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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: SurveillanceServices@oahpp.ca. Past issues and additional information are available online.

INFECTIOUS DISEASE IN FOCUS

Hepatitis C

Hepatitis C is a blood-borne infection that affects the liver and is caused by the hepatitis C virus (HCV). HCV is a flavivirus with six known genotypes. Genotype 1 is the most common genotype found in Canada.[1] HCV can be transmitted through percutaneous or mucous membrane exposure to the virus.[2] Humans are the only known reservoir for HCV.[2]

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In the past, HCV was acquired through the receipt of contaminated blood and blood products. This source of infection has become extremely rare with the evolution of blood donor screening. Sharing injection drug equipment is now the most common risk factor associated with the acquisition of hepatitis C.[1] Hepatitis C can also be transmitted through sharing of personal items such as razors and toothbrushes, or any sharp item that has been exposed to the blood of an individual infected with HCV.[1] Sexual transmission occurs infrequently and the risk is increased in those with HIV or other sexually transmitted infections, or those engaging in high risk sexual practices.[1] Perinatal transmission occurs in approximately 5 to 6% of births; the risk increases if the mother is also HIV positive.[3] Breastfeeding is not considered to result in HCV transmission, however breastfeeding mothers with HCV are advised to abstain if their nipples are cracked or bleeding.[3]

Up to 90% of cases of hepatitis C are asymptomatic.[1] Symptoms can take anywhere from two weeks to six months (average six to nine weeks) to occur in individuals exposed to HCV, if they develop symptoms at all.[2] Symptoms associated with a hepatitis C infection are non-specific and include nausea, vomiting, abdominal pain, and jaundice.[2] Once infected with HCV, the majority of individuals (75 to 85%) progress to become chronic carriers and remain able to transmit HCV to others.[4] Individuals who are able to spontaneously clear the virus usually do so within six months of acquiring infection.[1] Once the virus has been cleared, these individuals are not able to transmit the infection to others, but are once again susceptible, and can become re-infected with HCV. Among chronic carriers, the disease may progress to developing cirrhosis or liver cancer in up to 50% of individuals.[2] Due to the liver damage caused by HCV, hepatitis C infection is the most common cause of liver transplants.[5] The identified sequelae associated with chronic HCV carriers often leads to premature mortality and reduced functioning. These factors have resulted in hepatitis C being identified as the most burdensome infectious disease in Ontario in terms of morbidity and mortality.[5]

For individuals who do become chronic carriers of HCV, treatment options are available; these options have improved over time. Treatments are now relatively shorter, with fewer side effects and improved viral clearance. Unfortunately, the newer treatments are more expensive than previous treatment options.[1] Successfully treated individuals are no longer infectious and are no longer at risk of developing the sequelae associated with chronic HCV infections.[1]

