congenital)	Tularemia
Cholera	Meningococcal disease	Severe acute respiratory syndrome (SARS)	Viral hemorrhagic fever (VHF)
Diphtheria	Plague		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:	Chancroid	Hepatitis B, perinatal	Rubella (congenital)
Eastern equine encephalitis virus disease	Coccidioidomycosis	Influenza-associated pediatric mortality	Salmonellosis
LaCrosse virus disease (other California serogroup virus disease)	Cyclosporiasis	Legionnaires' disease	Shigellosis
Powassan virus disease	Dengue	Listeriosis	<i>Staphylococcus aureus</i> , with resistance or intermediate resistance to vancomycin (VRSA, VISA)
St. Louis encephalitis virus disease	<i>E. coli</i> O157:H7 and other enterohemorrhagic (Shiga toxin-producing) <i>E. coli</i>	Meningitis, aseptic (viral)	Syphilis
West Nile infection	Granuloma Inguinale	Meningitis, bacterial	Tetanus
Western equine encephalitis virus disease	<i>Haemophilus influenzae</i> (invasive disease)	Mumps	Tuberculosis, including multi-drug resistant tuberculosis (MDR-TB)
Other arthropod-borne disease	Hantavirus	Pertussis	Typhoid fever
	Hemolytic uremic syndrome (HUS)	Poliomyelitis (including vaccine-associated cases)	
	Hepatitis A	Psittacosis	
		Q 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	Cytomegalovirus (CMV) (congenital)	Hepatitis E	Streptococcal disease, group B, in newborn
Botulism, infant	Ehrlichiosis/Anaplasmosis	Herpes (congenital)	Streptococcal toxic shock syndrome (STSS)
Brucellosis	Giardiasis	Influenza-associated hospitalization	<i>Streptococcus pneumoniae</i> , invasive disease (ISP)
Campylobacteriosis	Gonococcal infections (urethritis, cervicitis, pelvic inflammatory disease, pharyngitis, arthritis, endocarditis, meningitis, and neonatal conjunctivitis)	Leprosy (Hansen disease)	Toxic shock syndrome (TSS)
Chlamydia infections (urethritis, epididymitis, cervicitis, pelvic inflammatory disease, neonatal conjunctivitis, pneumonia, and lymphogranuloma venereum (LGV))	Hepatitis B, non-perinatal	Leptospirosis	Trichinosis
Creutzfeldt-Jakob disease (CJD)	Hepatitis C	Lyme disease	Typhus fever
Cryptosporidiosis	Hepatitis D (delta hepatitis)	Mycobacterial disease, other than tuberculosis (MOTT)	Varicella
		Rocky Mountain spotted fever (RMSE)	Vibriosis
		Streptococcal disease, group A, invasive (IGAS)	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.

*** The guidelines changed on May 1, 2015. The new guidelines will be reflected in the 2015 annual report. ***