



### April 10 to 16, 2011 (Week 15)

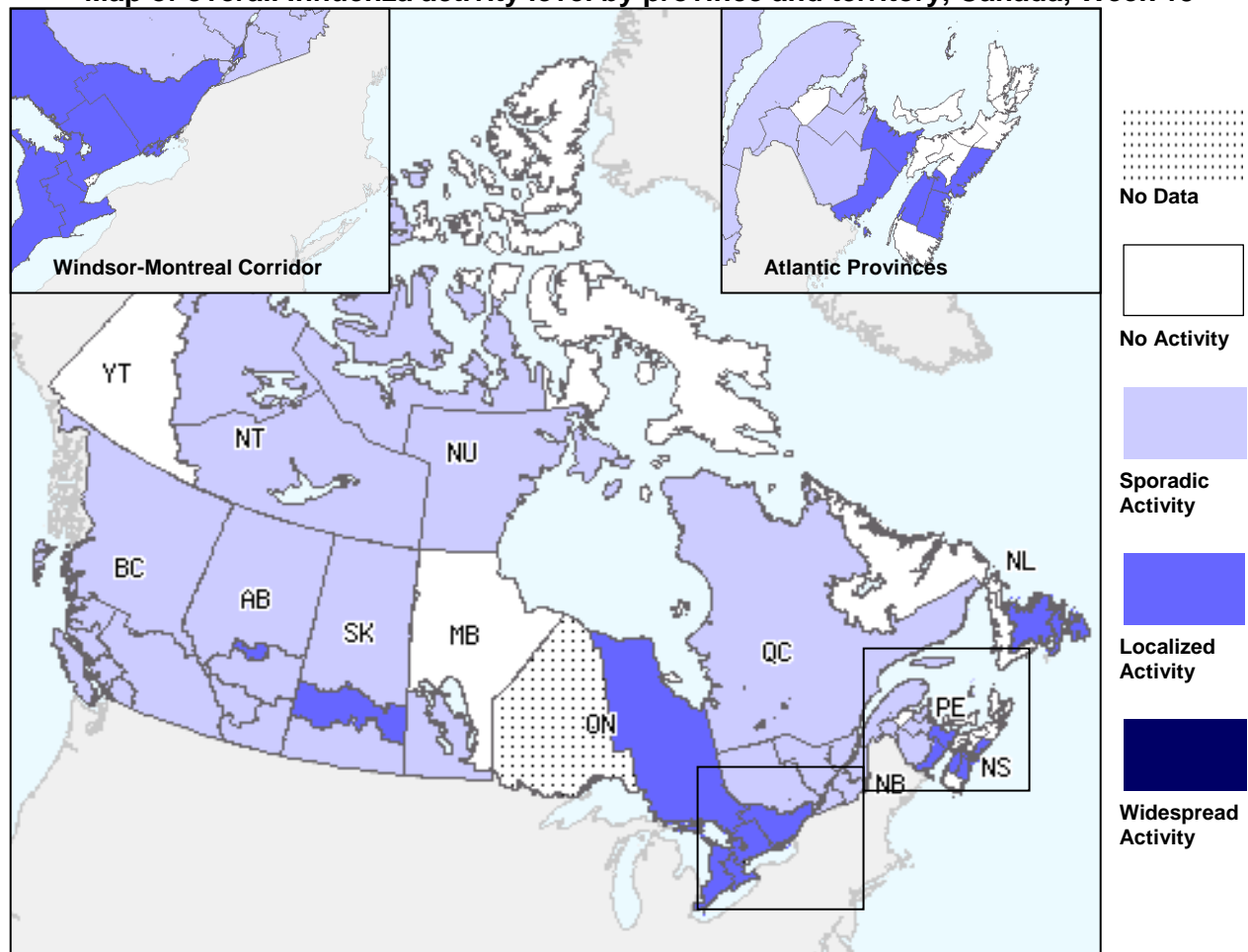
#### Overall Influenza Summary

- In week 15, influenza B continues to increase and accounted for 63% of positive influenza detections.
- A few more regions reported localized influenza activity this week compared to the previous week.
- ILI consultation rate increased slightly, however all other indicators of influenza activity decreased.

