Reportable Communicable Diseases

Tuscarawas County, Ohio

2018

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Tuscarawas County Health Department, Dover, Ohio

New Philadelphia City Health Department, New Philadelphia, Ohio

ANNUAL SUMMARY OF REPORTABLE COMMUNICABLE DISEASES TUSCARAWAS COUNTY, OHIO 2018

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SUMMARY

This report provides a summary of 'confirmed' (n=540), 'probable' (n=61), and 'suspected' (n=43) cases of communicable diseases reported to Tuscarawas County and New Philadelphia City Health Departments, Ohio during 2018. The two local health departments report new cases of reportable communicable diseases to the Ohio Department of Health (ODH) using the Ohio Disease Reporting System (ODRS), the state's electronic communicable disease surveillance system.

A communicable disease is "an illness caused by an infectious agent or its toxins that occurs through the direct or indirect transmission of the infectious agent or its products from an infected individual or via an animal, vector or the inanimate environment to a susceptible animal or human host" (CDC).

The ODH publishes the full list of reportable communicable diseases and their reporting classification (Class A, Class B, or Class C). By Ohio Law these disease require reporting to the local health jurisdiction by "[h]ealthcare providers with knowledge of a case or suspect case", [l]aboratorians that examine specimens of human origin with evidence of diseases, or "[a]ny individual having knowledge of a person suffering from a disease suspected of being communicable" (Ohio Communicable Disease Control Manual). A Class A disease must be reported to the local health jurisdiction immediately by phone and the health jurisdiction in turn must immediately report it by phone to the Ohio Department of Health. The Class B and C diseases must be reported by the end of the next business and can be reported electronically to the local health jurisdiction, which in turn reports it the ODH through the ODRS.

The Administrative, Emergency Preparedness, Environmental Health, Epidemiology, and Nursing units in the Tuscarawas County Health Department (TCHD) collectively and collaboratively work on the routine surveillance and the outbreak investigation of communicable diseases within its jurisdiction. The key personnel responsible for the routine communicable disease surveillance, and prevention and control in the areas under the jurisdiction of the TCHD county include:

Chelsea Martin, RN, Communicable Diseases Nurse

Amy Kaser, RN, Director of Nursing

Katie Seward, MPH, CHES, CTTS, Health Commissioner

Madhav P. Bhatta, PhD, MPH, Consultant Epidemiologist

The personnel of the New Philadelphia City Health Department (NPCHD) responsible for disease surveillance, outbreak investigation, and disease prevention and control efforts include:

Nicole Bache, Director of Nursing

Vickie Ionno, Health Commissioner

The cases reported to the ODRS are defined as "***suspected***", "***probable***" or "***confirmed***" based on the following case definitions:

- ***Suspected:*** An infection that shows signs of a specific disease (a clinical case) but is not verified by laboratory tests.
- ***Probable:*** A clinical infection that is supported by general lab tests.
- ***Confirmed:*** A clinical infection that is supported by laboratory tests that strain type.

The data from the ODRS were used to produce statistics presented in this report. The *"suspected"*, *"probable"*, and "*confirmed"* cases that occurred in Tuscarawas County and reported to one of the two local health jurisdictions (TCHD and NPCHD) between January 1 and December 31, 2018 were included in the various analyses represented in this report.

The 2018 annual report includes the number of cases and rates of reportable communicable diseases occurring in the entire county, as well as the monthly and yearly count of diseases reported to the two jurisdictions separately.

The following are highlights of the epidemiology of communicable diseases in Tuscarawas County in 2018:

- There were **644 cases** of communicable disease in total reported in the county: **540 confirmed**, 61 probable, and 43 suspected cases.

- Of the total confirmed cases, 438 (74.9%) reported were to TCHD while 102 (25.1%) were reported to NPCHD.

- Based on the confirmed cases, the overall reportable communicable disease **incidence rate in the county was 585 per 100,000 population.**

- The **overall incidence rate** of confirmed cases in the county in **2018 increased by 25%** from 2017 (585.1 *vs.* 467.4 cases per 100,000).

- The increase in incidence of communicable in 2018 compared to 2017 is likely due to increase in the incidence of gonorrhea, influenza-associated hospitalizations, and Lyme disease.
  - The incidence of gonorrhea increased from 32.5 in 2017 to 46.6 cases per 100,000 population in 2018 representing an **increase of 42%.**
  - Between 2017 and 2018, there was an **increase of 154% in influenza- associated hospitalizations** (49.8 vs. 126.8 per 100,000).
  - After an almost three-fold increase in the incidence between 2016 than 2017, the incidence of Lyme disease continued to increase in 2018. In 2018, the incidence of confirmed Lyme disease cases increased from 6.5 to 17.3 cases per 100,000 population (**166% increase**). Lyme disease is a tick-borne infection.

- The incidence of Campylobacteriosis also continued to increase in the county for the second year in a row. In 2017, the incidence of **Campylobacteriosis** was 15.1 per 100,000 and in 2018 it was 20.6 per 100,000 (**an increase of 36%**). While no cases of confirmed Hepatitis A cases were reported in the county in the past two years, the number of 'suspected' hepatitis A cases increased to five in 2018 from three cases in 2017 and none in 2016. Camplylobacteriosis and hepatitis A infections are fecal-orally transmitted gastrointestinal diseases with food and water as potential sources of infections. Considering the current nation- and state-wide outbreaks of hepatitis A, the continued

rise in the number of fecal-orally transmitted infections should be of concern and necessary public health prevention efforts should be implemented in the county to avoid a potentially large-scale outbreak (see the discussion of hepatitis A as a disease of highlight in the report).

- In 2018, there were 2 **confirmed cases of acute hepatitis B virus infections**, while there were none in the prior two years. There were also **2 cases of confirmed acute hepatitis C virus infection**s when there were none in the previous two years. The acute cases of these two blood-borne infections suggest ongoing transmission of the viruses in the population.

- In 2018, ***Chlamydia* infection** (278.4 per 100,000), **influenza- related hospitalizations** (123.5 per 100,000), **gonorrhea** (46.6 per 100,000), **chronic hepatitis C** (30.3 per 100,000), **Lyme disease** (17.3 per 100,000) were the five diseases with the highest incidence rates of confirmed cases in Tuscarawas County.

- **January, February, and December 2018 had the three highest monthly counts** of confirmed reportable communicable diseases in Tuscarawas County with 98, 56, and 52 cases, respectively.

- Influenza-related hospitalizations in Tuscarawas County peaked in January with 69 cases and most of the cases occurred in individuals older than 65 years of age.

- **Sexually transmitted diseases** (*Chlamydia* infection and Gonorrhea) continue to rise and are responsible for the highest disease burden on the county. They account for 55.6% of all confirmed reportable communicable disease in Tuscarawas County.

COMMUNICABLE DISEASE HIGHLIGHT

HEPATITIS A

(Image source: The National Library of Medicine)

DISEASE EPIDEMIOLOGY

Agent and Reservoir: Hepatitis A is a highly contagious, self-limiting (does not have a chronic manifestation) liver infection with gastrointestinal manifestations caused by hepatitis A virus (HAV). Humans are the primary reservoir (where the virus normally lives and replicates) of HAV, although some non-human primates also harbor the virus.

Disease manifestation: HAV infection can be asymptomatic or cause a wide spectrum of clinical illness from mild to severe symptoms typically lasting a couple of months, and in some cases death, depending on the age of an individual and other underlying factors for the disease severity.

Majority (70%) of HAV infections in children < 6 years of age are asymptomatic, and when symptoms are present in these children, they do not have jaundice. While >70% older children and adults with HAV infection exhibit jaundice. Other symptoms of HAV infection include fever, fatigue, loss of appetite, nausea, vomiting, abdominal pain, dark urine, diarrhea, clay-colored bowel movements, and joint pain.

Transmission: Hepatitis A is a fecal-orally transmitted disease. The virus is shed in the stool of an infected person and can be transmitted via direct contact between an infected individual and potential susceptible host. It can be also be transmitted via indirect contact through food and water.

The settings where access to clean drinking water and improved sanitation is a problem (especially low – and middle-income countries), HAV is endemic and primarily transmitted through contaminated water. In the United States, and other developed countries where most of the people have access to clean drinking water and improved sanitation, HAV transmission primarily occurs through contaminated food.

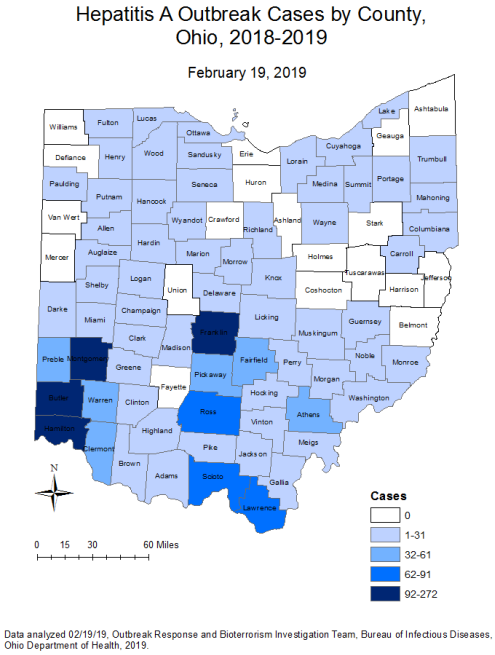
High-risk groups: The following groups of individuals are at high-risk of HAV infections in the United States: persons with direct contact with persons who have hepatitis A; travelers to countries where HAV infection is endemic (commonly occurs in the population); men who have sex with men; users of injection and non-injection drugs; persons with clotting factor disorders; persons working with nonhuman primates; and household members and other close personal contacts of adopted children newly arriving from HAV infection endemic countries.

