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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

Human Rhinoviruses

Human rhinoviruses (HRV) are single-stranded RNA viruses that are part of the *Picornaviridae* family and are the most common cause of respiratory tract infections. HRVs cause about half of common colds each year and up to 90% of colds during the fall in adults.[1] Although HRV infections occur throughout the year, they are most common in the fall and spring.[2] There are three species of HRV that collectively include 101 different serotypes (HRV species A and B) and over 50 different genotypes (HRV species C).[1,3] Several different serotypes and/or genotypes may co-circulate during the same season, so individuals may have more than one episode of HRV infection in a season.[1,3] The

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incidence of rhinovirus is highest in preschool and elementary school–aged children, likely because they have not yet been exposed to the various circulating serotypes.[2]

Most infections caused by HRV are mild and self-limiting, with symptoms such as runny nose, nasal congestion, headache, cough and sneezing; children and infants may experience a fever.[4,5] The incubation period for HRV is two to three days; symptoms often last one to two weeks, and can persist for several weeks. HRV is usually transmitted through inhaling contaminated droplets or touching surfaces contaminated with the virus and then touching one's face or eyes.[2,6]

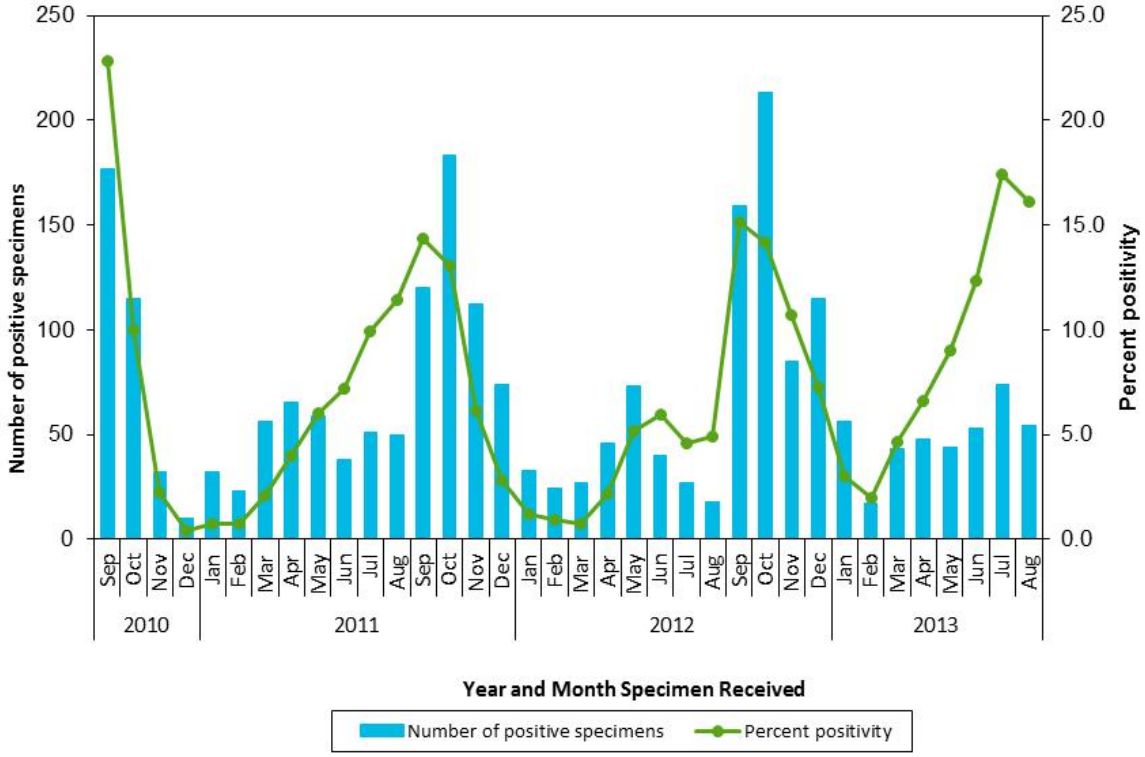
The most common complications of HRV infection include otitis media in children, exacerbation of asthma in children and adults, and infection-associated exacerbations of chronic obstructive pulmonary disease in older age groups.[2,7] While it had previously been believed that HRV did not cause serious illness, evidence indicates that HRV-associated illness and deaths may be substantially underestimated.[8,9] In a recent Ontario study of the burden of infectious diseases, rhinovirus was identified as one of the ten highest burden pathogens in terms of years of life lost due to premature mortality and years of reduced functioning due to disease.[10] In addition, HRV is being increasingly associated with severe respiratory disease and outbreaks in long-term care homes. An Ontario study utilizing data from routine laboratory surveillance found that rhinovirus was the most likely causative organism in 59% of long-term care home outbreaks during a six-month period that encompassed the first and second waves of the H1N1 pandemic in 2009.[8]

