

June 3 to June 16, 2012 (Weeks 23 & 24)

Overall Influenza Summary

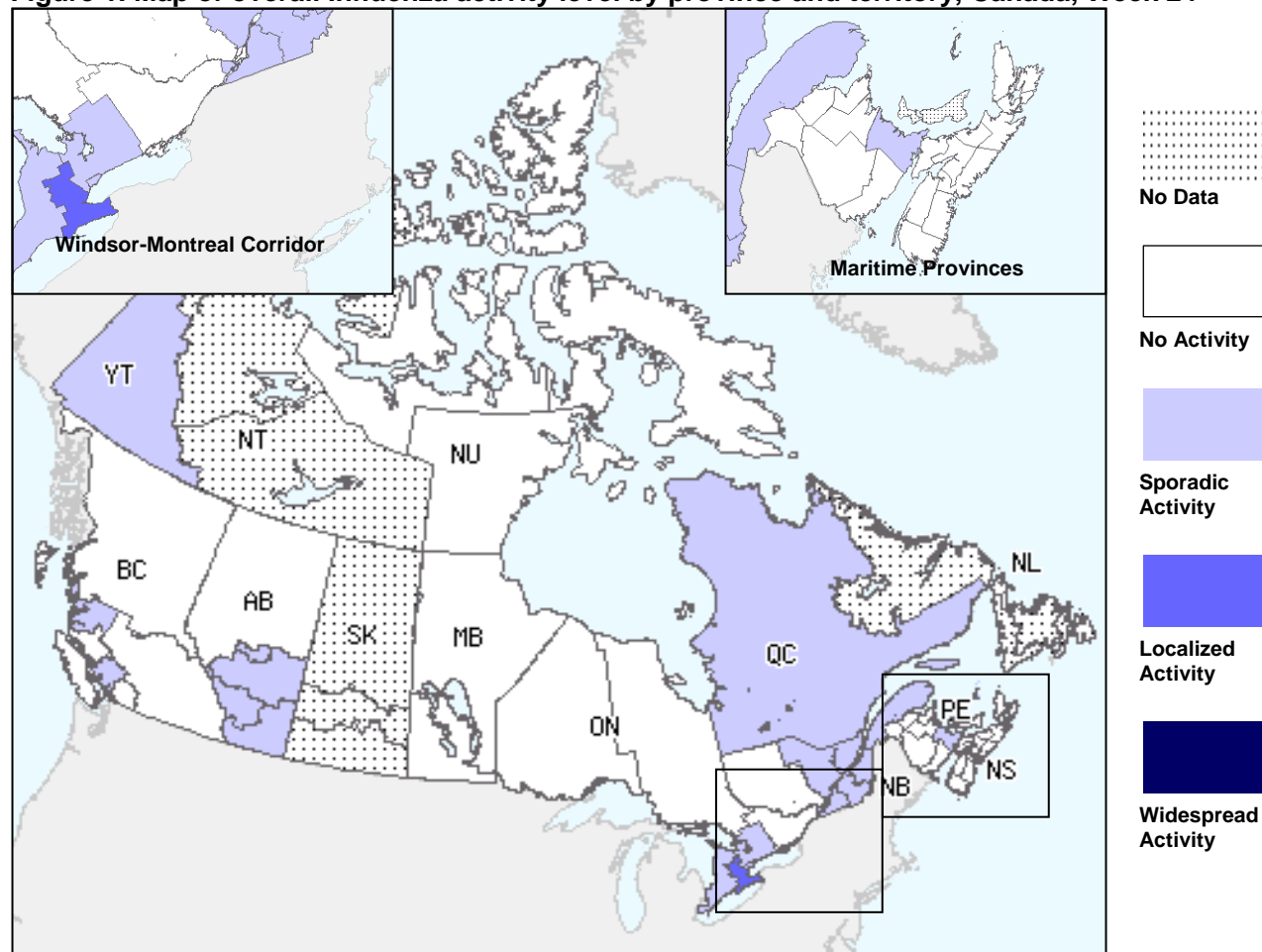
- Overall, influenza activity in Canada remains low and continues to decline. Reports of localized influenza activity were still reported in regions in Ontario in weeks 23 and 24.
- No outbreaks of influenza were reported over the 2-week period.
- In weeks 23 and 24, a total of 78 laboratory detections of influenza were reported of which 40% were for influenza A viruses (45.2% - A(H3); 16.1% - A(H1N1)pdm09; 38.7% - unsubtype) and 60% for influenza B viruses.
- Twenty influenza-associated hospitalizations were reported over the two-week period (4 paediatric through IMPACT surveillance and 16 adult through aggregate surveillance)
- The ILI consultation rates in weeks 23 and 24 were above expected levels for this time of year and are most likely due to circulation of other respiratory viruses than influenza.