Disease burden: Since the 1995, the United States has had a 95% decline in the rates of hepatitis A when hepatitis A vaccine was first available for use. Since then outbreaks of HAV have occurred between 2012 and 2013, and 2015 and 2016. These were due to large multi-state outbreak linked to contaminated food, specifically imported food. In the non-outbreak years, the number of reported cases of hepatitis A have

declined from about 3,500 in 2006 to 1,400 cases in 2014. In 2016, a year with a multi-state outbreak, the estimated cases of hepatitis A in the country were about 4,000.

2017 - PRESENT HEPATITIS A OUTBREAKS IN THE UNITED STATES

The United States, since March 2017, is experiencing a third multi-state community outbreak of HAV infections since the availability of hepatitis A vaccine. Unlike the previous outbreaks, the current outbreak is associated with person-to-person transmission of the virus primarily among person who use injection and non-injection drugs and experience homelessness, and close contacts of these groups of individuals. The outbreak has occurred in 17 states including Ohio. The ODH has declared community outbreak of HAV infection in the state since 2018. Most of the counties in the state have experienced at least one cases of confirmed hepatitis A, with four counties reporting more than 92 cases in 2018 and through February 19, 2019 (see the map below). There have been 1,746 cases reported in Ohio through February 19, 2019; there have not been any confirmed cases of HAV infection reported in Tuscarawas County.



Map and data source: Hepatitis A Statewide Community Outbreak. The Ohio Department of Health

RECOMMENDATIONS FOR PREVENTION?

Hepatitis A is a vaccine preventable disease. All children should be vaccinated at age 1 year. All the adults who are at an increased risk of HAV infection, and anyone who wants protection should get the vaccine.

The current HAV outbreak among users of drugs and individuals experiencing homelessness in Ohio and other states highlight the larger issue of interconnected of public health problems including communicable disease with larger socio-economic issues such as poverty, homelessness, and substance abuse. Public Health professionals working with professionals from other sectors including criminal justice system, housing, and civil society agencies need to reach out to the high-risk groups to provide vaccination and address the underlying the circumstances contributing to the spread of the virus in these groups.

Information and statistics source for hepatitis A: Viral Hepatitis—Hepatitis A Information. U.S Centers for Disease Control and Prevention.

Table 1. Communicable Disease Count and Percentage Reported to Tuscarawas County Health Department, Ohio, 2018

	Case Type				
	Confirmed	Probable	Suspected	All	
Reportable Communicable Disease	No.	No.	No.	No.	Percent
Carbapenemase producing carbapenem resistant *Enterobacteriaceae*	3	0	2	5	1.0
Campylobacteriosis	17	3	0	20	3.9
Chlamydia infection	203	0	0	203	39.3
Cryptosporidiosis	1	1	0	2	0.4
E. coli, Shiga toxin producing (O157:H7, not O157, unknown serotype), infection	0	2	0	2	0.4
Giardiasis	4	0	2	6	1.2
Gonorrhea	30	0	0	30	5.8
Haemophilus influenzae – invasive disease	1	0	0	1	0.2
Hepatitis A	0	0	4	4	0.8
Hepatitis B (including delta) – acute	2	0	1	3	0.6
Hepatitis B (including delta) – chronic	0	3	3	6	1.2
Hepatitis B – Perinatal infection	0	0	1	1	0.2
Hepatitis C – acute	2	0	0	2	0.4
Hepatitis C – chronic	19	27	0	46	8.9
Hepatitis C – Perinatal infection	0	0	1	1	0.2
Influenza	1	0	0	1	0.2
Influenza-associated hospitalizations	95	0	1	96	18.6
Legionellosis – Legionnaires' Disease	4	0	0	4	0.8
Listeriosis	1	0	1	1	0.2
Lyme Disease	15	1	9	25	4.8
Meningitis – aseptic/viral	2	0	0	2	0.4
Meningitis – bacterial (not *Neisseria meningitidis*)	0	0	1	1	0.2
Mycobacterial disease – other than tuberculosis	0	0	1	1	0.2
Pertussis	4	1	5	10	1.9

Continued in the next page

Table 1. Communicable Disease Count and Percentage Reported to Tuscarawas County Health Department, Ohio, 2018 (contd..)

	Case Type				
	Confirmed	Probable	Suspected	All	
	No.	No.	No.	No.	Percent
Salmonellosis	12	0	0	12	2.3
Shigellosis	2	0	0	2	0.4
Spotted Fever Rickettsiosis, including Rocky Mountain spotted fever (RMSF)	0	0	1	1	0.2
Streptococcal Group A – invasive	5	0	0	5	1.0
Streptococcal Group B – in newborn	1	0	0	1	0.2
Streptococcus pneumoniae – invasive antibiotic resistance unknown, or non-resistant	6	0	0	6	1.2
Streptococcus pneumoniae – invasive antibiotic resistant/intermediate	1	0	0	1	0.2
Syphilis – unknown duration or late	0	1	0	1	0.2
Tuberculosis	1	0	0	1	0.2
Varicella (Chickenpox)	4	4	1	9	1.7
Yersiniosis	2	0	2	4	0.8
Total (%)	**438 (84.9)**	**43 (8.3)**	**35 (6.8)**	**516**	**(100.00)**

Table 2. Monthly Confirmed Communicable Diseases Count Reported to Tuscarawas County Health Department, Ohio, 2018

Reportable Disease	January	February	March	April	May	June	July	August	September	October	November	December	Total
Carbapenemase producing carbapenem resistant *Enterobacteriaceae*	0	0	0	0	1	0	1	1	0	0	0	0	3
Campylobacteriosis	1	0	1	0	2	4	6	1	1	0	1	0	17
Chlamydia infection	16	15	14	7	18	15	13	19	20	19	19	28	203
Cryptosporidiosis	0	0	0	0	0	0	0	1	0	0	0	0	1
Giardiasis	0	0	0	0	0	1	0	2	1	0	0	0	4
Gonorrhea	1	6	5		1	3	1	1	4	2	2	4	30
Haemophilus influenzae – invasive disease	1	0	0	0	0	0	0	0	0	0	0	0	1
Hepatitis B (including delta) – acute	0	0	1	0	0	0	0	0	1	0	0	0	2
Hepatitis C – acute	0	0	0	1	0	0	0	0	1	0	0	0	2
Hepatitis C – chronic	1	3	2	2	1	1	2	2	1	1	3	0	19
Influenza-associated hospitalizations	59	23	7	5	1	0	0	0	0	0	0	1	96
Legionellosis – Legionnaires' Disease	0	0	0	0	0	0	1	1	0	2	0	0	4
Listeriosis	0	1	0	0	0	0	0	0	0	0	0	0	1
Lyme Disease	0	0	0	0	0	2	4	3	2	1	1	2	15
Meningitis – aseptic/viral	0	0	0	0	0	0	1	1	0	0	0	0	2
Pertussis	0	1	0	0	0	0	0	0	0	0	3	0	4
Salmonellosis	1	0	0	1	0	2	2	1	3	2	0	0	12
Shigellosis	0	0	0	0	0	1	1	0	0	0	0	0	2
Streptococcal Group A – invasive	0	1	1	1	1	0	1	0	0	0	0	0	5
Streptococcal Group B – in newborn	0	0	0	0	0	0	0	0	1	0	0	0	1
Streptococcus pneumoniae – invasive antibiotic resistance unknown, or non-resistant	1	0	0	1	1	0	0	0	1	0	1	1	6
Streptococcus pneumoniae – invasive antibiotic resistant/intermediate	0	0	0	0	0	0	0	0	0	0	1	0	1
Tuberculosis	1	0	0	0	0	0	0	0	0	0	0	0	1
Varicella	1	0	1	0	0	0	0	0	0	1	1	0	4
Yersiniosis	0	0	0	0	0	1	0	0	0	0	0	1	2
Totals	**83**	**50**	**32**	**18**	**26**	**30**	**33**	**33**	**36**	**28**	**32**	**37**	**438**

