



### April 24 to 30, 2011 (Week 17)

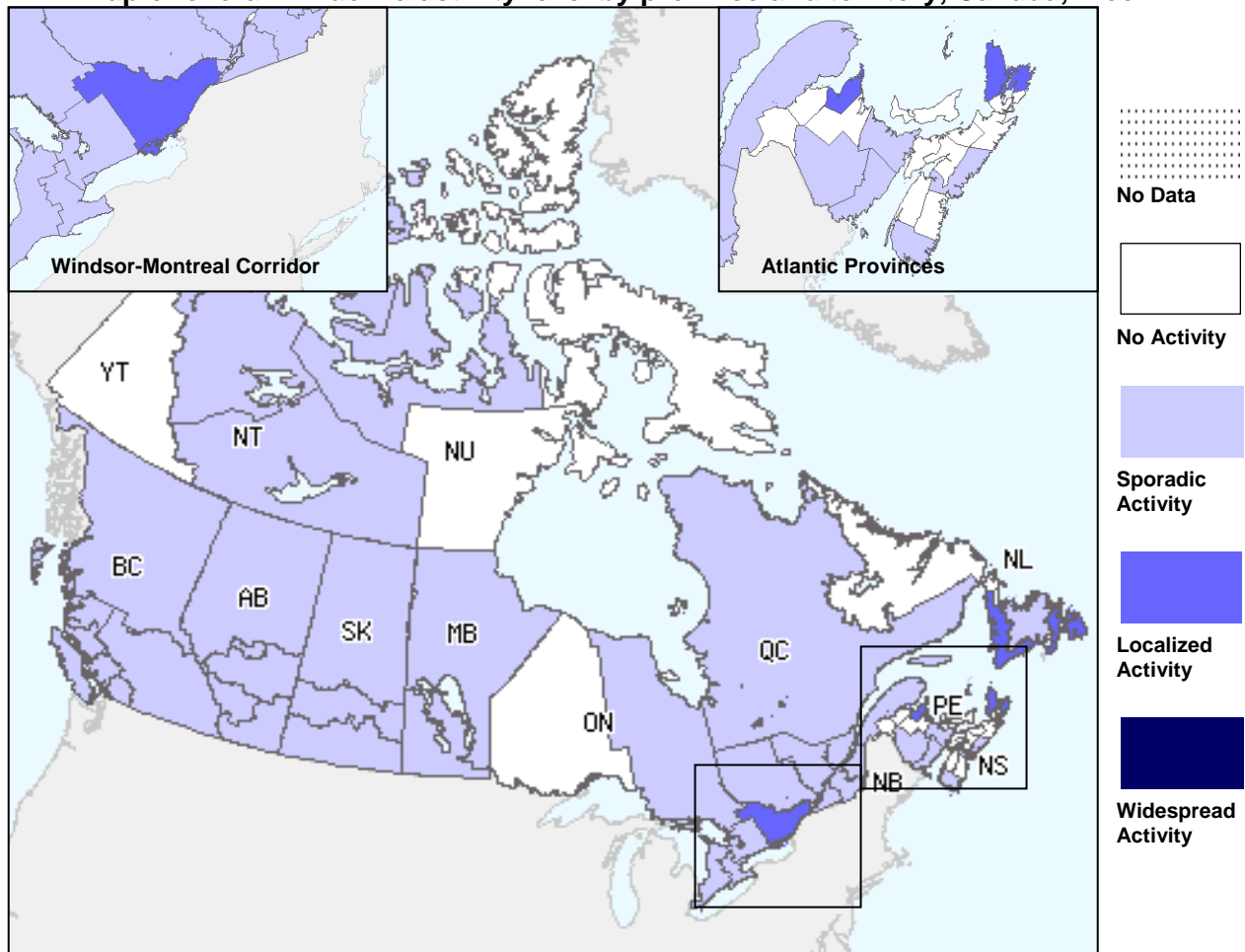
#### Overall Influenza Summary

- In week 17, influenza activity in Canada continues to decline with only a few pockets of localized influenza activity in Ontario and the Atlantic provinces.
- Influenza B continues to be detected more frequently than influenza A, however, the overall percentage of influenza positive specimens continues to decrease.
- This week the number of outbreaks reported decreased considerably, as well as the ILI consultation rate. Both adult and paediatric hospitalizations with influenza are also low.

