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Monthly Infectious Diseases Surveillance Report

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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 March 31, 2016

Reportable disease	2016				Historical comparisons						5-year avg annual count (2011–2015)
	Mar	Mar 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}	3405	244.1	10279	736.9	3074.4	227.0	7.5	9106.4	672.4	9.6	36532.0
Gonorrhoea (all types) ^{1,2}	529	37.9	1560	111.8	391.8	28.9	31.1	1175.8	86.8	28.8	4923.8
Meningitis ¹	12	0.9	35	2.5	8.4	0.6	38.7	19.6	1.4	73.4	127.0
Salmonellosis ¹	253	18.1	776	55.6	244.6	18.1	0.4	652.6	48.2	15.4	2813.4
Shigellosis ^{1,2}	46	3.3	112	8.0	18.6	1.4	140.1	62.4	4.6	74.3	263.8

Ontario Cases: Ministry of Health and Long-Term Care (MOHLTC), integrated Public Health Information System (iPHIS) database, extracted by PHO [2016/04/26].

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 February 29, 2016) compared to the five-year historical average (January 1 to February 28, 2011–15), using a likelihood ratio test.

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

Chlamydia

Compared to the five-year historical average, the monthly incidence of laboratory-confirmed chlamydial infections reported in March 2016 increased by 7.5% (from 227.0 cases per 1,000,000 population to 244.1 cases per 1,000,000 population). Similarly, the reported YTM incidence increased 9.6%, from 672.4 cases per 1,000,000 population to 736.9 cases per 1,000,000 compared to the five-year historical average. Both of these increases were statistically significant ($p < 0.05$).

Over the past ten years, the incidence of chlamydial infections has increased with the exception of 2013, when a decrease in the incidence and testing was observed. For further details about this decrease, please refer to [Reportable Disease Trends in Ontario, 2013](#). PHO will continue to monitor the epidemiology of chlamydia in Ontario in coming months.

Gonorrhea

Since September 2013, there have been statistically significant increases in both the monthly and YTM incidence of gonorrhea in Ontario. The cause of this ongoing provincial increase is not yet well understood and is likely multifactorial. For a summary of the analyses conducted to date, please refer to the In Focus section of the [February 2015](#) issue of this report. Also, to download the slides and/or audio recording of a PHO Rounds presentation on gonorrhea (May 2015), please click [here](#).

Meningitis

Between January 1 and March 31, 2016, a total of 35 cases of meningitis were reported for a YTM incidence of 2.5 cases per 1,000,000 population. This represents a statistically significant increase of 74.3% compared to the five-year historical average for the same time period (1.4 cases per 1,000,000 population). A review of the responsible etiologic agents available in iPHIS did not identify a single agent responsible for this increase. For further information, please refer to the [October 2015](#) issue of this report.

Salmonellosis

A statistically significant increase in the YTM incidence rate of reported cases of salmonellosis was observed in March 2016. The cause of the increase is unknown at this time. PHO continues to monitor serotype-specific trends and investigate increases to identify potential clustering of cases.

Shigellosis

Incidence rates for shigellosis for the first three months of 2016 (January to March) were significantly higher in comparison to the monthly and YTM average incidence rates for the same period in the previous five years. From January to March 2016, 112 cases of shigellosis were reported compared to an expected average of 62 cases. The increase in 2016 continues from late 2015 and is driven largely by an increase in *Shigella sonnei* cases. *S. sonnei* cases reported since late 2015 occurred predominantly among males in the 30 to 49 year age range. Over one quarter of these cases have reported anal-oral contact as a risk factor, which is higher than the proportion reporting this risk factor in the previous four years (13%). PHO is collaborating with public health units affected by this increase to identify risk factors and at-risk populations in order to implement prevention and control measures.

