



May 15 to 21, 2011 (Week 20)

Overall Influenza Summary

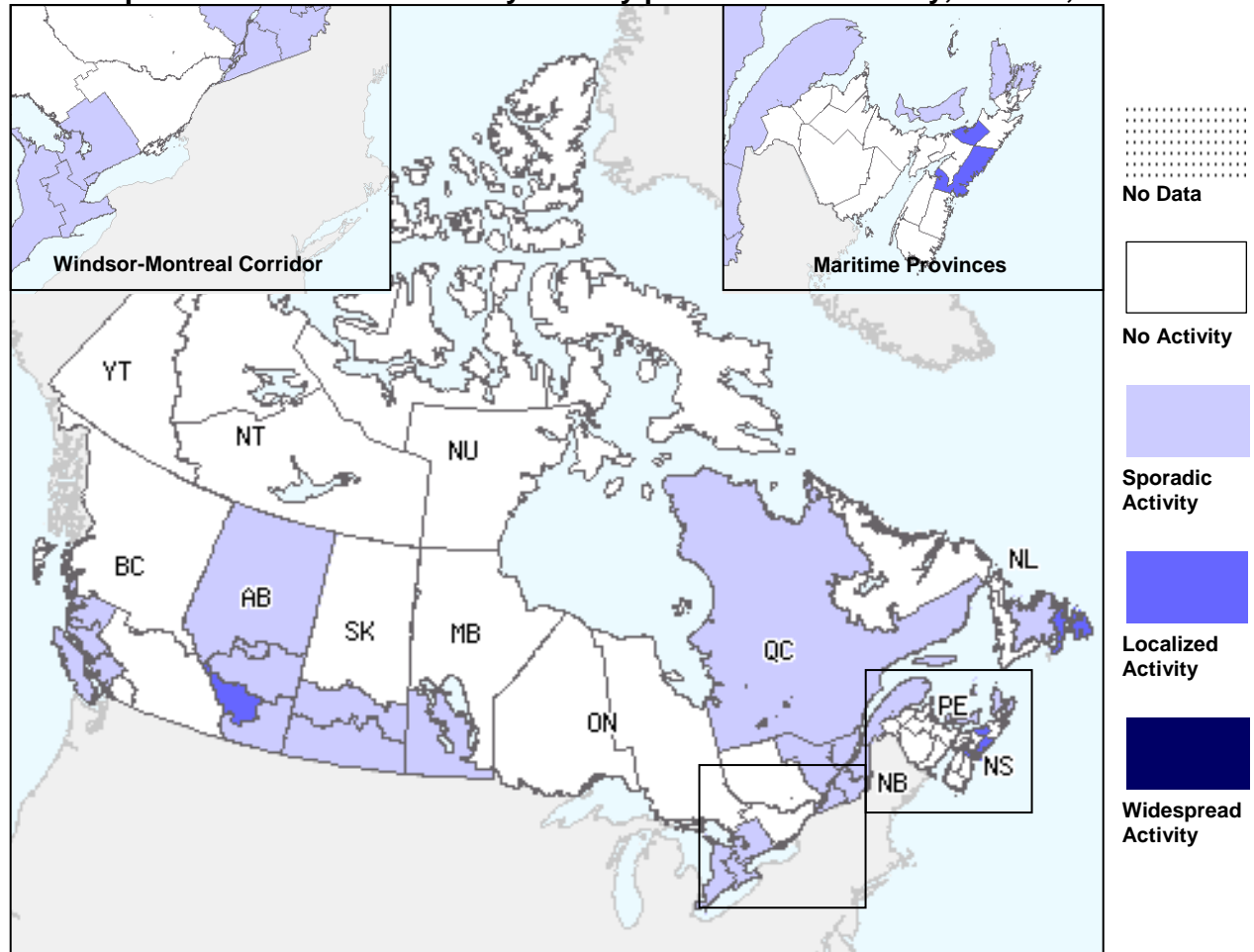
- The 2010-11 influenza season in Canada is drawing to a close, with most regions of the country reporting sporadic or no activity. The ILI consultation rate, number of outbreaks, paediatric and adult hospitalizations all continue to decrease.
- Laboratory detections of both influenza A and B continue to decrease, and in week 20 the proportion of positive tests for parainfluenza viruses declined.

