

June 2014

Monthly Infectious Diseases Surveillance Report

Volume 3, Issue 6

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:

SurveillanceServices@oahpp.ca. Past issues and additional information are available [online](#).

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INFECTIOUS DISEASE IN FOCUS

CYCLOSPORIASIS

Cyclospora cayetanensis is a coccidian protozoan that infects the upper small bowel.¹ Humans are the only known host for *C. cayetanensis*. Watery diarrhea, which can be profuse, is the most common symptom. Anorexia, nausea, vomiting, weight loss, bloating, gas, abdominal cramping, myalgia, and prolonged fatigue are also symptoms of infection. Low grade fever occurs in approximately half of patients.² Symptoms can persist in those who are untreated, with remittance and episodes of relapse, usually lasting from 10 to 24 days in immunocompetent individuals. Symptoms

can last much longer in immunocompromised individuals. The recommended treatment is the antibiotic trimethoprim-sulfamethoxazole, generally given for 7 to 10 days.¹

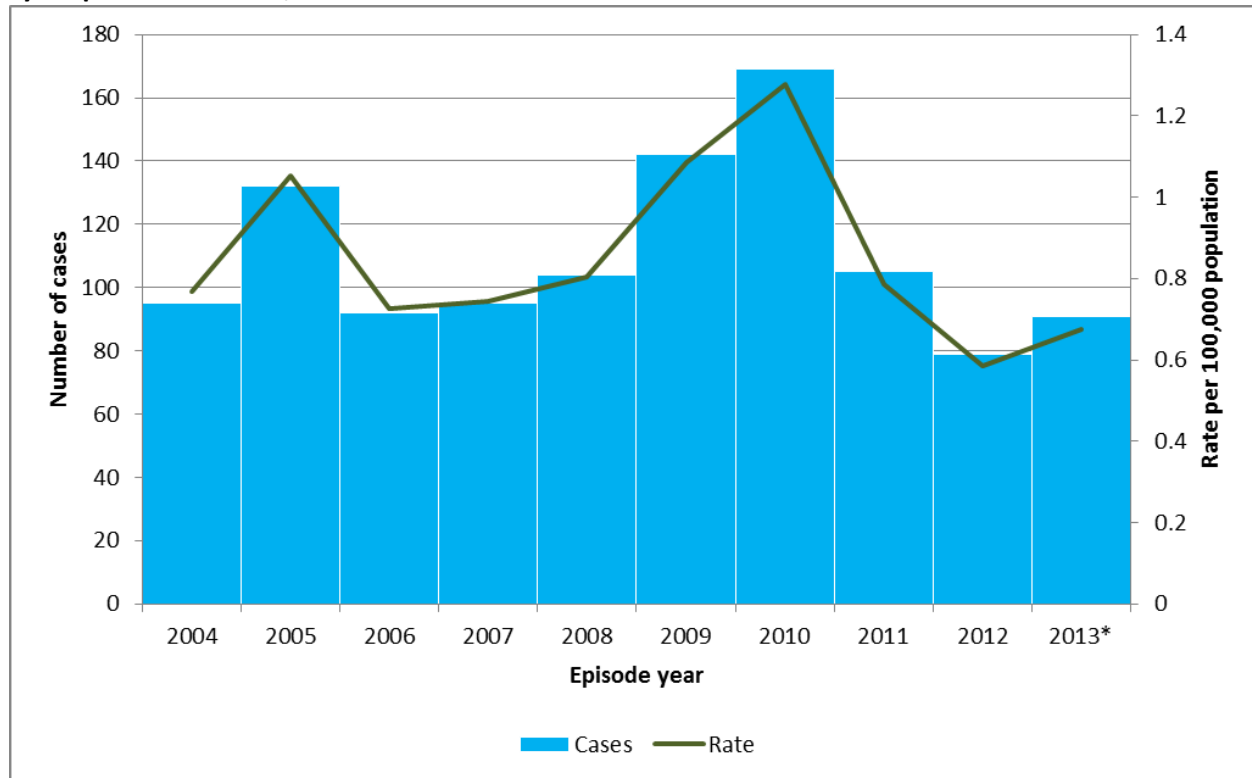
The incubation period is approximately seven days but can range from 2 to 14 days.² A Peruvian study showed the mean duration of organism shedding was 23 days in children. *Cyclospora* oocysts in freshly excreted stool are not infectious. The oocysts require days to weeks outside the host to become infective.¹

Cyclosporiasis is most common in tropical and sub-tropical countries, where asymptomatic infections can occur. It has also been associated with diarrhea in travelers to Asia, the Caribbean, and Latin America.¹ In these regions, transmission can be foodborne or waterborne, such as through consumption of contaminated fresh fruits or vegetables or through drinking or swimming in contaminated water.

