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Monthly Infectious Diseases Surveillance Report

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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 anticipate that the report will evolve over time according to our users' needs. We welcome feedback by email to SurveillanceServices@oahpp.ca.

Past issues and additional information on the Monthly Infectious Diseases Surveillance Report are available online at: http://www.oahpp.ca/resources/monthly-infectious-diseases-surveillance-report.html.

In this issue:

Infectious Disease in Focus

RESPIRATORY SYNCYTIAL VIRUS

Respiratory syncytial virus (RSV) causes infection of the upper and lower respiratory tracts. It is a major cause of bronchiolitis (swelling of or mucus build-up in the small air passages of the lungs)[1] and pneumonia in children under two years of age.[2] RSV can be divided into subgroups A and B. Group A is reported to be more prevalent.[3,4]

RSV can be transmitted directly through contact with secretions from an ill person or through droplets that become aerosolized when infected individuals sneeze, cough or talk. The virus can also be transmitted indirectly through contact with surfaces and objects that are contaminated by respiratory secretions.[5] The incubation period for RSV ranges from two to eight days and individuals can be infectious from three to eight days.[5] Children and individuals with weakened immune systems may shed the virus for up to four weeks.[6]

Symptoms associated with RSV include coughing, sneezing, runny nose, decreased appetite, pharyngitis, headache, earache, fatigue and fever.[7] Generally,

individuals infected with RSV experience an upper respiratory tract infection, which may progress to bronchiolitis, bronchitis, croup (inflammation of the larynx and trachea causing breathing difficulties)[1] or pneumonia, particularly among children, immunocompromised persons and the elderly.[7]

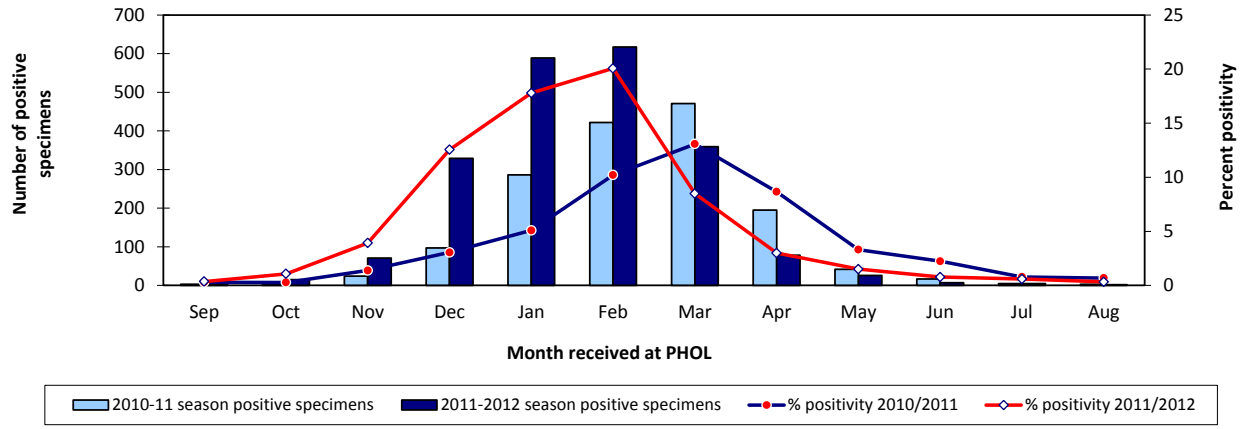
Generally, individuals fully recover from RSV infections, however, certain populations such as infant males are at higher risk of developing complications.[2] This may be related to the narrower and shorter airway structure in infant males, which may lead to inflammation that causes airway obstruction.[8] Other populations at risk for complications of RSV include premature babies born before 34 weeks gestation; late-preterm babies born between 34 and 36 weeks gestation; infants less than six months of age; infants and toddlers with chronic lung or heart disease, cystic fibrosis or Down syndrome; and elderly or immunocompromised individuals.[9,10]

In Canada, an estimated 12,000 children under two years of age are hospitalized due to RSV infection and close to 1% of hospitalized children with RSV die annually.[11] Mortality increases to 3% among hospitalized children who have chronic health conditions. While individual cases of RSV are not reportable in Ontario under the *Health Protection and Promotion Act* (HPPA), respiratory infection outbreaks in institutions caused by RSV and other respiratory pathogens are reportable.

Public Health Ontario Laboratories (PHOL) test respiratory specimens for RSV from community settings and institutional outbreaks using viral culture and molecular methods. Of all respiratory viruses detected at PHOL during the 2011-2012 season, RSV was the most frequently detected virus at 9% (2,101/23,966). This was a 50% increase in positive specimens compared to the 6% detected during the 2010-2011 season (Figure 1). However, it should be noted that the 2011-2012 season was atypical. Influenza is usually the most prevalent virus in circulation, but circulated at relatively low levels during the 2011-2012 season. The 2012-2013 season is ongoing and as such these data are not presented.

