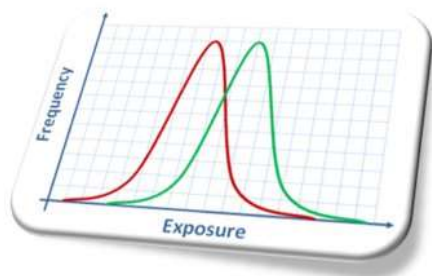


# Communicable Disease Report 2015

## *Tuscarawas County, Ohio*

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Tuscarawas County



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## Summary

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This report provides a summary of suspected (n=33), probable (n=21), and confirmed (n=463) cases of communicable diseases reported to the Tuscarawas County and New Philadelphia City Health Departments in 2015. The two local health departments report the new cases to the Ohio Department of Health through the Ohio Disease Reporting System (ODRS), the state's communicable disease surveillance system. The data from the ODRS was used to produce statistics in this report. It provides the count and rates of reportable communicable diseases reported in the entire County as well as the yearly count of the disease reported to the two jurisdictions separately. In addition, monthly disease count for the entire county is provided. The following are the highlights of the epidemiology of communicable diseases in Tuscarawas County from the report:

- There were a total of 517 cases (an overall incidence rate of 557 per 100,000 people) of communicable diseases reported to the Tuscarawas County and New Philadelphia City Health Departments in 2015. Of the total, 385 cases (74.5%) reported were to the County Health Department while 132 (24.5%) were reported to the City Health Department.
- The overall rate of reportable communicable diseases in the entire county in 2015 was higher than in 2014 (557 vs. 493 per 100,000). The increase in the overall incidence may be attributed to inclusion of 'suspected' cases in the 2015 analysis. If 33 'suspected' cases are excluded, then the 2015 rate is 522 per 100,000, which is slightly higher than the 2014 rates.
- The increase in the number of communicable diseases is likely due to the increase in the number of chronic Hepatitis C and Salmonellosis cases in 2015 compared to 2014. The number of cases reported for both chronic Hepatitis C and Salmonellosis doubled in 2015 compared to 2014 (Hepatitis C-chronic: 40 vs. 80 cases, and Salmonellosis: 10 vs. 19 cases in 2014 vs. 2015 respectively).
- Influenza-related hospitalization in 2015 was comparable to 2014. January 2015 had the highest monthly count of reportable communicable disease in Tuscarawas County (n=72), and half of the cases in January were influenza-related hospitalization. Otherwise, there was no discernable seasonal pattern observed for communicable disease transmission in the county.
- Chlamydia infections, a sexually transmitted infection, remains the most reported communicable disease in the county accounting for almost half of all the communicable disease cases reported in 2015 (243 cases and an overall rate of 262 per 100,000 population). Chlamydia rates in the county remain comparable to the previous two years.
- Gonococcal infection, another sexually transmitted infection, showed a 34% decline in 2015 compared to 2014, a 48% decline compared to 2013. The 2015 gonorrhea rate was 27 per 100,000.

- While the decline in gonorrhea infections in the county is a positive development, the high level of chlamydia infection in the county highlight the continued need for public health programs on sexually transmitted infection prevention targeting adolescents and young adults.

**Table 1. Communicable Disease† Count Reported to the Tuscarawas County Health Department, Ohio, 2015**

Reportable Communicable Disease	Number of	
	cases	% of all cases
Campylobacteriosis	15	3.9
Chlamydia infection	178	46.2
Cryptosporidiosis	1	0.3
<i>E. coli</i> , Shiga Toxin-Producing (O157:H7, Not O157, Unknown Serotype), infection	1	0.3
Giardiasis	5	1.3
Gonococcal infection	20	5.2
<i>Haemophilus influenza</i> (invasive disease)	1	0.3
Hepatitis A	1	0.3
Hepatitis B (including delta) – acute*	2	0.5
Hepatitis B (including delta) – chronic*	10	2.6
Hepatitis C - acute	1	0.3
Hepatitis C – chronic*	52	13.5
Influenza-associated hospitalization	42	10.9
Legionellosis - Legionnaires' Disease	2	0.5
Lyme Disease*	6	1.6
Meningitis - aseptic/viral	5	1.3
Meningitis - bacterial (Not <i>N. meningitidis</i> )	2	0.5
Mumps*	1	0.3
Mycobacterial disease – other than tuberculosis	5	1.3
Pertussis	3	0.8
Salmonellosis	15	3.9
Shigellosis	1	0.3
<i>Streptococcus pneumoniae</i> - invasive antibiotic resistance unknown or non-resistant	4	1.0
<i>Streptococcus pneumoniae</i> - invasive antibiotic resistant/intermediate	1	0.3
Tuberculosis	2	0.50
Varicella (Chickenpox)*	4	1.0
Yersinosis	5	1.3
<b>Total</b>	<b>385</b>	<b>100.0</b>