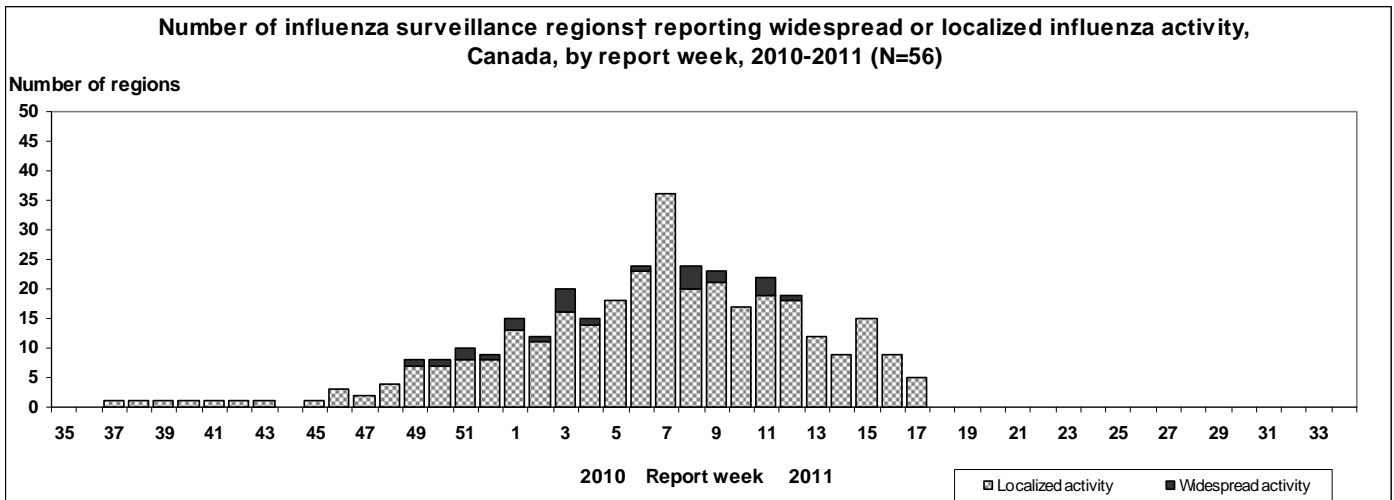
#### Influenza Activity and Outbreaks

In week 17, 5 regions reported localized activity: ON(1), NB(1), NS(1), and NL(2); 36 regions reported sporadic activity (in all provinces and territories except PE and YT) and 15 regions presented no activity (see Activity level Map). Compared to the previous week (week 16), 8 regions reported an increased level of influenza activity, 8 regions reported decreased activity, and 28 regions maintained a stable level of influenza activity (sporadic or higher). Five new outbreaks were reported: 1 outbreak of influenza in long-term care facilities (LTCF) in NL; 3 ILI outbreaks in schools in NB; and one outbreak of ILI in another facility in NL.

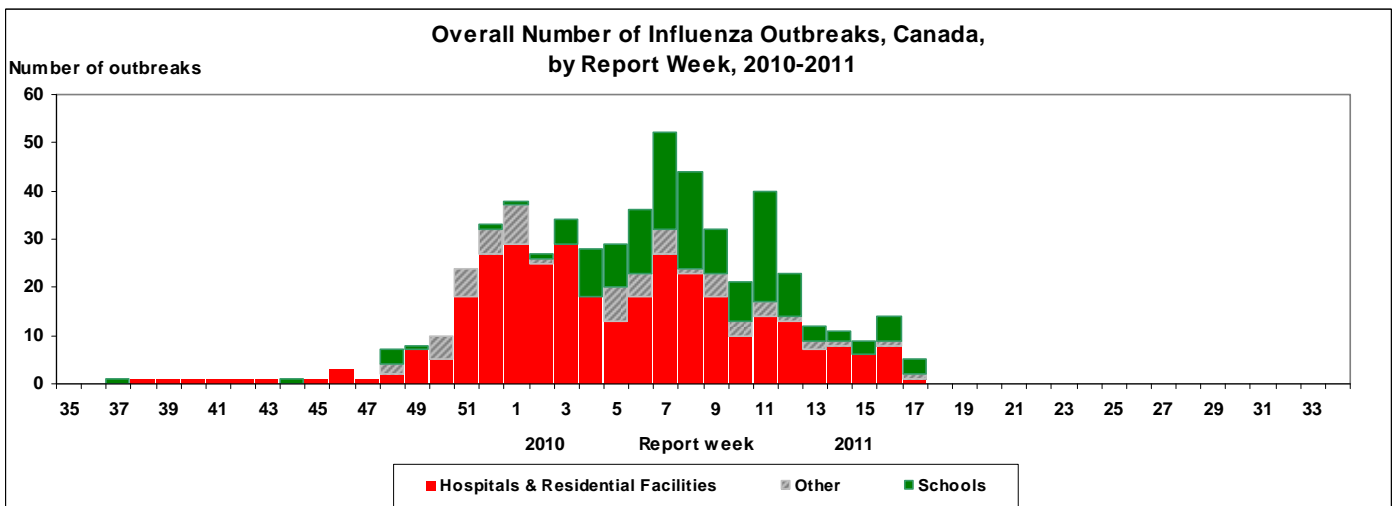
Map of overall Influenza activity level by province and territory, Canada, Week 17