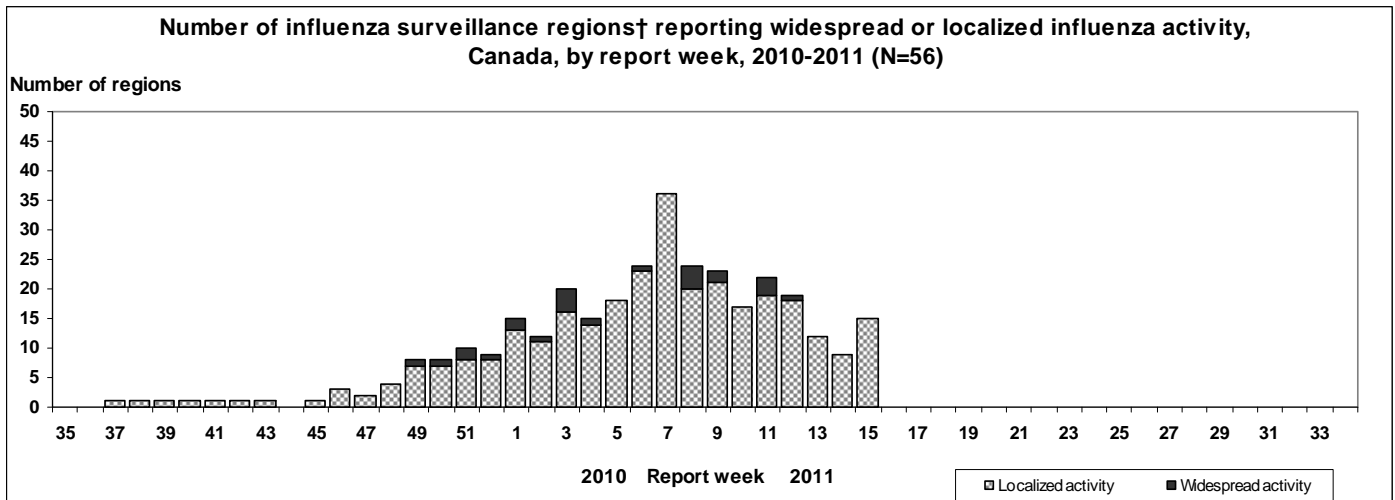
#### Influenza Activity and Outbreaks

In week 15, 15 regions reported localized activity: AB(1), SK(1), ON(5), QC(1), NB(2), NS(3), and NL(2); 26 regions reported sporadic activity (in BC(5), AB(4), SK(2), MB(2), QC(5), NB(4), NT(2), and NU(2)) and 13 regions presented no activity (see Activity level Map). Compared to the previous week (week 14), 10 regions reported an increased level of influenza activity, 12 regions reported decreased activity, and 24 regions maintained a stable level of influenza activity (sporadic or higher). Nine new outbreaks were reported: 6 outbreaks of influenza in long-term care facilities (LTCF) in SK(1), QC(1), NL (1), and PE(3); and 3 ILI outbreaks in schools in AB(1), NS(1), and NL(1).