Note: This is the final weekly report for the 2010-11 influenza season. Bi-weekly reports will commence on June 10th (for weeks 21 and 22). However, laboratory detections reported through the RVDSS and influenza activity level maps will be updated weekly on the FluWatch website. <http://www.phac-aspc.gc.ca/fluwatch/index-eng.php>

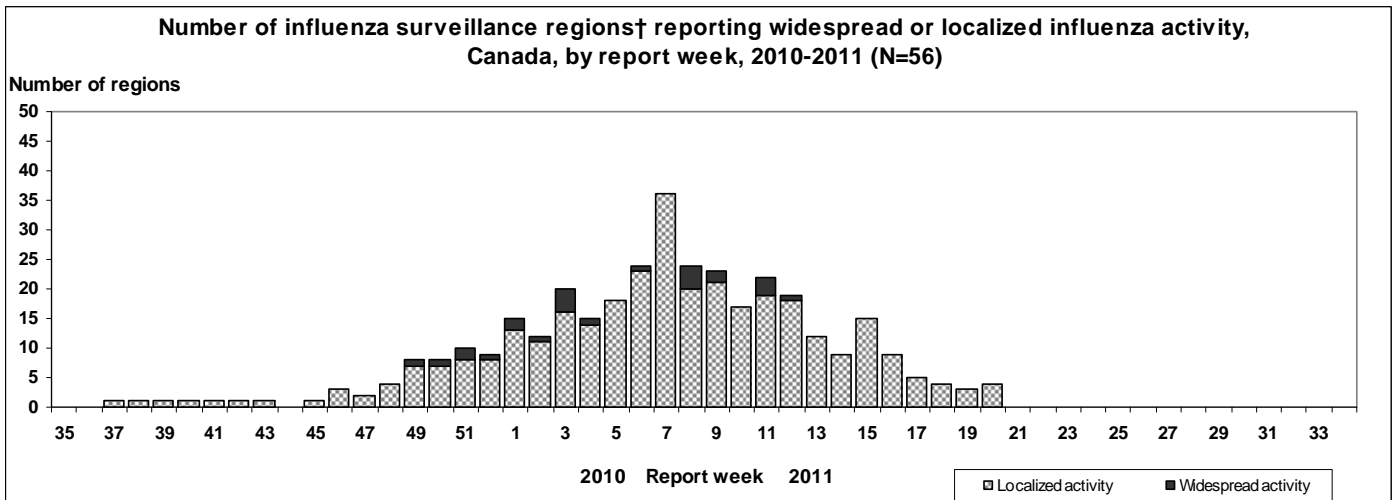
Influenza Activity and Outbreaks

In week 20, 4 regions reported localized activity: AB(1), NS(2) and NL(1); 21 regions reported sporadic activity; and 31 regions presented no activity (see Activity level Map). Three new outbreaks were reported in wk 20, one outbreak of influenza in a long-term care facility (LTCF) in Alberta, and 2 ILI outbreaks in communities in Nova Scotia.