Public Health Ontario Laboratories (PHOL) provides testing for HRV and other respiratory viruses to assist with clinical diagnosis of individual patients and as part of outbreak investigations. Rhinovirus detection methods include traditional viral culture and molecular testing (e.g. polymerase chain reaction (PCR)), which is more sensitive than viral culture. Rapid viral culture (R-Mix Too), which replaced traditional viral culture in October 2012 at PHOL, for ambulatory, emergency room, and admitted (non-intensive care unit (ICU)) patients does not detect rhinovirus. The multiplex respiratory viral PCR (MRVP) test that detects rhinovirus is used in specimens submitted from ICU patients and influenza-negative outbreaks. For further information on PHOL's testing algorithms, refer to PHOL's Labstracts on testing for influenza and other respiratory viruses.

While PHOL performs the majority of testing for rhinovirus and other respiratory viruses in Ontario, other microbiology laboratories also perform these tests. As a result, the numbers reported below do not represent the total number of respiratory viruses identified in Ontario laboratories.

Percent positivity reflects the percentage of specimens with a positive result among those submitted for testing. Among specimens tested for HRV at PHOL, percent positivity is highest in the fall each year, with peak positivity occurring in September. Percent positivity is lowest during the winter months (Figure 1).

Figure 1. Number of positive specimens and percent positivity of specimens tested for HRV by PHOL: September 1, 2010 to August 31, 2013

