



May 1 to 7, 2011 (Week 18)

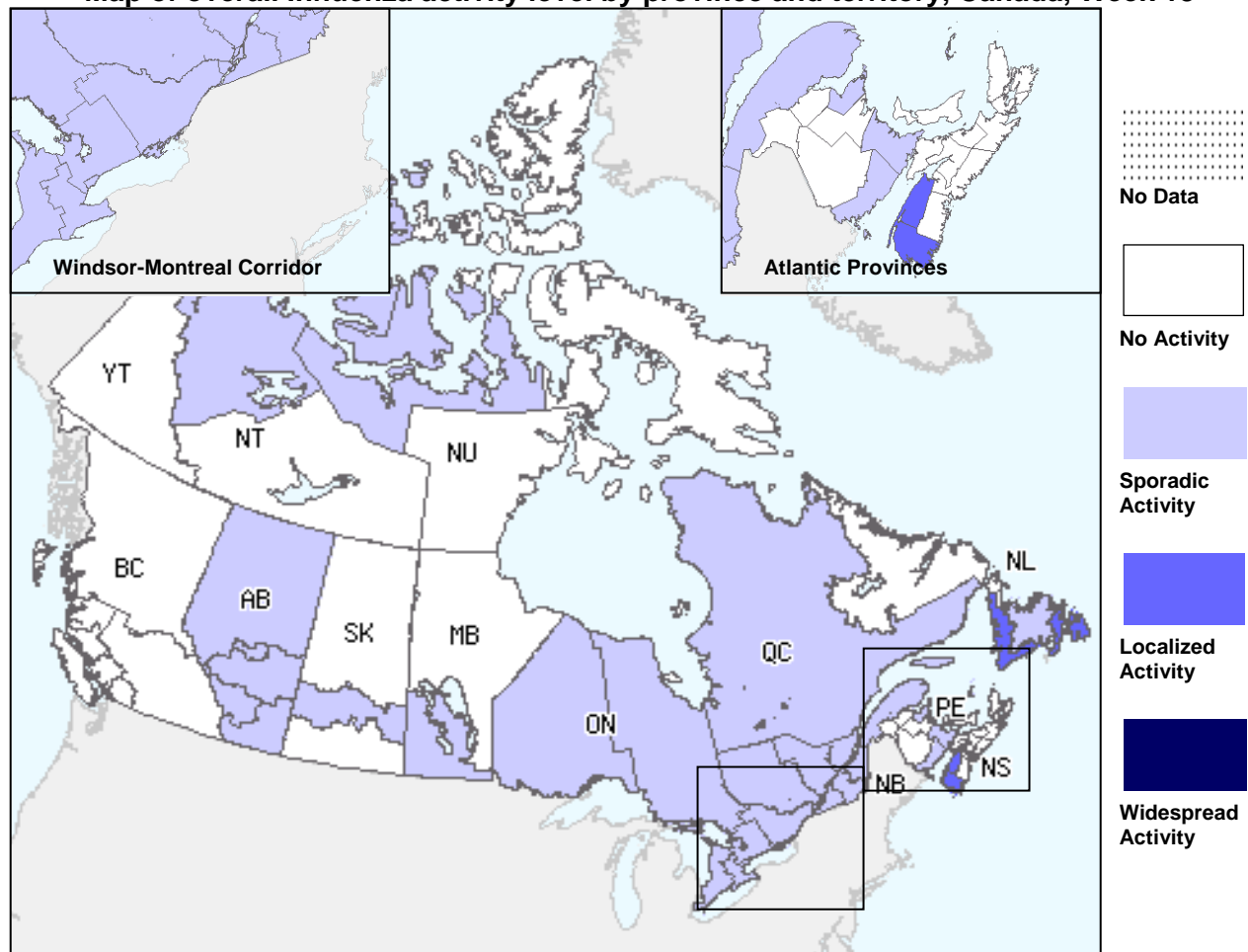
Overall Influenza Summary

- In week 18, influenza activity in Canada continues to decline with most of the country reporting sporadic or no activity. Localized activity persists in a few regions of Nova Scotia and Newfoundland.
- Both influenza A and B detections continue to decrease. The proportion of positive tests for parainfluenza viruses continues to increase in many regions of the country.
- The ILI consultation rate, as well as paediatric and adult hospitalizations with influenza continue on a downward trend with few reports in week 18.

