

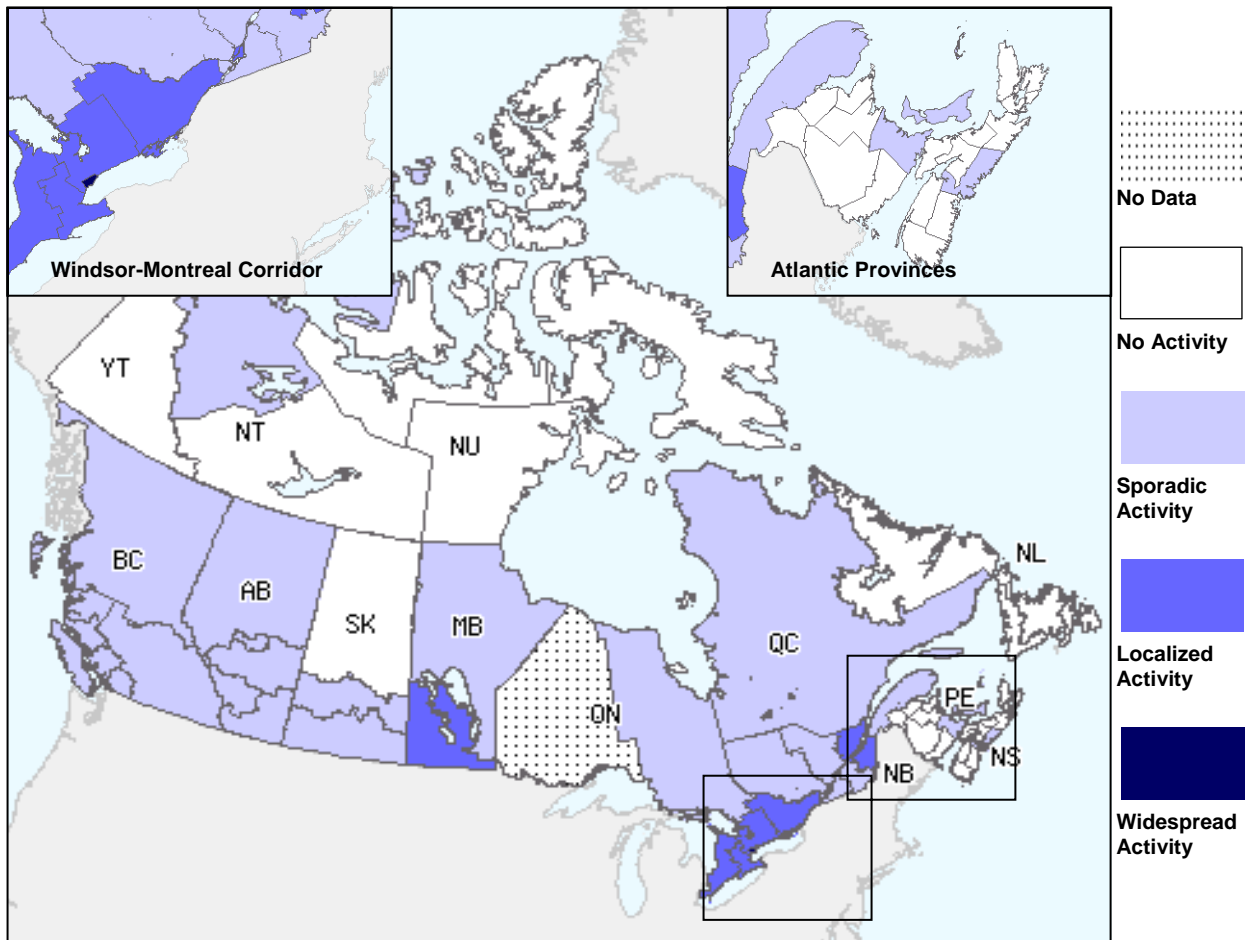
December 19, 2010 to January 1, 2011 (Weeks 51 & 52)

