

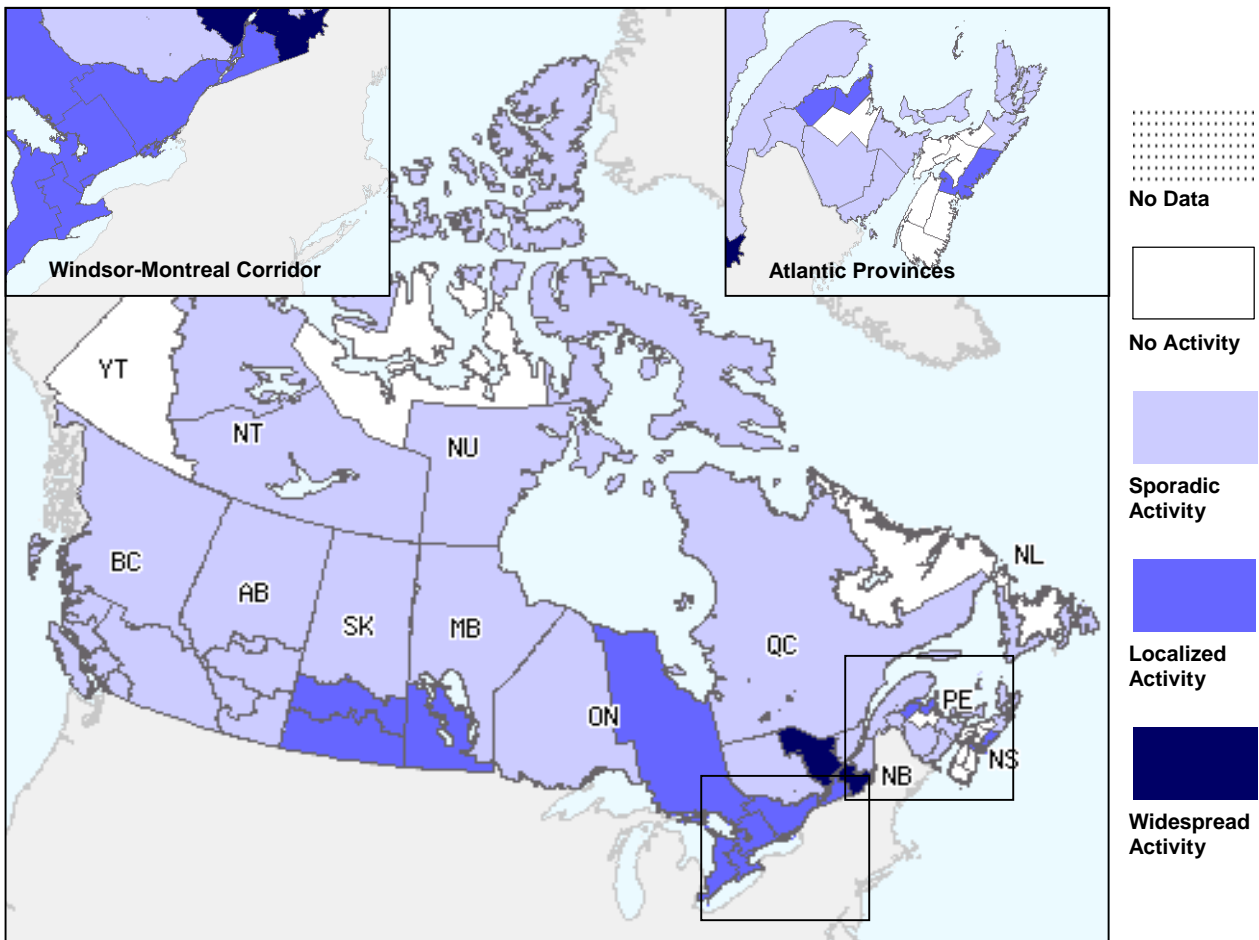
January 23 to January 29, 2011 (Week 04)

- Overall influenza detections appear to have peaked, with most regions across the country continuing to show a decline in the percentage of positive influenza detections, with the exception of the Atlantic provinces. Other indicators of influenza activity have either decreased or remained similar to the previous week.
- Since the beginning of the season, 88.9% of the subtyped positive influenza A specimens were influenza A/H3N2. In week 04, detections of pandemic H1N1 2009 decreased slightly as a proportion of subtyped influenza A specimens, while influenza B virus detections increased slightly. The proportion of positive tests for RSV continued to increase.