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.

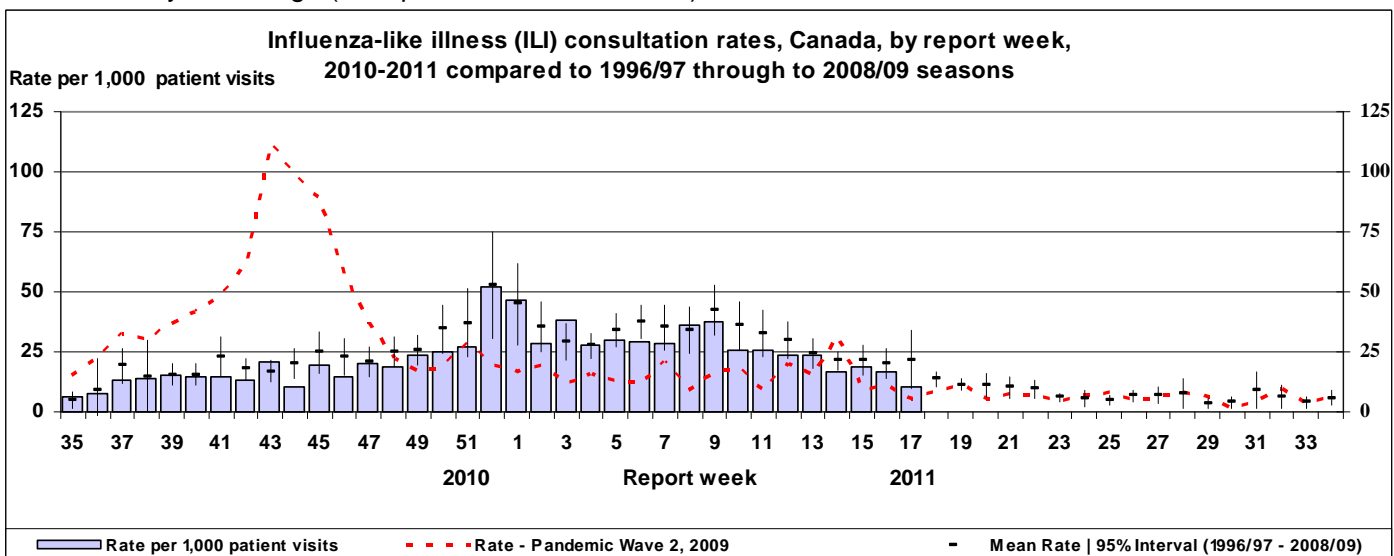


Note that this was the first year that all the provinces and territories were reporting on influenza outbreaks in schools (greater than 10% absenteeism on any day most likely due to ILI) which has increased considerably the total number of outbreaks reported compared to previous years.



### ILI consultation rate

During week 17, the national ILI consultation rate was 10.5 consultations per 1,000 patient visits, which is decreased 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 (23.6 per 1,000 consultations), followed by children 5-19 years of age (12.9 per 1,000 consultations) in week 17.



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 17 was 7.0% (2.3% influenza A, 4.7% influenza B), which is similar to week 16 (7.1%). The proportion of positive tests peaked in week 52 (see Influenza tests graph). Since the beginning of the season, 86.1% (16,395/19,041) of influenza virus detections have been influenza A viruses, of which 84.7% (5,467/6,456) 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 17, 19 (25.7%) specimens were reported as influenza A/H3N2, 2 (2.7%) as pandemic H1N1 2009, and 53 (71.6%) as unsubtyped influenza A. Through detailed case-based laboratory reporting where age data is provided, since August 29, 2010, 50.8% (2,058/4,049) of cases with A/H3N2 were aged 65 years or older. In contrast, the majority of cases with pandemic H1N1 2009 (94.4%, 745/789) and influenza B (90.2%, 1,295/1,435) were under 65 years of age (see Tests detailed table). In week 17, the proportion of positive tests for respiratory syncytial virus detections (RSV) were similar to the previous week at 9.2% of specimens tested. The proportion of positive RSV tests appears to have peaked in week 07. Since week 11, the proportion of positive tests for parainfluenza viruses has been increasing, reaching 6.2% in week 17, predominantly due to parainfluenza type 3 (51.4%) and type 1 (36.7%). (See Respiratory viruses graph).

