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Monthly Infectious Diseases Surveillance Report

Volume 4, Issue 11

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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IN FOCUS

Legionella

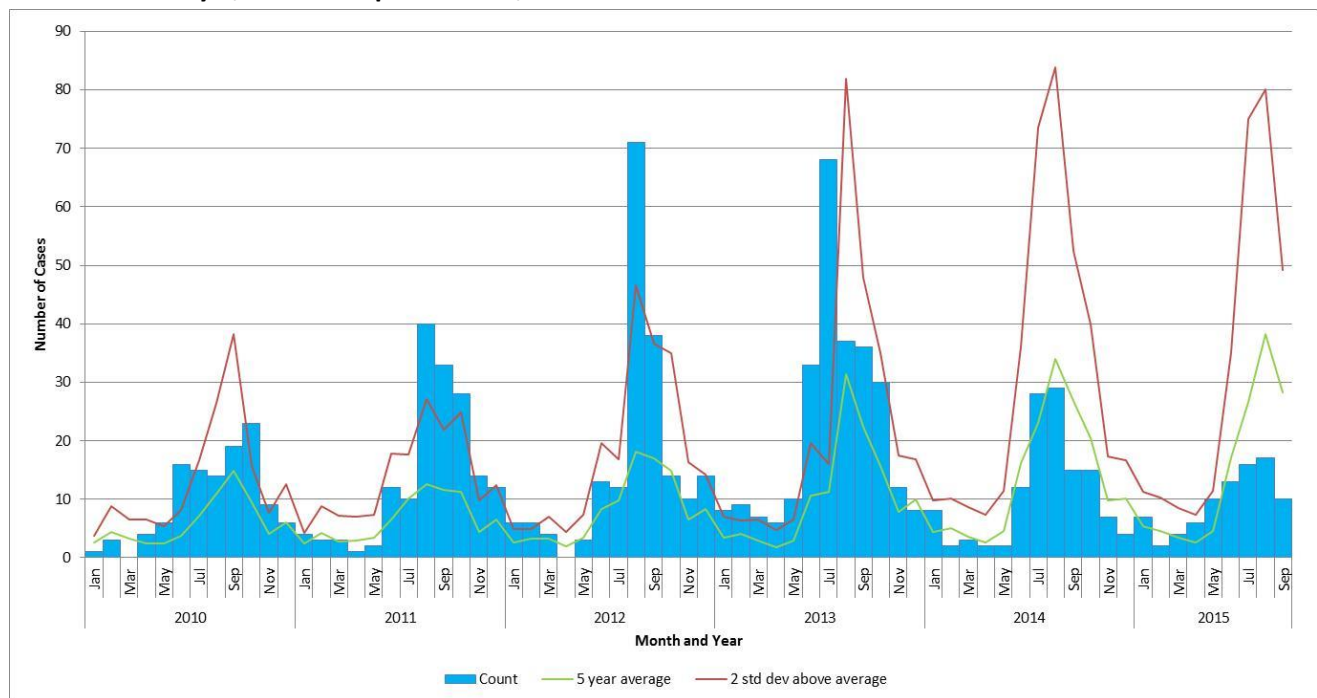
Legionellosis is caused by infection with *Legionella* bacteria, most commonly *L. pneumophila*, which are ubiquitous in the environment. Legionellosis presents clinically as Legionnaires' disease, typically with pneumonia and fever greater than 39 C, or Pontiac Fever. ¹ For further information on legionellosis clinical presentations, reservoirs, and risk factors, please refer to the May 2014 [Monthly Infectious Diseases Surveillance Report](#).

Laboratory testing for the detection of *Legionella* may include PCR (polymerase chain reaction) on respiratory specimens, urine antigen testing (UAT), serum antibody testing, and culture. PCR can detect *Legionella* to the genera level (*Legionella spp.*) as well as identify *L. pneumophila*. The urine antigen test is the most frequently used testing method among clinicians, but is able to identify only *L. pneumophila* serogroup 1.² Culture is attempted on PCR positive specimens and allows either species identification (if not *L. pneumophila*) or serogroup detection (if *L. pneumophila*). Culture is required to identify a match to other clinical isolates or environmental samples. For additional information on laboratory testing for *Legionella*, refer to the Public Health Ontario Laboratory (PHOL) [Test Directory Index](#)³ and the [April 2012 Abstract](#).⁴ For guidance on environmental sampling refer to the [Legionella Questions and Answers](#) document.⁵

