

January 2017

Monthly Infectious Diseases Surveillance Report

Volume 6, Issue 1

The Monthly Infectious Diseases Surveillance Report is produced by Public Health Ontario (PHO) for the public health community of Ontario. We welcome feedback by email to: cdepr@oahpp.ca. Past issues and additional information are available [online](#).

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SIGNIFICANT REPORTABLE DISEASE ACTIVITY

Table 1 provides a list of reportable diseases for which incidence in 2016 was found to be significantly higher ($p < 0.05$) than expected compared to the five-year historical average (2011-15). Both monthly and year-to-month (YTM) comparisons were made for each of the reportable diseases listed in [Appendix 1](#), with the exception of influenza, measles, rubella, and congenital rubella syndrome. Influenza surveillance data are regularly reported through the [Ontario Respiratory Pathogen Bulletin](#). Measles, rubella, and congenital rubella syndrome have been eliminated in Canada, although cases continue to occur related to travel importations. Statistical comparisons are not included for these diseases.

Table 1. Summary of statistically significant increases in reportable disease incidence: Ontario, January 1 to November 30, 2016

Reportable disease	2016				Historical comparisons						5-year avg annual count (2011-2015)
	November	November rate ‡	YTM	YTM rate ‡	Current month 5-year avg (2011-2015)	Current month 5-year avg (2011-2015) rate ‡	% difference in rates (current month minus 5-year avg)†	YTM 5-year avg (2011-2015)	YTM 5-year avg (2011-2015) rate ‡	% difference in rates (YTM 2016 minus YTM 5-year avg)†	
Chlamydial Infections ^{1,2}	3909	280.2	38505	2760.5	3213.2	237.3	18.1	33873.4	2501.2	10.4	36537.4
Cryptosporidiosis ¹	20	1.4	413	29.6	15.8	1.2	22.9	316.0	23.3	26.9	331.2
Cyclosporiasis ¹	2	0.1	271	19.4	2.8	0.2	-30.7	133.0	9.8	97.8	135.0
Gonorrhoea (All Types) ^{1,2}	579	41.5	6203	444.7	437.0	32.3	28.6	4547.8	335.8	32.4	4923.4
Group A Streptococcal Disease, Invasive ¹	60	4.3	663	47.5	40.8	3.0	42.8	574.8	42.4	12.0	640.8
Listeriosis ¹	7	0.5	92	6.6	4.6	0.3	47.7	48.2	3.6	85.3	52.0
Lyme Disease ¹	10	0.7	331	23.7	11.4	0.8	-14.8	253.0	18.7	27.0	258.6
Shigellosis ¹	19	1.4	338	24.2	20.2	1.5	-8.7	240.2	17.7	36.6	263.8
Syphilis, Infectious ¹	48	3.4	1104	79.1	79.2	5.8	-41.2	791.8	58.5	35.4	861.8
Yersiniosis ¹	5	0.4	242	17.3	13.2	1.0	-63.2	173.6	12.8	35.3	185.4

Ontario Cases: Ministry of Health and Long-Term Care (MOHLTC), integrated Public Health Information System (iPHIS) database, extracted by PHO [2016/12/14].

Ontario Population: Population estimates [2005-2011]: Statistics Canada, distributed by MOHLTC, received [2014/07/03]. Population estimates [2012-2014]: Statistics Canada, distributed by MOHLTC, received [2015/11/18]. Population projections [2015-2016]: MOHLTC, IntelliHEALTH Ontario, extracted by PHO [2015/03/13].

‡ Rates listed are cases per 1,000,000 population.

† Percent (%) difference is calculated using unrounded rates; numbers displayed in these columns may vary from calculations using rounded rates.

¹ Statistically significant difference ($p < 0.05$) in incidence reported in year-to-month (January 1 to November 30, 2016) compared to the five-year historical average (January 1 to November 30, 2011-15), using a likelihood ratio test.

² Statistically significant difference ($p < 0.05$) in incidence reported in current month (November 2016) compared to the five-year historical average (November 2011-15), using a likelihood ratio test.