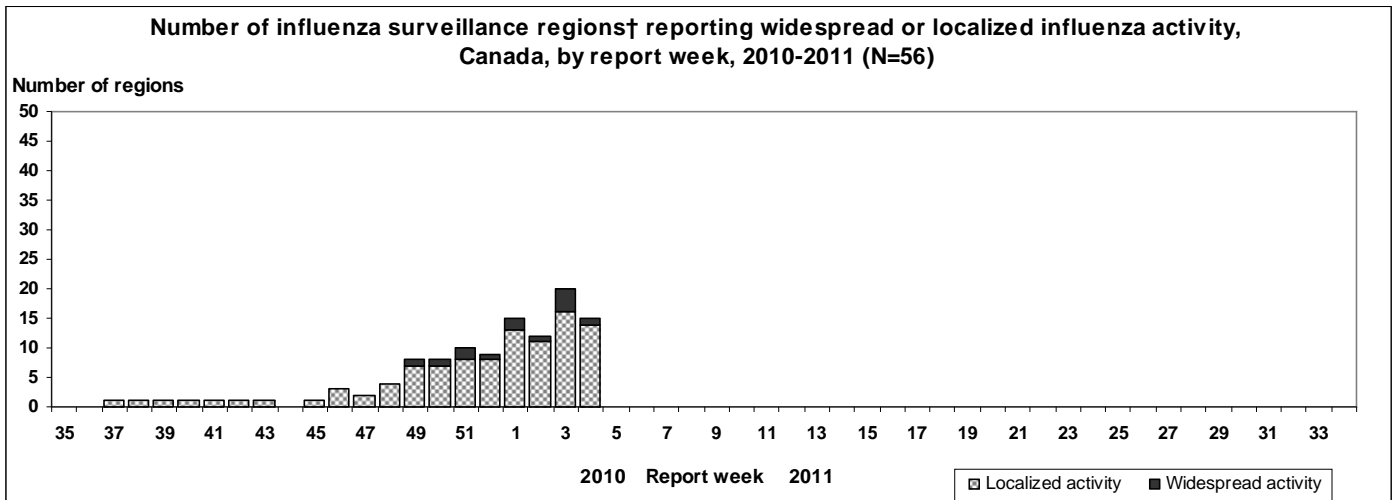
Overall Influenza Summary – Week 04 (January 23 to 29, 2011)

In week 04, one region in QC reported widespread influenza activity, 14 regions reported localized activity (in SK(2), MB(1), ON(6), QC(2), NS(1), & NB(2)), 30 regions reported sporadic activity (in all provinces and territories except YK) and 11 regions presented no activity. (See Activity level Map). Compared to the previous 2 weeks (weeks 02 & 03), 13 regions reported increased influenza activity, 5 regions reported decreased activity, and 24 regions maintained a stable level of influenza activity (sporadic or higher). During week 04, 28 new ILI/influenza outbreaks were reported: 18 in long-term care facilities (LTCF) in SK(1), MB(1), ON(5), QC(8), NB (1) and NS(2); and 10 school outbreaks in SK(1), NB(5) and NS(4).