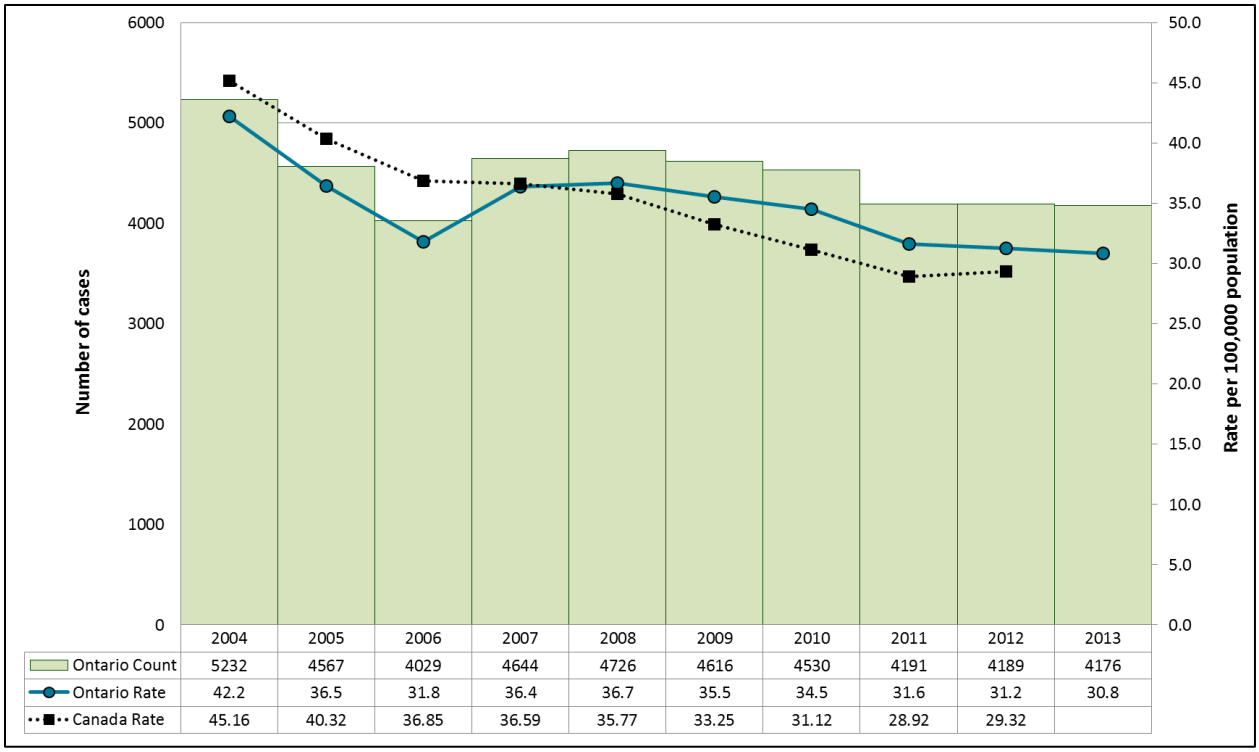
Individuals undergoing testing for HCV are initially tested for the presence of the HCV antibody. A positive antibody result indicates that an individual has been exposed to HCV.[6] However, this laboratory test does not distinguish between newly acquired, chronic, and resolved infections. Due to the potential for spontaneous viral clearance and successful HCV treatment, not all individuals who have been exposed to HCV remain infectious.[1] To determine whether an individual remains communicable to others, individuals positive for the HCV antibody should be tested for the presence of HCV RNA.[6] Those found to be positive for HCV RNA have an active acute or chronic infection and can transmit HCV to others.[1] Individuals who have spontaneously cleared the virus or were successfully treated for hepatitis C remain HCV antibody positive, but become HCV RNA negative.

In 2013, 4,176 hepatitis C infections were reported in Ontario, representing 30.8 cases per 100,000 population. It should be noted that cases reported in a given year are individuals who are newly

diagnosed with hepatitis C, however infection could have occurred many years prior to diagnosis. From 2004 to 2013, the incidence of reported cases of hepatitis C in Ontario demonstrated an overall decrease, in parallel with a similar decreasing trend in the incidence of reported cases of hepatitis C nationally. However, the annual incidence of reported cases in Ontario has been higher than the rest of Canada since 2008 (national data only available to 2012) (Figure 1).

Hepatitis C is more commonly reported among males, accounting for 62.7% (2,618/4,176) of hepatitis C cases reported in Ontario in 2013. The sex-specific incidence for males was 39.4 cases per 100,000 population, compared to 22.5 cases per 100,000 population among females. Overall, the incidence of hepatitis C was highest among those 25–29 and 50–59 years of age, with a median age of 45 years for cases reported in 2013. Among males, the highest incidence was reported in the 50–59 year age group at 69.4 cases per 100,000 population; among females, the incidence was highest in the 25–29 year age group at 43.9 cases per 100,000 population.

Figure 1. Incidence of reported cases of hepatitis C: Ontario and Canada, 2004–2013