Several jurisdictions in the United States have experienced recent legionellosis outbreaks associated with significant morbidity and mortality, as well as with considerable public and media attention.⁶⁻⁹ Outbreaks involved cases residing in the community in urban neighbourhoods,⁸ residents of a retirement home for veterans,⁹ and inmates of a correctional facility.⁷ Environmental investigations included environmental sampling of cooling towers. Although a common source was not identified for multiple investigations,⁶⁻⁹ a local cooling tower was identified as the likely common source of one outbreak.⁶

From 2006 to 2013, the incidence of legionellosis in Ontario gradually increased from 0.5 cases per 100,000 population to 2.0 cases per 100,000 population.¹⁰ Legionellosis follows a seasonal pattern, with the majority of cases occurring between June and October every year (Figure 1). Two hundred and sixty-four cases were reported in the integrated Public Health Information System (iPHIS) during the peak year in 2013 (Figure 1). In 2014, Ontario observed a substantially smaller season with half the number of cases reported (127 cases, or 0.94 cases per 100,000 population). In 2015, the number and rate of cases continued to decline, with 85 cases (0.63 cases per 100,000 population) reported as of September 30. No legionellosis outbreaks or clusters with a known common exposure were identified in Ontario in 2015.

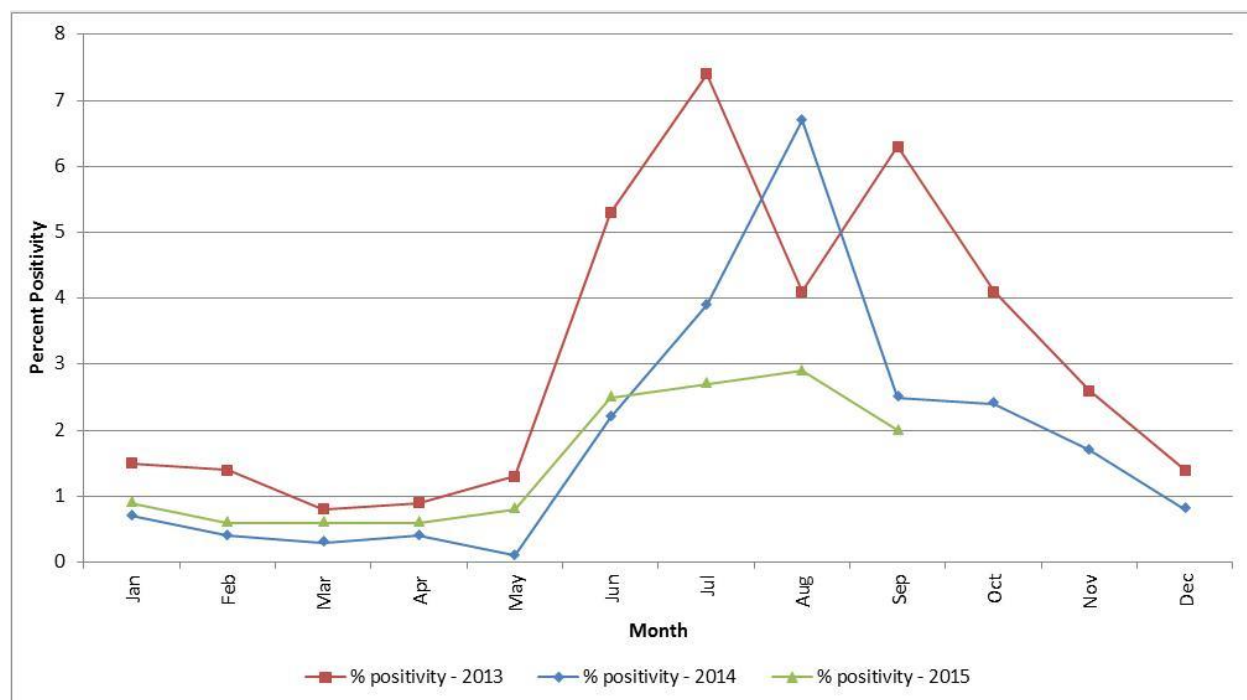
Figure 1. Legionellosis case counts by month with five-year historical average and standard deviation, Ontario: January 1, 2010 to September 30, 2015.



