June 19 to July 2, 2011 (Weeks 25 and 26)

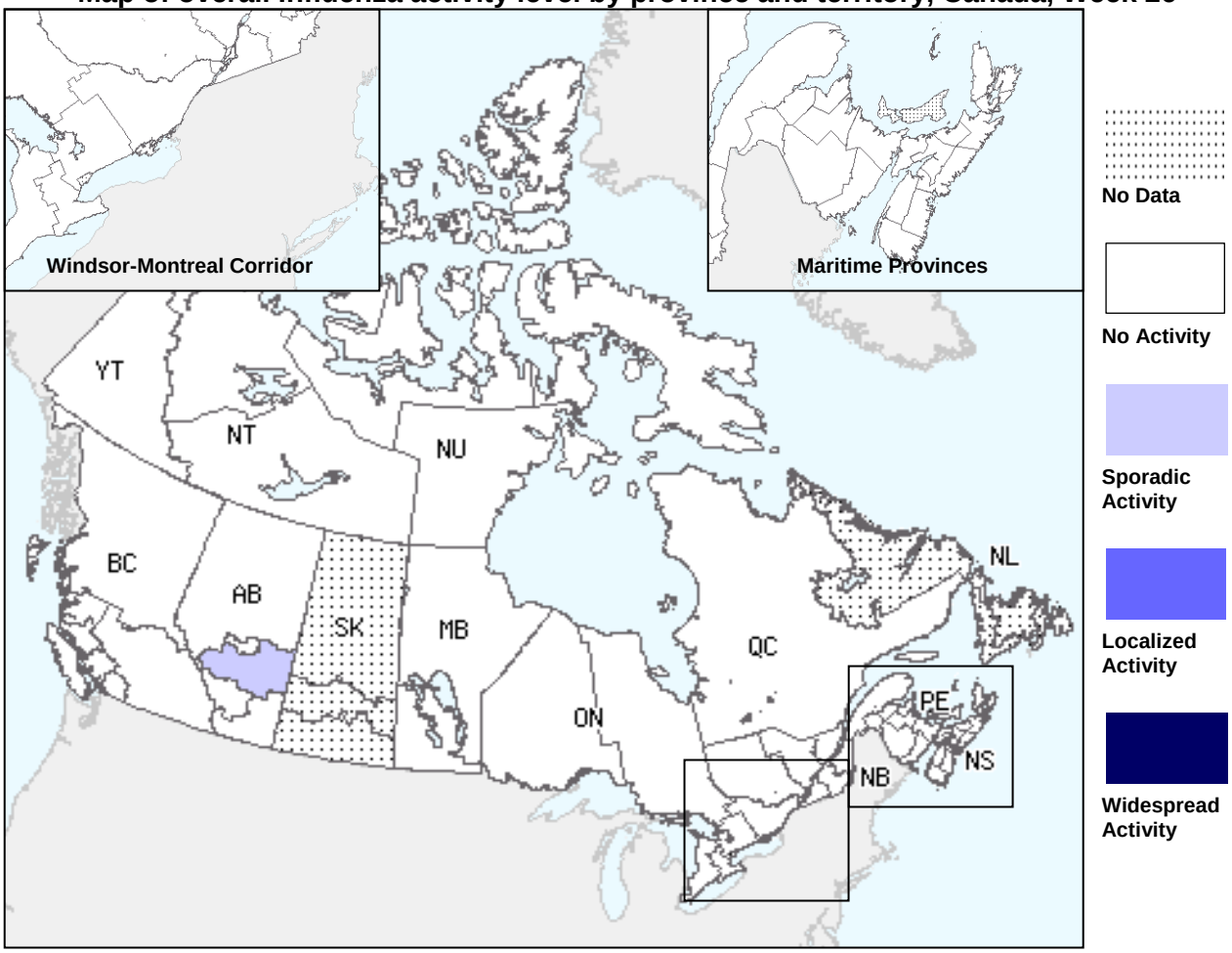
Overall Influenza Summary

- **Overall, influenza is at very low levels with few detections of influenza in weeks 25 and 26. All except one region of the country reported no influenza activity in weeks 25 and 26.**
- **The ILI consultation rate is within seasonal range, and no paediatric hospitalizations were reported.**
- **Circulation of other respiratory viruses continues, including rhinovirus, parainfluenza, and adenovirus.**

