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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

Carbapenemase Producing *Enterobacteriaceae* (CPE)

Carbapenemase-producing *Enterobacteriaceae* (CPE) are *Enterobacteriaceae* that have acquired the production of carbapenemase enzymes, which can inactivate a wide range of antibiotics including carbapenems.[1] CPE is a challenge to health-care settings, as carbapenems are often the last line of defense to many Gram-negative bacterial infections.[2]

Enterobactericeae can cause a wide range of diseases from urinary tract infections to bloodstream infections. Colonization and infections are more likely to occur in

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patients in acute care and long-term care settings. These organisms are commonly spread in health-care settings through contact, including hands of healthcare workers, contaminated medical equipment, and the exposure to antibiotics.[3]

Since the first identification of the *Klebsiella pneumoniae* carbapenemase (KPC) producer in 1996, CPEs have spread all over the world. Endemic areas have been identified such as KPC producers in the United States, Greece, and Israel; New Delhi metallo-β-lactamase (NDM) in the Indian subcontinent, Verona integrin-encoded metallo-β-lactamase (VIM) producers in Greece and Italy; and oxacillinase (OXA) producers in North Africa and Turkey.[4]

CPE has raised public health concerns because: 1.) *Enterobacteriaceae* are often resistant to multiple antibiotic classes, thereby limiting treatment options; 2.) *Enterobacteriaceae* infections are associated with high mortality rates in the absence of effective antimicrobial therapy; 3.) Genes that encode for carbapenemases can be transmitted from one *Enterobacteriaceae* to another; and 4.) Carbapenemases have been frequently found in *Klebsiella pneumoniae*, a common nosocomial pathogen, and in *Escherichia coli*, a common community-acquired human pathogen. Thus these factors have far-reaching and significant impact to human health.[1,3]

In Canada, there is limited information on CPE. The Canadian Nosocomial Infection Surveillance Program (CNISP) collects data on carbapenem-resistant Gram negative bacilli (CRGNB) in participating hospitals. Between 2010 and 2012, CNISP reported that carbapenemase–producing organisms (CPO) remained relatively uncommon in acute-care hospitals. However, regional differences exist for CPO rates, as Ontario and Quebec have reported higher rates of CPOs, which may be due to a KPC outbreak in the Ontario and Quebec region during that time period.[5]

In December 2011, the Chief Medical Officer of Health in Ontario issued a letter to laboratories and hospitals about Public Health Ontario's (PHO) voluntary CPE surveillance program. Laboratories were asked to submit CPE isolates to Public Health Ontario Laboratories (PHOL) for confirmatory testing; once identified, the hospitals that submitted the isolates were asked to provide additional information on the patient, including demographics and risk factors. This information was then collected and analyzed at PHO. Thus, the surveillance program consisted of: 1.) PHOL confirmatory testing, and; 2.) Patient data from hospitals.

In 2013, 504 isolates were submitted to PHOL, of which 17% (84 isolates) were CPE-positive. The number of isolates submitted was slightly greater than in 2012 (458 isolates) although a similar proportion of CPE positive isolates was confirmed (18% in 2012). In 2013, laboratories from Peel Region submitted the greatest number of confirmed isolates (40%), followed by Toronto (35%) and Waterloo Region (8%) (Table 1). Laboratories from six public health units did not submit isolates to PHOL for confirmatory testing (Eastern Ontario; Haldimand-Norfolk; Haliburton, Kawartha, Pine Ridge; Huron County; Lambton County; and Timiskaming). It is unknown whether laboratories from these areas did not have CPE isolates, were not participating in the surveillance program, or did not have a CPE screening program. Sixty-three percent of positive isolates came from large community hospitals, followed by acute teaching hospitals and community laboratories (each at 18%).

