



May 22 to June 4, 2011 (Weeks 21 and 22)

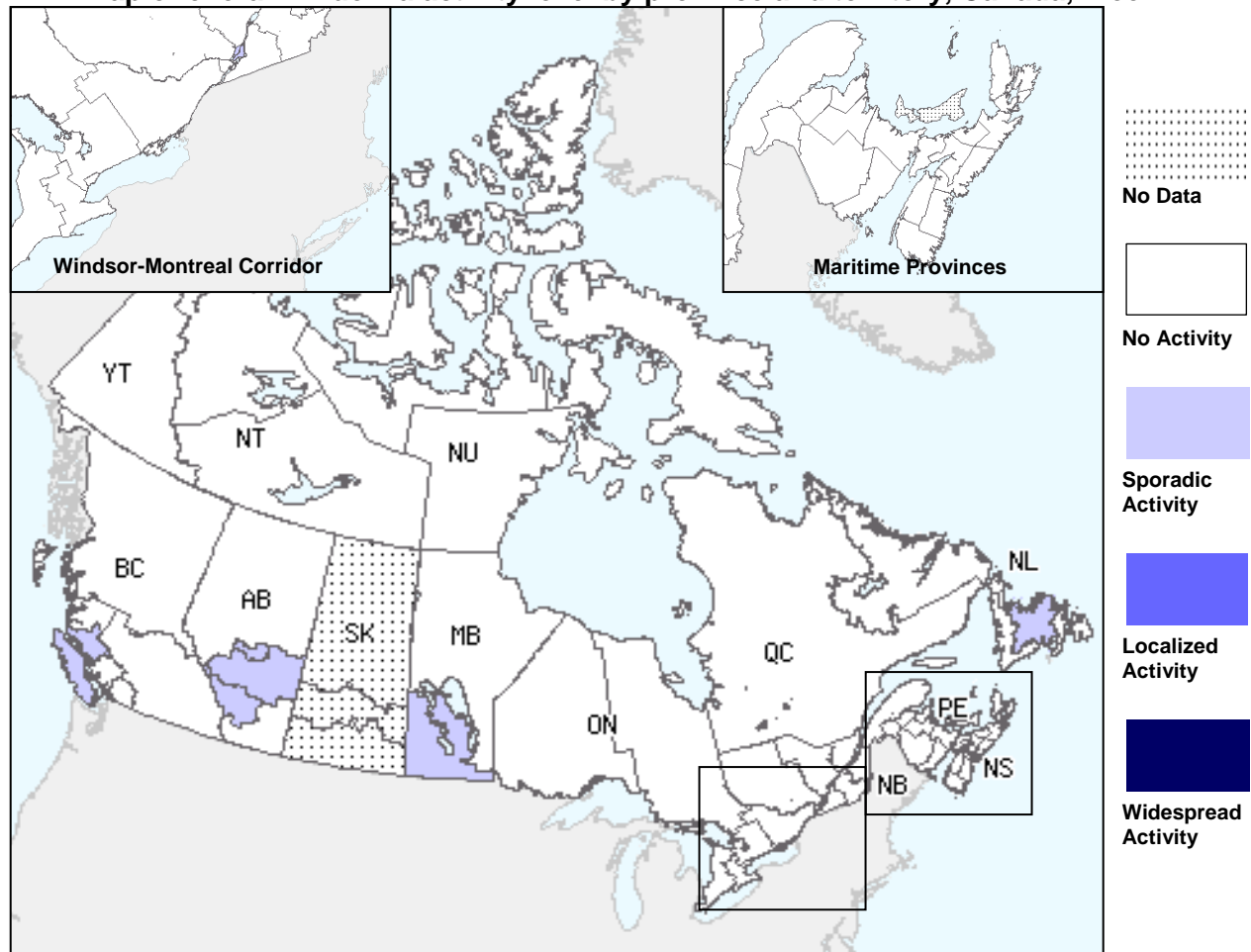
Overall Influenza Summary

- Most regions of the country reported no influenza activity in weeks 21 and 22. Few regions in BC, AB, MB and NL reported sporadic activity in week 22.
- Only sporadic laboratory detections of influenza were reported in the two week period. The ILI consultation rate, and number of paediatric hospitalizations are at very low levels and continue to decrease. No outbreaks and adult hospitalizations were reported in weeks 21 and 22.
- Detections of RSV and parainfluenza continue to decline. A slight increase in the proportion of positive tests for adenovirus was reported.