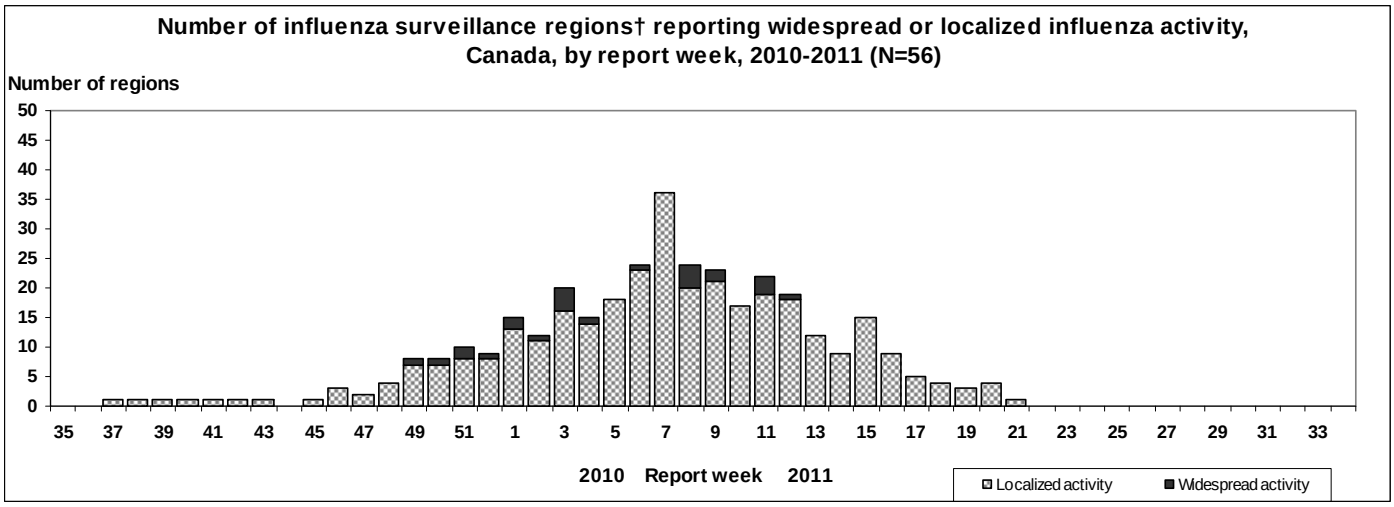
Influenza Activity and Outbreaks

In each of week 25 and 26, only one region in Alberta reported sporadic influenza activity. Saskatchewan has stopped reporting for the season (see Activity level Map). No new outbreaks of influenza or ILI were reported in wk 25 or 26.

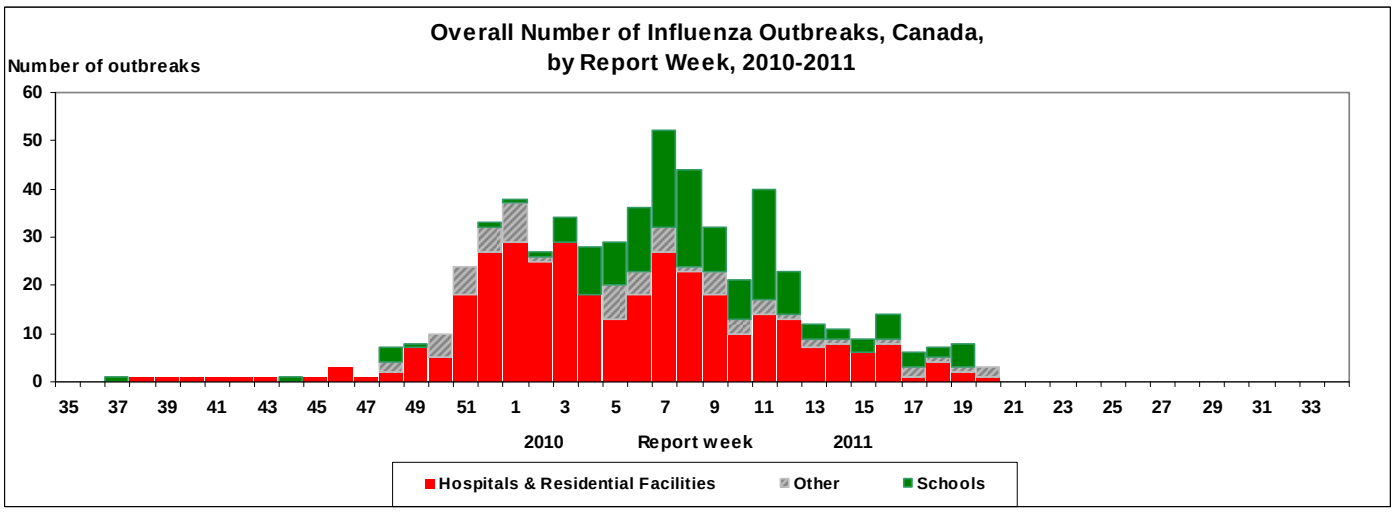
Map of overall Influenza activity level by province and territory, Canada, Week 26



