



April 17 to 23, 2011 (Week 16)

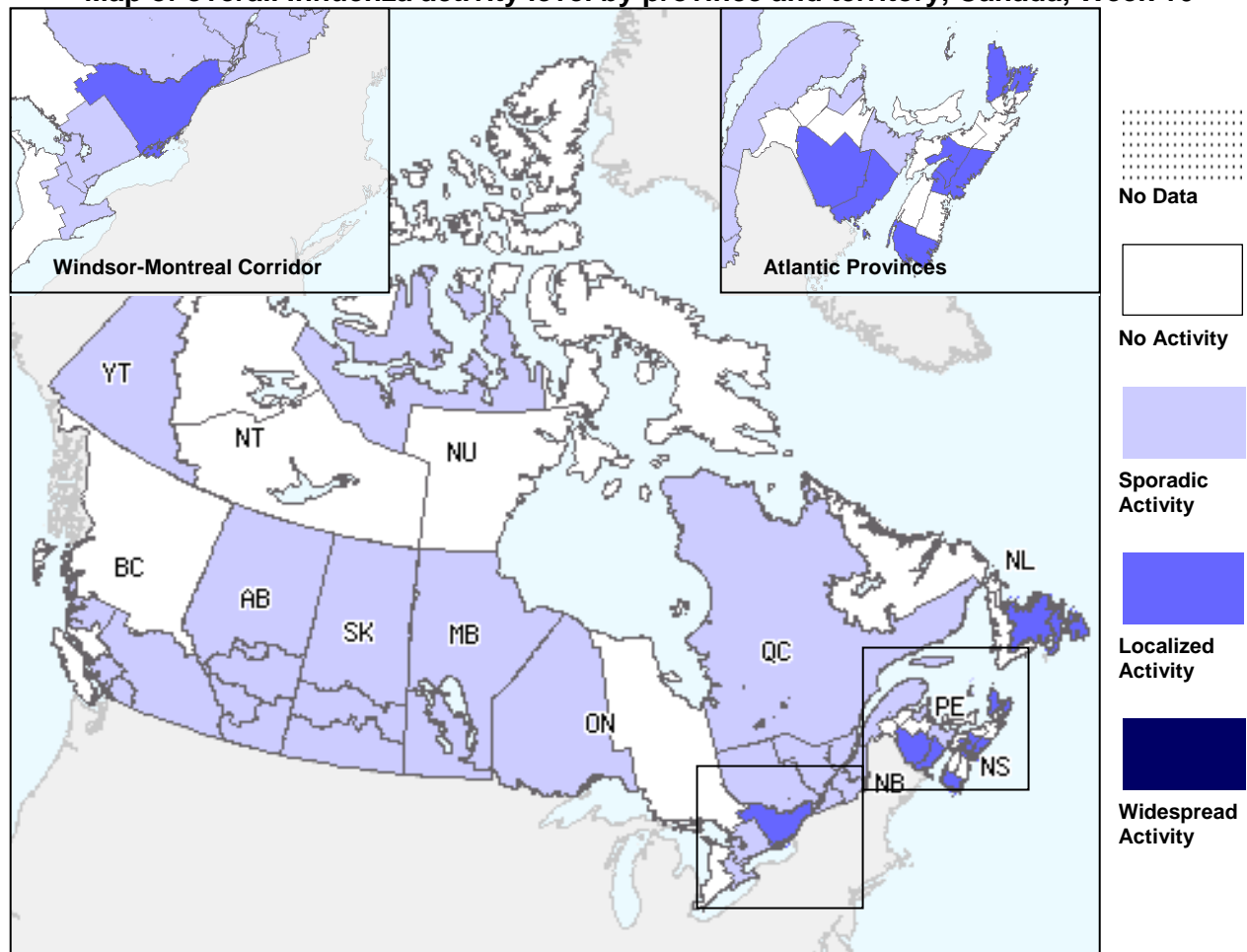
Overall Influenza Summary

- In week 16, influenza activity in Canada continues to decline.
- The overall percentage of influenza positive specimens continues to decrease.
- Fewer regions reported localized influenza activity this week compared to the previous week although slightly more outbreaks were reported, all in the Atlantic provinces.
- The ILI consultation rate decreased, and both adult and paediatric hospitalizations with influenza were similar to the previous week.

