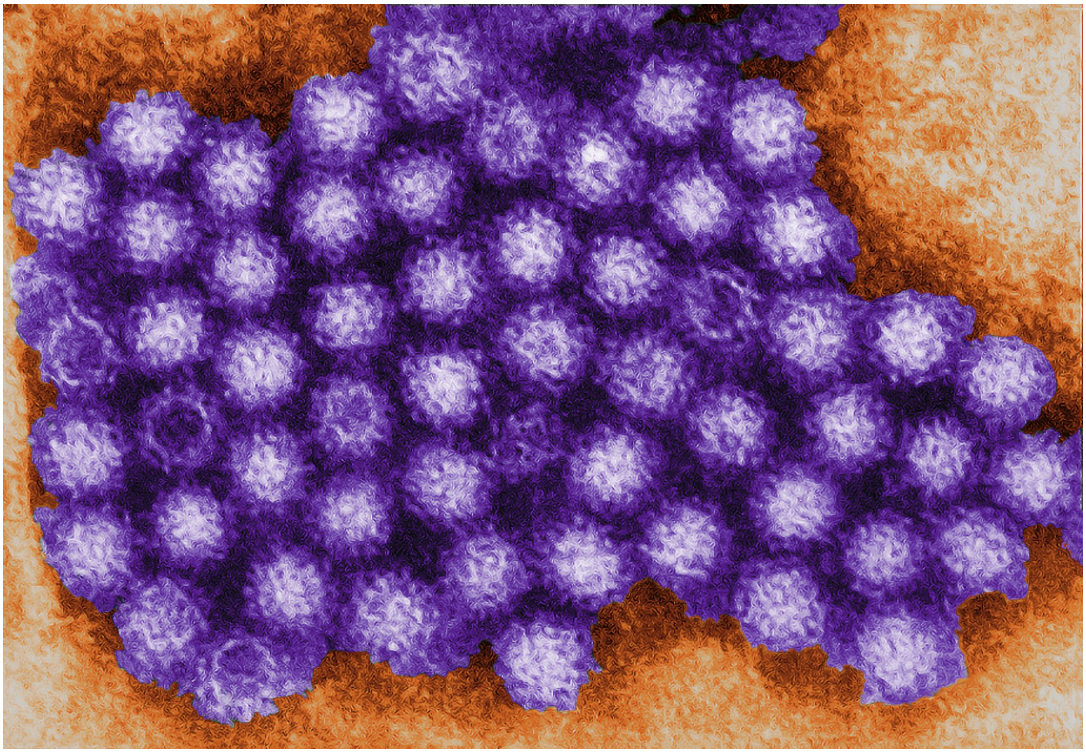
# 2015
# Annual Summary of Reportable Infectious Diseases for Cuyahoga County, Ohio

Report Date: July 11, 2017



Norovirus. (Photo Credit: Charles D. Humphrey, CDC)

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# Acknowledgements

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

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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

The cover of the 2015 Annual Summary of Reportable Infectious Diseases depicts an electron micrograph of Norovirus. Previously known as Norwalk-like Viruses (NLV), it was first identified in 1972 in fecal matter obtained from an outbreak at an elementary school in Norwalk, Ohio.

According to the Centers for Disease Control and Prevention (CDC), Norovirus has become the leading cause of acute gastroenteritis in humans affecting approximately 19-21 million people in the United States each year. Furthermore, Norovirus is the leading cause of illness from contaminated food in the United States. It is estimated that about 50% of all outbreaks of food-related illness are caused by Norovirus.

In 2015, there were 36 outbreaks reported and investigated by the local public health departments in Cuyahoga County. Norovirus was the leading causative agent resulting in 50% of all reported outbreaks.

The most common symptoms of Norovirus are nausea, vomiting, abdominal cramps, and/or diarrhea. These symptoms typically last 1-3 days. Norovirus is a highly contagious virus. Norovirus is transmitted via the fecal-oral route (i.e., accidentally getting stool or vomit from infected people in your mouth). This usually happens by eating food or drinking liquids that are contaminated with norovirus or touching surfaces or objects contaminated with norovirus then putting your fingers in your mouth.

Norovirus can spread quickly in closed places like daycare centers, nursing homes, schools, and cruise ships. Most Norovirus outbreaks happen from November to April in the United States.

Prevention strategies for Norovirus include handwashing with soap and water especially after using the bathroom or changing diapers, cleaning and disinfecting contaminated surfaces, and avoiding preparing food for others while sick.

For more information, please visit the Centers for Disease Control and Prevention (CDC) website at https://www.cdc.gov/norovirus/index.html.

Source: Centers for Disease Control and Prevention

# Table of Contents

# Introduction

The 2015 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 2015.

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 seventh 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. Annual rates were calculated by using annual population estimates from the U.S. Census. The estimates were most recently updated on July 1, 2015. 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/disss/nndss/casedef. For diseases that do not have a current CDC case definition, cases were determined using criteria from the Ohio Department of Health (ODH) Infectious Disease Control Manual (IDCM). The IDCM can be found online at www.odh.ohio.gov/healthresources/infectiousdiseasemanual.aspx.

# 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, 2010-2015

| Table 1. General Infectious Diseases | 2010 | | 2011 | | 2012 | | 2013 | | 2014 | | Median | | Mean | | 2015 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Rate | N | Rate | N | Rate | N | Rate | N | Rate | N | Rate | N | Rate | N | Rate |
| **Aseptic Meningitis** | 95 | 7.4 | 116 | 9.1 | 73 | 5.8 | 57 | 4.5 | 33 | 2.6 | 73 | 5.8 | 75 | 5.9 | 57 | 4.5 |
| **Coccidioidomycosis** | 3 | ** | 0 | ** | 0 | ** | 1 | ** | 2 | ** | 1 | ** | 1 | ** | 0 | ** |
| **Creutzfeldt-Jakob disease (CJD)** | 0 | ** | 0 | ** | 0 | ** | 1 | ** | 1 | ** | 1 | ** | 1 | ** | 0 | ** |
| **Haemophilus influenzae, invasive** | 9 | 0.7 | 12 | 0.9 | 10 | 0.8 | 17 | 1.3 | 16 | 1.3 | 12 | 0.9 | 13 | 1.0 | 14 | 1.1 |
| **Legionnaires' disease** | 33 | 2.6 | 48 | 3.8 | 57 | 4.5 | 73 | 5.8 | 64 | 5.1 | 57 | 4.5 | 55 | 4.3 | 106 | 8.4 |
| **Meningitis, bacterial (non-*Neisseria)*** | 9 | 0.7 | 6 | 0.5 | 6 | 0.5 | 3 | ** | 7 | 0.6 | 6 | 0.5 | 6 | 0.5 | 3 | ** |
| **Streptococcal disease, Group A, invasive** | 23 | 1.8 | 34 | 2.7 | 27 | 2.1 | 24 | 1.9 | 42 | 3.3 | 27 | 2.1 | 30 | 2.4 | 51 | 4.1 |
| **Streptococcal disease, Group B, newborn** | 5 | 0.4 | 17 | 1.3 | 18 | 1.4 | 13 | 1.0 | 14 | 1.1 | 14 | 1.1 | 13 | 1.1 | 12 | 1.0 |
| **Streptococcal Toxic Shock Syndrome** | 1 | ** | 0 | ** | 0 | ** | 1 | ** | 2 | ** | 1 | ** | 1 | ** | 2 | ** |
| **Streptococcus pneumoniae, invasive disease, non-resistant or unknown resistance** | 55 | 4.3 | 70 | 5.5 | 62 | 4.9 | 74 | 5.9 | 58 | 4.6 | 62 | 4.9 | 64 | 5.1 | 55 | 4.4 |
| **Streptococcus pneumoniae, invasive disease, resistant** | 20 | 1.6 | 32 | 2.5 | 21 | 1.7 | 26 | 2.1 | 28 | 2.2 | 26 | 2.1 | 25 | 2.0 | 24 | 1.9 |
| **Toxic Shock Syndrome** | 0 | ** | 0 | ** | 0 | ** | 0 | ** | 0 | ** | 0 | ** | 0 | ** | 0 | ** |
| **Staphylococcus aureus, with intermediate resistance to vancomycin (VISA)** | 2 | ** | 0 | ** | 0 | ** | 0 | ** | 3 | ** | 0 | ** | 1 | ** | 0 | ** |

| Table 2. Hepatitis | 2010 | | 2011 | | 2012 | | 2013 | | 2014 | | Median | | Mean | | 2015 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Rate | N | Rate | N | Rate | N | Rate | N | Rate | N | Rate | N | Rate | N | Rate |
| **Hepatitis A** | 1 | ** | 4 | ** | 0 | ** | 6 | 0.5 | 4 | ** | 4 | ** | 3 | ** | 5 | 0.4 |
| **Hepatitis B, acute** | 25 | 2.0 | 18 | 1.4 | 12 | 0.9 | 10 | 0.8 | 15 | 1.2 | 15 | 1.2 | 16 | 1.3 | 9 | 0.7 |
| **Hepatitis B, chronic** | 172 | 13.5 | 166 | 13.1 | 172 | 13.6 | 106 | 8.4 | 110 | 8.7 | 166 | 13.1 | 145 | 11.5 | 226 | 18.0 |
| **Hepatitis C, acute** | 5 | 0.4 | 9 | 0.7 | 6 | 0.5 | 2 | ** | 4 | ** | 5 | 0.4 | 5 | 0.4 | 6 | 0.5 |
| **Hepatitis C, chronic** | 1189 | 93.0 | 712 | 56.1 | 601 | 47.5 | 817 | 64.7 | 942 | 74.8 | 817 | 64.6 | 852 | 67.2 | 1079 | 85.9 |
| **Hepatitis E** | 0 | ** | 0 | ** | 0 | ** | 0 | ** | 0 | ** | 0 | ** | 0 | ** | 0 | ** |

# Selected Reportable Infectious Diseases by Year of Onset, Cuyahoga County, 2010-2015

**Table 3. Enteric Diseases**

| | 2010 | | 2011 | | 2012 | | 2013 | | 2014 | | Median | | Mean | | 2015 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Rate | N | Rate | N | Rate | N | Rate | N | Rate | N | Rate | N | Rate | N | Rate |
| **Amebiasis** | 6 | 0.5 | 0 | ** | 1 | ** | 0 | ** | 0 | ** | 0 | ** | 1 | ** | 2 | ** |
| **Botulism, foodborne** | 0 | ** | 0 | ** | 0 | ** | 0 | ** | 0 | ** | 0 | ** | 0 | ** | 0 | ** |
| **Campylobacteriosis** | 172 | 13.5 | 151 | 11.9 | 136 | 10.8 | 64 | 5.1 | 61 | 4.8 | 136 | 10.8 | 117 | 9.2 | 255 | 20.3 |
| **Cryptosporidiosis** | 30 | 2.3 | 9 | 0.7 | 6 | 0.5 | 13 | 1.0 | 23 | 1.8 | 13 | 1.0 | 16 | 1.3 | 18 | 1.4 |
| **Cyclosporiasis** | 0 | ** | 0 | ** | 0 | ** | 0 | ** | 0 | ** | 0 | ** | 0 | ** | 0 | ** |
| ***E.coli O157:H7 and other enterohemorrhagic*** | 7 | 0.5 | 9 | 0.7 | 16 | 1.3 | 23 | 1.8 | 14 | 1.1 | 14 | 1.1 | 14 | 1.1 | 20 | 1.6 |
| **Giardiasis** | 75 | 5.9 | 110 | 8.7 | 59 | 4.7 | 51 | 4.0 | 39 | 3.1 | 59 | 4.7 | 67 | 5.3 | 35 | 2.8 |
| **Hemolytic uremic syndrome (HUS)** | 0 | ** | 0 | ** | 0 | ** | 0 | ** | 0 | ** | 0 | ** | 0 | ** | 0 | ** |
| **Listeriosis** | 4 | ** | 4 | ** | 3 | ** | 5 | 0.4 | 2 | ** | 4 | ** | 4 | ** | 6 | 0.5 |
| **Salmonellosis** | 157 | 12.3 | 132 | 10.4 | 133 | 10.5 | 109 | 8.6 | 123 | 9.8 | 132 | 10.4 | 131 | 10.3 | 138 | 11.0 |
| **Shigellosis** | 14 | 1.1 | 30 | 2.4 | 53 | 4.2 | 43 | 3.4 | 232 | 18.4 | 43 | 3.4 | 74 | 5.9 | 59 | 4.7 |
| **Typhoid Fever** | 0 | ** | 0 | ** | 0 | ** | 3 | ** | 1 | ** | 0 | ** | 1 | ** | 1 | ** |
| **Vibriosis, other (not cholera)** | 1 | ** | 3 | ** | 1 | ** | 1 | ** | 4 | ** | 1 | ** | 2 | ** | 5 | 0.4 |
| **Yersiniosis** | 6 | 0.5 | 4 | ** | 2 | ** | 4 | ** | 6 | 0.5 | 4 | ** | 4 | ** | 6 | 0.5 |

**Table 4. Vaccine Preventable Diseases**

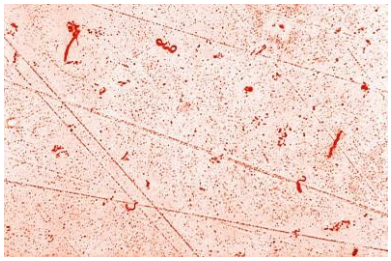
| | 2010 | | 2011 | | 2012 | | 2013 | | 2014 | | Median | | Mean | | 2015 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Rate | N | Rate | N | Rate | N | Rate | N | Rate | N | Rate | N | Rate | N | Rate |
| **Influenza A - novel virus** | 0 | ** | 0 | ** | 0 | ** | 0 | ** | 0 | ** | 0 | ** | 0 | ** | 0 | ** |
| **Influenza-associated hospitalization** | 32 | 2.5 | 505 | 39.8 | 517 | 40.9 | 1001 | 79.2 | 1421 | 112.8 | 517 | 40.9 | 695 | 54.9 | 499 | 39.7 |
| **Influenza-associated pediatric mortality** | 0 | ** | 0 | ** | 0 | ** | 0 | ** | 0 | ** | 0 | ** | 0 | ** | 0 | ** |
| **Meningococcal disease** | 6 | 0.5 | 4 | ** | 4 | ** | 0 | ** | 1 | ** | 4 | ** | 3 | ** | 0 | ** |
| **Mumps** | 15 | 1.2 | 9 | 0.7 | 6 | 0.5 | 3 | ** | 24 | 1.9 | 9 | 0.7 | 11 | 0.9 | 5 | 0.4 |
| **Pertussis** | 29 | 2.3 | 29 | 2.3 | 48 | 3.8 | 24 | 1.9 | 30 | 2.4 | 29 | 2.3 | 32 | 2.5 | 14 | 1.1 |
| **Varicella** | 61 | 4.8 | 78 | 6.1 | 54 | 4.3 | 50 | 4.0 | 31 | 2.5 | 54 | 4.3 | 55 | 4.3 | 34 | 2.7 |

**Table 5. Zoonotic Diseases**

| | 2010 | | 2011 | | 2012 | | 2013 | | 2014 | | Median | | Mean | | 2015 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Rate | N | Rate | N | Rate | N | Rate | N | Rate | N | Rate | N | Rate | N | Rate |
| **Arboviral** | 1 | ** | 8 | 0.6 | 29 | 2.3 | 5 | 0.4 | 14 | 1.1 | 8 | 0.6 | 11 | 0.9 | 9 | 0.7 |
| **Brucellosis** | 0 | ** | 0 | ** | 0 | ** | 0 | ** | 0 | ** | 0 | ** | 0 | ** | 0 | ** |
| **Dengue** | 3 | ** | 0 | ** | 3 | ** | 1 | ** | 1 | ** | 1 | ** | 2 | ** | 1 | ** |
| **Lyme disease** | 6 | 0.5 | 9 | 0.7 | 26 | 2.1 | 22 | 1.7 | 28 | 2.2 | 22 | 1.7 | 18 | 1.4 | 35 | 2.8 |
| **Malaria** | 4 | ** | 2 | ** | 4 | ** | 3 | ** | 6 | 0.5 | 4 | ** | 4 | ** | 4 | ** |
| **Rocky Mountain Spotted Fever** | 1 | ** | 0 | ** | 3 | ** | 1 | ** | 1 | ** | 1 | ** | 1 | ** | 0 | ** |