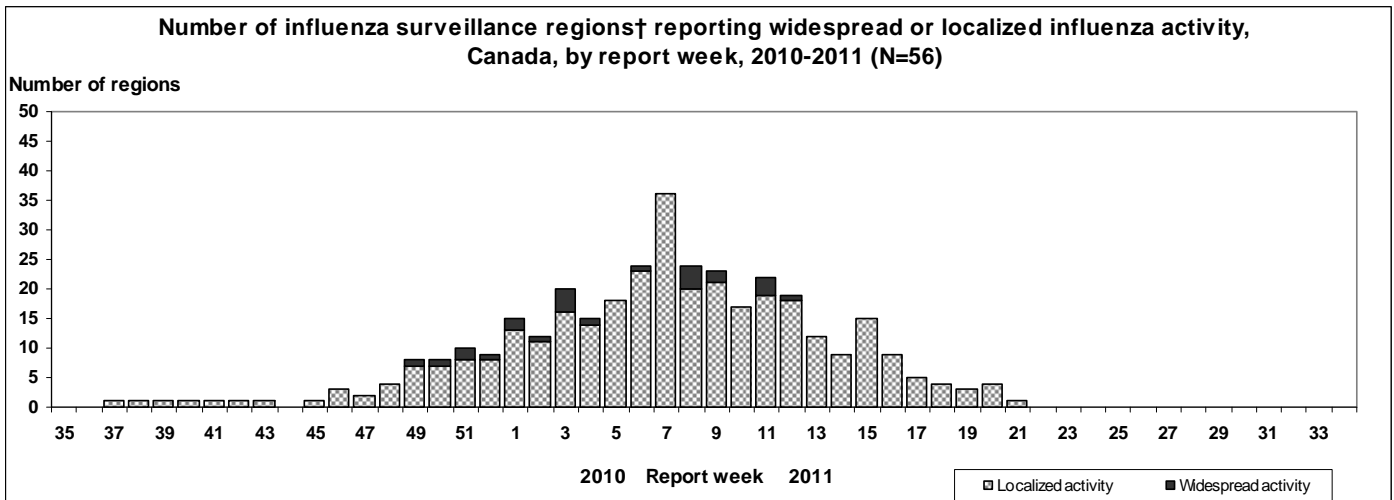
Influenza Activity and Outbreaks

In week 21, 1 region in NL reported localized activity; 16 regions reported sporadic activity; and 36 regions presented no activity. Saskatchewan has stopped reporting for the season. In week 22, 7 regions reported sporadic activity; and 45 regions presented no activity (see Activity level Map). No new outbreaks of influenza or ILI were reported in wk 21 or 22.