Cyclospora is not known to be endemic in Canada. Cases in Canada are acquired either through travel to an endemic country or via imported contaminated food. Foodborne outbreaks of cyclosporiasis in Canada are most commonly associated with consumption of contaminated fruits and vegetables such as fresh basil, mesclun lettuce, blackberries, and raspberries imported from countries where *Cyclospora* is common.³

Cyclosporiasis became reportable in Ontario in 2001. From 2004 to 2013, peaks of interest in the provincial incidence rate occurred in 2005, 2009, and 2010 (Figure 1). The increase in 2005 was due to a local outbreak linked to the consumption of fresh basil used to make pesto. The 2009 increase was attributed to a restaurant outbreak. Berries were suspected, but ultimately not confirmed as the source. The 2010 increase was due to a local outbreak of fresh basil that was an ingredient in a cool pesto crunch, a gourmet sandwich made with cucumber and basil pesto. Seasonal increases in cyclosporiasis are typically observed in warmer months, with the majority of cases occurring from April to July (Figure 2). During this period in 2013, 64 (70.3%) cases were reported.

Figure 1. Reported number of cases and incidence rate (per 100,000 population) of confirmed cases of cyclosporiasis: Ontario, 2004-2013



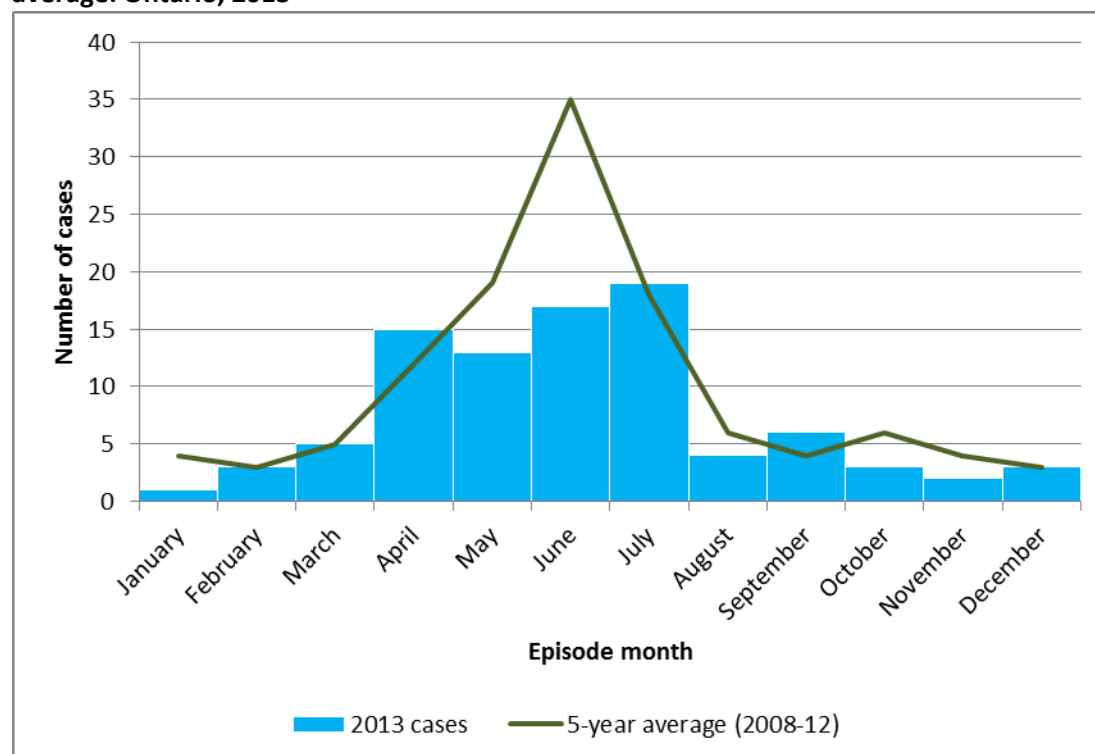
Data sources:

Cases: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2014/04/21].