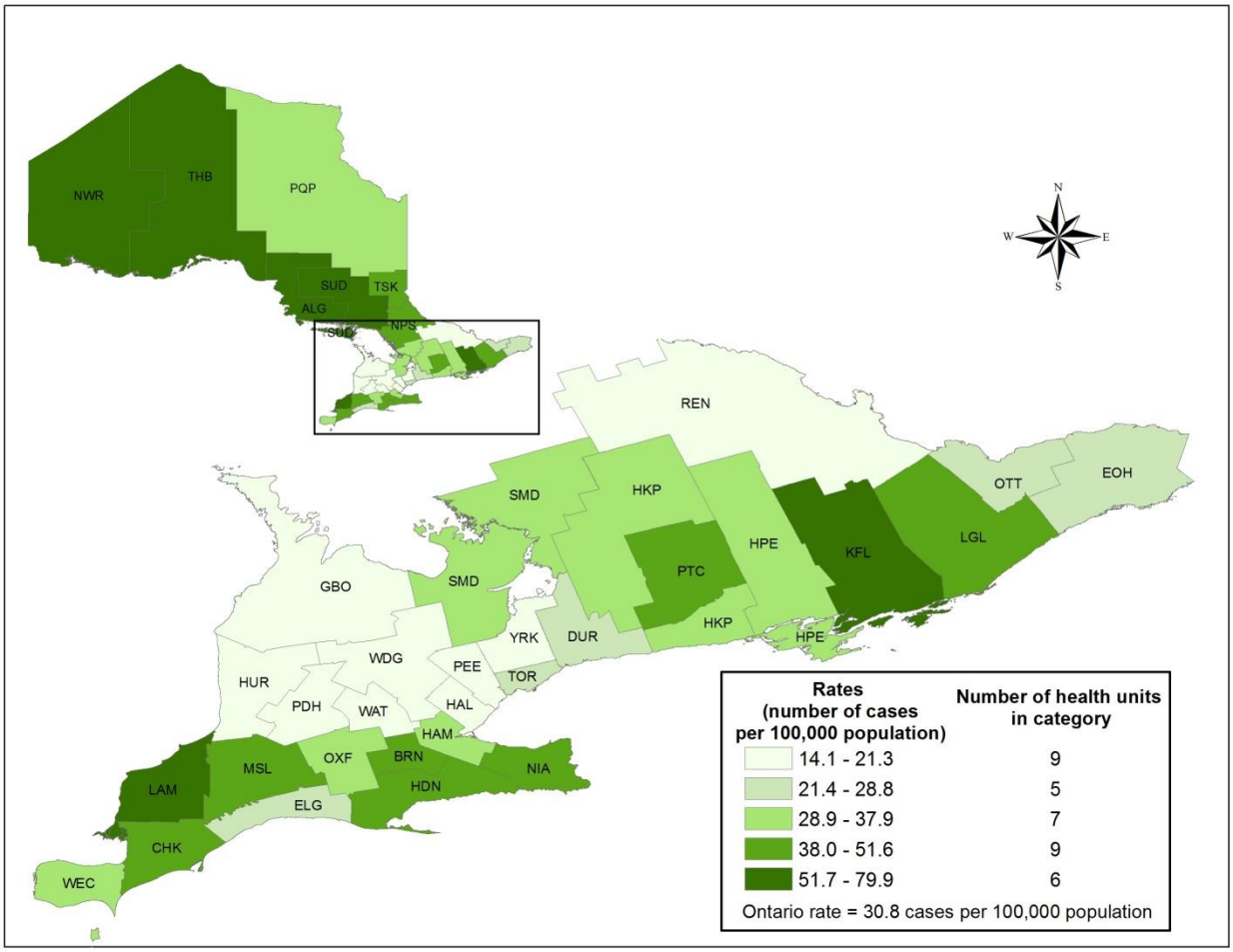
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Ontario Count	5232	4567	4029	4644	4726	4616	4530	4191	4189	4176
Ontario Rate	42.2	36.5	31.8	36.4	36.7	35.5	34.5	31.6	31.2	30.8
Canada Rate	45.16	40.32	36.85	36.59	35.77	33.25	31.12	28.92	29.32	

Data sources:

Ontario Cases: Ontario Ministry Of Health and Long-Term Care (MOHLTC), integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario (PHO) [2014/11/05].
Ontario Population: Population Estimates [2004-2013], Statistics Canada, distributed by MOHLTC, received [2014/07/03].
Canadian Rates: Public Health Agency of Canada, Canadian Notifiable Disease Section, received by PHO [2014/07/15]; national data available up to 2012.

In terms of geographic distribution, all health units reported cases of hepatitis C. In general, health units in northern Ontario had higher incidence rates than those in southern Ontario. The highest reported incidence rates among public health units in Ontario were reported by Thunder Bay (THB), followed by Kingston, Frontenac Lennox & Addington (KFL), and Northwestern (NWR) with 79.9, 78.1, and 70.3 cases per 100,000 population, respectively (Map 1).

Map 1. Incidence of reported cases of hepatitis C by public health unit of residence: Ontario, 2013



Data sources:

Ontario Cases: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2014/11/05].

Ontario Population: Population Estimates [2013], Statistics Canada, distributed by MOHLTC, received [2014/07/03].