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	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AIDS	6	7	5	-	-	-	-	-	-	-	-	-	18	1.3	8.8	0.6	-44.8	24.6	1.8	-29.0	84.6
Amebiasis	55	67	69	-	-	-	-	-	-	-	-	-	191	13.7	70.0	5.2	-4.3	202.0	14.9	-8.2	798.2
Botulism	0	0	0	-	-	-	-	-	-	-	-	-	0	0.0	0.2	0.0	-100.0	0.2	0.0	-100.0	2.4
Brucellosis	0	1	1	-	-	-	-	-	-	-	-	-	2	0.1	0.2	0.0	385.4	0.8	0.1	142.7	5.4
Campylobacter enteritis	186	163	170	-	-	-	-	-	-	-	-	-	519	37.2	230.4	17.0	-28.4	613.8	45.3	-17.9	3688.8
Chlamydial Infections	3627	3247	3405	-	-	-	-	-	-	-	-	-	10279	736.9	3074.4	227.0	7.5	9106.4	672.4	9.6	36532.0
Cholera	0	0	0	-	-	-	-	-	-	-	-	-	0	0.0	0.0	0.0	-	0.0	0.0	-	0.4
Cryptosporidiosis	20	23	17	-	-	-	-	-	-	-	-	-	60	4.3	21.6	1.6	-23.6	50.2	3.7	16.0	330.8
Cyclosporiasis	1	0	1	-	-	-	-	-	-	-	-	-	2	0.1	4.2	0.3	-76.9	8.4	0.6	-76.9	135.0
Encephalitis	6	2	2	-	-	-	-	-	-	-	-	-	10	0.7	1.0	0.1	94.2	4.8	0.4	102.3	21.4
Encephalitis/Meningitis	9	13	12	-	-	-	-	-	-	-	-	-	34	2.4	9.0	0.7	29.5	26.8	2.0	23.2	158.2
Food Poisoning, All Causes	4	1	1	-	-	-	-	-	-	-	-	-	6	0.4	4.6	0.3	-78.9	11.4	0.8	-48.9	76.6
Giardiasis	89	80	60	-	-	-	-	-	-	-	-	-	229	16.4	105.4	7.8	-44.7	316.0	23.3	-29.6	1332.0
Gonorrhoea (All Types)	560	471	529	-	-	-	-	-	-	-	-	-	1560	111.8	391.8	28.9	31.1	1175.8	86.8	28.8	4923.8
Group A Streptococcal Disease, Invasive	76	71	70	-	-	-	-	-	-	-	-	-	217	15.6	71.2	5.3	-4.5	204.8	15.1	2.9	640.6
Group B Streptococcal Disease, Neonatal	8	2	6	-	-	-	-	-	-	-	-	-	16	1.1	4.4	0.3	32.4	12.4	0.9	25.3	53.2
Haemophilus Influenzae B Disease, Invasive	1	0	0	-	-	-	-	-	-	-	-	-	1	0.1	0.8	0.1	-100.0	1.2	0.1	-19.1	5.8
Hepatitis A	4	4	13	-	-	-	-	-	-	-	-	-	21	1.5	9.8	0.7	28.8	28.6	2.1	-28.7	96.8
Hepatitis B (Acute)	10	11	4	-	-	-	-	-	-	-	-	-	25	1.8	10.0	0.7	-61.2	28.6	2.1	-15.1	101.8
Hepatitis B (Chronic)	120	86	78	-	-	-	-	-	-	-	-	-	284	20.4	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Hepatitis C	381	370	368	-	-	-	-	-	-	-	-	-	1119	80.2	374.0	27.6	-4.5	1060.0	78.3	2.5	4214.0
HIV	64	55	59	-	-	-	-	-	-	-	-	-	178	12.8	70.2	5.2	-18.4	191.0	14.1	-9.5	781.0
Influenza	742	3842	5158	-	-	-	-	-	-	-	-	-	9742	698.4	1149.0	84.8	335.8	5113.4	377.6	85.0	8385.6
Legionellosis	5	9	1	-	-	-	-	-	-	-	-	-	15	1.1	4.4	0.3	-77.9	15.4	1.1	-5.4	173.6
Leprosy	0	0	0	-	-	-	-	-	-	-	-	-	0	0.0	0.4	0.0	-100.0	1.0	0.1	-100.0	3.2
Listeriosis	8	5	5	-	-	-	-	-	-	-	-	-	18	1.3	2.6	0.2	86.7	8.6	0.6	103.2	52.0