Population estimates [2004-2012]: Ontario Ministry of Health and Long-Term Care, IntelliHEALTH Ontario, extracted [2013/09/16].

*The population estimate for 2012 was used to calculate the 2013 rate.

Figure 2. Number of confirmed cyclosporiasis cases by month compared to five-year historical average: Ontario, 2013



Data source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2014/04/21].

In 2013, a total of 91 confirmed cases of cyclosporiasis were reported in Ontario, which corresponds to an incidence rate of 0.67 cases per 100,000 population (Figure 1). Of the 91 confirmed cases of cyclosporiasis reported in 2013, 54 (59.3%) were female. Cases ranged in age from 5 to 88 years, with a median age of 50 years. Age-specific incidence rates were highest among adults 40 to 59 years of age ($n = 39$, 1.0 cases per 100,000 population) and over 60 years of age ($n = 25$, 0.9 cases per 100,000 population). Among all health units, the highest number of cases were reported in the City of Toronto ($n = 23$, 0.8 cases per 100,000 population) and Peel Region ($n = 10$, 0.7 cases per 100,000 population). All other health units reported less than ten cases. One case (1.1%) reported hospitalization and there were no deaths in cases with cyclosporiasis reported as the underlying or contributing cause of death.

Of the 91 cases reported in 2013, risk factor information was available for 85 (93.4%) cases. Of cases reporting at least one risk factor, the most commonly reported risk factor was travel outside Ontario in the seven days prior to exposure ($n = 58$, 68.2%). Other commonly reported risk factors included consumption of raw unwashed fruits or vegetables ($n = 34$, 40.0%), recreational water contact ($n = 30$, 35.3%), consumption of unwashed berries ($n = 26$, 30.6%), consumption of potentially contaminated water ($n = 25$, 29.4%), and consumption of fresh herbs ($n = 21$, 24.7%). *Cyclospora* is not naturally found in or on fresh fruits and vegetables, or any other foods. Contamination is thought to occur during cultivation, harvesting, packaging or transportation through contact with contaminated water or infected workers.³

For prevention and control of cyclosporiasis, produce should be washed thoroughly before it is eaten, although this practice will not eliminate the risk of cyclosporiasis.¹ Thoroughly cooking or baking fruits and vegetables will eliminate the risk of infection. Freezing fruits and vegetables may also kill parasites.³ Travelers, especially to developing countries, should avoid fruits and vegetables that cannot be peeled or cooked, and should drink water from a safe (treated or boiled) source. Hand washing prior to eating is general good practice.

References:

1. Heymann DL. Control of Communicable Diseases Manual. 19th ed. Washington, D.C.: American Public Health Association; 2008.
2. Pickering LK, Kimberlin DW, Long SS, McMillan JA, editors. Red book: 2012 report of the Committee on Infectious Diseases. 29th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2012. Section 3, Summaries of infectious diseases; p. 471-4.
3. Canadian Food Inspection Agency. Food Safety Facts on *Cyclospora*; 2002 [cited 2009 Feb 3]. Available from: <http://www.inspection.gc.ca/english/fssa/concen/cause/cyclospora.html>.

SIGNIFICANT REPORTABLE DISEASE ACTIVITY

Table 1 provides a list of reportable diseases for which incidence in 2014 was significantly higher ($p < 0.05$) than expected compared to the five-year historical average (2009-2013). Both monthly and year-to-month (YTM) comparisons were made for each of the reportable diseases listed in Appendix 1.

Table 1. Summary of statistically significant increases in reportable disease incidence: Ontario, January 1 to April 30, 2014

Reportable disease	2014				Historical comparisons						5-year avg annual count (2009-2013)
	Apr	Apr rate ‡	YTM	YTM rate ‡	Current month 5-year avg (2009-2013)	Current month 5-year avg (2009-2013) rate ‡	% difference in rates (current month minus 5-year avg) †	YTM 5-year avg (2009-2013)	YTM 5-year avg (2009-2013) rate ‡	% difference in rates (YTM 2014 minus YTM 5-year avg) †	
Gonorrhoea (All Types) ^{1,2}	433	31.6	1757	126.9	320	23.9	31.9	1301	97.3	30.4	4070
Group A Streptococcal Disease, Invasive ^{1,2}	71	6.1	310	22.4	53	4.0	53.1	235	17.6	27.3	585
Influenza ^{1,2}	1745	105.5	7249	523.6	338	25.3	317.5	3182	238.0	120.0	7329
Measles ^{1,2}	7	0.7	19	1.4	0	0.0	4246.0	2	0.2	734.1	8
Salmonellosis ¹	219	15.2	934	67.5	212	15.8	-4.2	808	60.4	11.7	2632

Ontario Cases: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2014/05/14].