Table 1. Number and proportion of CPE positive isolates by submitting laboratories: Ontario, 2013

Public Health Unit	No. of CPE	Proportion of all	Total isolates
Algoma	0	0	5
Brant	0	0	5
Chatham-Kent	0	0	11
City of Hamilton	2	2	16
City of Ottawa	2	2	36
Durham Region	1	1	12
Elgin-St. Thomas	0	0	1
Grey-Bruce	0	0	2
Halton Region	2	2	23
Hastings-Prince Edward	0	0	18
Kingston-Frontenac Lennox-Addington	0	0	6
Leeds-Grenville-Lanark	0	0	1
Middlesex-London	1	1	10
Niagara Region	0	0	24
North Bay-Parry Sound	0	0	1
Northwestern	0	0	1
Oxford County	0	0	2
Peel Region	34	40	99
Perth County	0	0	4
Peterborough County-City	2	2	6
Porcupine	0	0	2
Renfrew County	0	0	3
Simcoe Muskoka	3	4	14
Sudbury and District	0	0	21
Thunder Bay	0	0	9
Toronto	29	35	141
Waterloo Region	7	8	11
Wellington-Dufferin-Guelph	0	0	5
Windsor-Essex	0	0	14
York Region	1	1	1
TOTAL	84	100	504

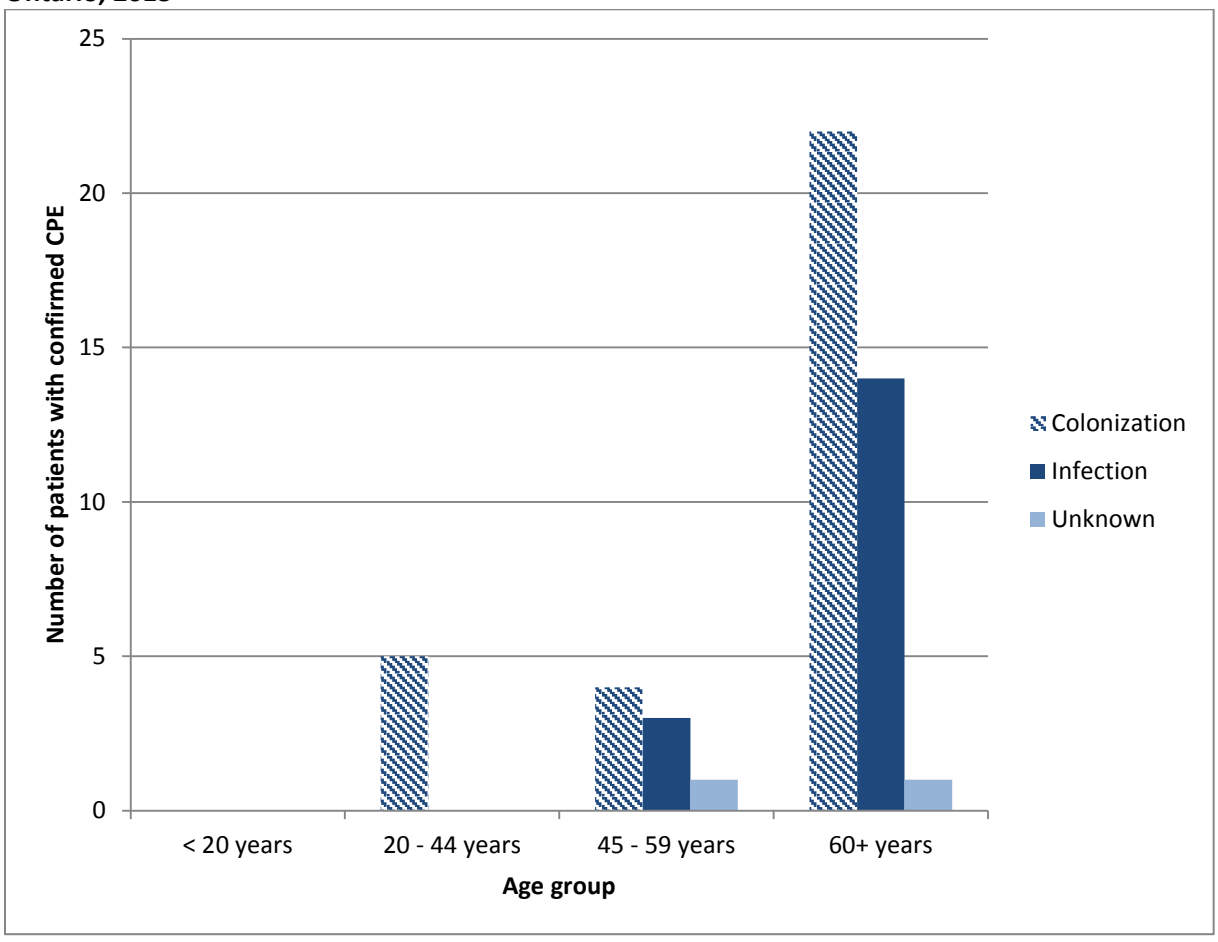
Source: Public Health Ontario Laboratories, Carbapenemase-producing *Enterobacteriaceae* database, extracted by Public Health Ontario [2014/09/29]
Note: Multiple isolates may be submitted per patient.

