

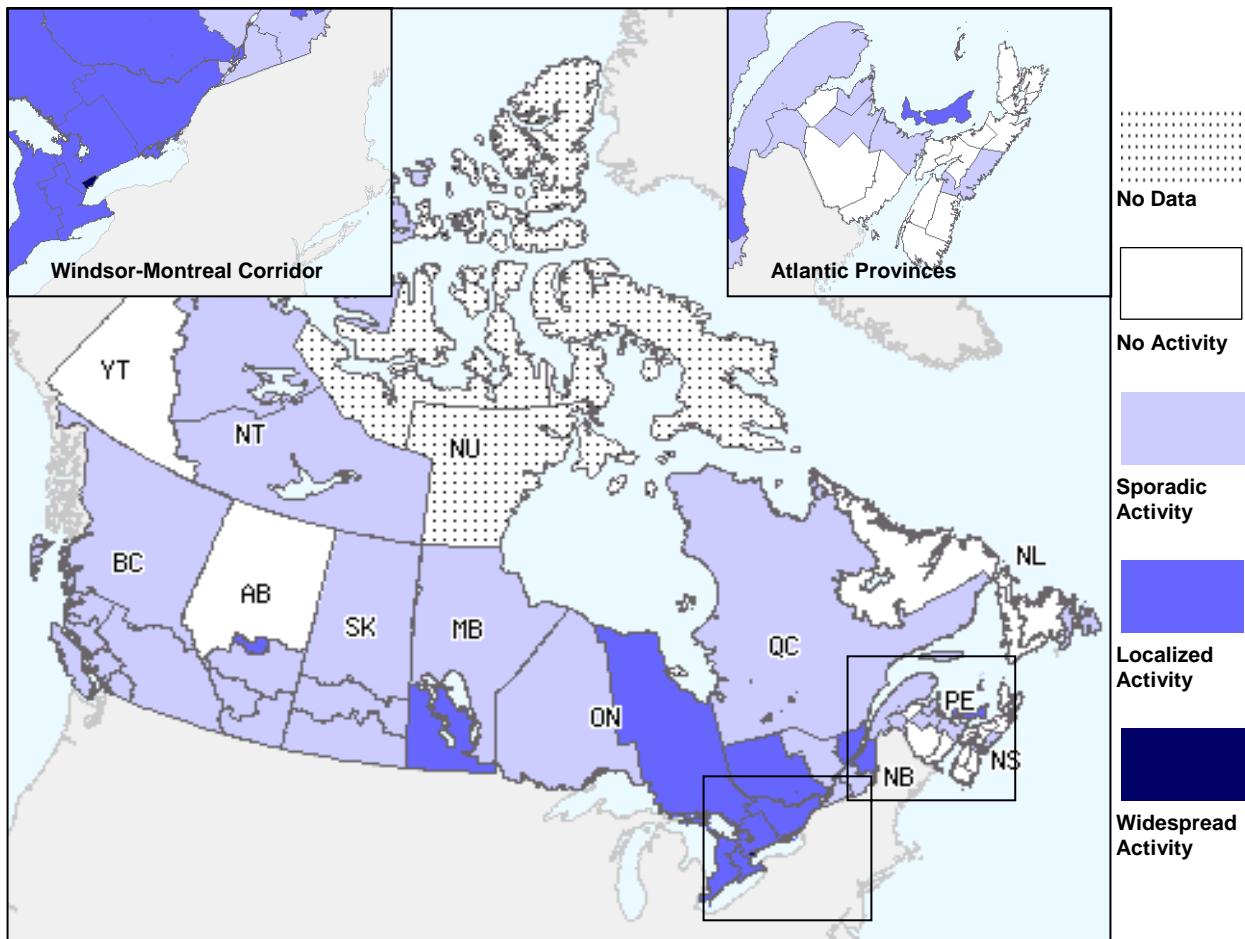
January 9 to January 15, 2011 (Week 02)

- During week 02 several indicators of influenza activity have decreased across the country: the number of regions reporting widespread and localized influenza activity, the number of outbreaks, the percentage of specimens testing positive for influenza, the ILI consultation rate and the number of paediatric and adult hospitalizations.
- Since the beginning of the season, 91.1% of the subtyped positive influenza A specimens were influenza A/H3N2. In week 02, detections of pandemic H1N1 2009 increased to 15.5% of all subtyped influenza A specimens, compared to 8.5% in week 01.