†Includes 22 'suspected' cases of: Hepatitis B--acute (n=2); Hepatitis B—chronic (n=4); Hepatitis C—chronic (n=9); Lyme disease (n=5); Mumps (n=1); and Varicella (n=1). Other 347 cases were 'confirmed' and 16 cases were 'probable'.

**Table 2. Communicable Disease† Count Reported to the New Philadelphia City Health Department, Ohio, 2015**

<b>Reportable Communicable Disease</b>	<b>No. of cases</b>	<b>% of all cases</b>
Campylobacteriosis	1	0.8
Chlamydia infection	65	49.2
Cryptosporidiosis	1	0.8
<i>E. coli</i> , Shiga Toxin-Producing (O157:H7, Not O157, Unknown Serotype), infection	2	1.5
Gonococcal infection	5	3.8
Hepatitis B (including delta) - acute	2	1.5
Hepatitis B (including delta) - chronic	2	1.5
Hepatitis C - acute	1	0.8
Hepatitis C - chronic	28	21.2
Influenza-associated hospitalization	9	6.8
Legionellosis - Legionnaires' Disease	2	1.52
Lyme Disease	2	1.52
Meningitis - aseptic/viral	3	2.3
Salmonellosis	4	3.0
Varicella (Chickenpox)	3	2.3
Yersiniosis	2	1.5
<b>Total</b>	<b>132</b>	<b>100.0</b>

†Includes 11 'suspected' cases of: *E. coli* infection (n=1), Hepatitis B--acute (n=2); Hepatitis B—chronic (n=2); Hepatitis C—acute (n=1); Hepatitis C—chronic (n=2); Lyme disease (n=2); and Yersiniosis (n=1). Other 116 cases were 'confirmed' and 5 cases were 'probable'.

**Table 3. Reportable Communicable Disease Count† and Percentage, Tuscarawas County, Ohio, 2015**

Reportable Communicable Disease	Number of cases	% of all cases
Campylobacteriosis	16	3.1
Chlamydia infection	243	46.8
Cryptosporidiosis	2	0.4
<i>E. coli</i> , Shiga Toxin-Producing (O157:H7, Not O157, Unknown Serotype), infection	3	0.6
Giardiasis	5	1.0
Gonococcal infection	25	5.2
<i>Haemophilus influenza</i> (invasive disease)	1	0.2
Hepatitis A	1	0.2
Hepatitis B (including delta) – acute*	4	0.8
Hepatitis B (including delta) – chronic*	12	2.3
Hepatitis C - acute	2	0.4
Hepatitis C – chronic*	80	15.4
Influenza-associated hospitalization	51	9.8
Legionellosis - Legionnaires' Disease	4	0.8
Lyme Disease*	8	1.6
Meningitis - aseptic/viral	2	0.4
Meningitis - bacterial (Not <i>N. meningitidis</i> )	8	1.6
Mumps*	1	0.2
Mycobacterial disease – other than tuberculosis	5	1.0
Pertussis	3	0.6
Salmonellosis	19	3.7
Shigellosis	1	0.2
<i>Streptococcus pneumoniae</i> - invasive antibiotic resistance unknown or non-resistant	4	0.8
<i>Streptococcus pneumoniae</i> - invasive antibiotic resistant/intermediate	1	0.2
Tuberculosis	2	0.4
Varicella (Chickenpox)*	7	1.4
Yersiniosis	7	1.4
<b>Total</b>	<b>517</b>	<b>100.0</b>

†Includes 'confirmed' (n=463), 'probable' (n=21), or 'suspected' (n=33) cases of diseases reported to both the Tuscarawas County Health Department and the New Philadelphia City Health Department; 33 'suspected' cases include: *E. coli* infection (n=1), Hepatitis B—acute (n=4); Hepatitis B—chronic (n=6); Hepatitis C—acute (n=1); Hepatitis C—chronic (n=11); Lyme disease (n=7); Mumps (n=1); Varicella (Chickenpox) (n=1); and Yersiniosis (n=1).