Overall, 72.1% (3,012/4,176) of hepatitis C cases had a risk factor or exposure entered in the integrated Public Health Information System (iPHIS), of which 57.4% (1,729/3,012) of cases reported injection drug use. Nine cases under the age of one were reported, as well as an additional 15 cases with the risk factor 'Client born to case or carrier' entered in iPHIS, likely reflecting mother-to-child transmission.

Currently, based on the Ontario hepatitis C case definition, individuals who are positive for the HCV antibody are counted as confirmed cases in Ontario. However, some of these individuals may have cleared their infection either spontaneously or with treatment and so will be HCV RNA negative. This results in an over-estimate of the number of infectious cases of HCV in Ontario.[1] On the other hand, the incidence of reported cases of hepatitis C can also be an underestimate of true incidence because more than 90% of initial infections are asymptomatic, remaining undiagnosed for a long period of time.[2] The Provincial Infectious Diseases Advisory Committee (PIDAC) – Hepatitis C Working Group developed the *Public Health Response to Hepatitis C in Ontario* document which recommends that the provincial case definition for HCV be re-evaluated to address these issues.

The *Public Health Response to Hepatitis C in Ontario* and *A Proposed Strategy to Address Hepatitis C in Ontario* (Ontario Hepatitis C Strategy) documents guide Ontario's provincial response to hepatitis C. The Ontario Hepatitis C Strategy produced by the Ontario Hepatitis C Task Force and endorsed by the Ministry of Health and Long-Term Care (MOHLTC) was developed to enhance prevention efforts and support individuals living with hepatitis C. The Ontario Hepatitis C Strategy promotes hepatitis C care and treatment through enhanced services and supports, education, outreach, and improved coordination. The PIDAC recommendations in the *Public Health Response to Hepatitis C in Ontario* document were developed with the Ontario Hepatitis C Strategy taken into consideration. The PIDAC document contains comprehensive recommendations to the MOHLTC, Public Health Ontario, and local public health units to guide the response to hepatitis C in Ontario through: improved screening and testing, surveillance, case management, harm reduction, public education, and attention to specific high-risk populations.

There are currently no vaccines available to prevent hepatitis C infection. Prevention efforts focus on harm reduction strategies to reduce the risk of blood borne exposure among people who use injection drugs. Under the Ontario Public Health Standards, public health units in Ontario are required to offer harm reduction services, including the provision of sterile needles and syringes in an effort to prevent HCV transmission, as well as the transmission of HIV and hepatitis B.[7] Additionally, public health units are required to provide education and testing to those at risk of HCV.[8] Other prevention efforts include counselling individuals with HCV regarding not to share personal care items and the provision of condoms. To reduce the chances of liver damage, those with HCV should be vaccinated against hepatitis A and B and counselled about avoiding alcohol and medications that are toxic to the liver. As well, treatment options should be discussed with people infected with HCV.

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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, with the exception of influenza, measles, rubella, and congenital rubella syndrome. Influenza surveillance data are regularly reported through the Ontario Respiratory Virus Bulletin and the Laboratory-based Respiratory Pathogen Surveillance Report. 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 October 31, 2014

Reportable disease	2014				Historical comparisons						5-year avg annual count (2009-2013)
	Oct	Oct rate ŧ	YTM	YTM rate ŧ	Current month 5-year avg (2009-2013)	Current month 5-year avg (2009-2013) rate ŧ	% difference in rates (current month minus 5-year avg)†	YTM 5-year avg (2009-2013)	YTM 5-year avg (2009-2013) rate ŧ	% difference in rates (YTM 2014 minus YTM 5-year avg)†	
Chlamydial Infections[2]	3309	239.0	30078	2172.5	2994	225.6	5.9	28564	2152.6	0.9	33992
Gonorrhoea (All Types)[1,2]	522	37.7	4851	350.4	368	27.7	36.1	3390	255.4	37.2	4072
Group A Streptococcal Disease, Invasive[1]	30	2.2	616	44.5	36	2.7	-19.7	480	36.2	23.0	585
Salmonellosis[1]	194	14.0	2616	189.0	192	14.5	-3.4	2297	173.1	9.1	2633

Ontario Cases: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2014/11/19].
Ontario Population: Population Estimates [2009-2013]: Statistics Canada, distributed by Ministry of Health and Long-Term Care, received [2014/07/03]. Population Projections [2014]: Ontario Ministry of Health and Long-Term Care, IntelliHEALTH Ontario, extracted by PHO [2014/04/11].
ŧ 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 October 31, 2014) compared to the five-year historical average (January 1 to October 31, 2009-2013), using a likelihood ratio test.
[2] Statistically significant difference ($p<0.05$) in incidence reported in current month (October 2014) compared to the five-year historical average (October 2009-2013), using a likelihood ratio test.