Population Estimates [2009-2012], Ontario Ministry of Health and Long-Term Care, IntelliHEALTH Ontario, Date Extracted: [2013/09/16].

Population Projections [2013-2014], Ontario Ministry of Health and Long-Term Care, IntelliHEALTH Ontario, Date Extracted: [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 April 30, 2014) compared to the five-year historical average (January 1 to April 30, 2009-2013), using a likelihood ratio test.

² Statistically significant difference ($p < 0.05$) in incidence reported in current month (April 2014) compared to the five-year historical average (April 2009-2013), using a likelihood ratio test.

GONORRHOEA (ALL TYPES)

Statistically significant increases in the monthly and/or YTM incidence of laboratory-confirmed gonorrhea in Ontario, in comparison to corresponding monthly/YTM historical five-year averages, have been noted since September 2013, as identified in the [November 2013](#) issue of this report. The [March 2014](#) issue of this report provides a summary of possible reasons for this increase. The increase has been more pronounced in some health units and Public Health Ontario is following up to investigate.

GROUP A STREPTOCOCCAL DISEASE, INVASIVE

There was a significant increase in the monthly and YTM incidence of laboratory-confirmed invasive Group A Streptococcus (iGAS) cases reported in Ontario in April 2014. A provincial iGAS summary was produced in January 2014 and distributed to health units. The report documented that the annual incidence of iGAS cases reported in Ontario has been gradually increasing since 2008. The age and sex distribution of iGAS cases in Ontario has not changed substantially compared to previous years. The reason for the overall increase in iGAS in Ontario over this period is not fully understood. PHO is working with a number of health units to further investigate reasons for the increases.

INFLUENZA

The YTM incidence rate of reported laboratory-confirmed influenza cases for January 1 to April 30, 2014 was significantly higher than the historical five-year (2009-2013) average YTM rate for the same period.

During the 2013/2014 season in Ontario, influenza A activity peaked in late December and early January, and then declined. Influenza B activity began to rise around mid-January 2014. The dominant circulating influenza type switched from influenza A to B at the beginning of March 2014, and influenza B activity peaked in early to mid-April. The resulting combination of above average counts and rates of influenza A and influenza B led to the significantly higher YTM rate for January 1 to April 30, 2014 as compared to the historical five-year average.

The influenza surveillance season begins in September and in general, most influenza activity occurs from November to the following April; however, the start of each influenza season, intensity, and the timing of peak activity varies from year to year. In addition to differences due to season severity, differences in counts and rates of laboratory-confirmed cases may be affected by the amount of testing performed and the laboratory tests used.

For more information about the current influenza season, please see the [Ontario Respiratory Virus Bulletin](#), which is published weekly during the influenza season and bi-weekly in the summer. It provides detailed surveillance information on influenza and other respiratory pathogens in Ontario.

MEASLES

Statistically significant increases in the monthly and YTM incidence of confirmed measles cases in Ontario, in comparison to the corresponding monthly/YTM historical five-year averages, have been reported for the second consecutive month. Please refer to the [May 2014](#) issue of this report for further details. Further information on measles can be found in the measles [Ontario Health Profile](#) infographic.

SALMONELLOSIS

The year-to-month (YTM) incidence rate of salmonellosis for January 1 to April 30, 2014 was significantly higher than the five-year historical YTM average (2009-2013). As of May 22, 2014, a total of 955