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.

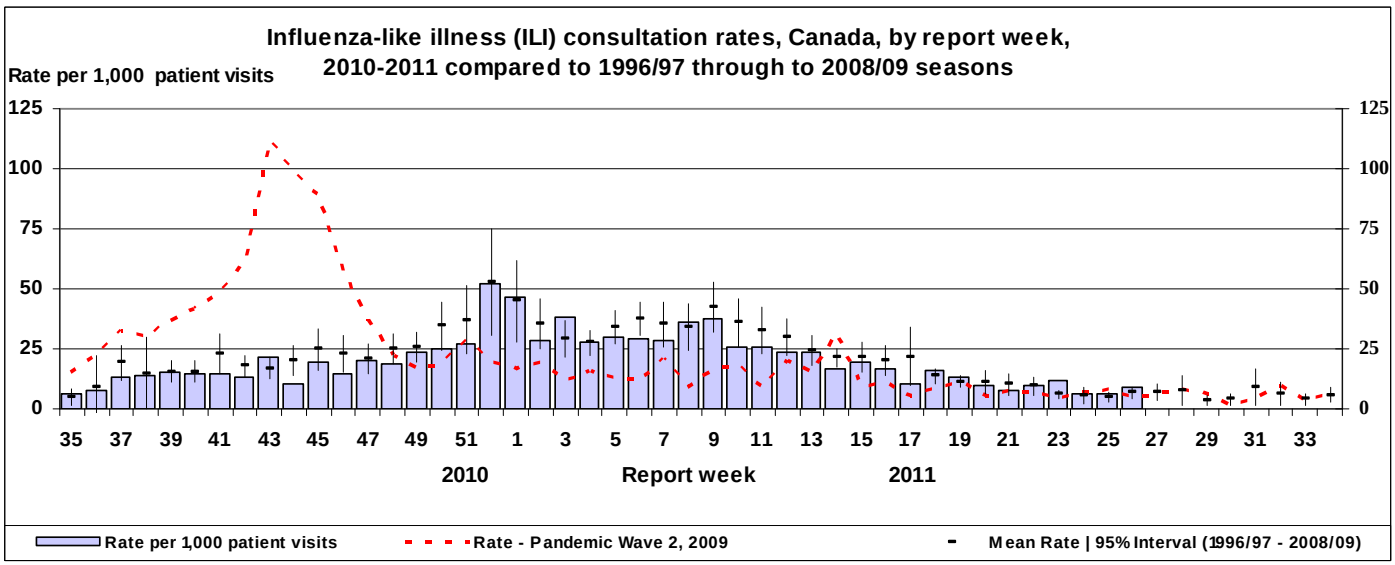


Note that this was the first year that all the provinces and territories were reporting on influenza outbreaks in schools (greater than 10% absenteeism on any day most likely due to ILI) which has increased considerably the total number of outbreaks reported compared to previous years.



ILI consultation rate

During weeks 25 and 26, the national ILI consultation rates (6.2 and 8.7 consultations per 1,000 patient visits, respectively) were low and within the expected range for this time of year (see ILI graph). In week 25, the highest consultation rate was observed among children 5-19 years of age (19.5 per 1,000 consultations), and in week 26 the highest consultation rate was observed in children under 5 years of age (42.1 per 1,000 consultations).



