Public Health Ontario
PARTNERS FOR HEALTH

Santé publique Ontario
PARTENAIRES POUR LA SANTÉ

February 2015

Monthly Infectious Diseases Surveillance Report

Volume 4, Issue 2

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

Gonorrhea

Gonorrhea is a sexually transmitted infection (STI) caused by the bacteria *Neisseria gonorrhoeae* that can be transmitted from person to person through anal and vaginal intercourse, oral sex, or from mother to child during birth. In Ontario, gonorrhea is the second most commonly reported bacterial STI.[1]

An individual infected with gonorrhea may or may not experience symptoms, but they are able to transmit the disease to others.[2] Females are more likely than males to have

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asymptomatic infections. Without treatment, gonorrhea infections can lead to complications such as pelvic inflammatory disease and ectopic pregnancy in women, while in males it can lead to epididymo-orchitis and in some cases, sterility.[2] Long-term gonorrhea infections can also cause reactive arthritis (Reiter syndrome) and disseminated infection.[2] As well, gonorrhea infection can increase the risk of HIV transmission and acquisition.[3]

Individuals at high risk of acquiring gonorrhea infection include those who have sex with multiple partners, individuals who have been previously diagnosed with gonorrhea or other STIs, sex trade workers, men who have unprotected sex with men (MSM), street-involved youth and other homeless populations, and individuals under 25 years of age.[3]

In recent years, gonorrhea cultures with reduced susceptibility to the third-generation cephalosporin cefixime and treatment failures using lower dose cefixime regimens have been reported worldwide. These reports led to updated treatment recommendations in Canada, the United States, and the United Kingdom.[3,4,5] The Canadian guidelines recommend as first-line treatment 250 mg intramuscular injection of ceftriaxone plus 1 g of oral azithromycin, or 800 mg of cefixime (increased from the previous recommendation of 400 mg), but only for non-pharyngeal infections in the non-MSM population.[3] However, an Ontario study from 2013 identified clinical treatment failures when patients were treated with cefixime;[6] this study was a catalyst in the development of Ontario's provincial treatment guidelines, which recommends only treatment with 250 mg intramuscular injection of ceftriaxone plus 1 g of oral azithromycin as first-line treatment.[7]

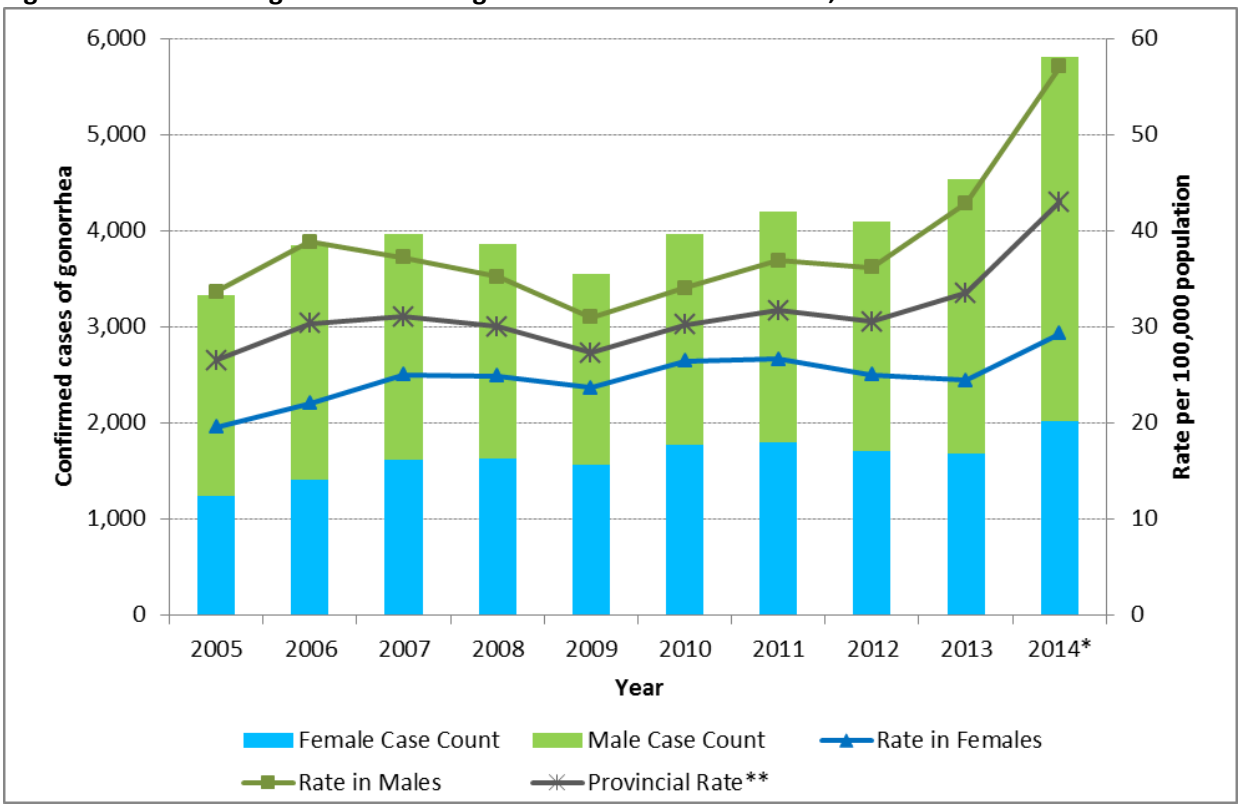
In Canada, the annual incidence of gonorrhea increased from 2003 to 2012, with 36.2 cases per 100,000 in 2012.[8] Between 2013 and 2014, changes in the incidence of gonorrhea varied among provinces. For example, the number of cases in Manitoba declined by 11.4% while Quebec experienced a 19.5% increase, based on projected numbers, and Newfoundland and Labrador observed a 51.2% increase.[9,10,11]

