



December 12 to December 18, 2010 (Week 50)

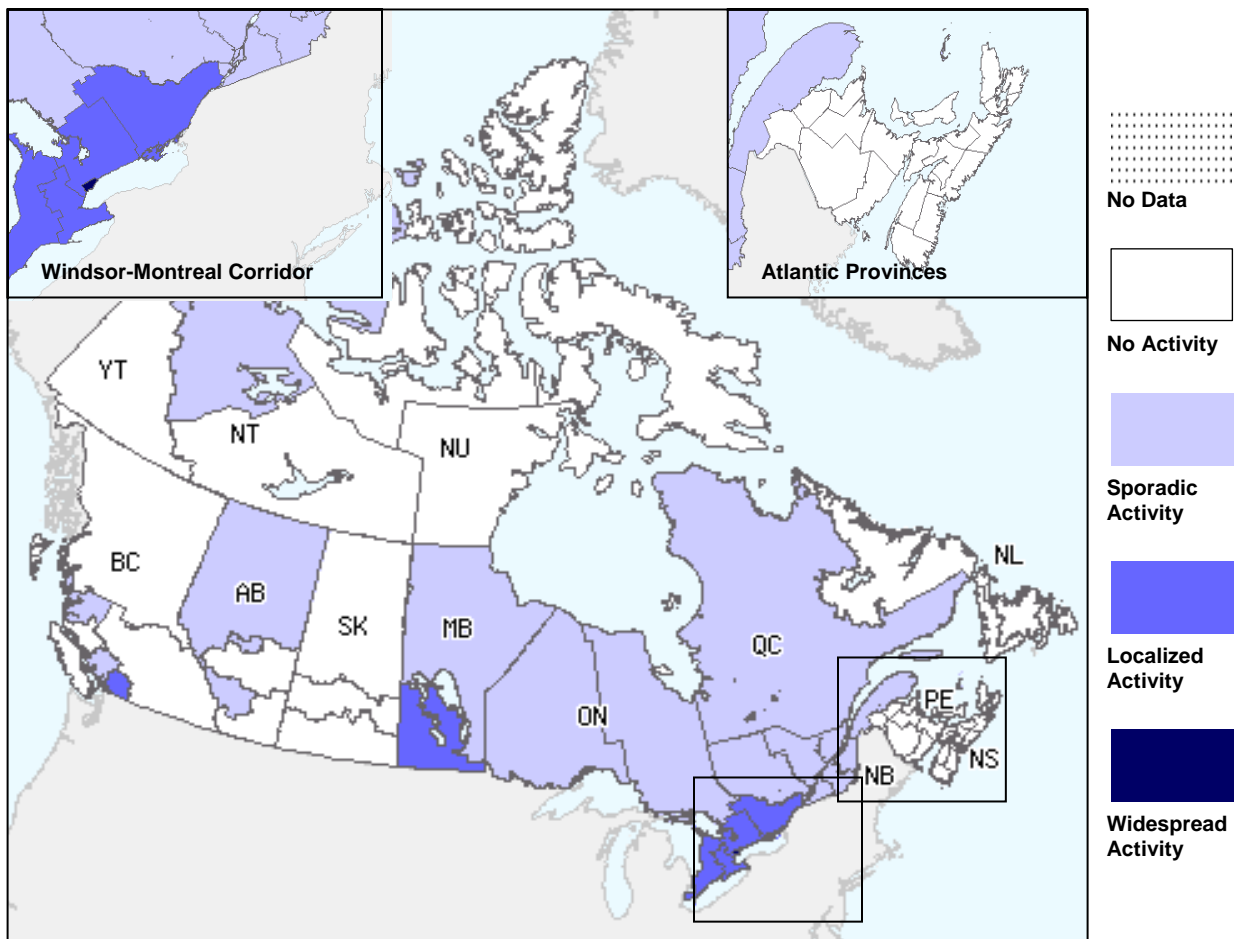
- During week 50, all influenza surveillance indicators continue to increase, particularly in regions across the Prairies, Ontario and Quebec.
- The proportion of positive influenza specimens reported during week 50 has increased over last week with 565 specimens out of 3,577 (15.8%) testing positive of which 99% are influenza A and 1% influenza B. Of the positive influenza A tests subtyped, 91% are influenza A/H3N2 and 9% are pandemic H1N1 2009.
- Worldwide, influenza activity is increasing in the northern hemisphere, in particular in the UK (England), with pandemic influenza A/H1N1 and B being the predominant circulating viruses. Outbreaks and severe cases, mainly in people aged <65 years, continue to be reported in the UK.