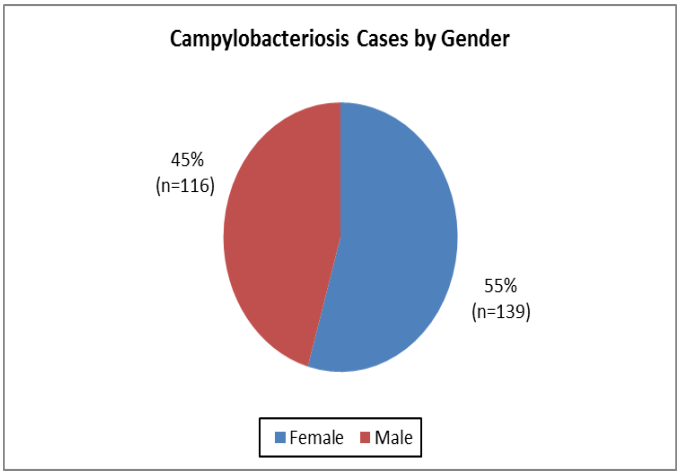
# Campylobacteriosis

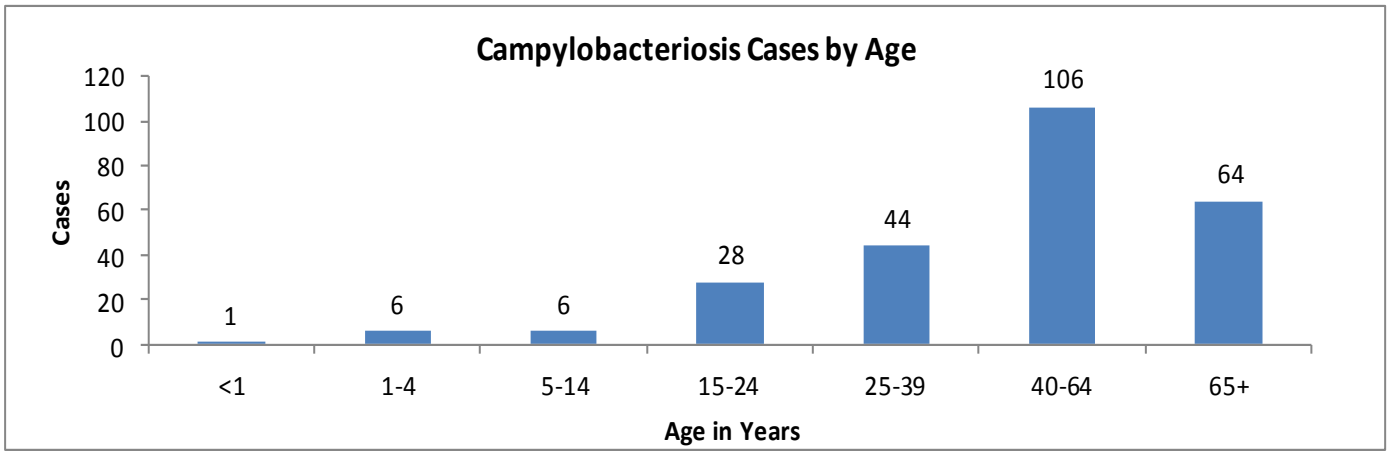
**Infectious Agent:** *Campylobacter jejuni* and less commonly, *C. coli* are the usual causes of Campylobacter diarrhea in humans. Other *Camplobacter* organisms, including *C. laridis* and *C. fetus spp,* have also been associated with diarrhea in normal hosts.
**Mode of Transmission:** Eating undercooked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

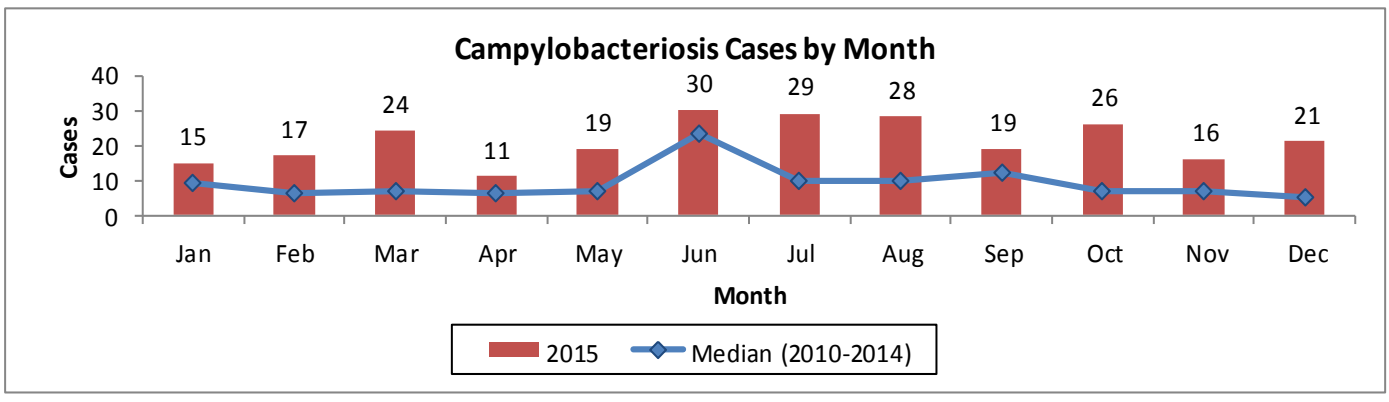


**Campylobacteriosis**

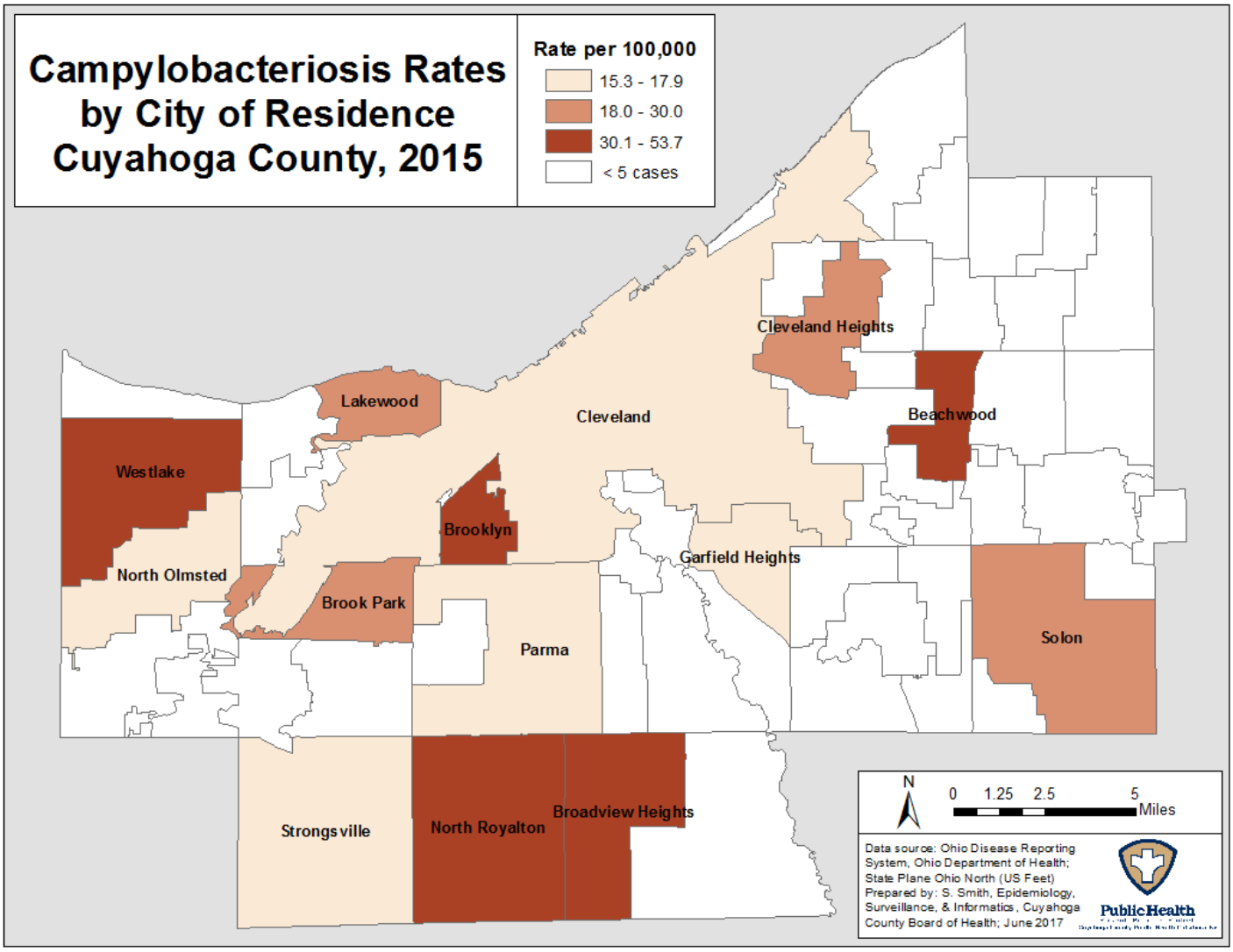
- There were 255 cases of Campylobacteriosis reported in 2015 for a rate of 20.3 per 100,000. The Healthy People 2020 target is 8.5 per 100,000.
- This is the largest number of Campylobacteriosis cases in Cuyahoga County in the past 6 years.



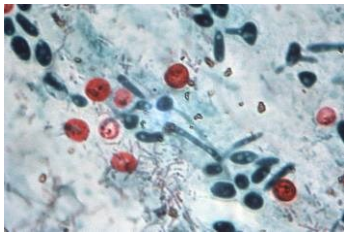



# Campylobacteriosis



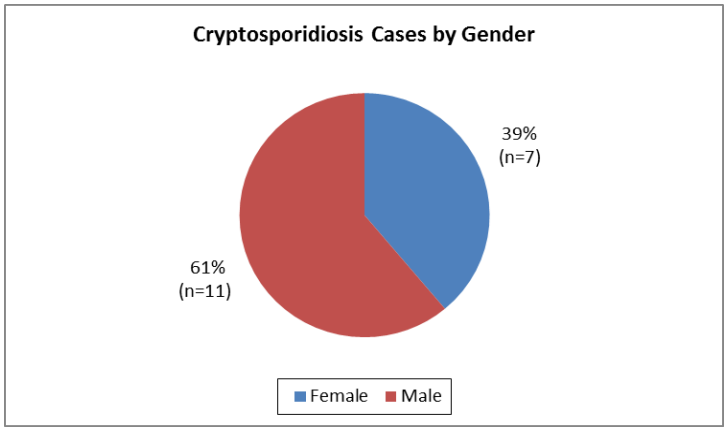
# Cryptosporidiosis

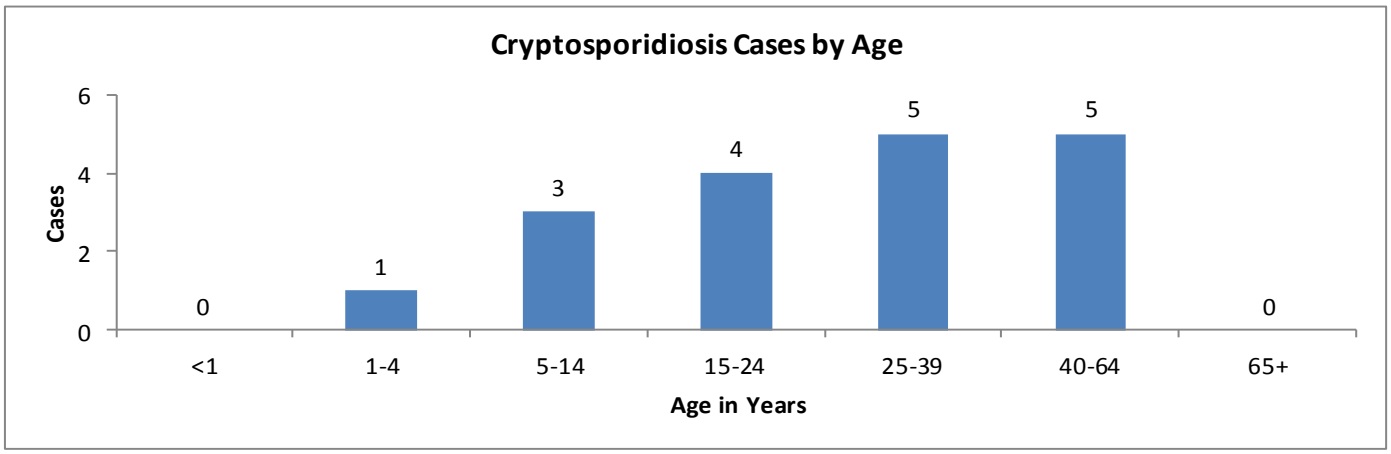
**Infectious Agent:** *Cryptosporidium hominus* or *Cryptosporidium parvum,* protozoan parasites that produce oocysts. The oocysts are highly infective for humans and most animals. The oocysts are also resistant to chlorine and other disinfectants.
**Mode of Transmission:** Fecal-oral route, including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

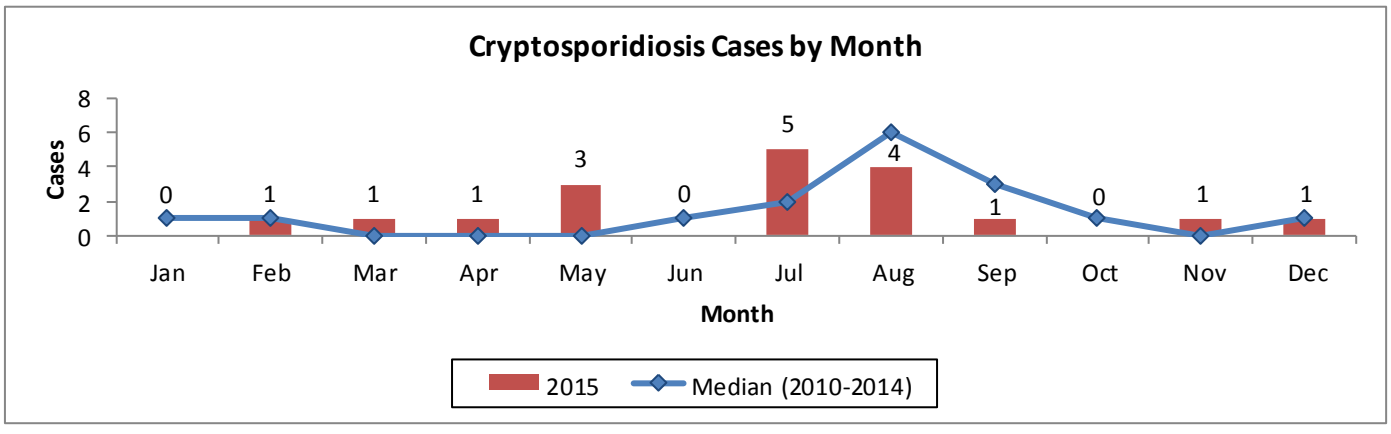


**Cryptosporidiosis**

- In 2015 there were 18 cases of Cryptosporidiosis reported in Cuyahoga County. This translates to a rate of 1.4 per 100,000.
- Thirteen of the 18 cases (72.2%) occurred between May and September. This time period represents outdoor swimming pool season and is consistent with historical trends.



