



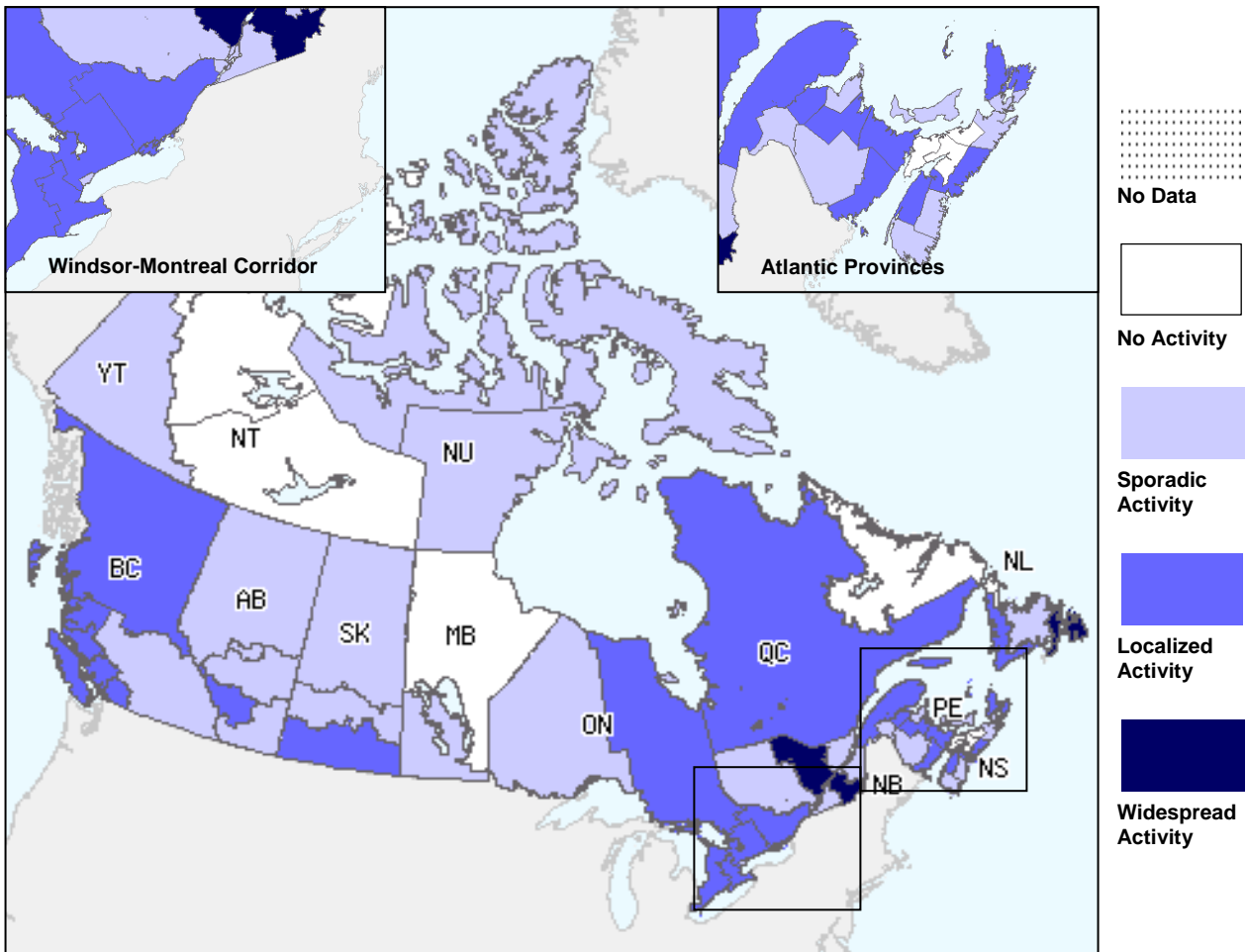
February 27 to March 5, 2011 (Week 09)