In 2013, NDM, KPC, and OXA (oxacillinase) were identified in Ontario at 48%, 44%, and 8% of CPE positive isolates, respectively. *Enterobacteriaceae* organisms that were common carbapenemase-producers were *E. coli* (42%), *K. pneumoniae* (37%), and *Citrobacter freundii* (6%). As the CPE data were based on two years of surveillance, no seasonal patterns in submission or confirmed isolates could be observed.

In the patient surveillance data, of the 84 positive isolates confirmed by PHOL, 52 unique patients were identified with CPE in 2013; information from 50 of these patients was collected. This number is similar to 2012 where 55 unique patients were identified with CPE and all were included in the analysis.

Sixty per cent of patients with positive CPE isolates were male, and the median age was 70 years (range of 21 to 92 years). The majority of patients were colonized with CPE (62%), whereas 34% were infected and 4% were reported as unknown. The number of colonizations among patients was greater than the number of infections across all age groups (Figure 1). This similar sex, age, and colonization/infection distribution was also observed in 2012.

Figure 1. Patients with newly confirmed CPE isolates by age group and colonization/infection status: Ontario, 2013



Source: Public Health Ontario Laboratories, Carbapenemase-producing Enterobacteriaceae database, extracted by Public Health Ontario [2014/09/29].

Of the 50 CPE-positive patients, hospitalization outside Canada appears to be a common risk factor for CPE acquisition (reported by 27 patients of which 70% reported that they received care in India). However, 16 patients have only been hospitalized within Canada, and of these patients, ten have not travelled outside of North America. One patient reported no hospitalization history in the past 12 months and had not travelled outside North America. This may indicate that there may be some CPE transmission within Ontario hospitals and in the community.

The CPE surveillance program does not make CPE outbreaks reportable; thus, the number of CPE outbreaks in Ontario is unknown. However, information from two different Ontario CPE outbreaks in 2011 were published where investigators found that patients within their facility were clinically and epidemiologically linked to one another.[6,7] Elsewhere in Canada, a CPE outbreak in British Columbia was declared in early 2014 after a hospital noticed an increased number of CPE cases with sustained transmission. Although the outbreak was controlled within five weeks with intensive infection prevention and control strategies, this highlights the potential of CPE transmission in health-care settings.[8]

The presence of CPE, its possible transmission, and outbreak potential in Ontario is worrisome. However, infection prevention and control practices can mitigate its spread in hospitals with patient screening, targeted surveillance, and contact precautions. Additional precautions include single room accommodation, dedicated equipment and supplies, limited inter- and intra- facility transfers, and roommate/contact screening.[9] Provincial surveillance remains critical in informing infection prevention and control policies that will help prevent the likelihood of CPE becoming endemic 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 measles, rubella, and congenital rubella syndrome. These diseases 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 August 31, 2014

Reportable disease	2014				Historical comparisons						5-year avg annual count (2009-2013)
	Aug	Aug 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]	487	35.2	3776	272.7	356	26.9	31.0	2635	198.6	37.3	4071
Group A Streptococcal Disease, Invasive[1]	32	2.3	554	40.0	34	2.6	-9.8	411	31.0	29.1	585
Influenza[1]	3	0.2	7892	570.0	22	1.7	-86.9	4245	319.9	78.2	7329
Salmonellosis[1]	310	22.4	2080	150.2	315	23.8	-5.8	1853	139.7	7.6	2632

Ontario Cases: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2014/09/17].
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 August 31, 2014) compared to the five-year historical average (January 1 to August 31, 2009-2013), using a likelihood ratio test.
[2] Statistically significant difference ($p<0.05$) in incidence reported in current month (August 2014) compared to the five-year historical average (August 2009-2013), using a likelihood ratio test.