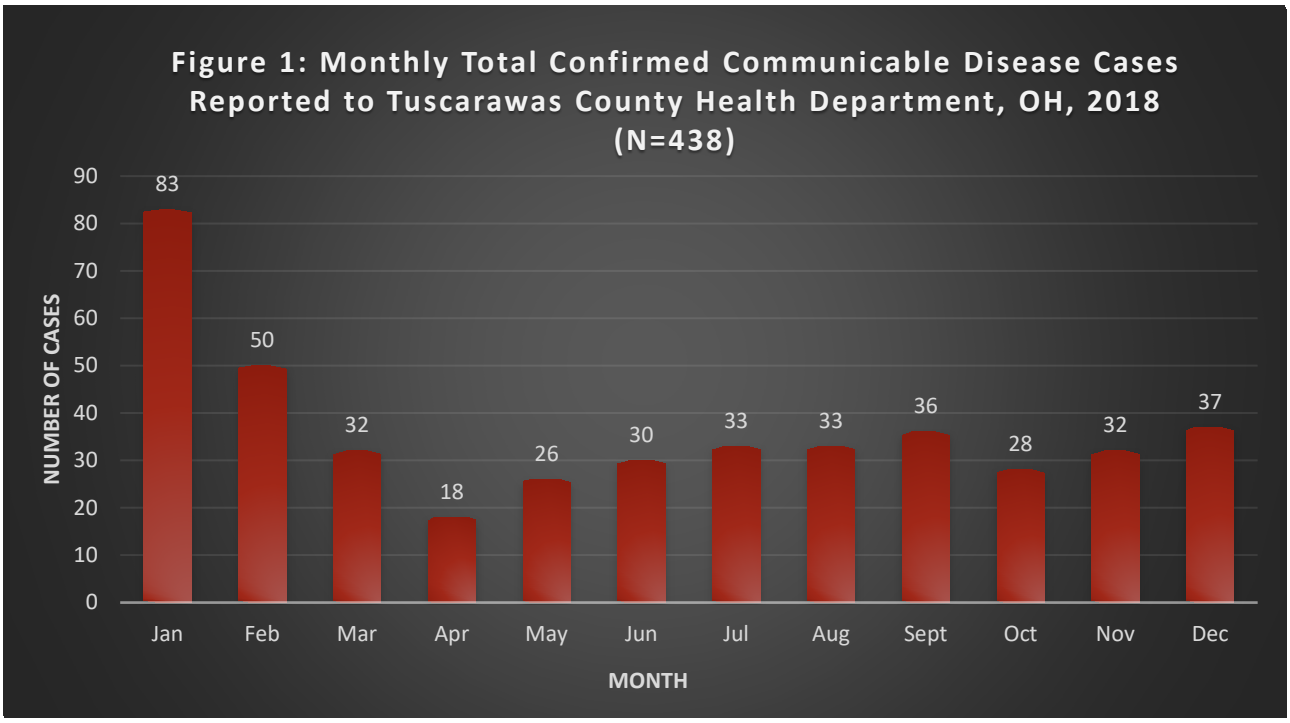


Figure 1: Monthly Total Confirmed Communicable Disease Cases Reported to Tuscarawas County Health Department, OH, 2018 (N=438)
NUMBER OF CASES
90
80
70
60
50
40
30
20
10
0
83
50
32
18
26
30
33
33
36
28
32
37
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sept
Oct
Nov
Dec
MONTH

Table 3. Communicable Disease Count and Percentage Reported to New Philadelphia City Health Department, Ohio, 2018

	Case Type				
	Confirmed	Probable	Suspected	All	
Reportable Communicable Disease	No.	No.	No.	No.	Percent
Campylobacteriosis	2	0	0	2	1.6
Chlamydia infection	54	0	0	54	42.2
Cryptosporidiosis	1	0	0	1	0.8
Giardiasis	0	0	1	1	0.8
Gonorrhea	13	0	0	13	10.2
Haemophilus influenzae – invasive disease	1	0	0	1	0.8
Hepatitis A	0	0	1	1	0.8
Hepatitis B (including delta) – chronic	1	2	3	6	4.7
Hepatitis C – acute	0	1	0	1	0.8
Hepatitis C – chronic	9	11	0	20	15.6
Influenza-associated hospitalizations	18	0	2	20	15.6
Legionellosis – Legionnaires' Disease	1	0	0	1	0.8
Lyme Disease	1	0	0	1	0.8
Meningitis – aseptic/viral	0	1	0	1	0.8
Pertussis	0	0	1	1	0.8
Streptococcus pneumoniae – invasive antibiotic resistant/intermediate	1	0	0	1	0.8
Syphilis – unknown duration or late	0	3	0	3	2.3
Total	**102 (79.7)**	**18 (14.1)**	**8 (6.3)**	**128**	**(100.00)**

Table 4. Monthly Confirmed Communicable Diseases Count Reported to New Philadelphia City Health Department, Ohio, 2018

Reportable Disease	January	February	March	April	May	June	July	August	September	October	November	December	Total
Campylobacteriosis	0	0	0	0	0	0	2	0	0	0	0	0	2
Chlamydia infection	4	1	6	2	5	0	2	3	8	6	8	9	54
Cryptosporidiosis	0	1	0	0	0	0	0	0	0	0	0	0	1
Gonorrhea	0	0	3	1	1	0	0	1	0	1	1	5	13
Haemophilus influenzae – invasive disease	0	0	1	0	0	0	0	0	0	0	0	0	1
Hepatitis B (including delta) – acute	0	0	0	0	0	0	0	1	0	0	0	0	1
Hepatitis C – chronic	1	1	0	1	0	0	1	2	0	0	3	0	9
Influenza-associated hospitalizations	10	3	1	4	0	0	0	0	0	0	0	0	18
Legionellosis – Legionnaires' Disease	0	0	0	0	0	0	1	0	0	0	0	0	1
Lyme Disease	0	0	0	0	0	1	0	0	0	0	0	0	1
Streptococcus pneumoniae – invasive antibiotic resistant/intermediate	0	0	0	0	0	0	0	0	0	0	0	1	1
Totals	**15**	**6**	**11**	**8**	**6**	**2**	**5**	**7**	**8**	**7**	**12**	**15**	**102**

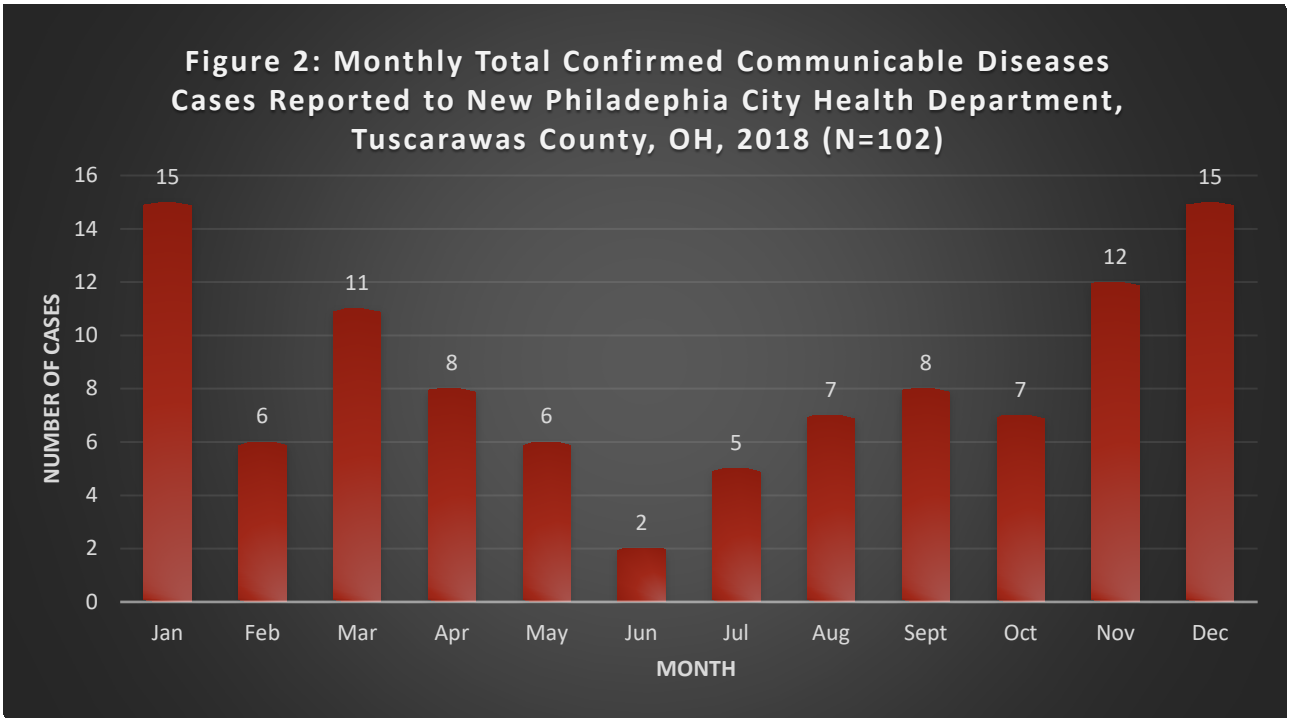


Table 5. Total Communicable Disease †Count and Percentage, Tuscarawas County, Ohio, 2018

	Case Type				
	Confirmed	Probable	Suspected	All	
Reportable Communicable Disease	No.	No.	No.	Cases	Percent
Carbapenemase producing carbapenem resistant *Enterobacteriaceae*	3	0	2	5	0.8
Campylobacteriosis	19	3	0	22	3.4
Chlamydia infection	257	0	0	257	39.8
Cryptosporidiosis	2	1	0	3	0.5
E. coli, Shiga toxin producing (O157:H7, not O157, unknown serotype), infection	0	2	0	2	0.3
Giardiasis	4	0	3	7	1.1
Gonorrhea	43	0	0	43	6.7
Haemophilus influenzae – invasive disease	2	0	0	2	0.3
Hepatitis A	0	0	5	5	0.8
Hepatitis B (including delta) – acute	2	0	1	3	0.5
Hepatitis B (including delta) – chronic	1	5	6	12	1.9
Hepatitis B – Perinatal infection	0	0	1	1	0.2
Hepatitis C – acute	2	1	0	3	0.5
Hepatitis C – chronic	28	38	0	66	10.2
Hepatitis C – Perinatal infection	0	0	1	1	0.6
Influenza	1	0	0	1	0.6
Influenza-associated hospitalizations	113	0	3	116	18.0
Legionellosis – Legionnaires' Disease	5	0	0	5	0.8
Listeriosis	1	0	0	1	0.2
Lyme Disease	16	1	9	26	4.0
Meningitis – aseptic/viral	2	1	0	3	0.5
Meningitis – bacterial (not *Neisseria meningitidis*)	0	0	1	1	0.2
Mycobacterial disease – other than tuberculosis	0	0	1	1	0.2
Pertussis	4	1	6	11	1.7

†Includes cases of diseases reported to both Tuscarawas County and New Philadelphia City Health Departments

Continued in the next page.