**Table 4. Reportable Communicable Disease Rates, Tuscarawas County, Ohio, 2013 - 2015**

Reportable Communicable Disease	2013		2014		2015	
	No. of Cases <sup>†</sup>	Rate per 100,000 <sup>*</sup>	No. of Cases <sup>†</sup>	Rate per 100,000 <sup>**</sup>	No. of Cases <sup>††</sup>	Rate per 100,000 <sup>***</sup>
Campylobacteriosis	13	14.0	16	17.3	16	17.2
Chlamydia infection	251	271.1	238	256.8	243	261.9
Coccidioidomycosis	1	1.1	0	0	0	0
Cryptosporidiosis	4	4.3	3	3.2	2	2.2
<i>E. coli</i> , Shiga Toxin-Producing (O157:H7, Not O157, Unknown Serotype), infection	0	0	0	0	3	3.2
Giardiasis	3	3.2	3	3.2	5	5.4
Gonococcal infection	48	51.8	38	41.0	25	26.9
<i>Haemophilus influenzae</i> (invasive disease)	2	2.2	1	1.1	1	1.1
Hepatitis A	0	0	0	0	1	1.1
Hepatitis B (including delta) - acute	4	4.3	0	0	4	4.3
Hepatitis B (including delta) - chronic	8	8.6	1	1.1	12	12.9
Hepatitis C - acute	0	0	1	1.1	2	2.2
Hepatitis C - chronic	33	35.6	40	43.2	80	86.2
Influenza-associated hospitalization	42	45.4	54	58.3	51	54.9
LaCrosse virus disease	2	2.2	1	1.1	0	0
Legionellosis - Legionnaires' Disease	3	3.2	2	2.2	4	4.3
Listeriosis	1	1.1	0	0	0	0
Lyme Disease	3	6.5	1	1.1	8	8.6
Meningitis - aseptic/viral	4	4.3	3	4.3	2	2.2
Meningitis - bacterial (Not <i>N. meningitidis</i> )	1	1.1	0	0	8	8.6
Mumps	0	0	1	1.1	1	1.1
Meningococcal disease - <i>Neisseria meningitidis</i>	1	1.1	0	0	0	0
Mycobacterial disease - other than tuberculosis	12	13.0	11	12.9	5	5.4
Other Arthropod-borne Disease	0	0	1	1.1	0	0
Pertussis	1	1.1	10	10.8	3	3.2
Salmonellosis	16	17.3	10	10.8	19	20.5
Shigellosis	2	2.2	1	1.1	1	1.1
Streptococcal - Group A -invasive	1	1.1	1	1.1	0	0
Streptococcal - Group B - in newborn	1	1.1	0	0	0	0
<i>Streptococcus pneumoniae</i> - invasive antibiotic resistance unknown or non-resistant	9	9.7	4	4.3	4	4.3
<i>Streptococcus pneumoniae</i> - invasive antibiotic resistant/intermediate- infection	2	2.2	2	2.2	1	1.1
Tuberculosis	1	1.1	4	4.3	2	2.2
Varicella (Chickenpox)	12	13.0	9	9.7	7	7.5
<i>Vibrio parahaemolyticus</i> infection	1	1.1	0	0	0	0
Yersinosis	3	3.2	1	1.1	7	7.5
<b>Total</b>	<b>485</b>	<b>523.9</b>	<b>457</b>	<b>493.1</b>	<b>517</b>	<b>557.2</b>

