



June 5 to 18, 2011 (Weeks 23 and 24)

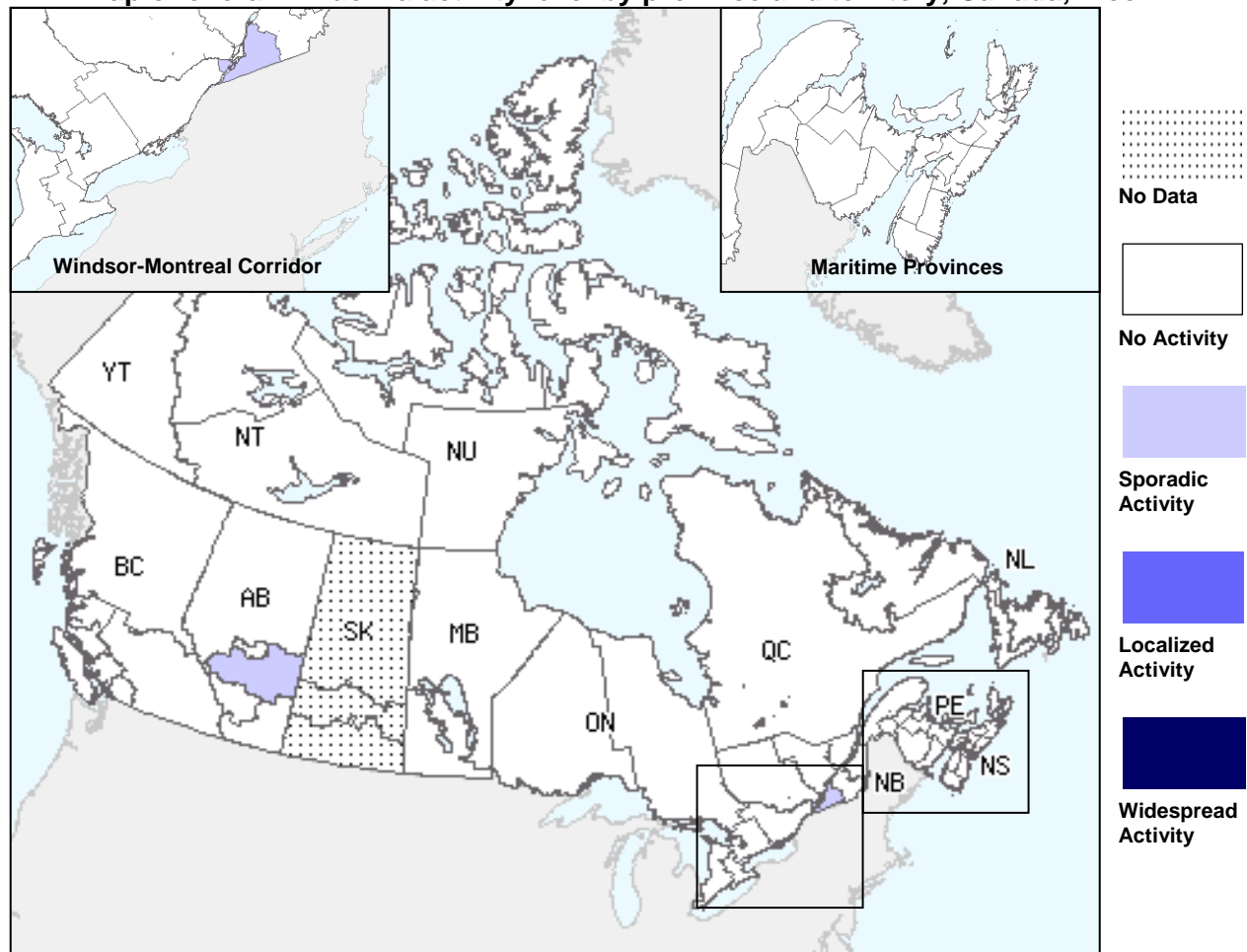
Overall Influenza Summary

- The 2010-11 influenza season is coming to an end in Canada with influenza detections approaching baseline levels. Most regions of the country reported no influenza activity in weeks 23 and 24 and only 2 regions reported sporadic activity in week 24.
- The ILI consultation rate is within seasonal range in week 24, and no paediatric hospitalizations were reported.
- Low level circulation of other respiratory viruses continues, including parainfluenza and adenovirus.