Similar to other respiratory viruses, RSV activity starts in late fall and peaks in early winter in the Northern Hemisphere.[7] In Ontario, the incidence of RSV is seasonal in occurrence, with a higher number of positive specimens detected from December to April. The proportion of positive tests peaked in February during the 2011-2012 season and in March for the 2010-2011 season (Figure 1). In general, year to year variability in terms of positivity and peak activity is expected for respiratory viruses.

Figure 1. Number and percent positivity of specimens tested for RSV by month specimen received at PHOL: Ontario, September 1, 2010 to August 31, 2012

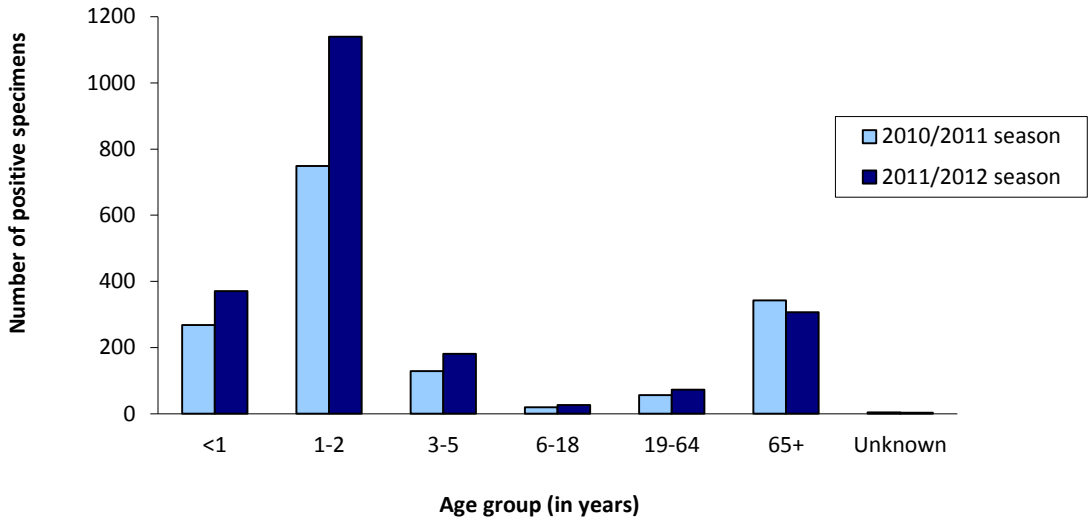


Data Source: Public Health Ontario Laboratory, Laboratory Information and Management System, extracted [2013/01/22].
Note: Counts are specimen, not patient based; more than one specimen may be submitted per patient.

Of all specimens that tested positive for RSV during the 2011-12 season, 72% (1,511/2,101) were from children aged two years and under, which is similar to the previous season (Figure 2). Males accounted for 51% (1,074/2,101) of positive specimens in the 2011-12 season and females accounted for 47% (981/2,101); 2% (46/2,101) of specimens did not have sex reported on the laboratory requisition. Among health units, proportions of positive samples tested for RSV ranged from 4% to 19%. The health units with the highest percent positivity were Lambton County with 19% (51/266); Perth District with 17% (61/360); and Leeds, Grenville and Lanark District with 16% (23/141).

RSV was detected in 14% (114/820) of all respiratory infection outbreaks reported to PHOL during the 2011-2012 season. This was 40% higher compared to the 2010-2011 season when 10% (105/1,089) of respiratory specimens from institutional outbreaks tested positive for RSV. During the 2011-2012 season, approximately 65% (74/114) of these respiratory infection outbreaks were submitted from long-term care or retirement homes; 2% (2/114) were from other settings (e.g. day care, hospital) and 33% (38/114) had no setting recorded.

Figure 2. Number of positive specimens tested for RSV, by age group and month specimen received at PHOL: Ontario, September 1, 2010 to August 31, 2012



Data Source: Public Health Ontario Laboratory, Laboratory Information and Management System, extracted [2013/01/22].
Note: Counts are based on specimens and not patients; more than one specimen may be submitted per patient

Primary preventive measures against RSV include frequent hand hygiene, proper cough etiquette and avoiding contact with ill individuals, especially for persons at high-risk of complications. Currently, there is no specific treatment or vaccine for RSV infection. However, serious complications from RSV infections in at-risk infants can be prevented with a monthly injection of a medication containing RSV antibodies given during peak RSV season (approximately November to April).[6] Although this medication does not provide protection against infection, it can prevent complications in high risk children and reduce hospitalizations.[12] Yearly administration is needed until the risk of severe complications from RSV infection has been eliminated for that individual.[13]

Significant Reportable Disease Activity

From January 1 to January 31, 2013, there were no significant increases in rates of reportable diseases in Ontario compared to the year-to-month (YTM) rates for 2012 and 2011. Appendix 1 provides additional details on the YTM confirmed counts for reportable diseases for 2013 with comparisons to 2012 and 2011.