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)†	
Lyme Disease	0	0	3	-	-	-	-	-	-	-	-	-	3	0.2	2.8	0.2	4.0	7.8	0.6	-62.7	254.4
Malaria	12	8	11	-	-	-	-	-	-	-	-	-	31	2.2	10.2	0.8	4.7	32.0	2.4	-5.9	204.2
Measles	1	1	1	-	-	-	-	-	-	-	-	-	3	0.2	#	#	#	#	#	#	#
Meningitis	11	12	12	-	-	-	-	-	-	-	-	-	35	2.5	8.4	0.6	38.7	19.6	1.4	73.4	127.0
Meningococcal Disease, Invasive	3	1	0	-	-	-	-	-	-	-	-	-	4	0.3	3.6	0.3	-100.0	10.6	0.8	-63.4	31.4
Mumps	0	2	1	-	-	-	-	-	-	-	-	-	3	0.2	1.2	0.1	-19.1	5.0	0.4	-41.7	35.0
Ophthalmia neonatorum	0	0	0	-	-	-	-	-	-	-	-	-	0	0.0	0.2	0.0	-100.0	1.0	0.1	-100.0	2.8
Paralytic Shellfish Poisoning	0	0	0	-	-	-	-	-	-	-	-	-	0	0.0	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Paratyphoid Fever	3	6	1	-	-	-	-	-	-	-	-	-	10	0.7	5.6	0.4	-82.7	13.6	1.0	-28.6	42.0
Pertussis (Whooping Cough)	44	12	12	-	-	-	-	-	-	-	-	-	68	4.9	21.2	1.6	-45.0	65.0	4.8	1.6	516.6
Q Fever	1	0	0	-	-	-	-	-	-	-	-	-	1	0.1	1.0	0.1	-100.0	2.8	0.2	-65.3	16.4
Rabies	0	0	0	-	-	-	-	-	-	-	-	-	0	0.0	0.0	0.0	-	0.0	0.0	-	0.2
Rubella	0	0	0	-	-	-	-	-	-	-	-	-	0	0.0	#	#	#	#	#	#	#
Rubella, Congenital Syndrome	0	0	0	-	-	-	-	-	-	-	-	-	0	0.0	#	#	#	#	#	#	#
Salmonellosis	276	247	253	-	-	-	-	-	-	-	-	-	776	55.6	244.6	18.1	0.4	652.6	48.2	15.4	2813.4
Shigellosis	32	34	46	-	-	-	-	-	-	-	-	-	112	8.0	18.6	1.4	140.1	62.4	4.6	74.3	263.8
Streptococcus Pneumoniae, Invasive	99	96	120	-	-	-	-	-	-	-	-	-	315	22.6	115.6	8.5	0.8	346.4	25.6	-11.7	1135.2
Syphilis, Early Congenital	0	0	0	-	-	-	-	-	-	-	-	-	0	0.0	0.4	0.0	-100.0	0.4	0.0	-100.0	1.6
Syphilis, Infectious	106	73	72	-	-	-	-	-	-	-	-	-	251	18.0	73.6	5.4	-5.0	206.0	15.2	18.3	853.2
Syphilis, Other	61	41	43	-	-	-	-	-	-	-	-	-	145	10.4	60.6	4.5	-31.1	172.0	12.7	-18.2	660.4
Tetanus	0	0	0	-	-	-	-	-	-	-	-	-	0	0.0	0.0	0.0	-	0.6	0.0	-100.0	2.0
Tuberculosis	44	38	46	-	-	-	-	-	-	-	-	-	128	9.2	54.6	4.0	-18.2	143.4	10.6	-13.3	618.8
Tularemia	0	0	0	-	-	-	-	-	-	-	-	-	0	0.0	0.0	0.0	-	0.0	0.0	-	0.4
Typhoid Fever	11	6	5	-	-	-	-	-	-	-	-	-	22	1.6	5.8	0.4	-16.3	23.6	1.7	-9.5	76.0
Verotoxin Producing E. coli Including HUS	4	5	9	-	-	-	-	-	-	-	-	-	18	1.3	6.4	0.5	36.5	19.8	1.5	-11.7	176.2
West Nile Virus Illness	0	0	0	-	-	-	-	-	-	-	-	-	0	0.0	0.0	0.0	-	0.0	0.0	-	91.2
Yellow Fever	0	0	0	-	-	-	-	-	-	-	-	-	0	0.0	0.0	0.0	-	0.4	0.0	-100.0	1.2
Yersiniosis	28	24	17	-	-	-	-	-	-	-	-	-	69	4.9	18.8	1.4	-12.2	48.8	3.6	37.3	184.6

Ontario Cases: MOHLTC, iPHIS database, extracted by PHO [2016/04/26].

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.