CHLAMYDIAL INFECTIONS

The monthly incidence of reported laboratory-confirmed chlamydial infections for October 2014 was significantly higher than the five-year (2009-2013) monthly historical average. The YTM number of chlamydial infections reported from January 1 to the end of October is also higher than the same time period in 2013, but not 2012. PHO will continue to monitor the number of chlamydia infections in subsequent months to determine whether increases noted this year represent the continuation of a trend stretching back over a decade (with the exception of 2013).

GONORRHEA (ALL TYPES)

Statistically significant increases in the monthly and YTM incidence of laboratory-confirmed gonorrhea have been noted since September 2013 in comparison to five-year historical averages. The YTM number of gonorrhea infections reported to the end of October is the largest in more than a decade. PHO continues to investigate and additional analyses will be completed over the coming months. A summary of these analyses will be shared in the Infectious Disease In Focus section of the February 2015 monthly report.

GROUP A STREPTOCOCCAL DISEASE, INVASIVE

There continued to be a significant increase in the YTM incidence of laboratory-confirmed invasive group A Streptococcus (iGAS) cases reported in Ontario from January 1 to October 31, 2014 over the five-year average of iGAS cases during the same 10 month period. This increase in the YTM incidence has been largely driven by elevated monthly iGAS cases reported from January to July of this year. The age and sex distribution of iGAS cases in Ontario has not changed substantially compared to previous years. The reasons for the increase in the cumulative number of iGAS cases reported in Ontario in 2014 have not been identified, however the number of cases reported in September and October was lower than the five-year average for both of those months.

SALMONELLOSIS

Statistically significant increases in the YTM incidence rate of salmonellosis in Ontario, in comparison to the corresponding YTM historical five-year (2009-2013) averages, have been reported for the seventh consecutive month. This increase is due to outbreaks and/or increased rates of several *Salmonella* subtypes including *S*. Typhimurium related to feeder rodents, *S*. Typhimurium with a common Multiple-Locus Variable number tandem repeat Analysis (MLVA) profile of unknown cause (see below), *S.* Bovismorbificans of unknown cause, *S.* Thompson likely related to chicken consumption, several serotypes related to chia consumption, and *S.* Enteritidis, the source of which is currently unknown. PHO and partners continue to investigate the increased rates of salmonellosis using epidemiologic and laboratory methods. Further information on increases observed earlier in the year are included in the June 2014 and July 2014 issues of the report.

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 virus disease (EVD) outbreak in West Africa, and the October 2014 issue for a review of Enterovirus D68.

RECENTLY DISCONTINUED ENHANCED SURVEILLANCE DIRECTIVES

Salmonella Typhimurium

Public Health Ontario (PHO) and the Ministry of Health and Long Term Care, in collaboration with affected public health units, coordinated an investigation into an increase in *S.* Typhimurium cases with the Multiple-Locus Variable number tandem repeat Analysis (MLVA) profile 4_10_3_2_23_5_35. An Ontario Outbreak Investigation Coordinating Committee was established October 8, 2014 and an Enhanced Surveillance Directive (ESD) was issued on October 10, 2014 to assist with the timely collection of information for Ontario cases. A total of 30 MLVA-matched cases were reported in Ontario, with episode dates ranging from May 30 to October 13, 2014. The majority of cases were from Wellington-Dufferin Guelph (13 cases, 43%) and were reported among adults 20 to 29 years of age (15 cases, 50%). Seventeen of the 30 cases (57%) reported bloody diarrhea. In order to identify a possible source of the outbreak, a single interviewer approach was implemented at PHO. A common exposure, however, was not identified during case follow up. The ESD was discontinued on November 7, 2014 and the outbreak is declared over.