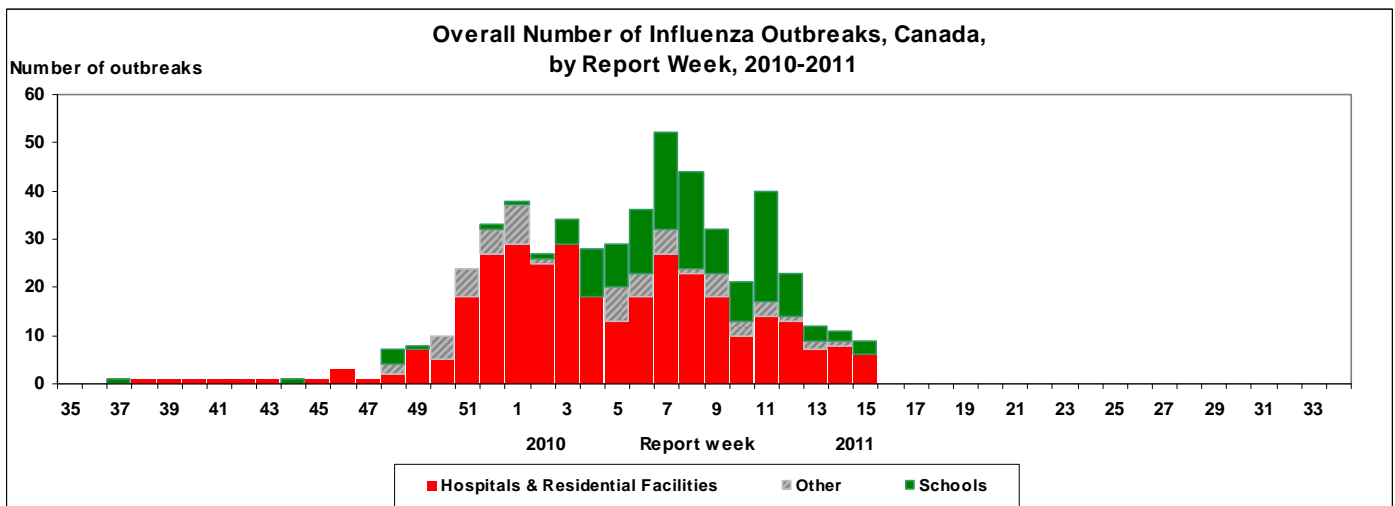
Map of overall Influenza activity level by province and territory, Canada, Week 15



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.

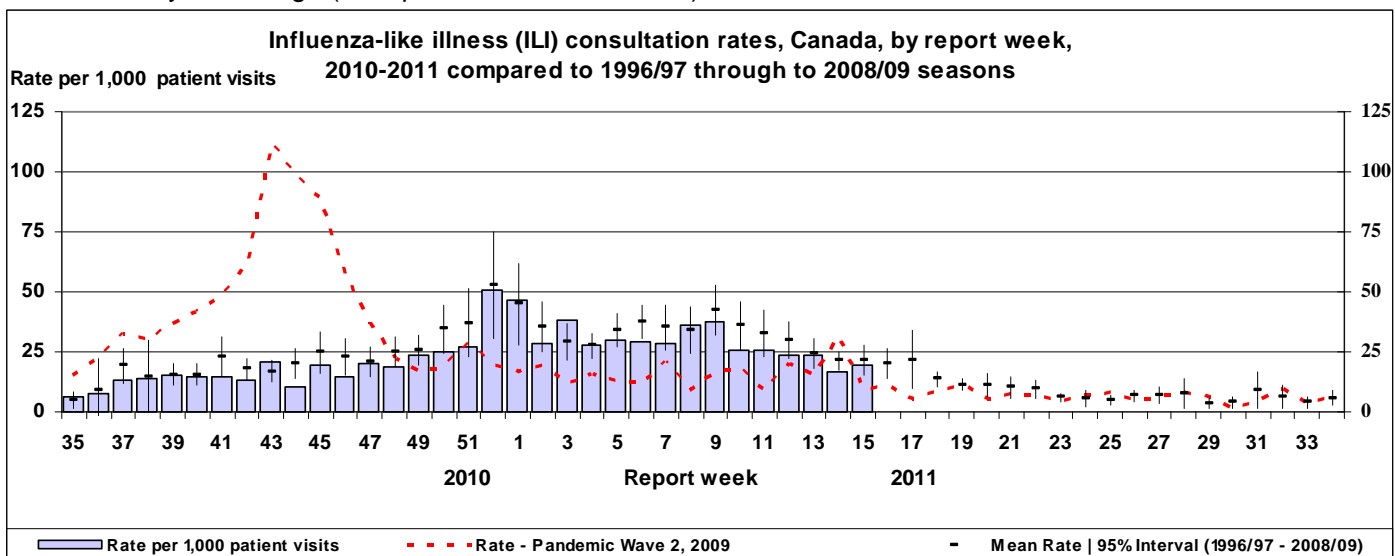


Note that this was the first year that all the provinces and territories were reporting on influenza outbreaks in schools (greater than 10% absenteeism on any day most likely due to ILI) which has increased considerably the total number of outbreaks reported compared to previous years.