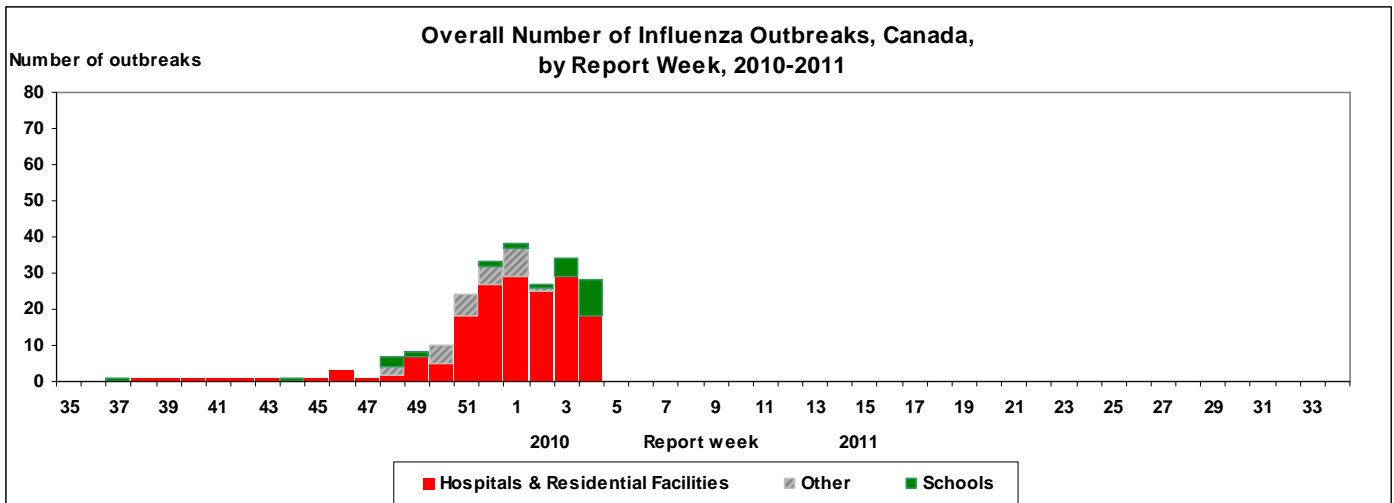
Map of overall Influenza activity level by province and territory, Canada, Week 04



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.



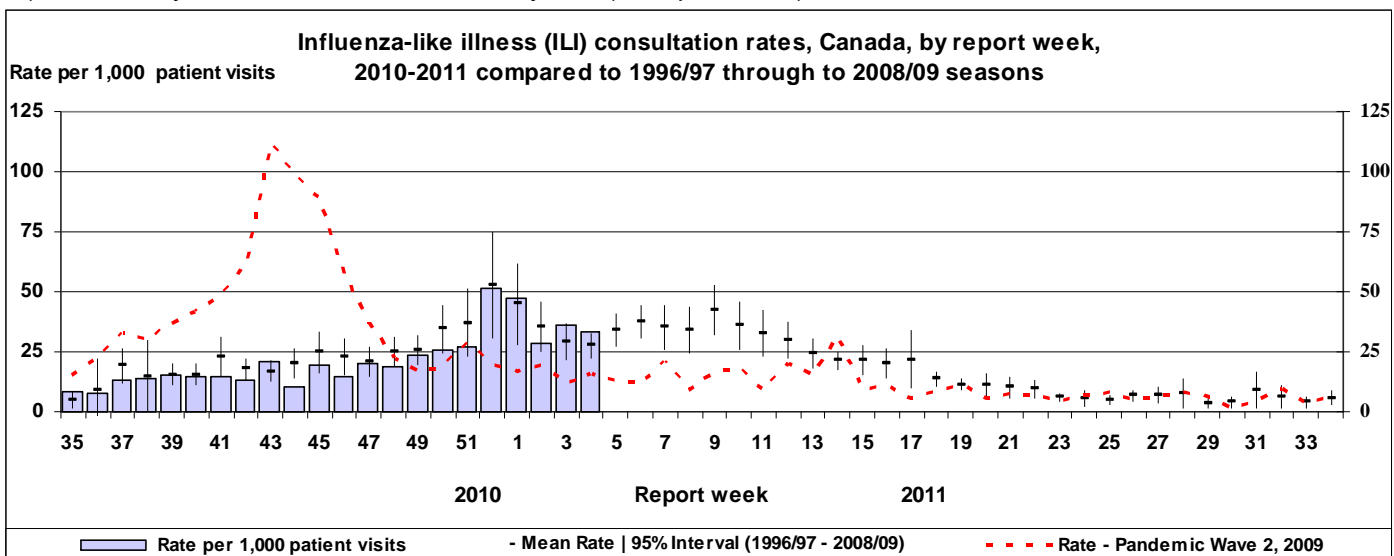
† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.