In Ontario, there were 5,825 cases of gonorrhea reported in 2014, representing an overall rate of 43.0 cases per 100,000 population. More gonorrhea cases were reported in 2014 than in any other year in the past decade; there were also 28.2% more cases in 2014 than in 2013 (5,825 versus 4,542 cases) (Figure 1). In 2014, there were 33.2% more cases of gonorrhea among males and 19.8% more cases among females than in 2013. Of the gonorrhea cases in 2014, 65.2% of cases were male and 34.7% were female, with incidence rates of 57.1 and 29.3 per 100,000 population, respectively (Figure 1). The incidence among males was highest among the 20-24 and 25-29 year old age groups, with 181.6 cases and 182.4 per 100,000, respectively. Among females, the highest rate was observed in 20-24 year olds at 143.9 cases per 100,000. Individuals under the age of 25 are a risk group for gonorrhea infection;[3] however, the increase in incidence from 2013 to 2014 in this group (16.4%) was less than the overall provincial increase and the increase in cases over the age of 25 (37.0%).

Overall, 26 of Ontario's 36 public health units (PHUs) reported more gonorrhea cases in 2014 than 2013, with increases ranging from 18.1% to 316.7%. For 21 of these PHUs, more cases were reported in 2014 than in any year in the past decade. The increase in reported cases was predominantly observed in PHUs

in southern Ontario, which collectively reported 31.2% more cases in 2014 than in 2013 (5,632 versus 4,293 cases). Among PHUs in northern Ontario, only Sudbury and Timiskaming reported more cases in 2014 than 2013. Collectively, the seven PHUs in northern Ontario reported 22.5% fewer cases in 2014 compared to 2013 (193 versus 249 cases). The PHUs with the highest incidence rates of gonorrhea in 2014 were Toronto, Peel, and Waterloo with 97.3, 48.9, and 48.2 cases per 100,000 population, respectively.

Figure 1. Incidence of gonorrhea among males and females: Ontario, 2005-2014



Data Sources:
Case data: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public health Ontario [2015/01/19].
Population data: Population Estimates [2005-2013], Ontario Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO, extracted by Public Health Ontario [2014/07/03].

Notes:
* Counts for 2014 are more likely to change as data in iPHIS are updated. The rates for 2014 were calculated using the population for 2013.
** Provincial rates include cases that did not specify male or female.