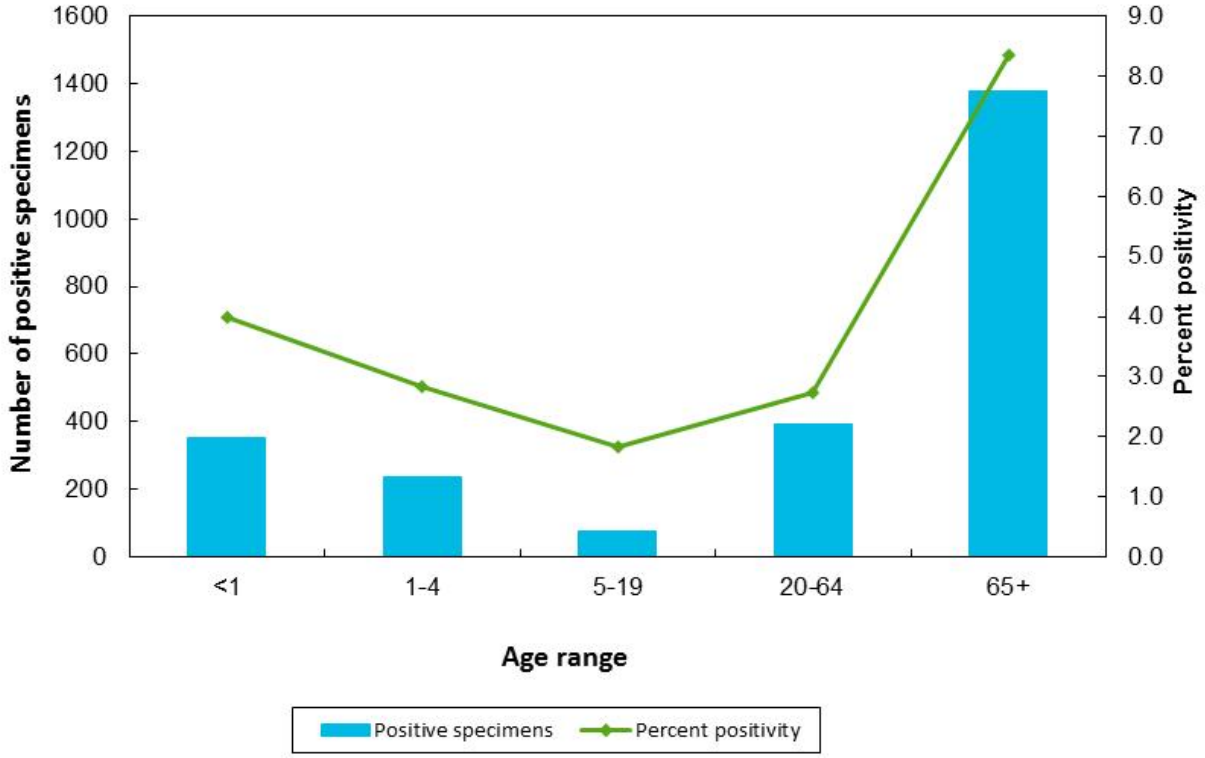


Data source: Public Health Ontario Laboratories, Laboratory Information Management System, extracted [2013/12/13].

Note: Specimens were tested for HRV at PHOL by multiplex and virus culture. Of all specimens positive for HRV, 913/2,446 (37.3%) were reported as "enterovirus-like, probable rhinovirus". During the 2009-2010 season, a subset of "enterovirus-like, probable rhinorvirus" positive specimens were sequenced and all were found to be rhinovirus.

By age group, the highest percent positivity for HRV was observed among adults 65 years of age and older, which is also reflective of institutional outbreak-associated cases (Figure 2). A proportion of specimens from institutional outbreaks undergo more sensitive molecular testing, which may lead to higher detection in the institutionalized elderly. Of the 2,446 positive HRV specimens from September 1, 2010 to August 31, 2013, 1,295 (52.9%) were collected from females and 975 (39.9%) from males; 176 (7.2%) had gender information missing.

Figure 2. Number of positive specimens and percent positivity of specimens tested for HRV by PHOL by age group: September 1, 2010 to August 31, 2013



Data source: Public Health Ontario Laboratories, Laboratory Information Management System, extracted [2013/12/13].

Note: Patient age was not reported for 13 (0.5%) positive specimens, which were excluded from this analysis. This data represents the number of specimens tested, which may not necessarily correspond with the number of patients as more than one specimen may have been submitted per patient.

In Ontario, PHOL relies on the medical officer of health or designate to determine if an outbreak meets the provincial case definition for an outbreak and does not verify that declared outbreaks have met the criteria. From September 1, 2010 to August 31, 2013, respiratory specimens from 3,320 respiratory infection outbreaks were submitted for testing at PHOL. Rhinovirus was detected in 582 (17.5%) outbreaks for the entire reporting period. During the 2010-2011 respiratory virus season (September 1, 2010 to August 31, 2011) HRV was detected in 99 (9.1%) of the 1,090 respiratory infection outbreaks reported to PHOL. During the 2011-2012 respiratory virus season, HRV was detected in 136 (16.6%) of the 820 outbreaks reported to PHOL, and during the 2012-2013 respiratory virus season HRV was detected in 347 of the 1,410 (24.6%) outbreaks reported to PHOL. The variability in the number of rhinovirus outbreaks reflects variations in rhinovirus circulation in the community, which fluctuates from season to season, similar to other respiratory viruses.

Based on PHOL data, the setting type with the highest proportion of rhinovirus positive samples (20.6%) was long-term care, which includes retirement homes, followed by intensive care (5.6%). These results should be interpreted with caution however, since patient setting was missing for 29.8% of specimens testing positive for rhinovirus (Table 1).

Table 1. Patient setting type for HRV positive specimens tested by PHOL: September 1, 2010 to August 31, 2013

Setting-type	Number of positive specimens (percent positivity)	Number of specimens tested
Long -Term Care (includes retirement homes)	879 (20.6)	4,271
Hospital (In-patient non-ICU)	313 (2.2)	14,182
Emergency Rooms	224 (2.0)	10, 956
Intensive Care Unit (ICU)	155 (5.6)	2,744
Physician offices	155 (3.4)	4,497
Unknown	720 (4.6)	15,541
Total	**2,446 (4.7)**	**52,191**

Data source: Public Health Ontario Laboratories, Laboratory Information Management System, extracted [2013/12/13].

There is no vaccine or specific treatment for rhinovirus; the main focus of treatment is symptom relief. In general, antibiotics are not indicated unless there is clinical suspicion or evidence of a secondary bacterial infection.[11] Prevention is focused on reducing transmission such as encouraging individuals to perform frequent hand hygiene, respiratory hygiene (e.g. coughing into one's sleeve) and avoiding touching one's eyes or face.