<sup>†</sup>For 2013 and 2013 rate calculations only 'confirmed' or 'probable' cases of diseases reported to both the Tuscarawas County Health Department and the New Philadelphia City Health Departments are included. <sup>††</sup>For 2015 rate calculations confirmed (n=463), probable (n=21), or suspected (n=33) cases of diseases reported to both the Tuscarawas County Health Department and the New Philadelphia City Health Department are included. <sup>\*</sup>2013 rates based on 2010 population estimates (92,582); <sup>\*\*</sup>2014 rates based on 2013 population estimates (92,672); and <sup>\*\*\*</sup>2015 rates based on 2014 county population estimates (92,788) (U.S. Census Bureau)

**Table 5. Monthly Count and Percentage of Reportable Communicable Disease Reported to New Philadelphia City and Tuscarawas County Health Departments, Tuscarawas County, Ohio, 2015**

<b>Month</b>	<b>New Philadelphia City Health Department</b>		<b>Tuscarawas County Health Department</b>		<b>County Total</b>	
	<b><i>Number of Cases (n=132)</i></b>	<b><i>% (25.5)</i></b>	<b><i>Number of Cases (n=385)</i></b>	<b><i>% (74.5)</i></b>	<b><i>Number of Cases (N= 517)</i></b>	<b><i>% (100)</i></b>
January	14	10.6	58	15.1	72	13.9
February	6	4.6	17	4.4	23	4.5
March	22	16.7	24	6.2	46	8.9
April	7	5.3	36	9.4	43	8.3
May	5	3.8	36	9.4	41	7.9
June	11	8.3	34	8.8	45	8.7
July	16	12.1	31	8.1	47	9.1
August	8	6.1	25	6.5	33	6.4
September	9	6.8	35	9.1	44	8.5
October	14	10.6	21	5.5	35	6.8
November	12	9.1	43	11.2	55	10.6
December	8	6.1	25	6.5	33	6.4

<sup>†</sup>Includes 'confirmed' (n=463), 'probable' (n=21), or 'suspected' (n=33) cases of diseases reported to both the Tuscarawas County Health Department and the New Philadelphia City Health Department

**Table 6a Reportable Communicable Disease Count† and Percentage, Tuscarawas County, Ohio, January 2015 (n=72)**

<i>Disease</i>	<i>No. of Cases</i>	<i>%</i>
Campylobacteriosis	1	1.4
Chlamydia infection	18	25.0
Gonococcal infection	3	4.2
Hepatitis B (including delta) - acute	1	1.4
Hepatitis B (including delta) - chronic	1	1.4
Hepatitis C - chronic	4	5.6
Influenza-associated hospitalization	38	52.8
Meningitis - aseptic/viral	1	1.4
Mumps	1	1.4
Mycobacterial disease - other than tuberculosis	2	2.8
Pertussis	1	1.4
Salmonellosis	1	1.4

†Includes 'confirmed' (68), 'probable' (1), and 'suspected' (3) cases

**Table 6b Reportable Communicable Disease Count† and Percentage, Tuscarawas County, Ohio, February 2015 (n=23)**

<i>Disease</i>	<i>No. of cases</i>	<i>%</i>
Campylobacteriosis	1	4.4
Chlamydia infection	10	43.5
Giardiasis	1	4.4
Hepatitis C - chronic	7	30.4
Mycobacterial disease - other than tuberculosis	1	4.4
Pertussis	1	4.4
<i>Streptococcus pneumoniae</i> - invasive antibiotic resistance unknown or non-resistant- infection	2	8.7

†Includes 'confirmed' (23) cases

**Table 6c Reportable Communicable Disease Count† and Percentage, Tuscarawas County, Ohio, March 2015 (n=46)**

<i>Disease</i>	<i>No. of cases</i>	<i>%</i>
Campylobacteriosis	1	2.2
Chlamydia infection	17	37.0
Cryptosporidiosis	2	4.4
Gonococcal infection	2	4.4
Hepatitis B (including delta) - acute	1	2.2
Hepatitis B (including delta) - chronic	1	2.2
Hepatitis C - chronic	9	19.6
Influenza-associated hospitalization	4	8.7
Meningitis - aseptic/viral	1	2.2
Mycobacterial disease - other than tuberculosis	1	2.2
Salmonellosis	3	6.5
Varicella	4	8.7