- During weeks 51 and 52 the overall influenza activity in Canada continued to increase across the country.
- Twenty five percent of specimens tested were positive for influenza during the two-week period, an increase from previous weeks. The ILI consultation rate also increased, but was within the expected range.
- Influenza A was identified in 98.3% of positive influenza tests, and among those which were subtyped, 94% were influenza A/H3N2 and 6% were pandemic H1N1 2009.
- Both the number of paediatric and adult hospitalizations with influenza reported through IMPACT and CNISP surveillance systems increased during weeks 51 and 52 compared to the previous week.

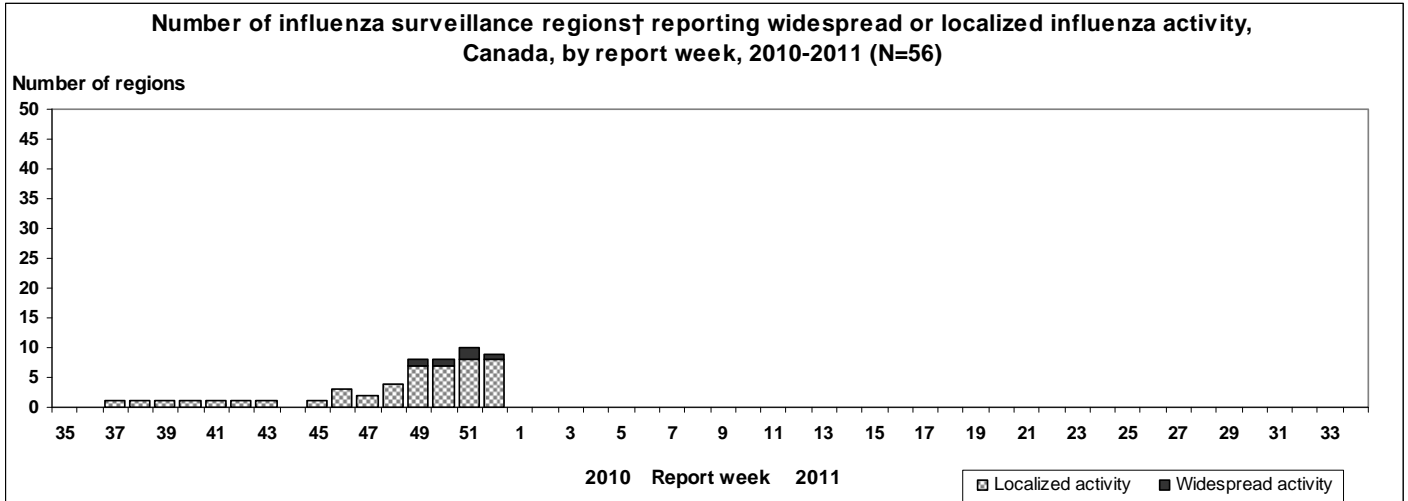
Overall Influenza Summary – Week 51 & 52 (December 19, 2010 to January 1, 2011)

In week 52, one region in ON reported widespread influenza activity, 8 regions reported localized activity (MB, ON & QC), 22 regions reported sporadic activity (BC, AB, SK, MB, ON, QC, NB, NS, PE & NT) and 24 regions presented no activity (See Activity level Map). Compared to week 50, 12 regions reported increased influenza activity over weeks 51 and 52, 1 region reported decreased activity, and 15 regions maintained a stable level of influenza activity (sporadic or higher). During weeks 51 and 52, 56 new ILI/influenza outbreaks were reported: 37 in long-term care facilities (LTCF) in AB(1), MB(11), ON(17), QC(7) and NS(1); 8 outbreaks in hospitals in MB(2) and ON(6); and 11 outbreaks in other facilities/settings in ON.