GONORRHEA (ALL TYPES)

Statistically significant increases in the monthly and YTM incidence of laboratory-confirmed gonorrhea in Ontario, in comparison to corresponding monthly/YTM historical five-year averages, have been noted since September 2013. PHO continues to investigate and is conducting a detailed analysis of gonorrhea cases occurring between January 1 and June 30, 2014. Please refer to the summary under the **Significant Reportable Disease Activity** section in the March 2014 issue for possible reasons behind the increase.

GROUP A STREPTOCOCCAL DISEASE, INVASIVE

There was a significant increase in the YTM incidence of laboratory-confirmed invasive group A Streptococcus (iGAS) cases reported in Ontario from January 1 to August 31, 2014. The reasons for the overall increase in iGAS in Ontario over this period are not fully understood. The provincial iGAS summary will be updated and distributed to public health units in November 2014.

INFLUENZA

The YTM incidence rate of reported laboratory-confirmed influenza cases for January 1 to August 30, 2014 was significantly higher than the historical five-year (2009-2013) average YTM rate for the same period. The reason behind the higher YTM incidence rate was most recently summarized in the July 2014 issue of this report. Current influenza activity is at levels expected for this time of year. For more information about the current influenza season, please see the Ontario Respiratory Virus Bulletin, which is published weekly during the influenza season (November to April) and bi-weekly for the remainder of the year. It provides detailed surveillance information on influenza and other respiratory pathogens in Ontario. The full summary for the 2013-14 season will be available in October 2014.

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 fifth consecutive month. The June 2014 and July 2014 issues of this report provide a detailed summary of the possible reasons for this increase. In addition to the outbreak-related cases described in the July 2014 issue, *Salmonella* Thompson cases continue to be reported and the investigation is still underway.

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.

ENTEROVIRUS D68

Summary:

Enteroviruses are a group of viruses that can cause a variety of symptoms including no symptoms at all, cold-like symptoms, and neurological symptoms such as limb weakness and/or paralysis. Infections with enteroviruses are very common and most people have only mild symptoms.

There are about 100 types of enteroviruses. EV-D68 is a specific enterovirus that causes respiratory illness ranging from cold-like illness with coughing and wheezing to severe infections requiring admission to a hospital or possibly to an intensive care unit because of breathing difficulties. Children and teenagers appear to be at increased risk of infection from EV-D68 because they may lack protection from previous exposures to the virus, although the virus can infect adults as well. Children with asthma seem to have a higher risk of developing severe respiratory illness.

EV-D68 was first identified in California in 1962 but since then has only rarely been reported in the United States. Between 2008 and 2010, EV-D68 was associated with several clusters of respiratory illness in Asia, Europe, and the United States. In August 2014, a children's hospital in Kansas City, Missouri, and one in Chicago, Illinois reported increases in pediatric patients hospitalized with severe respiratory illness, including some requiring admission into intensive care units. The cause of these increased admissions was determined to be EV-D68.

Recently there have been reports of children who presented for medical care with neurological symptoms, including limb weakness or paralysis. The EV-D68 virus was detected in the respiratory secretions of some of these children; however the relationship between EV-D68 infection and these symptoms is not clear and is being investigated.

Implications for Ontario:

As of October 14th, 46 states and the District of Columbia in the United States and several Canadian provinces including Ontario reported laboratory confirmed EV-D68 cases in their jurisdiction.

EV-D68 is not a reportable disease in Ontario or notifiable in Canada. Cases are not detected because individuals with respiratory infections often do not seek medical care and even if they do, laboratory testing for EV-D68 is not routinely performed. An Ontario enhanced surveillance system has been established for EV-D68. As well, surveillance for acute flaccid paralysis, which is normally done for the purposes of documenting polio elimination, has been expanded to include all age groups in order to gain additional information about whether there is an association with EV-D68. Laboratory testing

information and surveillance forms are available on the Enterovirus D68 page of the Public Health Ontario website.

There is no specific treatment for EV-D68. Similar to many viral infections, simple precautions can reduce the chances of getting EV-D68:

- Clean your hands frequently with soap and water or an alcohol-based hand rub, including after touching commonly touched objects and surfaces, before touching your face, before preparing food, and before eating;
- Avoid touching your face as much as possible;
- Stay at least two metres (six feet) away from people who are ill;
- Frequently clean surfaces and objects that are commonly touched.