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 4 detections of influenza were reported across Canada in weeks 25 and 26. The proportion of tests that were positive for influenza was 0.2% in each of week 25 and week 26, which is similar to week 24 (0.3%). 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 25, 2011, 50.7% (2,074/4,092) of cases with A/H3N2 were aged 65 years or older. In contrast, the majority of cases with pH1N1 2009 (94.6%, 771/815) and influenza B (90.2%, 1,364/1,512) were under 65 years of age (see Tests detailed table). The proportion of positive tests for RSV peaked in week 07 and has continued to decline since then. The proportion of positive tests for parainfluenza viruses peaked in week 19 but continues to fluctuate in recent weeks (see Respiratory viruses graph). The proportion of tests positive for rhinovirus has gradually increased in recent weeks to 23.9% in week 26. 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

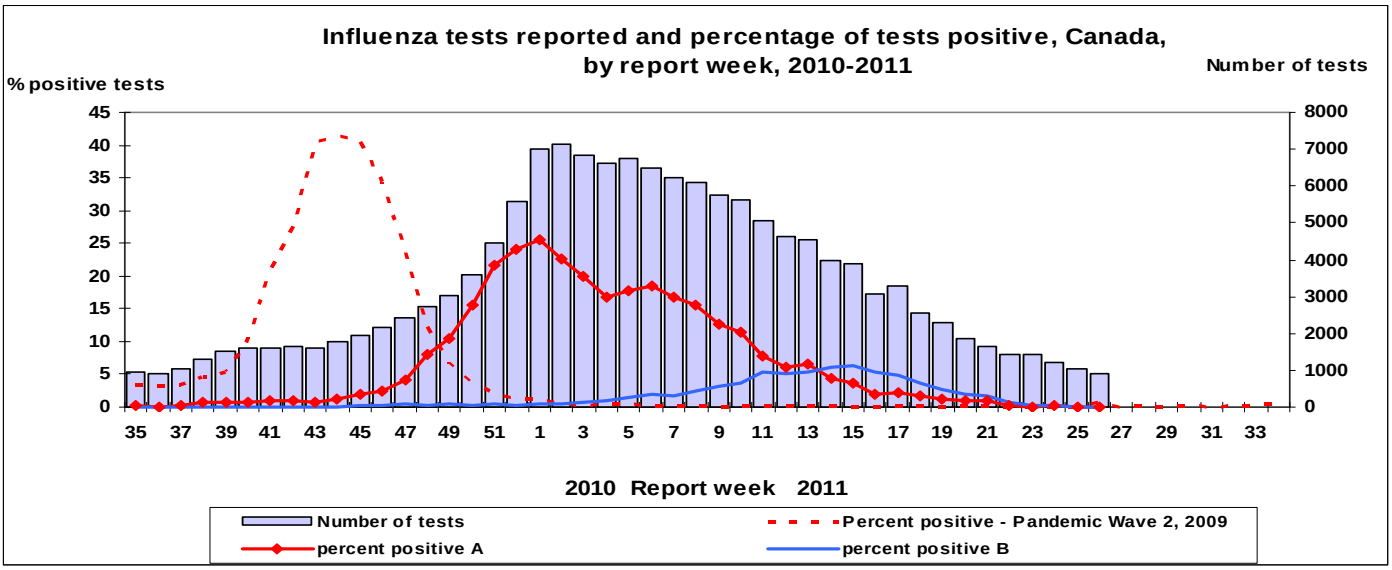
Reporting provinces	Weekly (June 19 to July 2, 2011)						Cumulative (August 29, 2010 to July 2, 2011)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	0	0	0	0	0	0	478	0	201	164	113	181
AB	1	0	1	0	0	0	1085	0	769	279	37	743
SK	0	0	0	0	0	0	321	0	213	31	77	178
MB	0	0	0	0	0	0	515	0	56	2	457	15
ON	1	0	0	0	1	0	6902	0	2446	281	4175	849
QC	0	0	0	0	0	0	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	2	217	0	122	6	89	44
Canada	**2**	**0**	**1**	**0**	**1**	**2**	**16872**	**0**	**5592**	**1007**	**10273**	**2910**