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

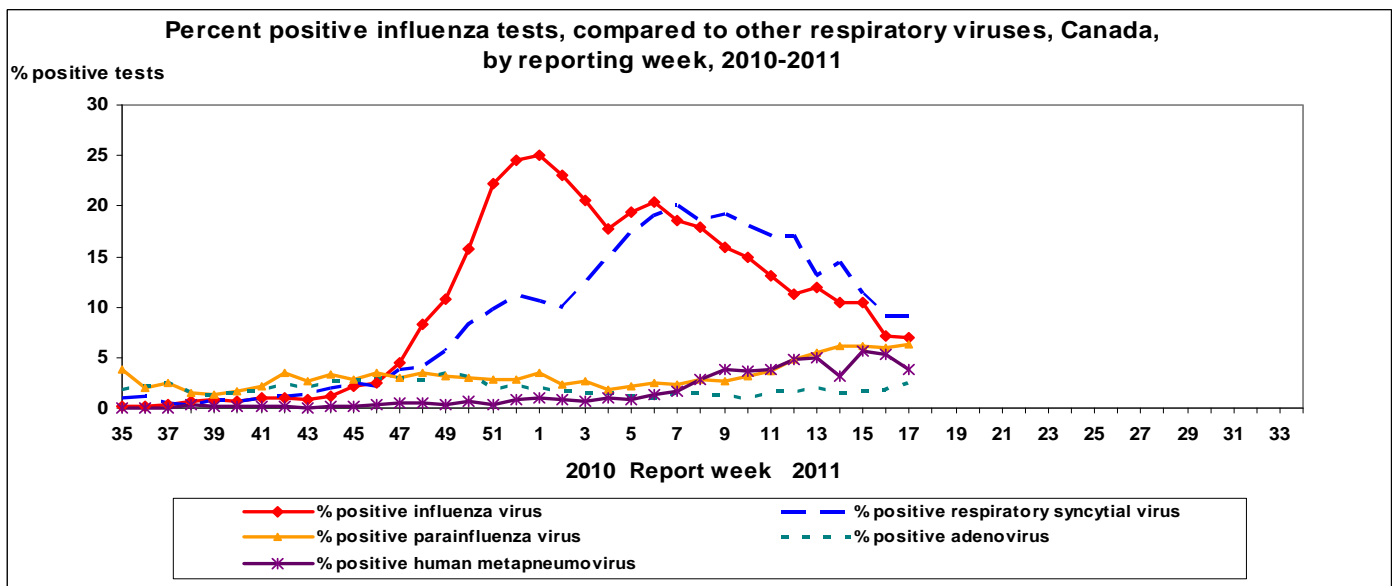
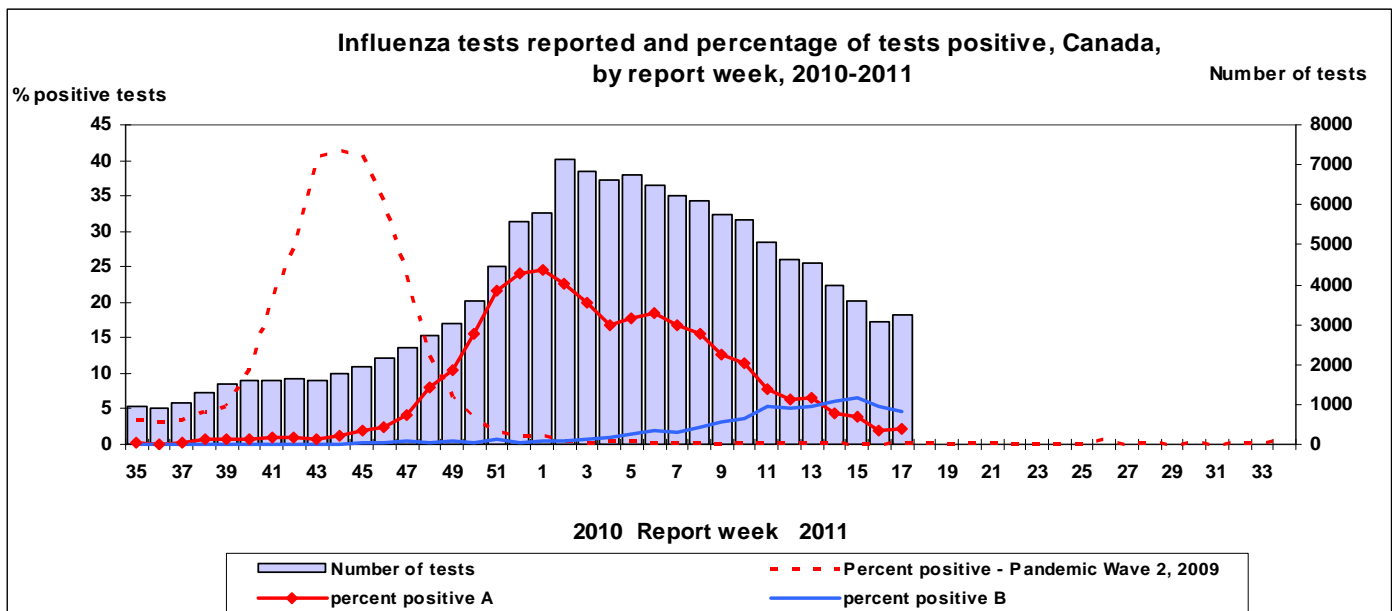
Reporting provinces	Weekly (April 24 to April 30, 2011)						Cumulative (August 29, 2010 to April 30, 2011)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	1	0	1	0	0	2	477	0	200	164	113	178
AB	14	0	12	1	1	25	1057	0	748	273	36	715
SK	2	0	1	0	1	13	315	0	211	30	74	161
MB	0	0	0	0	0	1	515	0	56	2	457	13
ON	5	0	2	1	2	26	6879	0	2437	273	4169	805
QC	19	0	0	0	19	46	5635	0	877	38	4720	641
NB	6	0	3	0	3	25	949	0	665	176	108	93
NS	12	0	0	0	12	2	269	0	80	11	178	5
PE	0	0	0	0	0	0	97	0	79	16	2	6
NL	15	0	0	0	15	13	202	0	114	6	82	29
<b>Canada</b>	<b>74</b>	<b>0</b>	<b>19</b>	<b>2</b>	<b>53</b>	<b>153</b>	<b>16395</b>	<b>0</b>	<b>5467</b>	<b>989</b>	<b>9939</b>	<b>2646</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. 24 to Apr. 30, 2011)					Cumulative (Aug. 29, 2010 to Apr. 30, 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	10	3	0	7	10	1005	127	733	145	386
5-19	6	0	0	6	7	516	103	296	117	515
20-44	7	0	2	5	5	1075	328	528	219	284
45-64	1	1	0	0	0	788	187	434	167	110
65+	17	8	6	3	1	2505	44	2058	403	140
Unknown	0	0	0	0	1	231	3	224	4	1
<b>Total</b>	<b>41</b>	<b>12</b>	<b>8</b>	<b>21</b>	<b>24</b>	<b>6120</b>	<b>792</b>	<b>4273</b>	<b>1055</b>	<b>1436</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 May 5, 2011, the National Microbiology Laboratory (NML) has antigenically characterized 875 influenza viruses that were received from provincial laboratories: 261 A/H3N2, 138 