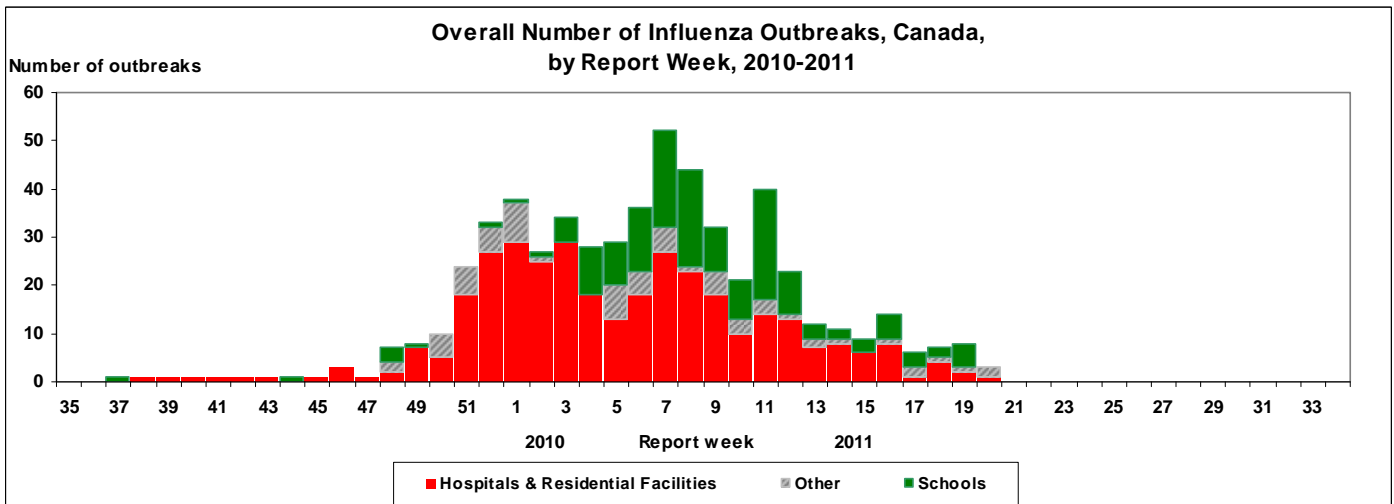
Map of overall Influenza activity level by province and territory, Canada, Week 20



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.

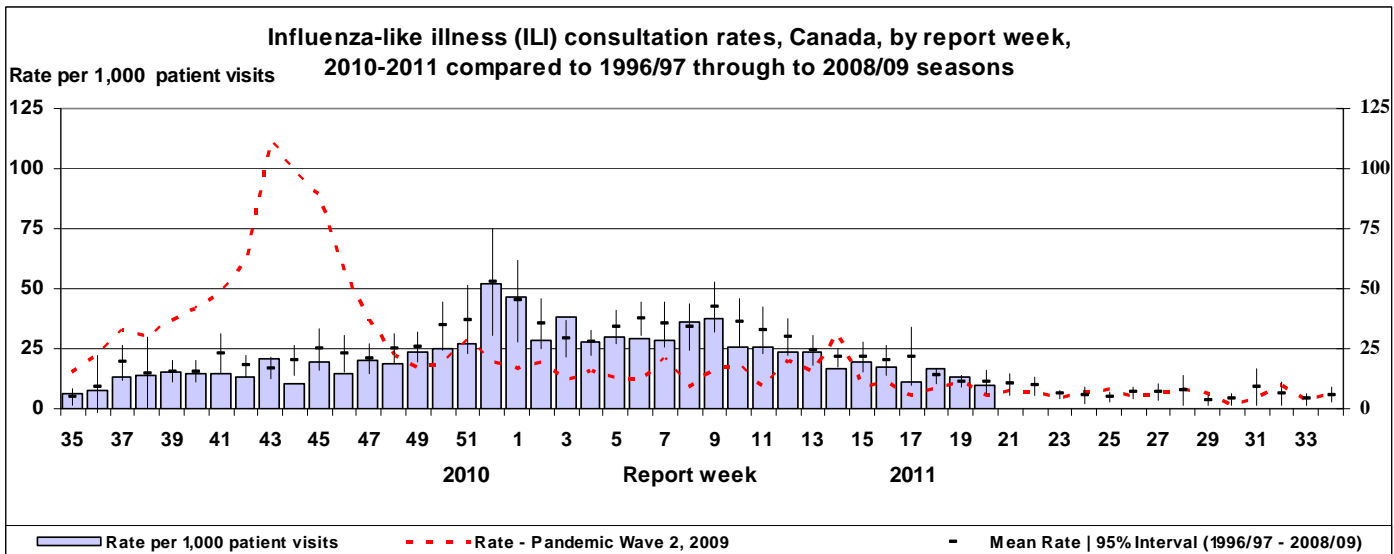


Note that this was the first year that all the provinces and territories were reporting on influenza outbreaks in schools (greater than 10% absenteeism on any day most likely due to ILI) which has increased considerably the total number of outbreaks reported compared to previous years.