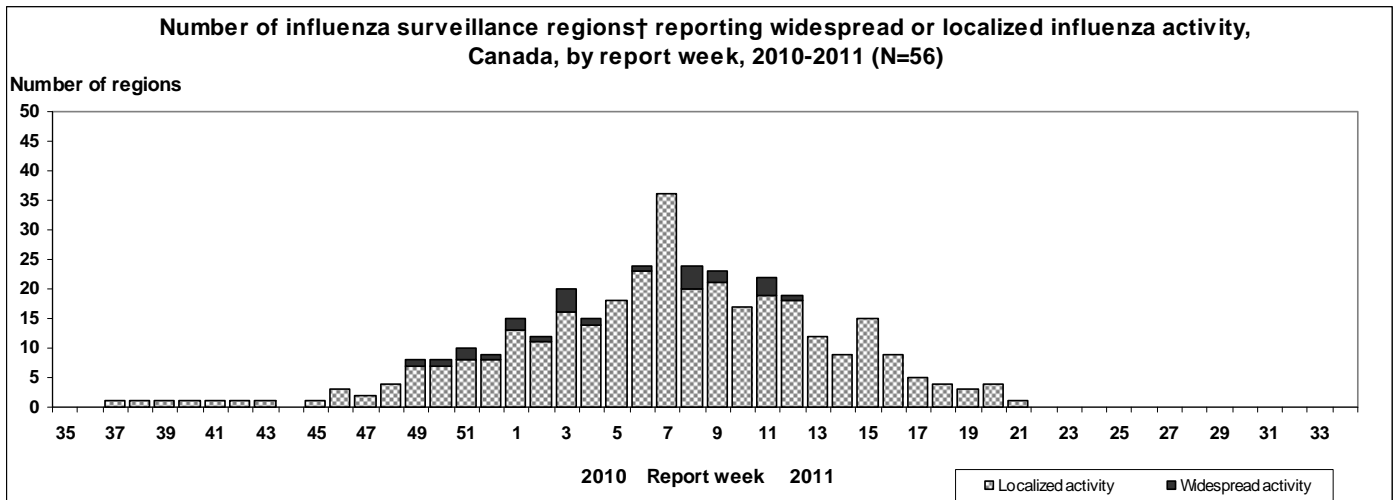
Influenza Activity and Outbreaks

During week 23 and 24, sporadic or no activity was reported across the country. Regions reporting sporadic activity in week 23 were NB(1), QC(1) and ON(1), and in week 24 were QC(1, different from week 23) and AB(1). Saskatchewan has stopped reporting for the season (see Activity level Map). No new outbreaks of influenza or ILI were reported in wk 23 or 24.

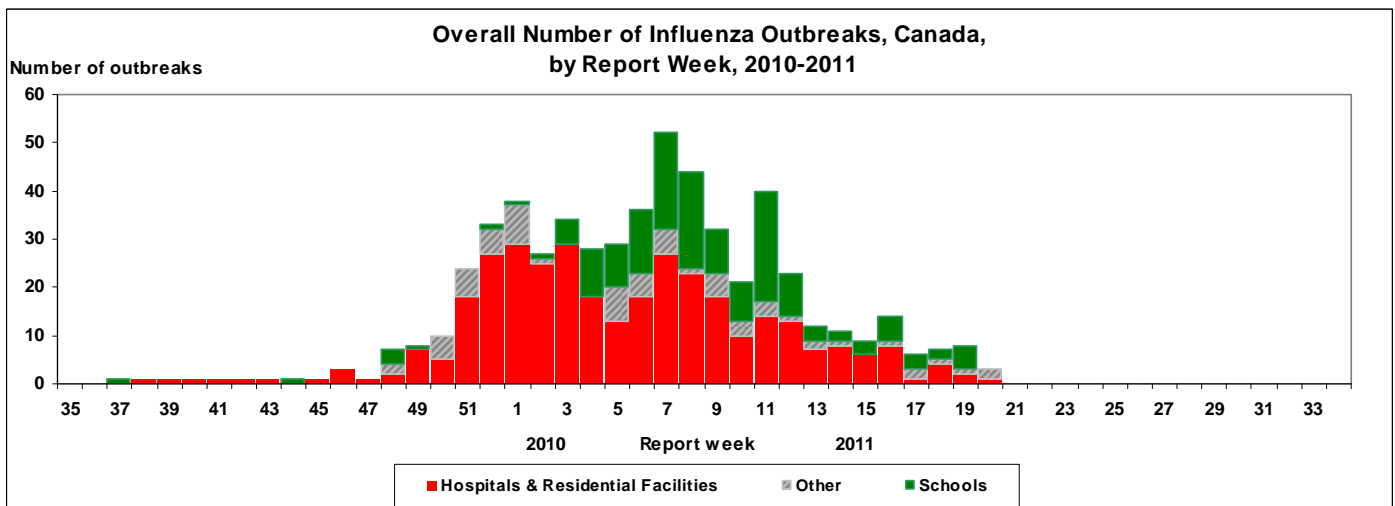
Map of overall Influenza activity level by province and territory, Canada, Week 24



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.