Data source: Ontario Ministry of Health and Long-Term Care (MOHLTC), integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario on [2015/09/30].

In 2015, as of September 10, the highest percent positivity of *Legionella* patients identified at PHOL occurred in August with 2.9% of all test results positive for the infectious agent (Figure 2). The monthly peak percent positivity in 2015 was lower than the monthly peak percent positivity in the two previous years, which was at 6.7% in August 2014 and 7.4% in July 2013. The lower percent positivity in 2015 suggests lower legionellosis activity. A similar number of patients was tested between January 1 and August 31 in 2014 and 2015 (5427 patients versus 5393 patients, respectively) at PHOL. This indicates that the declining number of reported legionellosis cases was not due to changes in laboratory testing volumes.

Figure 2. Percent positivity of *Legionella* patients identified at PHOL, Ontario: January 1, 2013 to September 10, 2015.



Data Source: Public Health Ontario Laboratories (PHOL), Laboratory Information Management System (LIMS), extracted on [2015/09/10].

Notes:

Date reported was used for the extraction and date when the specimen was received at the lab was used for the analysis.

Out-of-province patients were excluded from the analysis.

The majority of legionellosis cases have occurred in the Southern Ontario region since 2010, particularly within the Greater Golden Horseshoe Area.¹¹ From January 1 to September 30, 2015, cases reported from Toronto, Peel Region, and the City of Hamilton comprised 48.2% (41/85) of legionellosis cases reported in Ontario. The highest number of cases was also reported from the same three public health units (PHUs) in 2014, comprising 44.9% (57/127) of legionellosis cases.

In 2015, the highest rates were reported from Brant County, Chatham-Kent, and the City of Hamilton with incidence rates of 2.1, 1.9, and 1.8 per 100,000 population, respectively. In 2014, the highest rates were reported from the City of Hamilton, Region of Waterloo, Oxford County, and Niagara Region in 2014 (3.1, 1.9, 1.8, and 1.8 per 100,000 population, respectively). In 2013, when Ontario observed the highest number of reported legionellosis cases to date, the top rates were reported from Timiskaming, Niagara Region, and Peel Region at 5.8, 5.4, and 3.7 cases per 100,000 population, respectively. Although comparatively high rates were reported among several smaller PHUs, this is a reflection of their small populations.

The reported legionellosis rates among males have been consistently higher than the rates among females in Ontario since 2010. The overall male rate in 2015 was 0.8 per 100,000 population, while the female rate was 0.4 per 100,000 population. From 2010 to 2014, the highest age-specific incidence rates

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were observed in the 80 year and older age groups for both males and females. In 2015, the highest incidence rate among males was observed in the 75 to 79 year age category (4.2 per 100,000 population) and females aged 65 to 69 years (1.8 per 100,000 population).

From 2013 to 2015, the percentage of legionellosis cases in iPHIS with at least one reported risk factor ranged from 90.6% to 92.1%. From 2013 through 2015, the top three consistently reported risk factors each year were: chronic illness and/or underlying medical conditions and/or being immuno-compromised (53.8% to 55.8% of cases); being a smoker (41.6% to 50.4% of cases); and recent exposure to aerosolized water, water fountain, or stream (22.1% to 28.2%). In 2014, diabetes was also reported as a risk factor for 28.2% of cases with at least one reported risk factor.

PHO continues to monitor legionellosis cases on a regular basis to identify unusual increases in trends and potential clusters. The use of the [Legionella Case Report Form](#) will resume in the summer of 2016 to support the collection of additional exposure information on confirmed cases of legionellosis. This additional data can help to further characterize the epidemiology of legionellosis in Ontario each season.

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SIGNIFICANT REPORTABLE DISEASE ACTIVITY

Table 1 provides a list of reportable diseases for which incidence in 2015 was found to be significantly higher ($p < 0.05$) than expected compared to the five-year historical average (2010-2014). 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 no longer included for these diseases.