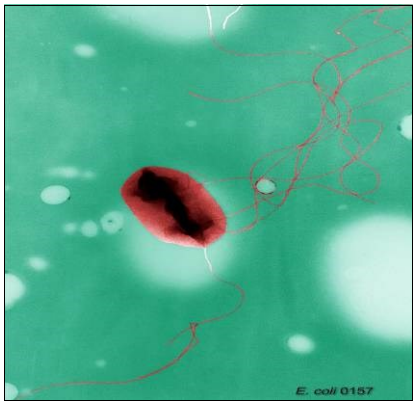



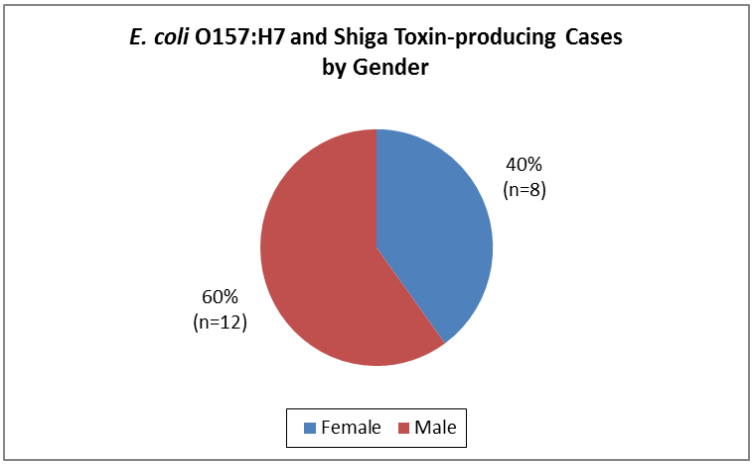
# *Escherichia coli (E.coli)* O157:H7 and Shiga toxin-producing

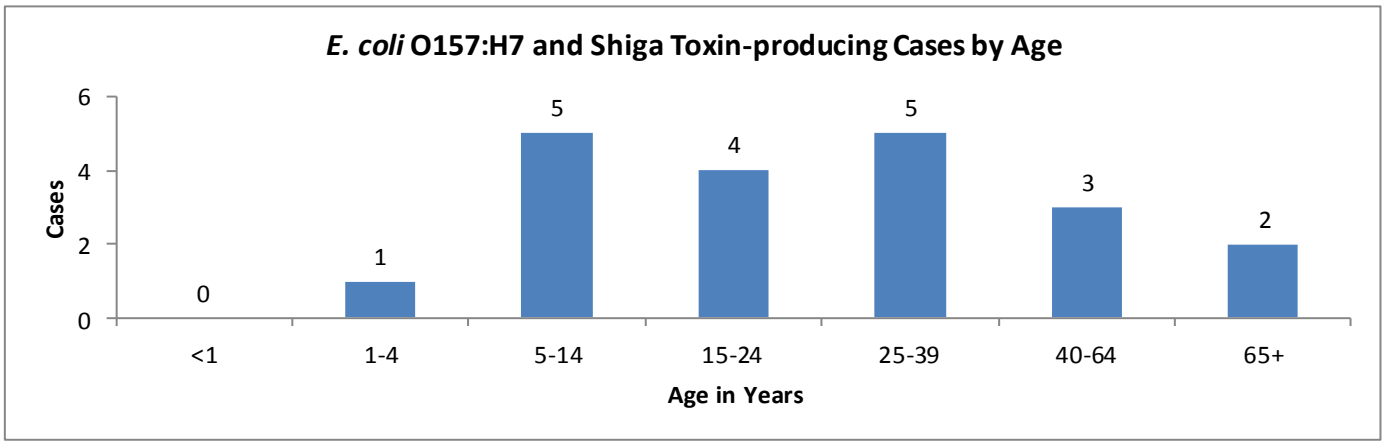
**Shiga toxin-producing *E. coli***

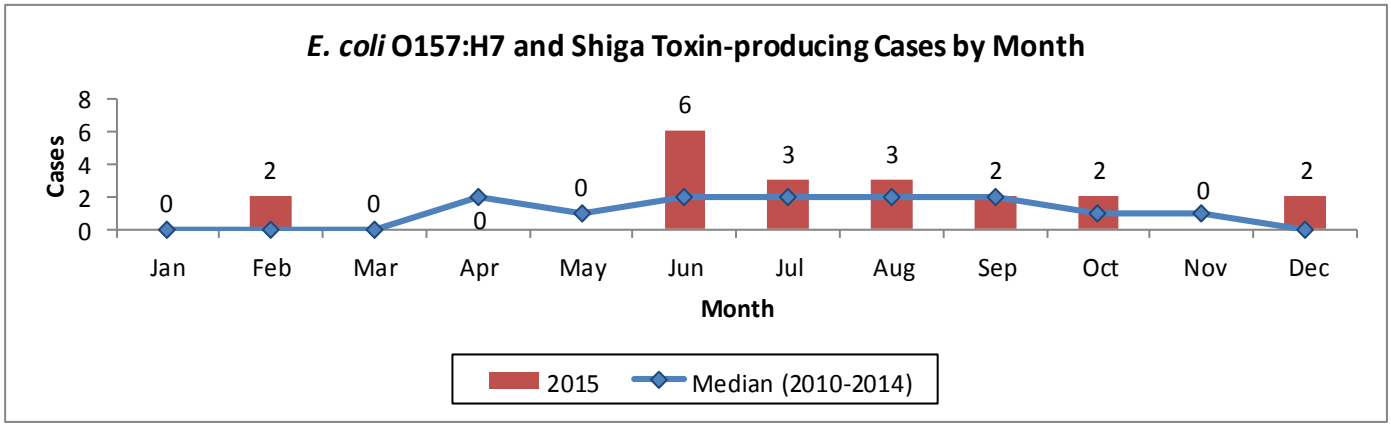
- There were 20 cases of *E. coli* reported in 2015 for a rate of 1.6 per 100,000. The Healthy People 2020 target is 0.6 per 100,000.




**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.

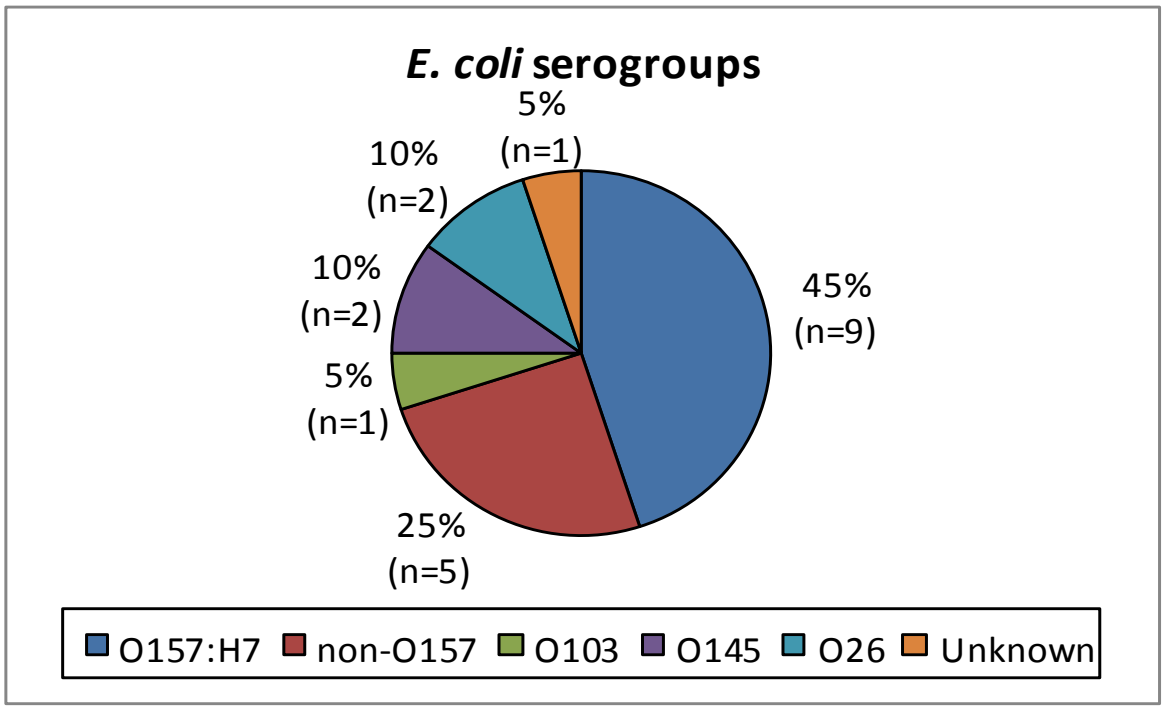


# *Escherichia coli (E.coli)* O157:H7 and Shiga toxin-producing

***E. coli* Serogroups in Cuyahoga County Among All Specimens, 2015 (N=20)**




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.

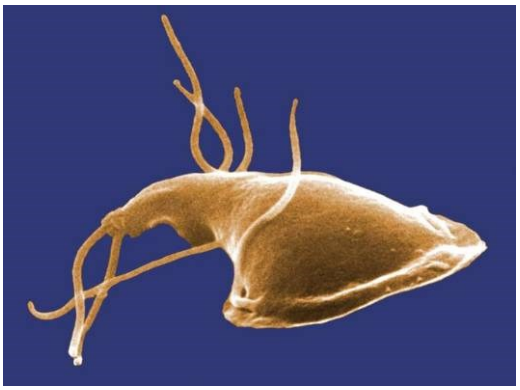
Studies in some states have shown that the prevalence of non-O157 STEC isolates is greater than or equal to that of *E. coli* O157:H7.

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*

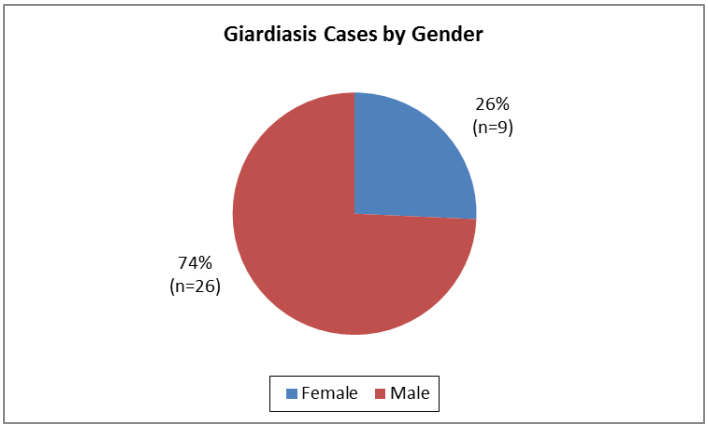
# Giardiasis

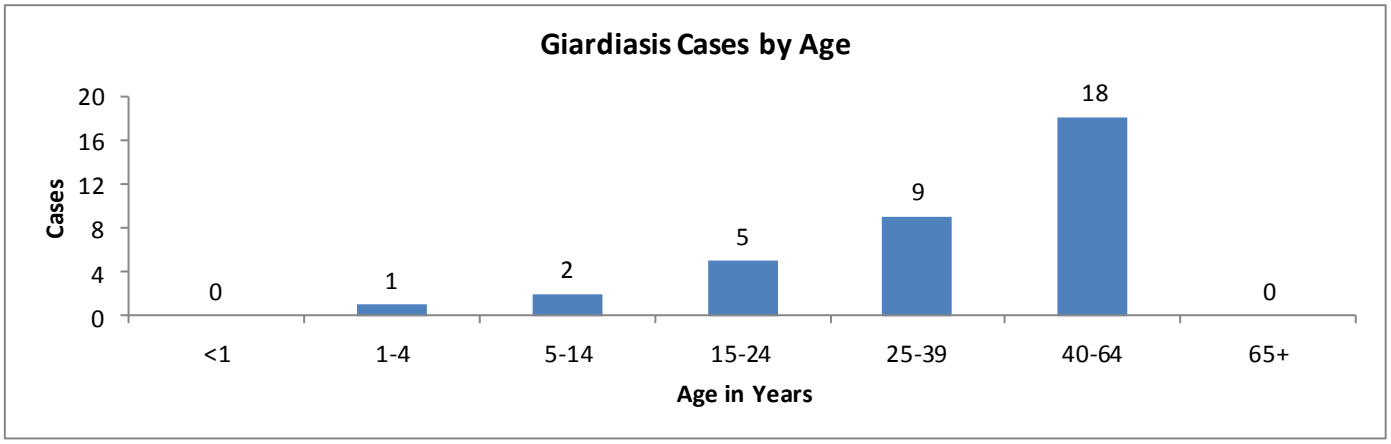
**Infectious Agent:** *Giardia lamblia,* a protozoan
**Mode of Transmission:** Person-to-person transmission via the fecal-oral route. Transmission may also occur from contaminated food or water.
**Incubation Period:** 3-25 days, usually 7-10 days
**Symptoms:** One may be asymptomatic. Illness may cause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

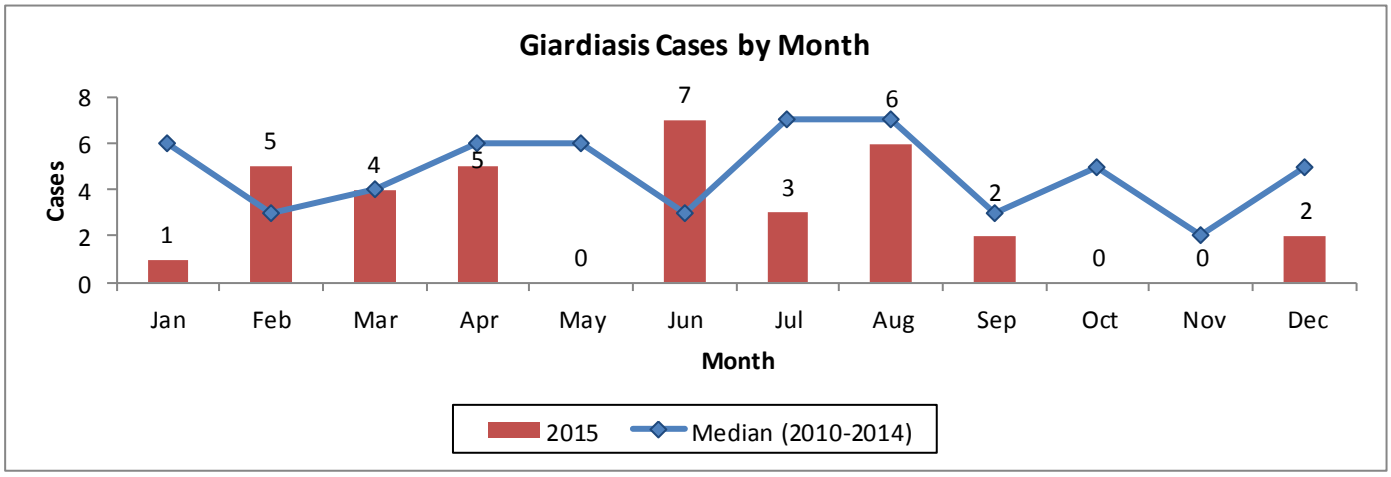


**Giardiasis**

- In 2015 there were 35 cases of Giardiasis reported in Cuyahoga County. This translates to a rate of 2.8 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 - 2015 is lower than in previous years.