Salmonella cases have been reported in Ontario in 2014, of which *Salmonella* Enteritidis accounted for the majority of cases (n = 445, 46.6%), followed by *S. Heidelberg* (n = 108, 11.3%). Of the 445 *S. Enteritidis* cases, phage type (PT) 8 was the most frequently reported (29.9%), followed by atypical PT ATEN-16 (18.7%), PT 5b (8.1%), PT 35 (7.9%), atypical PT with ATEN typing not available (32, 7.2%), and PT 13 (7.0%). The overall increase in salmonellosis cases appears to be mainly due to travel-related cases. Of the 757 (79.3%) salmonellosis cases reporting behavioural risk factors, the most commonly reported risk factor was travel outside the province in the last three days (n = 345, 45.6%). More specifically, the majority of *S. Enteritidis* atypical PT ATEN-16 (n = 71, 93.4%), PT 5b (n = 30, 88.2%), atypical PT with ATEN typing not available (n = 23, 82.1%), and PT 35 (n = 23, 74.2%) cases reported travel. However, the majority of *S. Enteritidis* PT 8 (n = 91, 90.1%) and PT 13 (n = 20, 90.9%) cases reported a domestic exposure. In May 2014, Public Health Ontario (PHO) began piloting a provincial standardized questionnaire for salmonellosis, which is expected to provide more complete exposure and risk factor information for participating health units. The questionnaire is expected to be implemented province-wide in the summer of 2014.

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.

MUMPS OUTBREAK IN OHIO

Summary:

Central Ohio is currently experiencing a large outbreak of mumps. As of May 21, 2014, 376 confirmed and probable cases of mumps have been reported in 2014. The outbreak is predominantly associated with Ohio State University (OSU) in Columbus, and represents the second university outbreak of mumps in the United States in 2014 (the first being at Fordham University in New York). While more than 200 cases have been epidemiologically-linked to OSU, the outbreak has since spread to the surrounding counties of Franklin, Madison, and Delaware. Cases range in age from four months to 80 years, 62% of whom are female. Several cases have been hospitalized (n=11) and complications have developed among some cases, including orchitis, oophoritis, and deafness; no deaths have been reported. Columbus Public Health is offering free measles-mumps-rubella (MMR) vaccine during the outbreak, and officials are urging high-risk individuals and those who may not be fully immunized to get vaccinated.

Implications for Ontario:

Although uncommon, mumps cases continue to occur in Canada; and Ontario, similar to other Canadian jurisdictions, has experienced outbreaks of mumps. These outbreaks have predominantly occurred among adults who may be too young to have been naturally exposed to the virus, and too old to have received two doses of mumps-containing vaccine through routine immunization programs. In Ontario, a

second dose of MMR vaccine aimed at measles control was introduced into the publicly-funded program for children aged 4 to 6 years, thus leaving a cohort of individuals born between approximately 1980 and 1992 who may be susceptible to mumps. In 2009, Ontario experienced a large mumps outbreak involving 134 cases across several health units; individuals born between 1985 and 1991 were overrepresented in the outbreak relative to the provincial population. The existence of a susceptible cohort in combination with sub-optimal vaccine coverage and waning immunity may contribute to the risk of future outbreaks in Ontario.

Sources:

1. <http://columbus.gov/Templates/Detail.aspx?id=69188>
2. <http://www.cdc.gov/mumps/outbreaks.html#outbreaks-2014>
3. <http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/10vol36/36s1/index-eng.php>
4. Deeks SL, Lim GH, Simpson MA, and Gagné L. An assessment of mumps vaccine effectiveness by dose during an outbreak in Canada. CMAJ 2011. DOI:10.1503/cmaj.101371. Available from: <http://www.cmaj.ca/content/early/2011/05/16/cmaj.101371>.

RECENTLY DISCONTINUED ENHANCED SURVEILLANCE DIRECTIVES

There have been no recently discontinued Enhanced Surveillance Directives to report.

Appendix – Reportable Diseases

Appendix 1. Confirmed cases of reportable diseases, and probable cases of select reportable diseases, by month: Ontario, 2009-2014*