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 04, the national ILI consultation rate was 33.3 consultations per 1,000 patient visits, which is similar to week 03 with 36.1 consultations per 1,000. This rate is still within the expected levels for this time of year (see ILI graph). Children under 5 years of age had the highest consultation rates (97.1 per 1,000 consultations in week 04) followed by children between 5 and 19 years (47.6 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 04 was 17.7%. The proportion of positive tests increased from week 45 to 52, and now appears to have peaked. Of the 1155 positive tests reported during week 04, 380 specimens were reported as influenza A/H3N2, 55 as pandemic H1N1 2009 (BC, AB, SK, ON, QC, NB), 62 as influenza B (BC, AB, ON, QC & NB) and 658 as untyped influenza A. The majority of influenza virus detections to date this season were influenza A viruses (97.3% or 9250/9504). Since the beginning of the season, 88.9% of the subtyped positive influenza A specimens were influenza A/H3N2. In week 04, detections of pandemic H1N1 2009 represented 12.6% of all subtyped influenza A specimens, a slight decrease from 16.9% in week 03. Detections of influenza B increased slightly from 3.4% of all positive influenza specimens in week 03 to 5.4% in week 04. During week 04, 55.2% (79/143) of cases with A/H3N2 reported through the detailed case-based laboratory reporting were aged 65 years or older, while since August 29, 2010, the proportion was 50.4% (1252/2485) (see Tests detailed table). In week 04, the proportion of positive tests for respiratory syncytial virus detections (RSV) increased slightly from 12.5% to 15.0% of specimens tested while low levels of parainfluenza (1.9%) and adenovirus (1.6%) continue to be reported (see Respiratory viruses graph).