Table 5. Total Communicable Disease †Count and Percentage, Tuscarawas County, Ohio, 2018 (contd..)

	Case Type				
	Confirmed	Probable	Suspected	All	
Reportable Communicable Disease	No.	No.	No.	Cases	Percent
Salmonellosis	12	0	0	12	1.9
Shigellosis	2	0	0	2	0.3
Spotted Fever Rickettsiosis, including Rocky Mountain spotted fever (RMSF)	0	0	1	1	0.2
Streptococcal Group A – invasive	5	0	0	5	0.8
Streptococcal Group B – in newborn	1	0	0	1	0.2
Streptococcus pneumoniae – invasive antibiotic resistance unknown, or non-resistant	6	0	0	6	0.9
Streptococcus pneumoniae – invasive antibiotic resistant/intermediate	2	0	0	2	0.3
Syphilis – unknown duration or late	0	4	0	4	0.6
Tuberculosis	1	0	0	1	0.2
Varicella (Chickenpox)	4	4	1	9	1.4
Yersiniosis	2	0	2	5	0.8
Total (%)	**540 (83.9)**	**61 (9.5)**	**43 (6.7)**	**644**	**(100.0)**

†Includes cases of diseases reported to both Tuscarawas County and New Philadelphia City Health Departments

Table 6. Monthly Confirmed Communicable Diseases †Count in Tuscarawas County, Ohio, 2018

Reportable Disease	January	February	March	April	May	June	July	August	September	October	November	December	Total
Carbapenemase producing carbapenem resistant *Enterobacteriaceae*	0	0	0	0	1	0	1	1	0	0	0	0	3
Campylobacteriosis	1	0	1	0	2	4	8	1	1	0	1	0	19
Chlamydia infection	20	16	20	9	23	15	15	22	28	25	27	37	257
Cryptosporidiosis	0	1	0	0	0	0	0	1	0	0	0	0	2
Giardiasis	0	0	0	0	0	1	0	2	1	0	0	0	4
Gonorrhea	1	6	8	1	2	3	1	2	4	3	3	9	43
Haemophilus influenzae – invasive disease	1	0	1	0	0	0	0	0	0	0	0	0	2
Hepatitis B (including delta) – acute	0	0	1	0	0	0	0	0	1	0	0	0	2
Hepatitis C – acute	0	0	0	1	0	0	0	0	1	0	0	0	2
Hepatitis C – chronic	2	4	2	3	1	2	2	5	1	1	6	0	29
Influenza-associated hospitalizations	69	26	8	9	1	0	0	0	0	0	0	1	114
Legionellosis – Legionnaires' Disease	0	0	0	0	0	0	2	1	0	2	0	0	5
Listeriosis	0	1	0	0	0	0	0	0	0	0	0	0	1
Lyme Disease	0	0	0	0	0	3	4	3	2	1	1	2	16
Meningitis – aseptic/viral	0	0	0	0	0	0	1	1	0	0	0	0	2
Pertussis	0	1	0	0	0	0	0	0	0	0	3	0	4
Salmonellosis	1	0	0	1	0	2	2	1	3	2	0	0	12
Shigellosis	0	0	0	0	0	1	1	0	0	0	0	0	2
Streptococcal Group A – invasive	0	1	1	1	1	0	1	0	0	0	0	0	5
Streptococcal Group B – in newborn	0	0	0	0	0	0	0	0	1	0	0	0	1
Streptococcus pneumoniae – invasive antibiotic resistance unknown, or non-resistant	1	0	0	1	1	0	0	0	1	0	1	1	6
Streptococcus pneumoniae – invasive antibiotic resistant/intermediate	0	0	0	0	0	0	0	0	0	0	1	1	2
Tuberculosis	1	0	0	0	0	0	0	0	0	0	0	0	1
Varicella	1	0	1	0	0	0	0	0	0	1	1	0	4
Yersiniosis	0	0	0	0	0	1	0	0	0	0	0	1	2
Totals	**98**	**56**	**43**	**26**	**32**	**32**	**38**	**40**	**44**	**35**	**44**	**52**	**540**

†Includes cases of diseases reported to both Tuscarawas County and New Philadelphia City Health Departments

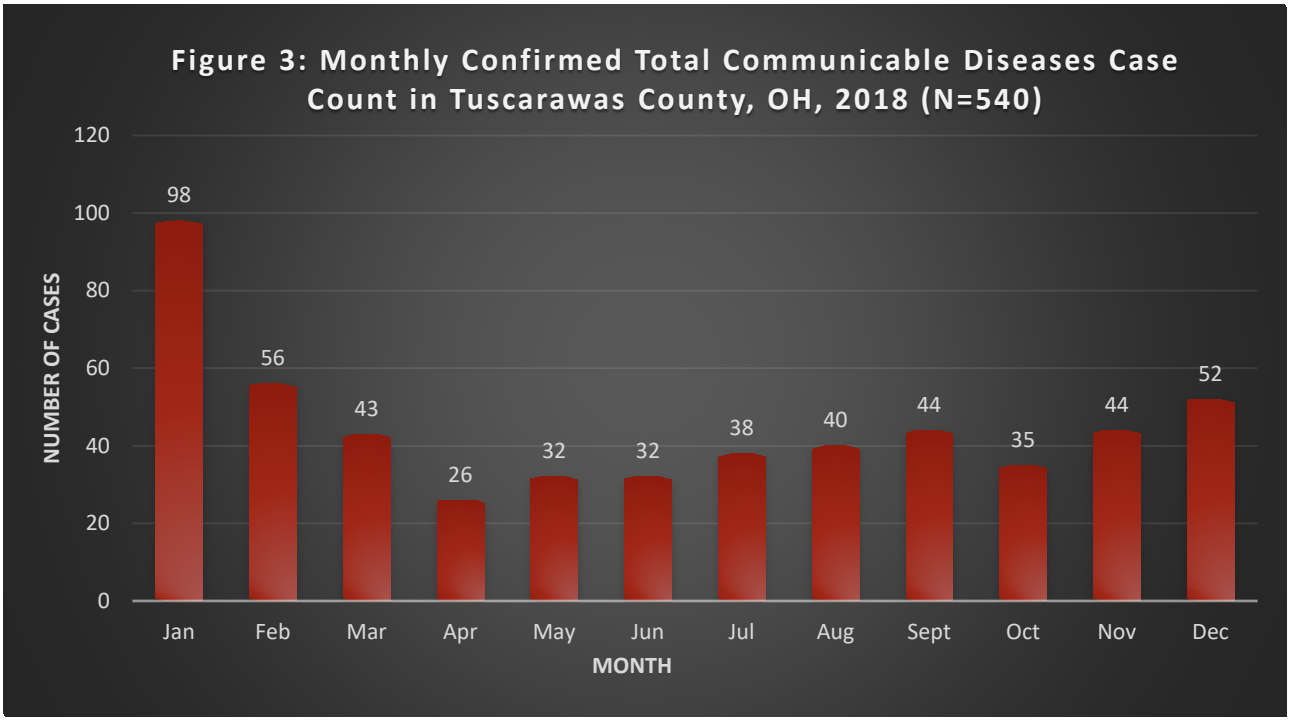


Figure 3: Monthly Confirmed Total Communicable Diseases Case Count in Tuscarawas County, OH, 2018 (N=540)
NUMBER OF CASES
120
100
80
60
40
20
0
98
56
43
26
32
32
38
40
44
35
44
52
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sept
Oct
Nov
Dec
MONTH