- In week 09, influenza activity continues mostly in British Columbia, Ontario, Quebec and the Atlantic provinces. The number of outbreaks reported decreased in week 09.
- The proportion of positive influenza detections overall continued to decline in week 09. Both adult and paediatric hospitalizations decreased, however the ILI consultation rate increased slightly compared to the previous week.
- Since the beginning of the season, 86% of the subtyped positive influenza A specimens have been influenza A/H3N2. In week 09, the proportion of specimens positive for pandemic H1N1 2009 decreased while the proportion of influenza B detections increased from 12% to 18%.

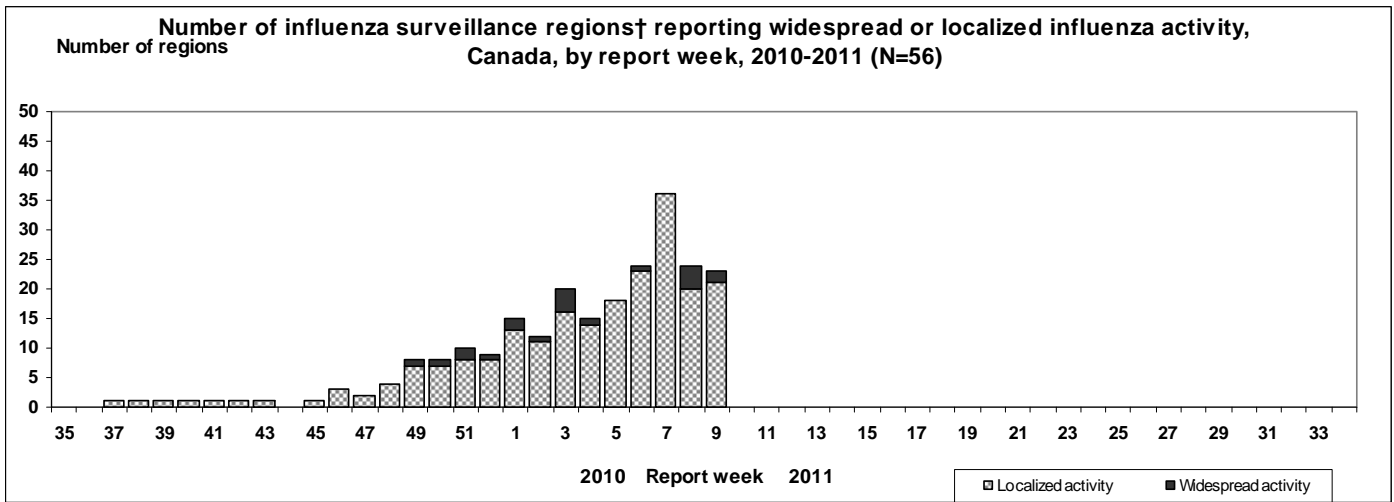
Overall Influenza Summary – Week 09 (February 27 to March 5, 2011)

In week 09, 2 regions (in QC(1) and NL(1)) reported widespread activity, 21 regions reported localized activity (in BC(4), AB(1), SK(1), MB(1), ON(5), QC(1), NB(4), NS(3), and NL(1)), 26 regions reported sporadic activity (in all provinces and territories except NT) and 7 regions presented no activity (see Activity level Map). Compared to the previous week (week 08), 12 regions reported an increased level of influenza activity, 14 regions reported decreased activity, and 25 regions maintained a stable level of influenza activity (sporadic or higher). Thirty-two new outbreaks were reported: 17 outbreaks of influenza in long-term care facilities (LTCF) in BC(4), SK (2), MB(1), ON(2), QC(3), NB (2) and NS(3); 1 influenza outbreak in a hospital in NS; 1 influenza B outbreak in a school in AB, 1 outbreak in which both influenza B and pandemic H1N1 2009 were detected in BC, 7 ILI outbreaks in schools in NB(4) and NS(3); 1 pandemic H1N1 2009 outbreak in a residential facility in BC, and 4 ILI outbreaks in other settings in ON(2) and NL(2).