As per the Provincial Infectious Diseases Advisory Committee (PIDAC), all health care settings should adopt and maintain appropriate surveillance and infection prevention and control practices to protect against respiratory infections. Any patient or resident with symptoms of an acute respiratory infection should be managed using Routine Practices, Droplet, and Contact Precautions to protect health care workers, patients/residents, and others. Further information can be found in PIDAC's document Annex B: Best Practices for Prevention of Transmission of Acute Respiratory Infection In All Health Care Settings.[12]

SIGNIFICANT REPORTABLE DISEASE ACTIVITY

Table 2 provides a list of reportable diseases for which incidence in 2013 was significantly higher than expected compared to the five-year historical average (2008-2012). Both monthly and year-to-month (YTM) comparisons were made for each of the reportable diseases listed in Appendix 1.

Table 2. Summary of significant increases in reportable disease incidence: Ontario, January 1 to November 30, 2013

Reportable disease	2013				Historical comparisons						5-year avg annual count (2008-2012)
	Nov	Nov rate ŧ	YTM	YTM rate ŧ	Current month 5-year avg (2008-2012)	Current month 5-year avg (2008-2012) rate ŧ	% difference in rates (current month minus 5-year avg)†	YTM 5-year avg (2008-2012)	YTM 5-year avg (2008-2012) rate ŧ	% difference in rates (YTM 2013 minus YTM 5-year avg)†	
Campylobacter Enteritis[1]	268	19.6	3,680	268.8	243	18.4	6.7	3,382	255.8	5.1	3,565
Chlamydial Infections[1]	2,846	207.9	32,114	2345.8	2,898	219.2	-5.2	29,940	2264.8	3.6	32,302
Food Poisoning, All Causes[1]	2	0.1	180	13.1	8	0.6	-75.2	116	8.8	49.8	122
Gonorrhoea (All Types)[1]	400	29.2	4,113	300.4	350	26.5	10.4	3,649	276.0	8.8	3,936
Legionellosis[1]	10	0.7	252	18.4	8	0.6	23.8	114	8.6	113.1	124
Lyme Disease[1]	4	0.3	297	21.7	5	0.4	-28.5	126	9.6	126.9	127

Ontario Cases: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2013/12/19].

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

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 to November 2013) compared to the five-year historical average (January to November 2008-2012).

CAMPYLOBACTER ENTERITIS

The YTM incidence rate of *Campylobacter* enteritis from January 1 to November 30, 2013 was significantly higher than the historical five-year average YTM rate for the same period. No definitive cause for the increase has been identified; however, it is not unusual for the incidence of enteric diseases to fluctuate over time. All *Campylobacter* enteritis cases reported in 2013 occurred as isolated sporadic events. Over the past five years, the YTM rate of *Campylobacter* enteritis for the period from January to November has ranged from 238 cases to 281 cases per 1,000,000 population. The increased incidence rate for the current YTM period is a slight decrease from the rate for the same YTM period in 2012 (269 cases per 1,000,000 population). *Campylobacter* enteritis incidence, as well as exposure information reported for cases, continues to be monitored by PHO.

CHLAMYDIAL INFECTIONS

The YTM incidence rate of reported laboratory-confirmed chlamydial infections for January 1 to November 30, 2013 was significantly higher than the historical five-year (2008-2012) average YTM rate for the same period. The significantly higher YTM rate has been noted since March 2013, as reported in each edition of the Monthly Infectious Diseases Surveillance Report since May 2013 (Volume 2, Issues 5-12). The rate may be higher than the historical five-year average in part due to increased screening for chlamydial infections in recent years, as summarized in the May 2013 (Volume 2, Issue 5) edition of the monthly report. The July 2012 (Volume 1, Issue 8) edition further describes the epidemiology of chlamydia in Ontario.

While the YTM incidence rate of chlamydia is higher compared to the five-year historical average (2008-2012), it is lower than the same reported YTM incidence for 2012 (data not shown). The reasons for this decrease are unclear, and PHO continues to investigate potential reasons for the decline.