### ILI consultation rate

During week 15, the national ILI consultation rate was 19.3 consultations per 1,000 patient visits, which is increased compared to the previous week and is within the expected rate for this time of year (see ILI graph). Children under 5 years of age had the highest consultation rates (57.2 per 1,000 consultations), followed by children 5-19 years of age (29.5 per 1,000 consultations) in week 15.



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 15 was 10.3% (3.8% influenza A, 6.5% influenza B), which is stable compared to week 14 (10.4%) and the second week in which more influenza B detections were reported than influenza A. The proportion of positive tests peaked in week 52 (see Influenza tests graph). Of the 369 positive tests reported during week 15, 136 (36.9%) were influenza A and 233 (63.1%) were influenza B. Since the beginning of the season, 87.5% (16,262/18,595) of influenza virus detections have been influenza A viruses, of which 84.7% (5,425/6,405) 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 63.1% in week 15. Among influenza A detections in week 15, 60 (44.1%) specimens were reported as influenza A/H3N2, 13 (9.6%) as pandemic H1N1 2009, and 63 (46.3%) as unsubtyped influenza A. Through detailed case-based laboratory reporting where age data is provided, since August 29, 2010, 50.8% (2043/4018) of cases with A/H3N2 were aged 65 years or older. In contrast, the majority (94.5%, 741/784) of cases with pandemic H1N1 2009 were under 65 years of age (see Tests detailed table). In week 15, the proportion of positive tests for respiratory syncytial virus detections (RSV) decreased to 11.0% 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