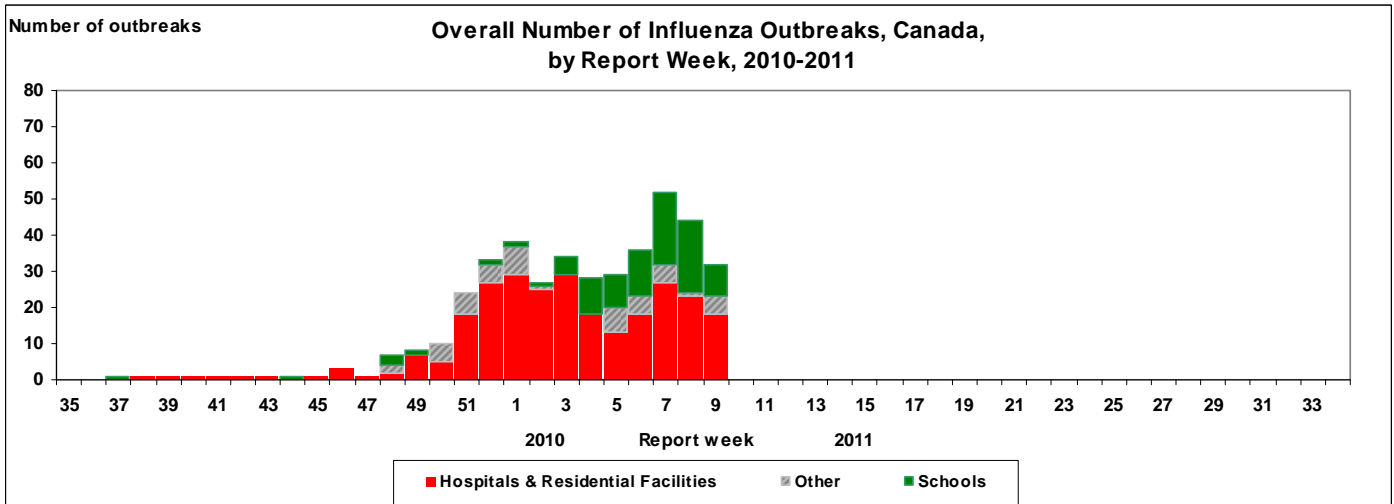
Map of overall Influenza activity level by province and territory, Canada, Week 09



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.