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

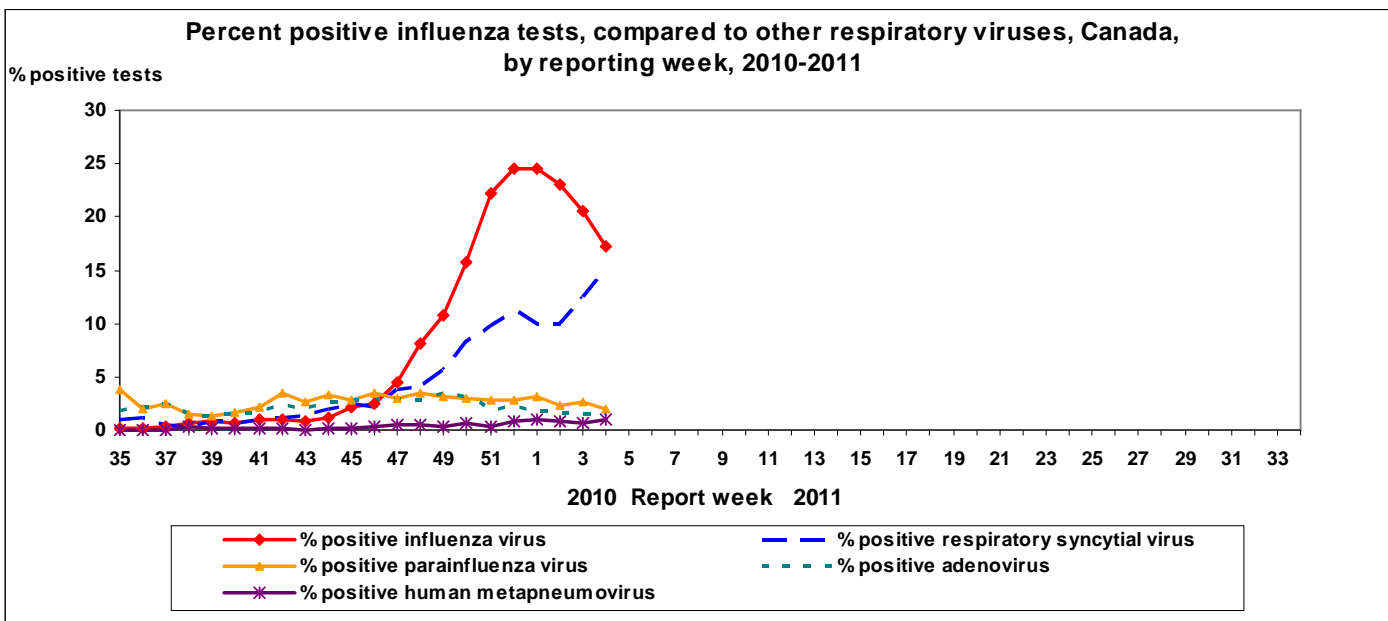
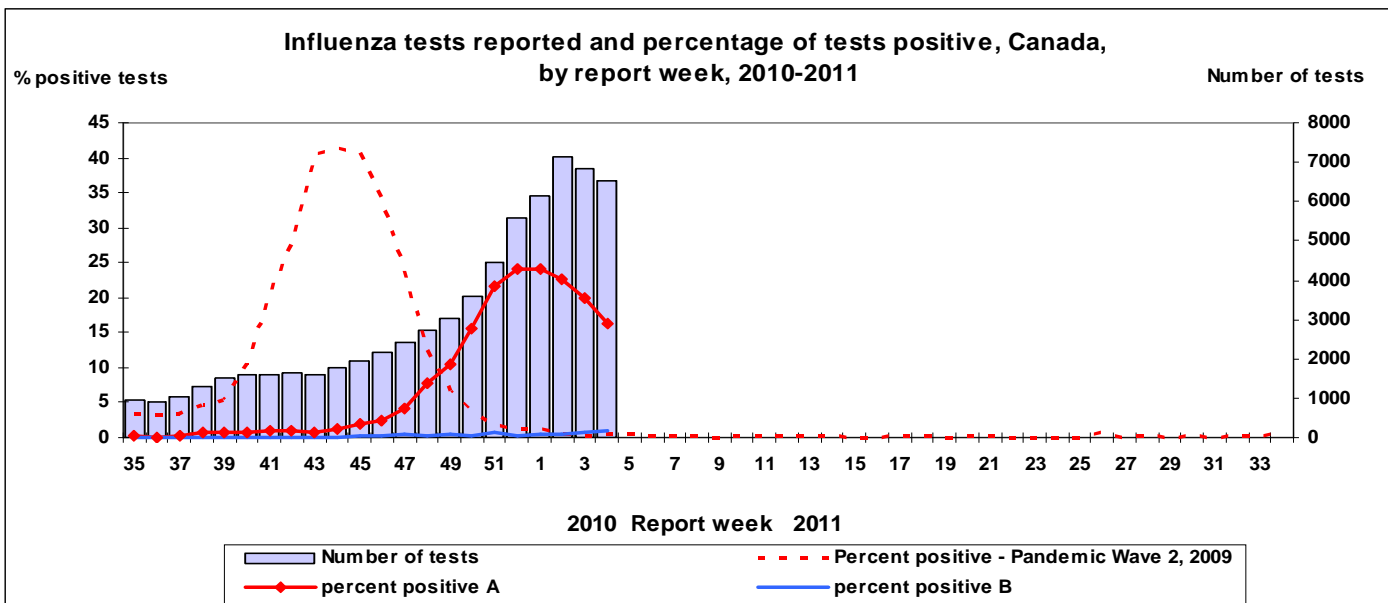
Reporting provinces	Weekly (January 23 to January 29, 2011)						Cumulative (August 29, 2010 to January 29, 2011)					
	Influenza A					B Total	Influenza A					B Total
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*		A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	
BC	21	0	6	9	6	8	140	0	50	40	50	21
AB	57	0	44	10	3	10	377	0	304	61	12	32
SK	35	0	33	1	1	0	70	0	40	1	29	6
MB	25	0	0	0	25	0	474	0	56	1	417	0
ON	440	0	138	20	282	26	4603	0	1831	196	2576	140
QC	457	0	122	2	333	17	3456	0	392	13	3051	53
NB	48	0	32	13	3	1	91	0	53	22	16	2
NS	7	0	2	0	5	0	16	0	6	1	9	0
PE	2	0	2	0	0	0	14	0	8	6	0	0
NL	1	0	1	0	0	0	9	0	8	1	0	0
Canada	1093	0	380	55	658	62	9250	0	2748	342	6160	254

*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 (Jan. 23 to Jan. 29, 2011)					Cumulative (Aug. 29, 2010 to Jan. 29, 2011)				
	Influenza A				B Total	Influenza A				B Total
	A Total	Pandemic H1N1	A/H3N2	A unsubtyped		A Total	Pandemic H1N1	A/H3N2	A unsubtyped	
<5	45	4	28	13	7	550	52	386	112	30
5-19	21	4	8	9	6	263	35	134	94	28
20-44	35	8	17	10	6	544	106	297	141	26
45-64	24	6	10	8	2	416	71	238	107	17
65+	123	2	79	42	4	1483	22	1252	209	23
Unknown	1	0	1	0	0	183	3	178	2	0
Total	249	24	143	82	25	3439	289	2485	665	124