Examining changes in risk factors reported by cases may provide additional insight into changes in the epidemiology of gonorrhea in Ontario. Among cases reporting risk factors in 2014 (81.4%, 4,742/5,825), the most common risk factor was 'no condom use,' reported by 74.4% (1,171/1,574) of females and 74.0% (2,344/3,168) of males (Table 1). Other commonly reported risk factors included 'more than one sexual contact in the past six months' and 'new sexual contact in the past two months.' Along with these risk factors which have traditionally been more frequently reported by gonorrhea cases, an increase was

observed in the number and proportion of cases among both males and females that reported 'anonymous sex' in 2014 compared to previous years (Table 1).[12]

Men who have sex with men (MSM) have been identified as individuals at risk of acquiring a gonorrhea infection, and therefore increased incidence among MSM was considered as a potential factor for the provincial increase. However, among male cases reporting a risk factor in 2014, 40.8% (1,294/3,168) were identified as MSM compared to 45.0% (1,091/2,427) in 2013 and 40.7% (800/1,964) in 2012. The proportion of gonorrhea cases in males reporting MSM remained similar or decreased, by varying degrees, in every age group in 2014 compared to 2013 (data not shown). Among public health units with more than five male cases reporting a risk factor, Perth District (62.5%, 5/8), Toronto (54.0%, 949/1,757), and Middlesex-London (52.5%, 31/59) had the highest percentage reported as MSM in 2014.

Table 1. Risk factors reported for gonorrhea cases by gender: Ontario, 2012-2014

Gender	Risk factor	2012		2013		2014	
		n	%	n	%	n	%
MALE	Cases reporting at least one risk factor	1,964	82.3%	2,427	85.2%	3,168	83.5%
	No condom use	1,444	73.5%	1,869	77.0%	2,344	74.0%
	MSM*	800	40.7%	1,091	45.0%	1,294	40.8%
	More than one sexual contact in past six months	597	30.4%	672	27.7%	837	26.4%
	New sexual contact in past two months	556	28.3%	619	25.5%	750	23.7%
	Anonymous sex	186	9.5%	228	9.4%	359	11.3%
	Met contact through internet	32	1.6%	50	2.1%	92	2.9%
FEMALE	Cases reporting at least one risk factor	1,335	78.2%	1,328	78.8%	1,574	78.0%
	No condom use	967	72.4%	1,019	76.7%	1,171	74.4%
	New sexual contact in past two months	221	16.6%	232	17.5%	285	18.1%
	More than one sexual contact in past six months	184	13.8%	223	16.8%	279	17.7%
	Anonymous sex	28	2.1%	37	2.8%	69	4.4%
	Met contact through internet	3	0.2%	9	0.7%	20	1.3%

Data Sources:
Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public health Ontario [2015/01/19].
Notes:
* Cases with a client gender of male and the risk factor 'sex with same sex' selected

Important elements of PHU case management are case follow-up and contact tracing. In 2014, 14.0% (816/5,825) of gonorrhea cases had contact tracing identified as a reason for testing. A large proportion of cases (58.6%, 3,411/5,825) also had the presence of symptoms indicated as their reason for testing. While a number of cases may have had multiple reasons for testing entered (i.e., the case became

known to public health through contact tracing but was also symptomatic), contact tracing remains an important method for identifying cases for treatment, and transmission prevention and control measures.

Based on treatment data reported in iPHIS for 91.9% (5,354/5,825) of cases from 2014, just over half (55.9%, 2,992/5,354) were treated with first-line treatment recommended in Ontario's provincial treatment guidelines.[7] Of cases that were not treated according to Ontario treatment guidelines, 4.8% (255/5,354) received the alternate first-line treatment outlined in the Canadian guidelines. The remaining cases (39.4%, 2,107/5,354) received treatment regimens that either included the recommended drugs prescribed at lower than recommended doses, or drugs that were no longer recommended for the treatment of gonorrhea. Among these cases, 20.9% (441/2,107) received monotherapies of the following antibiotics: azithromycin (43.8%, 193/441), ceftriaxone (35.4%, 156/441), cefixime (15.6%, 69/441), ciprofloxacin (2.9%, 13/441), or others (2.3%, 10/441).

The percentage of cases treated according to Ontario's guidelines was highest among cases identified as MSM, with 74.6% (956/1,282) receiving appropriate treatment. In addition, more males (58.6%, 2,065/3,526) than females (50.5%, 920/1,820) received the recommended treatment. The proportion of cases receiving appropriate treatment by age group was highest in the 65+ age group (61.9%, 26/42), followed by the 30-34 (58.7%, 442/753) and 45-49 (58.2%, 153/263) year old age groups.

Based on data from the Public Health Ontario Laboratories, gonorrhea isolates with reduced susceptibility to cefixime (defined as a minimum inhibitory concentration of ≥ 0.12 mg/L)[7] continue to be identified in Ontario; there were 180 identified in 2014 representing 10.1% of the isolates tested, compared to 114 (8.1%) in 2013 and 121 (10.1%) in 2012.