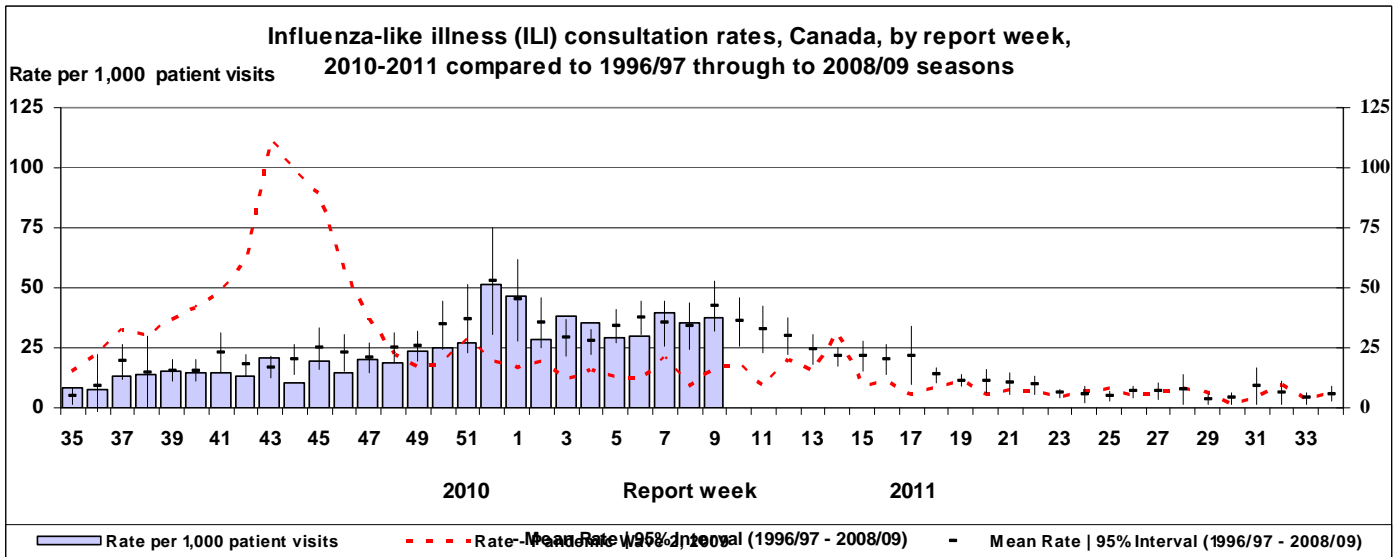


Note that this was the first year that all the provinces and territories were reporting on influenza outbreaks in schools (greater than 10% absenteeism on any day most likely due to ILI) which has increased considerably the total number of outbreaks reported compared to previous years.



ILI consultation rate

During week 09, the national ILI consultation rate was 37.7 consultations per 1,000 patient visits, a slight increase from 35.8 in week 08 but still within expected range for this time of year (see ILI graph). Children under 5 years of age had the highest consultation rates (108.1 per 1,000 consultations in week 09) followed by children between 5 and 19 years old (83.3 per 1,000).



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 proportion of tests that were positive for influenza during week 09 was 15.8%, which decreased from 17.8% in week 08. The proportion of positive tests peaked in week 52. Of the 870 positive tests reported during week 09, 317 (36.4%) specimens were reported as influenza A/H3N2, 59 (6.8%) as pandemic H1N1 2009, 156 (17.9%) as influenza B and 338 (38.9%) as untyped influenza A. Since the beginning of the season, the majority of influenza virus detections have been influenza A viruses (94.2% or 14,342/15,229), and among subtyped influenza A specimens 86.0% have been A/H3N2. In week 09, detections of pandemic H1N1 2009 represented 15.7% of all subtyped influenza A specimens, which is decreased slightly from the proportion of 16.7% observed in week 08. Detections of influenza B increased to 17.9% of all positive influenza specimens in week 09 compared to 12.3% in week 08. Through detailed case-based laboratory reporting where age data is provided, since August 29, 2010, 51.8% (1813/3502) of cases with A/H3N2 were aged 65 years or older. In contrast, the majority (93.8%, 544/580) of cases with pandemic H1N1 2009 were under 65 years of age (see Tests detailed table). In week 09, the proportion of positive tests for respiratory syncytial virus detections (RSV) was stable at 19.2% of specimens tested, reflecting an increasing proportion of positive tests in the East and declining positive tests in BC and Prairie provinces (see Respiratory viruses graph).