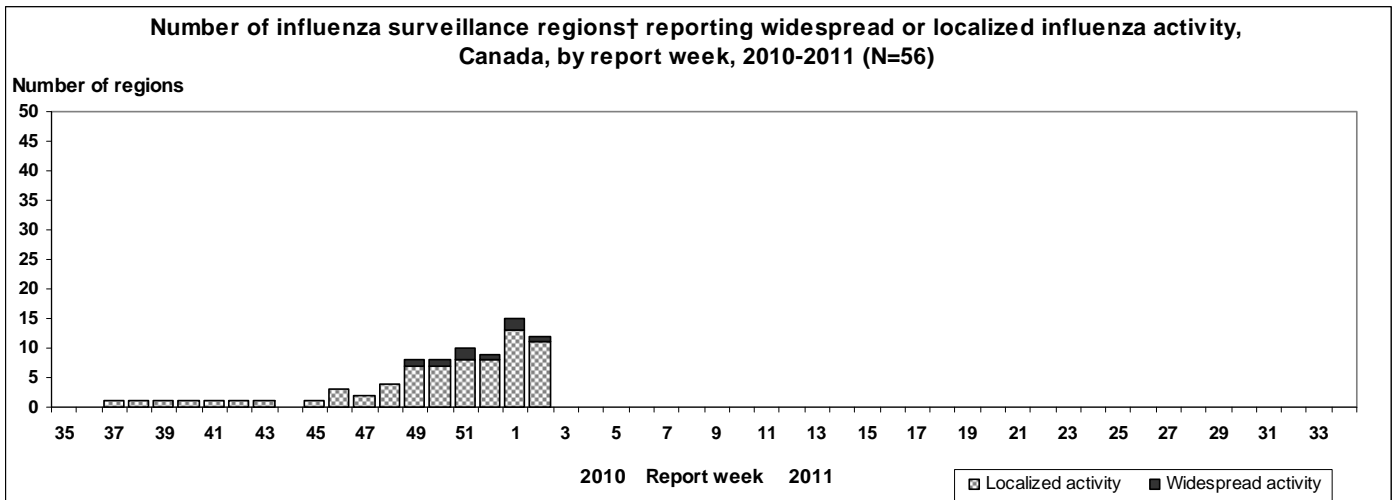
**Overall Influenza Summary – Week 02 (January 9 to 15, 2011)**

In week 02, one region in ON reported widespread influenza activity, 11 regions reported localized activity (in AB(1), MB(1), ON(5), QC(3) & PE(1)), 25 regions reported sporadic activity (in all provinces and territories except YK, NL and PE) and 16 regions presented no activity. No data was available for NU at time of report. (See Activity level Map). Compared to the previous 2 weeks (weeks 52 & 01), 11 regions reported increased influenza activity, one region reported decreased activity, and 19 regions maintained a stable level of influenza activity (sporadic or higher). During week 02, 27 new ILI/influenza outbreaks were reported: 22 in long-term care facilities (LTCF) in AB(1), MB(1), ON(5), QC(14) and NS(1); 3 outbreaks in hospitals in ON; one outbreaks in other facilities/settings in PE, and a school outbreak in NS.