Bacterial Sexually Transmitted Infections (STIs)

Compared to the five-year historical average, there were statistically significant increases in the YTM incidence of all three bacterial STIs (chlamydia, gonorrhea, and infectious syphilis) reported between January 1 and November 30, 2016. During this period, laboratory-confirmed cases of chlamydia increased 10.4% (from 2,501.2 to 2,760.5 cases per 1,000,000 population), gonorrhea cases increased 32.4% (from 335.8 to 444.7 cases per 1,000,000 population), and infectious syphilis cases increased 35.4% (from 58.5 to 79.1 cases per 1,000,000 population).

There were also statistically significant increases in the monthly incidence of both chlamydia and gonorrhea reported in November 2016. Chlamydial infections increased 18.1% (from 237.3 to 280.2 cases per 1,000,000 population) and gonorrhea increased 28.6% (from 32.3 to 41.5 cases per 1,000,000 population).

The potential reasons for these provincial increases in bacterial STIs are under active investigation and are likely multifactorial. PHO will continue to monitor the epidemiology of bacterial STIs in Ontario in subsequent months.

Cryptosporidiosis

The 2016 YTM incidence rate for cryptosporidiosis continues to be significantly higher than the average for the same period in the previous five years. From January 1 to November 30, 2016, 413 cases of cryptosporidiosis were reported compared to an expected average of 316 cases. Possible reasons for this increase were first described in the [November 2016](#) issue of this report; the monthly rate was not above expected in October or November.

Cyclosporiasis

A statistically significant increase in the YTM incidence rate of cyclosporiasis was observed again in November 2016. From January 1 to November 30, 2016, 271 cases of cyclosporiasis were reported compared to an expected average of 133 cases; the monthly rate for November was not above expected. The YTM incidence is elevated due to an outbreak of non-travel cases of cyclosporiasis investigated from July 15 to October 4, 2016.

Group A Streptococcal Disease, Invasive

The YTM incidence rate for 2016 was significantly higher than the average for the same period in the previous five years. However, monthly iGAS incidence ranged between 46 and 79 cases from January 1 to November 30, 2016 with 60 cases being reported for November. In this time period 663 cases of iGAS were reported compared to an expected average of 574.8 cases in the same time period in the preceding five years. The reason for the increase in cases is unknown. PHO continues to monitor the situation and collaborate with public health units (PHUs) to identify risk factors, at-risk populations, and prevention and control measures.

Listeriosis

The 2016 YTM incidence rate for listeriosis continues to be significantly higher than the average for the same period in the previous five years. From January 1 to November 30, 2016, 92 cases of listeriosis were reported compared to an expected average of 48 cases. The increase observed in the first half of 2016 can be attributed to two separate outbreaks that began in 2015; the monthly rate has not been above expected since August 2016. Additional details about these outbreaks are available in the [June 2016](#), [July 2016](#) and [August 2016](#) issues of this report.

Lyme disease

A statistically significant increase in the YTM incidence rate of Lyme disease was observed again in November 2016. From January 1 to November 30, 2016, 331 cases of Lyme disease were reported compared to an expected average of 253 cases; the monthly rate was not above expected in November. The YTM incidence is elevated due to an increased incidence of Lyme disease each year compared to previous years, with this trend in incidence beginning in 2011. Several factors are responsible for this trend, including new and expanding risk areas with *Borrelia burgdorferi*-infected blacklegged ticks as well as increased awareness by the public and testing by physicians.

Shigellosis

Incidence rates for shigellosis continued to be higher than expected in 2016. The YTM incidence rate for 2016 was significantly higher than the average for the same period in the previous five years. From January 1 to November 30, 2016, 338 cases of shigellosis were reported compared to an expected average of 240 cases. However, the number of cases reported in November indicates that this increase in incidence may be waning. The source of the increase observed in 2015 through to the first part of 2016 was described in the [May 2016](#) issue of this report.

Yersiniosis

A statistically significant increase in the YTM incidence rate of reported cases of yersiniosis was observed. From January 1 to November 30, 2016, 242 cases of yersiniosis were reported compared to an expected average of 174 cases. The monthly rate was not significantly above expected in any month from July to November and the information available does not suggest the increase earlier in the year was due to a single source.