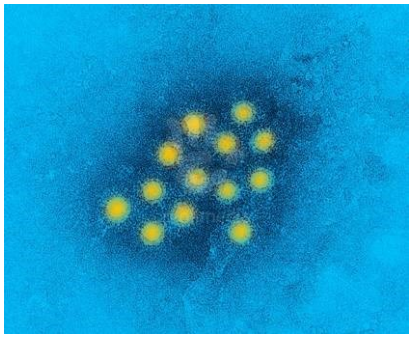


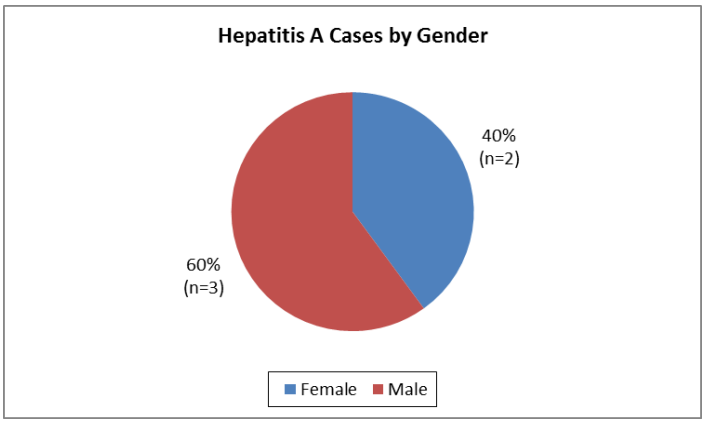
# Hepatitis A

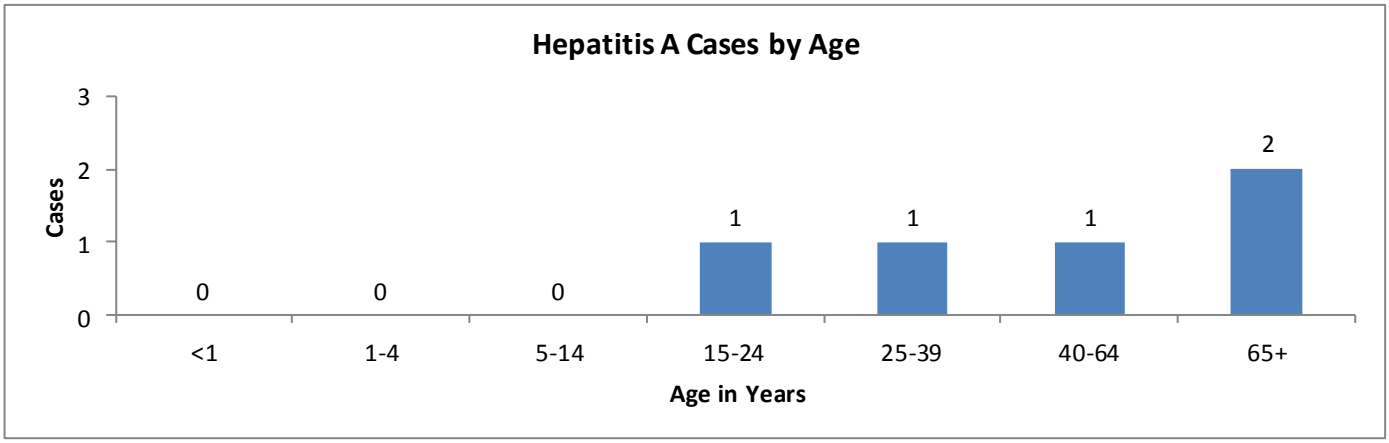
**Infectious Agent:** Hepatitis A virus (HAV)
**Mode of Transmission:** Ingestion of the virus via the fecal-oral route. HAV is spread primarily by close person-to-person contact or through contaminated food.
**Incubation Period:** 15-50 days, usually 28-30 days
**Symptoms:** Fever, malaise, anorexia,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

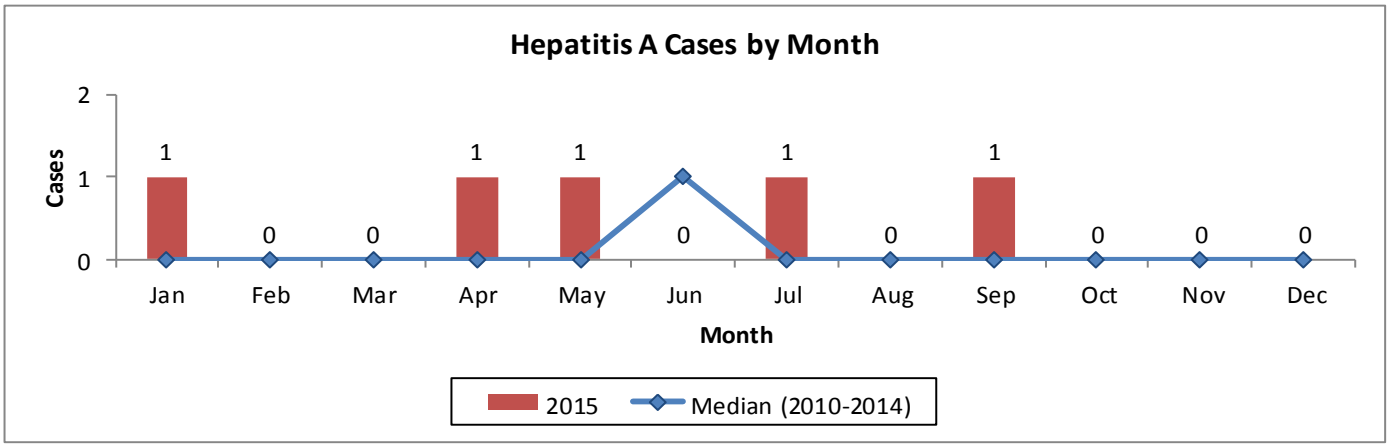


**Hepatitis A**

- In 2015 there were 5 cases of Hepatitis A reported in Cuyahoga County for a rate of 0.4 per 100,000.
- All 5 cases were 15 years or older.

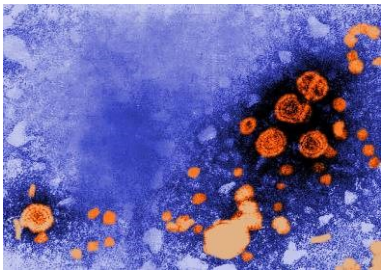


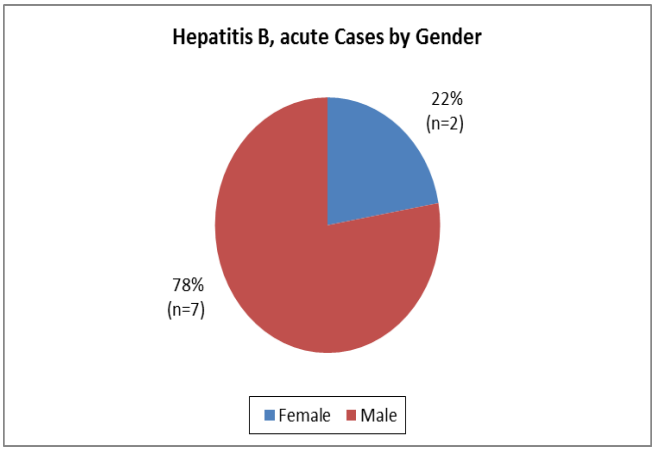
# Hepatitis B, acute

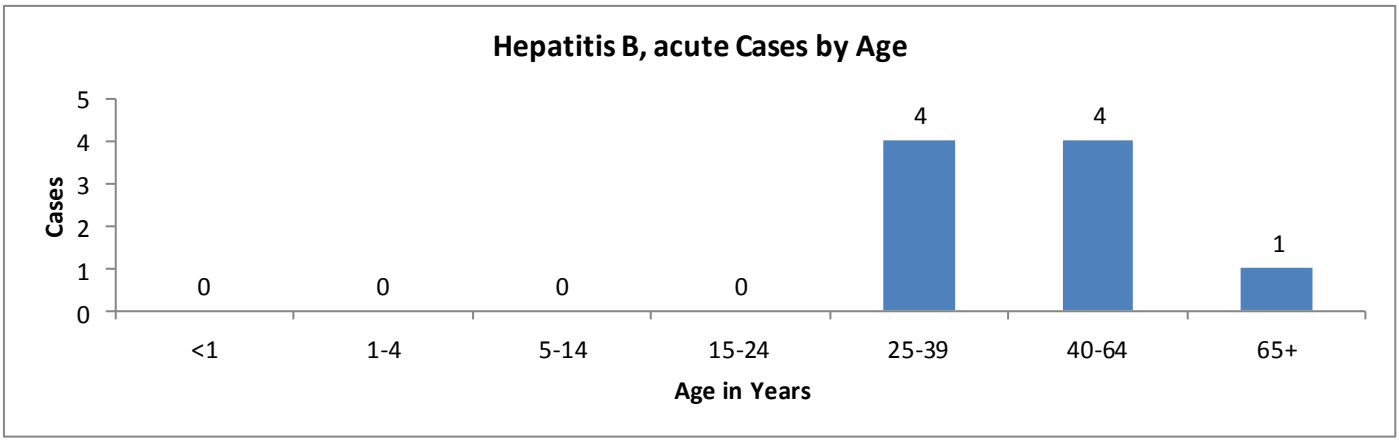
**Infectious Agent:** Hepatitis B virus (HBV)
**Mode of Transmission:** Exposure to person with acute or chronic HBV infection. Transmission can occur through sexual contact; percutaneous inoculation by contaminated needles during injection-drug use, tattooing, ear piercing, and acupuncture; contamination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

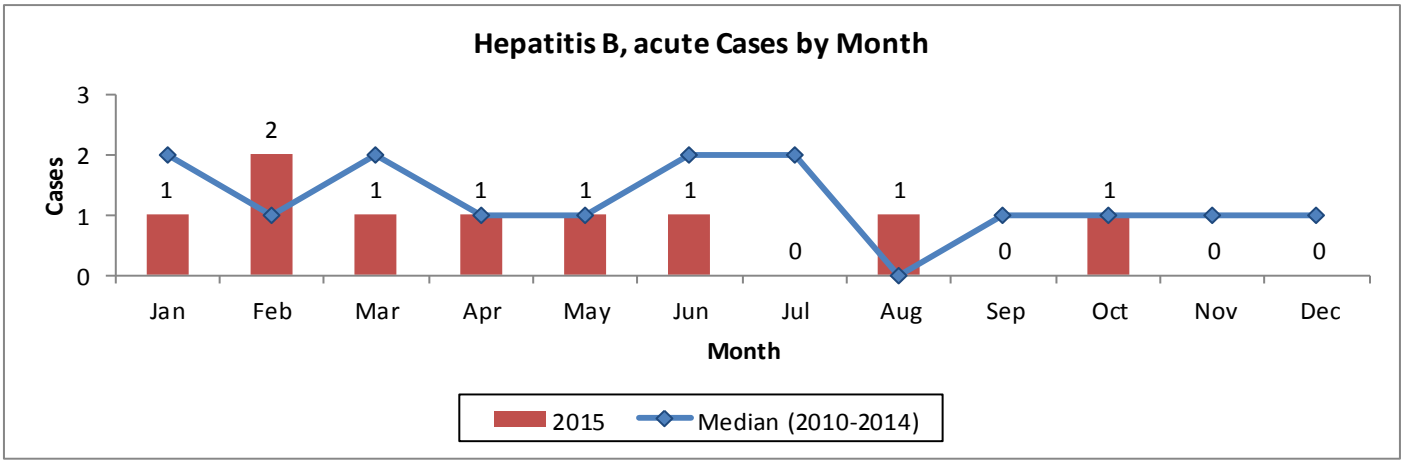


**Hepatitis B, acute**

- There were 9 cases of acute Hepatitis B reported in Cuyahoga County in 2015. This translates to a rate of 0.7 per 100,000.
- All 9 cases were 25 years or older.



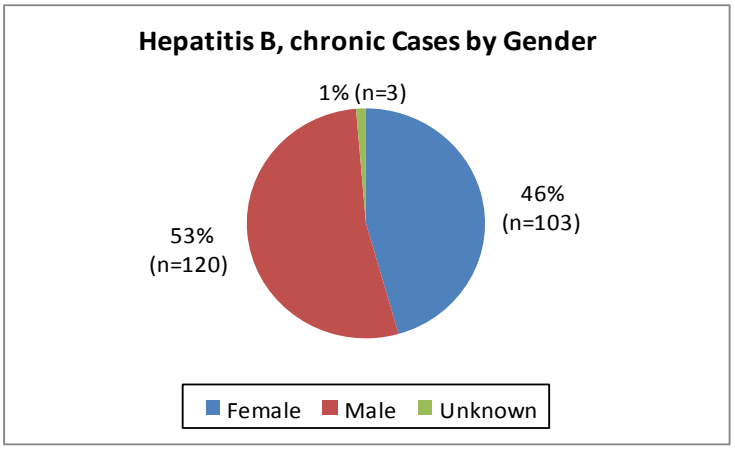



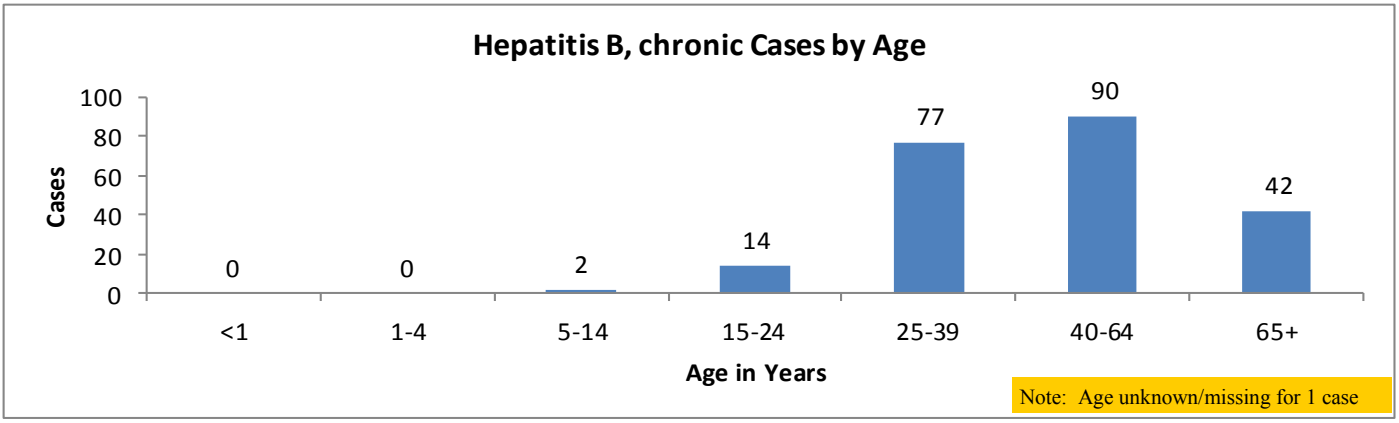
# Hepatitis B, chronic

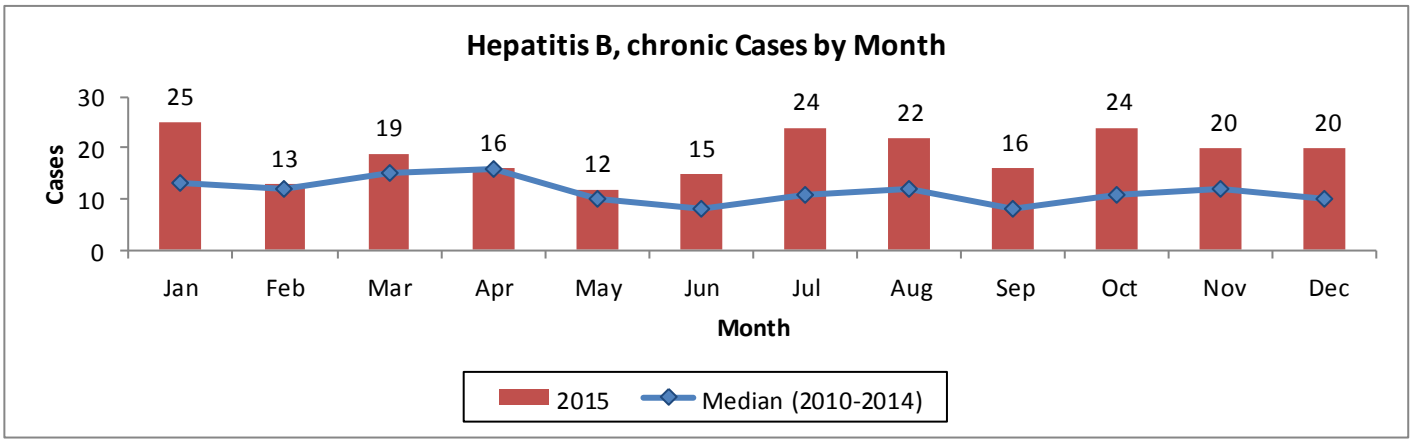
**Infectious Agent:** Hepatitis B virus (HBV)
**Mode of Transmission:** Exposure to person with acute or chronic HBV infection. Transmission can occur through sexual contact; percutaneous inoculation by contaminated needles during injection-drug use, tattooing, ear piercing, and acupuncture; contamination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