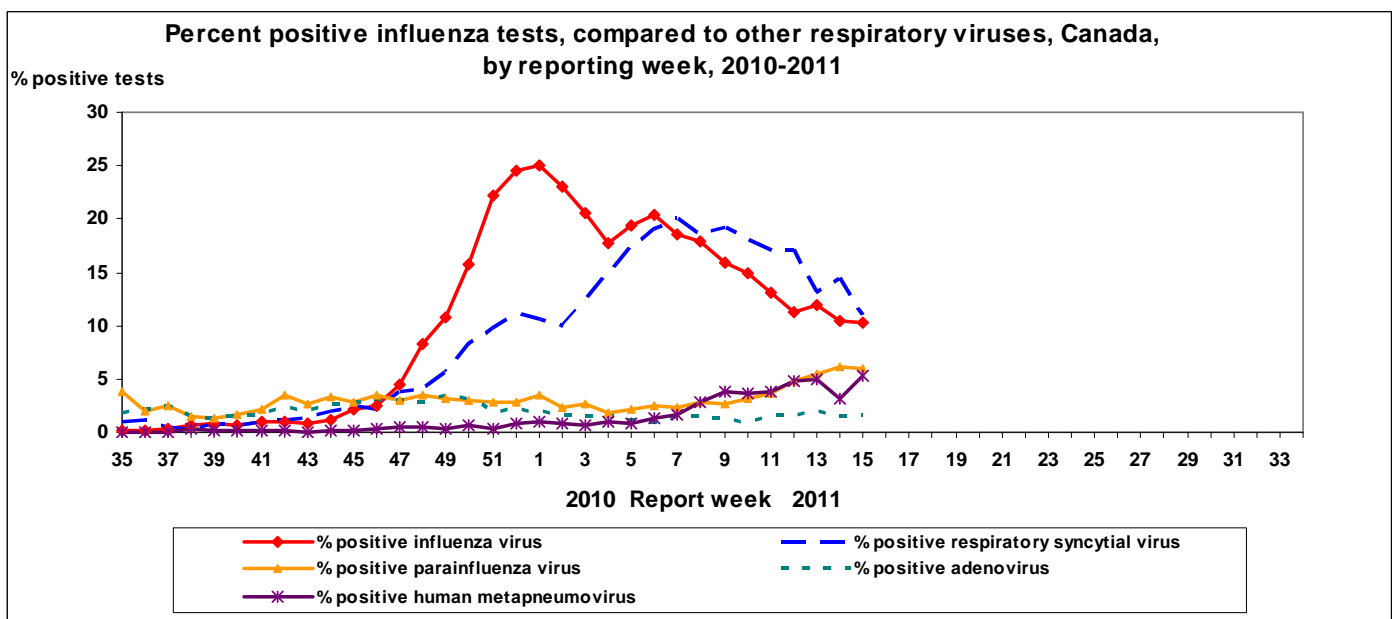
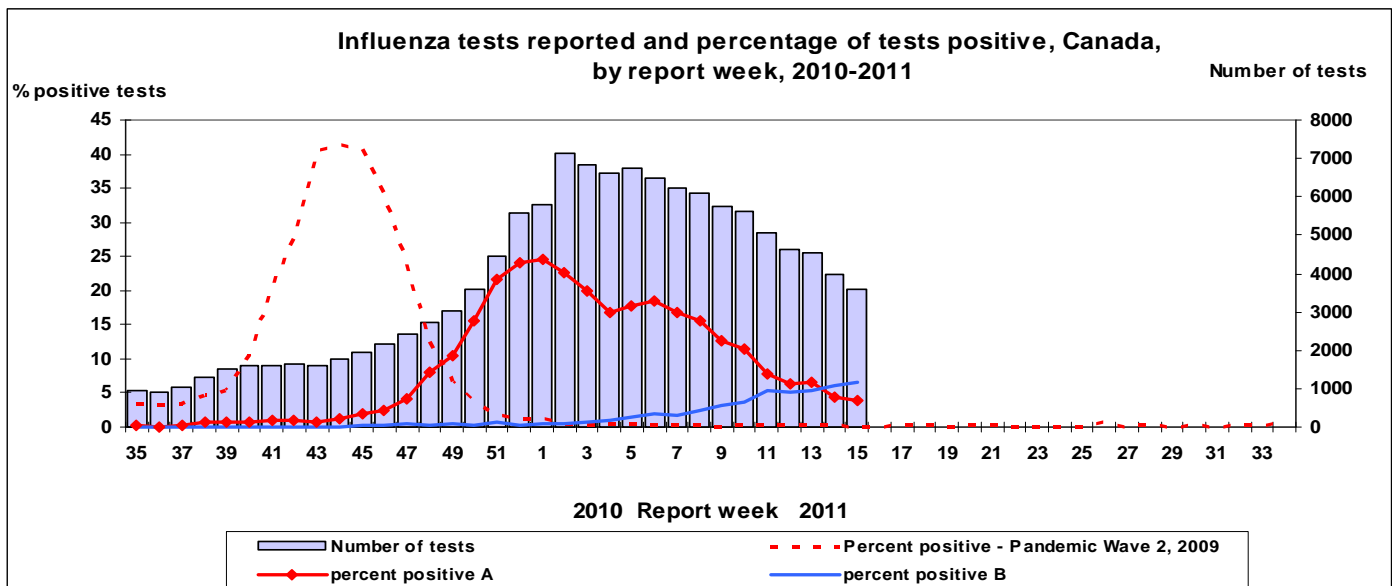
Reporting provinces	Weekly (April 10 to April 16, 2011)						Cumulative (August 29, 2010 to April 16, 2011)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	0	0	0	0	0	1	472	0	196	163	113	175
AB	20	0	11	7	2	47	1032	0	726	269	37	662
SK	14	0	10	0	4	26	311	0	209	30	72	124
MB	0	0	0	0	0	3	515	0	56	2	457	9
ON	21	0	6	5	10	61	6866	0	2433	269	4164	740
QC	33	0	1	1	31	83	5600	0	877	38	4685	544
NB	20	0	13	0	7	9	937	0	657	176	104	62
NS	15	0	8	0	7	0	252	0	78	11	163	3
PE	0	0	0	0	0	0	97	0	79	16	2	6
NL	13	0	11	0	2	3	180	0	114	6	60	8
<b>Canada</b>	<b>136</b>	<b>0</b>	<b>60</b>	<b>13</b>	<b>63</b>	<b>233</b>	<b>16262</b>	<b>0</b>	<b>5425</b>	<b>980</b>	<b>9857</b>	<b>2333</b>