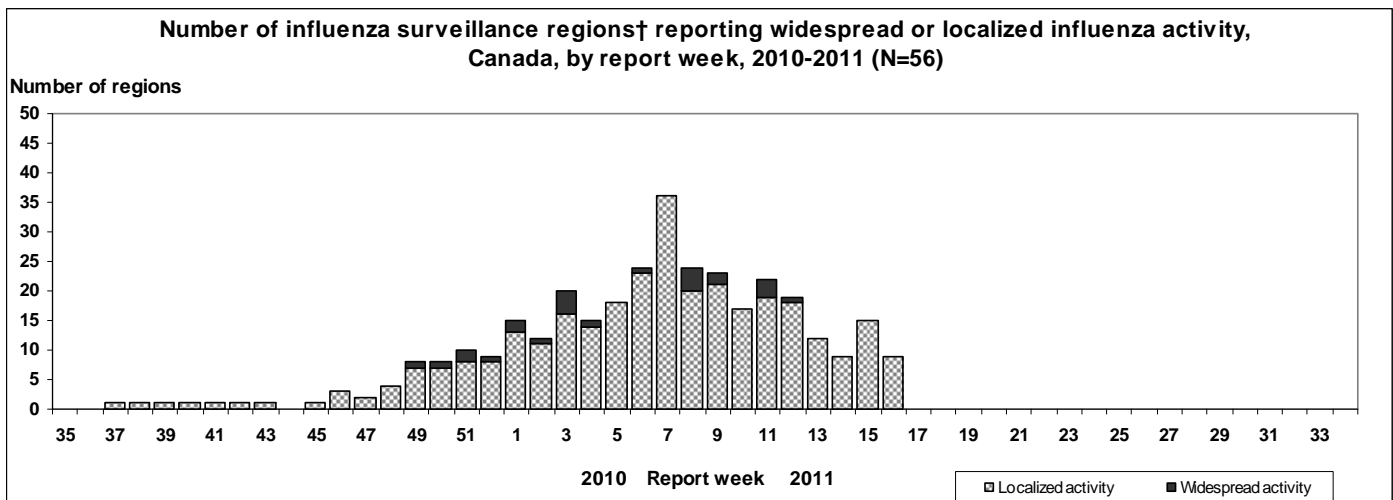
Influenza Activity and Outbreaks

In week 16, 9 regions reported localized activity: ON(1), NB(2), NS(4), and NL(2); 28 regions reported sporadic activity (in BC(3), AB(5), SK(3), MB(3), ON(4), QC(6), NB(2), YK(1) and NU(1)) and 19 regions presented no activity (see Activity level Map). Compared to the previous week (week 15), 8 regions reported an increased level of influenza activity, 17 regions reported decreased activity, and 23 regions maintained a stable level of influenza activity (sporadic or higher). Fourteen new outbreaks were reported: 7 outbreaks of influenza in long-term care facilities (LTCF) in NS(5), NB(1) and NL(1); 1 outbreak of influenza in a hospital in NS; 5 ILI outbreaks in schools in NS(3), and NB(2); and one outbreak of ILI in another facility in NL.