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 ŧ	Current month 5-year avg (2009-2013)	Current month 5-year avg (2009-2013) rate ŧ	% difference rates (current month minus 5-year avg)†	YTM 5-year avg (2009-2013)	YTM 5-year avg (2009-2013) rate ŧ	% difference rates (YTM 2014 minus YTM 5-year avg)†	
Acute Flaccid Paralysis α	0	0	0	0	0	0	1	1	10	2	-	-	**14**	1.0	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AIDS	2	3	4	4	3	7	11	7	9	6	-	-	**56**	4.0	8	0.6	-28	93	7.0	-42	108
Amebiasis	46	66	63	65	68	70	77	47	46	69	-	-	**617**	44.6	57	4.3	15	690	52.0	-14	807
Botulism	0	0	0	0	0	0	0	0	0	0	-	-	**0**	0.0	0	0.0	-	2	0.2	-100	2
Brucellosis	0	0	0	0	0	0	0	0	0	0	-	-	**0**	0.0	0	0.0	-	5	0.4	-100	5
Campylobacter Enteritis	231	197	226	200	249	396	507	445	445	321	-	-	**3,217**	232.4	332	25.0	-7	3,152	237.5	-2	3,596
Chlamydial Infections	3,120	2,716	2,870	3,005	2,879	2,911	3,106	2,889	3,273	3,309	-	-	**30,078**	2172.5	2,994	225.6	6	28,564	2,152.6	1	33,992
Cholera	0	0	0	0	0	0	0	1	0	0	-	-	**1**	0.1	0	0.0	-	0	0.0	379	0
Cryptosporidiosis	14	15	17	15	14	27	57	72	54	30	-	-	**315**	22.8	20	1.5	42	283	21.3	7	311
Cyclosporiasis	2	2	4	7	13	56	27	9	11	7	-	-	**138**	10.0	5	0.4	24	111	8.4	19	117
Encephalitis	4	0	0	1	2	2	3	0	2	2	-	-	**16**	1.2	2	0.2	-13	15	1.1	4	18
Encephalitis/Meningitis	13	9	7	10	9	14	22	25	21	11	-	-	**141**	10.2	17	1.3	-36	121	9.1	12	141
Food Poisoning, All Causes	4	1	7	1	1	2	1	0	1	1	-	-	**19**	1.4	3	0.2	-68	79	5.9	-77	90
Giardiasis	91	86	91	81	85	102	117	178	134	93	-	-	**1,058**	76.4	109	8.2	-18	1,187	89.5	-15	1,387
Gonorrhoea (All Types)	485	397	449	435	466	463	601	490	543	522	-	-	**4,851**	350.4	368	27.7	36	3,390	255.4	37	4,072
Group A Streptococcal Disease, Invasive	84	73	88	77	72	60	68	36	28	30	-	-	**616**	44.5	36	2.7	-20	480	36.2	23	585
Group B Streptococcal Disease, Neonatal	6	6	5	3	6	1	1	4	10	4	-	-	**46**	3.3	6	0.4	-34	45	3.4	-3	54
Haemophilus Influenzae B Disease, Invasive	0	0	2	0	1	0	0	0	0	0	-	-	**3**	0.2	0	0.0	-100	3	0.3	-15	4
Hepatitis A	6	7	10	3	9	4	5	8	10	6	-	-	**68**	4.9	10	0.7	-41	99	7.5	-34	117
Hepatitis B (Acute)	23	10	4	11	8	7	8	8	7	3	-	-	**89**	6.4	10	0.8	-71	97	7.3	-12	113
Hepatitis B (Chronic)	173	130	166	160	127	126	127	131	116	99	-	-	**1,355**	97.9	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Hepatitis C	359	335	374	395	347	341	328	342	396	347	-	-	**3,564**	257.4	364	27.4	-9	3,659	275.8	-7	4,341
HIV	47	48	55	54	67	50	66	67	70	75	-	-	**599**	43.3	69	5.2	5	691	52.1	-17	817
Influenza	2,917	1,067	1,547	1,799	506	33	19	3	21	47	-	-	**7,959**	574.9	747	56.3	-94	5,027	378.8	52	7,330
Legionellosis	7	2	3	2	2	12	27	29	13	13	-	-	**110**	7.9	20	1.5	-39	141	10.6	-25	161
Leprosy	0	0	1	0	0	0	0	0	0	0	-	-	**1**	0.1	0	0.0	-100	3	0.2	-68	3
Listeriosis	2	2	4	4	4	2	7	5	9	1	-	-	**40**	2.9	4	0.3	-77	45	3.4	-14	52
Lyme Disease	3	2	6	4	16	48	70	28	13	4	-	-	**194**	14.0	8	0.6	-51	164	12.4	13	174
Malaria	15	12	8	14	18	23	26	19	19	10	-	-	**164**	11.8	14	1.1	-32	193	14.5	-18	220