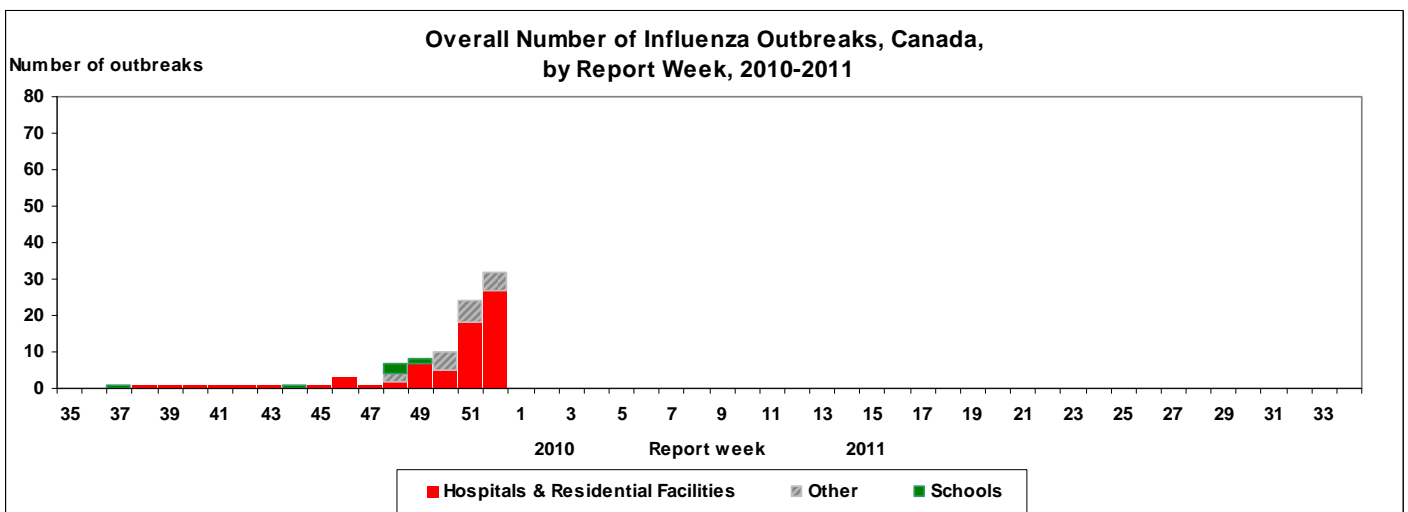
Map of overall Influenza activity level by province and territory, Canada, Week 52



Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.



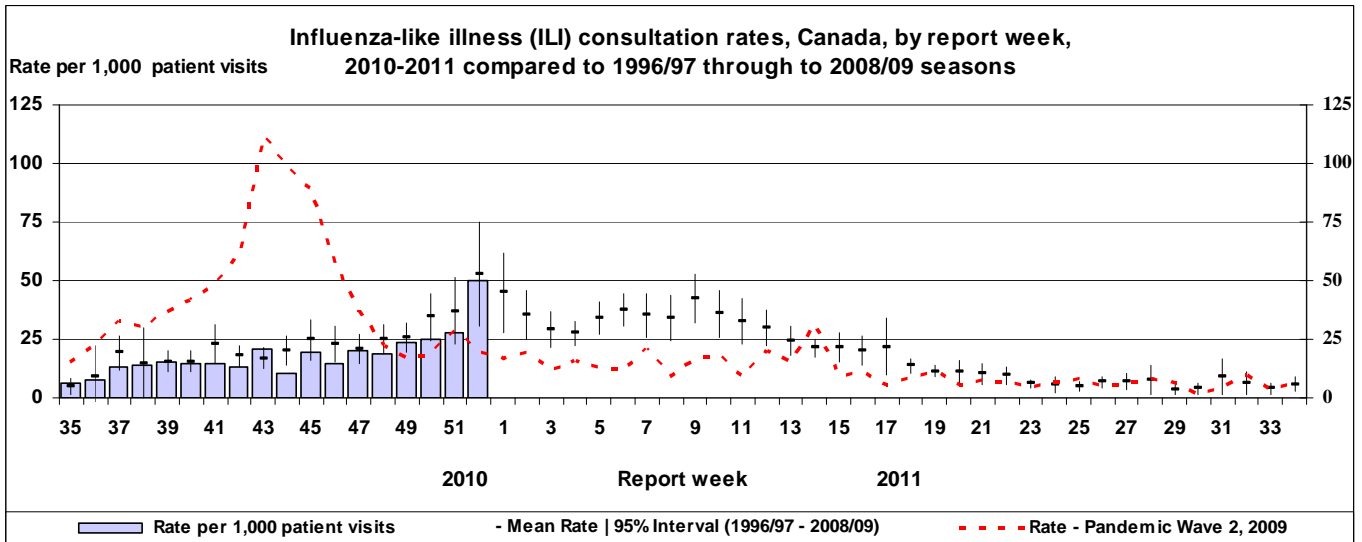
† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.