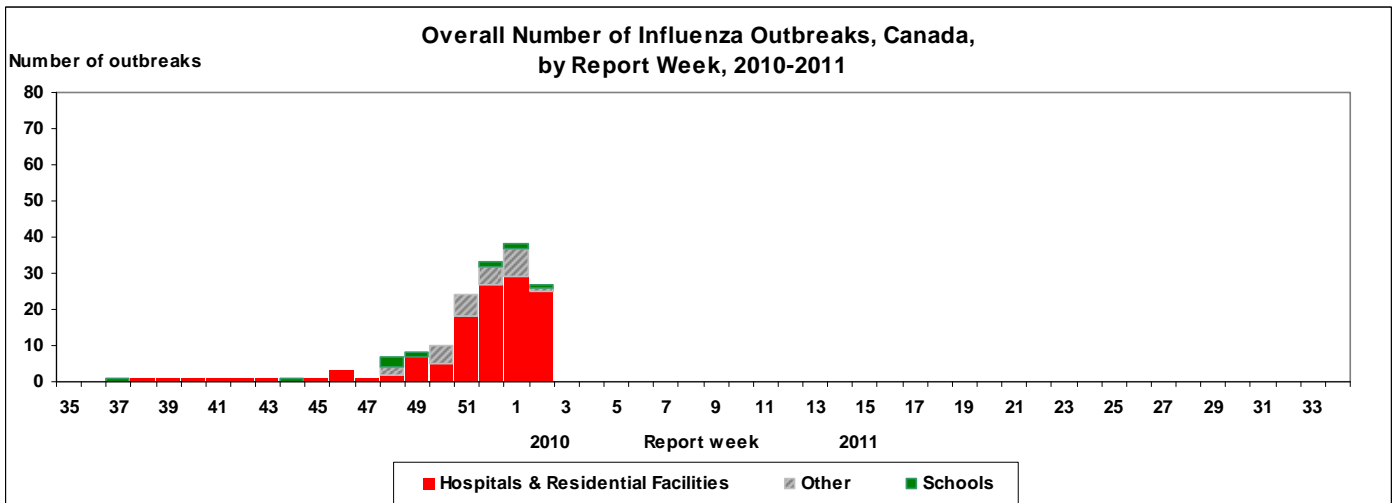
**Map of overall Influenza activity level by province and territory, Canada, Week 02**



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.



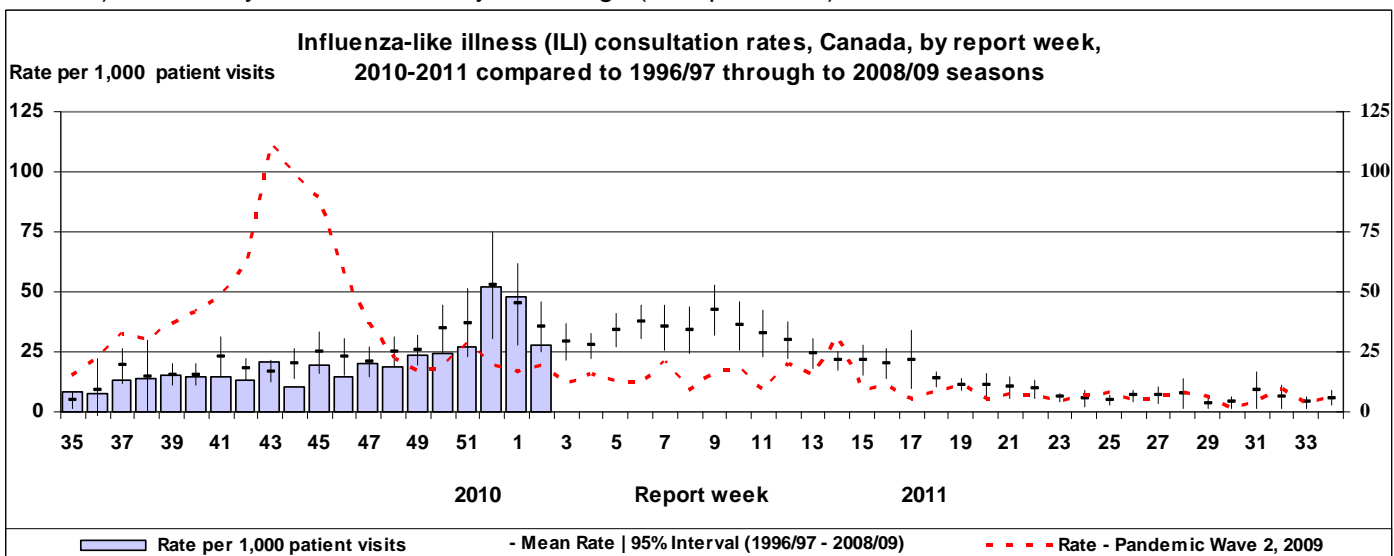
† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.