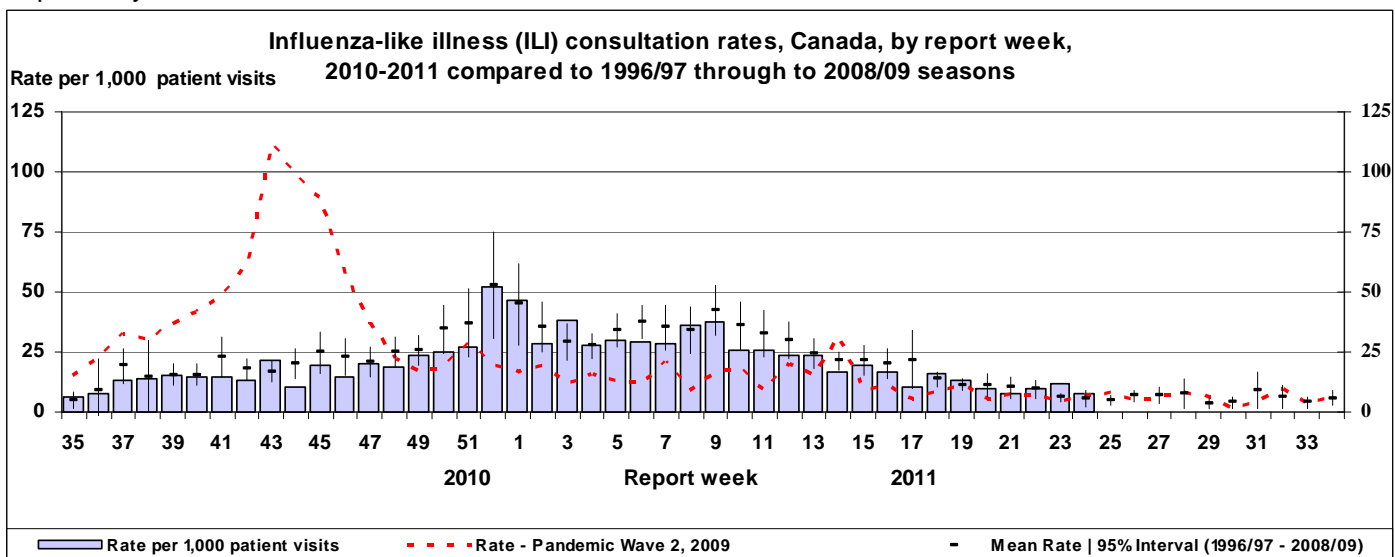


Note that this was the first year that all the provinces and territories were reporting on influenza outbreaks in schools (greater than 10% absenteeism on any day most likely due to ILI) which has increased considerably the total number of outbreaks reported compared to previous years.



ILI consultation rate

During weeks 23 and 24, the national ILI consultation rates (11.7 and 7.7 consultations per 1,000 patient visits, respectively) were low. The rate for week 23 was above the average for this time of year, however, returned to being within expected range in week 24 (see ILI graph). In both weeks, the highest consultation rate was observed among children under 5 years of age: 46.0 and 17.4 per 1,000 consultations in weeks 23 and 24, respectively.



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 7 detections of influenza were reported across Canada in weeks 23 and 24. The proportion of tests that were positive for influenza was 0.3% in each of week 23 and week 24, which is decreased compared to week 22 (1.1%) and approaching baseline levels. The proportion of positive tests peaked in week 52 (see Influenza tests graph). Since the beginning of the season, 85.3% (16,867/19,775) of influenza virus detections have been influenza A viruses, of which 84.8% (5,591/6,595) of subtyped specimens have been A/H3N2. Detections of influenza B increased from week 03 to a peak in week 15. Through detailed case-based laboratory reporting where age data is provided, from August 29, 2010, to June 4, 2011, 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 week 24, the percentage of positive of parainfluenza virus tests increased in several regions, interrupting its recent decline (see Respiratory viruses graph). For more details of weekly respiratory virus detections in Canada, see <http://www.phac-aspc.gc.ca/bid-bmi/dsd-dsm/rvdi-divr/index-eng.php>.