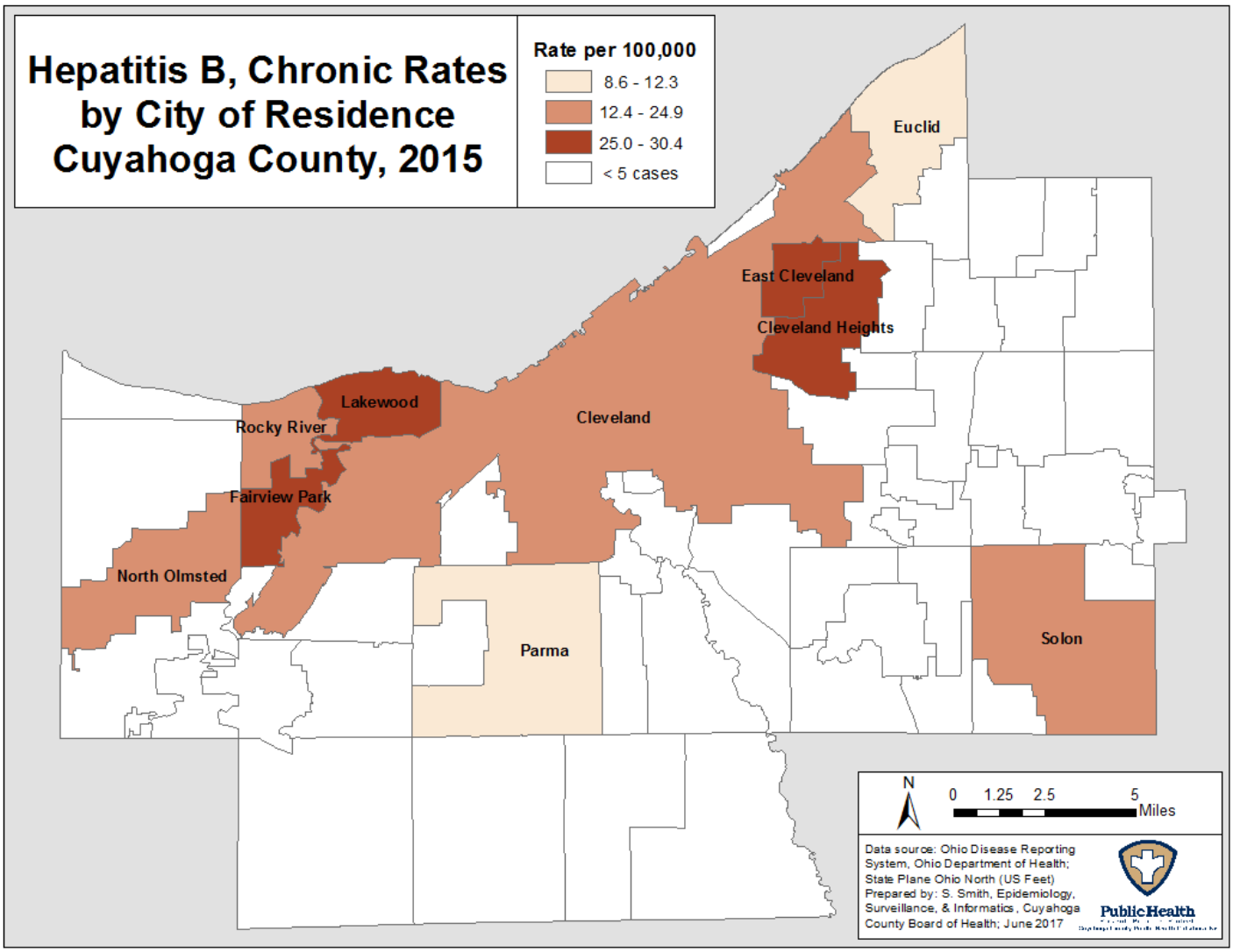
- In 2015 there were 226 cases of chronic Hepatitis B reported in Cuyahoga County. This translates to a rate of 18.0 per 100,000.
- This is the largest number of cases reported in the past 6 years.



# Hepatitis B, chronic

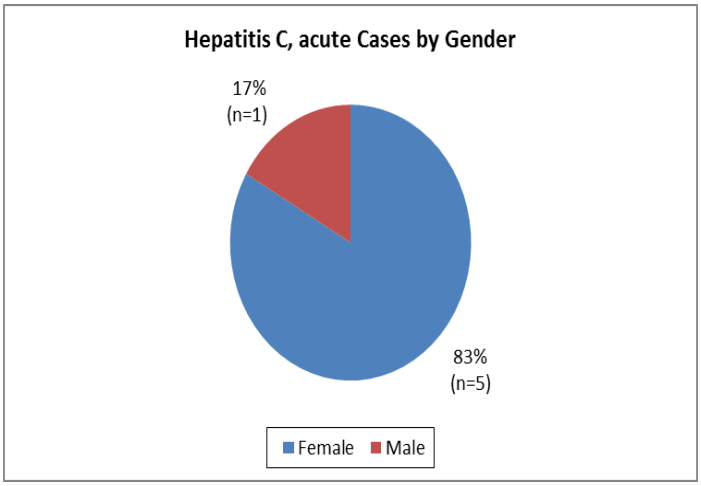


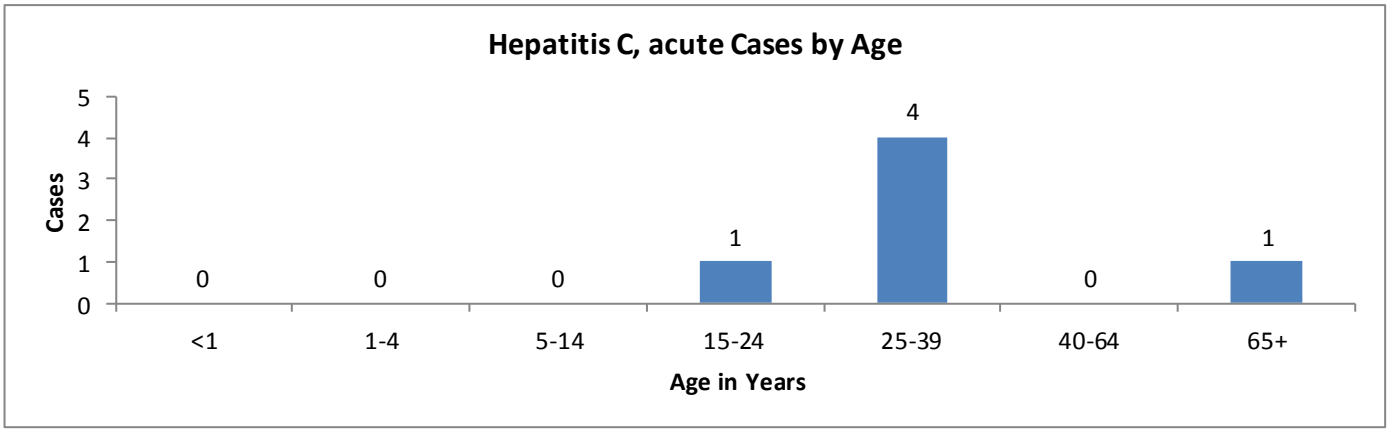
# Hepatitis C, acute

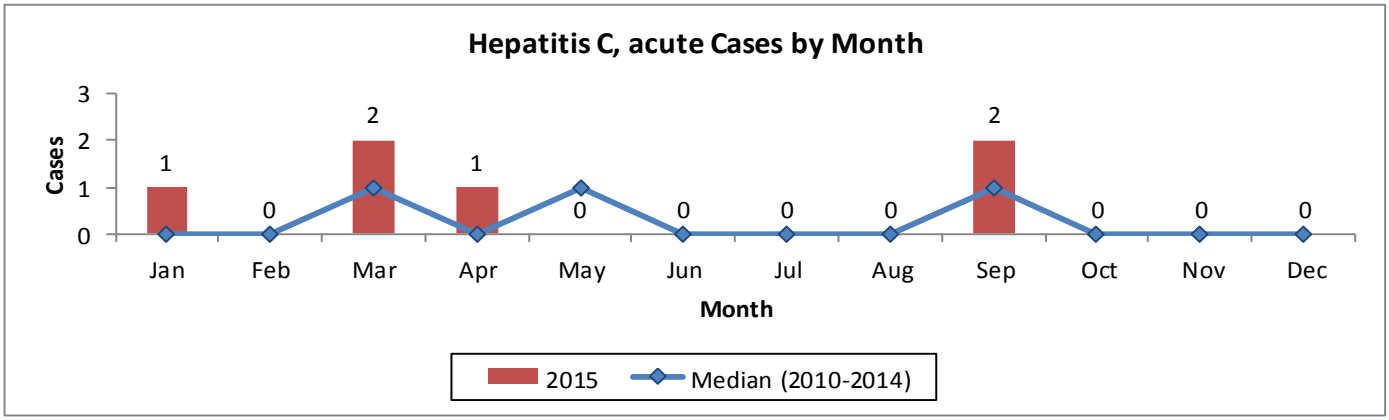
**Infectious Agent:** Hepatitis C virus (HCV)
**Mode of Transmission:** Contact with an infected person's blood. Transmission occurs from injection drug use, receiving a blood transfusion or organ transplant before 1992, during child birth, sexual intercourse with an infected person, or sharing infected 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 2015 for a rate of 0.5 per 100,000. The Healthy People 2020 target is 0.2 per 100,000.
- The majority of the cases (83%) were female.

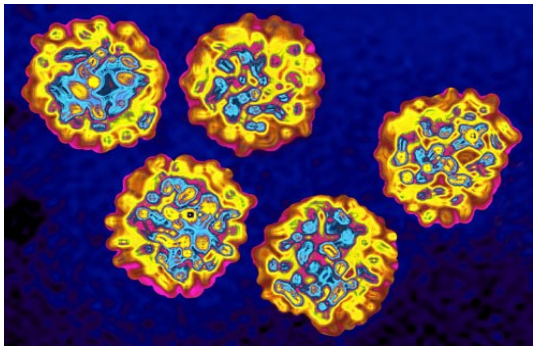


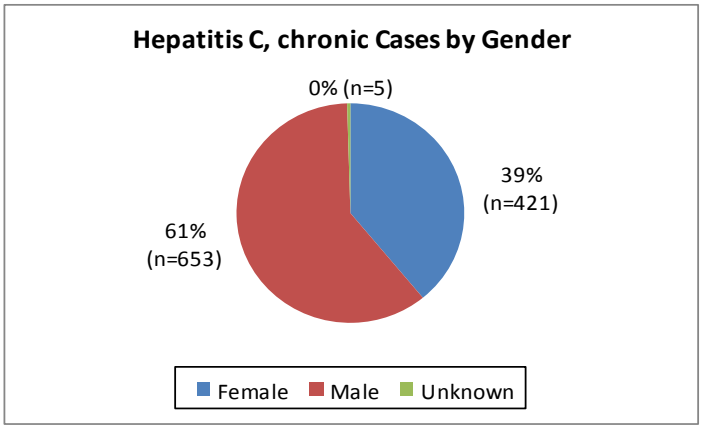
# Hepatitis C, chronic

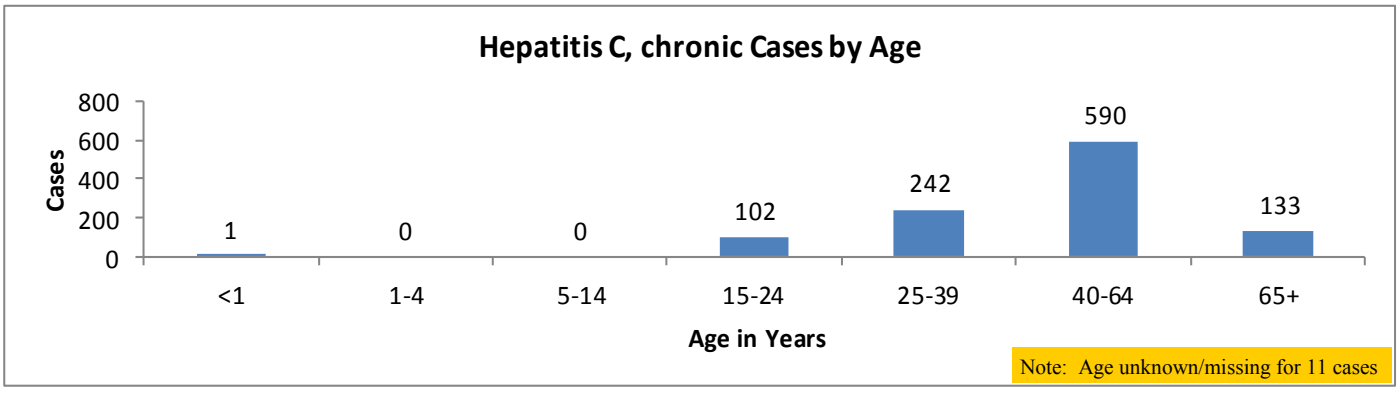
**Infectious Agent**: Hepatitis C virus (HCV)
**Mode of Transmission**: Contact with an infected person's blood. Transmission may occur from injection drug use, receiving a blood transfusion or organ transplant prior to 1992, during childbirth, sexual intercourse with an infected person, or sharing infected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

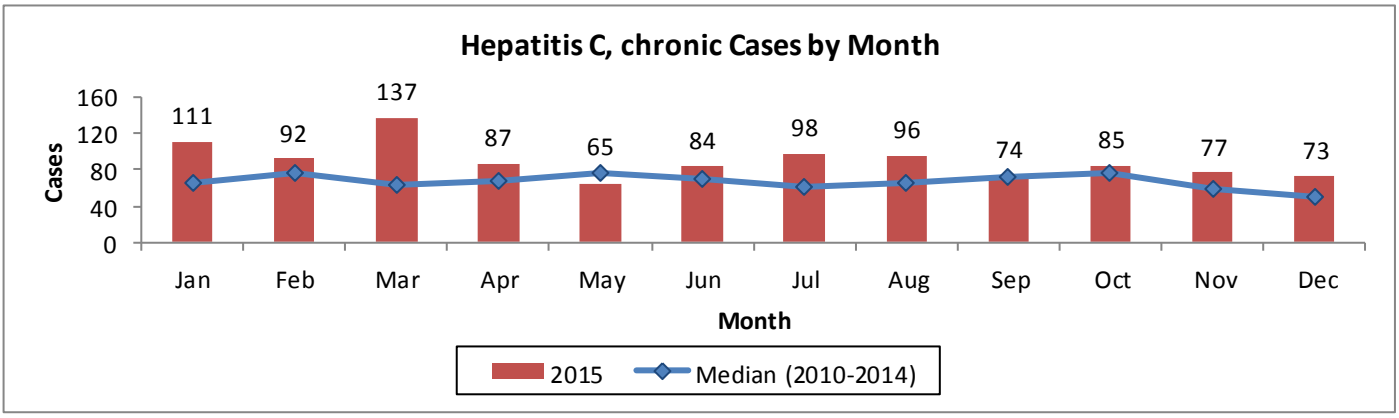


**Hepatitis C, chronic**

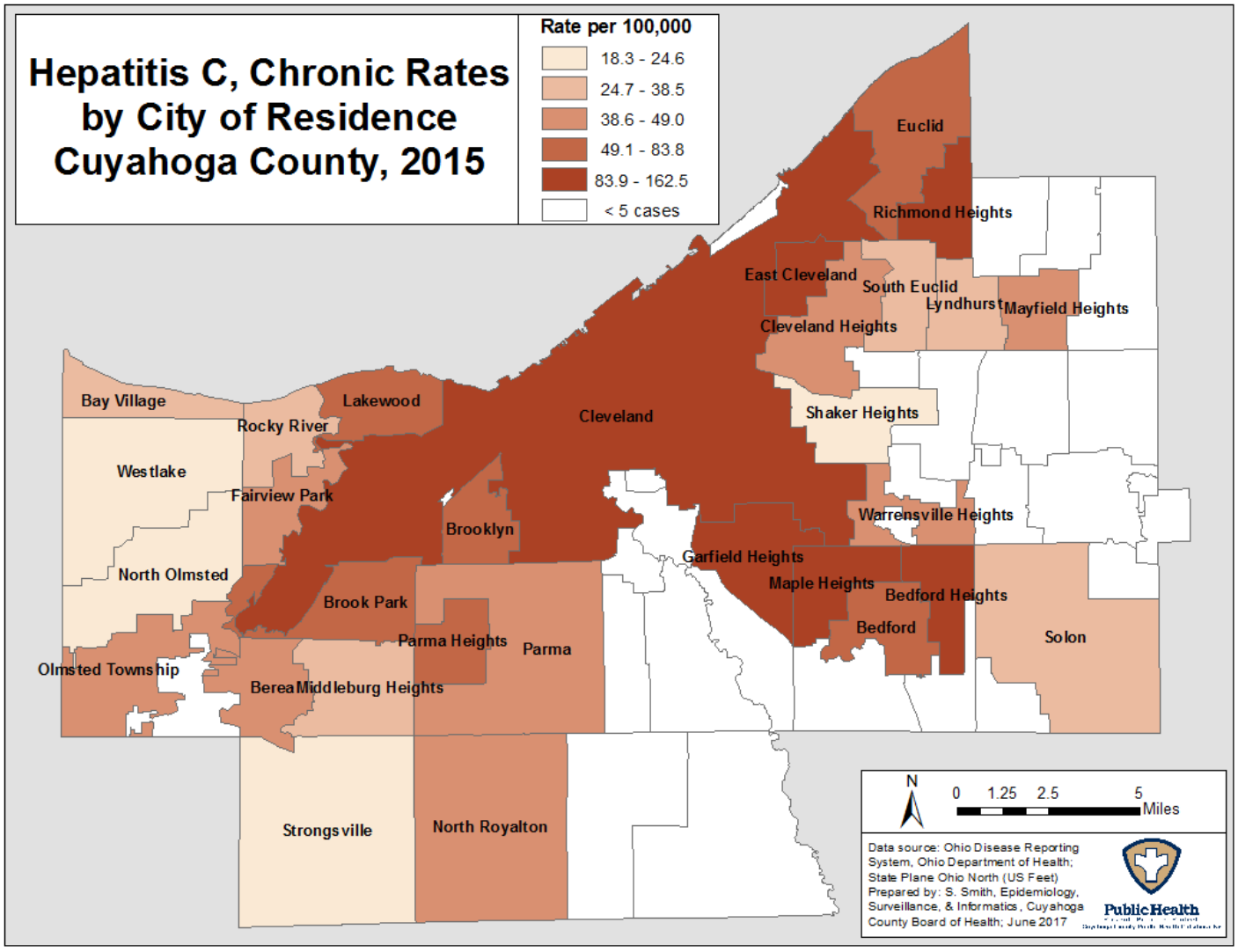
- There were 1079 cases of chronic Hepatitis C reported in Cuyahoga County. This translates to a rate of 85.9 per 100,000.
- This is the largest number of cases reported since 2010 (n=1189).