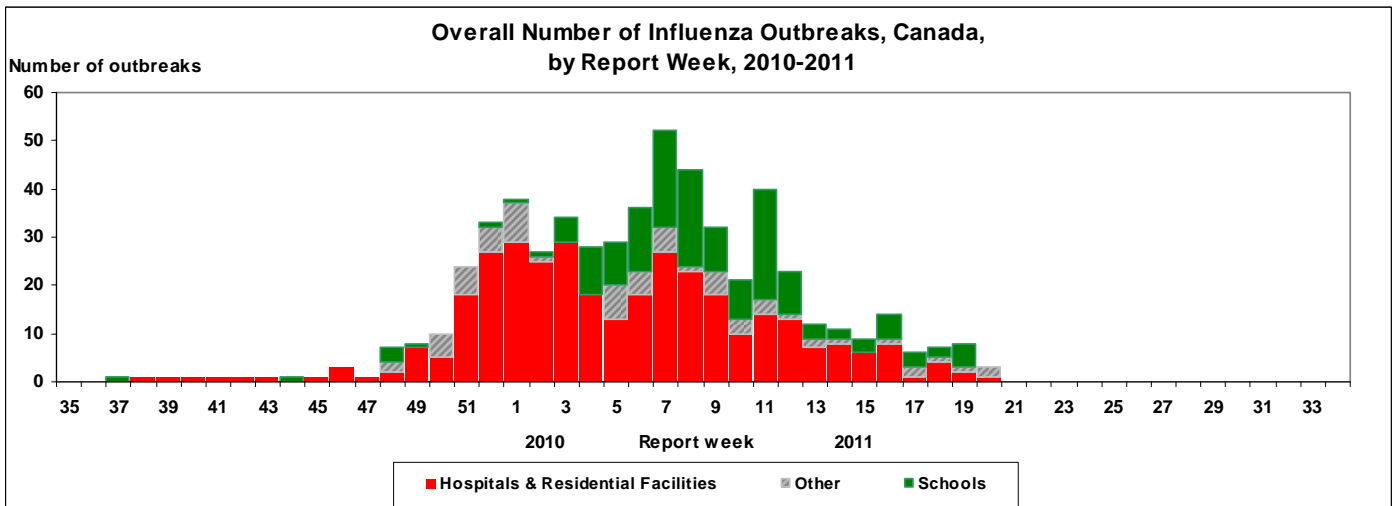
Map of overall Influenza activity level by province and territory, Canada, Week 22



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.

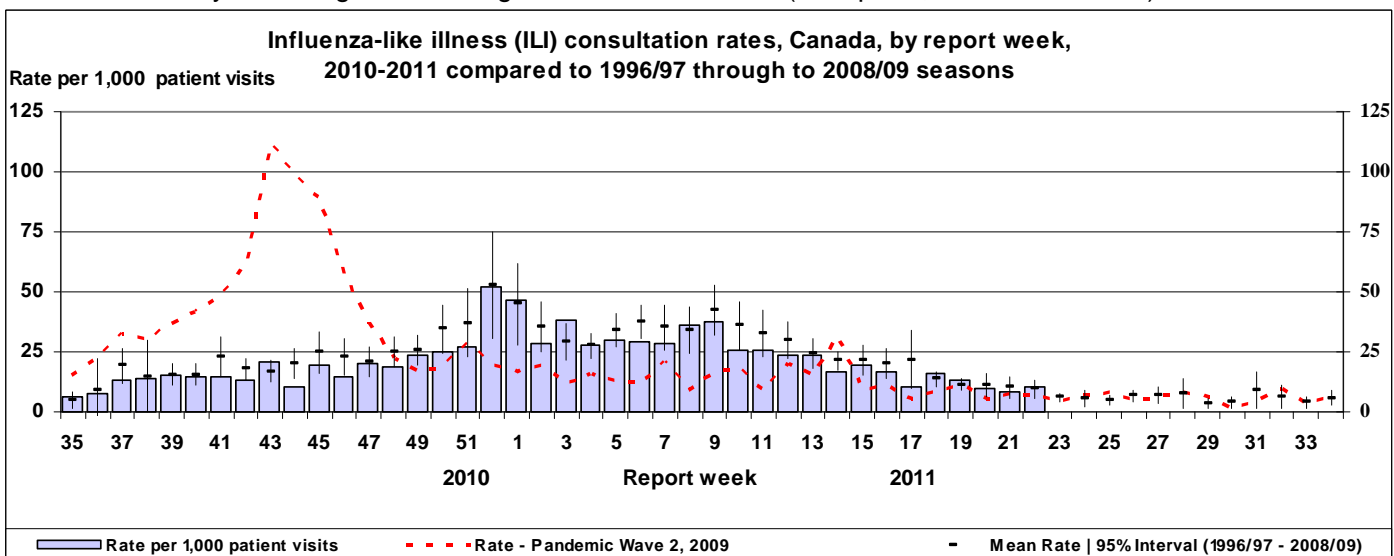


Note that this was the first year that all the provinces and territories were reporting on influenza outbreaks in schools (greater than 10% absenteeism on any day most likely due to ILI) which has increased considerably the total number of outbreaks reported compared to previous years.



