



March 27 to April 2, 2011 (Week 13)

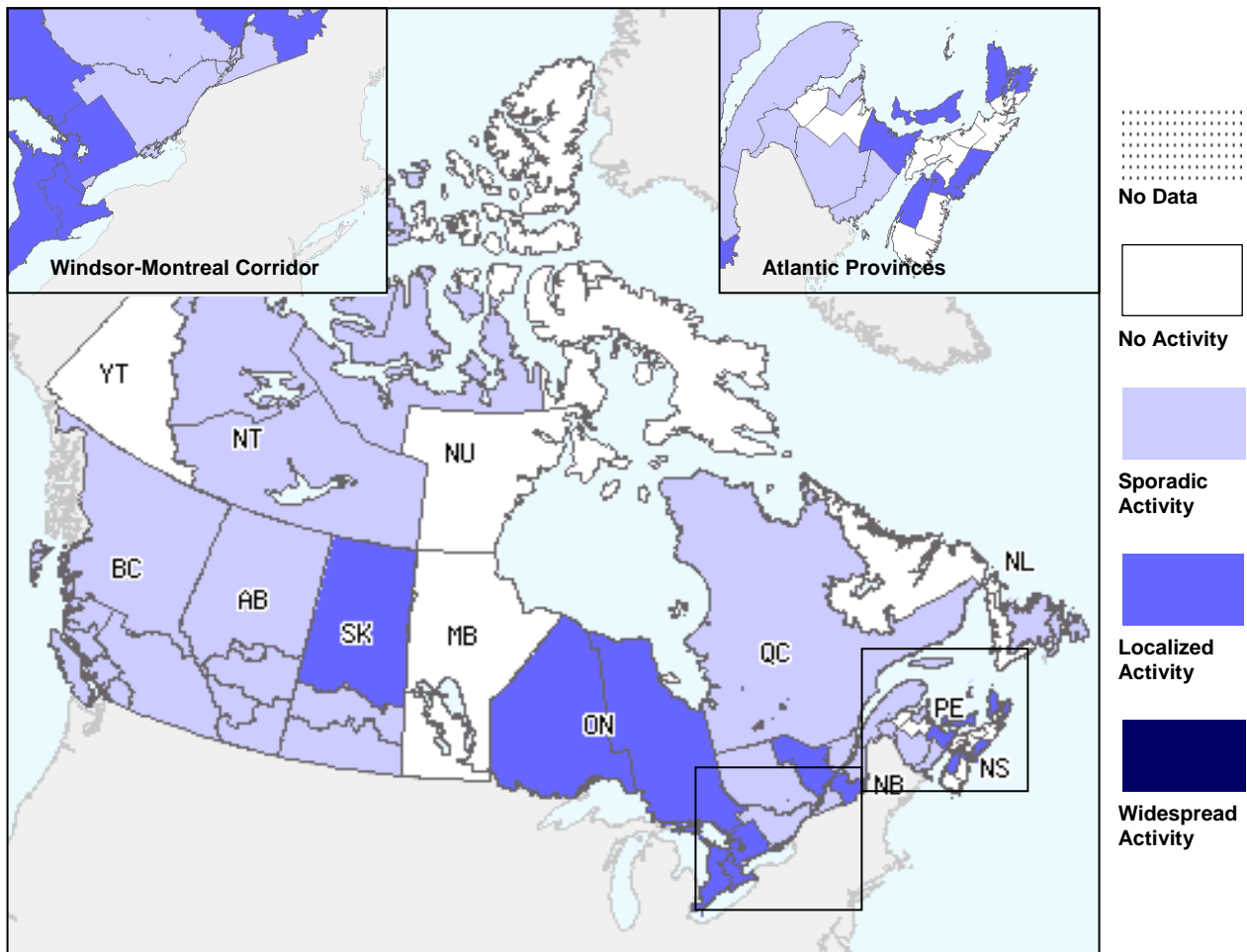
Overall Influenza Summary

- In week 13, localized influenza activity is being reported in parts of Saskatchewan, Ontario, Quebec and the Atlantic provinces.
- Influenza B detections continue to increase steadily in most regions of the country except the Atlantic provinces and now accounts for almost half of the positive tests for influenza (53.0% influenza A, 47.0% were influenza B).
- In week 13, the ILI consultation rate remained similar to the previous 3 weeks, fewer influenza/ILI outbreaks were reported, and adult hospitalizations decreased compared to the previous week.