†Includes 'confirmed' (35), 'probable' (7), and 'suspected' (4) cases

**Table 6d Reportable Communicable Disease Count† and Percentage, Tuscarawas County, Ohio, April 2015 (n=43)**

<b>Disease</b>	<b>No. of cases</b>	<b>%</b>
Chlamydia infection	19	44.2
Gonococcal infection	2	4.7
Hepatitis A	1	2.3
Hepatitis B (including delta) - chronic	3	7.0
Hepatitis C - chronic	10	23.3
Influenza-associated hospitalization	5	11.6
Meningitis - aseptic/viral	2	4.7
Varicella	1	2.3

†Includes 'confirmed' (37), 'probable' (2), and 'suspected' (4) cases

**Table 6e Reportable Communicable Disease Count† and Percentage,  
Tuscarawas County, Ohio, May 2015 (n=41)**

<b>Disease</b>	<b>No. of Cases</b>	<b>%</b>
Campylobacteriosis	2	4.9
Chlamydia infection	18	43.9
Gonococcal infection	1	2.4
Hepatitis B (including delta) - chronic	2	4.9
Hepatitis C - chronic	4	9.8
Influenza-associated hospitalization	3	7.3
Mycobacterial disease - other than tuberculosis	1	2.4
Pertussis	1	2.4
Salmonellosis	6	14.6
<i>Streptococcus pneumoniae</i> - invasive antibiotic resistant/intermediate- infection	1	2.4
Varicella	1	2.4
Yersiniosis	1	2.4

†Includes 'confirmed' (36), 'probable' (1), and 'suspected' (4) cases

**Table 6f Reportable Communicable Disease Count† and Percentage,  
Tuscarawas County, Ohio, June 2015 (n=45)**

<b>Disease</b>	<b>No. of cases</b>	<b>%</b>
Campylobacteriosis	3	6.7
Chlamydia infection	27	60.0
<i>E. coli</i> , Shiga Toxin-Producing (O157:H7, Not O157, Unknown Serotype)	2	4.4
Gonococcal infection	1	2.2
Hepatitis C – chronic	7	15.6
Legionellosis - Legionnaires' Disease	1	2.2
Lyme Disease	1	2.2
Meningitis - bacterial (Not <i>N. meningitidis</i> )	2	4.4
Salmonellosis	1	2.2

†Includes 'confirmed' (39), 'probable' (2), and 'suspected' (4) cases

**Table 6g Reportable Communicable Disease Count† and Percentage, Tuscarawas County, Ohio, July 2015 (n=47)**

<b>Disease</b>	<b>No. of cases</b>	<b>%</b>
Campylobacteriosis	2	4.3
Chlamydia infection	25	53.2
Giardiasis	1	2.1
Gonococcal infection	3	6.4
Hepatitis C – acute	1	2.1
Hepatitis C – chronic	5	10.6
Legionellosis - Legionnaires' Disease	2	4.3
Lyme Disease	4	8.5
Salmonellosis	2	4.3
<i>Streptococcus pneumoniae</i> - invasive antibiotic resistance unknown or non-resistant- infection	1	2.1
Tuberculosis	1	2.1

†Includes 'confirmed' (42), 'probable' (1), and 'suspected' (4) cases

**Table 6h Reportable Communicable Disease Count† and Percentage, Tuscarawas County, Ohio, August 2015 (n=33)**

<b>Disease</b>	<b>No. of cases</b>	<b>%</b>
Chlamydia infection	22	66.7
Giardiasis	1	3.0
Gonococcal infection	2	6.1
Hepatitis C - acute	1	3.0
Hepatitis C - chronic	5	15.2
Meningitis - aseptic/viral	1	3.0
Salmonellosis	1	3.0