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 02, the national ILI consultation rate was 28.1 consultations per 1,000 patient visits, which is down compared to 48.2 per 1,000 in week 01. This rate is still within the expected levels for this time of year (see ILI graph). Children between 5 and 19 years had the highest consultation rates (55.3 per 1,000 consultations in week 02) followed by children under 5 years of age (41.6 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 02 was 23.1%. The proportion of positive tests increased from week 45 to 52, and now appears to have peaked. Of the 1648 positive tests reported during week 02, 404 specimens were reported as influenza A/H3N2, 74 as pandemic H1N1 2009 (BC, AB, ON, QC, NL, PE), 29 as influenza B (BC, AB, SK, ON & QC) and 1141 as unsubtype influenza A. The majority of influenza virus detections to date this season were influenza A viruses (97.9% or 6941/6796). Since the beginning of the season, 91.1% of the subtyped positive influenza A specimens were influenza A/H3N2. In week 02, detections of pandemic H1N1 2009 increased to 15.5% of all subtyped influenza A specimens, compared to 8.5% in week 01. During week 02, 51.8% (73/141) of cases with A/H3N2 reported through the detailed case-based laboratory reporting were aged 65 years or older, while since August 29, 2010, the proportion was 51.7% (931/1801) (see Tests detailed table). In week 02, the proportion of respiratory syncytial virus detections (RSV) was stable at 9.6% of specimens tested while low levels of parainfluenza (2.2%) and adenovirus (1.6%) continue to be reported. While overall testing continued to increase for respiratory viruses in week 02, the proportion of positive tests is in decline in most regions (see Respiratory viruses graph).