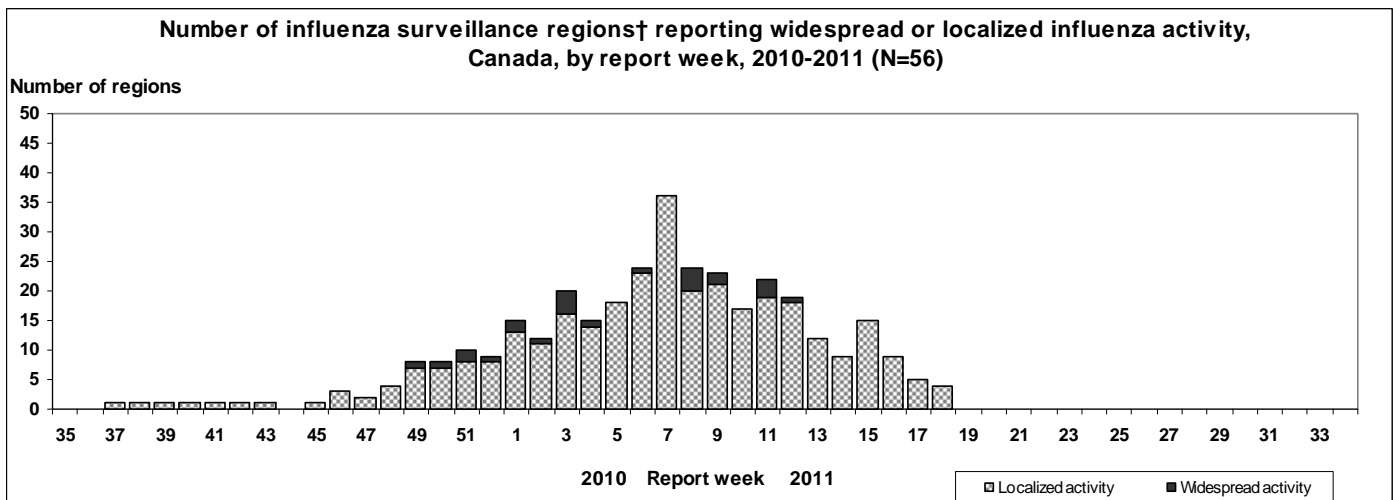
Influenza Activity and Outbreaks

In week 18, 4 regions reported localized activity: NS(2) and NL(2); 27 regions reported sporadic activity (in all provinces and territories except NS, PE and YT) and 25 regions presented no activity (see Activity level Map). Compared to the previous week (week 17), 3 regions reported an increased level of influenza activity, 15 regions reported decreased activity, and 25 regions maintained a stable level of influenza activity (sporadic or higher). Seven new outbreaks were reported: 4 influenza outbreaks in long-term care facilities (LTCF) in NL(2) and NS(2); 2 ILI outbreaks in schools in NB(1) and NL(1); and one outbreak of ILI in another facility in NL.