Note that this was the first year that all the provinces and territories were reporting on influenza outbreaks in schools (greater than 10% absenteeism on any day most likely due to ILI) which has increased considerably the total number of outbreaks reported compared to previous years.

ILI consultation rate

During week 51, the national ILI consultation rate was 27.5 consultations per 1,000 patient visits, and it continued to increase during week 52 to 49.8 consultations per 1,000 patient visits. This is still within the expected levels for this time of year (see ILI graph). Children under 5 years of age had the highest consultation rates (63.3 per 1,000 consultations in week 52) followed by children between 5 and 19 years (54.3 per 1,000).



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through to 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

Laboratory Surveillance Summary

The proportion of tests that were positive for influenza during week 51 was 23.1% and during week 52 was 24.6%. The proportion of positive tests has increased since week 45, and was higher than what is usually observed at this time of the year, reflecting an earlier start to the influenza season. Of the 2300 positive tests reported during weeks 51 and 52, 658 specimens were reported as influenza A/H3N2, 40 as pandemic H1N1 2009 (BC, AB, ON, QC, PE), 40 as influenza B (BC, AB, ON & QC) and 1561 as unsubtype influenza A (all provinces except NS, PE, NL). In addition, one non-pandemic A/H1N1 specimen was detected during week 52 in BC. Although the majority of influenza virus detections to date this season were influenza A viruses (97.8% or 3657/3739), detections for influenza B viruses continued to increase. Since the beginning of the season, 94.2% of the subtyped positive influenza A specimens were influenza A/H3N2. During week 52, 57.3% (86/150) of cases with A/H3N2 reported through the detailed case-based laboratory reporting were aged over 65 years, while since August 29, 2010, the proportion was 48.0% (417/868) (see Tests detailed table). In weeks 51 and 52, the proportion of respiratory syncytial virus detections (RSV) increased slightly to 11.1% of specimens tested while low levels of parainfluenza (2.7%) and adenovirus (2.2%) continue to be reported (see Respiratory viruses graph).