Individuals who are ill with respiratory infections are advised to stay home in order to decrease the risk of spreading infection to others.

Source:

- http://www.publichealthontario.ca/en/BrowseByTopic/InfectiousDiseases/Pages/Enterovirus-D68.aspx
- http://www.cdc.gov/non-polio-enterovirus/about/ev-d68.html
- http://www.nccid.ca/disease-debrief-ev-d68

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 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	0	0	0	0	0	0	0	0	-	-	-	-	**0**	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a
AIDS	2	3	5	7	2	7	10	6	-	-	-	-	**42**	3.0	8	0.6	-28	77	5.8	-48	108
Amebiasis	45	65	61	64	68	68	70	38	-	-	-	-	**479**	34.6	70	5.3	-48	562	42.4	-18	806
Botulism	0	0	0	0	0	0	0	0	-	-	-	-	**0**	0.0	1	0.0	-100	2	0.2	-100	2
Brucellosis	0	0	0	0	0	0	0	0	-	-	-	-	**0**	0.0	1	0.0	-100	5	0.4	-100	5
Campylobacter Enteritis	229	197	225	201	249	395	497	412	-	-	-	-	**2,405**	173.7	492	37.1	-20	2,436	183.6	-5	3,596
Chlamydial Infections	3,119	2,716	2,869	3,000	2,877	2,905	3,097	2,840	-	-	-	-	**23,423**	1691.8	2,892	218.0	-6	22,550	1,699.4	0	33,990
Cholera	0	0	0	0	0	0	0	1	-	-	-	-	**1**	0.1	0	0.0	-	0	0.0	379	0
Cryptosporidiosis	14	15	17	15	14	27	51	62	-	-	-	-	**215**	15.5	76	5.7	-22	224	16.9	-8	311
Cyclosporiasis	2	2	4	7	13	56	27	6	-	-	-	-	**117**	8.5	5	0.4	11	101	7.6	11	117
Encephalitis	4	0	0	1	2	2	3	0	-	-	-	-	**12**	0.9	2	0.1	-100	12	0.9	-3	18
Encephalitis/Meningitis	12	9	7	10	8	14	22	20	-	-	-	-	**102**	7.4	20	1.5	-5	87	6.6	12	141
Food Poisoning, All Causes	4	1	7	1	1	2	1	0	-	-	-	-	**17**	1.2	32	2.4	-100	70	5.3	-77	90
Giardiasis	88	84	87	79	81	100	105	127	-	-	-	-	**751**	54.2	159	12.0	-23	936	70.6	-23	1,387
Gonorrhoea (All Types)	486	397	451	435	465	463	592	487	-	-	-	-	**3,776**	272.7	356	26.9	31	2,635	198.6	37	4,071
Group A Streptococcal Disease, Invasive	84	73	88	77	72	60	68	32	-	-	-	-	**554**	40.0	34	2.6	-10	411	31.0	29	585
Group B Streptococcal Disease, Neonatal	6	6	5	3	6	2	1	4	-	-	-	-	**33**	2.4	5	0.4	-26	36	2.7	-12	54
Haemophilus Influenzae B Disease, Invasive	0	0	2	0	1	0	0	0	-	-	-	-	**3**	0.2	0	0.0	-	3	0.2	3	4
Hepatitis A	6	7	10	3	9	4	4	7	-	-	-	-	**50**	3.6	11	0.8	-40	77	5.8	-38	117
Hepatitis B	21	10	4	11	8	7	7	7	-	-	-	-	**75**	5.4	8	0.6	-12	77	5.8	-6	113
Hepatitis C	358	336	376	398	347	336	326	325	-	-	-	-	**2,802**	202.4	363	27.3	-14	2,934	221.1	-8	4,339
HIV	45	48	51	53	63	49	60	64	-	-	-	-	**433**	31.3	63	4.8	-3	550	41.4	-25	816
Influenza	2,916	1,066	1,548	1,800	507	33	19	3	-	-	-	-	**7,892**	570.0	22	1.7	-87	4,245	319.9	78	7,329
Legionellosis	7	2	3	2	2	13	27	26	-	-	-	-	**82**	5.9	34	2.6	-27	93	7.0	-16	161