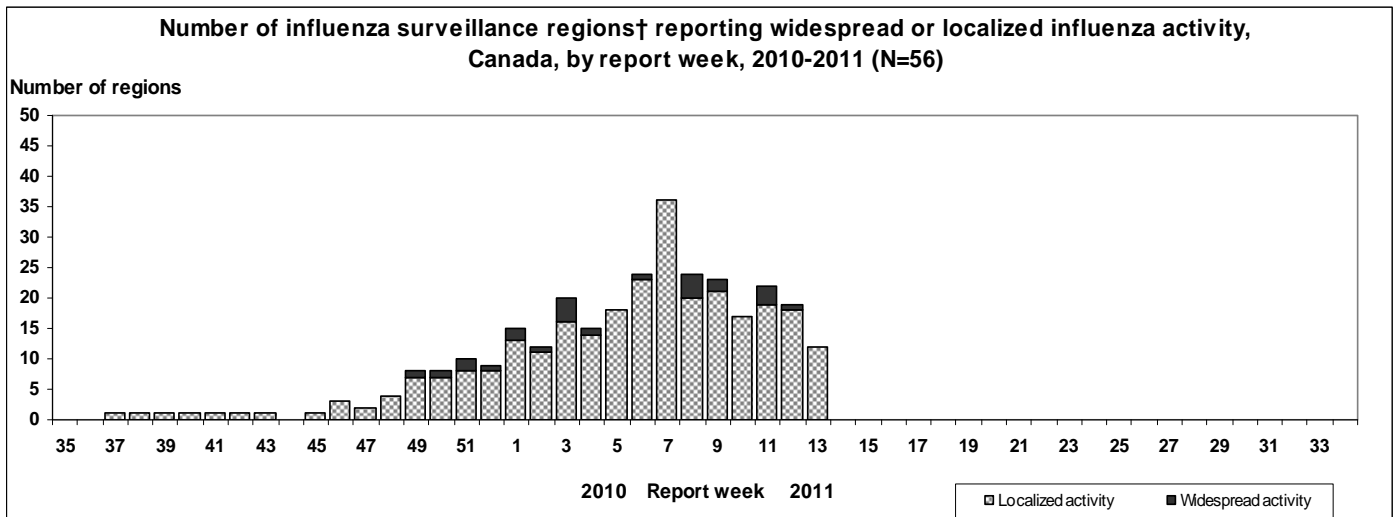
Influenza Activity and Outbreaks

In week 13, 12 regions reported localized activity: SK(1), ON(5), QC(1), NB(1), NS(3), and PE(1); 29 regions reported sporadic activity (in all provinces and territories except PE, NS, and YK) and 15 regions presented no activity (see Activity level Map). Compared to the previous week (week 12), 5 regions reported an increased level of influenza activity, 17 regions reported decreased activity, and 27 regions maintained a stable level of influenza activity (sporadic or higher). Twelve new outbreaks were reported: 4 outbreaks of influenza in long-term care facilities (LTCF) in ON(2), NB (1), and PE(1); 3 outbreaks of influenza in hospitals in QC(1) and NS(2); 3 ILI outbreaks in schools in NB(1), and NS(2); and 2 ILI outbreaks in other facilities in ON.