†Includes 'confirmed' (32) and 'probable' (1) cases

**Table 6i Reportable Communicable Disease Count† and Percentage, Tuscarawas County, Ohio, September 2015 (n=44)**

<b>Disease</b>	<b>No. of cases</b>	<b>%</b>
Campylobacteriosis	3	6.8
Chlamydia infection	20	45.5
Gonococcal infection	7	15.9
<i>Haemophilus influenzae</i> (invasive disease)	1	2.3
Hepatitis B (including delta) - chronic	1	2.3
Hepatitis C - chronic	5	11.4
Legionellosis - Legionnaires' Disease	1	2.3
Meningitis - aseptic/viral	2	4.6
Salmonellosis	2	4.6
Yersiniosis	2	4.6

†Includes 'confirmed' (40), 'probable' (2), and 'suspected' (2) cases

**Table 6j Reportable Communicable Disease Count† and Percentage, Tuscarawas County, Ohio, October 2015 (n=35)**

<b>Disease</b>	<b>No. of cases</b>	<b>%</b>
Chlamydia infection	19	54.3
<i>E. coli</i> , Shiga Toxin-Producing (O157:H7, Not O157, Unknown Serotype)	1	2.9
Giardiasis	1	2.9
Gonococcal infection	1	2.9
Hepatitis B (including delta) – chronic	1	2.9
Hepatitis C – chronic	5	14.3
Lyme Disease	1	2.9
Meningitis - aseptic/viral	1	2.9
Salmonellosis	2	5.7
<i>Streptococcus pneumoniae</i> - invasive antibiotic resistance unknown or non-resistant- infection	1	2.9
Yersiniosis	2	5.7

†Includes 'confirmed' (33) and 'probable' (1) cases

**Table 6k Reportable Communicable Disease Count† and Percentage, Tuscarawas County, Ohio, November 2015 (n=55)**

<b>Disease</b>	<b>No. of cases</b>	<b>%</b>
Campylobacteriosis	3	5.5
Chlamydia infection	30	54.6
Giardiasis	1	1.8
Gonococcal infection	2	3.6
Hepatitis B (including delta) – acute	1	1.8
Hepatitis B (including delta) – chronic	1	1.8
Hepatitis C – chronic	12	21.8
Influenza-associated hospitalization	1	1.8
Salmonellosis	1	1.8
Shigellosis	1	1.8
Tuberculosis	1	1.8
Yersiniosis	1	1.8

†Includes ‘confirmed’ (51), ‘probable’ (1), and ‘suspected’ (3) cases

**Table 6l Reportable Communicable Disease Count† and Percentage, Tuscarawas County, Ohio, December 2015 (n=33)**

<b>Disease</b>	<b>No. of cases</b>	<b>%</b>
Chlamydia infection	18	54.6
Gonococcal infection	1	3.0
Hepatitis B (including delta) - acute	1	3.0
Hepatitis B (including delta) - chronic	2	6.0
Hepatitis C - chronic	7	21.2
Lyme Disease	2	6.1
Varicella	1	3.0
Yersiniosis	1	3.0

†Includes ‘confirmed’ (27), ‘probable’ (2), and ‘suspected’ (4) cases



## **Bsic Information on Reportable Communicable Diseases Observed in Tuscarawas County**

### **Botulism**

**Infectious Agent:** *Clostridium botulinum*

**Reservoir:** soil, agricultural product, marine sediments and intestinal tract of animals including fish

**Transmission:** Foodborne, waterborne, inhalation and contamination from wound

**Incubation Period:** 12-36 hours or sometimes several days after eating contaminated food

**Prevention Measures:** Good preparation of food and hygiene, pasteurization, refrigeration of food combined with control of salt.

### **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 day, 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.

### **Chlamydia Infection**

**Infectious Agent:** *Chlamydia trachomatis* (subtypes D-K).

**Reservoir:** Humans.

**Mode of Transmission:** Sexual Intercourse.

**Incubation Period:** 7-14 days or longer.

**Prevention Measures:** Sex education, condom use, screening of at risk populations (>25 years old).

### **Creutzfeldt - Jakob disease**

**Infectious Agent:** Prion Protein.

**Reservoir:** Humans – likely from “Mad Cow”/Bovine Spongiform Encephalitis Cattle.

**Mode of Transmission:** Unknown – Evidence for: Contaminated Pituitary Hormone Infusion, Dura Mater/Corneal Grafts.

**Incubation Period:** 15 months to >30 years.

**Prevention Measures:** Strict screening and avoidance of contaminated tissue transplant from infected donors.

### **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.

### **Cytomegalovirus – Congential (CMV)**

**Infectious Agent:** Human  $\beta$ -herpesvirus 5 – include 4 unique subtypes - mixing is common.

**Reservoir:** Humans.

**Mode of Transmission:** Intimate exposure through mucosal contact with infected tissues, secretions and excretions: *in utero*, at time of delivery, via semen, breast milk and blood transfusions. Also, saliva (day-cares are a common community reservoir) .