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

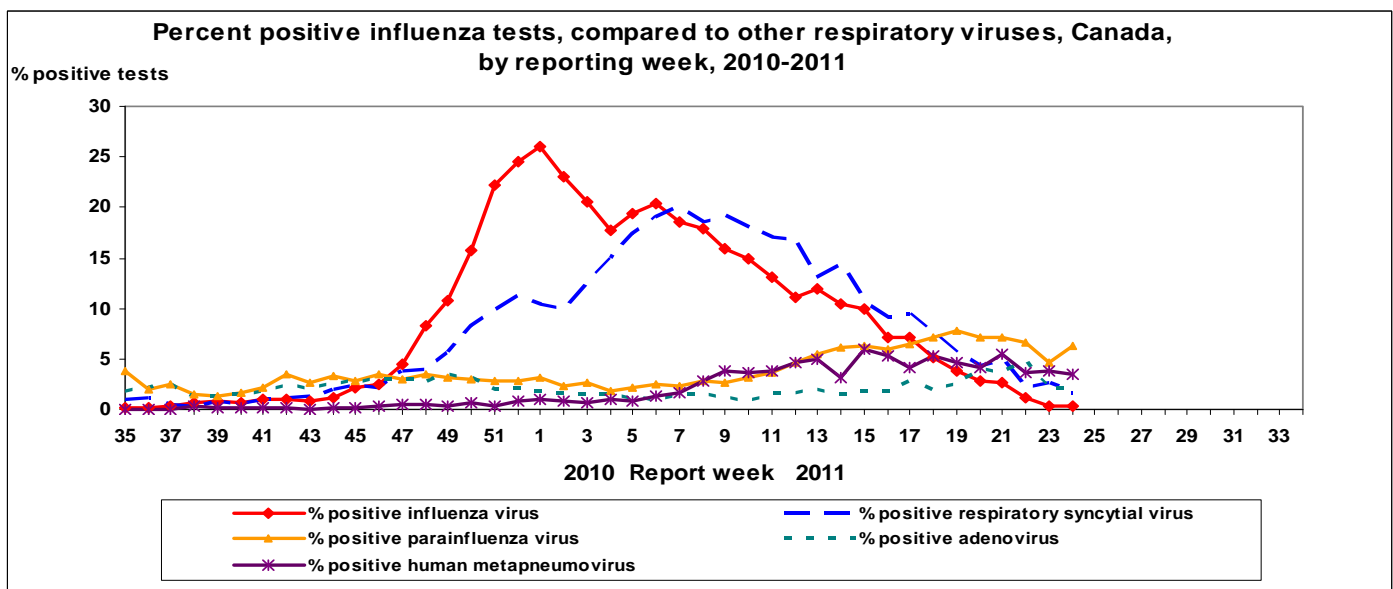
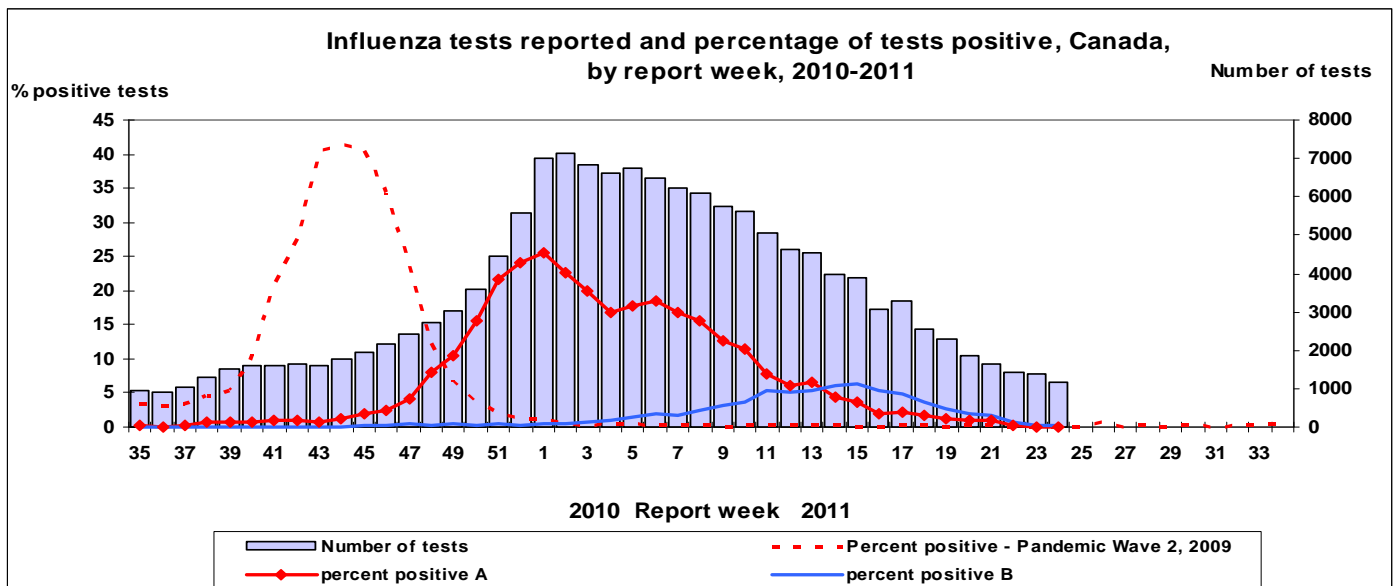
Reporting provinces	Weekly (June 5 to June 18, 2011)						Cumulative (August 29, 2010 to June 18, 2011)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	0	0	0	0	0	0	478	0	201	164	113	181
AB	0	0	0	0	0	1	1084	0	768	279	37	743
SK	0	0	0	0	0	1	321	0	213	31	77	178
MB	0	0	0	0	0	0	515	0	56	2	457	15
ON	1	0	1	0	0	2	6898	0	2446	278	4174	849
QC	0	0	0	0	0	2	6026	0	957	41	5028	780
NB	0	0	0	0	0	0	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	0	0	0	0	0	0	217	0	122	6	89	42
Canada	1	0	1	0	0	6	16867	0	5591	1004	10272	2908