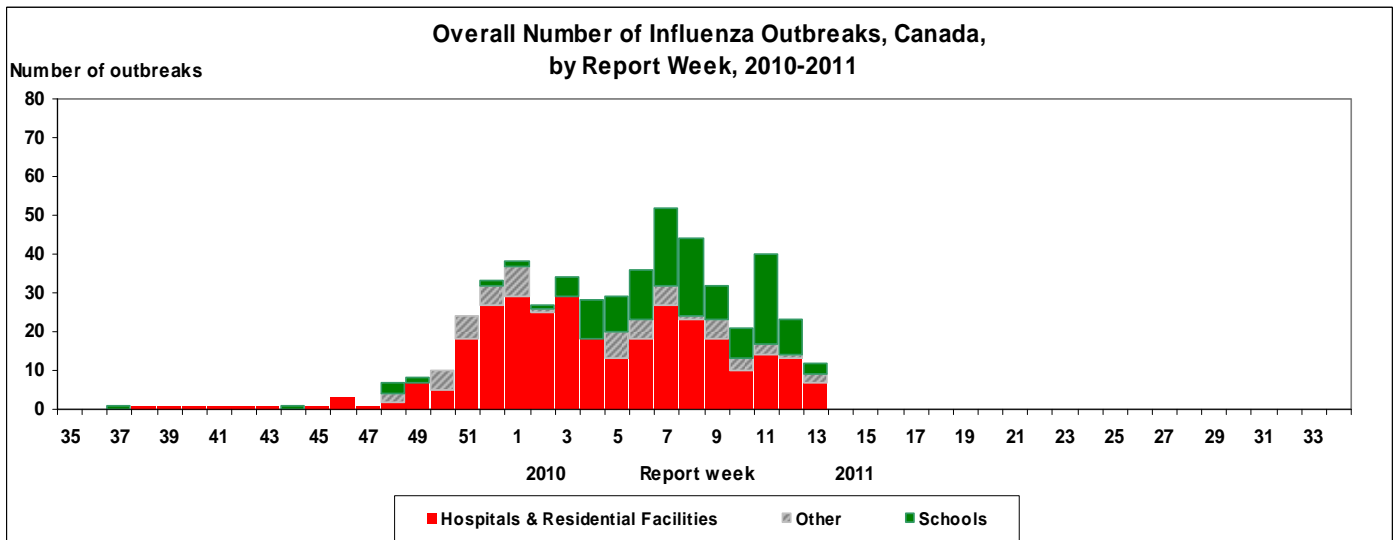
Map of overall Influenza activity level by province and territory, Canada, Week 13



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.

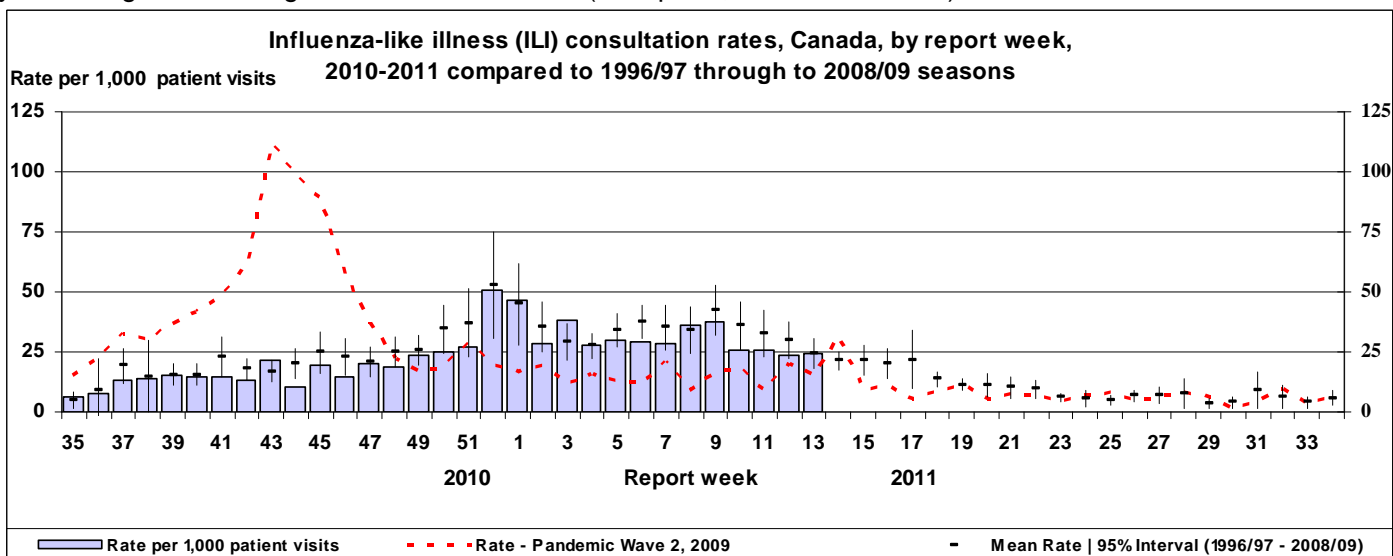


Note that this was the first year that all the provinces and territories were reporting on influenza outbreaks in schools (greater than 10% absenteeism on any day most likely due to ILI) which has increased considerably the total number of outbreaks reported compared to previous years.