Bi-weekly & Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2010-2011

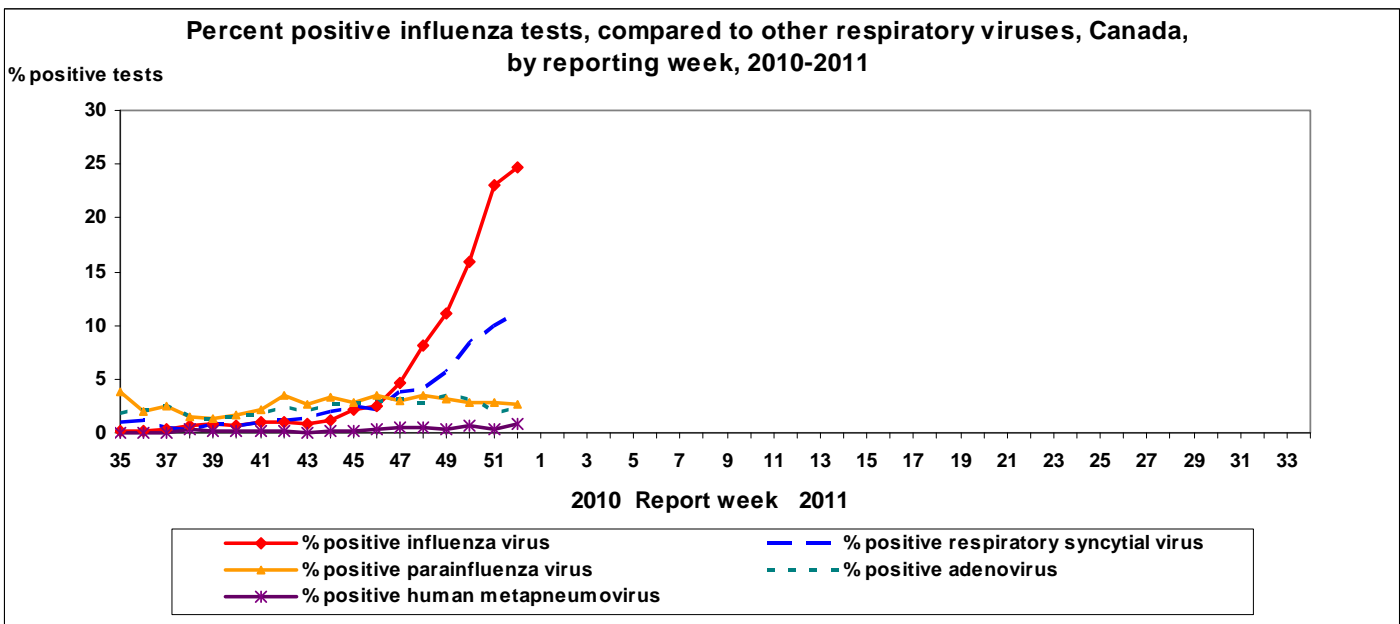
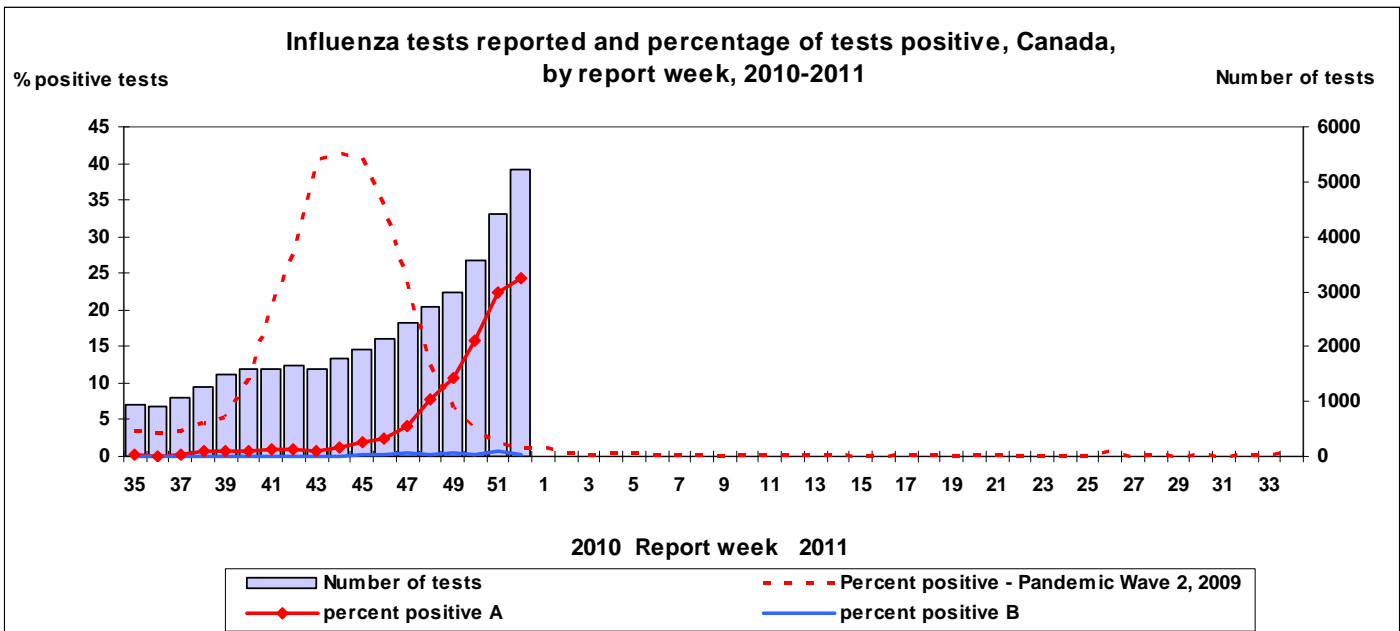
Reporting provinces	Bi-weekly (December 19 to January 1, 2011)						Cumulative (August 29, 2010 to January 1, 2011)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	20	1	7	3	9	1	43	1	22	5	15	4
AB	66	0	55	6	5	3	121	0	95	10	16	4
SK	5	0	1	0	4	0	15	0	5	0	10	4
MB	172	0	0	0	172	0	377	0	53	0	324	0
ON	999	0	502	26	471	28	1622	0	798	47	777	50
QC	994	0	91	4	899	8	1475	0	139	5	1331	20
NB	2	0	1	0	1	0	2	0	1	0	1	0
NS	1	0	1	0	0	0	1	0	1	0	0	0
PE	1	0	0	1	0	0	1	0	0	1	0	0
NL	0	0	0	0	0	0	0	0	0	0	0	0
Canada	2260	1	658	40	1561	40	3657	1	1114	68	2474	82