\*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 (Apr. 10 to Apr. 16, 2011)					Cumulative (Aug. 29, 2010 to Apr. 16, 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	5	2	3	0	14	994	125	726	143	338
5-19	1	0	1	0	13	515	103	295	117	476
20-44	4	2	0	2	8	1068	328	524	216	256
45-64	4	1	2	1	8	782	185	430	167	108
65+	25	0	12	13	11	2476	43	2043	390	132
Unknown	0	0	0	0	0	229	3	224	2	0
<b>Total</b>	<b>39</b>	<b>5</b>	<b>18</b>	<b>16</b>	<b>54</b>	<b>6064</b>	<b>787</b>	<b>4242</b>	<b>1035</b>	<b>1310</b>

\*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 20, 2011, the National Microbiology Laboratory (NML) has antigenically characterized 726 influenza viruses that were received from provincial laboratories: 248 A/H3N2, 127 pandemic H1N1 2009 and 351 B viruses. Of the 248 influenza A/H3N2 viruses characterized, 245 (98.8%) were antigenically related to A/Perth/16/2009, which is the influenza A/H3N2 component recommended for the 2010-11 influenza vaccine. Three viruses (1.2%) tested showed reduced titer with antiserum produced against A/Perth/16/2009. Of the 127 pandemic H1N1 2009 viruses characterized, 126 (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 351 influenza B viruses characterized, 336 (95.7%) 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 336 viruses tested showed reduced titer with antisera produced against B/Brisbane/60/08. Fifteen (5.1%) 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 513 influenza A isolates (400 A/H3N2 and 113 pandemic H1N1 2009) for amantadine resistance and found that 399 influenza A/H3N2 were resistant to amantadine and one was sensitive. All 113 influenza A/H1N1 viruses were resistant to amantadine. Of 575 influenza viruses (208 A/H3N2, 103 pandemic H1N1 2009, and 264 influenza B) tested for resistance to oseltamivir, 207 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 103 pandemic H1N1 2009 isolates tested, 102 were sensitive to oseltamivir and one was resistant to oseltamivir with the H275Y mutation. The resistant case was associated with oseltamivir treatment. All 264 B viruses were sensitive to oseltamivir. Of 565 influenza viruses (203 A/H3N2, 100 pandemic H1N1 2009, and 262 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 15, 5 new laboratory-confirmed influenza-associated paediatric (16 years of age and under) hospitalizations were reported through the Immunization Monitoring Program Active (IMPACT) network: 4 from QC, and 1 from NL. This number has decreased compared to the previous week (week 14) in which 27 paediatric hospitalizations were reported (note that numbers may fluctuate because of the delays in reporting). Five paediatric deaths have been reported via IMPACT this season all with underlying comorbidities.

Since the beginning of the season, 624 hospitalizations with laboratory-confirmed influenza have been reported from all participating provinces; 101 (16.2%) as influenza A/H3N2, 22 (3.5%) pandemic H1N1 2009, 328 (52.6%) as unsubtype influenza A, and 173 (27.7%) influenza B. The distribution of cases to date by age group was as follows: 17.0% among 0-5 month olds; 28.4% among 6-23 month olds; 28.8% among the 2-4 year-olds; 14.9% among 5-9 year-olds; and 10.9% among children 10-16 years old.