FOOD POISONING, ALL CAUSES

From January 1 to November 30, 2013, the YTM incidence rate for food poisoning was significantly higher than expected compared to the five-year average YTM rate for the same period from 2008 to 2012. Of the 180 food poisoning cases reported to date in 2013, 82% (148/180) were reported in the month of August. The increase in August was first described in the October 2013 edition of this report (Volume 2, Issue 10), and was driven by a large outbreak caused by *Staphylococcus aureus.* The outbreak was investigated by Toronto Public Health and included cases from a total of nine public health units in Ontario. These cases were linked to the consumption of contaminated maple bacon jam topping on a specialty burger purchased at a food kiosk from August 16 to August 20 at the 2013 Canadian National Exhibition.

GONORRHOEA (ALL TYPES)

The YTM incidence rate of reported laboratory-confirmed gonorrhea cases for January 1 to November 30 was significantly higher than the corresponding historical five-year (2008-2012) average rates. The number of cases was higher than expected in a number of health units, and in men between the ages of 20 and 34 years. While definitive reasons for the increase are not yet known, increased diagnostic testing may be partly responsible. In addition, reduced susceptibility to gonorrhea treatment regimens is a growing concern, and may also play a role in greater disease transmission. New guidelines for testing and treatment of gonorrhea in Ontario were released in April 2013 and evaluation of their impact will be ongoing. The November 2012 (Volume 1, Issue 12) edition of the Monthly Infectious Diseases Surveillance Report describes the epidemiology of gonorrhea in Ontario. Further analysis of the current increase will be required to determine whether the epidemiology of gonorrhea in Ontario has changed.

LEGIONELLOSIS

The YTM incidence rate of reported laboratory-confirmed legionellosis for January 1 to November 30, 2013 was significantly higher than the corresponding historical five-year (2008-2012) average YTM rate. The significantly higher YTM rate has been noted since March 2013, as reported in each edition of the Monthly Infectious Diseases Surveillance Report since May 2013 (Volume 2, Issues 5-12).

The number of confirmed cases of *Legionella* reported each year has been increasing in Ontario in recent years. The 2013 seasonal increase of legionellosis in Ontario occurred earlier than usual, with the largest number of cases reported in July. Monthly case counts for legionellosis were significantly higher than expected in June and July 2013, and gradually decreased to baseline from August to November 2013. An Enhanced Surveillance Directive was issued on June 28, 2013 and discontinued on November 1, 2013. A brief summary of the 2013 legionellosis season is available in the December 2013 edition (Volume 2, Issue 12) of the report.

LYME DISEASE

The incidence rate of Lyme disease for January 1 to November 30, 2013 was significantly higher than the historical five-year (2008-2012) average YTM rate for the same period. An increase in the current YTM rate in comparison to the historical average YTM rate was first noted in the October 2013 edition of this report (Volume 2, Issues 10). Consistent with the expected seasonality of Lyme disease, 78% (233/297) of cases to date in 2013 were reported from June to August. The highest incidence rates in 2013 were observed in Eastern region public health units including Leeds, Grenville and Lanark District; Kingston-Frontenac, Lennox and Addington; Eastern Ontario; Hastings and Prince Edward Counties; and the City of Ottawa. The Lyme disease in focus article in the September 2013 (Volume 2, Issue 9) edition of this report and the Vector-Borne Disease 2012 Summary Report contain detailed descriptions of the epidemiology of Lyme disease in Ontario, including factors associated with the increasing trend in activity. In February 2012, PHO released the Technical Report: Update on Lyme Disease Prevention and Control, which contains information on human and tick surveillance, as well as a discussion on diagnosis and laboratory testing.

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.

INFECTIOUS SYPHILIS IN CANADA

Summary:

Since the year 2000, there has been an almost 10-fold increase in infectious syphilis cases in Canada, from less than 200 cases in 2000 to over 1,750 cases in 2010.[1] In 2010, Northwest Territories, Quebec, and Ontario had the highest rates of syphilis with 18.3, 6.8 and 5.9 cases reported, respectively, per 100,000 population.[1] Across Canada, infectious syphilis has largely been reported in men who have sex with men; however, other at-risk populations have been idenfied in some provinces and territories.[1] For example, individuals living in Aboriginal communities were disproportionately affected in Alberta, and an outbreak in the Northwest Territories was concentrated among injection drug users and heterosexuals.[1]