Note: This is the final FluWatch report of 2010. No report will be published on December 31st. The FluWatch report for weeks 51 and 52 (December 19th to January 1st) will be published on January 7th, 2011.

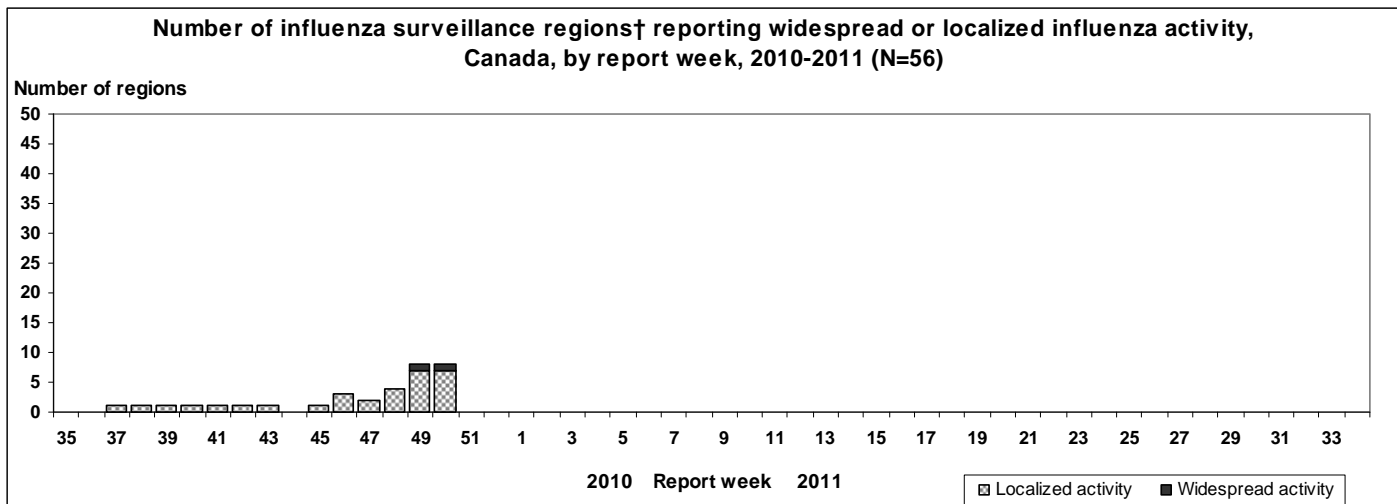
Overall Influenza Summary – Week 50 (December 12 to December 18, 2010)

In week 50, one region in ON reported widespread influenza activity, seven regions reported localized activity (BC, MB, & ON), 14 regions reported sporadic activity (NT, BC, AB, MB, ON & QC) and 34 regions presented no activity (See Activity level Map). Ten new ILI/influenza outbreaks were reported during week 50: 9 outbreaks of unsubtype influenza A in ON (5 in long-term care facilities (LTCF), 4 in other facilities), and one outbreak of pandemic H1N1 2009 in a facility in BC.