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 impact on public health in Ontario.

RUBELLA: TRAVEL UPDATE

Cases continue to mount in association with a rubella outbreak concentrated in Tokyo, Japan. A total of 2,353 cases of rubella were reported in 2012, with a further 745 cases reported between January 1 and February 16, 2013. Seventy-nine percent of those infected in 2013 are male, with most between the ages of 20 to 40 years. Prior to 1995, male children in Japan did not receive the rubella vaccine. Six cases of congenital rubella syndrome (CRS) have been reported in association with this outbreak to date.

Also known as German measles, rubella is a viral infection that is transmitted through respiratory droplets (i.e. coughing and sneezing). Women who are infected in the early stages of pregnancy have a high likelihood of passing the infection on to the developing fetus, which can result in congenital rubella syndrome (CRS) causing serious congenital defects or fetal death. Rubella is vaccine-preventable; the first dose of measles, mumps, rubella (MMR) vaccine results in long-lasting immunity to rubella.

Editor's Note: Canada is currently documenting the elimination of measles and rubella, which is supported by routine MMR immunization. Under the *Immunization of School Pupils Act*, all Ontario students are required to have received MMR vaccine, unless they have a valid medical or philosophical exemption. In Ontario, eight cases have been reported since 2008, with travel outside Canada reported for all cases for which a specific exposure was reported. The last outbreak in Ontario occurred in 2005 in an unvaccinated religious community which was linked to an outbreak in the Netherlands. The epidemiology of rubella in Ontario clearly identifies international travel as a risk factor for infection, and underscores the importance of having routine immunizations up-to-date, especially for persons traveling to endemic areas or areas where outbreaks are ongoing.

http://www.promedmail.org/direct.php?id=20130228.1564418
http://www.phac-aspc.gc.ca/im/vpd-mev/rubella-eng.php
http://www.health.gov.on.ca/en/public/publications/immune/mmr.aspx
http://www.who.int/immunization/topics/rubella/en/index.html

SALMONELLA INFECTIONS AND LIVE POULTRY

The beginning of spring often corresponds with an increase of *Salmonella* infections that may originate from contaminated live poultry. *Salmonella* is a bacterium that can cause infection in people when they eat contaminated food or are exposed to infected people or animals. Poultry often carry *Salmonella* in their feces or on their bodies, which can transfer to people who are in contact with the birds or their environments. In recent years, the United States has experienced multi-state outbreaks related to infected baby chicks that were purchased via mail-order services or local farms. U.S. public health agencies have issued a campaign to educate producers and consumers about the risk of *Salmonella* infections from live baby poultry (e.g. chicks), including materials for parents and children on safe handling of baby poultry.

Editor's Note: Approximately 2,400 cases of salmonellosis occur each year in Ontario. Young children, seniors, and people whose immune systems are compromised are most susceptible to *Salmonella* infections. Salmonellosis can be prevented by cooking meats, poultry and eggs thoroughly, avoiding unpasteurized milk, and by washing hands before and after handling food, after using the washroom and after handling animals and their environments. Live poultry should not be permitted in the same environment where food or drink is prepared, served or stored.

http://www.cdc.gov/media/dpk/2013/dpk-live-poultry-salmonella.html
http://www.nejm.org/doi/pdf/10.1056/NEJMoa1111818
http://www.phac-aspc.gc.ca/fs-sa/fs-fi/salmonella-eng.php

Telehealth Report

Telehealth Ontario is a toll-free nursing helpline available to all residents of Ontario 24 hours a day, seven days a week. PHO conducts surveillance using Telehealth call data that has been categorized into three syndromes: gastrointestinal (GI), fever/Influenza-like illness (ILI), and respiratory (which includes both upper and lower respiratory symptoms). Data are utilized to determine whether observed call volumes are greater than statistically expected and to identify significant clusters of the targeted syndromes. Significant geo-temporal clusters (detected using SaTScan) and/or temporal aberrations (detected using the Early Aberration Reporting System [EARS]) are communicated through the Public Health Ontario Portal and directly to the affected health unit(s) when they occur. Aberrations in Telehealth data may precede future case identification and outbreak activity, serving as a potential early warning system for these phenomena[*]. More information on EARS and SaTScan can be found in the Glossary.

In February 2013, six distinct respiratory syndrome clusters were identified among Telehealth calls (Table 1). In addition, seven GI syndrome EARS flags and one respiratory syndrome EARS flag indicating statistically significant increases above the expected call volume were identified in the month of February (Figures 4 and 5).