APPENDIX – REPORTABLE DISEASES

Appendix 1. Confirmed cases of reportable diseases, and probable cases of select reportable diseases, by month: Ontario, 2011-16*

Reportable disease	2016														Historical comparisons						5-year avg (2011-2015) annual count
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTM	YTM rate ‡	Current month 5-year avg (2011-2015)	Current month 5-year avg (2011-2015) rate ‡	% difference rates (current month minus 5-year avg)†	YTM 5-year avg (2011-2015)	YTM 5-year avg (2011-2015) rate ‡	% difference rates (YTM 2016 minus YTM 5-year avg)†	
Acute Flaccid Paralysis	0	0	0	0	0	0	0	0	3	0	3	-	6	0.4	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AIDS	8	6	6	5	2	7	8	5	6	1	5	-	59	4.2	6.0	0.4	-19.1	78.4	5.8	-26.9	85.4
Amebiasis	61	71	87	77	69	72	65	79	69	54	51	-	755	54.1	65.6	4.8	-24.5	746.2	55.1	-1.8	799.4
Botulism	0	0	0	0	0	0	0	0	0	0	0	-	0	0.0	0.2	0.0	-100.0	2.2	0.2	-100.0	2.4
Brucellosis	0	0	1	0	0	0	0	1	0	0	0	-	2	0.1	0.2	0.0	-100.0	5.0	0.4	-61.2	5.4
Campylobacter enteritis	189	169	187	181	246	349	416	480	394	318	250	-	3179	227.9	280.0	20.7	-13.3	3482.4	257.1	-11.4	3689.6
Chlamydial Infections	3642	3257	3476	3305	3289	3574	3164	3553	3744	3592	3909	-	38505	2760.5	3213.2	237.3	18.1	33873.4	2501.2	10.4	36537.4
Cholera	0	0	0	0	0	0	0	0	0	0	0	-	0	0.0	0.0	0.0	-	0.2	0.0	-100.0	0.4
Cryptosporidiosis	21	23	22	25	21	18	64	109	67	23	20	-	413	29.6	15.8	1.2	22.9	316.0	23.3	26.9	331.2
Cyclosporiasis	1	0	2	1	29	59	132	37	4	4	2	-	271	19.4	2.8	0.2	-30.7	133.0	9.8	97.8	135.0
Encephalitis	6	4	6	2	2	0	1	5	5	8	2	-	41	2.9	1.6	0.1	21.4	20.2	1.5	97.1	22.0
Encephalitis/Meningitis	9	12	12	12	12	14	19	22	34	22	18	-	186	13.3	12.6	0.9	38.7	142.8	10.5	26.5	155.8
Food Poisoning, All Causes	4	1	2	1	1	6	2	1	1	0	0	-	19	1.4	5.2	0.4	-100.0	72.0	5.3	-74.4	76.6
Giardiasis	94	90	87	79	84	99	102	140	131	95	67	-	1068	76.6	90.2	6.7	-27.9	1243.2	91.8	-16.6	1337.4
Gonorrhoea (All Types)	565	473	537	566	528	564	532	625	595	639	579	-	6203	444.7	437.0	32.3	28.6	4547.8	335.8	32.4	4923.4
Group A Streptococcal Disease, Invasive	76	74	74	67	57	46	49	47	57	56	60	-	663	47.5	40.8	3.0	42.8	574.8	42.4	12.0	640.8
Group B Streptococcal Disease, Neonatal	8	2	6	1	6	3	5	6	3	2	5	-	47	3.4	4.2	0.3	15.6	49.0	3.6	-6.9	52.8
Haemophilus Influenzae B Disease, Invasive	1	0	0	1	0	1	0	0	2	0	0	-	5	0.4	0.4	0.0	-100.0	5.2	0.4	-6.6	5.8
Hepatitis A	4	4	17	9	8	3	1	16	14	10	5	-	91	6.5	5.6	0.4	-13.3	88.2	6.5	0.2	96.8
Hepatitis B (Acute)	8	9	7	8	15	6	9	8	8	8	11	-	97	7.0	9.0	0.7	18.7	96.2	7.1	-2.1	104.2
Hepatitis B (Chronic)	154	146	128	137	123	114	113	121	109	105	82	-	1332	95.5	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Hepatitis C	384	373	379	358	326	380	342	366	357	353	365	-	3983	285.5	371.8	27.5	-4.7	3925.0	289.8	-1.5	4221.0
HIV	67	57	62	51	59	78	53	61	57	46	79	-	670	48.0	61.4	4.5	24.9	720.8	53.2	-9.8	783.0
Influenza	745	3844	5183	1557	446	25	19	7	37	55	208	-	12126	869.3	218.8	16.2	-7.7	6391.0	471.9	84.2	8386.4
Legionellosis	5	9	3	5	11	12	12	19	16	25	12	-	129	9.2	10.4	0.8	12.0	164.2	12.1	-23.7	173.6