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

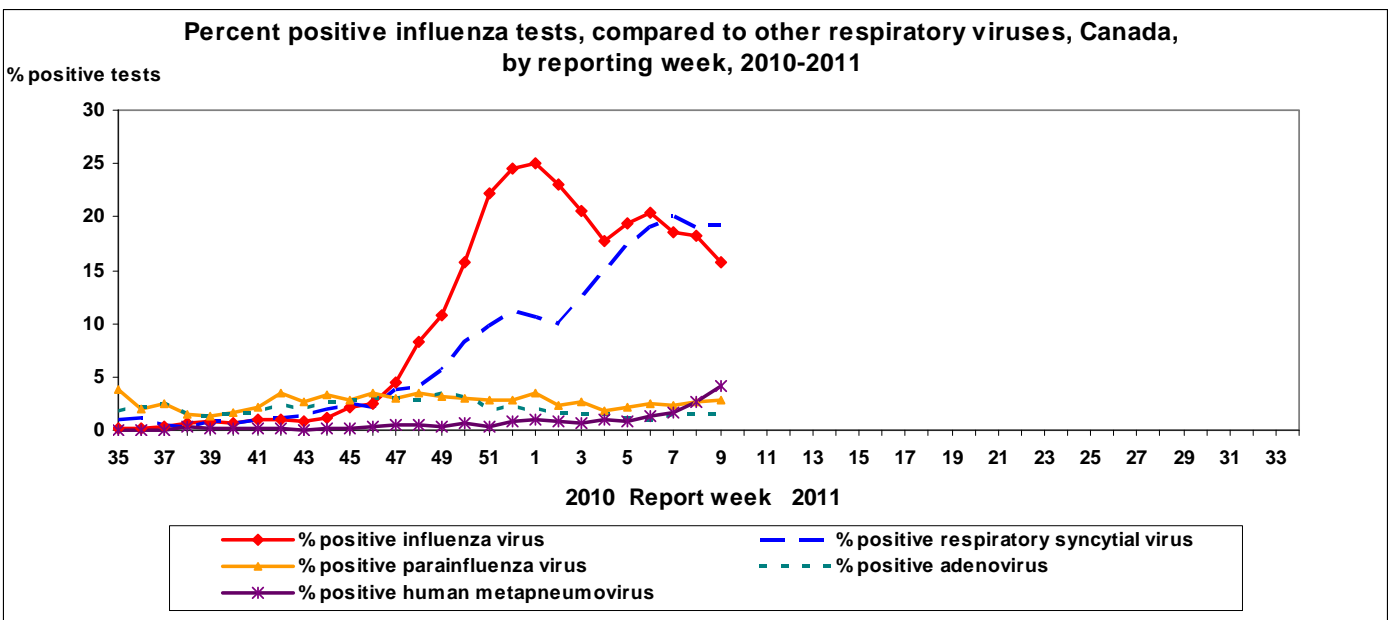
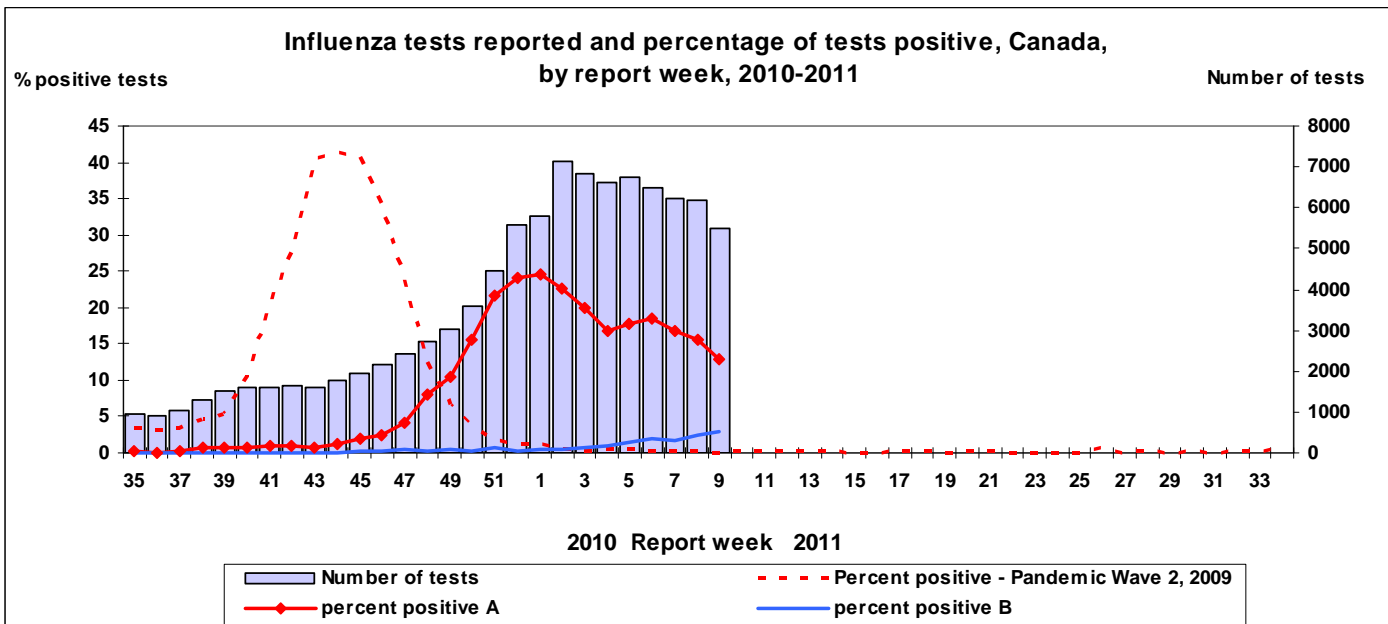
Reporting provinces	Weekly (February 27 to March 5, 2011)						Cumulative (August 29, 2010 to March 5, 2011)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	53	0	32	8	13	20	323	0	130	103	90	85
AB	51	0	28	19	4	27	741	0	544	172	25	200
SK	38	0	34	0	4	2	259	0	182	23	54	14
MB	3	0	0	0	3	0	508	0	56	1	451	0
ON	211	0	73	17	121	49	6418	0	2350	257	3811	346
QC	197	0	40	1	156	52	5182	0	814	32	4336	208
NB	92	0	81	9	2	5	646	0	449	147	50	29
NS	27	0	0	1	26	1	142	0	27	8	107	2
PE	17	0	13	4	0	0	53	0	38	13	2	2
NL	25	0	16	0	9	0	70	0	58	3	9	1
Canada	714	0	317	59	338	156	14342	0	4648	759	8935	887