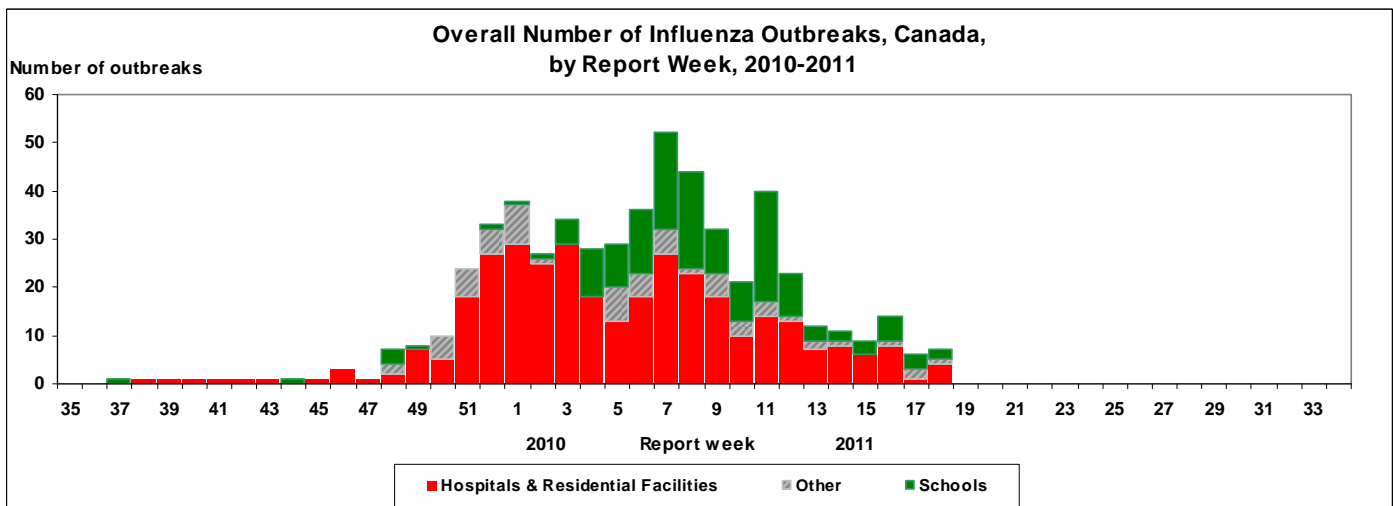
Map of overall Influenza activity level by province and territory, Canada, Week 18



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.

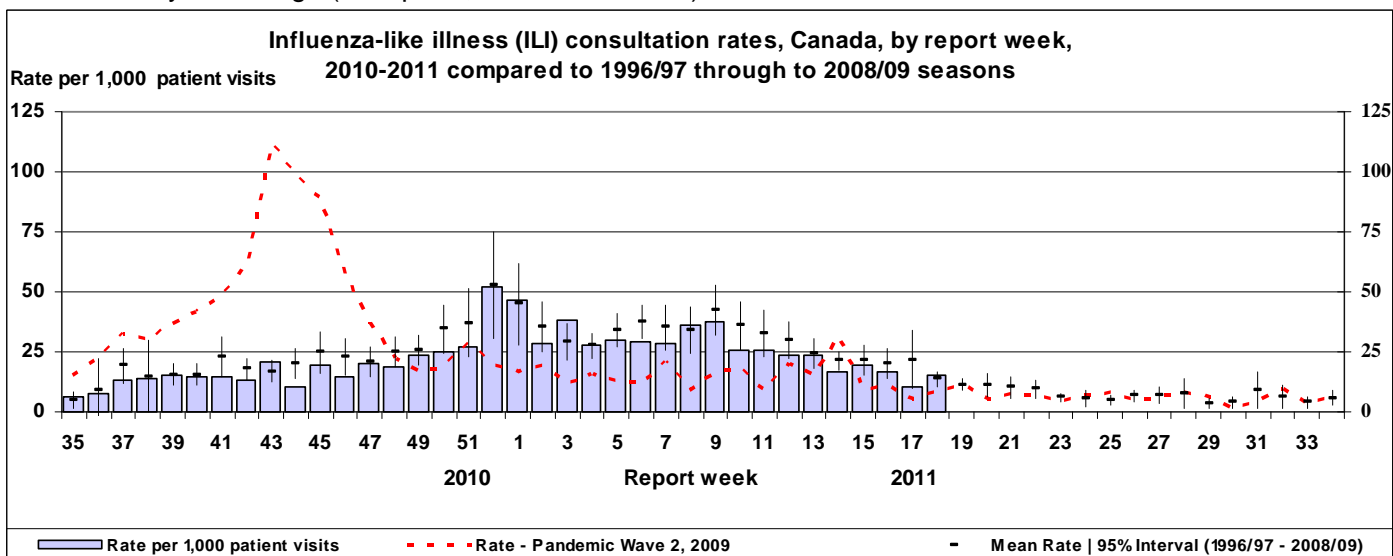


Note that this was the first year that all the provinces and territories were reporting on influenza outbreaks in schools (greater than 10% absenteeism on any day most likely due to ILI) which has increased considerably the total number of outbreaks reported compared to previous years.