Table 1. Summary of statistically significant increases in reportable disease incidence, Ontario: January 1 to September 30, 2015.

Reportable disease	2015				Historical comparisons						5-year avg annual count (2010-2014)
	Sep	Sep rate ‡	YTM	YTM rate ‡	Current month 5-year avg (2010-2014)	Current month 5-year avg (2010-2014)	% difference in rates (current month minus 5-year avg)†	YTM 5-year avg (2010-2014)	YTM 5-year avg (2010-2014)	% difference in rates (YTM 2015 minus YTM 5-year avg)†	
Chlamydial Infections ^{1,2}	3447	246.2	28500	2035.2	3138	233.5	5.4	26620	1980.9	2.7	35431
Cryptosporidiosis ²	62	4.4	299	21.4	40	3.0	49.5	269	20.0	6.7	322
Cyclosporiasis ¹	9	0.6	231	16.5	6	0.4	48.9	106	7.9	109.9	117
Encephalitis/Meningitis ¹	24	1.7	157	11.2	18	1.3	29.4	109	8.1	38.0	148
Gonorrhoea (All Types) ^{1,2}	574	41.0	4435	316.7	421	31.3	31.0	3353	249.5	26.9	4531
Lyme Disease ¹	9	0.6	292	20.9	15	1.1	-43.2	168	12.5	66.8	187
Pertussis (Whooping Cough) ¹	26	1.9	512	36.6	39	2.9	-35.4	299	22.3	64.2	402

Ontario Cases: MOHLTC, iPHIS database, extracted by PHO [2015/10/14].

Ontario Population: Population Estimates [2010-2013]: Statistics Canada, distributed by MOHLTC, received [2014/07/03]. Population Projections [2014-2015]: MOHLTC, IntelliHEALTH Ontario, extracted by PHO [2014/04/11].

‡ 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 August 31, 2015) compared to the five-year historical average (January 1 to September 30, 2010-2014), using a likelihood ratio test.

² Statistically significant difference ($p < 0.05$) in incidence reported in current month (September 2015) compared to the five-year historical average (September 2010-2014), using a likelihood ratio test.

Chlamydia

There was a statistically significant increase of 5.4% in the monthly incidence of laboratory-confirmed chlamydial infections reported in September 2015 (246.2 cases per 1,000,000 population) compared to the five-year (2010–2014) monthly historical average (233.5 cases per 1,000,000). The YTM incidence rate from January 1 to September 2015 was also significantly higher than the historical five-year average for the same period (2035.2 per 1,000,000 population and 1980.9 per 1,000,000 population, respectively). Over the past ten years, the incidence of laboratory-confirmed chlamydial infections has increased with the exception of 2013, where a decrease in the incidence and testing was observed. For

further details about this decrease, please refer to [Reportable Disease Trends in Ontario, 2013](#). The increase noted this month may be a continuation of the increase in incidence observed over the past ten years. PHO will continue to monitor the number of chlamydia infections in subsequent months.

Cryptosporidiosis

The 2015 monthly incidence of cryptosporidiosis in September was significantly higher than the five-year historical average (September 2010-2014). Sixty-two cases of cryptosporidiosis were reported during September compared to a five-year expected average of 40 cases. The September incidence rate of cryptosporidiosis was 4.4 cases per 1,000,000 population compared to the historical five-year average of 3.0 cases per 1,000,000 population, an increase of 49.5%. Cryptosporidiosis case counts peak in the mid to late summer and transmission is often associated with recreational water contact. The cause of the increase in September compared to previous years is unknown at this time.

Cyclosporiasis

Statistically significant increases in both the monthly and YTM incidence rates of cyclosporiasis were observed in September 2015. This was the second consecutive month with a significant increase in the incidence of cyclosporiasis. As described in Volume Four, Issue 11 of this report, most of the cases in August were due largely to travel, specifically to resorts in Mexico, while others were associated with a national investigation that occurred during the summer months for which a source could not be identified. The increase in September was due to a provincial outbreak that has continued into October. This outbreak was associated with consumption of Alpine brand sugar snap peas imported from Guatemala and sold exclusively at Costco retail stores in Ontario. The retailer voluntarily [recalled](#) the suspected product on October 17, 2015. It is important to note that cyclosporiasis is not endemic in Canada and its occurrence is most frequently associated with travel to or consumption of contaminated food imported from endemic countries in tropical and subtropical regions of the world.