*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 04 (ending 29 January, 2011), 24 new laboratory-confirmed influenza-associated paediatric (16 years of age and under) hospitalizations were reported through the Immunization Monitoring Program Active (IMPACT) network: 3 from MB, 9 from ON, 9 from QC, 2 from AB, and 1 from SK. This number is decreased compared to the previous week (week 03) in which 35 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. One, aged between 6 months and 23 months, who tested positive for pandemic H1N1 2009 was reported in ON in week 48, and one death in a child aged 10-16 years, who tested positive for influenza A (unsubtyped), was reported in ON in week 04.

Since the beginning of the season, 291 hospitalizations with laboratory-confirmed influenza have been reported from BC, AB, SK, MB, ON, QC & NL; 56 (19.2%) as influenza A/H3N2, 8 (2.8%) pandemic H1N1 2009, 208 (71.5%) as unsubtyped influenza A, and 19 (6.5%) influenza B. The distribution of cases to date by age group was as follows: 18.6% among 0-5 month olds; 28.9% among 6-23 month olds; 27.8% among the 2-4 year-olds; 16.2% among 5-9 year-olds; and 8.6% among children 10-16 years old.

Adult Influenza Hospitalizations and Deaths

During week 04 (week ending 29 January 2011) 26 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 decreased for the second week in a row, compared to 56 adult hospitalizations in week 03 and 86 in week 02 (note that numbers may fluctuate because of the delays in reporting). Of the 26 cases reported between January 23 and 29, 2011, 24 (92.3%) tested positive for unsubtyped influenza A, 1 (3.8%) as influenza A/H3N2, and 1 (3.8%) as pandemic H1N1 2009. Since the beginning of the season, 647 hospitalized cases have been reported: 167 (25.8%) A/H3N2, 26 (4.0%) pandemic

H1N1 2009, 444 (68.6%) influenza A untyped, and 10 (1.5%) influenza B, from all reporting provinces except NB and NL. To date, 462 of the 647 (71.4%) cases were aged 65 years or older and 280 (43.3%) were males.

Ten provinces and territories (excluding BC, QC and NB) currently conduct severe outcomes surveillance and report weekly numbers of hospitalizations, ICU admissions and deaths with laboratory-confirmed influenza. In week 04, ON reported 10 deaths, 2 with pandemic H1N1 2009, 5 with A/H3N2, and 3 with untyped influenza A (note that numbers may fluctuate because of the delays in reporting). Among the 84 fatal cases currently reported since the beginning of the influenza season, 5 deaths were reported from MB and 79 from ON; influenza A/H3N2 was identified in 63.1% (53/84), untyped influenza A in 29.8% (25/84), pandemic H1N1 2009 in 5 cases (6.0%), and influenza B in one case (1.2%). Seventy-six percent (64/84) of these fatal cases were among persons 65 years of age or older, and another 14% (12/84) were between the ages of 45 and 64 years old, in keeping with the age-groups usually affected by A/H3N2.

Antigenic Characterization

Between September 1 and February 3, 2011, the National Microbiology Laboratory (NML) has antigenically characterized 183 influenza viruses that were received from provincial laboratories: 121 A/H3N2 from BC, AB, SK, MB, ON, QC & NB, 34 pandemic H1N1 2009 from BC, AB, ON, QC & NB, and 28 B viruses from BC, AB, SK, ON, QC & NB. All 121 influenza A/H3N2 viruses characterized were antigenically related to A/Perth/6/2009, which is the influenza A/H3N2 component recommended for the 2010-11 influenza vaccine. The 34 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 28 influenza B viruses characterized, 27 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. One influenza B virus was characterized as B/Florida/04/2006-like, which belongs to the Yamagata lineage.

Antiviral Resistance

Since the beginning of the 2010-2011 season, NML has tested 208 influenza A isolates (174 H3N2 and 34 pandemic H1N1) for amantadine resistance and found that 173 influenza A/H3N2 were resistant to amantadine and one was sensitive. All 34 influenza A/H1N1 viruses were resistant to amantadine. Of 165 influenza viruses (107 H3N2, 32 H1N1, and 26 B) were tested for resistance to oseltamivir and 164 tested for zanamivir resistance. It was found that all isolates were sensitive to both antivirals.