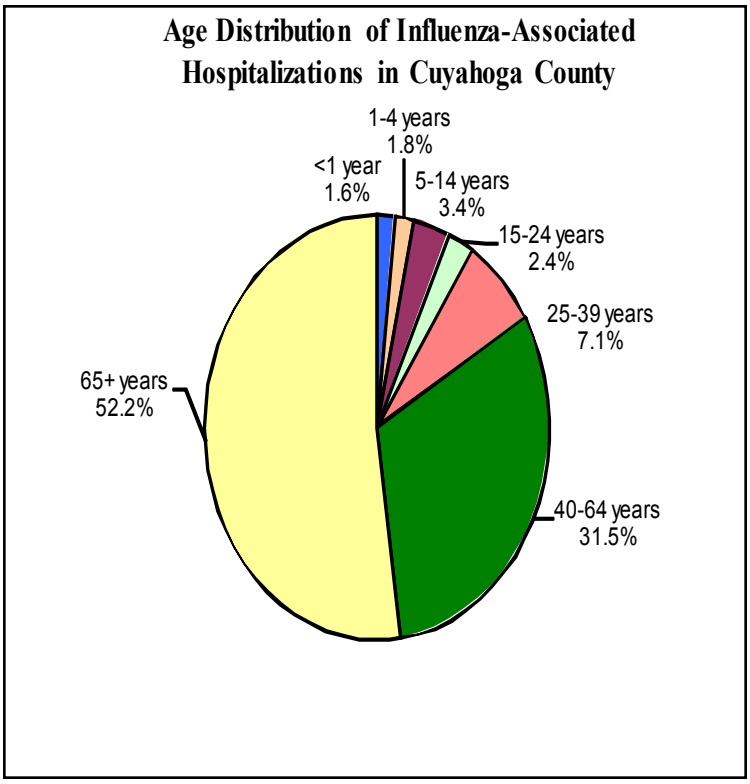



# Hepatitis C, chronic



# Influenza




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

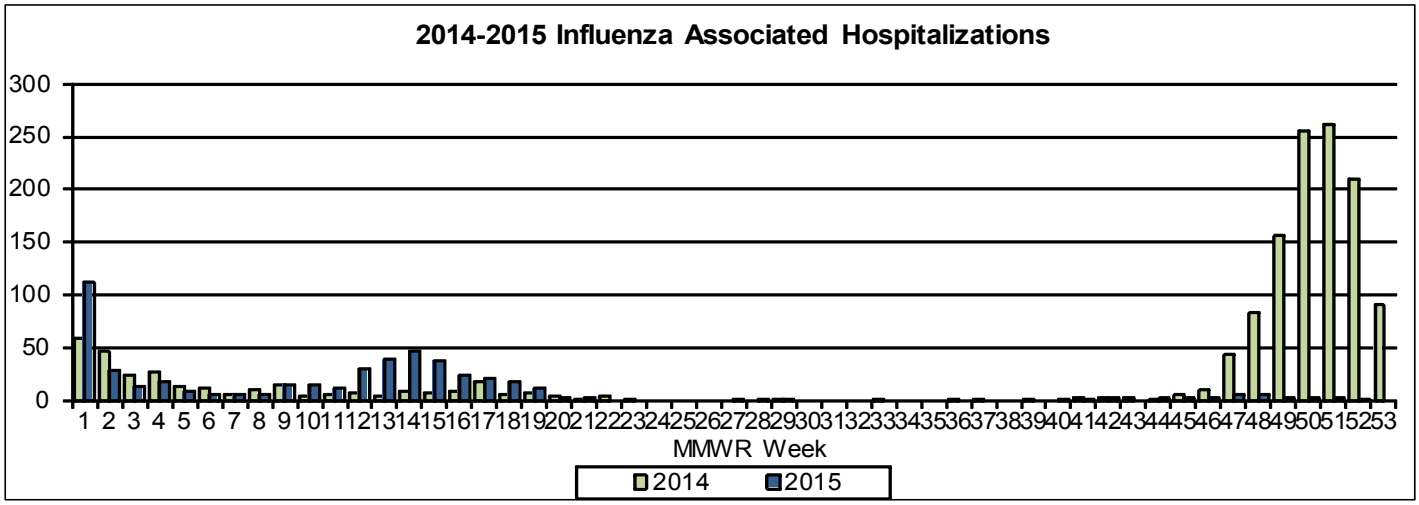
**Mode of Transmission:** Airborne via large droplets produced by coughing and sneezing.

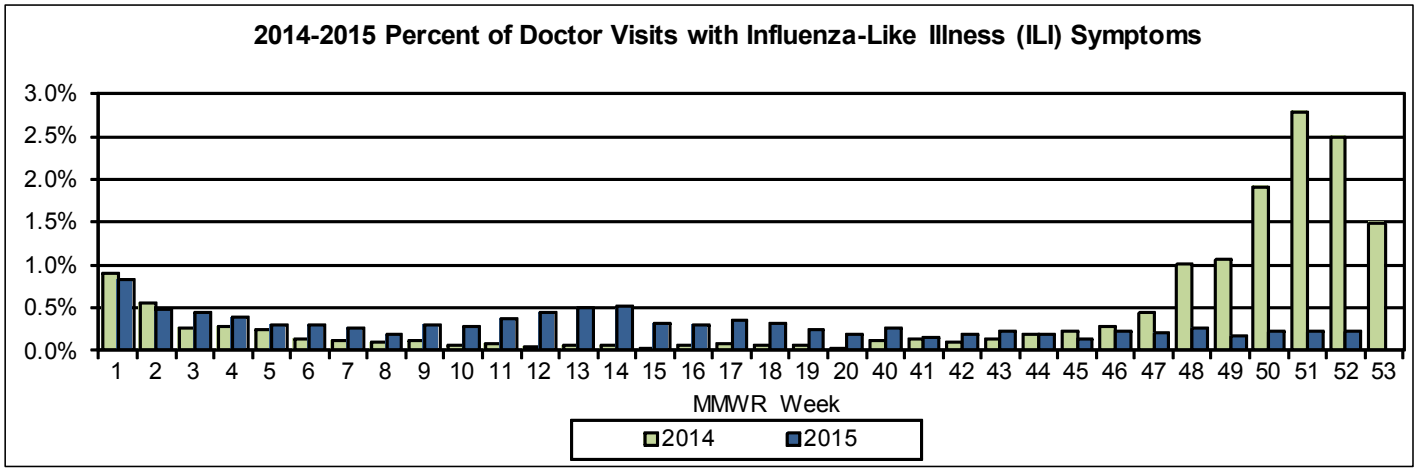
**Incubation Period:** 1-4 days, usually 2 days

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

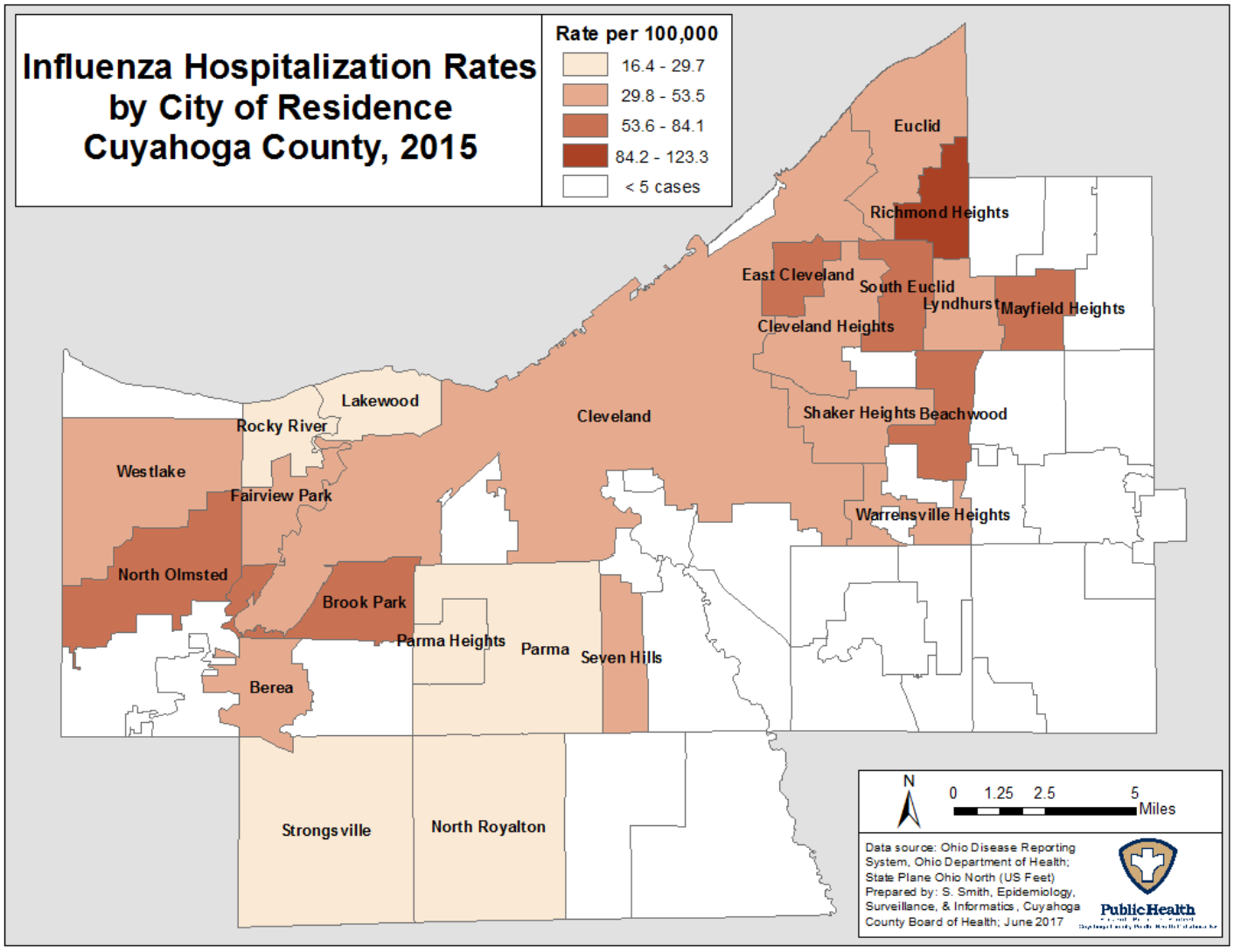
**Influenza in Cuyahoga County**

- 499 influenza-associated hospitalizations occurred during 2015. Fewest number of hospitalizations in the last three years.
- The 2015 median percentage of influenza-like illness (ILI) doctor visits was 0.26%, which was twice as high as the 2014 median of 0.13%. Data was provided by Athena health.



# Influenza

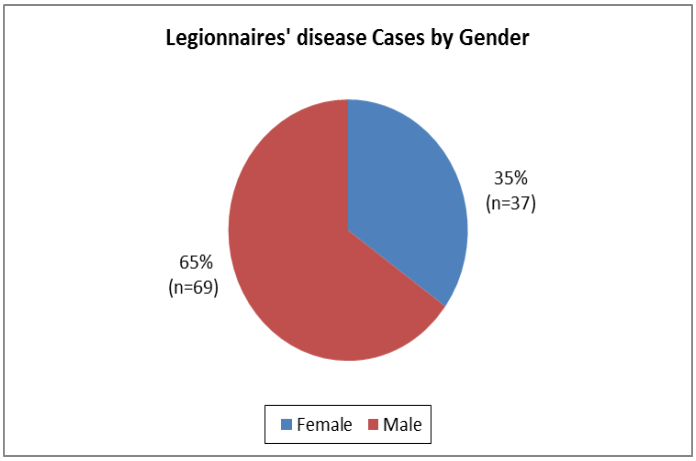

Influenza Hospitalization Rates by City of Residence Cuyahoga County, 2015
Rate per 100,000
16.4 - 29.7
29.8 - 53.5
53.6 - 84.1
84.2 - 123.3
< 5 cases
Euclid
Richmond Heights
East Cleveland
South Euclid
Lyndhurst
Mayfield Heights
Cleveland Heights
Lakewood
Rocky River
Cleveland
Shaker Heights
Beachwood
Westlake
Fairview Park
Warrensville Heights
North Olmsted
Brook Park
Parma Heights
Parma
Seven Hills
Berea
Strongsville
North Royalton
N
0 1.25 2.5 5
Miles
Data source: Ohio Disease Reporting System, Ohio Department of Health; State Plane Ohio North (US Feet)
Prepared by: S. Smith, Epidemiology, Surveillance, & Informatics, Cuyahoga County Board of Health; June 2017
Public Health

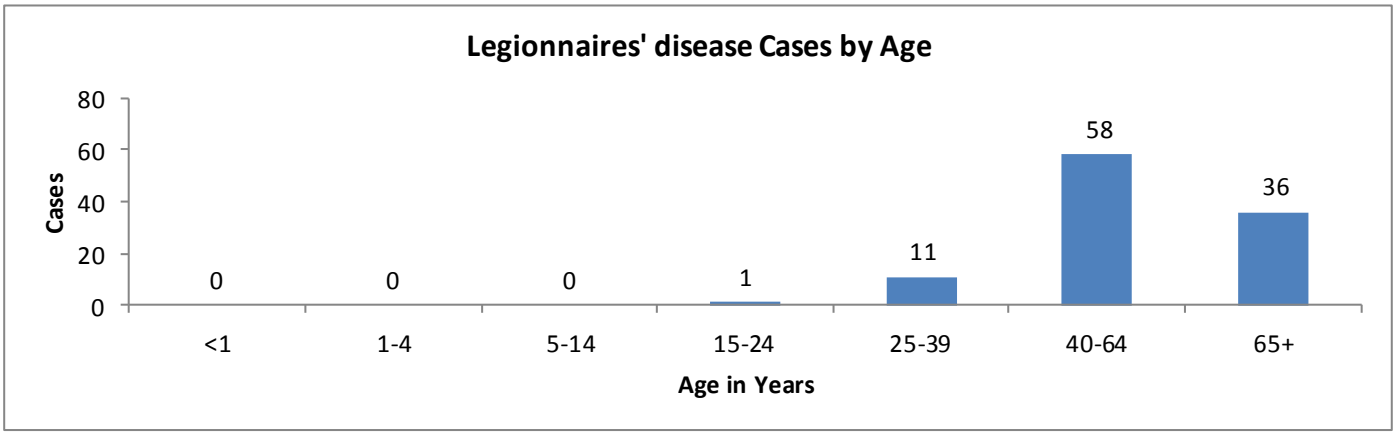
# Legionnaires' disease

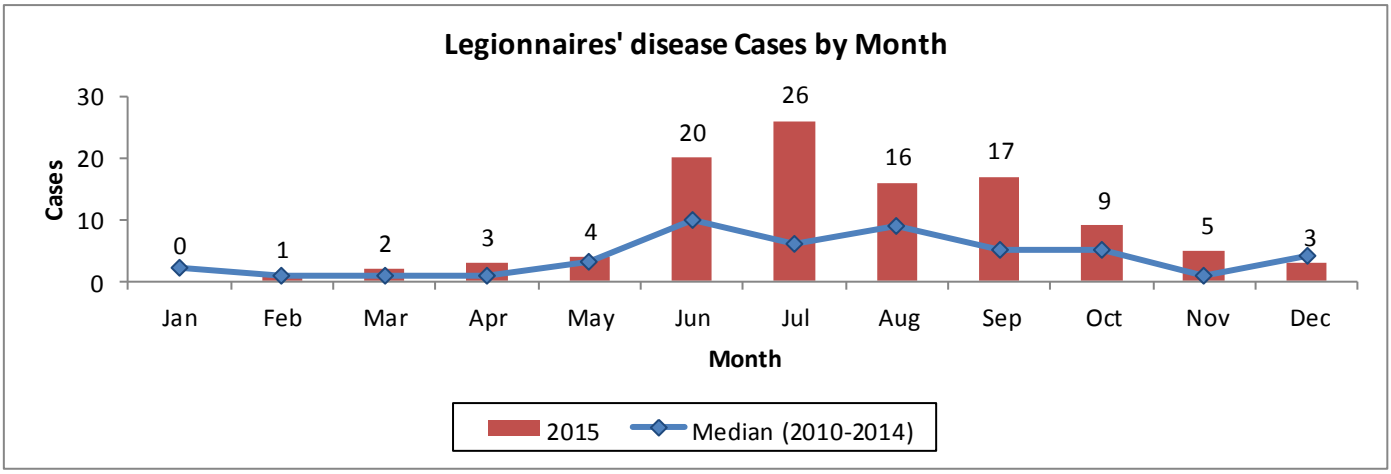
**Infectious Agent**: *Legionella spp*. Thirteen species have been implicated in causing human disease. The most common species causing infection is *Legionella pneumophila* serogroup 1.
**Mode of Transmission**: The airborne route appears to be the mode of transmission, most commonly by inhalation of 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**