Encephalitis/Meningitis

There was a statistically significant increase in the incidence of encephalitis/meningitis from January 1 to September 30, 2015, compared to the historical five-year average for the same period. An increase from a five-year average of 8.1 cases per 1,000,000 population to 11.2 cases per 1,000,000 population in 2015 was observed, representing an increase of 38.0%. For further information, please refer to the [October Monthly Report](#).

Gonorrhea

Compared to the five-year historical averages, there were statistically significant increases in both the monthly and YTM incidence rates of gonorrhea reported in September 2015 and cumulatively from January 1 to September 30, 2015 (31.0% and 26.9%, respectively).

With the exception of January 2015, Ontario has experienced a statistically significant increase in the monthly and YTM incidence of gonorrhea, compared to five-year historical averages, since September 2013. The cause of this ongoing provincial increase in reported gonorrhea cases is not yet well understood and is likely multifactorial. For a summary of the analyses conducted to date, please refer to the Infectious Disease In Focus section of the [February 2015](#) issue of this report. Also, to download the slides and/or audio recording of a recent PHO Rounds presentation on gonorrhea (May 2015), please click [here](#).

Lyme disease

The YTM incidence rate of Lyme disease was significantly higher in 2015 for the period January to September in comparison to the five-year expected average for the same period. The number of cases reported in 2015 to date has exceeded the five-year average annual count of 187 cases, although it is within the range of values seen over the past five years. The number of cases reported in September 2015 (nine cases) is consistent with the expected decrease in case counts that typically occurs in the late summer/early fall. Annually, the incidence of Lyme disease peaks in June and July, and this is consistent with trends in other Lyme disease-endemic regions in the United States and Canada. The occurrence of Lyme disease in the summer coincides with both greater participation in outdoor activities and increased presence of infectious nymphal ticks in the environment, both of which increase the opportunity for exposure to Lyme disease.

ERRATA

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Two updates have been made under the Significant Reportable Disease Activity section of the October monthly report: (1) the rate of chlamydial infections was statistically significant for the YTM period from January 1 to August 31, 2015 compared to the historical five-year average over the same period (which was not statistically significant for the month of August as originally indicated); and (2) the cases per population should read 'per 1,000,000' for encephalitis/meningitis (and not 'per 100,000', as originally indicated).

INFECTIOUS DISEASE ACTIVITY IN OTHER JURISDICTIONS

This section of the report provides a snapshot of current activity related to infectious diseases across Canada and/or globally. The items included in this section are selected based on ongoing or potential implications for public health in Ontario.

Current high profile infectious disease activity in other jurisdictions has been described in recent issues of this report. Please refer to the [August 2014](#) issue for a review of the ebola outbreak in West Africa, and to the [October 2014](#) issue for a review of enterovirus D68.

Zika virus spread to the Americas

Summary

In May 2015, Brazilian public health officials announced an investigation into outbreaks of a febrile illness, accompanied by a rash, of unknown etiology in northwestern Brazil. Although these infections were initially thought to be due to chikungunya or dengue virus, Zika virus (ZIKV) was eventually isolated from patients and identified as the causative agent. From February to April 2015, Brazil reported over 6,800 locally-acquired ZIKV infections; more recently, Columbia and Suriname have reported ZIKV infections.^{2,5}

ZIKV is a mosquito-borne virus named for the Zika Forest of Uganda, where it was first isolated from a rhesus macaque.¹ Historically, ZIKV infection was a disease restricted to Sub-Saharan Africa and southern Asia until 2007, when an outbreak occurred on Yap Island, Micronesia. Since 2013, areas in the South Pacific such as the Cook Islands, French Polynesia and New Caledonia have reported locally acquired ZIKV infections.^{2,3,4} A number of *Aedes* mosquito species have been implicated in transmission of ZIKV; however, in South America, the primary vector is considered to be the yellow fever mosquito *Aedes aegypti* with potential involvement of the Asian tiger mosquito *Aedes albopictus*.