ILI consultation rate

During week 18, the national ILI consultation rate was 15.1 consultations per 1,000 patient visits, which is increased compared to the previous week but is within the expected rate for this time of year (see ILI graph). Children under 5 years of age had the highest consultation rates (81.8 per 1,000 consultations), followed by children 5-19 years of age (23.9 per 1,000 consultations) in week 18.



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 overall proportion of tests that were positive for influenza during week 18 was 5.2% (1.5% influenza A, 3.7% influenza B), which is decreased compared to week 17 (7.1%). The proportion of positive tests peaked in week 52 (see Influenza tests graph). Since the beginning of the season, 85.6% (16,433/19,193) of influenza virus detections have been influenza A viruses, of which 84.7% (5,481/6,474) of subtyped specimens have been A/H3N2. Detections of influenza B have been increasing steadily since week 03 and appear to have reached a peak in week 15. Among influenza A detections in week 18, 14 (38.9%) specimens were reported as influenza A/H3N2, 3 (8.3%) as pandemic H1N1 2009, and 19 (52.8%) as un-subtyped influenza A. Through detailed case-based laboratory reporting where age data is provided, since August 29, 2010, 51.0% (2,056/4,034) of cases with A/H3N2 were aged 65 years or older. In contrast, the majority of cases with pandemic H1N1 2009 (94.4%, 746/790) and influenza B (90.3%, 1,313/1,454) were under 65 years of age (see Tests detailed table). The proportion of positive tests for respiratory syncytial virus detections (RSV) continues to decrease (peak in week 07). Since week 11, the proportion of positive tests for parainfluenza viruses has been increasing and reaching 6.9% in week 18, predominantly due to parainfluenza type 3 (52.9%) and type 1 (35.5%). (See Respiratory viruses graph).