[*] Evidence on the use of Telehealth to identify outbreaks is limited; however this information is being provided in order to present full disclosure of information available to Public Health Ontario

Table 1. Significant call clusters identified by SaTScan by syndrome type: Ontario, February 2013

Syndrome Type	Cluster Dates	Central FSA	# FSAs	Health Units Affected	Rad (km)	Obs	Exp	Obs/ exp	p
Resp	Jan 29 to Feb 4	N3B	8	Waterloo Region, Wellington-Dufferin-Guelph	15.28	28	12.21	2.29	.010
	Jan 29 to Feb 4	K0M-1	35	Haliburton-Kawartha-Pine Ridge District, Simcoe-Muskoka District, Peterborough County, North Bay Parry Sound District, Hastings and Prince Edward Counties and York Region	106.67	71	44.92	1.58	.048
	Feb 1 to Feb 7	N0B-5	8	Waterloo Region	14.29	32	14.21	2.25	.0031
	Feb 4 to Feb 10[1]	N1S	62	Waterloo Region, Hamilton, Wellington-Dufferin-Guelph, Brant County, Halton Region, Oxford County	39.46	176	132.9	1.32	.032
	Feb 6 to Feb 12[1]	N3L	84	Brant County, Hamilton, Waterloo Region, Oxford County, Haldimand-Norfolk, Wellington-Dufferin-Guelph and Halton Region	50.68	224	174.63	1.28	.023
	Feb 6 to Feb 12	P7B	8	Northwestern, Thunder Bay District	230.36	31	15.29	2.03	.036
	Feb 14 to Feb 20[2]	P0P-1	30	Sudbury and District, North Bay Parry Sound District, Algoma District, Grey Bruce, Timiskaming	192.69	70	42.54	1.65	.0079
	Feb 15 to Feb 21[2]	P0P-1	29	Sudbury and District, North Bay Parry Sound District, Algoma District, Grey Bruce, Timiskaming	188.78	66	39.87	1.66	.0089

Obs = Observed count, Exp = Expected count, FSA = Forward sortation area, Km = Kilometre

Source: Ontario Ministry of Health and Long-Term Care, Telehealth Ontario, extracted by Public Health Ontario [2013/03/01].

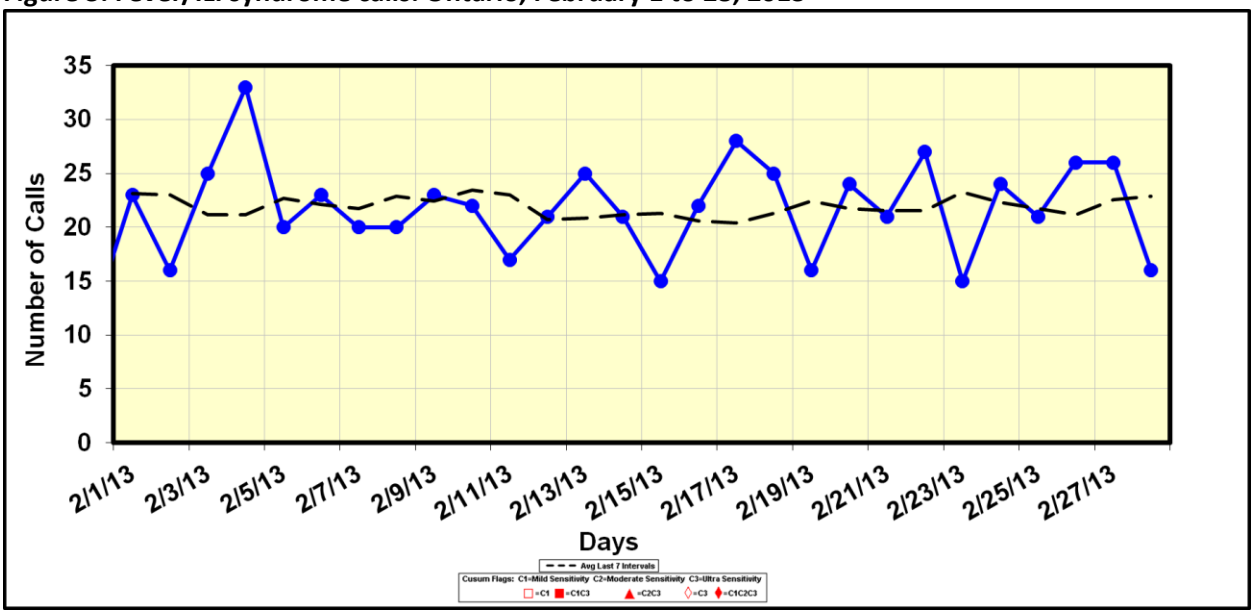
[1] Identified respiratory syndrome clusters that represent a single event that remained significant on two separate days over a three day period.

[2] Identified respiratory syndrome clusters that represent a single event that remained significant for two consecutive days.

TELEHEALTH CALL VOLUMES - FEVER/ILI SYNDROME

For the month of February 2013, no fever/ILI syndrome clusters or fever/ILI EARS flags were detected (Table 1 and Figure 3).