pandemic H1N1 2009 and 476 B viruses. Of the 261 influenza A/H3N2 viruses characterized, 258 (98.7%) 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 138 pandemic H1N1 2009 viruses characterized, 137 (99.3%) 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 (0.7%) tested showed reduced titer with antiserum produced against A/California/7/2009. Of the 476 influenza B viruses characterized, 456 (95.8%) 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 456 viruses tested showed reduced titer with antisera produced against B/Brisbane/60/08. Twenty (4.2%) 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 616 influenza A isolates (460 A/H3N2 and 156 pandemic H1N1 2009) for amantadine resistance and found that 459 influenza A/H3N2 were resistant and one was sensitive. All 156 influenza A/H1N1 viruses were resistant to amantadine. Of 763 influenza viruses (233 A/H3N2, 140 pandemic H1N1 2009, and 390 influenza B) tested for resistance to oseltamivir, 232 A/H3N2 viruses were sensitive and one was resistant with E119V mutation. The resistant case was associated with oseltamivir prophylaxis/treatment. Of the 140 pandemic H1N1 2009 isolates tested for oseltamivir resistance, 139 were sensitive and one was resistant with the H275Y mutation. The resistant case was associated with oseltamivir treatment. All 390 B viruses were sensitive to oseltamivir. Of 755 influenza viruses (230 A/H3N2, 136 pandemic H1N1 2009, and 389 influenza B) tested for zanamivir resistance all isolates were found to be sensitive.