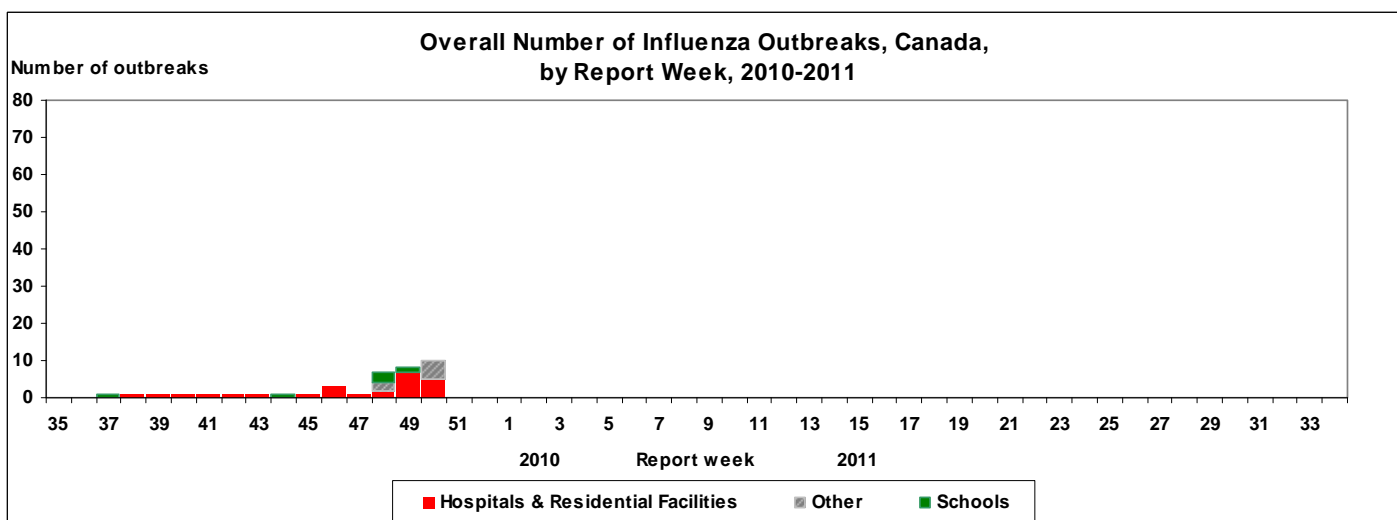
Map of overall Influenza activity level by province and territory, Canada, Week 50



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.



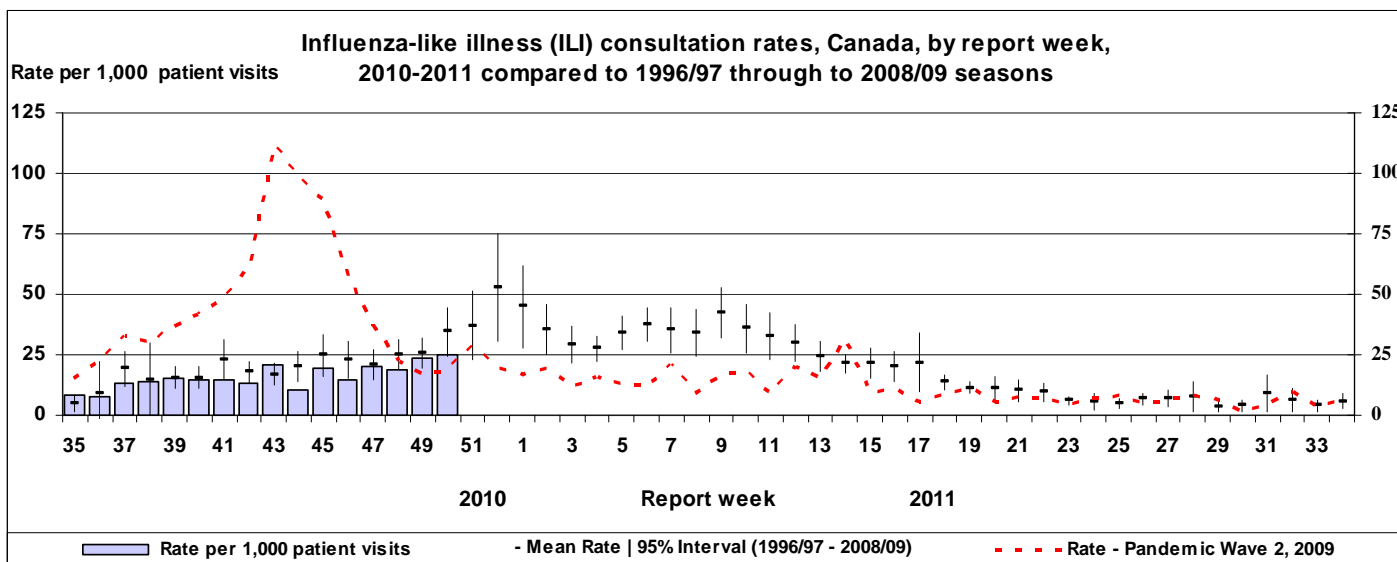
† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.