The incidence of infectious syphilis increased in most provinces and territories in Canada from 2000 to 2010, with the exception of Nunavut and Newfoundland;[1] however, Nunavut began to experience a syphilis outbreak in May 2012, with 74 confirmed cases compared to only one confirmed case of infectious syphilis in the 2000s.[1-3] Forty per cent of infectious syphilis cases in British Columbia within the past few years have been men who have sex with men and are co-infected with HIV.[1]

Implications:

In 2012, 790 cases of infectious syphilis were reported in Ontario.[4] Over the past 11 years, the incidence of infectious syphilis increased nearly 15-fold in Ontario, from 0.4 cases per 100,000 in 2001 to 5.9 cases per 100,000 population in 2012.[4] Eighty eight percent of males diagnosed with infectious syphilis in Ontario during 2012 who reported at least one risk factor identified as being men who have sex with men. In 2012, 40% of infectious syphilis cases reported in Ontario were co-infected with HIV.[4] This is an important concern because syphilis significantly increases the risk of HIV transmission, and co-infection with HIV leads to faster progression of infectious syphilis.

Infectious syphilis symptoms may go unnoticed and will progress without treatment. Therefore, improving awareness through education of the public, promoting screening and testing among high risk populations, and increasing health care practitioner knowledge of infectious syphilis trends and risk factors in the population are all potentially successful measures to reduce the rates of infectious syphilis in Ontario. Similar to other provinces, social marketing campaigns were developed in Ontario by the AIDS Committee of Toronto and Hassle Free Clinic to improve awareness and testing for infectious syphilis in high risk populations.

Sources:

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CHIKUNGUNYA VIRUS IN THE CARIBBEAN

Summary:

Chikungunya virus (CHIKV) is a mosquito-borne *Alphavirus* transmitted primarily by *Aedes aegypti* and *Aedes albopictus*.[1,2] The incubation period for CHIKV is between one and 12 days, with rapid onset of fever, rash and arthralgia that can last several weeks to months. Complications of CHIKV infection include hepatitis, myocarditis and neurological disorders.[2] There is no vaccine or cure available for CHIKV and treatment is supportive.

On December 5, 2013, two cases of locally-acquired chikungunya were confirmed in Saint Martin. Chikungunya is endemic to Africa, South/Southeast Asia, and until December 2013, no local transmission had been reported in the Americas.[3] As of January 2, 2014, there have been 98 confirmed cases of chikungunya reported from Saint Martin/Sint Maarten, Guadeloupe, Martinique and Saint-Barthélemy in the Caribbean. In addition to the 98 confirmed cases, the same islands have reported 20 probable cases and 271 suspect cases.[3] Spread of CHIKV to other Caribbean islands is expected given the widespread occurrence of competent vectors and inter-island travel of infected people.[2]

Implications:

Aedes aegypti is a tropical and subtropical mosquito species with a distribution in North America that is restricted to the southeastern USA. *Aedes albopictus* is also a tropical/subtropical mosquito species native to South and East Asia that can also inhabit temperate climates. These two mosquito species are not established in Ontario and there are no known vectors of CHIKV in Ontario. Ontario's WNV vector surveillance system has identified four *Aedes albopictus* out of over 4.16 million total mosquitoes identified from 2002 through 2013. Adult mosquitoes detected outside of their optimal range (like these four *Aedes albopictus* in Ontario) are normally introduced via automobile or other vehicles returning from the mosquito's home range in the USA. It is unlikely that either of the primary mosquito species associated with CHIKV transmission will become established in Ontario in the near future.

Imported cases of chikungunya may occur in Ontario, given relatively high volumes of returning travellers from endemic regions; however, without competent vectors, local transmission in Ontario is currently not possible. Prevention measures (personal protection against mosquito bites) for travellers are the same as for dengue as both diseases share a common transmission cycle and vectors.[4,5]

Sources:

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ENHANCED SURVEILLANCE DIRECTIVES (ESD) DISCONTINUED IN DECEMBER

No Enhanced Surveillance Directives were discontinued in December 2013.