**Incubation Period:** 3-8 weeks following transplant of infected tissue or contact with infected fluids. 3-12 weeks following and infection acquired at birth.

**Prevention Measures:** Strict screening of transfusion products, sanitary handling of diapers, and implementation of “universal precautions” by adults involved with childcare (nurses, day care employees, teachers)

#### E. Coli – 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.

#### Haemophilus Influenzae (invasive disease)

**Infectious Agent:** *Haemophilus influenza*

**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.

### **Legionnaires' Disease**

**Infectious Agent:** *Legionella pneumophila*, less commonly *Legionella micdadei*, *Legionella bozemanii*, *Legionella longbeachae* and *Legionella dumoffi*.

**Reservoir:** Showers, HVAC systems, evaporative condensers, humidifiers, whirlpool spas, respiratory therapy devices and decorative fountains.

**Mode of Transmission:** Inhalation, aspiration of contaminated water.

**Incubation Period:** 5-6 days.

**Prevention Measures:** Sanitize water-using systems regularly to prevent the growth of associated slime molds. All hot water systems should be maintained at temperatures >122°F.

### **Listeriosis**

**Infectious Agent:** *Listeria monocytogenes*

**Reservoir:** Soil, forage, water, mud and silage. Also, infected animals, humans and poorly refrigerated foods.

**Mode of Transmission:** Contaminated, poorly-refrigerated foods, mostly dairy. Also, *in utero* transmission.

**Incubation Period:** 3 weeks.

**Prevention Measures:** The pregnant and immunocompromised should avoid ready-to-eat foods, smoked fish and unpasteurized dairy. Thoroughly wash/clean all foods prior to eating. Do not use untreated manure on vegetable crops. If you must, take great care when handling dead animals.

### Lyme Disease

**Infectious Agent:** *Borrelia burgdorferi*, *Borrelia garinii*, *Borrelia 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 repellent and use of long shirts and pants.

### Viral/Aseptic Meningitis

**Infectious Agent:** Enterovirus, Coxsackievirus (>50% of cases are of unknown etiology)

**Reservoir:** Vary with viral type; likely Human.

**Mode of Transmission:** Vary with viral type.

**Incubation Period:** Vary with viral type.

**Prevention Measures:** Vary with viral type. Universal precautions.

### 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. fortuitum*, *M. chelonae*, *M. abscessus*

- **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.

### Q Fever

**Infectious Agent:** *Coxiella burnetii*, a rickettsial bacteria.

**Reservoir:** Sheep, cattle, goats, cats, dogs, birds, ticks. (Usually asymptomatic and shed massive amounts of bacteria during the birthing process).

**Mode of Transmission:** Inhalation of dust/particles from dried excreta or afterbirth of infected animals. May also be found in the wool and milk of infected sheep and cows.

**Incubation Period:** 2-3 weeks, depending on initial exposure dose.

**Prevention Measures:** Educate those in high-risk occupations (farmers, butchers...etc), pasteurize all milk.

### 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).

### Streptococcal – Group A ( $\beta$ -Hemolytic)

**Infectious Agent:** *Streptococci pyogenes* (including >130 distinct serotypes).

**Reservoir:** Humans.

**Mode of Transmission:** Airborne or direct contact with respiratory discharges. (Ex: sneeze, tissues). Also contaminated milk and egg salad.

**Incubation Period:** 1-3 days.

**Prevention Measures:** Educate public about routes of transmission, proper sanitation...etc, thoroughly cook and refrigerate food products.

### Streptococcus pneumoniae

**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.

### 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  $\alpha$ -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.

### **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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