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 50, the national ILI consultation rate was 24.5 consultations per 1,000 patient visits which has increased from last week but still within the expected levels for this time of year (see ILI graph). Children under 5 years of age had the highest consultation rates (69 per 1,000 consultations) followed by those between 5 and 19 years (59 per 1,000).



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 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 50 (15.8%, 565/3,577) continued to increase. Of the 565 positive tests, 153 specimens were reported as influenza A/H3N2 (BC, AB, SK, ON & QC), 15 as pandemic H1N1 2009 (BC, AB, ON & QC), 5 as influenza B (ON & QC) and 392 as unsubtype influenza A (SK, MB, ON & QC). Although the majority of influenza virus detections to date this season were influenza A viruses (97% or 1386/1428), detections for influenza B viruses are also increasing. Since the beginning of the season, 91% of the subtyped positive influenza A specimens were influenza A/H3N2. During week 50, 45% (41/91) of cases with A/H3N2 reported through the detailed case-based laboratory reporting were aged over 65 years (see Tests detailed table). In week 50, the proportion of respiratory syncytial virus detections (RSV) (8%) increased slightly in the last week while low levels of parainfluenza (2.7%) and adenovirus (3.1%) continue to be reported (see Respiratory viruses graph).

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

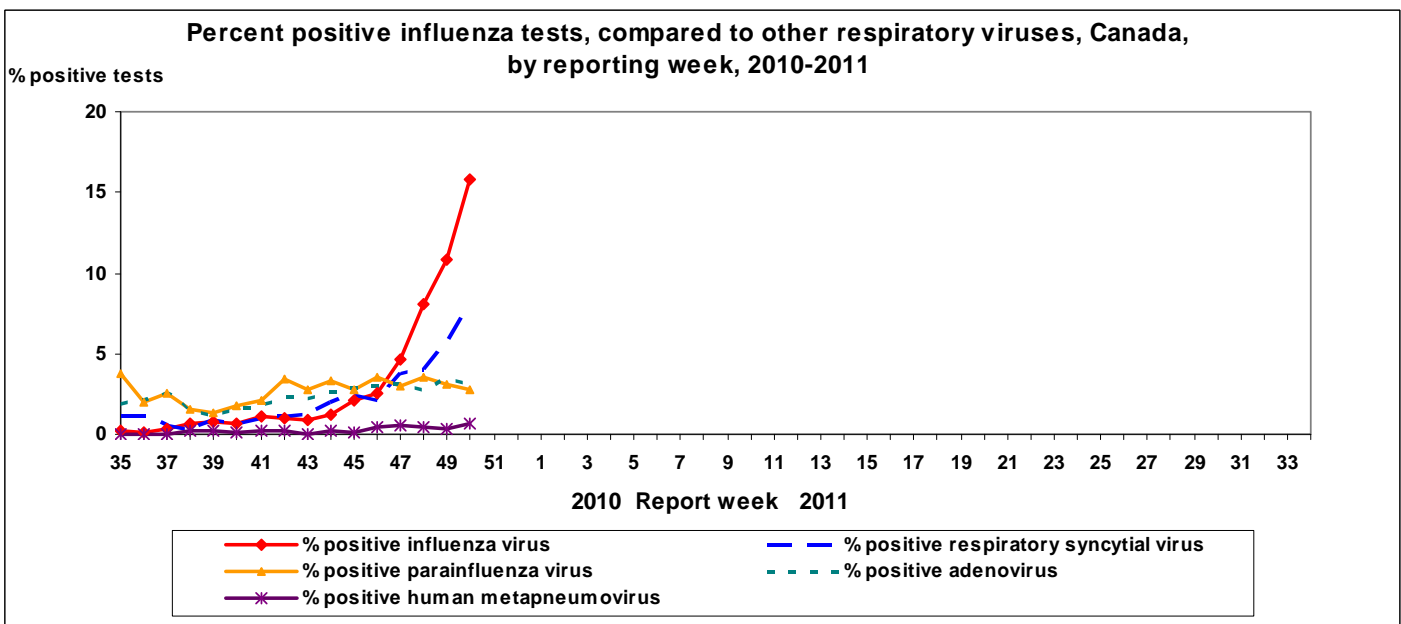
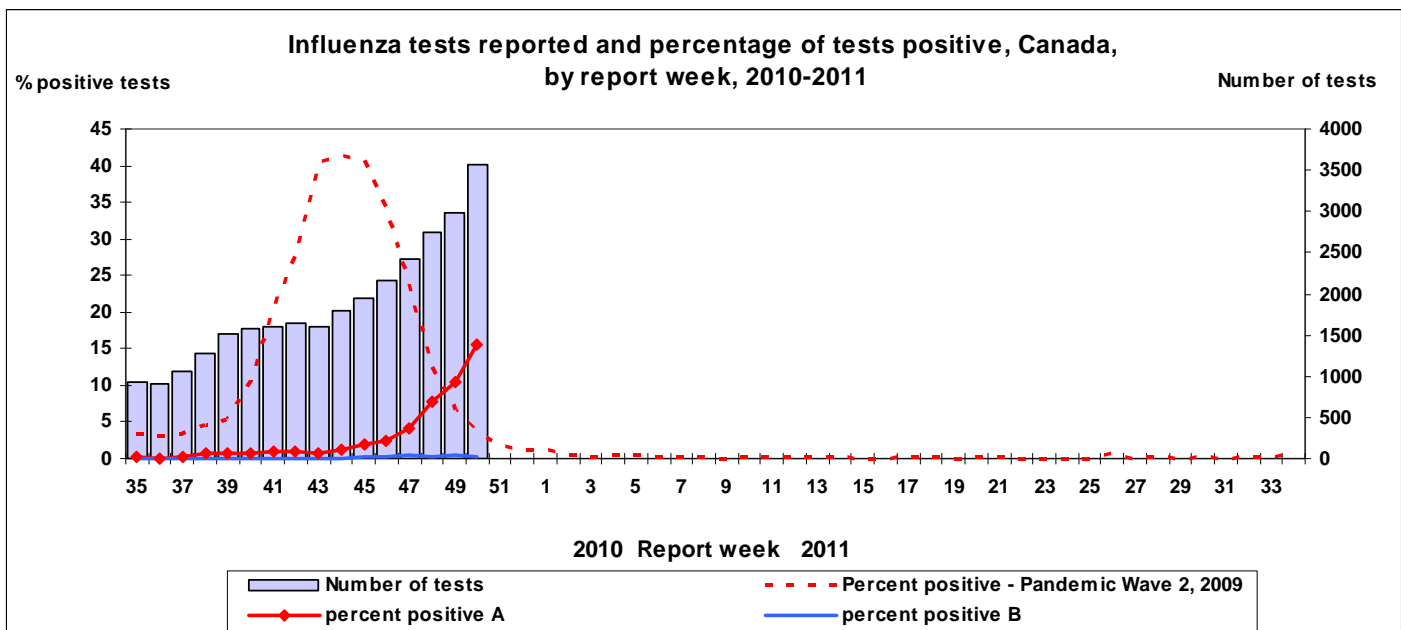
Reporting provinces	Weekly (December 12 to December 18, 2010)						Cumulative (August 29, 2010 to December 18, 2010)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	3	0	1	2	0	0	23	0	15	2	6	3
AB	14	0	11	3	0	0	44	0	37	4	3	1
SK	2	0	1	0	1	0	10	0	4	0	6	4
MB	94	0	0	0	94	0	205	0	53	0	152	0
ON	244	0	121	9	114	1	623	0	296	21	306	22
QC	203	0	19	1	183	4	481	0	48	1	432	12
NB	0	0	0	0	0	0	0	0	0	0	0	0
NS	0	0	0	0	0	0	0	0	0	0	0	0
PE	0	0	0	0	0	0	0	0	0	0	0	0
NL	0	0	0	0	0	0	0	0	0	0	0	0
Canada	560	0	153	15	392	5	1386	0	453	28	905	42