Although ZIKV infection is primarily mosquito-borne, rare cases of perinatal and sexual transmission occur.² The incubation period of ZIKV is 3 to 12 days, with ZIKV-infected patients displaying fever, arthralgia, arthritis, maculopapular rash and conjunctivitis.^{2,3} In rare instances, neurological (especially Guillain-Barré syndrome) and autoimmune complications have been reported.² There is no vaccine and treatment is supportive. ZIKV infection is considered a mild illness that resolves in 2 to 7 days, although it is estimated that 75% of ZIKV infections are asymptomatic.

Implications

Imported cases of ZIKV infection may occur in Ontario due to returning travelers. However, local transmission in Ontario is not possible as *Aedes aegypti* and *Aedes albopictus* do not occur here and the province's *Aedes* species are not competent vectors for this viral infection.⁷ In June 2015, the Public Health Agency of Canada (PHAC) issued a Travel Health Notice for ZIKV infection in Brazil, recommending that travelers use appropriate personal protective measures against mosquito bites, such as the use of a DEET-containing repellent, while visiting ZIKV-affected regions.⁴

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RECENTLY DISCONTINUED ENHANCED SURVEILLANCE DIRECTIVES

***Salmonella* Newport**

On September 4, 2015 an Ontario Outbreak Investigation Coordinating Committee (ON-OICC) was established by PHO and provincial and federal partners to investigate a cluster of *Salmonella* Newport cases with the pulsed-field gel electrophoresis (PFGE) pattern combinations NewpXAI.0497, NewpBNI.0297 and NewpXAI.0497, NewpBNI.0298. The PFGE pattern combinations of interest are new to the national laboratory database and represent 0.55% of all *Salmonella* Newport patterns in the national database. Eleven outbreak-confirmed cases were reported within Ontario from 8 different public health units (PHUs): City of Hamilton (2), Toronto (2), Wellington-Dufferin-Guelph (2), Algoma (1), Niagara Region (1), Peel Region (1), Sudbury (1), and York (1). Episode onset dates for outbreak-confirmed cases ranged from July 31 to August 20, 2015. Of the 11 outbreak-confirmed cases, 64% were male, and the age range for all cases was 2 to 60 years (median: 46 years). No hospitalizations or deaths were reported among all cases. Re-interviews of outbreak-confirmed cases were conducted by PHO using the single-interviewer approach. Seven cases were reached for re-interview, and although there was a number of identified risk factors/exposures of interest, there were no commonalities in place of purchase or product type/brand identified. No further cases were identified during the 16-day window (calculated by the incubation period for *Salmonella* infection of three days plus the 75th percentile of the reporting lag in this investigation of 13 days) from the onset of the last outbreak-confirmed case. Given that cases interviews and further investigation did not lead to a confirmed etiology for the outbreak and no further cases were detected, the outbreak was declared over on September 5, 2015; the Enhanced Surveillance Directive (ESD) was discontinued on October 2, 2015.

Appendix – Reportable Diseases

Appendix 1. Confirmed cases of reportable diseases, and probable cases of select reportable diseases, by month, Ontario: 2010–2015*