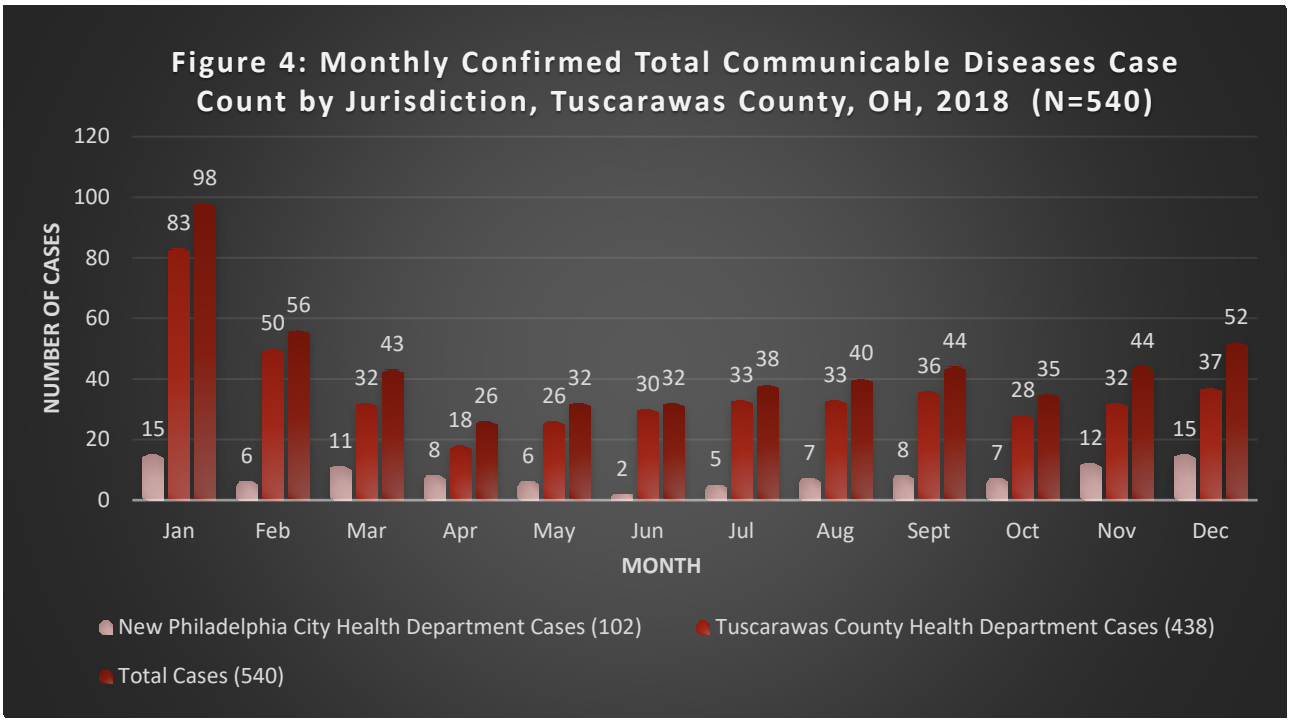


Figure 4: Monthly Confirmed Total Communicable Diseases Case Count by Jurisdiction, Tuscarawas County, OH, 2018 (N=540)
NUMBER OF CASES
120
100
80
60
40
20
0
15
83
98
6
50
56
11
32
43
8
18
26
6
26
32
2
30
32
5
33
38
7
33
40
8
36
44
7
28
35
12
32
44
15
37
52
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sept
Oct
Nov
Dec
MONTH
New Philadelphia City Health Department Cases (102)
Tuscarawas County Health Department Cases (438)
Total Cases (540)

Table 7. Communicable Disease Rates, Tuscarawas County, Ohio, 2017 – 2018

	2017†				2018††			
	Confirmed Cases		All Cases		Confirmed Cases		All Cases	
Reportable Communicable Disease	No.	Rate/ 100,000	No.	Rate/ 100,000	No.	Rate/ 100,000	No.	Rate/ 100,000
Carbapenemase producing carbapenem resistant Enterobacteriaceae	0	0.0	0	0.0	3	3.3	5	5.4
Campylobacteriosis	14	15.1	19	20.6	19	20.6	22	23.8
Chlamydia infection	248	268.3	248	268.3	257	278.4	257	278.4
Cryptosporidiosis	3	3.2	3	3.2	2	2.2	3	3.3
E. coli, Shiga toxin producing (O157:H7, Not O157, Unknown Serotype), infection	2	2.2	6	6.5	0	0.0	2	2.2
Giardiasis	7	7.6	11	11.9	4	4.3	7	7.6
Gonorrhea	30	32.5	30	32.5	43	46.6	43	46.6
Haemophilus influenzae (invasive disease)	1	1.1	1	1.1	2	2.2	2	2.2
Hepatitis A	0	0.0	3	3.2	0	0.0	5	5.4
Hepatitis B (including delta) – acute	0	0.0	0	0.0	2	2.2	3	3.3
Hepatitis B (including delta) – chronic	0	0.0	11	11.9	1	1.1	12	13.0
Hepatitis B – Perinatal infection	0	0.0	0	0.0	0	0.0	1	1.1
Hepatitis C – acute	0	0.0	0	0.0	2	2.2	3	3.3
Hepatitis C – chronic	38	41.1	69	74.7	28	30.3	66	71.5
Hepatitis C – Perinatal infection	0	0.0	0	0.0	0	0.0	1	1.1
Influenza-associated hospitalizations	44	47.6	46	49.8	114	123.5	116	125.7
Legionellosis – Legionnaires' Disease	0	0.0	0	0.0	5	5.4	5	5.4
Listeriosis	0	0.0	0	0.0	1	1.1	1	1.1
Lyme Disease	6	6.5	28	30.3	16	17.3	26	28.2
Meningitis – aseptic/viral	4	4.3	6	6.5	2	2.2	3	3.3
Meningitis – bacterial (not *Neisseria meningitidis*)	1	1.1	1	1.1	0	0.0	1	1.1
Mycobacterial disease – other than tuberculosis	0	0.0	0	0.0	0	0.0	1	1.1
Mumps	0	0.0	1	1.1	0	0	0	0.0

†For 2017 rate calculations cases of diseases reported to both Tuscarawas County and New Philadelphia City Health Departments were included; rates based on 2016 county population estimates (92,420) (U.S. Census Bureau)

††For 2018 rate calculations diseases reported to both Tuscarawas County and New Philadelphia City Health Departments were included; 2018 rates based on 2017 county population estimates (92,297) (U.S. Census Bureau)

Continued in the next page.

Table 7. Communicable Disease Rates, Tuscarawas County, Ohio, 2017 – 2018 (contd..)

	2017†				2018††			
	Confirmed Cases		All Cases		Confirmed Cases		All Cases	
Reportable Communicable Disease	No.	Rate/ 100,000	No.	Rate/ 100,000	No.	Rate/ 100,000	No.	Rate/ 100,000
Pertussis	4	4.3	13	14.1	4	4.3	11	11.9
Salmonellosis	12	13.0	12	13.0	12	13.0	12	13.0
Shigellosis	1	1.1	1	1.1	2	2.2	2	2.2
Spotted Fever Rickettsiosis, including Rocky Mountain spotted fever (RMSF)	0	0.0	0	0.0	0	0.0	1	1.1
Streptococcal infection – Group A invasive	4	4.3	4	4.3	5	5.4	5	5.4
Streptococcal - Group B - in newborn	0	0.0	0	0.0	1	1.1	1	1.1
Streptococcus pneumoniae – invasive antibiotic resistance unknown or non-resistant	4	4.3	4	4.3	6	6.5	6	6.5
Streptococcus pneumoniae – invasive antibiotic resistant/intermediate-infection	2	2.2	2	2.2	2	2.2	2	2.2
Syphilis - unknown duration or late	0	0.0	0	0.0	0	0.0	4	4.3
Tuberculosis	2	2.2	2	2.2	1	1.1	1	1.1
Varicella (Chickenpox)	2	2.2	9	9.7	4	4.3	9	9.8
West Nile virus disease or current infection	0	0.0	1	1.1	0	0		0.0
Yersinosis	3	3.2	3	3.2	2	3.3	5	5.4
Total	**432**	**467.4**	**534**	**577.8**	**540**	**585.1**	**644**	**697.7**

†For 2017 rate calculations cases of diseases reported to both Tuscarawas County and New Philadelphia City Health Departments were included; rates based on 2016 county population estimates (92,420) (U.S. Census Bureau)

††For 2018 rate calculations diseases reported to both Tuscarawas County and New Philadelphia City Health Departments were included; 2018 rates based on 2017 county population estimates (92,297) (U.S. Census Bureau)

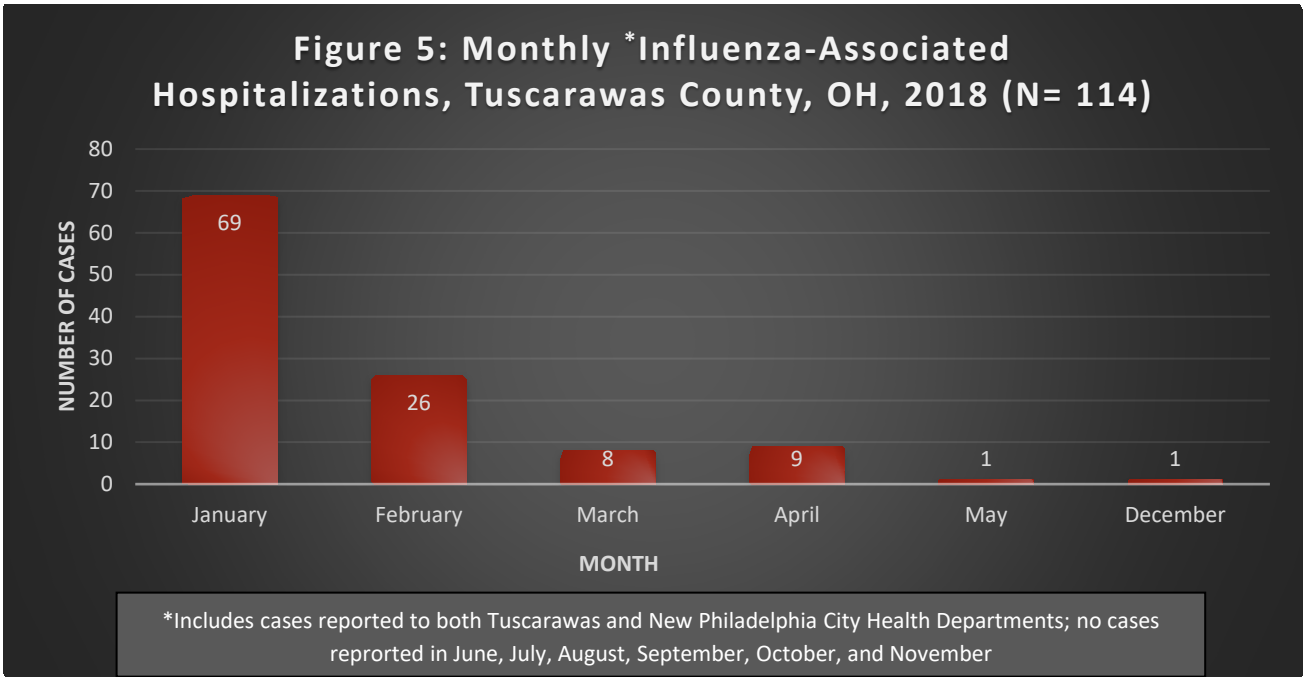


Figure 5: Monthly *Influenza-Associated Hospitalizations, Tuscarawas County, OH, 2018 (N= 114)
NUMBER OF CASES
80
70
60
50
40
30
20
10
0
69
26
8
9
1
1
January
February
March
April
May
December
MONTH
*Includes cases reported to both Tuscarawas and New Philadelphia City Health Departments; no cases reprorted in June, July, August, September, October, and November