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

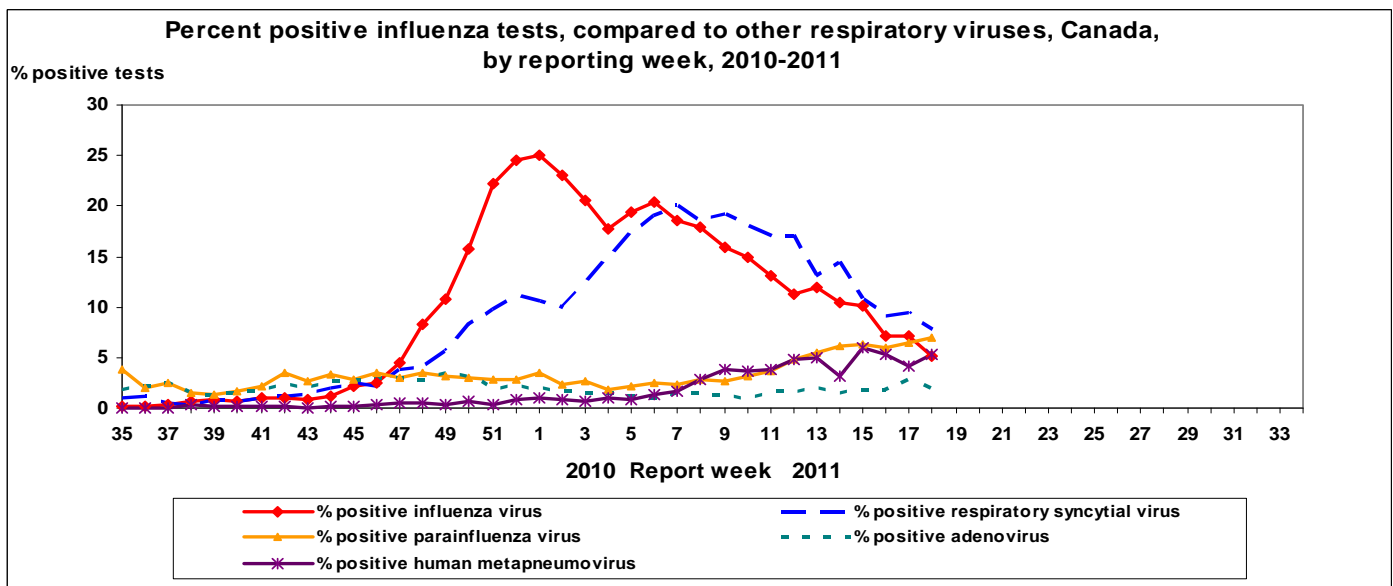
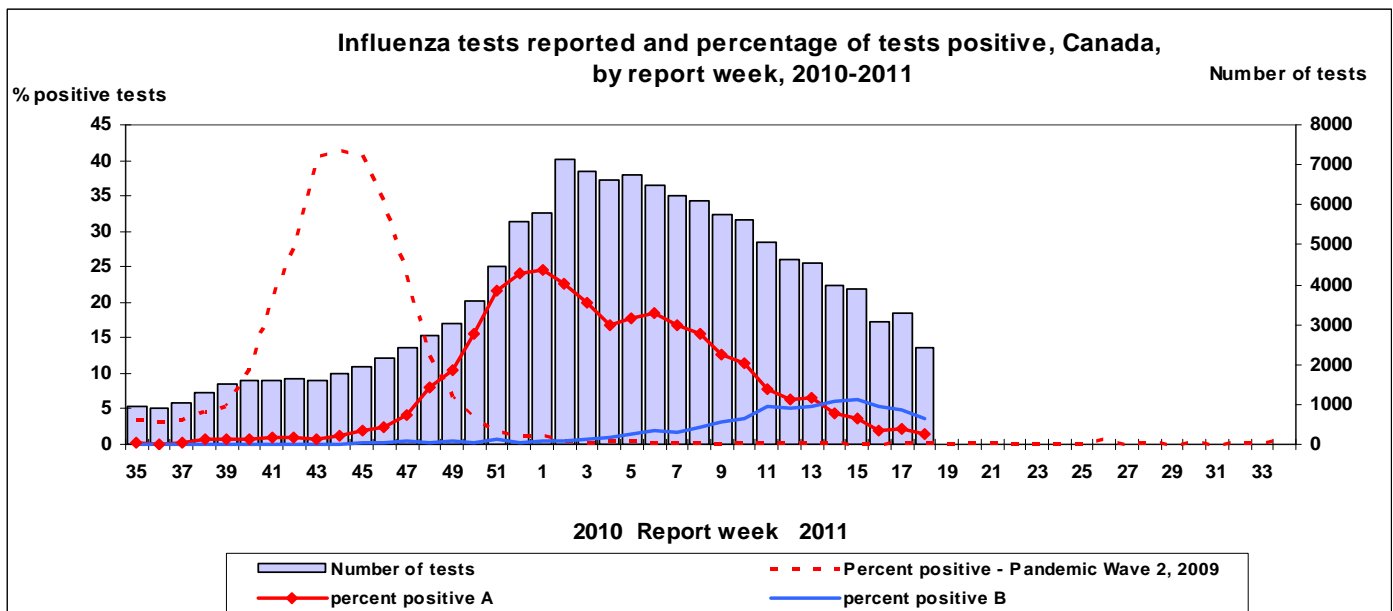
Reporting provinces	Weekly (May 1 to May 7, 2011)						Cumulative (August 29, 2010 to May 7, 2011)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	0	0	0	0	0	1	477	0	200	164	113	179
AB	6	0	3	2	1	9	1063	0	751	276	36	725
SK	1	0	1	0	0	8	316	0	212	30	74	169
MB	0	0	0	0	0	0	515	0	56	2	457	13
ON	3	0	0	1	2	17	6882	0	2437	274	4171	822
QC	8	0	0	0	8	45	5645	0	877	38	4730	708
NB	10	0	4	0	6	7	959	0	669	176	114	100
NS	2	0	0	0	2	0	271	0	80	11	180	5
PE	0	0	0	0	0	0	97	0	79	16	2	6
NL	6	0	6	0	0	4	208	0	120	6	82	33
Canada	36	0	14	3	19	91	16433	0	5481	993	9959	2760

*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 (May 1 to May 7, 2011)					Cumulative (Aug. 29, 2010 to May 7, 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	3	1	0	2	5	927	128	728	71	392
5-19	2	1	1	0	1	441	103	294	44	525
20-44	1	0	1	0	1	977	328	520	129	286
45-64	3	0	1	2	1	713	187	436	90	110
65+	0	0	0	0	0	2369	44	2056	269	141
Unknown	0	0	0	0	1	231	3	224	4	1
Total	9	2	3	4	9	5658	793	4258	607	1455

*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.