Reportable disease	2015													Historical comparisons							5-year avg (2010-2014) annual count
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTM	YTM rate †	Current month 5-year avg (2010-2014)	Current month 5-year avg (2010-2014) rate †	% difference rates (current month minus 5-year avg)†	YTM 5-year avg (2010-2014)	YTM 5-year avg (2010-2014) rate †	% difference rates (YTM 2015 minus YTM 5-year avg)†	
Acute Flaccid Paralysis	0	0	0	0	1	0	0	0	0	-	-	-	1	0.1	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AIDS	3	6	4	3	5	3	8	2	5	-	-	-	39	2.8	7.4	0.6	-35.2	77.4	5.8	-51.6	99
Amebiasis	56	63	65	81	64	59	76	77	50	-	-	-	591	42.2	62	4.6	-22.6	618.2	46.0	-8.3	794.2
Botulism	0	0	1	0	0	0	2	0	1	-	-	-	4	0.3	0	0.0	-	1.2	0.1	219.9	1.6
Brucellosis	0	0	0	1	0	1	1	0	0	-	-	-	3	0.2	0.2	0.0	-100.0	4.4	0.3	-34.6	5
Campylobacter enteritis	184	173	221	194	228	296	435	432	293	-	-	-	2456	175.4	390.2	29.0	-27.9	2877.8	214.1	-18.1	3702.6
Chlamydial Infections	3227	2921	3187	3126	2948	3201	3230	3213	3447	-	-	-	28500	2035.2	3138.4	233.5	5.4	26620.2	1980.9	2.7	35430.8
Cholera	0	0	0	0	0	0	0	1	0	-	-	-	1	0.1	0	0.0	-	0	0.0	-	0.2
Cryptosporidiosis	19	15	25	14	17	21	56	70	62	-	-	-	299	21.4	39.8	3.0	49.5	269	20.0	6.7	321.8
Cyclosporiasis	1	5	7	7	31	91	58	22	9	-	-	-	231	16.5	5.8	0.4	48.9	105.6	7.9	109.9	116.8
Encephalitis	2	3	0	1	3	2	1	1	2	-	-	-	15	1.1	0.8	0.1	139.9	13	1.0	10.7	18.4
Encephalitis/Meningitis	12	13	12	13	5	19	29	30	24	-	-	-	157	11.2	17.8	1.3	29.4	109.2	8.1	38.0	147.8
Food Poisoning, All Causes	8	0	6	2	3	2	2	0	6	-	-	-	29	2.1	5.4	0.4	6.6	73	5.4	-61.9	86
Giardiasis	105	104	127	107	71	85	143	145	116	-	-	-	1003	71.6	138	10.3	-19.3	1042.8	77.6	-7.7	1343.8
Gonorrhoea (All Types)	476	435	478	413	472	512	563	512	574	-	-	-	4435	316.7	420.6	31.3	31.0	3353	249.5	26.9	4531.2
Group A Streptococcal Disease, Invasive	77	42	62	53	60	48	41	39	34	-	-	-	456	32.6	34.8	2.6	-6.2	487.4	36.3	-10.2	637
Group B Streptococcal Disease, Neonatal	1	2	3	3	6	2	4	1	1	-	-	-	23	1.6	5.2	0.4	-81.5	40.8	3.0	-45.9	55.4
Haemophilus Influenzae B Disease, Invasive	0	1	0	0	3	1	2	0	0	-	-	-	7	0.5	0.2	0.0	-100.0	3.2	0.2	109.9	4.4
Hepatitis A	11	3	10	12	1	5	5	4	11	-	-	-	62	4.4	12.8	1.0	-17.5	81.2	6.0	-26.7	109
Hepatitis B (Acute)	7	5	5	6	0	5	7	7	9	-	-	-	60	4.3	8	0.6	8.0	81.8	6.1	-29.6	107.2
Hepatitis B (Chronic)	145	115	139	122	111	125	109	76	53	-	-	-	995	71.1	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Hepatitis C	350	330	384	338	371	347	400	319	313	-	-	-	3152	225.1	364.2	27.1	-17.5	3235.2	240.7	-6.5	4268.6
HIV	56	55	70	67	53	60	53	53	50	-	-	-	517	36.9	74.2	5.5	-35.3	601.8	44.8	-17.6	800.2
Influenza	4891	2182	1310	807	221	44	22	8	27	-	-	-	9512	679.3	11.8	0.9	119.6	4237.6	315.3	115.4	6742.6
Legionellosis	7	2	4	6	10	13	16	17	14	-	-	-	89	6.4	28.2	2.1	-52.4	130.8	9.7	-34.7	172
Leprosy	1	0	1	0	0	0	0	0	0	-	-	-	2	0.1	0	0.0	-	2.4	0.2	-20.0	2.8