Reportable disease	2014													Historical comparisons							5-year avg (2009-2013) annual count
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTM	YTM rate ‡	Current month 5-year avg (2009-2013)	Current month 5-year avg (2009-2013)	% difference rates (current month minus 5-year avg)†	YTM 5-year avg (2009-2013)	YTM 5-year avg (2009-2013) rate ‡	% difference rates (YTM 2014 minus YTM 5-year avg)†	
Acute Flaccid Paralysis	0	0	0	0	-	-	-	-	-	-	-	-	0	0	0	0	-	0	0	-	0
AIDS	1	1	4	7	-	-	-	-	-	-	-	-	13	0.9	7	0.6	-48	41	3.1	-70	107
Amebiasis	45	63	57	51	-	-	-	-	-	-	-	-	216	15.6	72	5.4	-32	279	20.9	-25	804
Botulism	0	0	0	0	-	-	-	-	-	-	-	-	0	0.0	1	0.0	-100	1	0.1	-100	2
Brucellosis	0	0	0	0	-	-	-	-	-	-	-	-	0	0.0	0	0.0	-100	1	0.1	-100	5
Campylobacter Enteritis	228	194	219	182	-	-	-	-	-	-	-	-	823	59.4	208	15.6	-8	810	60.5	-2	3,595
Chlamydial Infections	3,103	2,701	2,831	2,899	-	-	-	-	-	-	-	-	11,534	833.1	2,803	209.6	-4	11,377	850.9	-2	33,982
Cholera	0	0	0	0	-	-	-	-	-	-	-	-	0	0.0	0	0.0	-	0	0.0	-100	0
Cryptosporidiosis	14	15	16	9	-	-	-	-	-	-	-	-	54	3.9	17	1.3	-17	67	5.0	-23	311
Cyclosporiasis	2	2	3	4	-	-	-	-	-	-	-	-	11	0.8	12	0.9	-92	24	1.8	-56	117
Encephalitis	4	0	0	1	-	-	-	-	-	-	-	-	5	0.4	1	0.1	-100	6	0.4	-14	19
Encephalitis/Meningitis	13	8	8	9	-	-	-	-	-	-	-	-	38	2.7	9	0.6	-10	32	2.4	13	142
Food Poisoning, All Causes	4	0	7	1	-	-	-	-	-	-	-	-	12	0.9	5	0.3	26	26	2.0	-56	89
Giardiasis	86	80	80	56	-	-	-	-	-	-	-	-	302	21.8	100	7.5	-38	427	32.0	-32	1,385
Gonorrhoea (All Types)	484	395	445	433	-	-	-	-	-	-	-	-	1,757	126.9	320	23.9	32	1,301	97.3	30	4,070
Group A Streptococcal Disease, Invasive	82	73	84	71	-	-	-	-	-	-	-	-	310	22.4	53	4.0	53	235	17.6	27	585
Group B Streptococcal Disease, Neonatal	6	6	3	2	-	-	-	-	-	-	-	-	17	1.2	4	0.3	-31	16	1.2	3	54
Haemophilus Influenzae B Disease, Invasive	0	0	2	0	-	-	-	-	-	-	-	-	2	0.1	1	0.0	222	2	0.1	21	4
Hepatitis A	5	7	10	3	-	-	-	-	-	-	-	-	25	1.8	9	0.6	1	39	2.9	-38	117
Hepatitis B	18	10	5	9	-	-	-	-	-	-	-	-	42	3.0	10	0.8	-44	41	3.0	0	115
Hepatitis C	351	335	381	371	-	-	-	-	-	-	-	-	1,438	103.9	364	27.3	-4	1,463	109.4	-5	4,335
HIV	45	46	55	47	-	-	-	-	-	-	-	-	193	13.9	76	5.7	-27	282	21.1	-34	814
Influenza	2,916	1,055	1,533	1,745	-	-	-	-	-	-	-	-	7,249	523.6	338	25.3	317	3,182	238.0	120	7,329
Legionellosis	7	1	3	3	-	-	-	-	-	-	-	-	14	1.0	3	0.2	-26	16	1.2	-14	160
Leprosy	0	0	0	0	-	-	-	-	-	-	-	-	0	0.0	0	0.0	-100	1	0.1	-100	3
Listeriosis	2	2	3	4	-	-	-	-	-	-	-	-	11	0.8	3	0.2	-26	13	0.9	-16	52
Lyme Disease	1	1	5	2	-	-	-	-	-	-	-	-	9	0.7	5	0.3	-37	11	0.8	-21	173
Malaria	15	12	7	13	-	-	-	-	-	-	-	-	47	3.4	13	1.0	-64	52	3.9	-13	220
Measles	1	2	9	7	-	-	-	-	-	-	-	-	19	1.4	0	0.0	4,246	2	0.2	734	8
Meningitis	6	7	8	5	-	-	-	-	-	-	-	-	26	1.9	9	0.7	-36	29	2.2	-15	115
Meningococcal Disease, Invasive	5	3	5	0	-	-	-	-	-	-	-	-	13	0.9	3	0.2	72	16	1.2	-22	40
Mumps	1	0	0	0	-	-	-	-	-	-	-	-	1	0.1	4	0.3	-100	22	1.6	-96	67