Figure 3. Fever/ILI syndrome calls: Ontario, February 1 to 28, 2013

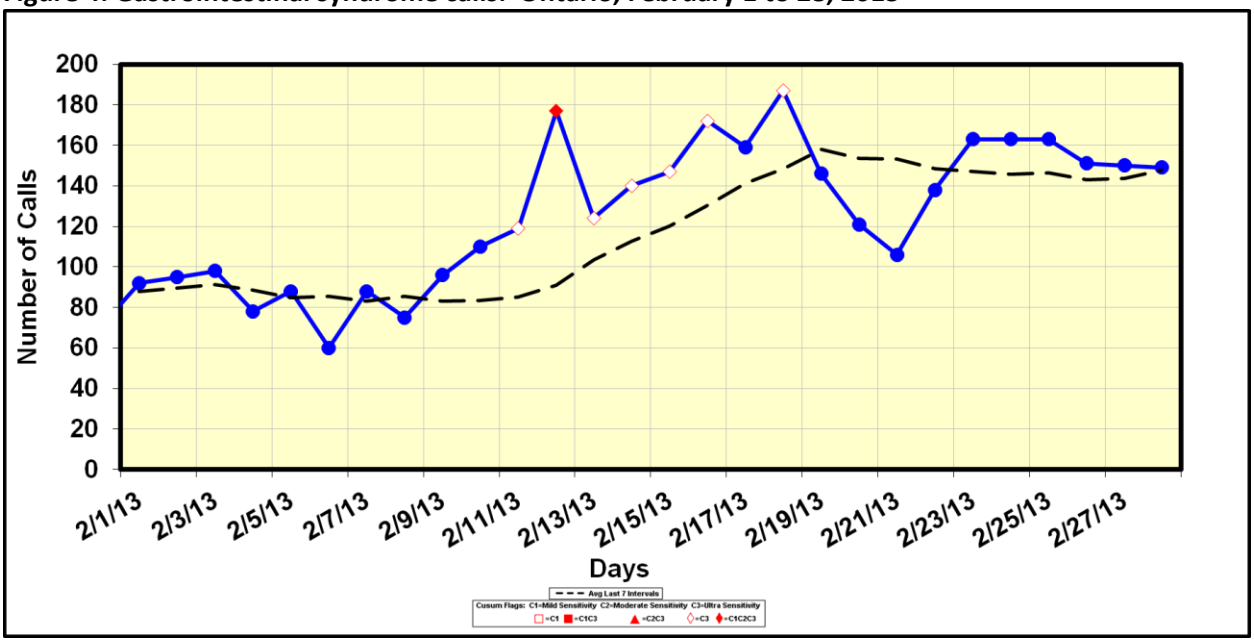


Source: Ontario Ministry of Health and Long-Term Care, Telehealth Ontario, extracted by Public Health Ontario [2013/03/01].

TELEHEALTH CALL VOLUMES - GI SYNDROME

No GI syndrome clusters were identified in February 2013. However, seven GI syndrome EARS flags were detected from February 11 to 16 and on February 18, indicating a statistically significant increase above the expected call volume during the middle of the month (Figure 4).