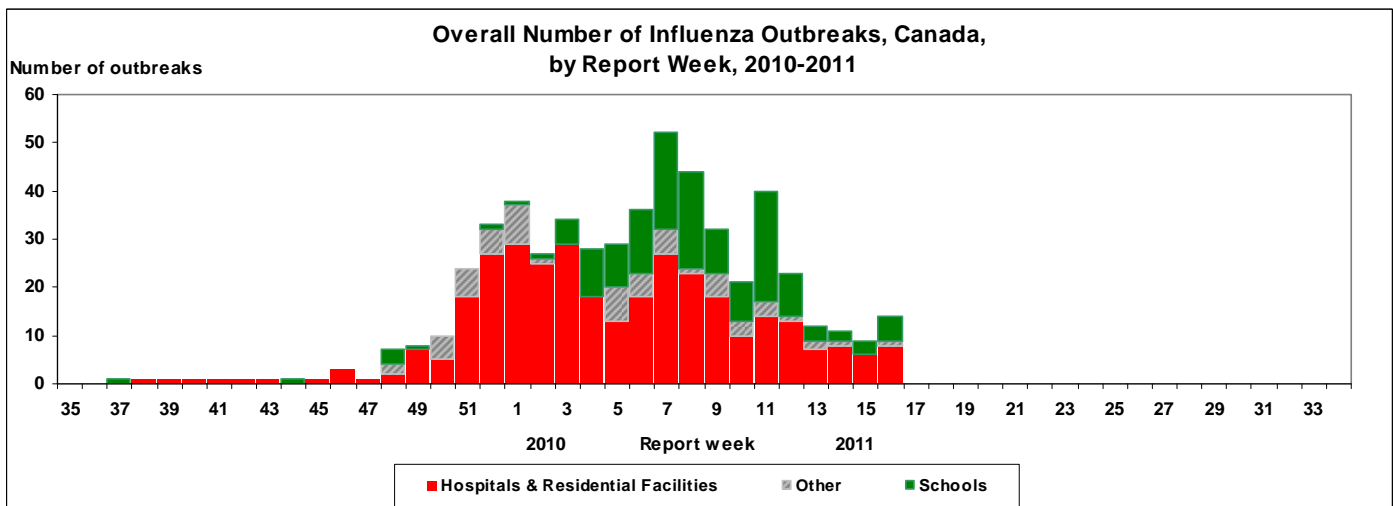
Map of overall Influenza activity level by province and territory, Canada, Week 16



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.

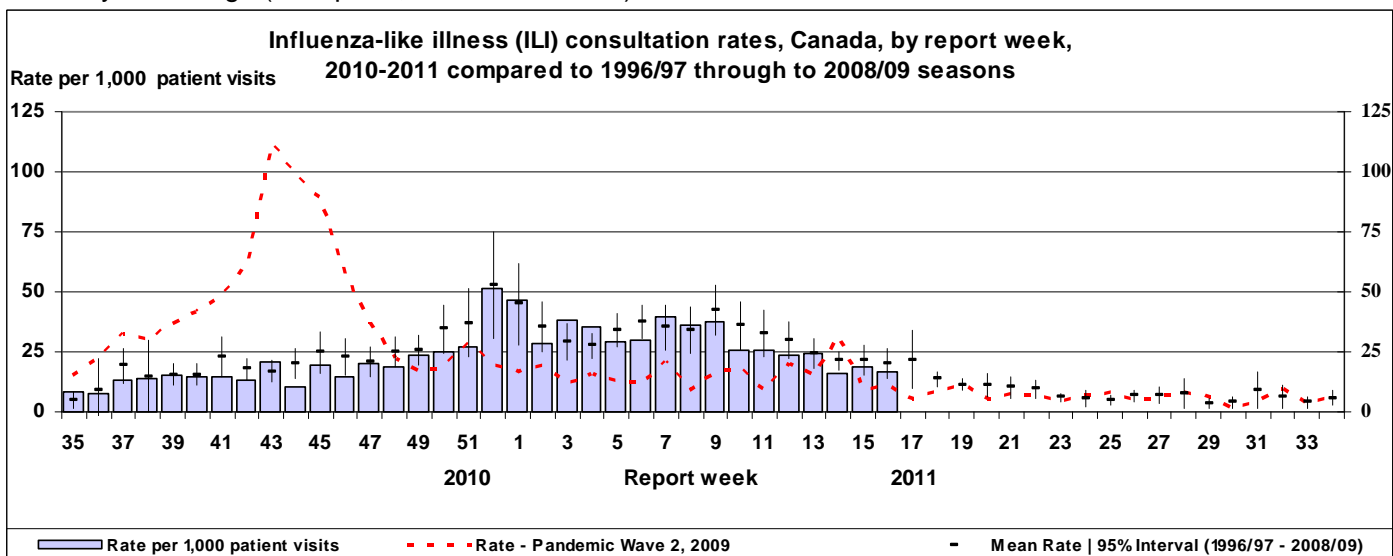


Note that this was the first year that all the provinces and territories were reporting on influenza outbreaks in schools (greater than 10% absenteeism on any day most likely due to ILI) which has increased considerably the total number of outbreaks reported compared to previous years.



ILI consultation rate

During week 16, the national ILI consultation rate was 16.7 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 5-19 years of age had the highest consultation rates (45.3 per 1,000 consultations), followed by children under 5 years of age (19.9 per 1,000 consultations) in week 16.