ILI consultation rate

During week 13, the national ILI consultation rate was 24.1 consultations per 1,000 patient visits, which has been similar to the past 3 weeks and within the expected rate for this time of year (see ILI graph). Children under 5 years of age had the highest consultation rates (77.0 per 1,000 consultations) in week 13.



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 13 was 11.4% (6.0% influenza A, 5.3% influenza B), similar to that of week 12 (11.2%). The proportion of positive tests peaked in week 52 (see Influenza tests graph). Of the 481 positive tests reported during week 13, 255 (53.0%) were influenza A and 226 (47.0%) were influenza B. Since the beginning of the season, 89.6% (15,914/17,753) of influenza virus detections have been influenza A viruses, of which 84.8% (5,282/6230) of subtyped specimens have been A/H3N2. Detections of influenza B have been increasing steadily since week 03, when it accounted for 3.4% of all positive influenza specimens to 47.0% in week 13. Among influenza A detections in week 13, 78 (30.6%) specimens were reported as influenza A/H3N2, 17 (6.7%) as pandemic H1N1 2009, and 160 (62.7%) as unsubtyped influenza A. Through detailed case-based laboratory reporting where age data is provided, since August 29, 2010, 51.2% (1935/3776) of cases with A/H3N2 were aged 65 years or older. In contrast, the majority (94.0%, 631/671) of cases with pandemic H1N1 2009 were under 65 years of age (see Tests detailed table). In week 13, the proportion of positive tests for respiratory syncytial virus detections (RSV) decreased from 17.1% to 12.8% of specimens tested. The proportion of positive RSV tests appears to have peaked in week 07 (see Respiratory viruses graph).