### **Adult Influenza Hospitalizations and Deaths**

During week 15, 5 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 7 cases reported in week 14 (note that numbers may fluctuate because of the delays in reporting). Of the 5 new cases reported between April 10 and 16, 2011, 3 (60.0%) tested positive for unsubtype influenza A, and 2 (40.0%) as influenza B. Since the beginning of the season, 948 hospitalized cases have been reported: 201 (21.2%) A/H3N2, 45 (4.7%) pandemic H1N1 2009, 640 (67.5%) influenza A unsubtype, and 62 (6.5%) influenza B, from all reporting provinces. To date, 641 of the 948 (67.6%) cases were aged 65 years or older and 430 (45.4%) 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 15, one death with influenza was reported in Ontario, in a person >65 years old with unsubtype influenza A. Among the 218 fatal cases reported since the beginning of the influenza season, influenza A/H3N2 was identified in 61.5% (134/218), unsubtype influenza A in 28.0% (61/218), pandemic H1N1 2009 in 6.0% (13/218), and influenza B in 4.6% (10/218). Seventy-nine percent (173/218) of these fatal cases were among persons 65 years of age or older, and another 11% (24/218) 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 14 (April 3 to 9, 2011), influenza activity continued to decrease. Nine percent (387/4,234) of specimens tested were positive for influenza, of which 62.5% were influenza A and 37.5% were influenza B. Among influenza A specimens, the proportion of A/H3 (41.4%) was greater than the proportion of pandemic H1N1 2009 (28.1%). The proportion of deaths attributed to pneumonia and influenza (P&I) was at or above threshold for the eleventh consecutive week. One influenza-associated paediatric death was reported for a total of 91 this season, of which 34 were associated with influenza B, 23 with pandemic H1N1 2009, 17 with A/H3, and 17 with unsubtype influenza A. The majority of circulating influenza strains are antigenically similar to the components of the trivalent influenza vaccine, with the exception of 29 (5.3%) of influenza B specimens identified as belonging to the Yamagata lineage. <http://www.cdc.gov/flu/weekly/index.htm>

**Europe:** In week 14 (4 to 10 April 2011), 24 of 25 European countries experienced influenza activity of low intensity and in all 25 reporting countries trends were decreasing. For the fourth consecutive week, more influenza B viruses (78.7%) than influenza A viruses (21.3%) were reported. Influenza B was dominant or co-dominant with influenza virus pandemic H1N1 2009 in eight countries. A subset (over 660) of the sentinel and non-sentinel specimens collected between December 2010 and March 2011 were sent to the WHO Collaborating Centre in London: 65% type A and 35% type B. Of the influenza A viruses 89% were pandemic A(H1N1)2009 and 11% A(H3N2), and of the B viruses 89% were of the Victoria lineage and 11% of the Yamagata lineage. While viruses of the B/Yamagata lineage were still recognised by antisera raised against the most recently used vaccine virus, B/Florida/4/2006, they reacted better to antisera raised against more recently circulating viruses, notably B/Bangladesh/3333/2007.

[http://ecdc.europa.eu/en/publications/Publications/110415\\_SUR\\_Weekly\\_Influenza\\_Surveillance\\_Overview.pdf](http://ecdc.europa.eu/en/publications/Publications/110415_SUR_Weekly_Influenza_Surveillance_Overview.pdf)

### **Southern Hemisphere**

**Australia** – From March 19 to April 1, levels of influenza-like illness (ILI) in the community remained low through all surveillance systems. However, the number of laboratory confirmed notifications that have occurred during the 2010-11 inter-seasonal period has been unusually high, especially in the Northern Territory and Queensland. During this reporting period there were 319 laboratory confirmed notifications of influenza, which included 210 cases of influenza A untyped and 54 cases of pandemic (H1N1) 2009. Queensland reports circulation of mostly pandemic (H1N1) 2009 and type A/H3N2, while the majority of cases in the Northern Territory have been type A/H3N2. <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.