*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 (Feb. 27 to Mar. 5, 2011)					Cumulative (Aug. 29, 2010 to Mar. 5, 2011)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A untyped	Total	A Total	Pandemic H1N1	A/H3N2	A untyped	Total
<5	32	8	14	10	15	853	102	606	145	118
5-19	13	2	4	7	34	443	73	253	117	192
20-44	29	6	10	13	14	880	227	453	200	96
45-64	26	8	12	6	5	667	142	377	148	36
65+	81	0	41	40	6	2177	36	1813	328	47
Unknown	2	0	2	0	0	226	3	221	2	0
Total	183	24	83	76	74	5246	583	3723	940	489

*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.



Canadian situation

Paediatric Influenza Hospitalizations and Deaths

In week 09, 18 new laboratory-confirmed influenza-associated paediatric (16 years of age and under) hospitalizations were reported through the Immunization Monitoring Program Active (IMPACT) network: 1 from BC, 4 from AB, 6 from ON, 4 from QC, 1 from NS, and 2 from NL. This number is decreased compared to the previous week (week 08) in which 48 paediatric hospitalizations were reported (note that numbers may fluctuate because of the delays in reporting). So far this season, two deaths in children have been reported, both in Ontario. One, aged between 6 months and 23 months, who tested positive for pandemic H1N1 2009 was reported in week 48, and one aged 10-16 years, who tested positive for influenza A (unsubtyped), was reported in week 04.

Since the beginning of the season, 485 hospitalizations with laboratory-confirmed influenza have been reported from all provinces except NB and PE; 76 (15.7%) as influenza A/H3N2, 17 (3.5%) pandemic H1N1 2009, 318 (65.6%) as unsubtyped influenza A, and 74 (15.3%) influenza B. The distribution of cases to date by age group was as follows: 18.1% among 0-5 month olds; 28.0% among 6-23 month olds; 29.5% among the 2-4 year-olds; 15.5% among 5-9 year-olds; and 8.9% among children 10-16 years old.