Leprosy	0	0	0	0	0	0	0	0	-	-	-	-	**0**	0.0	0	0.0	-100	2	0.2	-100	3
Listeriosis	2	2	3	4	4	2	5	5	-	-	-	-	**27**	2.0	9	0.7	-48	36	2.7	-29	52
Lyme Disease	3	3	5	4	15	40	58	14	-	-	-	-	**142**	10.3	28	2.1	-51	143	10.8	-5	174
Malaria	15	12	8	14	18	23	25	17	-	-	-	-	**132**	9.5	28	2.1	-42	156	11.8	-19	220
Measles	1	2	10	6	2	0	0	1	-	-	-	-	**22**	1.6	#	#	#	#	#	#	#
Meningitis	6	7	10	6	4	14	13	13	-	-	-	-	**73**	5.3	13	1.0	-3	75	5.7	-7	115
Meningococcal Disease, Invasive	5	3	5	1	3	2	1	0	-	-	-	-	**20**	1.4	2	0.1	-100	27	2.0	-30	40
Mumps	1	0	0	0	1	1	0	1	-	-	-	-	**4**	0.3	7	0.5	-86	41	3.1	-91	67
Ophthalmia Neonatorum	0	1	0	0	0	0	0	0	-	-	-	-	**1**	0.1	0	0.0	-100	2	0.1	-47	3
Paralytic Shellfish Poisoning	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	2	4	2	2	1	0	-	-	-	-	**15**	1.1	5	0.4	-100	38	2.9	-62	48
Pertussis (Whooping Cough)	8	9	10	14	14	16	27	32	-	-	-	-	**130**	9.4	53	4.0	-43	300	22.6	-59	425
Q Fever	2	2	0	0	1	1	1	1	-	-	-	-	**8**	0.6	2	0.1	-40	8	0.6	-6	13
Rabies	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	-	-	-	-	**1**	0.1	#	#	#	#	#	#	#
Rubella, Congenital Syndrome	0	0	0	0	0	0	0	0	-	-	-	-	**0**	0.0	#	#	#	#	#	#	#
Salmonellosis	238	230	260	258	230	227	327	310	-	-	-	-	**2,080**	150.2	315	23.8	-6	1,853	139.7	8	2,632
Shigellosis	26	24	21	21	20	15	38	12	-	-	-	-	**177**	12.8	26	2.0	-56	188	14.2	-10	256
Streptococcus Pneumoniae, Invasive	113	84	89	105	107	68	49	41	-	-	-	-	**656**	47.4	41	3.1	-4	757	57.1	-17	1,206
Syphilis, Early Congenital	0	0	0	0	0	0	0	0	-	-	-	-	**0**	0.0	0	0.0	-	1	0.0	-100	1
Syphilis, Infectious	66	50	80	64	45	51	36	33	-	-	-	-	**425**	30.7	67	5.0	-53	532	40.1	-23	781
Syphilis, Other	44	45	43	59	45	44	45	21	-	-	-	-	**346**	25.0	56	4.2	-64	521	39.2	-36	768
Tetanus	0	0	0	0	1	1	0	1	-	-	-	-	**3**	0.2	0	0.0	-	1	0.1	140	1
Tuberculosis	33	47	51	51	55	51	43	40	-	-	-	-	**371**	26.8	59	4.4	-35	437	33.0	-19	639
Tularemia	0	0	0	0	0	0	0	0	-	-	-	-	**0**	0.0	0	0.0	-	0	0.0	-100	1
Typhoid Fever	6	11	4	7	8	2	5	9	-	-	-	-	**52**	3.8	8	0.6	8	58	4.4	-15	83
Verotoxin Producing E. Coli Including HUS	7	6	4	5	8	18	29	18	-	-	-	-	**95**	6.9	32	2.4	-45	129	9.7	-29	181
West Nile Virus Illness	0	0	0	0	0	0	1	5	-	-	-	-	**6**	0.4	46	3.4	-89	58	4.4	-90	84
Yellow Fever	0	1	0	0	0	0	0	0	-	-	-	-	**1**	0.1	0	0.0	-	0	0.0	140	0
Yersiniosis	10	10	15	14	18	15	21	10	-	-	-	-	**113**	8.2	23	1.7	-59	144	10.9	-25	199

Ontario Cases: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2014/09/17].

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.

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.