Figure 4. Gastrointestinal syndrome calls: Ontario, February 1 to 28, 2013

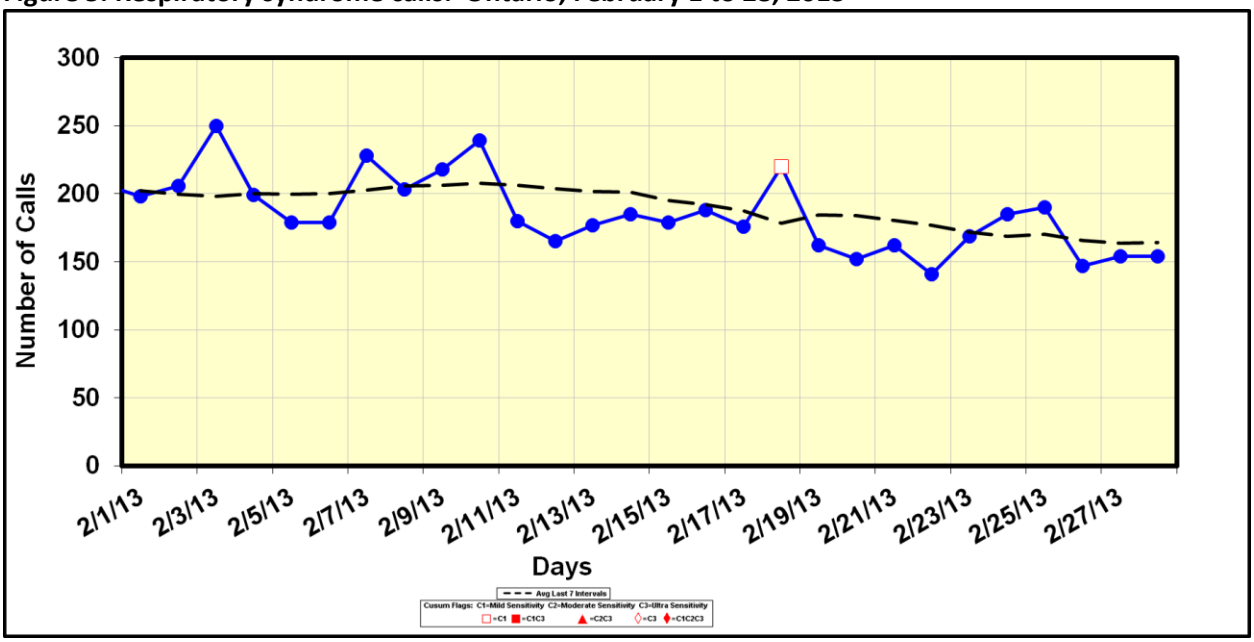


Source: Ontario Ministry of Health and Long-Term Care, Telehealth Ontario, extracted by Public Health Ontario [2013/03/01].

TELEHEALTH CALL VOLUMES - RESPIRATORY SYNDROME

Six distinct respiratory syndrome clusters were identified in February 2013. Table 1 above provides a detailed summary of each cluster, including the affected health units and date ranges in which each cluster was identified. One respiratory syndrome EARS flag was detected on February 18; call volumes showed a slow and gradual decrease towards the end of the month (Figure 5).

Figure 5. Respiratory syndrome calls: Ontario, February 1 to 28, 2013



Source: Ontario Ministry of Health and Long-Term Care, Telehealth Ontario, extracted by Public Health Ontario [2013/03/01].

Ontario Outbreak Review

The Ontario Outbreak Review section provides the total number of institutional respiratory infection outbreaks for the 2012-2013 respiratory virus season (Table 2). The number of outbreaks during the same period for the 2010-2011 and 2011-2012 respiratory virus seasons are also presented for comparison.

Table 2. Total number of institutional respiratory infection outbreaks: Ontario, surveillance season to week 9, 2010-11 to 2012-13

Time period	Total Number of Confirmed Outbreaks
2012-13 season	970
2011-12 season	376
2010-11 season	645

Sources: Ontario Respiratory Virus Bulletin – Surveillance Week 9 (February 24, 2013 – March 2, 2013); Ontario Influenza Bulletin – Surveillance Week 9 (February 26 – March 3, 2012); and Ontario Influenza Bulletin – Surveillance Week 9 (February 27 – March 5, 2011).

Enhanced Surveillance Directives (ESD) Discontinued in February

No Enhanced Surveillance Directives were discontinued in February 2013.

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Appendix – Reportable Diseases