Ophthalmia Neonatorum	0	1	0	0	-	-	-	-	-	-	-	-	1	0.1	1	0.1	-100	1	0.1	-31	3
Paralytic Shellfish Poisoning	0	0	0	0	-	-	-	-	-	-	-	-	0	0.0	0	0	-	0	0	-	0
Paratyphoid Fever	4	0	2	4	-	-	-	-	-	-	-	-	10	0.7	6	0.5	-69	24	1.8	-60	48
Pertussis (Whooping Cough)	8	6	9	12	-	-	-	-	-	-	-	-	35	2.5	35	2.6	-83	113	8.5	-70	422
Q Fever	1	2	0	1	-	-	-	-	-	-	-	-	4	0.3	2	0.1	-100	3	0.2	21	13
Rabies	0	0	0	0	-	-	-	-	-	-	-	-	0	0.0	0	0.0	-100	0	0.0	-100	0
Rubella	0	0	1	0	-	-	-	-	-	-	-	-	1	0.1	1	0.0	61	1	0.1	-20	1
Rubella, Congenital Syndrome	0	0	0	0	-	-	-	-	-	-	-	-	0	0.0	0	0.0	-	0	0.0	-	0
Salmonellosis	235	228	252	219	-	-	-	-	-	-	-	-	934	67.5	212	15.8	-4	808	60.4	12	2,632
Shigellosis	26	23	20	18	-	-	-	-	-	-	-	-	87	6.3	21	1.6	-22	82	6.1	3	257
Streptococcus Pneumoniae, Invasive	114	86	86	95	-	-	-	-	-	-	-	-	381	27.5	128	9.5	-41	482	36.8	-25	1,205
Syphilis, Early Congenital	0	0	0	0	-	-	-	-	-	-	-	-	0	0.0	0	0.0	-	0	0.0	-100	1
Syphilis, Infectious	58	38	56	18	-	-	-	-	-	-	-	-	170	12.3	61	4.6	-50	262	19.6	-37	776
Syphilis, Other	39	28	39	35	-	-	-	-	-	-	-	-	141	10.2	70	5.2	-51	271	20.2	-50	766
Tetanus	0	0	0	0	-	-	-	-	-	-	-	-	0	0.0	0	0.0	-100	1	0.1	-100	1
Tuberculosis	31	39	49	45	-	-	-	-	-	-	-	-	164	11.8	58	4.3	-21	208	15.5	-24	638
Tularemia	0	0	0	0	-	-	-	-	-	-	-	-	0	0.0	0	0.0	-	0	0.0	-	1
Typhoid Fever	6	11	3	5	-	-	-	-	-	-	-	-	25	1.8	7	0.5	-31	34	2.6	-30	83
Verotoxin Producing E. Coli Including HUS	7	6	4	2	-	-	-	-	-	-	-	-	19	1.4	10	0.7	-70	32	2.4	-42	181
West Nile Virus Illness	0	0	0	0	-	-	-	-	-	-	-	-	0	0.0	0	0.0	-100	0	0.0	-100	84
Yellow Fever	0	0	0	0	-	-	-	-	-	-	-	-	0	0.0	0	0.0	-	0	0.0	-100	0
Yersiniosis	10	10	14	12	-	-	-	-	-	-	-	-	46	3.3	17	1.3	-48	76	5.7	-41	199

Ontario Cases: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2014/05/14].

Population Estimates [2009-2012], Ontario Ministry of Health and Long-Term Care, IntelliHEALTH Ontario, Date Extracted: [2013/09/16].

Population Projections [2013-2014], Ontario Ministry of Health and Long-Term Care, IntelliHEALTH Ontario, Date Extracted: [2014/04/11].

* 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.

Note 1: Does not include cases in 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'.

Note 2: Case counts for tuberculosis and AIDS are based on diagnosis date and not episode date. HIV case counts are based on encounter date.

Note 3: Differentials in year over year comparisons are reflective of changes in disease incidence and changes in the size of the population.

Note 4: Measles, rubella, and congenital rubella syndrome have been eliminated from Canada. However, as these diseases remain endemic in other countries, imported and import-related cases continue to occur in Ontario.

Note 5: Statistical tests comparing rates were not performed when the YTM rate in previous years was zero.

Note 6: Acute Flaccid Paralysis and Paralytic Shellfish Poisoning became reportable in Ontario in December 2013. No historical data is available.