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

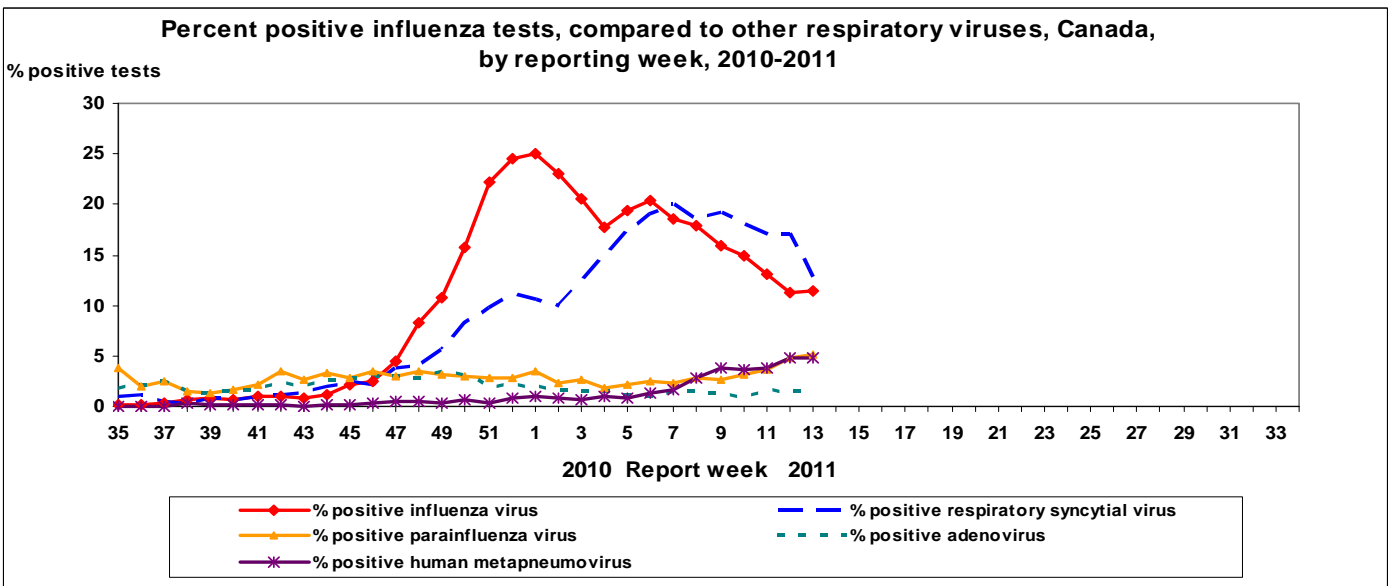
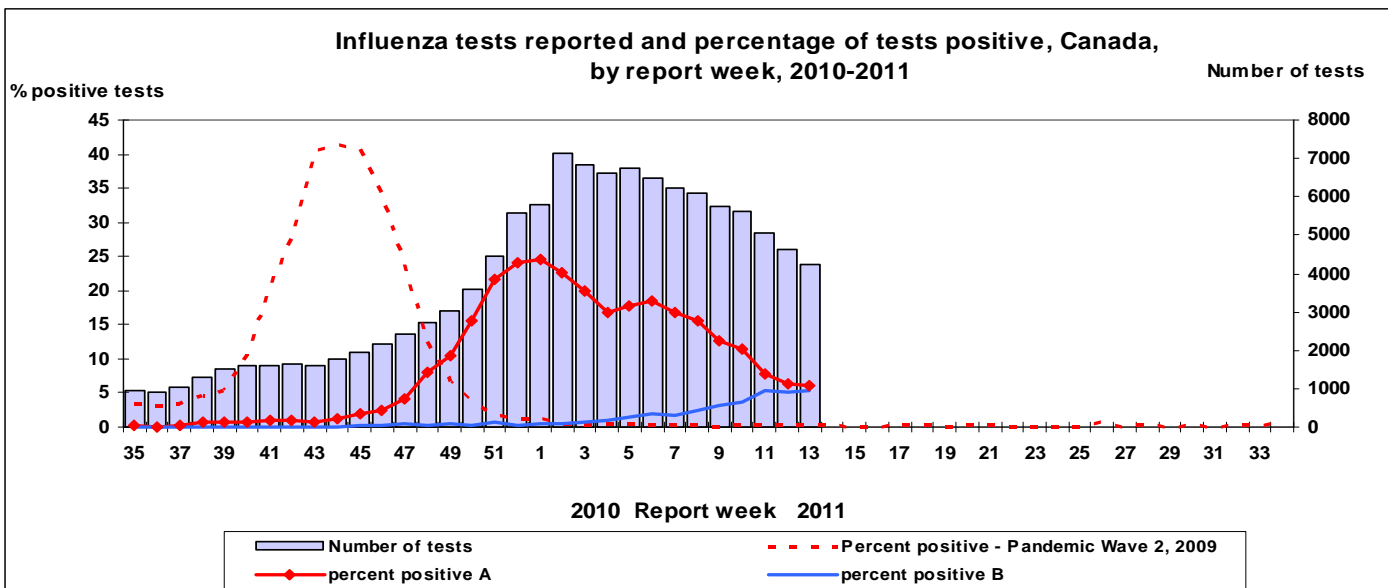
Reporting provinces	Weekly (March 27 to April 2, 2011)						Cumulative (August 29, 2010 to April 2, 2011)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	21	0	11	9	1	8	465	0	191	162	112	166
AB	29	0	17	5	7	71	980	0	692	247	41	536
SK	5	0	2	0	3	17	295	0	198	30	67	62
MB	0	0	0	0	0	1	515	0	56	2	457	2
ON	77	0	21	0	56	76	6814	0	2421	264	4129	635
QC	54	0	0	0	54	50	5521	0	875	35	4611	388
NB	N/A	N/A	N/A	N/A	N/A	N/A	875	0	619	175	81	37
NS	31	0	15	1	15	0	217	0	56	11	150	3
PE	12	0	12	0	0	0	89	0	71	16	2	6
NL	26	0	0	2	24	3	143	0	103	6	34	4
Canada	255	0	78	17	160	226	15914	0	5282	948	9684	1839

*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 (Mar. 27 to Apr. 2, 2011)					Cumulative (Aug. 29, 2010 to Apr. 2, 2011)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total
<5	15	0	10	5	20	928	111	681	136	159
5-19	2	0	1	1	18	470	84	274	112	271
20-44	16	8	5	3	16	967	277	487	203	139
45-64	7	0	3	4	6	711	159	399	153	42
65+	47	0	16	31	7	2288	40	1935	313	70
Unknown	0	0	0	0	0	229	3	224	2	0
Total	87	8	35	44	67	5593	674	4000	919	681