*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 23, 2011, the National Microbiology Laboratory (NML) has antigenically characterized 999 influenza viruses that were received from provincial laboratories: 279 A/H3N2, 150 pandemic H1N1 2009 and 570 B viruses. Of the 279 influenza A/H3N2 viruses characterized, 276 (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 150 pandemic H1N1 2009 viruses characterized, 148 (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 570 influenza B viruses characterized, 543 (95.3%) 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 543 viruses tested showed reduced titer with antisera produced against B/Brisbane/60/08. Twenty-seven (4.7%) 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 655 influenza A isolates (488 A/H3N2 and 167 pandemic H1N1 2009) for amantadine resistance and found that 487 influenza A/H3N2 were resistant and one was sensitive. All 167 influenza A/H1N1 viruses were resistant to amantadine. Of 974 influenza viruses (256 A/H3N2, 153 pandemic H1N1 2009, and 565 influenza B) tested for resistance to oseltamivir, 255 A/H3N2 viruses were sensitive and one was resistant with the E119V mutation. The resistant case was associated with oseltamivir prophylaxis/treatment. Of the 153 pandemic H1N1 2009 isolates tested for oseltamivir resistance, 152 were sensitive and one was resistant with the H275Y mutation. The resistant case was associated with oseltamivir treatment. Of the 565 B virus isolates tested, 564 were sensitive to oseltamivir and one was resistant with the D198N mutation. Of 966 influenza viruses (252 A/H3N2, 150 pandemic H1N1 2009, and 564 influenza B) tested for zanamivir resistance all 252 A/H3N2 and 150 pandemic H1N1 2009 isolates were found to be sensitive. Of the 564 B virus isolates tested, 563 were sensitive to zanamivir and one was resistant with the D198N mutation.

Severe Illness Surveillance

Adult hospitalizations and deaths reported through the Canadian Nosocomial Infection Surveillance Program (CNISP) as well as aggregate reporting of severe cases of influenza from several provinces and territories were reported for the 2010-11 season up to week 22. See <http://www.phac-aspc.gc.ca/fluwatch/10-11/index-eng.php> for previous weekly reports.