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In Focus – Rhinovirus

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Appendix – Reportable Diseases

Appendix 1. Confirmed cases of reportable diseases, and probable cases of select reportable diseases, by month: Ontario, 2008-2013*

Reportable disease	2013														Historical comparisons						5-year avg (2008-2012) annual count
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTM	YTM rate ŧ	Current month 5-year avg (2008-2012)	Current month 5-year avg (2008-2012) rate ŧ	% difference rates (current month minus 5-year avg)†	YTM 5-year avg (2008-2012)	YTM 5-year avg (2008-2012) rate ŧ	% difference rates (YTM 2013 minus YTM 5-year avg)†	
AIDS	13	6	12	4	13	8	4	6	5	7	4	0	**82**	6.0	8	0.6	-54	111	8.4	-29	119
Amebiasis	65	68	63	95	64	70	83	81	56	57	52	0	**754**	55.1	61	4.6	-17	739	55.9	-2	797
Botulism	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0.0	0	0.0	-100	3	0.2	-100	3
Brucellosis	0	1	0	1	0	1	3	1	0	1	0	0	**8**	0.6	0	0.0	-	4	0.3	84	4
Campylobacter Enteritis	154	201	248	218	305	424	508	597	385	372	268	0	**3,680**	268.8	243	18.4	7	3,382	255.8	5	3,565
Chlamydial Infections	3,148	2,755	2,874	3,119	2,842	2,744	2,791	2,869	3,024	3,102	2,846	0	**32,114**	2345.8	2,898	219.2	-5	29,940	2,264.8	4	32,302
Cholera	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0.0	0	0.0	-	1	0.0	-100	1
Cryptosporidiosis	12	15	19	12	6	16	58	66	47	22	12	0	**285**	20.8	15	1.1	-22	304	23.0	-9	317
Cyclosporiasis	1	3	5	15	13	17	19	4	6	2	2	0	**87**	6.4	4	0.3	-56	116	8.8	-28	119
Cytomegalovirus Infection, Congenital	2	1	1	1	0	0	1	0	0	1	0	0	**7**	0.5	0	0.0	-100	6	0.4	17	6
Encephalitis	1	2	4	0	0	1	0	1	1	6	0	0	**16**	1.2	2	0.2	-100	17	1.3	-8	18
Encephalitis/Meningitis	4	14	7	7	8	18	24	26	17	30	18	0	**173**	12.6	8	0.6	107	144	10.9	16	154
Food Poisoning, All Causes	6	2	4	4	5	1	3	148	0	5	2	0	**180**	13.1	8	0.6	-75	116	8.8	50	122
Giardiasis	127	107	89	81	100	95	119	155	158	109	81	0	**1,221**	89.2	101	7.7	-23	1,332	100.8	-11	1,437
Gonorrhoea (All Types)	448	296	339	348	316	336	374	373	435	448	400	0	**4,113**	300.4	350	26.5	10	3,649	276.0	9	3,936
Group A Streptococcal Disease, Invasive	50	59	51	55	53	49	43	56	30	43	37	0	**526**	38.4	40	3.1	-12	511	38.7	-1	565
Group B Streptococcal Disease, Neonatal	5	3	7	5	4	6	5	3	5	9	3	0	**55**	4.0	6	0.5	-52	49	3.7	8	55
Haemophilus Influenzae B Disease, Invasive	2	0	0	1	1	1	0	0	0	2	0	0	**7**	0.5	0	0.0	-100	4	0.3	78	4
Hepatitis A	16	6	8	5	15	10	7	7	7	10	4	0	**95**	6.9	8	0.6	-50	109	8.2	-16	120
Hepatitis B	10	9	9	9	8	6	12	11	5	10	14	0	**103**	7.5	10	0.7	41	114	8.6	-13	122
Hepatitis C	328	286	351	368	377	329	364	338	321	354	350	0	**3,766**	275.1	387	29.2	-13	4,141	313.2	-12	4,445
Hepatitis D	0	0	0	0	0	1	1	0	0	0	0	0	**2**	0.1	0	0.0	-100	3	0.2	-36	3
Herpes, Neonatal	0	0	0	0	0	0	0	0	0	2	0	0	**2**	0.1	1	0.1	-100	6	0.5	-70	7
HIV	50	41	56	65	66	69	52	60	64	67	61	0	**651**	47.6	67	5.1	-12	791	59.9	-21	859
Influenza	3,320	801	512	359	116	14	4	8	5	31	138	0	**5,308**	387.7	744	56.3	-82	5,650	427.4	-9	6,845
Legionellosis	9	9	7	6	10	33	67	36	37	28	10	0	**252**	18.4	8	0.6	24	114	8.6	113	124