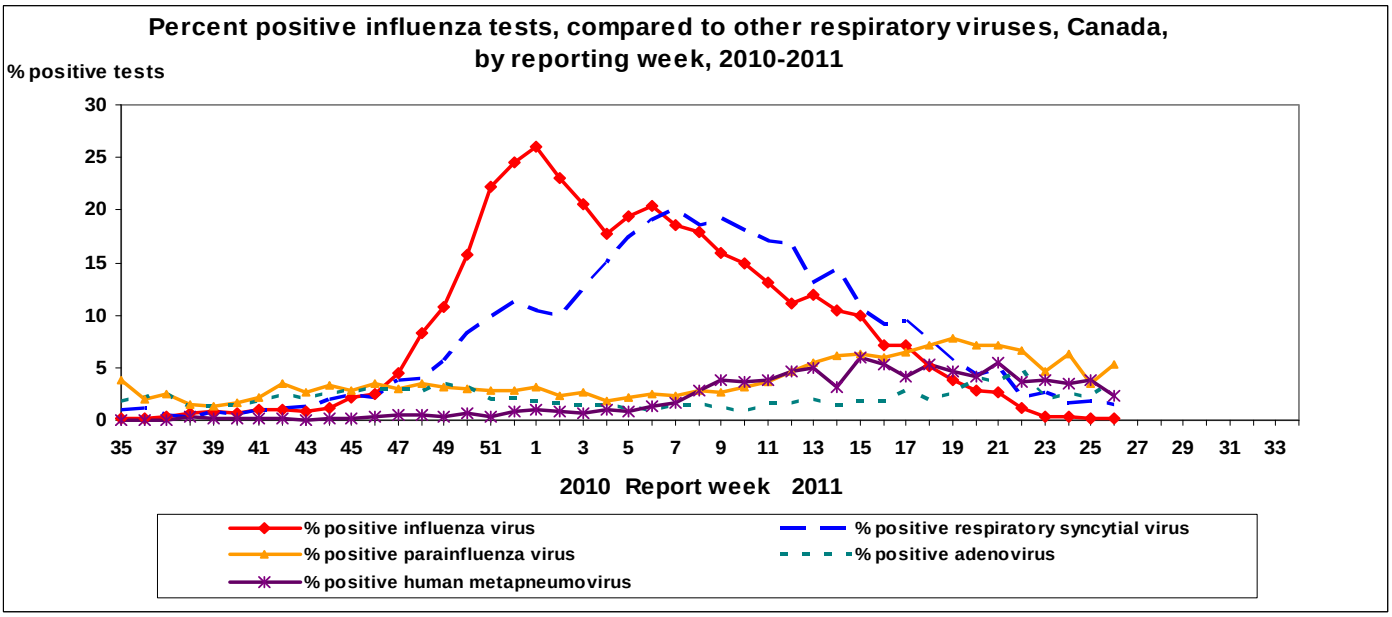
*Unsubtyped: The specimen was typed as influenza A, but no test for subtyping was performed. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add 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 (June 19 to June 25, 2011)					Cumulative (Aug. 29, 2010 to June 25, 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	0	0	0	0	0	1026	133	746	147	417
5-19	0	0	0	0	0	525	107	300	118	538
20-44	0	0	0	0	0	1088	335	534	219	293
45-64	0	0	0	0	0	801	196	438	167	116
65+	0	0	0	0	0	2524	44	2074	406	148
Unknown	0	0	0	0	0	231	3	224	4	1
Total	**0**	**0**	**0**	**0**	**0**	**6195**	**818**	**4316**	**1061**	**1513**

*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 July 8, 2011, the National Microbiology Laboratory (NML) has antigenically characterized 1018 influenza viruses that were received from provincial laboratories: 284 A/H3N2, 150 pH1N1 2009 and 584 B viruses. Of the 284 influenza A/H3N2 viruses characterized, 281 (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 pH1N1 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 584 influenza B viruses characterized, 555 (95.0%) 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 584 viruses tested showed reduced titer with antisera produced against B/Brisbane/60/08. Twenty-nine (5.0%) 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 664 influenza A isolates (495 A/H3N2 and 169 pH1N1 2009) for amantadine resistance and found that 494 influenza A/H3N2 were resistant and one was sensitive. All 169 influenza A/H1N1 viruses were resistant to amantadine. Of 982 influenza viruses (258 A/H3N2, 153 pH1N1 2009, and 571 influenza B) tested for resistance to oseltamivir, 257 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 pH1N1 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 571 B virus isolates tested, 570 were sensitive to oseltamivir and one was resistant with the D198N mutation. Of 974 influenza viruses (254 A/H3N2, 150 pH1N1 2009, and 570 influenza B) tested for zanamivir resistance all 254 A/H3N2 and 150 pH1N1 2009 isolates were found to be sensitive. Of the 570 B virus isolates tested, 569 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

No new laboratory-confirmed influenza-associated paediatric (16 years of age and under) hospitalizations have been reported through the Immunization Monitoring Program Active (IMPACT) network since week 22. 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 pH1N1 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, 671 hospitalizations with laboratory-confirmed influenza have been reported: 151 (22.5%) as influenza A/H3N2, 27 (4.0%) pH1N1 2009, 273 (40.7%) as un-subtyped influenza A, and 220 (32.8%) influenza B. The distribution of cases to date by age group was as follows: 16.7% among 0-5 month olds; 27.6% among 6-23 month olds; 28.8% among the 2-4 year-olds; 16.4% among 5-9 year-olds; and 10.4% among children 10-16 years old.