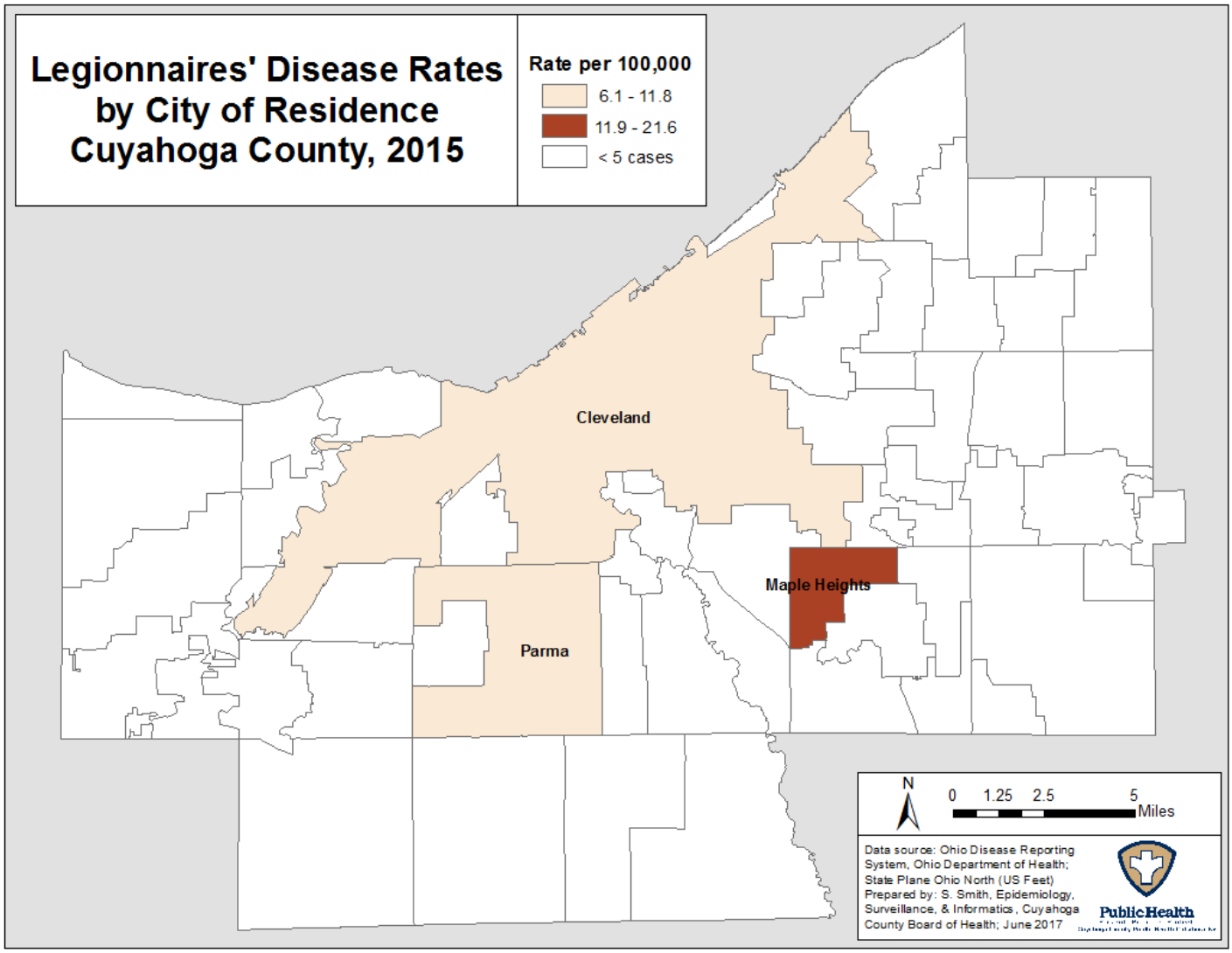
- There were 106 cases of Legionnaires' disease reported in 2015 for a rate of 8.4 per 100,000.
- This is well above the 5 year median of 57 cases; however, no common exposures could be identified among the cases.



# Legionnaires' disease



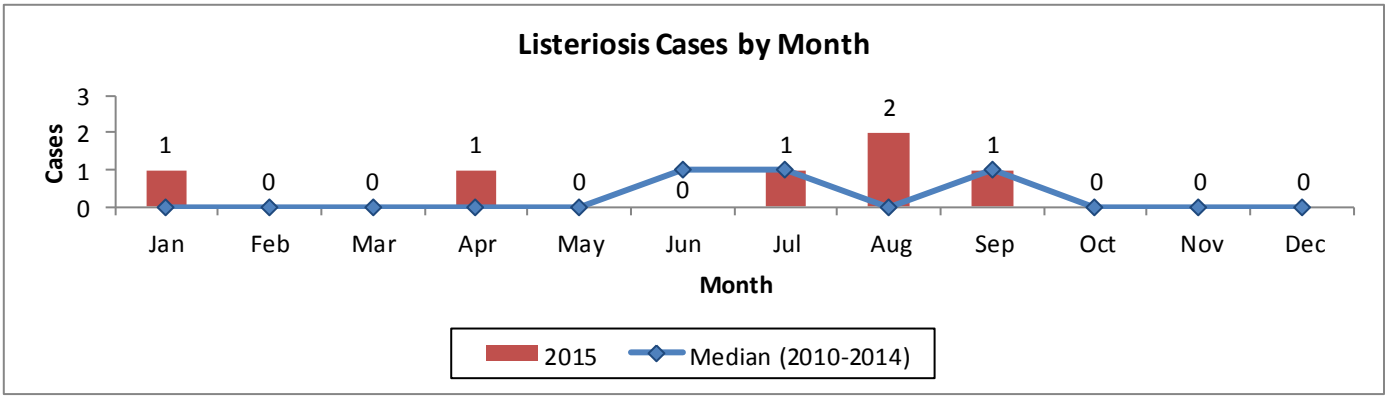
# Listeriosis

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

**Listeriosis**

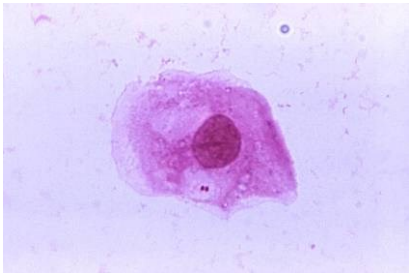
- There were 6 cases of Listeriosis reported in 2015. This translates to a rate of 0.5 per 100,000.
- All 6 cases were female.

**Listeriosis Cases by Gender pie chart intentionally removed from this report.**

# 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 2015.

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

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

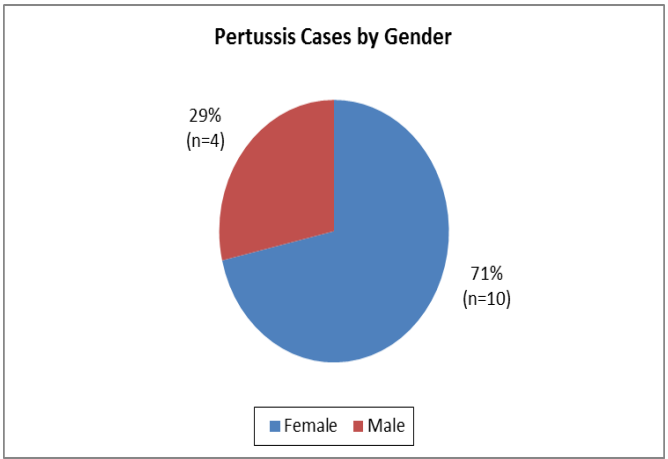
**Meningococcal disease Cases by Month bar graph intentionally removed from this report.**

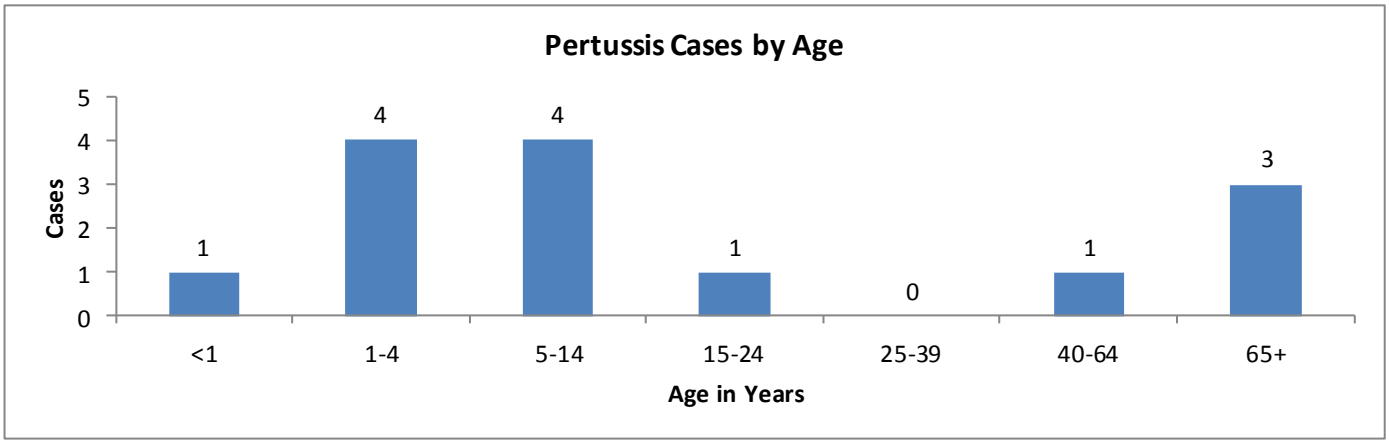
# Pertussis

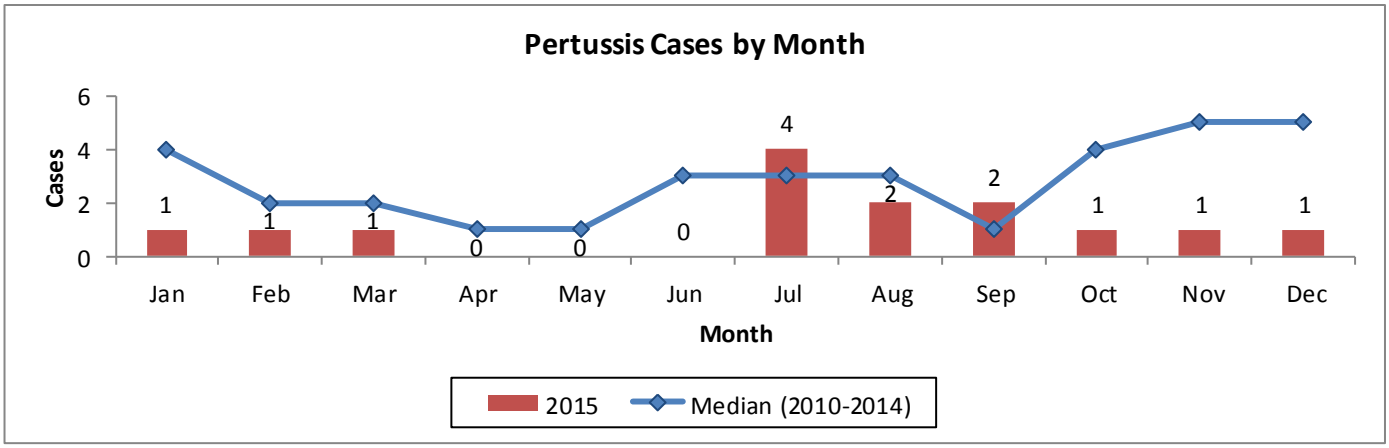
**Infectious Agent**: *Bordetella pertussis*. Pertussis -like syndrome can also be caused by *B. parapertussis*. Parapertussis is not reportable in Ohio.
**Mode of Transmission**: Pertussis is primarily spread by direct contact with the discharges from the nose and throat of infected individuals. Frequently,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

**Pertussis**

- There were 14 cases of Pertussis reported in 2015. This translates to a rate of 1.1 per 100,000.
- This is below the 5 year median of 29 cases.