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 16 was 7.2% (1.9% influenza A, 5.3% influenza B), which is decreased compared to week 15 (10.3%) and the third 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). Since the beginning of the season, 86.8% (16,320/18,810) of influenza virus detections have been influenza A viruses, of which 84.7% (5,446/6,431) 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 16, 20 (36.4%) specimens were reported as influenza A/H3N2, 1 (1.8%) as pandemic H1N1 2009, and 34 (61.8%) as unsubtyped influenza A. Through detailed case-based laboratory reporting where age data is provided, since August 29, 2010, 50.8% (2049/4033) of cases with A/H3N2 were aged 65 years or older. In contrast, the majority of cases with pandemic H1N1 2009 (94.5%, 741/784) and influenza B (90.2%, 1246/1381) were under 65 years of age (see Tests detailed table). In week 16, the proportion of positive tests for respiratory syncytial virus detections (RSV) decreased to 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 5.8% in week 16, predominantly due to parainfluenza type 3 (51.4%) and type 1 (38.1%). (See Respiratory viruses graph).

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

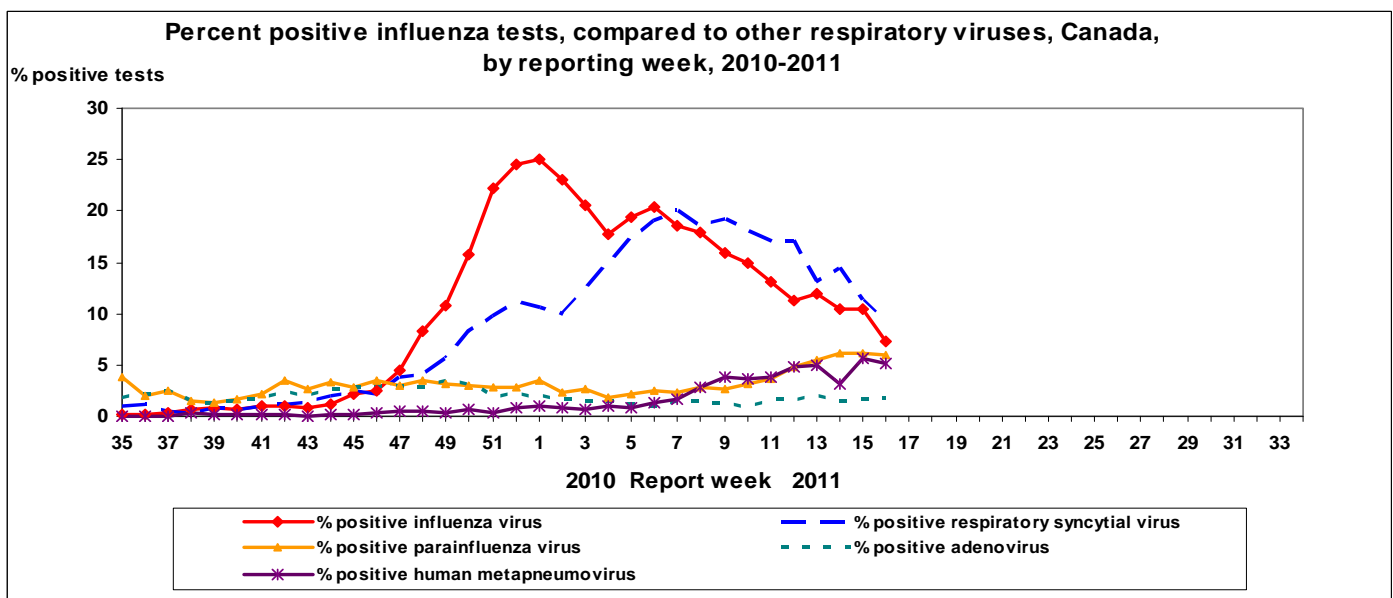
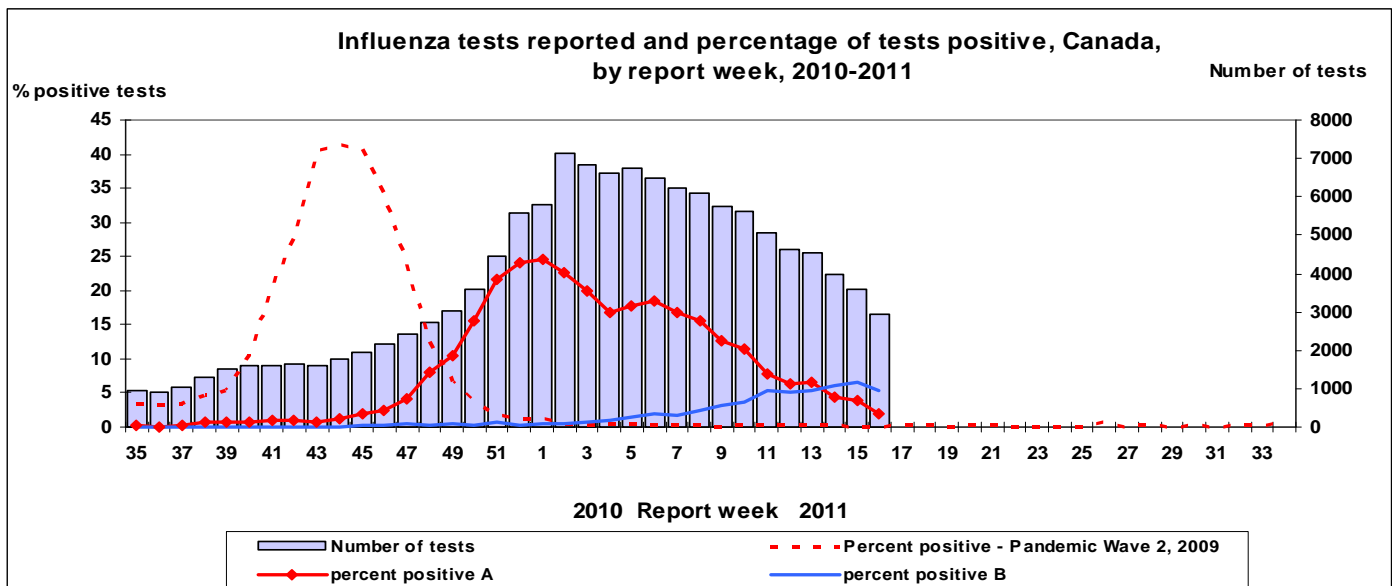
Reporting provinces	Weekly (April 17 to April 23, 2011)						Cumulative (August 29, 2010 to April 23, 2011)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	4	0	3	1	0	1	476	0	199	164	113	176
AB	10	0	7	0	3	25	1042	0	734	270	38	687
SK	2	0	1	0	1	24	313	0	210	30	73	148
MB	0	0	0	0	0	3	515	0	56	2	457	12
ON	5	0	2	0	3	39	6874	0	2435	272	4167	779
QC	16	0	0	0	16	51	5616	0	877	38	4701	595
NB	6	0	5	0	1	6	943	0	662	176	105	68
NS	5	0	2	0	3	0	257	0	80	11	166	3
PE	0	0	0	0	0	0	97	0	79	16	2	6
NL	7	0	0	0	7	8	187	0	114	6	67	16
Canada	55	0	20	1	34	157	16320	0	5446	985	9889	2490