ILI consultation rate

During weeks 21 and 22, the national ILI consultation rates (8.0 and 10.3 consultations per 1,000 patient visits, respectively) were low and within the expected levels for this time of year (see ILI graph). Among the very low consultation rates reported in week 21, adults 20-64 years old had the highest rate (9.1 per 1,000 consultations). Children under 5 years of age had the highest consultation rate (41.8 per 1,000 consultations) in week 22.



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

Only sporadic detections of influenza were reported in week 22. The overall proportion of tests that were positive for influenza during week 21 was 2.6%, and during week 22 was 1.1%, which is decreased compared to week 20 (2.9%). The proportion of positive tests peaked in week 52 (see Influenza tests graph). Since the beginning of the season, 85.3% (19,768/142,534) of influenza virus detections have been influenza A viruses, of which 84.8% (5,590/6,594) 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% (2,064/4,073) of cases with A/H3N2 were aged 65 years or older. In contrast, the majority of cases with pandemic H1N1 2009 (94.5%, 750/794) and influenza B (90.3%, 1,361/1,509) were under 65 years of age (see Tests detailed table). The proportion of positive tests for RSV and parainfluenza viruses continue to decrease following peaks in week 07 and 19, respectively. In recent weeks the proportion of positive tests for adenovirus has increased slightly from 2.1% in week 18 to 4.8% in week 22, particularly in the Prairie provinces and Quebec (see Respiratory viruses graph).