Antigenic Characterization

Between September 1 and May 12, 2011, the National Microbiology Laboratory (NML) has antigenically characterized 904 influenza viruses that were received from provincial laboratories: 267 A/H3N2, 140 pandemic H1N1 2009 and 497 B viruses. Of the 267 influenza A/H3N2 viruses characterized, 264 (98.9%) were antigenically related to A/Perth/16/2009, which is the influenza A/H3N2 component recommended for the 2010-11 influenza vaccine. Three viruses (1.1%) tested showed reduced titer with antiserum produced against A/Perth/16/2009. Of the 140 pandemic H1N1 2009 viruses characterized, 138 (99.6%) were antigenically related to the pandemic vaccine virus A/California/7/2009, which is the recommended H1N1 component for the 2010-11 influenza vaccine. Two viruses (1.4%) tested showed reduced titer with antiserum produced against A/California/7/2009. Of the 497 influenza B viruses characterized, 475 (95.6%) were antigenically related to B/Brisbane/60/08 (Victoria lineage), which is the recommended influenza B component for the 2010-11 influenza vaccine. Four of the 475 viruses tested showed reduced titer with antisera produced against B/Brisbane/60/08. Twenty-two (4.4%) influenza B viruses were characterized as B/Wisconsin/01/2010-like, which belongs to the Yamagata lineage. B/Wisconsin/01/2010-like viruses are antigenically and genetically different from the previous Yamagata lineage vaccine strain B/Florida/04/2006.

Antiviral Resistance

Since the beginning of the 2010-2011 season, NML has tested 617 influenza A isolates (461 A/H3N2 and 156 pandemic H1N1 2009) for amantadine resistance and found that 460 influenza A/H3N2 were resistant and one was sensitive. All 156 influenza A/H1N1 viruses were resistant to amantadine. Of 857 influenza viruses (246 A/H3N2, 143 pandemic H1N1 2009, and 468 influenza B) tested for resistance to oseltamivir, 245 A/H3N2 viruses were sensitive and one was resistant with E119V mutation. The resistant case was associated with oseltamivir prophylaxis/treatment. Of the 143 pandemic H1N1 2009 isolates tested for oseltamivir resistance, 142 were sensitive and one was resistant with the H275Y mutation. The resistant case was associated with oseltamivir treatment. All 468 B viruses were sensitive to oseltamivir. Of 847 influenza viruses (242 A/H3N2, 138 pandemic H1N1 2009, and 467 influenza B) tested for zanamivir resistance all isolates were found to be sensitive.

Severe Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths

In week 18, 2 new laboratory-confirmed influenza-associated paediatric (16 years of age and under) hospitalizations were reported through the Immunization Monitoring Program Active (IMPACT) network: both with influenza B from SK. This number is decreased compared to the previous week (week 17) in which 12 paediatric hospitalizations were reported (note that numbers may fluctuate because of the delays in reporting). In week 17 a paediatric death associated with influenza B in a child between 2 and 4 years of age was reported in Alberta. The child had underlying co-morbidities. This is the sixth paediatric death this season. The five previous deaths were: 3 children between 6 and 23 months old, two with pandemic H1N1 2009 and one with influenza B; one child between 2 and 4 years old with influenza B; and one child between 10 and 16 years old with influenza A/H3. All cases had underlying comorbidities. None were vaccinated.

Since the beginning of the season, 656 hospitalizations with laboratory-confirmed influenza have been reported: 103 (15.7%) as influenza A/H3N2, 22 (3.4%) pandemic H1N1 2009, 327 (49.8%) as un-subtyped influenza A, and 204 (31.1%) influenza B. The distribution of cases to date by age group was as follows: 16.6% among 0-5 month olds; 27.6% among 6-23 month olds; 28.7% among the 2-4 year-olds; 16.2% among 5-9 year-olds; and 11.0% among children 10-16 years old.