ILI consultation rate

During week 20, the national ILI consultation rate was 10.0 consultations per 1,000 patient visits, which is decreased compared to the previous week and within the expected rate for this time of year (see ILI graph). Children 5-19 years of age had the highest consultation rates (21.6 per 1,000 consultations) in week 20.



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 20 was 2.9% (1.0% influenza A, 1.9% influenza B), which is decreased compared to week 19 (3.8%). The proportion of positive tests peaked in week 52 (see Influenza tests graph). Since the beginning of the season, 85.5% (16,847/19,706) of influenza virus detections have been influenza A viruses, of which 84.8% (5,578/6,578) of subtyped specimens have been A/H3N2. Detections of influenza B have been increasing steadily since week 03 and peaked in week 15. Through detailed case-based laboratory reporting where age data is provided, since August 29, 2010, 50.7% (2,059/4,059) of cases with A/H3N2 were aged 65 years or older. In contrast, the majority of cases with pandemic H1N1 2009 (94.5%, 751/795) and influenza B (90.3%, 1,348/1,492) were under 65 years of age (see Tests detailed table). Following an increasing proportion of positive tests for parainfluenza viruses since week 11, the proportion decreased in week 20 (see Respiratory viruses graph).

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

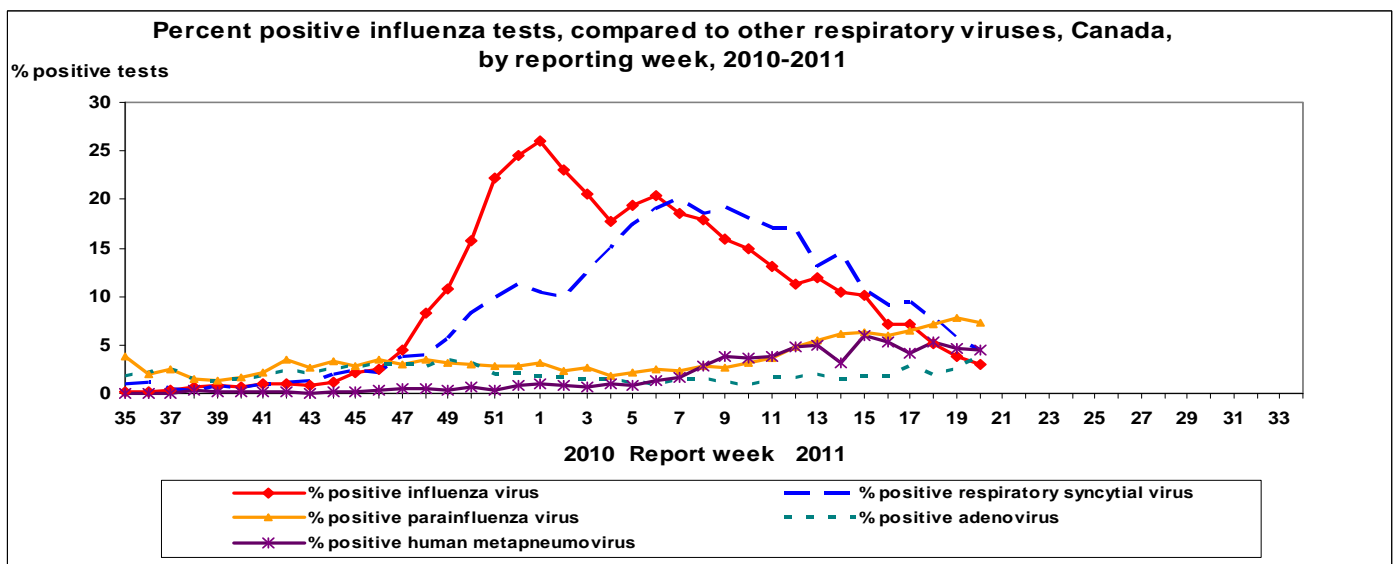
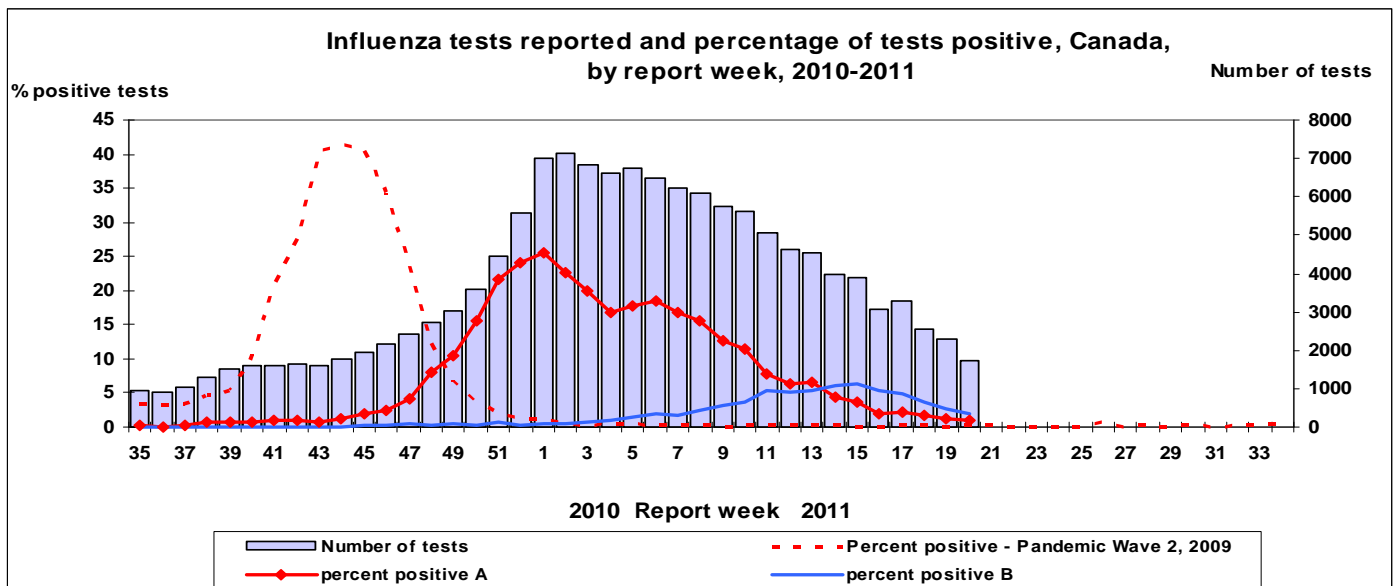
Reporting provinces	Weekly (May 15 to May 21, 2011)						Cumulative (August 29, 2010 to May 21, 2011)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	0	0	0	0	0	0	477	0	200	164	113	179
AB	8	0	7	0	1	2	1081	0	765	279	37	736
SK	2	0	1	0	1	1	320	0	213	30	77	175
MB	0	0	0	0	0	1	515	0	56	2	457	15
ON	1	0	0	1	0	8	6884	0	2437	275	4172	841
QC	2	0	0	0	2	17	6026	0	957	41	5028	757
NB	0	0	0	0	0	0	959	0	669	176	114	102
NS	1	0	0	0	1	2	272	0	80	11	181	7
PE	0	0	0	0	0	1	97	0	79	16	2	7
NL	3	0	2	0	1	2	216	0	122	6	88	40
Canada	17	0	10	1	6	34	16847	0	5578	1000	10269	2859