## **Severe Illness Surveillance**

### **Paediatric Influenza Hospitalizations and Deaths**

In week 17, 9 new laboratory-confirmed influenza-associated paediatric (16 years of age and under) hospitalizations were reported through the Immunization Monitoring Program Active (IMPACT) network: 1 from AB, 2 from ON, 5 from QC, and 1 from NL. This number is decreased compared to the previous week (week 16) in which 11 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, 651 hospitalizations with laboratory-confirmed influenza have been reported: 102 (15.7%) as influenza A/H3N2, 22 (3.4%) pandemic H1N1 2009, 328 (50.4%) as unsubtype influenza A, and 199 (30.6%) influenza B. The distribution of cases to date by age group was as follows: 16.7% among 0-5 month olds; 27.8% among 6-23 month olds; 28.7% among the 2-4 year-olds; 15.8% among 5-9 year-olds; and 10.9% among children 10-16 years old.

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

During week 17, 3 new hospitalizations with laboratory-confirmed influenza among adults (16 years of age and older) were reported through the Canadian Nosocomial Infection Surveillance Program (CNISP), all with influenza B. This number is decreased compared to the 5 cases reported in week 16 (note that numbers may fluctuate because of the delays in reporting). Since the beginning of the season, 964 hospitalized cases have been reported: 202 (21.0%) A/H3N2, 48 (5.0%) pandemic H1N1 2009, 643 (66.7%) influenza A unsubtype, and 71 (7.4%) influenza B, from all reporting provinces. To date, 649 of the 964 (67.3%) cases were aged 65 years or older and 436 (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 17, 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), unsubtype 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**

Worldwide influenza activity is currently low. Influenza activity across the entire temperate Northern Hemisphere is generally back to baseline or pre-seasonal levels. As levels of influenza activity decrease, influenza type B has become more commonly detected compared to influenza A viruses across the Northern Hemisphere temperate areas and in much of the tropics. Transmission in tropical areas of the world is also generally low with some transmission reported in countries of Sub-Saharan Africa with a mixture of viruses and slight predominance of influenza type B. [http://www.who.int/csr/disease/influenza/latest\\_update\\_GIP\\_surveillance/en/index.html](http://www.who.int/csr/disease/influenza/latest_update_GIP_surveillance/en/index.html)

### **Northern Hemisphere**

**United States:** During week 16 (April 17 to 23, 2011), influenza activity continued to decrease. Four percent (88/2,072) of specimens tested were positive for influenza, of which 56.8% were influenza A and 43.2% were influenza B. Among influenza A specimens, the proportion of A/H3 (64.0%) was greater than the proportion of pandemic H1N1 2009 (10.0%). The proportion of deaths attributed to pneumonia and influenza (P&I) was at or above threshold for the 13th consecutive week. Two influenza-associated paediatric deaths were reported for a total of 97 this season, of which 39 were associated with influenza B, 24 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 5.9% (38/646) of influenza B specimens identified as belonging to the Yamagata lineage. <http://www.cdc.gov/flu/weekly/index.htm>

**Europe:** In week 16 (18 to 24 April 2011), all 23 reporting European countries experienced influenza activity of low intensity and 21 countries reported decreasing or unchanging trends. Sentinel physicians reported 4 specimens testing positive for influenza in week 16 (3 influenza B and one influenza A). Influenza B was dominant or co-dominant with influenza virus pandemic H1N1 2009 in three countries. The 2010-11 influenza season is drawing to a close in European countries. [http://ecdc.europa.eu/en/publications/Publications/110429\\_SUR\\_Weekly\\_Influenza\\_Surveillance\\_Overview.pdf](http://ecdc.europa.eu/en/publications/Publications/110429_SUR_Weekly_Influenza_Surveillance_Overview.pdf)

### **Southern Hemisphere**

Influenza activity has not increased in the temperate zone of the southern hemisphere. Australia continues to report on low but decreasing levels of influenza, primarily A/H3N2 viruses primarily in tropical and subtropical areas of the country. [http://www.who.int/csr/disease/influenza/latest\\_update\\_GIP\\_surveillance/en/index.html](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.