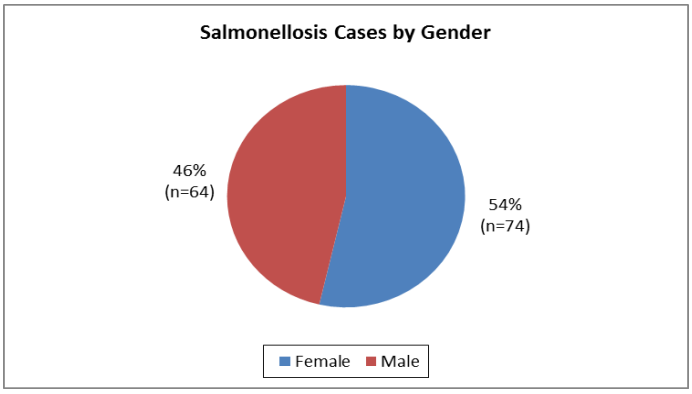



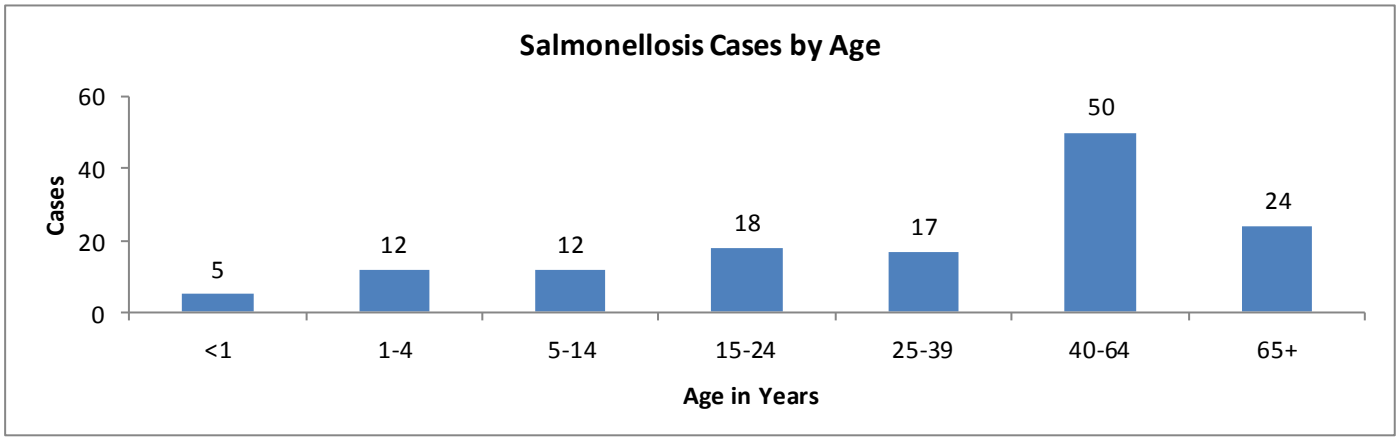
# Salmonellosis

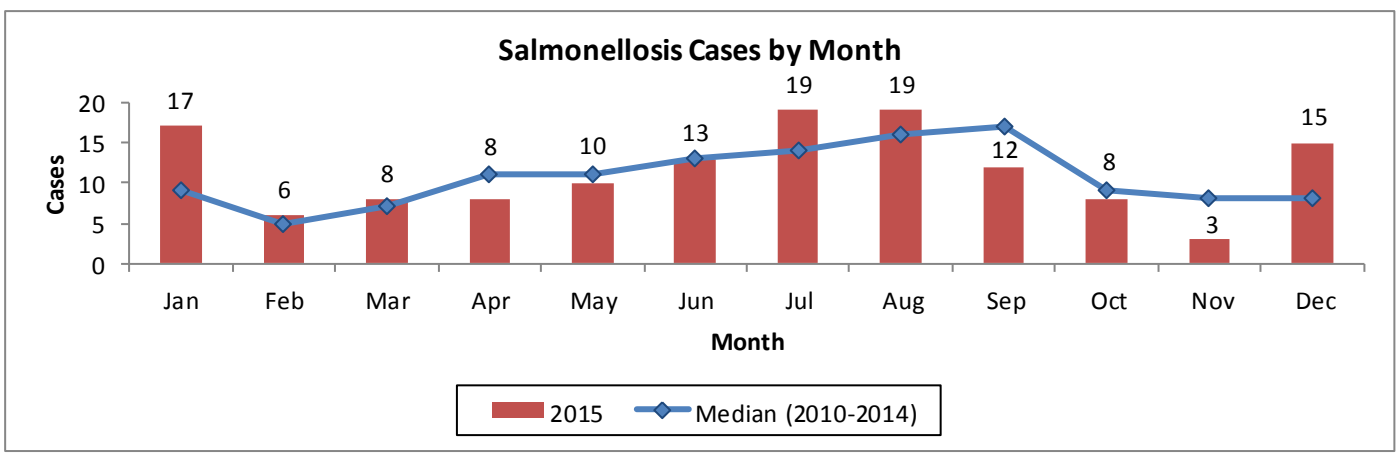
**Salmonellosis**

- There were 138 cases of Salmonellosis reported in 2015 for a rate of 11.0 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.

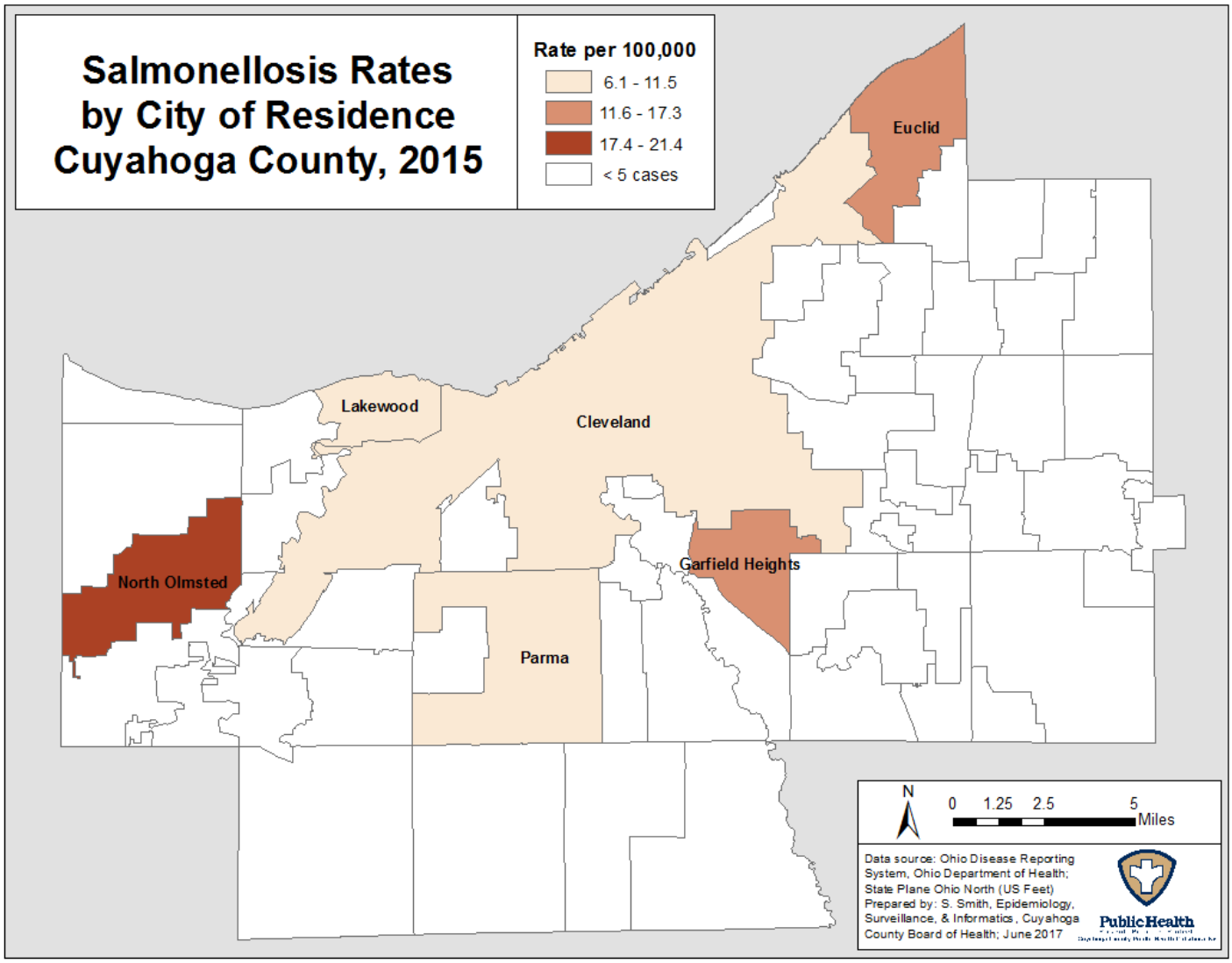


# Salmonellosis

| Most Frequent *Salmonella* Serotypes in Cuyahoga County among Specimens Typed at the Ohio Department of Health Laboratory, 2015 (N=134) | | |
|---|---|---|
| **Serotype** | **Number of Cases** | **Percent** |
| Enteritidis | 36 | 26.9% |
| Typhimurium | 27 | 20.1% |
| (I) 4,5,12:i:- | 12 | 9.0% |
| All Other | 59 | 44.0% |

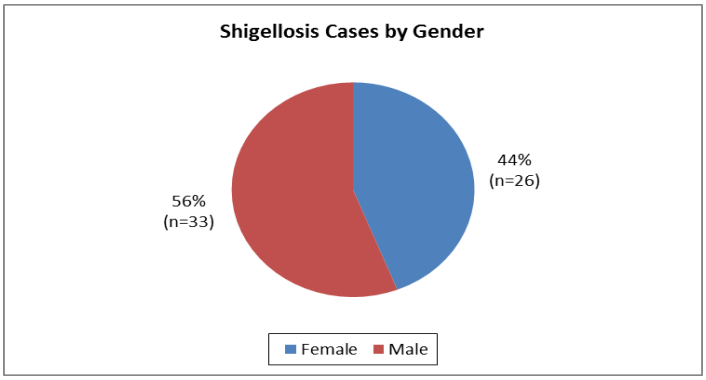


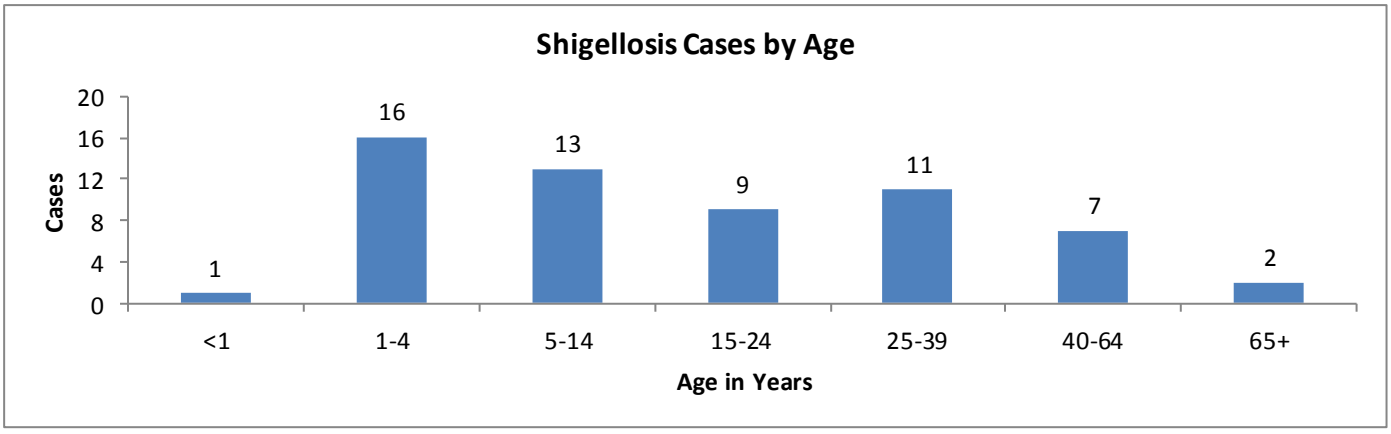
# Shigellosis

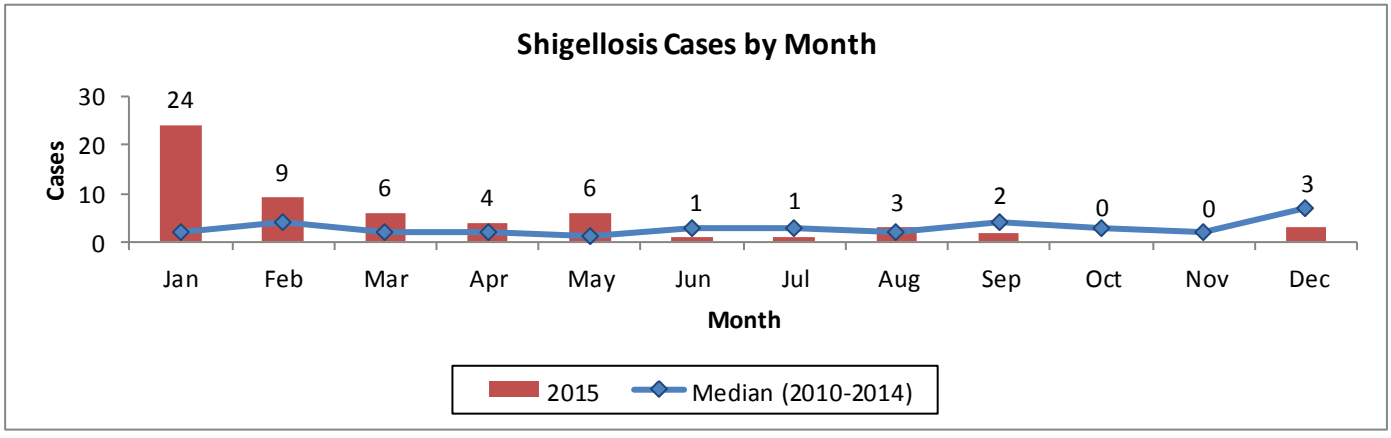
**Infectious Agent**: *Shigella* bacteria comprise 4 species/serogroups – *S. sonnei, S. flexneri, S. dysenteriae,* and *S. boydii*. *S. sonnei* account for most cases in Ohio.
**Mode of Transmission:** *Shigella* is usually transmitted person-to-person by the fecal-oral route. Food that is served raw 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 59 cases of Shigellosis reported in 2015 for a rate of 4.7 per 100,000.
- Twenty-four of the 59 cases (41%) occurred in January. These cases represent a continuation of several outbreaks that occurred during 2014.



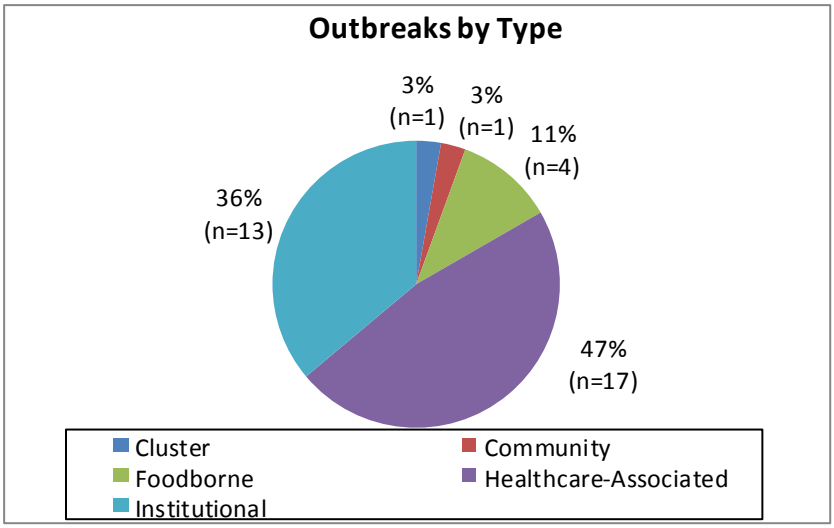



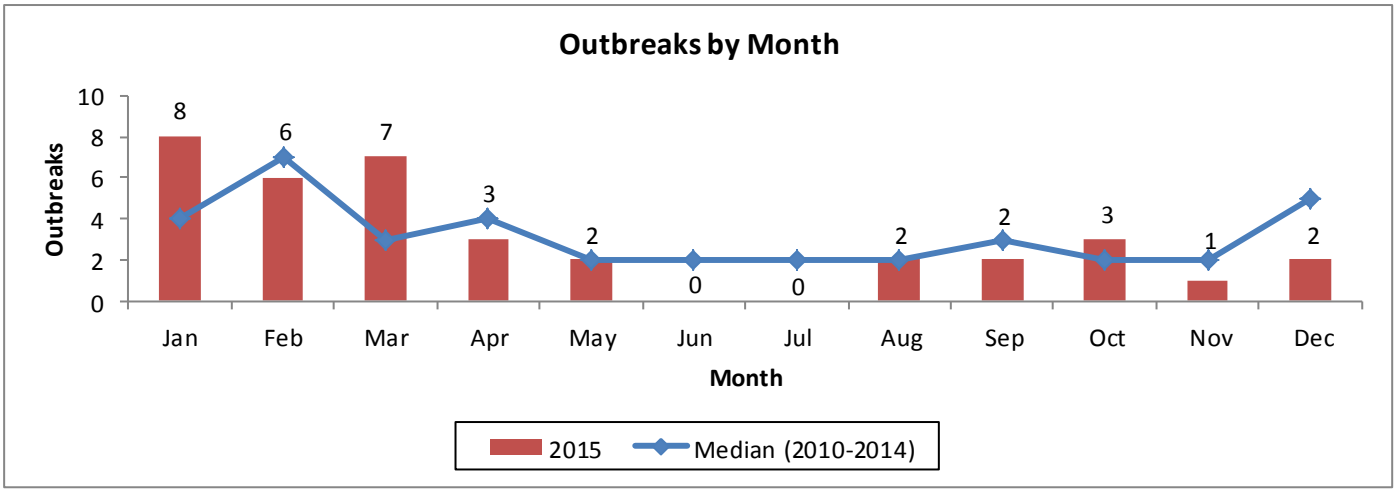



# 2015 Outbreaks

**Outbreaks in Cuyahoga County**

- In 2015, there were 36 outbreaks reported and investigated by the local public health departments in Cuyahoga County.
- Norovirus was the leading causative agent resulting in 50% 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. |

# Appendix

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

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

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

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

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

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

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

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

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

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

Outbreaks:

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

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

# Appendix

## 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* 0157: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.

Ohio Department of Health