The cause of the increase in reported gonorrhea cases observed in 2014 is not fully understood and is likely multifactorial. An examination of provincial data and consultation with PHUs experiencing the most pronounced increase in cases has not clearly identified the cause of the provincial increase. However, it is evident that many Ontario cases are also not being treated according to provincial guidelines. The extent to which treatment failures may be occurring in Ontario and contributing to increased opportunity for transmission is unknown. To address the issue of decreased susceptibility to cefixime and ceftriaxone, PHO continues to monitor antibiotic sensitivity and promote adherence to Ontario's treatment and testing guidelines. The establishment of a network of sentinel sexual health clinics to more closely monitor gonorrhea activity will also help in this regard, along with identifying potential treatment failures. In addition, PHO is undertaking an evaluation of the provincial Guidelines for Testing and Treatment of Gonorrhea in Ontario to further investigate their impact on treatment practices and the incidence of gonorrhea in Ontario.

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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 December 31, 2014

Reportable disease	2014				Historical comparisons						5-year avg annual count (2009-2013)
	Dec	Dec 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)†	
Gonorrhoea (All Types)[1,2]	439	31.7	5822	420.5	313	23.6	34.6	4073	306.9	37.0	4073
Group A Streptococcal Disease, Invasive[1]	65	4.7	723	52.2	65	4.9	-4.5	585	44.1	18.5	585
Salmonellosis[1]	167	12.1	2995	216.3	169	12.7	-5.1	2633	198.4	9.0	2633

Ontario Cases: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2015/01/14].
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 December 31, 2014) compared to the five-year historical average (January 1 to December 31, 2009-2013), using a likelihood ratio test.
[2] Statistically significant difference ($p<0.05$) in incidence reported in current month (December 2014) compared to the five-year historical average (December 2009-2013), using a likelihood ratio test.

GONORRHEA (ALL TYPES)

Compared to five-year historical averages, there have been statistically significant increases in the monthly and YTM incidence of laboratory-confirmed gonorrhea in Ontario since September 2013. The increase in gonorrhea incidence in 2014 was observed in every month. More cases were reported in 2014 than any year in more than a decade. Please refer to the disease in focus in this month's issue for more details.

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 December 31, 2014 over the five-year average of iGAS cases during the same 12-month period. The increase in the YTM incidence was largely due to the increased incidence of iGAS reported from March to July in 2014. 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 from September to December was equal to or lower than the five-year average for 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 ninth consecutive month. This increase is due to outbreaks and/or increased rates of several *Salmonella* subtypes, including *S*. Typhimurium related to feeder rodents, *S*. Thompson likely related to chicken consumption, several serotypes related to Chia consumption, and *S*. Enteritidis likely related to processed breaded chicken. 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 THOMPSON

On July 2, 2014, a national Outbreak Investigation Coordinating Committee (OICC) was established to investigate cases of *Salmonella* Thompson corresponding to pulsed-field gel electrophoresis (PFGE) pattern combinations STHXAI.0002/STHBNI.0002 and STHXAI.0002/STHBNI.0056. The national OICC was discontinued on August 13, as new cases were being reported solely in Ontario. A provincial ON-OICC was initiated on August 12 to ensure ongoing coordination of the investigation. An additional PFGE pattern combination, STHXAI.0002/STHBNI.0015, was added to the outbreak on August 15 based on an epidemiological link between cases with this pattern combination and outbreak confirmed cases. On December 23, the outbreak was declared over and the Enhanced Surveillance Directive was discontinued after it was determined that *S.* Thompson activity in Ontario had returned to and remained at expected levels for a period of three surveillance weeks.

From January 1 to December 23, 2014, a total of 156 outbreak confirmed cases were reported across 28 public health units (PHUs) in Ontario. Seventy-nine cases were male and 77 cases were female. Ages ranged from 2 months to 92 years. Eight cases were reported as hospitalized. Symptom onset dates ranged from January 9 to November 29, 2014.