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

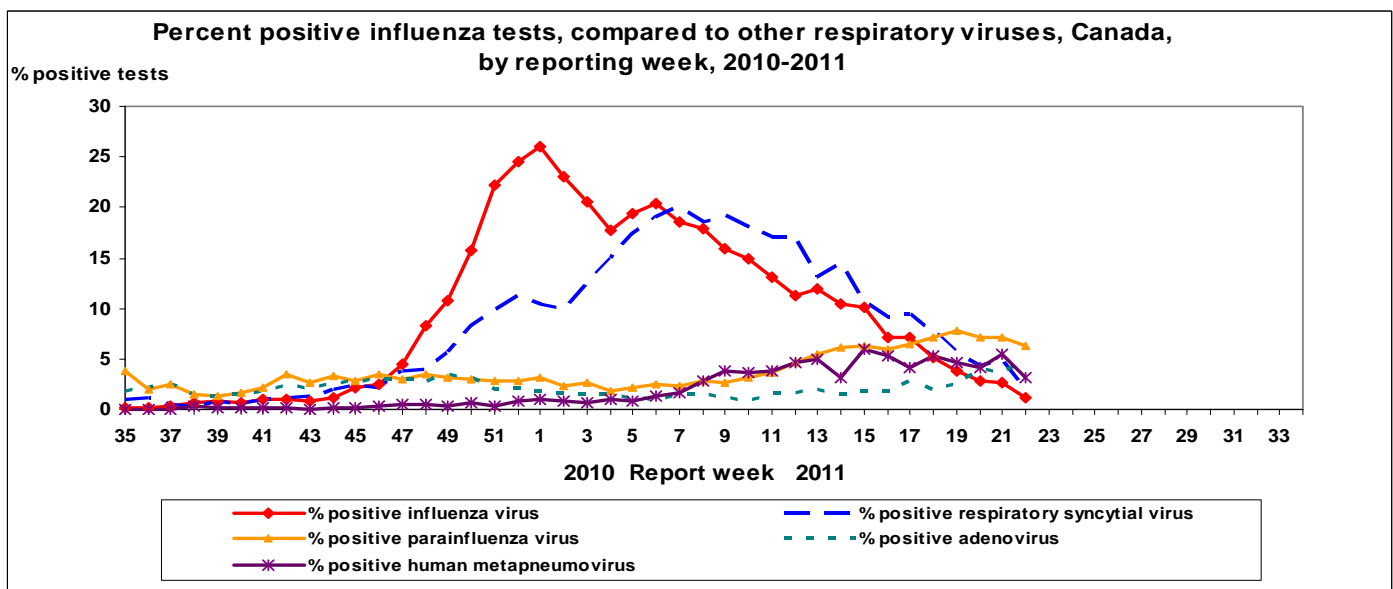
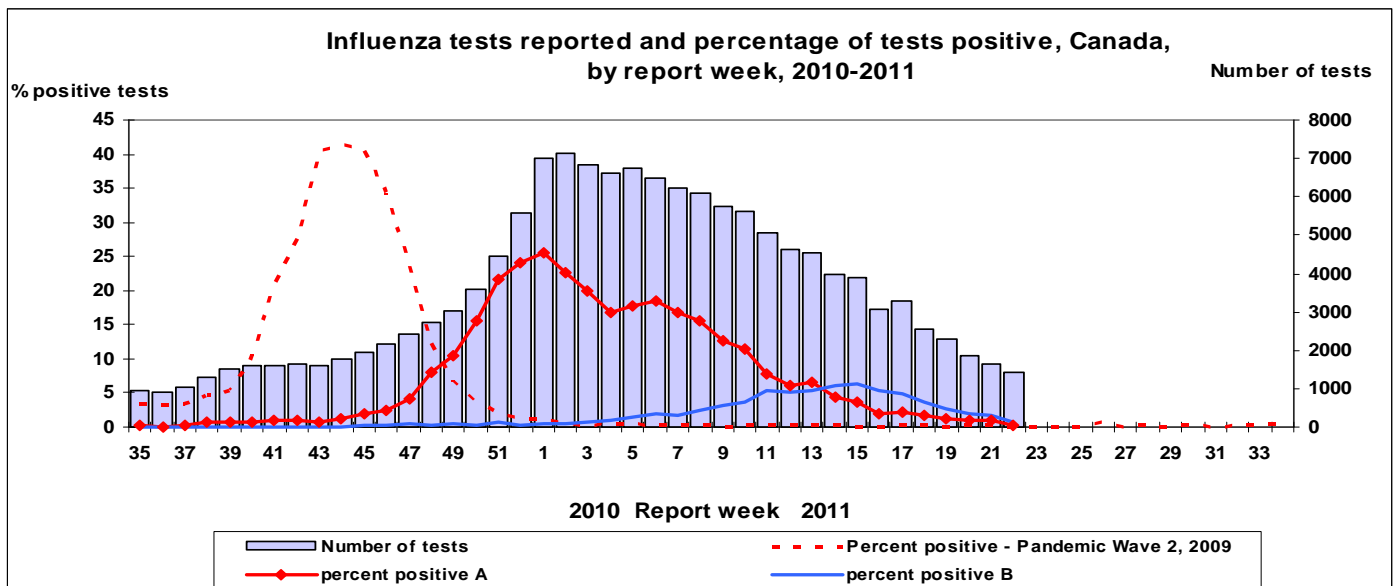
Reporting provinces	Weekly (May 22 to June 4, 2011)						Cumulative (August 29, 2010 to June 4, 2011)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	1	0	1	0	0	2	478	0	201	164	113	181
AB	3	0	3	0	0	6	1084	0	768	279	37	742
SK	1	0	0	1	0	2	321	0	213	31	77	177
MB	0	0	0	0	0	0	515	0	56	2	457	15
ON	13	0	8	3	2	4	6897	0	2445	278	4174	847
QC	0	0	0	0	0	21	6026	0	957	41	5028	778
NB	0	0	0	0	0	4	959	0	669	176	114	106
NS	0	0	0	0	0	0	272	0	80	11	181	7
PE	0	0	0	0	0	0	97	0	79	16	2	7
NL	1	0	0	0	1	2	217	0	122	6	89	42
Canada	19	0	12	4	3	41	16866	0	5590	1004	10272	2902