Reportable disease	2016														Historical comparisons						5-year avg (2011-2015) annual count
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTM	YTM rate ‡	Current month 5-year avg (2011-2015)	Current month 5-year avg (2011-2015) rate ‡	% difference rates (current month minus 5-year avg)†	YTM 5-year avg (2011-2015)	YTM 5-year avg (2011-2015) rate ‡	% difference rates (YTM 2016 minus YTM 5-year avg)†	
Leprosy	0	0	1	0	1	0	0	0	0	0	0	-	2	0.1	0.0	0.0	-	3.2	0.2	-39.3	3.4
Listeriosis	8	5	5	15	10	14	13	9	5	1	7	-	92	6.6	4.6	0.3	47.7	48.2	3.6	85.3	52.0
Lyme Disease	2	1	5	9	18	77	118	45	28	18	10	-	331	23.7	11.4	0.8	-14.8	253.0	18.7	27.0	258.6
Malaria	13	7	12	10	19	30	17	28	30	15	9	-	190	13.6	12.4	0.9	-29.5	189.6	14.0	-2.7	204.4
Measles	1	1	1	0	1	0	0	2	1	0	0	-	7	0.5	#	#	#	#	#	#	#
Meningitis	11	12	15	9	14	20	12	25	25	18	15	-	176	12.6	11.8	0.9	23.4	118.8	8.8	43.8	129.6
Meningococcal Disease, Invasive	3	1	0	4	1	2	2	2	7	4	1	-	27	1.9	1.6	0.1	-39.3	29.2	2.2	-10.2	31.4
Mumps	0	2	1	2	4	6	6	4	1	9	3	-	38	2.7	2.2	0.2	32.4	32.0	2.4	15.3	35.0
Ophthalmia neonatorum	0	1	0	2	0	0	0	0	0	0	0	-	3	0.2	0.2	0.0	-100.0	2.4	0.2	21.4	2.8
Paralytic Shellfish Poisoning	0	0	0	0	0	0	0	0	0	0	0	-	0	0.0	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Paratyphoid Fever	3	7	2	2	4	2	1	2	4	3	0	-	30	2.2	1.2	0.1	-100.0	39.0	2.9	-25.3	42.0
Pertussis (Whooping Cough)	46	13	21	92	73	36	40	36	30	20	13	-	420	30.1	36.4	2.7	-65.3	475.0	35.1	-14.2	516.6
Q Fever	1	0	0	0	3	0	1	0	1	1	0	-	7	0.5	1.8	0.1	-100.0	15.6	1.2	-56.4	16.4
Rabies	0	0	0	0	0	0	0	0	0	0	0	-	0	0.0	0.0	0.0	-	0.2	0.0	-100.0	0.2
Rubella	0	0	0	0	0	0	0	0	0	0	0	-	0	0.0	#	#	#	#	#	#	#
Rubella, Congenital Syndrome	0	0	0	0	0	0	0	0	0	0	0	-	0	0.0	#	#	#	#	#	#	#
Salmonellosis	285	256	288	246	249	268	280	330	275	207	159	-	2843	203.8	185.6	13.7	-16.8	2637.2	194.7	4.7	2814.4
Shigellosis	36	35	46	27	34	22	30	40	21	28	19	-	338	24.2	20.2	1.5	-8.7	240.2	17.7	36.6	263.8
Streptococcus Pneumoniae, Invasive	101	96	130	105	97	72	58	43	45	101	91	-	939	67.3	100.0	7.4	-11.6	993.0	73.3	-8.2	1135.4
Syphilis, Early Congenital	0	0	0	0	1	1	0	0	0	0	0	-	2	0.1	0.0	0.0	-	1.2	0.1	61.8	1.4
Syphilis, Infectious	127	99	133	132	112	96	91	100	98	68	48	-	1104	79.1	79.2	5.8	-41.2	791.8	58.5	35.4	861.8
Syphilis, Other	56	63	58	65	56	82	52	55	57	39	43	-	626	44.9	54.2	4.0	-23.0	608.4	44.9	-0.1	661.6
Tetanus	0	0	0	0	0	0	1	0	0	0	0	-	1	0.1	0.0	0.0	-	2.0	0.1	-51.5	2.0
Tuberculosis	42	37	48	45	59	75	60	65	60	29	53	-	573	41.1	45.0	3.3	14.3	567.4	41.9	-2.0	619.4
Tularemia	0	0	0	0	0	0	0	0	0	0	0	-	0	0.0	0.0	0.0	-	0.4	0.0	-100.0	0.4
Typhoid Fever	11	7	6	8	1	4	5	8	9	3	5	-	67	4.8	4.2	0.3	15.6	69.8	5.2	-6.8	76.4
Verotoxin Producing E. coli Including HUS	4	5	9	9	8	10	34	41	21	10	9	-	160	11.5	8.2	0.6	6.6	167.8	12.4	-7.4	176.6
West Nile Virus Illness	0	0	0	0	0	0	1	28	23	0	0	-	52	3.7	1.2	0.1	-100.0	90.6	6.7	-44.3	91.2
Yellow Fever	0	0	0	0	0	0	1	0	0	0	0	-	1	0.1	0.0	0.0	-	1.0	0.1	-2.9	1.0
Yersiniosis	32	23	28	39	26	21	22	22	16	8	5	-	242	17.3	13.2	1.0	-63.2	173.6	12.8	35.3	185.4