*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. 12 to Dec. 18, 2010) (106/565)					Cumulative (Aug. 29, 2010 to Dec. 18, 2010) (475/1428)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtype d	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtype d	Total
<5	22	1	20	1	1	82	4	60	18	7
5-19	10	1	9	0	0	44	2	31	11	2
20-44	10	0	9	1	0	82	3	60	19	4
45-64	17	2	11	4	0	62	6	40	16	5
65+	44	0	41	3	0	183	0	163	20	0
Unknown	2	0	1	1	0	4	0	2	2	0
Total	105	4	91	10	1	457	15	356	86	18

*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 week 50, 24 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 AB, 1 from MB, 15 from ON and 6 from QC. 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, 64 hospitalizations have been reported from BC, AB, SK, MB, ON & QC; 11 (17%) as influenza A/H3N2, two (3%) pandemic H1N1 2009, 47 (73%) as unsubtype influenza A, and four (6%) type B. The distribution of cases to date by age group was as follows: 22% among 0-5 month olds; 30% among 6-23 month olds; 18% among the 2-4 year-olds; 22% among 5-9 year-olds; and 8% among children 10-16 years old.

Adult Influenza Hospitalizations and Deaths

During week 50, 20 new laboratory-confirmed influenza-associated adult (16 years of age and older) hospitalizations were reported through the Canadian Nosocomial Infection Surveillance Program (CNISP) from 17 sites. All 20 hospitalized cases this week were reported from ON: 17 (85%) tested positive for unsubtype influenza A, 2 (10%) as influenza A/H3N2 and 1 (5%) as pandemic H1N1 2009. Since the beginning of the season, 87 hospitalized cases have been reported (18 A/H3N2, 5 pandemic H1N1 and 64 unsubtype influenza A from BC, MB, AB, ON and QC). 62 of the 87 (71.3%) cases were aged 60 years or older and 47 (54%) 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).

Antigenic Characterization

Between September 1 and December 23, 2010, National Microbiology Laboratory (NML) has antigenically characterized 79 influenza viruses (57 A/H3N2 from BC, AB, SK, MB, ON & QC, 7 pandemic H1N1 2009 from AB & ON and 15 B viruses from BC, AB, SK, ON & QC) that were received from provincial laboratories. The 57 influenza A/H3N2 viruses characterized were related to A/Perth/6/2009, which is the influenza A/H3N2 component recommended for the 2010-11 influenza vaccine. The 7 pandemic H1N1 2009 virus characterized were antigenically related to the pandemic vaccine virus A/California/7/2009, which is the recommended H1N1 component for the 2010-11 Northern Hemisphere 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 73 influenza A/H3N2 and 4 pandemic H1N1 isolates for amantadine resistance and found that all isolates were resistant to amantadine. 66 influenza isolates (47 A/H3N2, 6 pandemic H1N1 and 13 B) were tested for oseltamivir resistance and found that all isolates were sensitive to oseltamivir. 60 influenza isolates (41 A/H3N2, 6 pandemic H1N1 and 13 B) were tested for zanamivir resistance and found that all isolates were sensitive to zanamivir.