*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 (May 15 to May 21, 2011)					Cumulative (Aug. 29, 2010 to May 21, 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	4	0	2	2	1	1015	129	738	148	410
5-19	2	0	1	1	1	517	103	296	118	533
20-44	1	0	0	1	0	1082	332	530	220	291
45-64	2	0	2	0	0	791	187	436	168	114
65+	0	0	0	0	0	2509	44	2059	406	144
Unknown	0	0	0	0	0	231	3	224	4	1
Total	9	0	5	4	2	6145	798	4283	1064	1493

*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 27, 2011, the National Microbiology Laboratory (NML) has antigenically characterized 950 influenza viruses that were received from provincial laboratories: 270 A/H3N2, 142 pandemic H1N1 2009 and 538 B viruses. Of the 270 influenza A/H3N2 viruses characterized, 267 (98.9%) 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 142 pandemic H1N1 2009 viruses characterized, 140 (98.6%) were antigenically related to the pandemic vaccine virus A/California/7/2009, which is the recommended H1N1 component for the 2010-11 influenza vaccine. Two viruses (1.4%) tested showed reduced titer with antiserum produced against A/California/7/2009. Of the 538 influenza B viruses characterized, 509 (94.6%) 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 509 viruses tested showed reduced titer with antisera produced against B/Brisbane/60/08. Twenty-five (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 633 influenza A isolates (474 A/H3N2 and 159 pandemic H1N1 2009) for amantadine resistance and found that 473 influenza A/H3N2 were resistant and one was sensitive. All 159 influenza A/H1N1 viruses were resistant to amantadine. Of 923 influenza viruses (248 A/H3N2, 146 pandemic H1N1 2009, and 529 influenza B) tested for resistance to oseltamivir, 247 A/H3N2 viruses were sensitive and one was resistant with the E119V mutation. The resistant case was associated with oseltamivir prophylaxis/treatment. Of the 146 pandemic H1N1 2009 isolates tested for oseltamivir resistance, 145 were sensitive and one was resistant with the H275Y mutation. The resistant case was associated with oseltamivir treatment. Of the 529 B virus isolates tested, 528 were sensitive to oseltamivir and one was resistant with the D198N mutation. Of 914 influenza viruses (244 A/H3N2, 143 pandemic H1N1 2009, and 527 influenza B) tested for zanamivir resistance all 244 A/H3N2 and 143 pandemic H1N1 2009 isolates were found to be sensitive. Of the 527 B virus isolates tested, 526 were sensitive to zanamivir and one was resistant with the D198N mutation.

Severe Illness Surveillance

Note that all numbers are preliminary and numbers may fluctuate because of delays in reporting.

Paediatric Influenza Hospitalizations and Deaths

In week 20, 6 new laboratory-confirmed influenza-associated paediatric (16 years of age and under) hospitalizations were reported through the Immunization Monitoring Program Active (IMPACT) network: all with influenza B, from BC(1), QC(4) and NL(1). Influenza A was associated with the majority of hospitalizations earlier in the season (weeks 47 to 09). Since week 10, however, influenza B accounted for more cases than influenza A each week. Six paediatric deaths have been reported via IMPACT this season: 3 children between 6 and 23 months old, two with pandemic H1N1 2009 and one with influenza B; two children between 2 and 4 years old, both with influenza B; and one child between 10 and 16 years old with influenza A/H3. All cases had underlying comorbidities.

Since the beginning of the season, 668 hospitalizations with laboratory-confirmed influenza have been reported: 103 (15.4%) as influenza A/H3N2, 23 (3.4%) pandemic H1N1 2009, 326 (48.8%) as un-subtyped influenza A, and 216 (32.3%) influenza B. The distribution of cases to date by age group was as follows: 16.8% among 0-5 month olds; 27.5% among 6-23 month olds; 28.7% among the 2-4 year-olds; 16.5% among 5-9 year-olds; and 10.5% among children 10-16 years old.