Four separate chicken shawarma restaurant clusters were reported associated with this outbreak in Middlesex-London (17 cases), Toronto (4 cases), Peel Region (2 cases), and York Region (2 cases). All cases from the restaurant clusters (25/25) reported consuming chicken shawarma; none of the cases reported consuming other food items (e.g., beef shawarma, falafel) available on restaurant menus. An additional nine outbreak confirmed cases, not associated with the restaurant clusters, reported consuming chicken shawarma during their incubation period. Available evidence suggests that this outbreak was associated with exposure to chicken. A variety of chicken products other than shawarma were reported by confirmed cases, indicating that the outbreak was not restricted to chicken used in shawarma production. Traceback investigations did not identify a single common source of the chicken consumed by cases during this investigation. Due to the unusual proportion of confirmed cases reporting shawarma consumption, the Health Canada document "Management of the Risks Related to

Consumption of Donairs and Similar Products (Gyros, Kebabs, Chawarmas and Shawarmas)" was circulated to PHUs in Ontario.

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	0	2	8	2	1	0	**13**	0.9	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AIDS	2	3	5	4	3	5	11	9	10	8	3	3	**66**	4.8	8	0.6	-62	110	8.3	-42	110
Amebiasis	47	66	63	66	72	71	78	50	47	71	58	42	**731**	52.8	55	4.2	-27	807	60.8	-13	807
Botulism	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0.0	0	0.0	-100	2	0.2	-100	2
Brucellosis	0	0	0	0	0	0	0	0	0	0	1	0	**1**	0.1	0	0.0		5	0.4	-82	5
Campylobacter Enteritis	232	197	226	202	249	398	508	449	450	345	298	184	**3,738**	270.0	193	14.6	-9	3,596	271.0	0	3,596
Chlamydial Infections	3,130	2,717	2,875	3,007	2,882	2,917	3,116	2,889	3,282	3,342	3,020	2,572	**35,749**	2582.1	2,421	182.4	2	33,999	2,562.2	1	33,999
Cholera	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0.0	0	0.0		0	0.0	-100	0
Cryptosporidiosis	14	15	17	15	14	27	57	73	54	33	25	9	**353**	25.5	15	1.1	-41	311	23.5	9	311
Cyclosporiasis	2	2	4	7	13	56	27	9	12	6	2	1	**141**	10.2	3	0.2	-66	117	8.8	16	117
Encephalitis	4	0	0	1	2	2	3	1	2	2	0	0	**17**	1.2	1	0.1	-100	18	1.4	-11	18
Encephalitis/Meningitis	13	9	7	10	9	14	22	25	21	12	11	13	**166**	12.0	10	0.8	22	141	10.6	13	141
Food Poisoning, All Causes	4	1	7	1	1	2	1	0	1	1	2	3	**24**	1.7	5	0.3	-37	90	6.8	-74	90
Giardiasis	91	86	92	83	85	102	118	184	146	107	69	57	**1,220**	88.1	100	7.5	-45	1,387	104.5	-16	1,387
Gonorrhoea (All Types)	485	397	449	435	466	463	603	490	545	531	519	439	**5,822**	420.5	313	23.6	35	4,073	306.9	37	4,073
Group A Streptococcal Disease, Invasive	85	73	88	77	72	60	68	36	28	31	40	65	**723**	52.2	65	4.9	-4	585	44.1	19	585
Group B Streptococcal Disease, Neonatal	6	6	5	3	6	1	1	4	10	3	4	2	**51**	3.7	5	0.3	-58	54	4.1	-10	54
Haemophilus Influenzae B Disease, Invasive	0	0	2	0	1	0	0	0	0	0	0	1	**4**	0.3	0	0.0	140	4	0.3	-4	4
Hepatitis A	6	7	10	3	9	4	5	8	11	4	6	10	**83**	6.0	10	0.8	-4	117	8.8	-32	117
Hepatitis B (Acute)	23	10	4	11	9	7	8	9	3	6	17	6	**113**	8.2	6	0.5	-10	113	8.5	-4	113
Hepatitis B (Chronic)	176	137	173	172	134	131	132	145	139	144	116	58	**1,657**	119.7	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Hepatitis C	359	337	374	395	347	340	329	346	403	355	342	234	**4,161**	300.5	301	22.7	-25	4,341	327.1	-8	4,341