Appendix 1. Confirmed cases of reportable diseases by month: Ontario, 2011-2013*

REPORTABLE DISEASE	2013														2012					2011				
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YTD	YTD Rate	YTM	YTM Rate	% Difference (YTM 2013 - 2012)†	2012 Total	2012 Rate	YTM	YTM Rate	% Difference (YTM 2013 - 2011)†	2011 Total	2011 Rate
AIDS	6												**6**	0.0	**15**	0.1	*-60.0*	**59**	0.4	**9**	0.1	*-34.1*	**106**	0.8
Amebiasis	5												**5**	0.0	**25**	0.2	*-80.0*	**192**	1.4	**22**	0.2	*-77.5*	**216**	1.6
Botulism	0												**0**	0.0	**0**	0.0	-	**5**	0.0	**0**	0.0	-	**2**	0.0
Brucellosis	0												**0**	0.0	**0**	0.0	-	**9**	0.1	**0**	0.0	-	**1**	0.0
Campylobacter Enteritis	132												**132**	1.0	**211**	1.6	*-37.4*	**3,844**	28.4	**197**	1.5	*-33.8*	**3,507**	26.2
Chlamydial Infections	3,094												**3,094**	22.9	**3,342**	24.7	*-7.4*	**36,417**	269.1	**3,011**	22.5	*1.5*	**36,405**	272.3
Cholera	0												**0**	0.0	**0**	0.0	-	**0**	0.0	**0**	0.0	-	**0**	0.0
Cryptosporidiosis	8												**8**	0.1	**13**	0.1	*-38.5*	**295**	2.2	**14**	0.1	*-43.5*	**301**	2.3
Cyclosporiasis	0												**0**	0.0	**2**	0.0	*-100.0*	**79**	0.6	**3**	0.0	*-100.0*	**105**	0.8
Cytomegalovirus Infection, Congenital	2												**2**	0.0	**0**	0.0	-	**3**	0.0	**1**	0.0	*97.6*	**11**	0.1
Encephalitis- Primary Viral	1												**1**	0.0	**2**	0.0	*-50.0*	**15**	0.1	**1**	0.0	*-1.2*	**14**	0.1
Encephalitis- Unspecified	0												**0**	0.0	**1**	0.0	*-100.0*	**3**	0.0	**0**	0.0	-	**1**	0.0
Encephalitis/Meningitis	5												**5**	0.0	**9**	0.1	*-44.4*	**173**	1.3	**8**	0.1	*-38.2*	**140**	1.0
Food poisoning, all causes	6												**6**	0.0	**5**	0.0	*20.0*	**55**	0.4	**0**	0.0	-	**63**	0.5
Giardiasis	86												**86**	0.6	**91**	0.7	*-5.5*	**1,273**	9.4	**112**	0.8	*-24.1*	**1,291**	9.7
Gonorrhoea (All types)	424												**424**	3.1	**375**	2.8	*13.1*	**4,091**	30.2	**361**	2.7	*16.0*	**4,205**	31.4
Group A Streptococcal Disease, Invasive	49												**49**	0.4	**69**	0.5	*-29.0*	**600**	4.4	**68**	0.5	*-28.8*	**669**	5.0
Group B Streptococcal Disease, Neonatal	3												**3**	0.0	**5**	0.0	*-40.0*	**53**	0.4	**2**	0.0	*48.2*	**57**	0.4
Haemophilus Influenzae B Disease, Invasive	1												**1**	0.0	**0**	0.0	-	**5**	0.0	**2**	0.0	*-50.6*	**11**	0.1
Hepatitis A	13												**13**	0.1	**5**	0.0	*160.0*	**123**	0.9	**6**	0.0	*114.1*	**105**	0.8
Hepatitis B	6												**6**	0.0	**9**	0.1	*-33.3*	**97**	0.7	**7**	0.1	*-15.3*	**121**	0.9
Hepatitis C	306												**306**	2.3	**372**	2.7	*-17.7*	**4,102**	30.3	**351**	2.6	*-13.9*	**4,167**	31.2
Hepatitis D	0												**0**	0.0	**1**	0.0	*-100.0*	**2**	0.0	**0**	0.0	-	**3**	0.0
Herpes, Neonatal	0												**0**	0.0	**0**	0.0	-	**5**	0.0	**0**	0.0	-	**8**	0.1
HIV	44												**44**	0.3	**83**	0.6	*-47.0*	**761**	5.6	**65**	0.5	*-33.1*	**867**	6.5
Influenza**	3,303												**3,303**	24.4	**230**	1.7	*1336.1*	**8,374**	61.9	**2,299**	17.2	*41.9*	**4,247**	31.8
Legionellosis	8												**8**	0.1	**6**	0.0	*33.3*	**188**	1.4	**4**	0.0	*97.6*	**162**	1.2
Leprosy	0												**0**	0.0	**0**	0.0	-	**0**	0.0	**0**	0.0	-	**1**	0.0
Listeriosis	0												**0**	0.0	**3**	0.0	*-100.0*	**44**	0.3	**5**	0.0	*-100.0*	**57**	0.4
Lyme Disease	1												**1**	0.0	**0**	0.0	-	**102**	0.8	**1**	0.0	*-1.2*	**90**	0.7
Malaria	15												**15**	0.1	**14**	0.1	*7.1*	**215**	1.6	**15**	0.1	*-1.2*	**231**	1.7
Measles	1												**1**	0.0	**0**	0.0	-	**3**	0.0	**0**	0.0	-	**8**	0.1
Meningitis- Bacterial	5												**5**	0.0	**5**	0.0	*0.0*	**44**	0.3	**1**	0.0	*394.0*	**25**	0.2
Meningitis- Other	0												**0**	0.0	**1**	0.0	*-100.0*	**7**	0.1	**1**	0.0	*-100.0*	**4**	0.0
Meningitis- Viral	2												**2**	0.0	**3**	0.0	*-33.3*	**68**	0.5	**0**	0.0	-	**41**	0.3
Meningococcal Disease, Invasive	3												**3**	0.0	**3**	0.0	*0.0*	**32**	0.2	**4**	0.0	*-25.9*	**43**	0.3
Mumps	1												**1**	0.0	**1**	0.0	*0.0*	**16**	0.1	**2**	0.0	*-50.6*	**63**	0.5
Ophthalmia Neonatorum	0												**0**	0.0	**0**	0.0	-	**3**	0.0	**0**	0.0	-	**1**	0.0
Paratyphoid Fever	3												**3**	0.0	**4**	0.0	*-25.0*	**35**	0.3	**9**	0.1	*-67.1*	**62**	0.5
Pertussis (Whooping Cough)	12												**12**	0.1	**70**	0.5	*-82.9*	**798**	5.9	**5**	0.0	*137.1*	**230**	1.7
Q Fever	2												**2**	0.0	**4**	0.0	*-50.0*	**15**	0.1	**0**	0.0	-	**20**	0.1
Rabies	0												**0**	0.0	**0**	0.0	-	**1**	0.0	**0**	0.0	-	**0**	0.0
Rubella	0												**0**	0.0	**1**	0.0	*-100.0*	**1**	0.0	**0**	0.0	-	**0**	0.0
Rubella, Congenital Syndrome	0												**0**	0.0	**0**	0.0	-	**0**	0.0	**0**	0.0	-	**0**	0.0
Salmonellosis	133												**133**	1.0	**189**	1.4	*-29.6*	**3,026**	22.4	**192**	1.4	*-31.6*	**2,575**	19.3
Shigellosis	21												**21**	0.2	**35**	0.3	*-40.0*	**270**	2.0	**19**	0.1	*9.2*	**255**	1.9
Streptococcus Pneumoniae, Invasive	132												**132**	1.0	**138**	1.0	*-4.3*	**1,250**	9.2	**134**	1.0	*-2.7*	**1,258**	9.4
Syphilis, Congenital	0												**0**	0.0	**0**	0.0	-	**1**	0.0	**0**	0.0	-	**1**	0.0
Syphilis, Infectious	25												**25**	0.2	**85**	0.6	*-70.6*	**747**	5.5	**64**	0.5	*-61.4*	**768**	5.7
Syphilis, Other	41												**41**	0.3	**71**	0.5	*-42.3*	**665**	4.9	**50**	0.4	*-19.0*	**755**	5.6
Tetanus	1												**1**	0.0	**0**	0.0	-	**1**	0.0	**0**	0.0	-	**1**	0.0
Tuberculosis	34												**34**	0.3	**48**	0.4	*-29.2*	**593**	4.4	**50**	0.4	*-32.8*	**658**	4.9
Tularemia	0												**0**	0.0	**0**	0.0	-	**1**	0.0	**0**	0.0	-	**0**	0.0
Typhoid Fever	8												**8**	0.1	**6**	0.0	*33.3*	**77**	0.6	**22**	0.2	*-64.1*	**103**	0.8
Verotoxin Producing E. Coli including HUS	13												**13**	0.1	**5**	0.0	*160.0*	**200**	1.5	**7**	0.1	*83.5*	**232**	1.7
West Nile Virus Illness	0												**0**	0.0	**0**	0.0	-	**237**	1.8	**0**	0.0	-	**57**	0.4
Yellow Fever	0												**0**	0.0	**1**	0.0	*-100.0*	**2**	0.0	**0**	0.0	-	**0**	0.0
Yersiniosis	14												**14**	0.1	**16**	0.1	*-12.5*	**159**	1.2	**20**	0.1	*-30.8*	**211**	1.6