Adult Influenza Hospitalizations and Deaths

During week 18, 2 new hospitalizations with laboratory-confirmed influenza among adults (16 years of age and older) were reported through the Canadian Nosocomial Infection Surveillance Program (CNISP), both with influenza B. This number is similar to the 3 cases reported in week 17 (note that numbers may fluctuate because of the delays in reporting). Since the beginning of the season, 966 hospitalized cases have been reported: 202 (20.9%) A/H3N2, 48 (5.0%) pandemic H1N1 2009, 643 (66.6%) influenza A un-subtyped, and 73 (7.6%) influenza B, from all reporting provinces. To date, 650 of the 966 (67.3%) cases were aged 65 years or older and 436 (45.1%) were males.

Aggregate Influenza Hospitalizations and Deaths

Nine provinces and territories (excluding BC, QC, NB and NU) currently conduct severe outcomes surveillance and report weekly numbers of hospitalizations, ICU admissions and deaths with laboratory-confirmed influenza. In week 18, no deaths with influenza were reported. Among the 221 fatal cases reported since the beginning of the influenza season, influenza A/H3N2 was identified in 61.1% (135/221), un-subtyped influenza A in 28.5% (63/221), pandemic H1N1 2009 in 5.9% (13/221), and influenza B in 4.5% (10/221). Eighty percent (176/221) of these fatal cases were among persons 65 years of age or older, and another 11% (24/221) were between the ages of 45 and 64 years old, in keeping with the age-groups usually affected by A/H3N2. (Note that numbers may fluctuate because of the delays in reporting).

International influenza update

Northern Hemisphere

United States: During week 17 (April 24 to 30, 2011), influenza activity continued to decrease. Four percent (69/1,901) of specimens tested were positive for influenza, of which 52.2% were influenza A and 47.8% were influenza B. Among influenza A specimens, the proportion of A/H3 (52.8%) was greater than the proportion of pandemic H1N1 2009 (16.7%). After 13 weeks at or above the epidemic threshold, in week 17 the proportion of deaths attributed to pneumonia and influenza (P&I) was below the threshold. Three influenza-associated paediatric deaths were reported for a total of 100 this season, of which 40 were associated with influenza B, 25 with pandemic H1N1 2009, 17 with A/H3, and 18 with un-subtyped influenza A. The majority of circulating influenza strains are antigenically similar to the components of the trivalent influenza vaccine, with the exception of 5.9% (38/646) of influenza B specimens identified as belonging to the Yamagata lineage. This season, 2 (0.3%) A/H3N2 viruses and 32 (1.0%) pandemic H1N1 2009 viruses with resistance to oseltamivir were detected.
<http://www.cdc.gov/flu/weekly/index.htm>

Europe: The 2010-11 influenza season is drawing to a close in European countries. In week 17 (25 April to May 1, 2011), all 25 reporting European countries experienced influenza activity of low intensity and decreasing or unchanging trends. Sentinel and non-sentinel physicians reported 28 specimens testing positive for influenza in week 17 (12 (48%) influenza A and 16 (57%) influenza B). Since week 40/2010, 8 countries reported antiviral resistance data. Ninety-three (3.0%) of 3 054 influenza pandemic H1N1 2009 viruses tested were resistant to oseltamivir. All the resistant viruses carried the NA H275Y substitution. Sixteen of 65 resistant viruses (24.6%), in patients with known exposure to antivirals, were from patients who had not been treated with oseltamivir.

http://ecdc.europa.eu/en/publications/Publications/110506_SUR_Weekly_Influenza_Surveillance_Overview.pdf

Southern Hemisphere

Australia: From April 16 to 29, 2011, levels of influenza-like illness (ILI) in the community have increased slightly compared to recent weeks however they continue to remain low through the majority of ILI surveillance systems this reporting period. All jurisdictions have been reporting higher than usual numbers of laboratory confirmed influenza notifications over the summer months, however in recent weeks there has been a decline in the number of notifications in most jurisdictions. During this reporting period there were 175 laboratory confirmed notifications of influenza, which included 103 (58.9%) cases of un-typed influenza A, 31 (17.7%) cases of pandemic (H1N1) 2009, 3 (1.7%) of A/H3N2 and 37 (21.1%) cases of influenza B. Queensland reported the highest number of notifications.

<http://www.health.gov.au/internet/main/publishing.nsf/Content/cda-surveil-ozflu-flucurr.htm>

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 **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.