*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. 17 to Apr. 23, 2011)					Cumulative (Aug. 29, 2010 to Apr. 23, 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	2	0	1	1	10	999	126	728	145	367
5-19	1	0	0	1	7	517	103	296	118	499
20-44	2	0	1	1	5	1071	327	528	216	270
45-64	2	0	1	1	0	785	185	432	168	110
65+	5	0	3	2	1	2484	43	2049	392	135
Unknown	2	0	0	2	1	231	3	224	4	1
Total	14	0	6	8	24	6087	787	4257	1043	1382

*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 28, 2011, the National Microbiology Laboratory (NML) has antigenically characterized 804 influenza viruses that were received from provincial laboratories: 252 A/H3N2, 137 pandemic H1N1 2009 and 415 B viruses. Of the 252 influenza A/H3N2 viruses characterized, 249 (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 137 pandemic H1N1 2009 viruses characterized, 136 (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 415 influenza B viruses characterized, 396 (95.4%) 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 396 viruses tested showed reduced titer with antisera produced against B/Brisbane/60/08. Nineteen (4.6%) 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 591 influenza A isolates (445 A/H3N2 and 146 pandemic H1N1 2009) for amantadine resistance and found that 444 influenza A/H3N2 were resistant and one was sensitive. All 146 influenza A/H1N1 viruses were resistant to amantadine. Of 643 influenza viruses (228 A/H3N2, 124 pandemic H1N1 2009, and 291 influenza B) tested for resistance to oseltamivir, 227 A/H3N2 viruses were sensitive and one was resistant with E119V mutation. The resistant case was associated with oseltamivir prophylaxis/treatment. Of the 124 pandemic H1N1 2009 isolates tested for oseltamivir resistance, 123 were sensitive and one was resistant with the H275Y mutation. The resistant case was associated with oseltamivir treatment. All 291 B viruses were sensitive to oseltamivir. Of 633 influenza viruses (224 A/H3N2, 121 pandemic H1N1 2009, and 288 influenza B) tested for zanamivir resistance all isolates were found to be sensitive.

Severe Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths

In week 16, 7 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 AB, 2 from SK and 3 from QC. This number is similar to the previous week (week 15) in which 6 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, 632 hospitalizations with laboratory-confirmed influenza have been reported: 102 (16.1%) as influenza A/H3N2, 22 (3.5%) pandemic H1N1 2009, 327 (51.7%) as unsubtype influenza A, and 181 (28.6%) influenza B. The distribution of cases to date by age group was as follows: 16.8% among 0-5 month olds; 28.2% among 6-23 month olds; 28.8% among the 2-4 year-olds; 15.3% among 5-9 year-olds; and 10.9% among children 10-16 years old.

Adult Influenza Hospitalizations and Deaths

During week 16, 4 new hospitalizations with laboratory-confirmed influenza among adults (16 years of age and older) were reported through the Canadian Nosocomial Infection Surveillance Program (CNISP), 3 influenza B and 1 influenza A/H3N2. This number is similar to the 5 cases reported in week 15 (note that numbers may fluctuate because of the delays in reporting). Since the beginning of the season, 952 hospitalized cases have been reported: 202 (21.2%) A/H3N2, 45 (4.7%) pandemic H1N1 2009, 640 (67.2%) influenza A unsubtype, and 65 (6.8%) influenza B, from all reporting provinces. To date, 642 of the 952 (67.4%) cases were aged 65 years or older and 430 (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 16, 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

Northern Hemisphere

United States: During week 15 (April 10 to 16, 2011), influenza activity continued to decrease. Seven percent (201/2,972) of specimens tested were positive for influenza, of which 63.2% were influenza A and 36.8% were influenza B. Among influenza A specimens, the proportion of A/H3 (62.2%) was greater than the proportion of pandemic H1N1 2009 (13.4%). The proportion of deaths attributed to pneumonia and influenza (P&I) was at or above threshold for the twelfth consecutive week. Four influenza-associated paediatric deaths were reported for a total of 95 this season, of which 37 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 5.2% (37/597) of influenza B specimens identified as belonging to the Yamagata lineage. <http://www.cdc.gov/flu/weekly/index.htm>

Europe: In week 15 (11 to 17 April 2011), all 22 reporting European countries experienced influenza activity of low intensity and 23 countries reported decreasing or unchanging trends. Sentinel physicians reported 11.3% of specimens testing positive for influenza in week 15. For the fifth consecutive week, more influenza B viruses (60%) than influenza A viruses (40%) were reported. Influenza B was dominant or co-dominant with influenza virus pandemic H1N1 2009 in six countries. http://ecdc.europa.eu/en/publications/Publications/110421_SUR_Weekly_Influenza_Surveillance_Overview.pdf

Southern Hemisphere

Australia: From April 2 to 15, 2011, 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 267 laboratory confirmed notifications of influenza, which included 166 cases of influenza A untyped and 46 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>

Tropical Zone

In countries of the tropical zone, influenza activity is generally low with a few recent localized areas of pandemic H1N1 2009 activity reported (Ecuador, Mexico, Venezuela) and more recently sporadic detections have occurred in Dominican Republic, Cuba, Colombia, Honduras, Jamaica and El Salvador. Influenza A/H3N2 is circulating in the central part of Africa as evidenced by increases of virus detections in the Democratic Republic of Congo and Rwanda.

http://new.paho.org/hq/index.php?option=com_content&task=view&id=5291&Itemid=1091&lang=en
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 **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.