*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 April 5, 2011, the National Microbiology Laboratory (NML) has antigenically characterized 562 influenza viruses that were received from provincial laboratories: 216 A/H3N2 from BC, AB, SK, MB, ON, QC, NB & NU, 101 pandemic H1N1 2009 from BC, AB, ON, QC, NB & NS and 245 B viruses from BC, AB, SK, ON, QC, NB, NT and NU. Of the 216 influenza A/H3N2 viruses characterized, 213 (98.6%) were antigenically related to A/Perth/16/2009, which is the influenza A/H3N2 component recommended for the 2010-11 influenza vaccine. Three viruses (1.4%) tested showed reduced titer with antiserum produced against A/Perth/16/2009. Of the 101 pandemic H1N1 2009 viruses characterized, 94 (99%) were antigenically related to the pandemic vaccine virus A/California/7/2009, which is the recommended H1N1 component for the 2010-11 influenza vaccine. One virus (1%) tested showed reduced titer with antiserum produced against A/California/7/2009. Of the 245 influenza B viruses characterized, 236 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 236 viruses tested showed reduced titer with antisera produced against B/Brisbane/60/08. Nine 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 494 influenza A isolates (382 A/H3N2 and 112 pandemic H1N1 2009) for amantadine resistance and found that 381 influenza A/H3N2 were resistant to amantadine and one was sensitive. All 112 influenza A/H1N1 viruses were resistant to amantadine. Of 442 influenza viruses (188 A/H3N2, 94 pandemic H1N1 2009, and 160 influenza B) tested for resistance to oseltamivir, 187 A/H3N2 viruses were sensitive to oseltamivir and one was resistant to oseltamivir with E119V mutation. The resistant case was associated with oseltamivir prophylaxis/treatment. Of the 94 pandemic H1N1 2009 isolates tested, 93 were sensitive to oseltamivir and one was resistant to oseltamivir with the H275Y mutation. The resistant case was associated with oseltamivir treatment. All 160 B viruses were sensitive to oseltamivir. Of 435 influenza viruses (183 A/H3N2, 91 pandemic H1N1 2009, and 161 influenza B) tested for resistance to zanamivir, all isolates were found to be sensitive to zanamivir.

Severe Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths

In week 13, 21 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, 6 from AB, 5 from ON, 5 from QC, 1 from NS and 2 from NL. This number has increased compared to the previous week (week 12) in which 17 paediatric hospitalizations were reported (note that numbers may fluctuate because of the delays in reporting). A death was reported in week 14 (3-9 April 2011) of a child between 6 and 23 months old with unsubtype influenza A in Alberta. This is the 5th paediatric death reported via IMPACT this season. The four previous deaths occurred in Ontario: 2 children were between 6 and 23 months old, one with pandemic H1N1 2009, and one with influenza B; one child was between 2 and 4 years old with influenza B; and one child was between 10 and 16 years old with unsubtype influenza A. All cases had underlying comorbidities.

Since the beginning of the season, 593 hospitalizations with laboratory-confirmed influenza have been reported from all participating provinces; 99 (16.7%) as influenza A/H3N2, 21 (3.5%) pandemic H1N1 2009, 333 (56.2%) as unsubtype influenza A, and 140 (23.6%) influenza B. The distribution of cases to date by age group was as follows: 17.2% among 0-5 month olds; 28.7% among 6-23 month olds; 28.5% among the 2-4 year-olds; 14.8% among 5-9 year-olds; and 10.8% among children 10-16 years old.