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

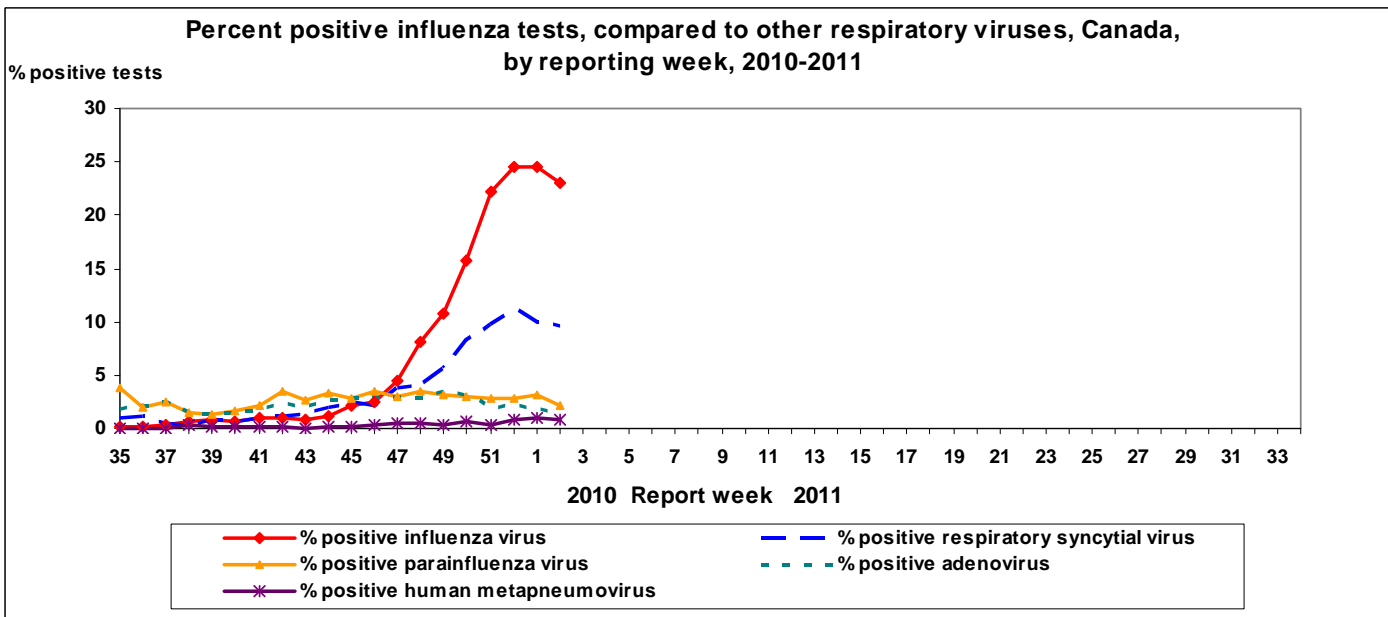
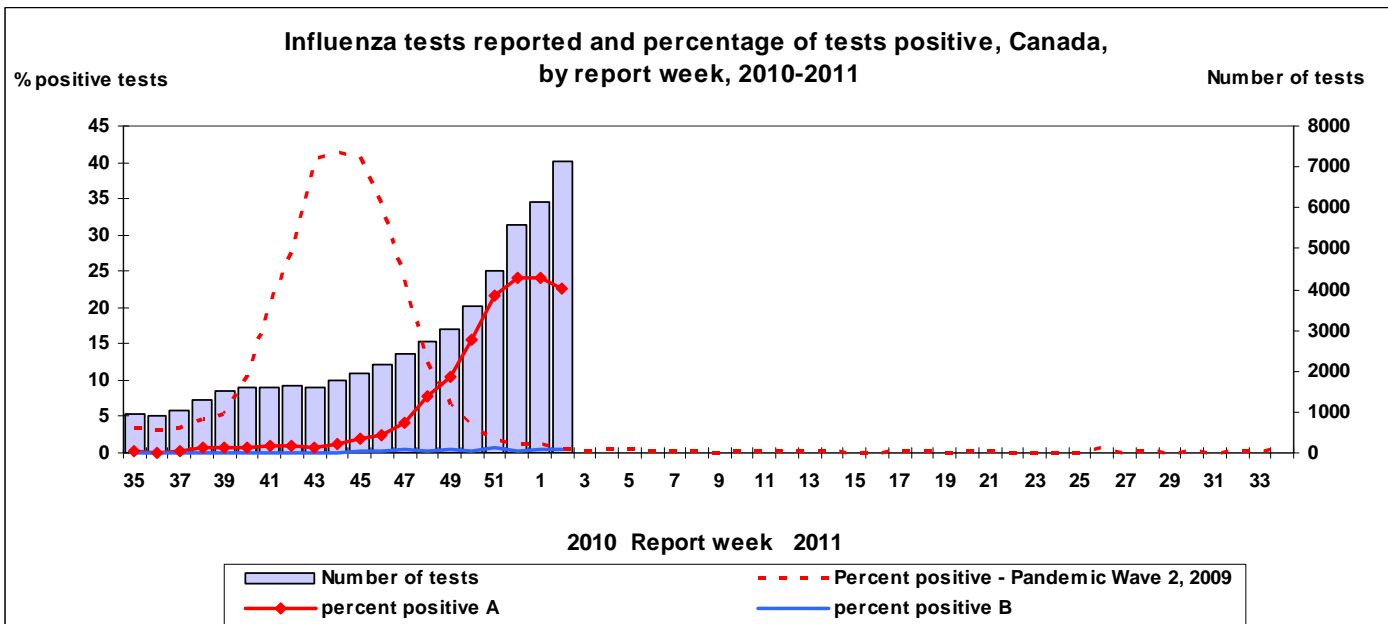
Reporting provinces	Weekly (January 9 to January 15, 2011)						Cumulative (August 29, 2010 to January 15, 2011)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	24	0	6	13	5	5	86	0	31	19	36	9
AB	57	0	37	9	11	2	233	0	185	29	19	10
SK	5	0	2	0	3	1	27	0	7	0	20	5
MB	30	0	3	0	27	0	416	0	56	1	359	0
ON	849	0	285	48	516	14	3550	0	1418	124	2008	93
QC	644	0	69	2	573	7	2461	0	209	7	2245	28
NB	5	0	0	0	5	0	10	0	3	1	6	0
NS	2	0	1	0	1	0	5	0	3	0	2	0
PE	1	0	0	1	0	0	5	0	0	5	0	0
NL	2	0	1	1	0	0	3	0	2	1	0	0
<b>Canada</b>	<b>1619</b>	<b>0</b>	<b>404</b>	<b>74</b>	<b>1141</b>	<b>29</b>	<b>6796</b>	<b>0</b>	<b>1914</b>	<b>187</b>	<b>4695</b>	<b>145</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 (Jan. 9 to Jan. 15, 2011)					Cumulative (Aug. 29, 2010 to Jan. 15, 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	49	6	32	11	4	371	32	268	71	16
5-19	8	4	3	1	1	148	13	76	59	9
20-44	31	7	14	10	1	350	50	203	97	14
45-64	37	14	12	11	2	294	42	184	68	12
65+	105	2	73	30	4	1091	10	931	150	12
Unknown	11	3	7	1	0	145	3	139	3	0
<b>Total</b>	<b>241</b>	<b>36</b>	<b>141</b>	<b>64</b>	<b>12</b>	<b>2399</b>	<b>150</b>	<b>1801</b>	<b>448</b>	<b>63</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.