Ontario Cases: MOHLTC, iPHIS database, extracted by PHO [2016/12/14].

Ontario Population: Population estimates [2005–2011]: Statistics Canada, distributed by MOHLTC, received [2014/07/03]. Population estimates [2012–2014]: Statistics Canada, distributed by MOHLTC, received [2015/11/18]. Population projections [2015-2016]: MOHLTC, IntelliHEALTH Ontario, extracted by PHO [2015/03/13].

* Appendix 1 is not an exhaustive list of all reportable diseases in Ontario. Case counts for amebiasis, Lyme disease, mumps, pertussis, and West Nile Virus illness are based on the sum of confirmed and probable cases as reported in iPHIS.

₹ Rates listed are cases per 1,000,000 population.

† Percent (%) difference is calculated using unrounded rates; numbers displayed in these columns may vary from hand calculations using rounded rates.

Historical comparison data are not provided for measles, rubella, and congenital rubella syndrome because these diseases have been eliminated in Canada. However, as these diseases remain endemic in other countries, imported and import-related cases continue to occur in Ontario.

n/a Acute Flaccid Paralysis and Paralytic Shellfish Poisoning became reportable in Ontario in December 2013. No historical data are available for comparisons. Also, a provincial case definition for chronic hepatitis B was released in January 2012. Please note that chronic and acute hepatitis B case counts are not mutually exclusive and should not be added to obtain a total for hepatitis B cases in Ontario. Historical comparisons are not available as cases of chronic hepatitis B may have been entered using varying criteria prior to this time.

- Does not include cases for which the Ministry of Health and Long-Term Care was selected as the Diagnosing Health Unit or cases with a Disposition Description set to “DOES NOT MEET” or “ENTERED IN ERROR.”
- Differentials in year-over-year comparisons are reflective of changes in disease incidence and changes in the size of the population.
- Statistical tests comparing rates were not performed when the YTM rate in previous years was zero.
- Case counts for tuberculosis and AIDS are based on diagnosis date and not episode date. HIV case counts are based on encounter date. Case counts for all other diseases are based on episode date.