Adult Influenza Hospitalizations and Deaths

During week 09, 17 new hospitalizations with laboratory-confirmed influenza among adults (16 years of age and older) were reported through the Canadian Nosocomial Infection Surveillance Program (CNISP). This number is decreased compared to the 21 cases reported in week 08 (note that numbers may fluctuate because of the delays in reporting). Of the 17 new cases reported between February 27 and March 5, 2011, 9 (52.9%) tested positive for unsubtyped influenza A, 2 (11.8%) as

pandemic H1N1 2009, 3 (17.6%) as A/H3N2, and 3 (17.6%) as influenza B. Since the beginning of the season, 838 hospitalized cases have been reported: 188 (22.4%) A/H3N2, 36 (4.3%) pandemic H1N1 2009, 590 (70.4%) influenza A unsubtype, and 24 (2.9%) influenza B, from all reporting provinces except NL. To date, 578 of the 838 (69.0%) cases were aged 65 years or older and 377 (45.0%) were males.

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 09, 12 deaths with influenza were reported. Ten deaths were associated with A/H3N2 or unsubtype influenza A in AB(1), ON(7), and NS(2), all in persons >65 years old. Two deaths were reported from SK, one in a child between 1-4 years of age with A/H3N2 and the other in an adult between 45-64 years of age with pandemic H1N1 2009. Among the 177 fatal cases reported since the beginning of the influenza season, influenza A/H3N2 was identified in 61.6% (109/177), unsubtype influenza A in 29.4% (52/177), pandemic H1N1 2009 in 6.8% (12/177), and influenza B in 2.3% (4/177). Seventy-nine percent (139/177) of these fatal cases were among persons 65 years of age or older, and another 11% (20/177) 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).

Antigenic Characterization

Between September 1 and March 10, 2011, the National Microbiology Laboratory (NML) has antigenically characterized 364 influenza viruses that were received from provincial laboratories: 180 A/H3N2 from BC, AB, SK, MB, ON, QC & NB, 76 pandemic H1N1 2009 from BC, AB, ON, QC, NB & NS and 108 B viruses from BC, AB, SK, ON, QC & NB. All 180 influenza A/H3N2 viruses characterized were antigenically related to A/Perth/16/2009, which is the influenza A/H3N2 component recommended for the 2010-11 influenza vaccine. The 76 pandemic H1N1 2009 viruses characterized were antigenically related to the pandemic vaccine virus A/California/7/2009, which is the recommended H1N1 component for the 2010-11 influenza vaccine. Of the 108 influenza B viruses characterized, 101 were antigenically related to B/Brisbane/60/08 (Victoria lineage), which is the recommended influenza B component for the 2010-11 influenza vaccine. Four viruses tested showed reduced titer with antisera produced against B/Brisbane/60/08. Seven 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 389 influenza A isolates (307 A/H3N2 and 82 pandemic H1N1 2009) for amantadine resistance and found that 306 influenza A/H3N2 were resistant to amantadine and one was sensitive. All 82 influenza A/H1N1 viruses were resistant to amantadine. Of 338 influenza B viruses (165 A/H3N2, 78 pandemic H1N1 2009, and 95 influenza B) tested for resistance to oseltamivir, all A/H3N2 and B virus isolates were found to be sensitive to oseltamivir. Of the 78 pandemic H1N1 2009 isolates tested, 77 were sensitive to oseltamivir and one was resistant to oseltamivir with the H275Y mutation. The resistant case was associated with oseltamivir treatment. Of 334 influenza B viruses (163 A/H3N2, 75 pandemic H1N1 2009, and 96 influenza B) tested for resistance to zanamivir, all isolates were found to be sensitive to zanamivir.