## Canadian situation

### Paediatric Influenza Hospitalizations and Deaths

In week 02 (ending Jan. 15, 2011), 19 new laboratory-confirmed influenza-associated paediatric (16 years of age and under) hospitalizations were reported through the Immunization Monitoring Program Active (IMPACT) network: 14 from ON, 2 from QC, 2 from AB, and one from MB. This number decreased compared to the previous week (week 01) in which 27 paediatric hospitalizations were reported (note that these numbers may fluctuate because of the delays in reporting). Since the beginning of the season, 216 hospitalizations with laboratory-confirmed influenza have been reported from BC, AB, SK, MB, ON & QC; 37 (17.1%) as influenza A/H3N2, 7 (3.2%) pandemic H1N1 2009, 163 (75.5%) as unsubtype influenza A, and 9 (4.2%) influenza B. The distribution of cases to date by age group was as follows: 16.2% among 0-5 month olds; 28.7% among 6-23 month olds; 29.6% among the 2-4 year-olds; 16.7% among 5-9 year-olds; and 8.8% among children 10-16 years old. This season, one death in a child aged between 6 months and 23 months, who tested positive for pandemic H1N1 2009 was reported in ON in week 48.

### Adult Influenza Hospitalizations and Deaths

During week 02, 77 new laboratory-confirmed influenza-associated adult (16 years of age and older) hospitalizations were reported through the Canadian Nosocomial Infection Surveillance Program (CNISP) from 29 sites. This number decreased for the second week in a row, compared with 132 adult hospitalizations reported in week 52 and 106 reported in week 01 (note that these numbers may fluctuate because of the delays in reporting). New hospitalizations were reported from CNISP sites in BC, ON & QC. Of these 77 hospitalized cases 54 (70.1%) tested positive for unsubtype influenza A, 15 (19.5%) as influenza A/H3N2, 7 (9.1%) as pandemic H1N1 2009, and 1 (1.3%) as influenza B. Since the beginning of the season, 487 hospitalized cases have been reported: 110 (22.6%) A/H3N2, 21 (4.3%) pandemic H1N1 2009, 347 (71.3%) influenza A

unsubtyped, and 9 (1.8%) influenza B, from BC, AB, MB, ON and QC. 349 of the 487 (71.7%) cases were aged 65 years or older and 214 (43.9%) were males.

Among the ten provinces and territories conducting severe outcomes surveillance, since the beginning of the season 50 deaths have been reported with laboratory-confirmed influenza. Among the 50 fatal cases, 5 were reported from MB and 45 from ON; influenza A/H3N2 was identified in 54% (27/50), unsubtyped influenza A in 40% (20/50), and pandemic H1N1 2009 in 3 cases (6%). Seventy-two percent (36/50) of these fatal cases were among persons 65 years of age or older, and another 20% (10/50) were between the ages of 45 and 64 years old, in keeping with the age-groups usually affected by A/H3N2.

### **Antigenic Characterization**

Between September 1 and January 21, 2011, the National Microbiology Laboratory (NML) has antigenically characterized 136 influenza viruses that were received from provincial laboratories: 93 A/H3N2 from BC, AB, SK, MB, ON & QC, 21 pandemic H1N1 2009 from BC, AB & ON, and 22 B viruses from BC, AB, SK, ON & QC. All 93 influenza A/H3N2 viruses characterized were antigenically related to A/Perth/6/2009, which is the influenza A/H3N2 component recommended for the 2010-11 influenza vaccine. The 21 pandemic H1N1 2009 viruses characterized were antigenically related to the pandemic vaccine virus A/California/7/2009, which is the recommended H1N1 component for the 2010-11 influenza vaccine. Of the 22 influenza B viruses characterized, 21 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. One influenza B virus was characterized as B/Florida/04/2006-like, which belongs to the Yamagata lineage.

### **Antiviral Resistance**

Since the beginning of the 2010-2011 season, NML has tested 145 influenza A isolates (124 H3N2 and 21 pandemic H1N1) for amantadine resistance and found that 123 influenza A/H3N2 were resistant to amantadine and one was sensitive. All 21 influenza A/H1N1 viruses were resistant to amantadine. 123 influenza viruses (81 H3N2, 21 H1N1, and 21 B) were tested for resistance to both oseltamivir and zanamivir and it was found that all isolates were sensitive to both antivirals.