International influenza update

Global information

WHO: Increasing influenza activity has been observed across parts of Europe, most notably in the United Kingdom, indicating the start of wintertime influenza epidemics in several countries. Influenza activity is also increasing in other temperate regions of the Northern Hemisphere, including East Asia and North America where there is evidence of the beginnings of the local winter influenza season. Worldwide, influenza A/H3N2, B, and pandemic H1N1 2009 viruses are co-circulating with significant regional heterogeneity in the predominant circulating influenza viruses. <http://www.who.int/csr/disease/influenza/2010_12_17_GIP_surveillance/en/index.html>

Geographic update

Northern hemisphere

United States: During week 50 (December 12-18, 2010), influenza activity increased; 744 (15.7%) specimens tested positive for influenza of which 55.9% were influenza A and 44.1% were influenza B. Of the influenza A positive specimens, 41.1% were influenza A/H3, 5.3% pandemic H1N1 2009 and the rest were untyped. The proportion of deaths attributed to pneumonia and influenza (P&I) was below the epidemic threshold. The proportion of outpatient visits for influenza-like illness (ILI) was 2.1%, which is below the national baseline of 2.5%. One influenza-associated paediatric death associated with influenza A/H3 infection was reported last week for a total of 2 this season. <<http://www.cdc.gov/flu/weekly/index.htm>>

United Kingdom

The winter influenza epidemic is under way, with pandemic H1N1 2009 and influenza B the predominant circulating viruses. GP consultation rates are now above baseline levels in England and Wales. An increased proportion (65.6%) of sentinel respiratory specimens in England tested positive for influenza in week 50, of which 68% were pandemic H1N1 2009 and 32% were influenza B viruses. Thirty-two acute respiratory disease outbreaks were reported in UK in week 50, bringing the total reported this season so far to 120. Of the 27 fatal cases reported from week 36 to December 22, 2010, 24 have been associated with pandemic H1N1 2009 infection and 3 with influenza B infection. All cases have been under 65 years in age (median age = 33 years) and 9 were aged under 18 years. Of fatal cases with available information on immunization, 21/22 (95%) had not received trivalent influenza vaccination this season and 20/21 (95%) had not received pandemic influenza vaccination last year. The currently circulating strain of the pandemic H1N1 2009 virus in the UK is epidemiologically and virologically similar to that observed last year during the influenza H1N1 2009 pandemic. By week 50, the proportion of people in England aged over 65 years who had received the 2010/11 influenza vaccine was 68.5%. For those in a risk group aged under 65 it was 43.0%. , <http://www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1287146883984>

Europe: During week 50, 39% of sentinel specimens were positive for influenza indicative of active influenza transmission compared to 22% last week. Since week 40/2010, of the influenza detections in sentinel and non-sentinel specimens, 69% were influenza A and 31% were influenza B viruses. Of influenza A viruses sub-typed, 91% were pandemic H1N1 2009 and 9% were A/H3 viruses. The circulating viruses detected to date have been similar to the current vaccine viruses. <http://ecdc.europa.eu/en/publications/Publications/101223_SUR_Weekly_Influenza_Surveillance_Overview.pdf>

Asia: In East Asia, several countries, notably Mongolia and the Republic of Korea, have seen substantial recent increases in influenza activity. In Mongolia, rates of ILI have continued to rise above the seasonal baseline since mid to late November 2010 and were associated with increasing detections of influenza A/H3N2 virus, suggesting that the local winter influenza epidemic is under way. Since mid to late October 2010, levels of ILI in northern (but not southern) China have increased slowly and have been associated with only low levels of circulating influenza A/H3N2 viruses. <http://www.who.int/csr/disease/influenza/2010_12_17_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.