International influenza update

Geographic update

Northern hemisphere

United States: During week 03 (January 16 to 22, 2011), influenza activity increased. Thirty percent (1754/5823) of specimens tested were positive for influenza, of which 79.4% were influenza A and 20.6% were influenza B. The proportion of deaths attributed to pneumonia and influenza (P&I) was below the epidemic threshold. Three influenza-associated paediatric deaths were reported, for a total of 13 this season. Two of the deaths reported in week 03 were associated with an influenza A/H3 virus and one was associated with an influenza B virus. The proportion of outpatient visits for influenza-like illness (ILI) was 3.6%, which is above the national baseline of 2.5%. Six of the 10 national regions reported ILI above region-specific baseline levels. Nine states experienced high ILI activity, 8 states experienced moderate ILI activity, mainly in southern and eastern states. The geographic spread of influenza in 25 states was reported as widespread, and 16 states reported regional influenza activity. <http://www.cdc.gov/flu/weekly/index.htm>

United Kingdom

Influenza activity continues to decline in the UK. GP consultation rates are below baseline levels in England, Wales and Scotland. All influenza types are reducing, with influenza B the predominant virus; influenza A H1N1 (2009) continues to circulate, with very few, sporadic influenza A (H3N2) virus detections. The virus strains circulating are overall well matched to the current influenza vaccine. Twenty-two percent of specimens from patients with ILI presenting to sentinel GPs in England in week 4 (ending 30 Jan 2011), were reported as positive for influenza. The proportion of samples positive for RSV and rhinovirus increased. Three respiratory disease outbreaks in week 4 bring the total reported this season so far to 168; 128 (76%) from schools, 15 from care homes, five from hospitals, one from a military base, one from a nursery and 18 from prisons. Since week 36, 395 UK deaths associated with influenza infection have been reported, with 92% of the 347 cases with available information associated with pandemic H1N1 2009 infection, seven with untyped influenza A and 20 (6%) with influenza B infection. Reported deaths have been mainly in middle-aged and younger adults. http://www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1296680593998

Europe

ILI and ARI consultation rates continue to rise, following a west-to-east progression across the European region. Many countries of western continental Europe are now reporting significant numbers of severe and fatal cases of influenza though intensive care units (ICU) have not yet been stressed to the degree seen in the United Kingdom. Influenza activity has already peaked in 3 countries in western Europe: Ireland, Spain and the UK (England). Of the samples tested from sentinel sites across Europe, 43% were positive for influenza, unchanged for the last two weeks. The dominant strain in Europe is pandemic H1N1 2009, with a few countries reporting co-circulation of influenza type B. Of the type A viruses subtyped, 95% were pandemic H1N1 2009 and 5% influenza A (H3N2). Pandemic H1N1 2009 appears to be over-

represented in severe cases compared to frequency with which it is detected in the community, as was observed in the UK. Severe cases and deaths continue to be mostly in persons in the 15–64 year age group with underlying health conditions.

http://ecdc.europa.eu/en/publications/Publications/110128_SUR_Weekly_Influenza_Surveillance_Overview.pdf

http://www.who.int/csr/disease/influenza/2011_01_28_GIP_surveillance/en/index.html

Other regions of the northern hemisphere

Influenza transmission in North Africa, the Middle East, Mongolia, northern China, the Republic of Korea, and Japan appears to have peaked and is now declining. H1N1 (2009) is the predominant virus in North Africa and the Middle East, with the exception of Algeria which has reported a predominance influenza type B in recent weeks. However, the proportion of influenza type B in Algeria is declining with increasing detections of H1N1 (2009). Mongolia and northern China reported a predominance influenza A (H3N2), which appears to have peaked around the third week of December at which time increasing numbers of H1N1 (2009) viruses began to be detected. The Republic of Korea, in contrast, experienced peak transmission coinciding with the peak in northern China, but over 90% of influenza viruses reported there were H1N1 (2009). Transmission in Japan began with a predominance of H3N2, with a peak that coincided with the rest of temperate Asia, but more recently H1N1 (2009) has become the predominant virus detected there, though overall levels of detection are declining. http://www.who.int/csr/disease/influenza/2011_01_28_GIP_surveillance/en/index.html

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.