Paediatric Influenza Hospitalizations and Deaths

In weeks 23 and 24, no new laboratory-confirmed influenza-associated paediatric (16 years of age and under) hospitalizations were reported through the Immunization Monitoring Program Active (IMPACT) network. 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, 675 hospitalizations with laboratory-confirmed influenza have been reported: 115 (17.0%) as influenza A/H3N2, 25 (3.7%) pandemic H1N1 2009, 315 (46.7%) as un-subtyped influenza A, and 220 (32.6%) influenza B. The distribution of cases to date by age group was as follows: 16.8% among 0-5 month olds; 27.6% among 6-23 month olds; 28.8% among the 2-4 year-olds; 16.3% among 5-9 year-olds; and 10.5% among children 10-16 years old.

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: During week 23, very few influenza detections were reported. The percentage of deaths attributed to pneumonia and influenza was slightly above the epidemic threshold, at 7.2%. Two influenza-associated paediatric deaths were reported, both with pandemic H1N1 2009. <http://www.cdc.gov/flu/weekly/index.htm>

Europe: The 2010-11 influenza season has ended in Europe. During weeks 21-23, all countries reported low influenza intensity and only 3 countries in northern Europe reported sporadic geographic spread. No influenza was detected from sentinel specimens and only 5 influenza A, and 4 influenza B viruses were detected from non-sentinel specimens. Out of 5 cases of severe acute respiratory illness, one tested positive for influenza (pandemic H1N1 2009). http://ecdc.europa.eu/en/publications/Publications/110617_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 week 23, several countries in the Caribbean and Central America reported low level circulation of influenza with predominant detections of other respiratory viruses including rhinovirus (Cuba), adenovirus (Costa Rica, Honduras) and parainfluenza (Dominican Republic), and RSV (Panama). In the Andean region of South America, Bolivia reports a sustained increase in the percentage of specimens positive for influenza, mostly A/H3N2. Ecuador reports no influenza detections but circulation of RSV. Columbia reports co-circulation of both A/H3N2 and pandemic H1N1 2009. http://new.paho.org/hq/index.php?option=com_content&task=view&id=3352&Itemid=2469&to=2246

As of June 17, localized influenza transmission has been reported in West Africa, with Ghana reporting predominantly pandemic H1N1 2009 and Togo primarily influenza B, while Nigeria and Cameroon report modest numbers of influenza B. In East Africa, Kenya reports co-circulation of pandemic H1N1 2009 and influenza B while Rwanda reports detections of A/H3N2. Asian countries have reported no or low influenza activity. Influenza B has been reported from southern China, India and Cambodia while pandemic H1N1 2009 has been reported from Viet Nam. http://www.who.int/csr/disease/influenza/latest_update_GIP_surveillance/en/index.html

Southern Hemisphere

South America: In both Chile and Argentina, the ILI activity in recent weeks has been within the expected levels for this time of year. However, in Chile the proportion of admissions to emergency departments for respiratory illness among children under 15 years old is higher than observed in both 2010 and 2009. In week 23, Chile and Argentina as well as Paraguay and

Uruguay report the predominant circulating respiratory virus to be RSV, with few or no influenza detections in each country. http://new.paho.org/hq/index.php?option=com_content&task=view&id=3352&Itemid=2469&to=2246

South Africa: South Africa has reported the start of the 2011 influenza season with an increase in the number of cases of severe acute respiratory illness due to influenza. The predominant strain is pandemic H1N1 2009. http://www.nicd.ac.za/?page=seasonal_influenza&id=72

Australia: From May 28 to June 10, 2011, levels of ILI in the community continue to remain low although ILI presentations to emergency departments have increased. South Australia and Queensland are reporting the greatest increases in detections of influenza. Among the 574 notifications during this period, 45% (260/574) were influenza A unsubtype, 16% (91/574) pandemic H1N1 2009, and 19% (111/574) influenza B. As of 27 May 2011, there have been 4,492 confirmed cases of influenza reported to the National Notifiable Diseases Surveillance System (NNDSS) in 2011, compared with 967 for the same period in 2010. <http://www.health.gov.au/internet/main/publishing.nsf/Content/cda-surveil-ozflu-flucurr.htm>

New Zealand: In week 24 (13-19 June 2011), consultations for ILI were below the baseline of 50 cases per 100,000. A few regions had higher rates, but still within the low end of the "normal" range of 50 to 249 cases per 100,000. Among the 89 detections of influenza to date (week 1 to 24), influenza B predominates (44%, 39/89), followed by pandemic H1N1 2009 (29%, 26/89) and A/H3N2 (18%, 16/89). http://www.surv.esr.cri.nz/PDF_surveillance/Virology/FluWeekRpt2011/FluWeekRpt201124.pdf

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.