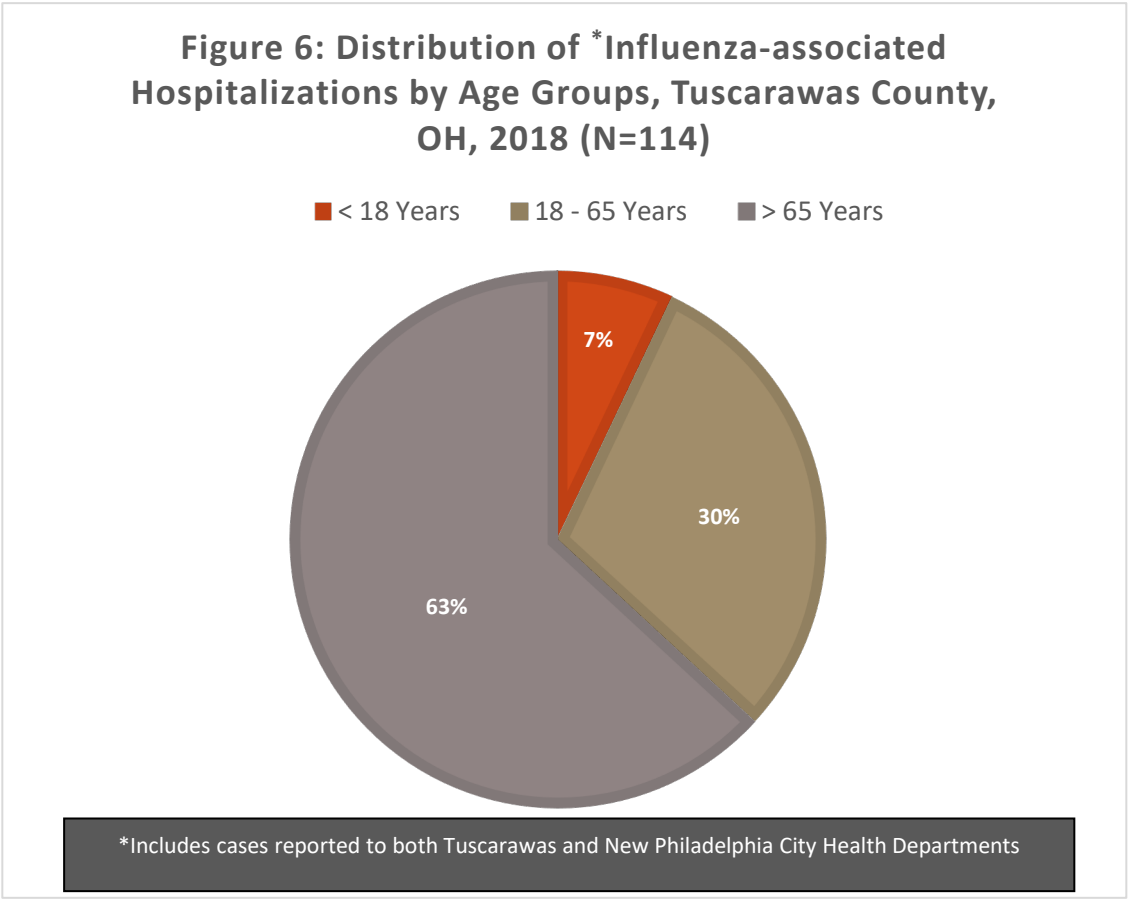


Figure 6: Distribution of *Influenza-associated Hospitalizations by Age Groups, Tuscarawas County, OH, 2018 (N=114)
< 18 Years
18 - 65 Years
> 65 Years
7%
30%
63%
*Includes cases reported to both Tuscarawas and New Philadelphia City Health Departments

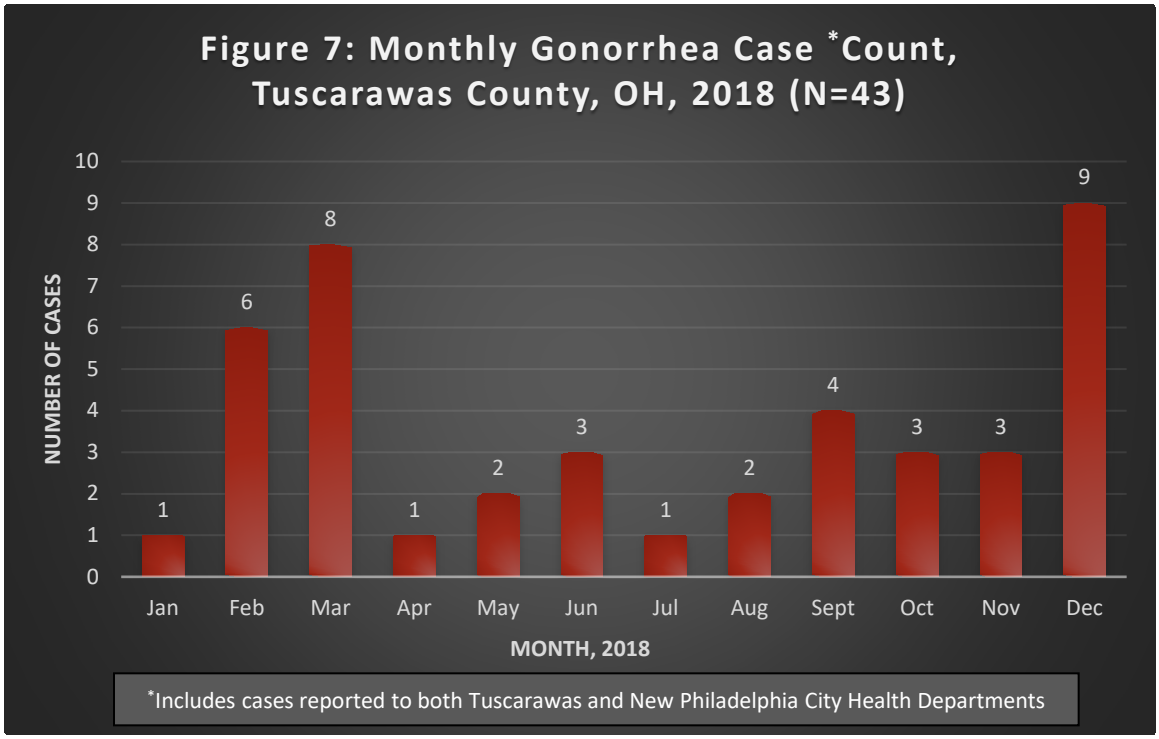


Figure 7: Monthly Gonorrhea Case *Count, Tuscarawas County, OH, 2018 (N=43)
NUMBER OF CASES
10
9
8
7
6
5
4
3
2
1
0
1
6
8
1
2
3
1
2
4
3
3
9
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sept
Oct
Nov
Dec
MONTH, 2018
*Includes cases reported to both Tuscarawas and New Philadelphia City Health Departments