International influenza update

Northern hemisphere

United States: During week 08 (February 20-26, 2011), influenza activity remained elevated. Twenty-eight percent (2,106/7,543) of specimens tested were positive for influenza, of which 74.0% were influenza A and 26.0% were influenza B. Among influenza A specimens, the proportion of A/H3 (32.4%) was greater than the proportion of pandemic H1N1 2009 (23.1%). The proportion of deaths attributed to pneumonia and influenza (P&I) was at the epidemic threshold (8.0%), marking the fifth consecutive week that this indicator is at or above threshold. Fourteen influenza-associated paediatric deaths were reported for a total of 55 this season, of which 20 were associated with influenza B, 12 with A/H3, 12 with pandemic H1N1 2009, and 11 with unsubtype influenza A. The proportion of outpatient visits for influenza-like illness (ILI) was 4.0%, which is above the national baseline of 2.5%. All 10 national regions reported ILI at or above region-specific baseline levels. Eighteen states experienced high ILI activity, and 6 states experienced moderate ILI activity. The geographic spread of influenza in 44 states was reported as widespread, and 5 states reported regional influenza activity. <http://www.cdc.gov/flu/weekly/index.htm>

United Kingdom

Influenza activity continues to decline in the UK and GP consultation rates are low. All influenza types are decreasing, influenza B and pandemic H1N1 2009 continue to be detected at reduced levels, with very few, sporadic influenza A/H3N2 virus detections. Since week 40, the HPA has antigenically characterized 264 pandemic H1N1 2009, six influenza A/H3N2 and 473 influenza B viruses. All the pandemic H1N1 2009 and A/H3N2 viruses characterised to date are similar to the A/California/07/2009 and A/Perth/16/2009 H3N2 vaccine strains, respectively. The majority of influenza B viruses characterized belong to the B-Victoria lineage, similar to the current vaccine strain B/Brisbane/60/2008. Fewer than seven per cent of the characterized influenza B viruses have been found to be from the B-Yamagata lineage. Of the 1,751 influenza isolates tested for antiviral susceptibility, 49 have been found to carry the H275Y mutation which confers resistance to the antiviral drug oseltamivir. There have been reports of secondary bacterial infections amongst influenza cases. Analysis of surveillance data has identified increases for a number of invasive bacterial pathogens, including Group A Streptococcus and invasive pneumococcal disease. A report was published in Eurosurveillance on 3 February 2011 (<http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19785>). http://www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1296682596600

Europe

Most European countries are reporting regional or widespread influenza activity, with medium influenza-like illness (ILI)/acute respiratory infection (ARI) consultation rates and widespread activity. Decreasing ILI/ARI trends were reported by the majority of countries. The proportion of influenza virus-positive sentinel specimens has gradually decreased to 36%, after peaking in week 52/2010 at around 56%. An increasing proportion of B viruses has been reported, with 42% of influenza virus detections were type B in week 08, and influenza B is reported to be dominant now in a number of countries. Since week 40/2010, 68.9% of influenza virus detections in sentinel and non-sentinel specimens were influenza A and 31.2% were influenza B viruses. Of subtyped influenza A viruses 97.9% were pandemic H1N1 2009 and 2.1% were A/H3. Among isolates characterised antigenically: 50.6% were A/California/7/2009 (H1N1)-like; 3.9% were A/Perth/16/2009 (H3N2)-like; 42.3% were B/Brisbane/60/2008-like (Victoria lineage); and 3.2% were B/Florida/4/2006-like (Yamagata lineage). Four percent (32/849) of pandemic H1N1 2009 viruses tested for susceptibility to neuraminidase inhibitors were resistant to oseltamivir, but remained sensitive to zanamivir. All the resistant viruses carried the neuraminidase H275Y substitution. Eight of 28 resistant viruses, from patients for whom exposure to antivirals was known, were from patients who had not been treated with oseltamivir. http://ecdc.europa.eu/en/publications/Publications/110304_SUR_Weekly_Influenza_Surveillance_Overview.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.