Leprosy	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0.0	0	0.0	-100	3	0.2	-100	3
Listeriosis	0	1	1	1	1	3	9	15	4	2	2	0	**39**	2.8	3	0.2	-31	59	4.4	-36	62
Lyme Disease	2	0	3	4	21	59	125	49	19	11	4	0	**297**	21.7	5	0.4	-28	126	9.6	127	127
Malaria	14	10	11	16	16	33	27	24	18	15	14	0	**198**	14.5	11	0.9	19	199	15.1	-4	214
Measles	1	1	5	1	0	4	2	1	0	0	0	0	**15**	1.1	0	0.0	-100	16	1.2	-8	17
Meningitis	8	4	10	10	4	15	12	12	10	14	5	0	**104**	7.6	11	0.8	-54	112	8.5	-10	119
Meningococcal Disease, Invasive	3	2	0	1	1	3	2	1	1	4	2	0	**20**	1.5	4	0.3	-52	42	3.2	-54	45
Mumps	2	1	1	2	2	0	0	6	3	0	1	0	**18**	1.3	6	0.5	-85	122	9.3	-86	130
Ophthalmia Neonatorum	0	1	0	0	0	0	0	0	1	0	0	0	**2**	0.1	0	0.0	-100	3	0.2	-26	3
Paratyphoid Fever	3	9	9	5	2	0	2	5	2	2	0	0	**39**	2.8	3	0.2	-100	48	3.6	-21	52
Pertussis (Whooping Cough)	19	17	14	13	23	25	32	46	23	23	12	0	**247**	18.0	39	3.0	-70	495	37.4	-52	535
Q Fever	1	0	0	4	2	0	2	1	0	0	1	0	**11**	0.8	1	0.1	-20	11	0.8	-3	11
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	0	1	0	0	0	0	0	0	0	0	**1**	0.1	0	0.0	-	1	0.1	-3	1
Rubella, Congenital Syndrome	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0.0	0	0.0	-	0	0.0	-100	0
Salmonellosis	151	185	214	186	198	195	326	287	213	182	153	0	**2,290**	167.3	165	12.5	-11	2,455	185.7	-10	2,612
Shigellosis	21	23	28	22	28	16	28	23	11	11	19	0	**230**	16.8	18	1.3	4	238	18.0	-7	254
Streptococcus Pneumoniae, Invasive	142	101	92	117	79	61	43	38	44	94	89	0	**900**	65.7	112	8.5	-23	1,052	79.6	-17	1,212
Syphilis, Early Congenital	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0.0	0	0.0	-	1	0.1	-100	1
Syphilis, Infectious	70	52	48	51	73	60	52	42	46	39	23	0	**556**	40.6	59	4.5	-63	667	50.4	-19	722
Syphilis, Other	55	47	48	50	40	45	45	36	31	42	23	0	**462**	33.7	76	5.8	-71	822	62.2	-46	884
Tetanus	1	1	0	0	0	0	0	0	0	0	0	0	**2**	0.1	0	0.0	-	1	0.1	93	1
Tuberculosis	40	47	50	65	54	35	65	48	54	44	41	0	**543**	39.7	50	3.8	-21	587	44.4	-11	637
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	6	7	7	5	5	1	2	9	2	4	2	0	**50**	3.7	4	0.3	-49	84	6.4	-43	90
Verotoxin Producing E. Coli Including HUS	15	2	8	20	9	10	26	13	19	6	5	0	**133**	9.7	9	0.7	-48	199	15.0	-35	208
West Nile Virus Illness	0	0	0	0	0	1	11	18	25	1	0	0	**56**	4.1	1	0.1	-100	74	5.6	-27	74
Yellow Fever	0	0	0	0	0	0	0	0	0	0	0	0	**0**	0.0	0	0.0	-	0	0.0	-100	0
Yersiniosis	15	17	12	22	16	12	8	20	17	9	10	0	**158**	11.5	13	1.0	-25	203	15.4	-25	216

Ontario Cases: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2013/12/19].

Ontario Population: Ontario Ministry of Health and Long-Term Care, intelliHEALTH Ontario, extracted by Public Health Ontario [2013/09/16].

* 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.

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: The one rubella case in April 2013 was related to travel and was not acquired in Ontario. Although importation status was unknown for 12 of 15 measles cases in 2013, it is important to note that for all cases, documentation indicates that investigation for a source occurred despite the lack of identification.
Note 5: Statistical tests comparing rates were not performed when the YTM rate in previous years was zero.