*Unsubtyped: The specimen was typed as influenza A, but no test for subtyping was performed. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2010-2011*

Age groups	Weekly (Dec. 26 to Jan. 1, 2011)					Cumulative (Aug. 29, 2010 to Jan. 1, 2011)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtype	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtype	Total
<5	29	3	22	4	1	182	12	139	31	10
5-19	7	1	3	3	0	72	4	48	20	7
20-44	22	5	12	5	3	158	12	102	44	9
45-64	24	4	16	4	0	129	15	92	22	6
65+	116	1	86	29	0	481	1	417	63	2
Unknown	11	0	11	0	0	72	0	70	2	0
Total	209	14	150	45	4	1094	44	868	182	34

*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Five provinces have reported detailed case-by-case data since the beginning of the season (BC, AB, SK, MB and ON). Delays in the reporting of data may cause data to change retrospectively.



Canadian situation

Paediatric Influenza Hospitalizations and Deaths

In weeks 51 and 52, 81 new laboratory-confirmed influenza-associated paediatric (16 years of age and under) hospitalizations were reported through the Immunization Monitoring Program Active (IMPACT) network: 2 from BC, 2 from AB, 1 from SK, 8 from MB, 25 from ON, and 43 from QC. This number is increased compared to the previous 2 week period (weeks 49 & 50) in which 37 paediatric hospitalizations were reported. No deaths were reported in weeks 51 and 52. This season, one death in a child aged between 6 months and 23 months, who tested positive for pandemic H1N1 2009 has been reported. Since the beginning of the season, 154 hospitalizations have been reported from BC, AB, SK, MB, ON & QC; 19 (12.3%) as influenza A/H3N2, 4 (2.6%) pandemic H1N1 2009, 124 (80.5%) as unsubtype influenza A, and 7 (4.5%) type B. The distribution of cases to date by age group was as follows: 16.9% among 0-5 month olds; 28.6% among 6-23 month olds; 27.9% among the 2-4 year-olds; 20.1% among 5-9 year-olds; and 6.5% among children 10-16 years old.