Sources: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [2013/02/19]. Population data obtained from IntelliHEALTH Ontario, retrieved by Public Health Ontario [2012/03/15].

Note 1: Rates (year-to-date (YTD) and year-to-month (YTM)) presented in the table are per 100,000 population.

Note 2: 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 3: Case counts for tuberculosis and AIDS are based on diagnosis date and not episode date. HIV case counts are based on encounter date.

Note 4: Differentials in year over year comparisons are reflective of changes in disease incidence and changes in the size of the population.

Note 5: The case of rubella reported in January 2012, the case of rabies reported in April 2012, the measles cases reported in May and August 2012 were related to travel and were not acquired in Ontario. The measles cases reported in September 2012 and January 2013 did not have travel history noted.

Note 6: Statistical tests comparing rates were not performed when the YTM rate in previous years was zero.

* Appendix 1 is not an exhaustive list of all reportable diseases in Ontario.

† Percent (%) difference is calculated using unrounded rates; numbers displayed in these columns may vary from calculations using rounded rates.

Glossary

Early Aberration Reporting System (EARS) – Software from the U.S. Centers for Disease Control and Prevention (CDC) designed for aberration detection using public health surveillance data. EARS uses three limited baseline aberration detection methods (based on a positive 1-sided CUSUM calculation) and produces three types of statistically marked aberrations, or flags, when the observed values are greater than statistically expected (details below). More information on EARS can be found at www.bt.cdc.gov/surveillance/ears.

C1 (mild) – Lowest sensitivity EARS flag. The baseline period for C1-MILD is obtained from the previous 7 days in closest proximity to the current value. Therefore, when this flag is produced on a particular day, the next day is less likely to produce a flag because the elevated count from the previous day will be incorporated into the new baseline period.

C2 (medium) – EARS flag that uses a 7-day baseline period, but with a 2-day lag between the baseline and the current day. For example, on the 10th day of surveillance the baseline data will be from day 1 to day 7. This flag is more likely to note high consecutive values, because they are not immediately incorporated into the baseline period as for C1 flag.

C3 (ultra) – Highest sensitivity EARS flag. Uses the baseline period as the C2-MEDIUM, but the threshold is based on a 3-day average run length of the one-sided positive CUSUM. It is useful for identifying aberrations that gradually increase over short periods of time.

SaTScan – Software that analyzes geospatial and temporal data using space-time scan statistic. It utilizes thousands or millions of overlapping cylinders to define the scanning window with its base representing the geographical area of a potential outbreak and its height representing the number of days. For each cylinder the observed/expected ratio is calculated and the most likely cluster is identified, along with secondary clusters. More information on SaTScan can be found at www.satscan.org.