International influenza update

Northern Hemisphere

The 2010-11 influenza season has ended in the temperate regions of the northern hemisphere, with all countries now reporting low or no influenza activity. 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

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 pH1N1 2009, influenza B viruses predominantly of the Victoria lineage. PH1N1 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 weeks 24 and 25, several countries in the Caribbean and Central America reported no or low-level circulation of influenza amid detections of other respiratory viruses, predominantly parainfluenza, adenovirus & RSV. In the Andean region of South America, Bolivia reports a sustained increase in detections of influenza to 65% of specimens tested in week 24, mostly A/H3N2. Columbia reports ~15% of respiratory specimens positive, with predominant detections of pH1N1 2009, followed by influenza A/H3N2 and RSV. http://new.paho.org/hq/index.php?option=com_content&task=view&id=3352&Itemid=2469&to=2246

As of July 1, low-level influenza transmission with a mixture of influenza (sub)types has been reported in sub-Saharan Africa and tropical Asian countries. http://www.who.int/csr/disease/influenza/latest_update_GIP_surveillance/en/index.html

Southern Hemisphere

South America: Argentina reports 2% of specimens positive for influenza (mostly pH1N1 2009), among an overall 41% of specimens positive for respiratory viruses (predominantly RSV). Chile, Paraguay and Uruguay continue to report predominant circulation of RSV, followed by adenovirus and parainfluenza, with sporadic detections of influenza. http://new.paho.org/hq/index.php?option=com_content&task=view&id=3352&Itemid=2469&to=2246

South Africa: In week 25, South Africa continues to report a predominance of pH1N1 2009 (86.8% of influenza detections) with smaller number of detections of A/H3N2 (6.4%) and influenza B (3.9%). South Africa reports a decline in the number of specimens positive for RSV among hospital admissions, and increase in those positive for influenza over the past 3-4 weeks. http://www.nicd.ac.za/?page=seasonal_influenza&id=72

Australia: From June 11 to 24, 2011, levels of ILI in the community have started to increase as reported by sentinel physician surveillance and ILI presentations to emergency departments. Notifications of influenza are increasing nationally, particularly in South Australia, Queensland and New South Wales. Among the 967 notifications during this period, 38% (371/967) were influenza A unsubtyped, 38% (367/967) influenza B, 23% (224/967) pH1N1 2009 , 0.4% (4/967) A/H3N2 and one untyped specimen. South Australia reports 85% of notifications as influenza B; Queensland reports mostly pH1N1 2009 with some co-circulation of influenza B; New South Wales reports predominantly notifications of pH1N1 2009. Antigenic characterization of the 569 isolates to date show all to be similar to the vaccine strain viruses. Some isolates have reduced titres, but testing has been insufficient to detect trends at this time. Among the 798 isolates tested for phenotypic resistance to oseltamivir by enzyme inhibition assay (EIA), one has demonstrated resistance. Among the 7 pH1N1 2009 isolates tested

for genotypic resistance to oseltamivir by pyrosequencing, one has demonstrated resistance. http://www.health.gov.au/internet/main/publishing.nsf/Content/cda-surveil-ozflu-flucurr.htm

New Zealand: In week 25 (20-26 June 2011), consultations for ILI were 30.5 cases per 100,000, which is below the baseline of 50 cases per 100,000. Two regions had higher rates, but still within the low end of the seasonal range of 50 to 249 cases per 100,000. Among the 117 detections of influenza to date (week 1 to 25), influenza B predominates (50%, 58/117), followed by pH1N1 2009 (22%, 26/117) and A/H3N2 (21%, 24/117). http://www.surv.esr.cri.nz/PDF_surveillance/Virology/FluWeekRpt/2011/FluWeekRpt201125.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.