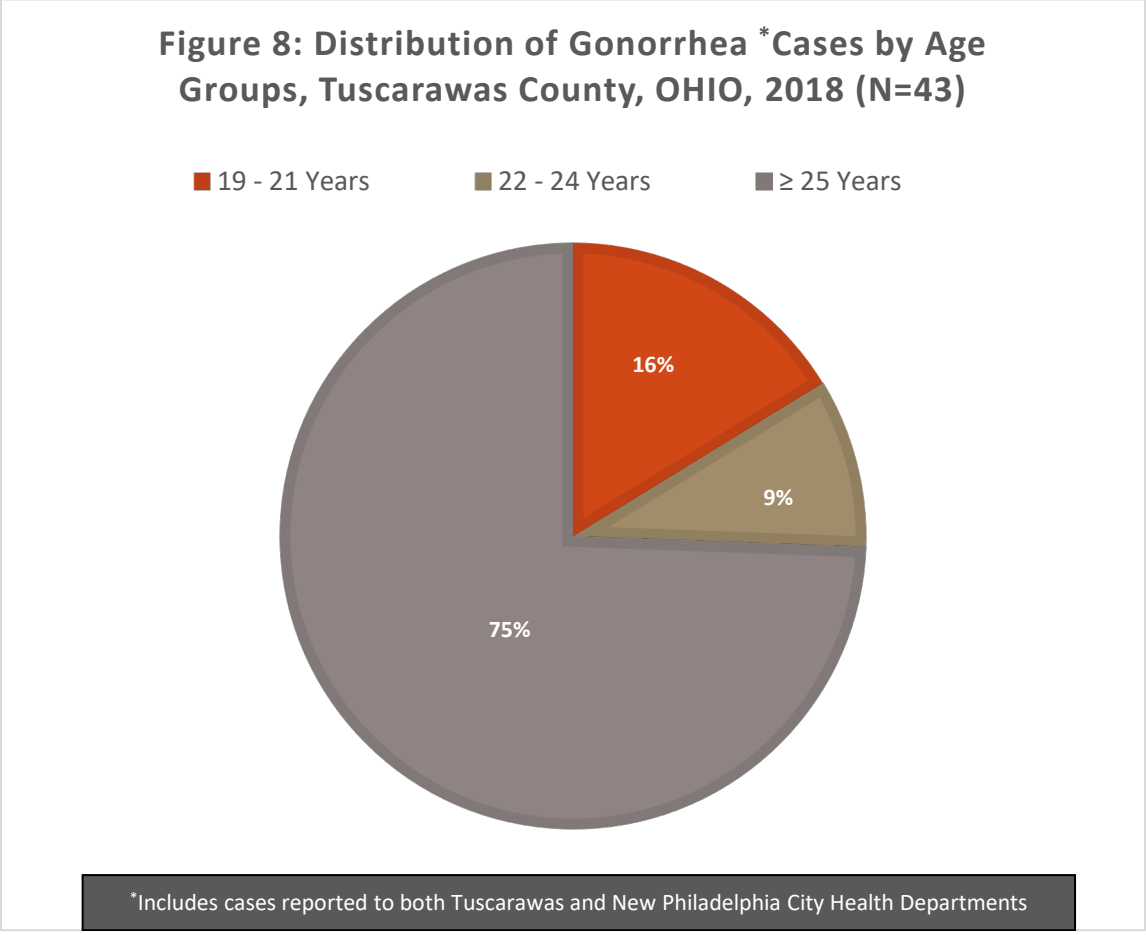


Figure 8: Distribution of Gonorrhea *Cases by Age Groups, Tuscarawas County, OHIO, 2018 (N=43)
19 - 21 Years
22 - 24 Years
≥ 25 Years
16%
9%
75%
*Includes cases reported to both Tuscarawas and New Philadelphia City Health Departments

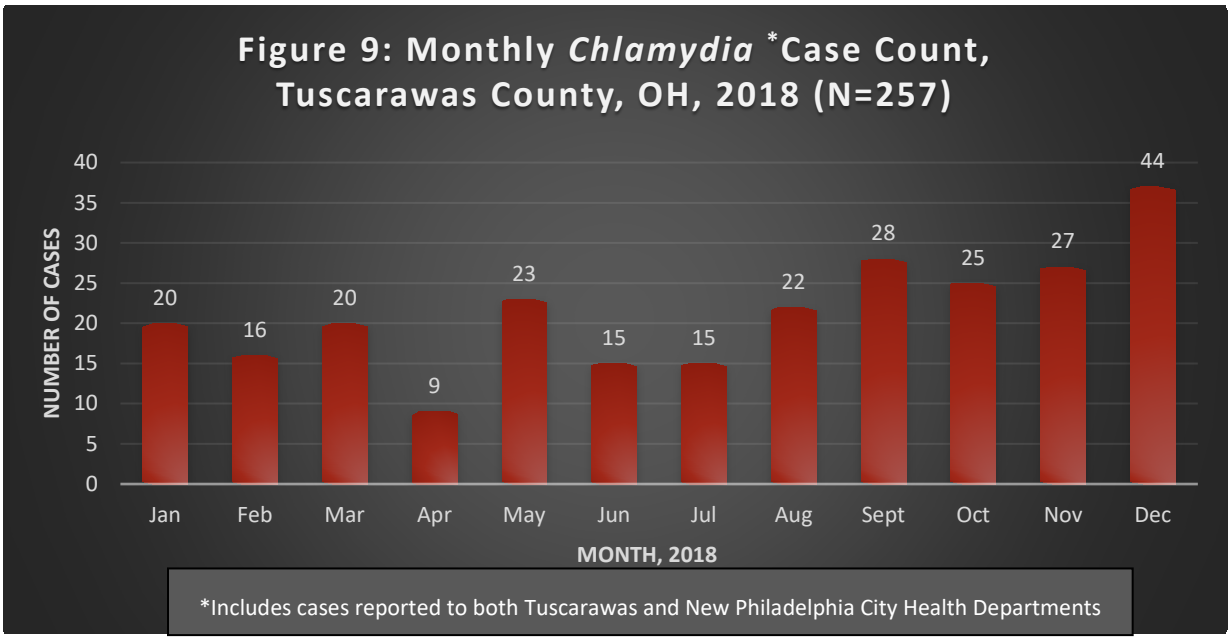


Figure 9: Monthly *Chlamydia* *Case Count, Tuscarawas County, OH, 2018 (N=257)
NUMBER OF CASES
40
35
30
25
20
15
10
5
0
20
16
20
9
23
15
15
22
28
25
27
44
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sept
Oct
Nov
Dec
MONTH, 2018
*Includes cases reported to both Tuscarawas and New Philadelphia City Health Departments

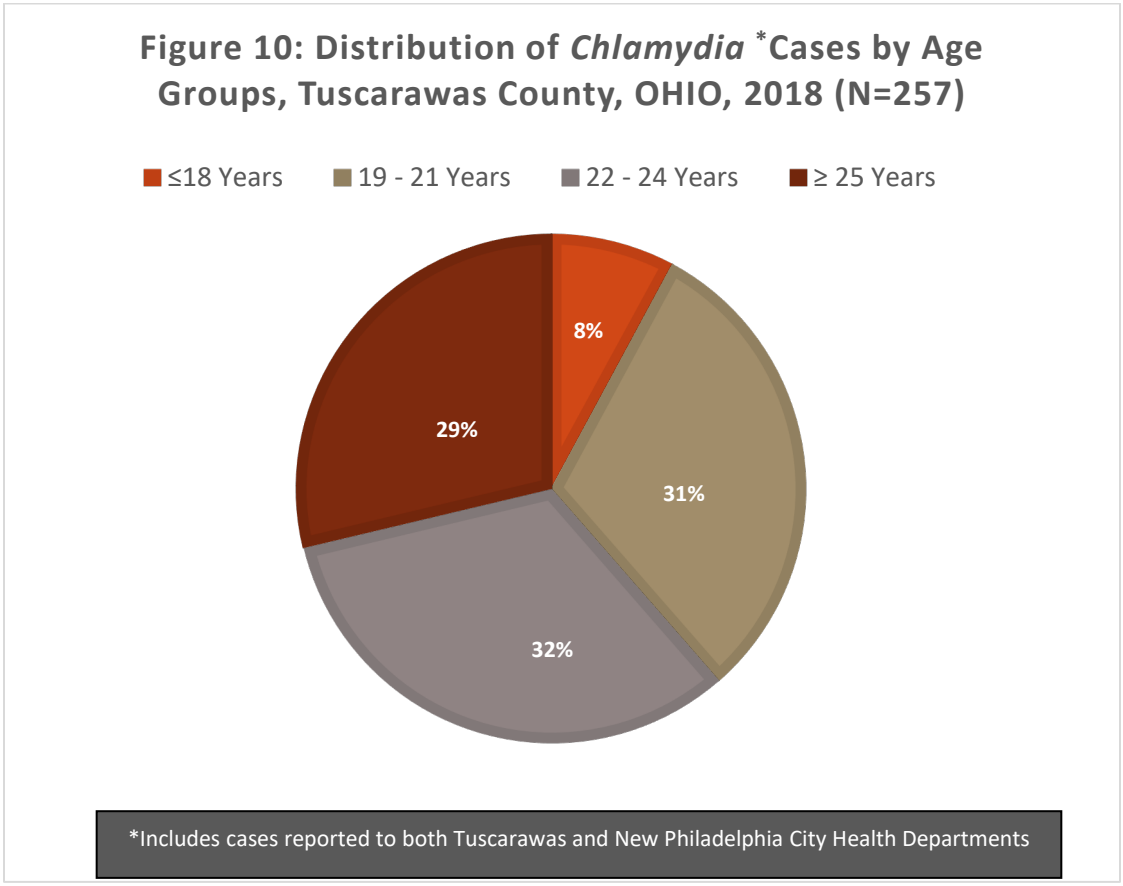


Figure 10: Distribution of *Chlamydia* *Cases by Age Groups, Tuscarawas County, OHIO, 2018 (N=257)
≤18 Years
19 - 21 Years
22 - 24 Years
≥ 25 Years
8%
31%
32%
29%
*Includes cases reported to both Tuscarawas and New Philadelphia City Health Departments

BASIC INFORMATION ON REPORTABLE COMMUNICABLE DISEASES OBSERVED IN TUSCARAWAS COUNTY IN 2018

Campylobacteriosis
Infectious Agent: *Campylobacter jejuni*, *Campylobacter Coli*.
Reservoir: Poultry, cattle, farm animals. Most raw poultry meat is contaminated.
Mode of Transmission: Ingestion of undercooked poultry, contaminated water or milk from an infected cow, improper hand sanitization after handling farm animals.
Incubation Period: 2-5 days, range 1-10 days.
Prevention Measures: Pasteurize all milk, boil/chlorinate all water. Thoroughly cook meat and sanitize utensils/cutting boards. Implement stringent hand washing practices.