*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 22 to June 4, 2011)					Cumulative (Aug. 29, 2010 to June 4, 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	2	0	2	0	2	1016	129	740	147	415
5-19	1	0	1	0	2	518	103	297	118	537
20-44	1	0	1	0	1	1084	331	534	219	293
45-64	1	0	1	0	2	792	187	438	167	116
65+	2	0	2	0	2	2514	44	2064	406	148
Unknown	0	0	0	0	0	231	3	224	4	1
Total	7	0	7	0	9	6155	797	4297	1061	1510

*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 June 9, 2011, the National Microbiology Laboratory (NML) has antigenically characterized 984 influenza viruses that were received from provincial laboratories: 275 A/H3N2, 149 pandemic H1N1 2009 and 560 B viruses. Of the 275 influenza A/H3N2 viruses characterized, 272 (99.0%) were antigenically related to A/Perth/16/2009, which is the influenza A/H3N2 component recommended for the 2010-11 influenza vaccine. Three viruses (1.0%) tested showed reduced titer with antiserum produced against A/Perth/16/2009. Of the 149 pandemic H1N1 2009 viruses characterized, 147 (98.7%) 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 (1.3%) tested showed reduced titer with antiserum produced against A/California/7/2009. Of the 560 influenza B viruses characterized, 534 (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 534 viruses tested showed reduced titer with antisera produced against B/Brisbane/60/08. Twenty-six (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 642 influenza A isolates (478 A/H3N2 and 164 pandemic H1N1 2009) for amantadine resistance and found that 477 influenza A/H3N2 were resistant and one was sensitive. All 164 influenza A/H1N1 viruses were resistant to amantadine. Of 952 influenza viruses (251 A/H3N2, 150 pandemic H1N1 2009, and 551 influenza B) tested for resistance to oseltamivir, 250 A/H3N2 viruses were sensitive and one was resistant with the E119V mutation. The resistant case was associated with oseltamivir prophylaxis/treatment. Of the 150 pandemic H1N1 2009 isolates tested for oseltamivir resistance, 149 were sensitive and one was resistant with the H275Y mutation. The resistant case was associated with oseltamivir treatment. Of the 551 B virus isolates tested, 550 were sensitive to oseltamivir and one was resistant with the D198N mutation. Of 944 influenza viruses (247 A/H3N2, 147 pandemic H1N1 2009, and 550 influenza B) tested for zanamivir resistance all 247 A/H3N2 and 147 pandemic H1N1 2009 isolates were found to be sensitive. Of the 550 B virus isolates tested, 549 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 weeks 21 and 22, 2 (1 in week 21 and 1 in week 22) new laboratory-confirmed influenza-associated paediatric (16 years of age and under) hospitalizations were reported through the Immunization Monitoring Program Active (IMPACT) network: both with influenza B, from QC. 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, 673 hospitalizations with laboratory-confirmed influenza have been reported: 104 (15.5%) as influenza A/H3N2, 23 (3.4%) pandemic H1N1 2009, 328 (48.7%) as un-subtyped influenza A, and 218 (32.4%) influenza B. The distribution of cases to date by age group was as follows: 16.8% among 0-5 month olds; 27.4% among 6-23 month olds; 28.9% among the 2-4 year-olds; 16.4% among 5-9 year-olds; and 10.6% among children 10-16 years old.

Adult Influenza Hospitalizations and Deaths

During weeks 21 and 22, 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. Week 22 was the final weekly report from CNISP. A summary of data from the current season will be included in the 2010-11 annual FluWatch report.