Adult Influenza Hospitalizations and Deaths

During weeks 51 and 52, 73 and 93 new laboratory-confirmed influenza-associated adult (16 years of age and older) hospitalizations were reported through the Canadian Nosocomial Infection Surveillance Program (CNISP) from 24 and 27 sites, respectively. This number is increased compared to the previous 2 week period (weeks 49 & 50) when 46 adult hospitalizations were reported. Of the total 166 new hospitalized cases reported between December 19, 2010 and January 1, 2011, 106 (63.9%) tested positive for unsubtype influenza A, 53 (32.0%) as influenza A/H3N2, 4 (2.4%) as pandemic H1N1 2009, and 3 (1.8%) as influenza B. Since the beginning of the season, 254 hospitalized cases have been reported: 72

A/H3N2, 9 pandemic H1N1, 170 influenza A unsubtype, and 3 influenza B, from BC, AB, MB, ON and QC. 180 of the 254 (70.9%) cases were aged 65 years or older and 113 (44.5%) were males.

Among the ten provinces and territories conducting severe outcomes surveillance, since the beginning of the season four deaths have been reported among laboratory-confirmed influenza cases. There were two deaths with influenza A/H3N2 in MB in persons aged between 20 and 44 years and between 45 and 64 years (reported on week 47 and 48, respectively) and two deaths with influenza A among people aged 65 years of age or older in ON (reported on week 40 and 45, respectively). In addition during weeks 51 and 52, Ontario hospitals participating in CNISP reported 4 deaths (2 in each week) with laboratory-confirmed influenza A (unsubtype): one in a person between 65 and 79 years old, and 3 persons older than 80 years of age.

Antigenic Characterization

Between September 1 and January 6, 2011, the National Microbiology Laboratory (NML) has antigenically characterized 94 influenza viruses that were received from provincial laboratories: 71 A/H3N2 from BC, AB, SK, MB, ON & QC, 8 pandemic H1N1 2009 from BC, AB & ON, and 15 B viruses from BC, AB, SK, ON & QC. All 71 influenza A/H3N2 viruses characterized were antigenically related to A/Perth/6/2009, which is the influenza A/H3N2 component recommended for the 2010-11 influenza vaccine. The eight pandemic H1N1 2009 viruses characterized were antigenically related to the pandemic vaccine virus A/California/7/2009, which is the recommended H1N1 component for the 2010-11 influenza vaccine. Of the 15 influenza B viruses characterized, 11 were antigenically related to B/Brisbane/60/08 (Victoria lineage), which is the recommended influenza B component for the 2010-11 influenza vaccine. Four viruses tested showed reduced titer with antisera produced against B/Brisbane/60/08.

Antiviral Resistance

Since the beginning of the 2010-2011 season, NML has tested 90 influenza A/H3N2 and eight pandemic H1N1 isolates for amantadine resistance and found that 89 influenza A/H3N2 were resistant to amantadine and one was sensitive. All 8 influenza A/H1N1 viruses were resistant to amantadine. 84 influenza isolates (61 A/H3N2, 8 pandemic H1N1 and 15 B) were tested for oseltamivir resistance and it was found that all isolates were sensitive to oseltamivir. 84 influenza isolates (61 A/H3N2, 8 pandemic H1N1 and 15 B) were tested for zanamivir resistance and it was found that all isolates were sensitive to zanamivir.

International influenza update

Global information

WHO: The winter influenza season is now underway in parts of the Northern Hemisphere, in particular in Canada, the United States, and the United Kingdom. Canada and the US reported primarily A/H3N2 and influenza B and the UK reported predominantly pandemic H1N1 2009. In tropical regions, Sri Lanka has reported a marked increase in the number of both mild and severe cases related to H1N1 (2009) virus, including 22 deaths. As in the UK, the deaths in Sri Lanka have been predominantly in people under the age of 60 years and most have had preexisting medical conditions. Notably, the large majority of viruses that have been characterized from North America and the UK have been antigenically similar to those contained in the current trivalent influenza vaccine.