Measles	1	2	10	6	2	0	0	1	0	0	-	-	**22**	1.6	#	#	#	#	#	#	#
Meningitis	6	7	10	6	4	14	12	15	9	8	-	-	**91**	6.6	12	0.9	-38	99	7.5	-12	115
Meningococcal Disease, Invasive	5	3	5	1	3	2	1	0	2	1	-	-	**23**	1.7	4	0.3	-75	34	2.6	-35	40
Mumps	1	0	0	0	1	1	0	1	2	0	-	-	**6**	0.4	5	0.4	-100	52	3.9	-89	67
Ophthalmia Neonatorum	0	1	0	0	0	0	0	0	0	0	-	-	**1**	0.1	0	0.0	-	2	0.2	-60	3
Paralytic Shellfish Poisoning	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	4	0	3	3	2	2	1	0	4	2	-	-	**21**	1.5	2	0.1	20	43	3.3	-53	48
Pertussis (Whooping Cough)	8	8	10	14	14	16	30	38	24	31	-	-	**193**	13.9	31	2.4	-5	368	27.8	-50	425
Q Fever	2	2	0	0	1	1	1	1	1	2	-	-	**11**	0.8	2	0.1	20	11	0.8	-6	13
Rabies	0	0	0	0	0	0	0	0	0	0	-	-	**0**	0.0	0	0.0	-	0	0.0	-100	0
Rubella	0	0	1	0	0	0	0	0	0	0	-	-	**1**	0.1	#	#	#	#	#	#	#
Rubella, Congenital Syndrome	0	0	0	0	0	0	0	0	0	0	-	-	**0**	0.0	#	#	#	#	#	#	#
Salmonellosis	240	230	261	258	232	229	334	340	298	194	-	-	**2,616**	189.0	192	14.5	-3	2,297	173.1	9	2,633
Shigellosis	27	24	21	21	20	16	38	15	25	20	-	-	**227**	16.4	13	1.0	45	221	16.7	-2	256
Streptococcus Pneumoniae, Invasive	115	85	90	107	114	72	49	45	82	109	-	-	**868**	62.7	122	9.2	-15	941	70.9	-12	1,207
Syphilis, Early Congenital	0	0	0	0	0	0	0	0	0	0	-	-	**0**	0.0	0	0.0	-	1	0.1	-100	1
Syphilis, Infectious	69	53	83	67	48	57	50	58	65	47	-	-	**597**	43.1	64	4.9	-30	658	49.6	-13	781
Syphilis, Other	43	45	43	62	47	49	57	32	36	39	-	-	**453**	32.7	64	4.9	-42	647	48.8	-33	769
Tetanus	0	0	0	0	1	1	0	1	0	1	-	-	**4**	0.3	0	0.0	-	1	0.1	174	1
Tuberculosis	35	45	54	53	57	53	47	45	50	42	-	-	**481**	34.7	49	3.7	-19	537	40.5	-14	638
Tularemia	0	0	0	0	0	0	0	0	0	0	-	-	**0**	0.0	0	0.0	-	1	0.0	-100	1
Typhoid Fever	7	11	4	8	7	3	4	9	7	2	-	-	**62**	4.5	7	0.5	-71	72	5.4	-18	83
Verotoxin Producing E. Coli Including HUS	7	6	4	5	8	18	29	21	11	7	-	-	**116**	8.4	14	1.0	-51	164	12.3	-32	181
West Nile Virus Illness	0	0	0	0	0	0	1	5	4	0	-	-	**10**	0.7	2	0.1	-100	83	6.2	-88	84
Yellow Fever	0	1	0	0	0	0	0	1	0	0	-	-	**2**	0.1	0	0.0	-	0	0.0	379	0
Yersiniosis	10	10	15	14	18	16	21	12	14	6	-	-	**136**	9.8	15	1.1	-62	173	13.1	-25	200

Ontario Cases: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2014/11/19].

Ontario Population: Population Estimates [2009-2013]: Statistics Canada, distributed by Ministry of Health and Long-Term Care, received [2014/07/03]. Population Projections [2014]: Ontario Ministry of Health and Long-Term Care, IntelliHEALTH Ontario, extracted by PHO [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.

ŧ 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, although cases continue to occur related to travel importations.
α Case counts for Acute Flaccid Paralysis were manually updated to reflect the accurate number of confirmed reports as of November 19, 2014.
Note 1: 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'.
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 are available for comparison.
Note 7: 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.