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 weeks 21 and 22, no deaths with influenza were reported. Among the 227 fatal cases reported since the beginning of the influenza season, influenza A/H3N2 was identified in 59.9% (136/227), untyped influenza A in 28.6% (65/227), pandemic H1N1 2009 in 6.6% (15/227), and influenza B in 4.8% (11/227). Seventy-nine percent (179/227) of these fatal cases were among persons 65 years of age or older, and another 11% (25/227) were between the ages of 45 and 64 years old, in keeping with the age-groups usually affected by A/H3N2. Week 22 was the final weekly report of aggregate case counts from participating provinces and territories. A summary of data from the current season will be included in the 2010-11 annual FluWatch report.

International influenza update

Northern Hemisphere

The 2010-11 influenza season has ended in the northern hemisphere with all countries now reporting inter-seasonal levels of influenza activity. Sporadic influenza detections have been reported, but no active community transmission. http://www.who.int/csr/disease/influenza/latest_update_GIP_surveillance/en/index.html

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

United States: Week 20 was the final weekly report of the 2010-11 influenza season. During week 20, influenza activity remained low with only 0.8% of specimens positive for influenza, no influenza-associated paediatric deaths reported, and the proportion of outpatient visits for ILI well below the national baseline. The proportion of deaths attributable to pneumonia and influenza was slightly above the epidemic threshold. <http://www.cdc.gov/flu/weekly/index.htm>

Europe: The 2010-11 influenza season is coming to an end in Europe. During week 20, all countries reported low influenza intensity and only 5 countries in northern Europe reported sporadic geographic spread. For the second week in a row, no influenza was detected from sentinel specimens and only 7 influenza A, and 2 influenza B viruses were detected from non-sentinel specimens. http://ecdc.europa.eu/en/publications/Publications/110527_SUR_Weekly_Influenza_Surveillance_Overview.pdf

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 20 some countries continued to report detections of pandemic H1N1 2009 (Costa Rica, Jamaica, and the Dominican Republic), and A/H3N2 (Cuba). Jamaica has also reported circulation of influenza B, sometimes exceeding detection of pandemic H1N1 2009. Several countries in the region report circulation of other respiratory viruses, including adenovirus and parainfluenza. In tropical, northern areas of South America some countries have reported large numbers of respiratory disease in children, including hospital admissions for RSV-related pneumonia. 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. In Bolivia, detections of A/H3N2 have reportedly increased in the West of the country, but RSV continues to be the predominant respiratory virus.

http://new.paho.org/hq/index.php?option=com_content&task=view&id=3352&Itemid=2469&to=2246,
http://www.who.int/csr/disease/influenza/latest_update_GIP_surveillance/en/index.html

Southern Hemisphere

South Africa: South Africa reports the start of the 2011 influenza season with a sharp increase in the number of cases reported in week 22. The predominant strain is pandemic H1N1 2009 with a small number of A/H3N2 viruses detected. <http://www.nicd.ac.za/?page=alerts&id=5&rid=77> In the past 2-3 weeks the proportion of severe acute respiratory infections (SARI) with specimens positive for influenza has also increased, although SARI due to RSV continue to be reported from the 4 participating sentinel hospitals. http://www.nicd.ac.za/?page=seasonal_influenza&id=72

Australia: From May 14 to 27, 2011, levels of ILI in the community continue to remain low. In the summer months, all jurisdictions reported higher than usual numbers of laboratory confirmed influenza notifications, however in recent weeks notifications have been stable, with the exception of South Australia where there has been a large increase in notifications largely due to influenza B. During this reporting period the majority of virus detections have been pandemic (H1N1) 2009, with co-circulation of influenza A/H3N2 and influenza B. As of 27 May 2011, there have been 3,836 confirmed cases of influenza reported to the National Notifiable Diseases Surveillance System (NNDSS) in 2011, compared with 877 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.