Cryptosporidiosis
Infectious Agent: *Cryptosporidium parvum* – a coccidian protozoan parasite.
Reservoir: Humans, cattle, domesticated animals.
Mode of Transmission: Fecal-oral – including person-to-person, animal-to-person, waterborne and foodborne
Incubation Period: 7 days, range 1-12 days.
Prevention Measures: Personal hygiene education, sanitary handling of feces, stringent hand washing practices and boiling and filtering water.

***E. coli* Infection– enterohemorrhagic – Not O157:H7**
Infectious Agent: The enterotoxins of most subtypes of *Escherichia Coli* except O157:H7.
Reservoir: Humans.
Mode of Transmission: Contaminated food and, less likely, water.
Incubation Period: As short as 10-12 hours, usually 24-72 hours.
Prevention Measures: Prophylactic antibiotics if traveling to an area where bacteria are endemic. Else, implement universal precautions to minimize fecal-oral food contamination.

Giardiasis
Infectious Agent: *Giardia lamblia, Giardia intestinalis, Giardia duodenalis*, a flagellate protozoan parasite.
Reservoir: Humans, possibly Beaver and other domesticated animals.
Mode of Transmission: Fecal-oral. Hand-to-mouth transfer; most common at day care centers; also, anal intercourse, contamination of foodstuffs and unfiltered stream and lake waters (given human or animal fecal contamination).
Incubation Period: 3 to >25 days, median 7-10 days.
Prevention Measures: Protect public water supplies against contamination, implement emergency boiling procedures, and promote stringent hand washing procedures.

Gonococcal Infection
Infectious Agent: *Neisseria gonorrhoeae*
Reservoir: Humans.
Mode of Transmission: Sexual Contact (an indicator of sexual abuse in children).
Incubation Period: 2-7 days.
Prevention Measures: Safe sex practices, monogamy or abstinence.

***Haemophilius influenzae* Disease**
Infectious Agent: *Haemophilus influenzae*
Reservoir: Humans (asymptomatic carriers).
Mode of Transmission: Person-to-person, direct contact or inhalation of droplets of respiratory tract secretions containing the bacteria.
Incubation Period: Unknown.
Prevention Measures: Vaccine against serotype B available, else, universal precautions and hand washing when in contact with infected respiratory excretions.

Hepatitis A
Infectious Agent: Hepatitis A Virus (HAV), a member of the family Picornaviridae.

Reservoir: Humans, rarely primates.
Mode of Transmission: Fecal-oral, person-to-person. Infected foodstuffs and water.
Incubation Period: 28-30 days, range 15-50 days.
Prevention Measures: Vaccination (with Immunoglobulin/Antibody supplement if needed), education on sanitary practices, thoroughly cook all shellfish and boil all water where disease is endemic.

Hepatitis B (including Delta) – Chronic
Infectious Agent: Hepatitis B Virus (HBV) and Hepatitis Delta Virus (HDV) – Requires existing HBV infection to be virulent.
Reservoir: Humans
Mode of Transmission: Sexual activities, IV drug use, close contact with: blood, saliva, semen, vaginal secretions, cerebrospinal fluid, and amniotic, synovial, peritoneal and pericardial fluids.
Prevention Measures: Immunization of all children, screening of donated blood products. Safe sex practices and eliminate recreational drug use.

Hepatitis C – Acute (chronic cases are prevalent)
Infectious Agent: Hepatitis C Virus (HCV).
Reservoir: Humans.
Mode of Transmission: Usually by skin puncture (needlestick, cut, abrasion, etc). No evidence for oral route.
Incubation Period: 6-9 weeks. Chronic infections may persist up to 20 years before onset of cirrhosis or hepatoma.
Prevention Measures: See HBV prevention.

Influenza
Infectious Agent: Multiple (ex: H1N1, H3N2)
Reservoir: Humans, Birds, Swine.
Mode of Transmission: Airborne spread of droplets or direct contact with mucous membranes of infected individual.
Incubation Period: 1-3 days.
Prevention Measures: Education on sanitization, annual vaccination, universal precautions.

Lyme Disease
Infectious Agent: *Borrelia burgdorferi, Borrelia garinii, Barrelia afzelii*
Reservoir: Deer Ticks
Mode of Transmission: Tick bite (Experimental evidence shows ticks attached for less than 24 hours may not pass on the disease.)
Incubation Period: 7-10 days.
Prevention Measures: Education on tick habitat, prevention and removal. Avoidance of tick infested areas, application of tick repellant and use of long shirts and pants.

Mumps
Infectious Agent: Mumps Virus, family Paramyxoviridae genus *Rubulavirus*.
Reservoir: Humans.
Mode of Transmission: Airborne, droplet or direct contact with saliva of infected.
Incubation Period: 16-18 days.
Prevention Measures: Mumps vaccination as part of standard MMR.

Mycobacterial Disease – other than Tuberculosis
Disease/Infectious Agent:
-- **Cervical Lymphadenitis –** *Mycobacterium avium, M. scrofulaceum, M. kansasii.*
-- **Skin Ulcers –** *M. ulcerans, M. marinum.*
-- **Nosocomial (hospital acquired) disease –** *M. fortutium, M. chelonae, M. absessus*
-- **Crohn disease –** *M. paratuberculosis*
Reservoir: Contaminated soil, milk, water; Infected Humans.
Mode of Transmission: Contact with ulcerated skin lesions or sputum. (Not common)
Incubation Period: Varies by agent.
Prevention Measures: Avoid the ill if immunocompromised. Take prophylactic antibiotics before undergoing surgery.

Pertussis
Infectious Agent: *Bordetella Pertussis*.
Reservoir: Humans.
Mode of Transmission: Airborne, droplets.
Incubation Period: 9-10 days.
Prevention Measures: Pertussis vaccination as part of standard DPT.

***Pneumococcal Disease (Streptococcus pneumoniae* infection)**
Infectious Agent: *Streptococcus pneumonia (pneumococcus)*
Reservoir: Humans.
Mode of Transmission: Droplet spread, oral contact, direct contact with respiratory discharges.
Incubation Period: 1-3 days, not well determined.
Prevention Measures: Avoid crowding, vaccinate, encourage prophylactic ingestion of xylitol, a sugar that inhibits pneumococcal growth.
Note: Some strains, such as MRSA are resistant to antibacterial medication. As such, strict sanitation practices (wiping down most surfaces with antiseptic chemicals) should be implemented as such infections frequently involve hospitalization.

Salmonellosis
Infectious Agent: *Salmonella typhi, S. enterica.*
Reservoir: Wild and domestic animals.
Mode of Transmission: Ingestion of contaminated animal products (meat, dairy) or of foodstuffs cross-contaminated (ex: lettuce, tomatoes prepared alongside contaminated meat or dairy).
Incubation Period: 12-36 Hours.
Prevention Measures: Educate food handlers/preparers on sanitary practices, thoroughly cook all foods to specified temperatures, and mandate irradiation of at risk foods (eggs, milk).

Shigellosis
Infectious Agent: *Shigella dysenteriae, S. flexneri, S. boydii, S. Sonnei.*
Reservoir: Humans, primates.
Mode of Transmission: Direct or indirect fecal-oral contact by infected individual. Most commonly, poor hand washing followed by food preparation. Also flies may land on an infected latrine and subsequently on an exposed food.
Incubation Period: 1-3 days.
Prevention Measures: Educate on proper hand-washing techniques, implement fly-proof latrines, pasteurize, refrigerate and thoroughly cook all foods. Enforce quality control measures in food preparation (restaurants and industry).

Tuberculosis
Infectious Agent: *Mycobacterium tuberculosis*.
Reservoir: Humans. Less frequently, cattle, swine and other mammals.
Mode of Transmission: Airborne, droplet. (Coughing, sneezing, singing).
Incubation Period: 2-10 weeks.
Prevention Measures: Identify cases, have adequate x-ray facilities for rapid preliminary diagnosis, educate public on awareness and prevention measures.

Varicella (Chickenpox)
Infectious Agent: Human α-Herpesvirus 3 (Varicella-Zoster Virus, VZV).
Reservoir: Humans.
Mode of Transmission: Direct contact, airborne, droplets from spread of vesicle fluid or secretions of the respiratory tract. Indirect contact, surfaces or fabrics contaminated with discharges from vesicles or membranes of the infected.

Incubation Period: 2-3 weeks.
Prevention Measures: Vaccination of children, isolate infected children.

West Nile virus Disease
Infectious Agent: West Nile virus
Reservoir: Birds
Mode of Transmission: Bite of mosquito that has been infected from a bird; blood transfusion and organ donations; mother-to-infant.
Incubation Period: 3-7 days.
Prevention Measures: Preventing standing water near the home, using insect repellant, window screens and mosquito netting, and avoiding areas such as woods and stagnant ponds (especially from dusk until dawn).

Vibriosis
Infectious Agent: *Vibrbrio species*—a bacteria
Reservoir: Environment—coastal waters
Mode of Transmission: consumption of raw or undercooked seafood or exposure of a wound to seawater
Incubation Period: 24 hours
Prevention Measures: Avoid consumption of raw seafood; avoid exposure to brackish water, especially if compromised skin, i.e. skin with wounds, cuts, or scraps

Yersinosis
Infectious Agent: *Yersinia pseudotuberculosis, Y. enterocolitica.*
Reservoir: Swine, rodents
Mode of Transmission: Fecal-oral transmission through contaminated food or water. Consumption of raw pork.
Incubation Period: 3-7 days.
Prevention Measures: Prepare foods in a sanitary manner, protect and sanitize the water supply, control the rodent population, wash hands thoroughly after caring for or slaughtering animals.

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