HIV	48	47	56	55	65	49	66	69	75	80	53	50	**713**	51.5	62	4.7	-23	818	61.6	-16	818
Influenza	2,919	1,067	1,548	1,800	506	33	19	3	21	53	264	3,012	**11,245**	812.2	1,531	115.4	89	7,330	552.4	47	7,330
Legionellosis	7	2	3	2	2	12	27	29	15	15	7	4	**125**	9.0	10	0.8	-62	161	12.1	-25	161
Leprosy	0	0	1	0	0	0	0	0	0	0	0	0	**1**	0.1	0	0.0	-100	3	0.3	-72	3
Listeriosis	2	2	5	4	4	2	8	5	9	1	8	1	**51**	3.7	4	0.3	-76	52	3.9	-6	52
Lyme Disease	2	2	6	4	16	49	71	31	19	8	5	1	**214**	15.5	2	0.2	-56	174	13.1	18	174
Malaria	15	12	8	14	18	23	26	20	19	11	9	13	**188**	13.6	15	1.1	-15	220	16.6	-18	220
Measles	1	2	10	6	2	0	0	1	0	0	0	0	**22**	1.6	#	#	#	#	#	#	#
Meningitis	6	7	10	6	4	14	13	15	9	10	8	10	**112**	8.1	7	0.5	45	115	8.6	-6	115
Meningococcal Disease, Invasive	5	3	5	1	3	2	1	0	2	1	1	1	**25**	1.8	3	0.2	-68	40	3.0	-41	40
Mumps	1	0	0	0	1	0	0	1	2	0	3	6	**14**	1.0	9	0.6	-33	67	5.1	-80	67
Ophthalmia Neonatorum	0	1	0	0	0	0	0	0	0	0	1	1	**3**	0.2	0	0.0	379	3	0.2	11	3
Paralytic Shellfish Poisoning	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0.0	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Paratyphoid Fever	4	0	3	3	2	2	1	1	3	2	1	2	**24**	1.7	3	0.2	-36	48	3.6	-52	48
Pertussis (Whooping Cough)	8	8	11	14	14	15	30	38	27	43	39	20	**267**	19.3	32	2.4	-40	425	32.0	-40	425
Q Fever	2	2	0	0	1	1	2	1	1	1	0	1	**12**	0.9	1	0.0	60	14	1.0	-17	14
Rabies	0	0	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	0	0	**1**	0.1	#	#	#	#	#	#	#
Rubella, Congenital Syndrome	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0.0	#	#	#	#	#	#	#
Salmonellosis	241	230	261	258	232	231	335	342	304	209	185	167	**2,995**	216.3	169	12.7	-5	2,633	198.4	9	2,633
Shigellosis	27	24	21	21	20	16	38	15	25	23	21	30	**281**	20.3	17	1.3	67	256	19.3	5	256
Streptococcus Pneumoniae, Invasive	117	86	89	107	114	72	49	45	84	112	90	93	**1,058**	76.4	156	11.8	-43	1,207	91.0	-16	1,207
Syphilis, Early Congenital	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0.0	0	0.0	-100	1	0.1	-100	1
Syphilis, Infectious	68	54	83	68	49	60	53	60	78	67	57	20	**717**	51.8	60	4.5	-68	782	58.9	-12	782
Syphilis, Other	45	46	43	63	47	50	59	34	33	42	25	28	**515**	37.2	58	4.4	-54	769	58.0	-36	769
Tetanus	0	0	0	0	1	1	0	1	1	1	0	0	**5**	0.4	0	0.0		1	0.1	242	1
Tuberculosis	35	45	54	53	56	54	48	48	49	46	28	36	**552**	39.9	52	3.9	-34	638	48.1	-17	638
Tularemia	0	0	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	8	1	6	3	**71**	5.1	6	0.5	-55	83	6.2	-18	83
Verotoxin Producing E. Coli Including HUS	7	6	4	5	8	18	29	21	11	7	5	5	**126**	9.1	9	0.7	-47	181	13.6	-33	181
West Nile Virus Illness	0	0	0	0	0	0	1	5	4	1	1	0	**12**	0.9	1	0.0	-100	84	6.4	-86	84
Yellow Fever	0	1	0	0	0	0	1	1	0	0	0	0	**3**	0.2	0	0.0		0	0.0	619	0
Yersiniosis	10	10	15	14	18	17	20	12	14	6	3	6	**145**	10.5	13	1.0	-55	200	15.0	-30	200

Ontario Cases: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2015/01/14].

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 cases reported as of April 13, 2015. Although cases of all ages were temporarily reportable in Ontario from October 2, 2014 to April 22, 2015, only cases under the age of 15 are included in these counts.
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 comparisons
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.