## **International influenza update**

### **Geographic update**

#### **Northern hemisphere**

**United States:** During week 01 (January 2 to 8, 2011), influenza activity decreased several indicators, but it is unlikely that influenza activity for this season has peaked; 706 (16.3%) specimens tested positive for influenza of which 73.8% were influenza A and 26.2% were influenza B. Of the influenza A positive specimens, 31.5% were influenza A/H3, 7.7% pandemic H1N1 2009 and the rest were unsubtyped. The proportion of deaths attributed to pneumonia and influenza (P&I) was at the epidemic threshold. Four influenza-associated paediatric deaths were reported, for a total of 8 this season. Two of the 4 deaths reported in week 01 were associated with influenza A/H3 viruses and two were associated with influenza B virus infection. The proportion of outpatient visits for influenza-like illness (ILI) was 2.2%, which is below the national baseline of 2.5%. One of the 10 national regions reported ILI above region-specific baseline levels. Four states in the southeast experienced high ILI activity, and New York City experienced moderate ILI activity. The geographic spread of influenza in 11 states was reported as widespread, and 17 states reported regional influenza activity. <<http://www.cdc.gov/flu/weekly/index.htm>>

#### **United Kingdom**

Influenza activity appears to be declining in the UK, however, GP consultation rates remain above baseline levels in England, Wales and Northern Ireland. Pandemic H1N1 2009 and influenza B remain the predominant circulating viruses with few, sporadic A/H3N2 viruses detected. Of the 1,001 pandemic H1N1 2009 isolates tested for antiviral susceptibility this season, 27 have been found with the H275Y mutation which confers resistance to oseltamivir. Analysis of surveillance data has identified increases for a number of invasive bacterial pathogens amongst influenza cases in December 2010 compared to December 2009. This includes invasive *S. pneumoniae* (19% increase); Group A *Streptococcus* (37% increase) and meningococcal disease (297 cases, more than observed in 2009-10, but similar to the number seen in 2008-09). This season, the total number of influenza outbreaks reported is 153 of which the majority are in schools (77.8%). Up to 19 January 2011, 254 fatal cases from across the UK have been reported, of which 195 (91%) of the 214 cases with available data were associated with pandemic H1N1 2009 infection, and 16 (7%) with influenza B infection. Reported deaths have been mainly in younger adults and children. Among cases with available information, 81% (128/159) of fatal cases were in one of the clinical risk groups for vaccination, although the majority had not been vaccinated. <[http://www.hpa.org.uk/web/HPAwebFile/HPAweb\\_C/1294740008526](http://www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1294740008526)>

#### **Europe**

Most countries are now reporting regional or widespread influenza activity, with medium to high influenza-like illness/acute respiratory infection (ILI/ARI) consultation rates and increasing trends. This is more prominent in Western European countries. Forty-three per cent of sentinel swabs tested positive for influenza: 71% were type A, and of the type A viruses subtyped, 97% were pandemic H1N1 2009. The pattern seen in severe cases in continental Europe is similar to that seen in the U.K. primarily affecting adults between the ages of 15 and 64 years with 60 - 80% reporting a history of underlying risk factors. In areas where pandemic H1N1 2009 and type B viruses are co-circulating in the community, pandemic H1N1 2009 appears to be disproportionately detected in the severe cases.

<[http://www.who.int/csr/disease/influenza/2011\\_01\\_14\\_GIP\\_surveillance/en/index.html](http://www.who.int/csr/disease/influenza/2011_01_14_GIP_surveillance/en/index.html)>

## North Africa and the Middle East

Several countries of North Africa and the Middle East are also experiencing increases in influenza activity. Morocco, Algeria, and Tunisia have had modestly increased levels of influenza detections in the last 2 to 3 weeks. Influenza type B has been the predominant virus reported with lesser amounts of pandemic H1N1 2009. Limited data suggests that pandemic H1N1 2009 is circulating in Egypt where 122 pH1N1-related deaths have been reported since October 2010. Iran and Pakistan have also had a steady increase in influenza detection in the same period of time with the majority of viruses being pandemic H1N1 2009.

<[http://www.who.int/csr/disease/influenza/2011\\_01\\_14\\_GIP\\_surveillance/en/index.html](http://www.who.int/csr/disease/influenza/2011_01_14_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.