Listeriosis	3	2	2	2	6	4	11	9	8	-	-	-	47	3.4	5	0.4	53.5	40	3.0	12.8	51
Lyme Disease	3	3	0	7	28	103	98	41	9	-	-	-	292	20.9	15.2	1.1	-43.2	168	12.5	66.8	186.8
Malaria	12	2	8	9	17	23	20	19	12	-	-	-	122	8.7	22.8	1.7	-49.5	181.2	13.5	-35.4	223.2
Measles	8	10	1	0	1	0	0	0	0	-	-	-	20	1.4	#	#	#	#	#	#	#
Meningitis	4	3	7	6	10	25	12	12	15	-	-	-	94	6.7	12.4	0.9	16.1	88.6	6.6	1.8	119.2
Meningococcal Disease, Invasive	5	3	1	4	3	3	3	1	4	-	-	-	27	1.9	2.5	0.2	47.6	23.4	1.7	10.7	31.4
Mumps	3	1	3	2	11	8	0	1	0	-	-	-	29	2.1	3.2	0.2	-100.0	41	3.1	-32.1	48.6
Ophthalmia neonatorum	1	0	1	0	0	0	0	0	0	-	-	-	2	0.1	0.6	0.0	-100.0	2.4	0.2	-20.0	3.2
Paralytic Shellfish Poisoning	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	6	2	10	3	4	0	3	7	3	-	-	-	38	2.7	3.6	0.3	-20.0	37.6	2.8	-3.0	43.8
Pertussis (Whooping Cough)	16	19	29	27	89	176	95	35	26	-	-	-	512	36.6	38.6	2.9	-35.4	299.2	22.3	64.2	402
Q Fever	1	0	3	2	0	1	1	2	1	-	-	-	11	0.8	1.4	0.1	-31.5	11.2	0.8	-5.7	15.4
Rabies	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	#	#	#	#	#	#	#
Rubella, Congenital Syndrome	0	0	0	0	0	0	0	0	0	-	-	-	0	0.0	#	#	#	#	#	#	#
Salmonellosis	185	186	251	245	268	216	251	318	231	-	-	-	2151	153.6	264.6	19.7	-16.2	2234.8	166.3	-7.6	2779.4
Shigellosis	38	59	16	19	14	11	17	32	20	-	-	-	166	11.9	20.4	1.5	-5.9	209	15.6	-23.8	262.6
Streptococcus Pneumoniae, Invasive	103	83	113	117	73	71	50	39	51	-	-	-	700	50.0	64.8	4.8	-24.5	805.6	59.9	-16.6	1170
Syphilis, Early Congenital	0	0	0	0	1	1	0	1	0	-	-	-	3	0.2	0.2	0.0	-100.0	1	0.1	187.9	1.2
Syphilis, Infectious	68	72	73	108	78	89	81	52	30	-	-	-	651	46.5	66.8	5.0	-56.9	599.6	44.6	4.2	801.4
Syphilis, Other	47	44	55	47	44	53	43	34	42	-	-	-	409	29.2	53.8	4.0	-25.1	522.8	38.9	-24.9	694
Tetanus	0	0	0	0	1	0	0	0	0	-	-	-	1	0.1	0.2	0.0	-100.0	1.8	0.1	-46.7	2
Tuberculosis	41	31	55	55	53	55	54	36	48	-	-	-	428	30.6	49.6	3.7	-7.1	480.8	35.8	-14.6	628.4
Tularemia	0	0	0	0	0	0	0	0	0	-	-	-	0	0.0	0.2	0.0	-100.0	0.6	0.0	-100.0	0.6
Typhoid Fever	5	3	3	9	4	5	5	4	2	-	-	-	40	2.9	7.4	0.6	-74.1	65.6	4.9	-41.5	81.8
Verotoxin Producing E. coli including HUS	6	6	6	10	11	19	22	35	26	-	-	-	141	10.1	18.8	1.4	32.7	144.8	10.8	-6.6	172.6
West Nile Virus Illness	0	0	0	0	0	3	1	15	6	-	-	-	25	1.8	23	1.7	-75.0	82.4	6.1	-70.9	86.2
Yellow Fever	0	0	0	0	1	0	0	0	0	-	-	-	1	0.1	0	0.0	-	1	0.1	-4.0	1
Yersiniosis	14	11	15	15	16	14	17	28	21	-	-	-	151	10.8	14.8	3.1	36.2	148.2	11.0	-2.2	180.6

Ontario Cases: MOHLTC, iPHIS database, extracted by PHO [2015/10/14].

Ontario Population: Population Estimates [2010-2013]: Statistics Canada, distributed by Ministry of Health and Long-Term Care, received [2014/07/03]. Population Projections [2014-2015]: Ontario Ministry of Health and Long-Term Care, IntelliHEALTH Ontario, extracted by PHO [2014/04/11].

Column or row-specific notes:

* 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.