<http://www.who.int/csr/disease/influenza/2010_12_30_GIP_surveillance/en/index.html>

Geographic update

Northern hemisphere

United States: During week 51 (December 19-25, 2010), influenza activity continued to increase; 689 (21.0%) specimens tested positive for influenza of which 69.5% were influenza A and 30.5% were influenza B. Of the influenza A positive specimens, 39.0% were influenza A/H3, 3.1% pandemic H1N1 2009 and the rest were unsubtype. The proportion of deaths attributed to pneumonia and influenza (P&I) was at the epidemic threshold. One influenza-associated paediatric death associated with influenza A/H3 infection was reported. The proportion of outpatient visits for influenza-like illness (ILI) was 2.7%, which is above the national baseline of 2.5%. Two of the 10 national regions reported ILI above region-specific baseline levels. Three states in the southeast and New York City experienced high ILI activity. The geographic spread of influenza in five states was reported as widespread, and Puerto Rico and 13 states reported regional activity.

<<http://www.cdc.gov/flu/weekly/index.htm>>

United Kingdom

GP consultation rates remain above baseline levels in all four countries. Pandemic H1N1 2009 and influenza B are the predominant circulating viruses with few, sporadic A/H3N2 viruses detected. The pandemic H1N1 2009 virus strain is virologically and epidemiologically similar to that seen during the pandemic. Thirteen acute respiratory disease outbreaks were reported in UK in week 52, three in primary schools, seven in prisons and two in care homes. This brings the total reported this season so far to 135. From week 36, 50 deaths associated with influenza infection have been reported. The majority of fatal cases reported were unimmunised. By week 52, the proportion of people in England aged over 65 years who had received the 2010/11 influenza vaccine was 70.0%. For those in a risk group aged under 65 it was 45.4%.

<http://www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1287148330414>

Europe: Despite reduced reporting over the holiday season, 16 countries experienced influenza activity of low intensity and four countries reported medium intensity. Three countries (Belgium, France and Portugal) reported widespread activity and six countries reported increasing trends. Of the 642 influenza virus detections during week 51, 65% were type A and 35% were type B. The percentage of sentinel specimens testing positive for influenza virus (33.5%) was lower than in the previous week (39.4%), but this decline may reflect the discontinuity in reporting.

<http://ecdc.europa.eu/en/publications/Publications/101230_SUR_Weekly_Influenza_Surveillance_Overview.pdf>

Asia: ILI rates are beginning to increase in the temperate countries of Asia as well. Mongolia has noted a sharp increase in the proportion of outpatients with ILI and China has noted slight increases recently in the northern part of the country. In both countries, influenza A/H3N2 has been the predominant virus detected. The Republic of Korea and Japan have also noted low level but increasing rates of ILI. H1N1 (2009) is the predominant virus circulating in both countries although in Japan this represents a shift from recent weeks in which A/H3N2 virus was more commonly detected.

<http://www.who.int/csr/disease/influenza/2010_12_30_GIP_surveillance/en/index.html>

FluWatch reports include data and information from the following sources: laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

ILI definition for the 2010-2011 season

ILI in the general population: Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

Definitions of ILI/Influenza outbreaks for the 2010-2011 season

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. workplace, closed communities.

Influenza Activity Levels Definition for the 2010-2011 season

Influenza Regional Activity levels are defined as:

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported
2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region†**

4 = Widespread: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region†**

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Public Health Agency website at the following address: <http://www.phac-aspc.gc.ca/fluwatch/index.html>. Ce rapport est disponible dans les deux langues officielles. Pour en recevoir un exemplaire dans l'autre langue chaque semaine, veuillez communiquer avec Estelle Arseneault, Division de l'immunisation et des infections respiratoires au (613) 998-8862.