Adult Influenza Hospitalizations and Deaths

During week 20, no new hospitalizations with laboratory-confirmed influenza among adults (16 years of age and older) were reported through the Canadian Nosocomial Infection Surveillance Program (CNISP). Since the beginning of the season, 969 hospitalized cases have been reported: 202 (20.8%) A/H3N2, 48 (5.0%) pandemic H1N1 2009, 644 (66.5%) influenza A untyped, and 75 (7.7%) influenza B, from all reporting provinces. To date, 651 of the 969 (67.2%) cases were aged 65 years or older and 437 (45.1%) 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 20, no deaths with influenza were reported. Among the 224 fatal cases reported since the beginning of the influenza season, influenza A/H3N2 was identified in 60.7% (136/224), untyped influenza A in 28.1% (63/224), pandemic H1N1 2009 in 6.7% (15/224), and influenza B in 4.5% (10/224). Seventy-nine percent (177/224) of these fatal cases were among persons 65 years of age or older, and another 11% (25/224) were between the ages of 45 and 64 years old, in keeping with the age-groups usually affected by A/H3N2.

International influenza update

Northern Hemisphere

During week 19 influenza activity continued to decrease across Europe. Very few specimens were positive for influenza, with little geographic spread and stable or decreasing trends in activity. Among the 25 reporting European countries, only Northern Ireland reported local activity. In the US, influenza activity continued to decline with both outpatient visits for ILI and the proportion of deaths attributed to pneumonia and influenza below the epidemic threshold.
<http://www.cdc.gov/flu/weekly/index.htm>,
http://ecdc.europa.eu/en/publications/Publications/110520_SUR_Weekly_Influenza_Surveillance_Overview%20pdf.pdf

The WHO has published a review of the northern hemisphere influenza season that summarizes the epidemiology and virology of the northern hemisphere influenza season from October 2010 to April 2011.
http://www.who.int/csr/disease/influenza/2010_2011_GIP_surveillance_seasonal_review/en/index.html

The ECDC has published a summary of influenza virus characterization data, available at:
http://ecdc.europa.eu/en/publications/Publications/1105_Influenza_virus_characterisation_2011_May.pdf. Influenza A viruses were predominantly pandemic H1N1 2009, influenza B viruses predominantly of the Victoria lineage. Pandemic H1N1 2009 and A/H3N2 viruses were antigenically related to the 2010-11 vaccine viruses, despite falling into several genetic groups. Yamagata lineage viruses constituted approximately 15% of characterized influenza B specimens.

Tropical Zone

In Central America and the Caribbean, influenza activity remains low although in week 19 some countries reported detections of pandemic H1N1 2009 (Costa Rica, Jamaica, and the Dominican Republic), and A/H3N2 (Cuba). In recent weeks Jamaica has also reported circulation of influenza B. Several countries in the region report circulation of other respiratory viruses, including adenovirus and parainfluenza. In South America, some indicators of respiratory infection have increased although respiratory viruses other than influenza are most common, with a predominance of RSV in recent weeks. Bolivia and Columbia report co-circulation of pandemic H1N1 2009 and A/H3N2.
http://new.paho.org/hq/index.php?option=com_docman&task=doc_download&gid=13148&Itemid=2469

Southern Hemisphere

Australia: From April 30 to May 13, 2011, levels of influenza-like illness (ILI) in the community continue to remain low through the majority of ILI surveillance systems. All jurisdictions have been reporting higher than usual numbers of laboratory

confirmed influenza notifications over the summer months, however in recent weeks there has been a decline in the number of notifications in most jurisdictions. During this reporting period there were 225 laboratory-confirmed notifications of influenza, which included 147 (65.3%) cases of un-typed influenza A, 33 (14.7%) cases of pandemic (H1N1) 2009, 44 (19.6%) cases of influenza B, and one case of influenza A and B. Queensland reported the highest number of notifications. As of 29 April 2011, there have been 3,434 confirmed cases of influenza reported to the National Notifiable Diseases Surveillance System (NNDSS) in 2011, compared with 810 for the same period in 2010. <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 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.