Adult Influenza Hospitalizations and Deaths

During week 13, 10 new hospitalizations with laboratory-confirmed influenza among adults (16 years of age and older) were reported through the Canadian Nosocomial Infection Surveillance Program (CNISP). This number has decreased compared to the 14 cases reported in week 12 (note that numbers may fluctuate because of the delays in reporting). Of the 10 new cases reported between March 27 and April 2, 2011, 2 (20.0%) tested positive for unsubtype influenza A, 1 (10.0%) as pandemic H1N1 2009, and 7 (70.0%) as influenza B. Since the beginning of the season, 929 hospitalized cases have been reported: 199 (21.4%) A/H3N2, 42 (4.5%) pandemic H1N1 2009, 634 (68.2%) influenza A unsubtype, and 54 (5.8%) influenza B, from all reporting provinces except NL. To date, 628 of the 929 (67.6%) cases were aged 65 years or older and 420 (45.2%) 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 13, five deaths with influenza were reported: one in Alberta in a person 20-45 years of age with pandemic H1N1 2009; two in Ontario, both with unsubtype influenza A, in persons 5-19 years old and over 65 years of age; and one each in PEI and Nova Scotia in persons over 65 years of age with influenza A/H3N2. Among the 208 fatal cases reported since the beginning of the influenza season, influenza A/H3N2 was identified in 60.6% (126/208), unsubtype influenza A in 28.4% (59/208), pandemic H1N1 2009 in 6.3% (13/208), and influenza B in 4.8% (10/208). Seventy-nine percent (164/208) of these fatal cases were among persons 65 years of age or older, and another 11% (23/208) 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

Countries in the northern hemisphere report declining influenza activity. Countries in North Africa and Middle East report circulation of influenza B and pandemic H1N1 2009. Northern China reports predominantly influenza B while Japan reports A/H3N2.

- **United States:** During week 12 (March 20-26, 2011), influenza activity decreased. Fourteen percent (737/5,319) of specimens tested were positive for influenza, of which 71.2% were influenza A and 28.8% were influenza B. Among influenza A specimens, the proportion of A/H3 (35.6%) was greater than the proportion of pandemic H1N1 2009 (21.7%). The proportion of deaths attributed to pneumonia and influenza (P&I) was 8.7%, above the epidemic threshold of 8.0%, and marking the ninth consecutive week that this indicator is at or above threshold. Twelve influenza-associated paediatric deaths were reported for a total of 89 this season, of which 33 were associated with influenza B, 17 with A/H3, 21 with pandemic H1N1 2009, and 18 with unsubtype influenza A. The proportion of outpatient visits for influenza-like illness (ILI) was 2.0%, below the national baseline of 2.5%. The geographic spread of influenza in 10 states was reported as widespread, and 21 states reported regional influenza activity. <http://www.cdc.gov/flu/weekly/index.htm>
- **Europe:** In week 12 (21 to 27 March 2011), most European countries reported low influenza activity, with stable or decreasing trends in influenza-like illness (ILI)/acute respiratory infection (ARI). Influenza activity continues to be higher in eastern European countries compared to western Europe. The proportion of influenza virus-positive sentinel specimens decreased to 23.3% in week 12 compared to 43.4% in week 11. Of the 502 influenza viruses detected in sentinel and non-sentinel specimens during week 12/2011, 209 (41.6%) were type A and 293 (58.4%) were type B. For the second week, influenza B virus was dominant in the EU as a whole. The latter virus type was dominant or co-dominant with influenza virus A(H1N1) 2009 in eight countries. Ninety-one of pandemic H1N1 2009 viruses tested for

susceptibility were resistant to oseltamivir but remained sensitive for zanamivir. All the resistant viruses carried the H275Y mutation. Seventeen of 55 resistant viruses, from patients for whom exposure to antivirals was known, were from patients who had not been treated with oseltamivir. http://ecdc.europa.eu/en/publications/Publications/110401_SUR_Weekly_Influenza_Surveillance_Overview.pdf

Tropical Zone

Influenza activity in the tropics remains low. Several countries in Sub-Saharan Africa report some influenza activity, and the circulating strains vary by region. http://www.who.int/csr/disease/influenza/latest_update_GIP_surveillance/en/index.html

- **Venezuela:** On 6 April, 2011, the Ministry of Health in Venezuela reported a total of 923 cases of A/H1N1 in the country, but that the number of new detections was on the decline. The states of Mérida, Miranda and the Capital District remain the most affected, with 253, 203 and 205 cases, respectively. Eight deaths have been reported among persons with risk factors for severe illness such as diabetes, asthma, hypertension, smoking and obesity. Vaccination and public health measures continue. It is not uncommon for countries in tropical areas to experience influenza circulation throughout the year. <http://www.mpps.gob.ve/modules.php?name=News&file=article&sid=2529>

Southern Hemisphere

Influenza activity remains low in most regions in the temperate zone of the southern hemisphere. Australia continues reporting low activity of influenza, predominantly influenza A(H3N2) in the northern tropical areas of the country. http://www.who.int/csr/disease/influenza/latest_update_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.