NOTE: Bi-weekly reports will continue until October 12, 2012. However, laboratory detections reported through the RVDSS and influenza activity level maps will be updated weekly on the [FluWatch website](#).

Influenza Activity (geographic spread) and Outbreaks

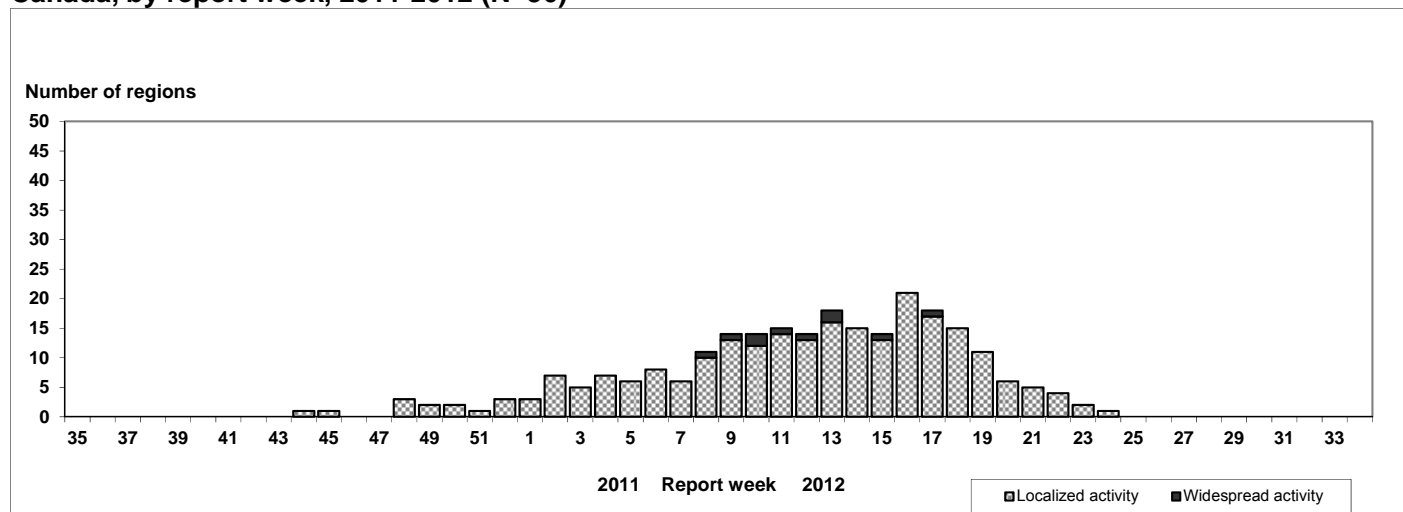
In week 23, 2 surveillance regions (within ON) reported localized activity and 18 regions (within BC, AB, ON, QC, NL, YT & NU) reported sporadic influenza activity. In week 24, 1 region (within ON) reported localized activity and 14 regions (within BC, AB, ON, QC, NB & YT) reported sporadic influenza activity (see Figure 1). Note that no data was received from SK, PEI, NL & NT for week 24. No new outbreaks of influenza or ILI were reported in weeks 23 and 24 (Figure 3).

Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 24



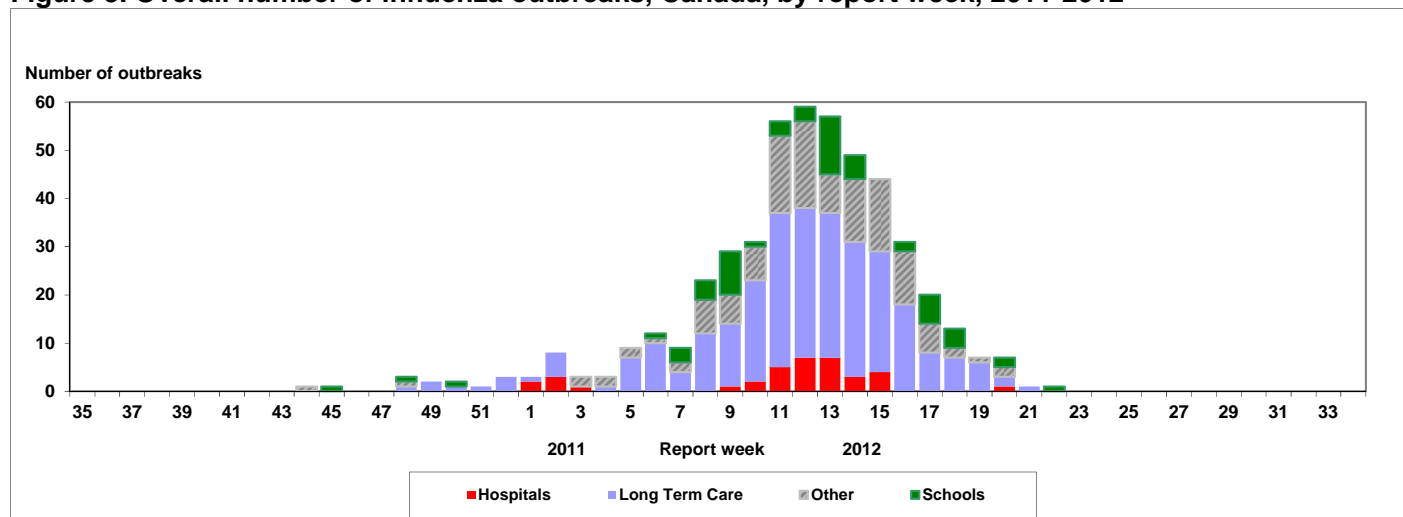
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2011-2012 (N=56)



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

Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2011-2012



Influenza and Other Respiratory Virus Detections

The proportion of positive influenza tests continued to decline and was 3.1% (48/1,571) in week 23 and 2.0% (30/1,526) in week 24 (Figure 4 & 5). The proportion of positive detections for influenza A and influenza B viruses over the two-week period was 2.0% and 3.0% respectively.

Cumulative to date of influenza virus detections by type/subtype is as follows: 46.4% influenza A (41.1% - A(H3); 18.9% - A(H1N1)pdm09; 40.0% - untyped) and 53.6% influenza B (Table 1).

Detailed information on age and type/subtype were received on 10,213 cases to date this season (Table 2). The proportions of cases by age group are as follows: 20.5% were < 5 years; 18.2% were between 5-19 years; 22.0% were between 20-44 years; 15.6% were between 45-64 years of age; 23.4% were ≥ 65 years; and 0.2% with age unknown. The largest proportion of influenza A cases were between 20-44 years of age (26%) and those ≥65 years of age (25%). The largest proportion of influenza B cases were in those under 20 years of age (46%) and those ≥65 years of age (22%).

The percentage positive for rhinovirus detections declined compared to the previous week (13.6% in week 24); the percentage positive for rhinoviruses remain the highest compared to the other respiratory viruses. The percentage positive for parainfluenza viruses has been increasing gradually since mid-April and remained at 5.8% since week 22. The percentage positive for the other respiratory viruses remained low in week 24 : RSV-2.9%; adenovirus-2.8%; hMPV-1.1%; and coronavirus-1.1% (Figure 5). For more details, see the weekly [Respiratory Virus Detections in Canada Report](#).

Table 1. Weekly & Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2011-2012

Reporting provinces	June 3 to June 16, 2012						Cumulative (August 28, 2011 to June 16, 2012)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*		A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	
BC	19	0	11	3	5	5	644	0	511	107	26	148
AB	3	0	1	1	1	20	1338	0	1024	259	55	299
SK	0	0	0	0	0	6	519	0	319	50	150	97
MB	1	0	0	1	0	0	75	0	12	9	54	244
ON	3	0	1	0	2	8	951	0	257	491	203	2757
QC	4	0	0	0	4	6	1851	0	73	97	1681	2248
NB	0	0	0	0	0	2	103	0	32	36	35	336
NS	0	0	0	0	0	0	16	0	11	1	4	93
PE	0	0	0	0	0	0	3	0	2	1	0	51
NL	1	0	1	0	0	0	118	0	68	10	40	212
Canada	31	0	14	5	12	47	5618	0	2309	1061	2248	6485

*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: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2011-2012*

Age groups	Weekly (June 3 to June 16, 2012)					Cumulative (Aug. 28, 2011 to June 16, 2012)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtyped		A Total	Pandemic H1N1	A/H3N2	A unsubtyped	
<5	1	0	1	0	3	992	234	345	413	1101
5-19	2	0	1	1	2	568	86	286	196	1293
20-44	2	0	0	2	3	1293	292	473	528	955
45-64	2	0	1	1	4	899	186	310	403	698
65+	1	0	0	1	1	1265	70	753	442	1125
Unknown	0	0	0	0	0	21	6	14	1	3
Total	8	0	3	5	13	5038	874	2181	1983	5175

*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. Delays in the reporting of data may cause data to change retrospectively.

Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2011-2012

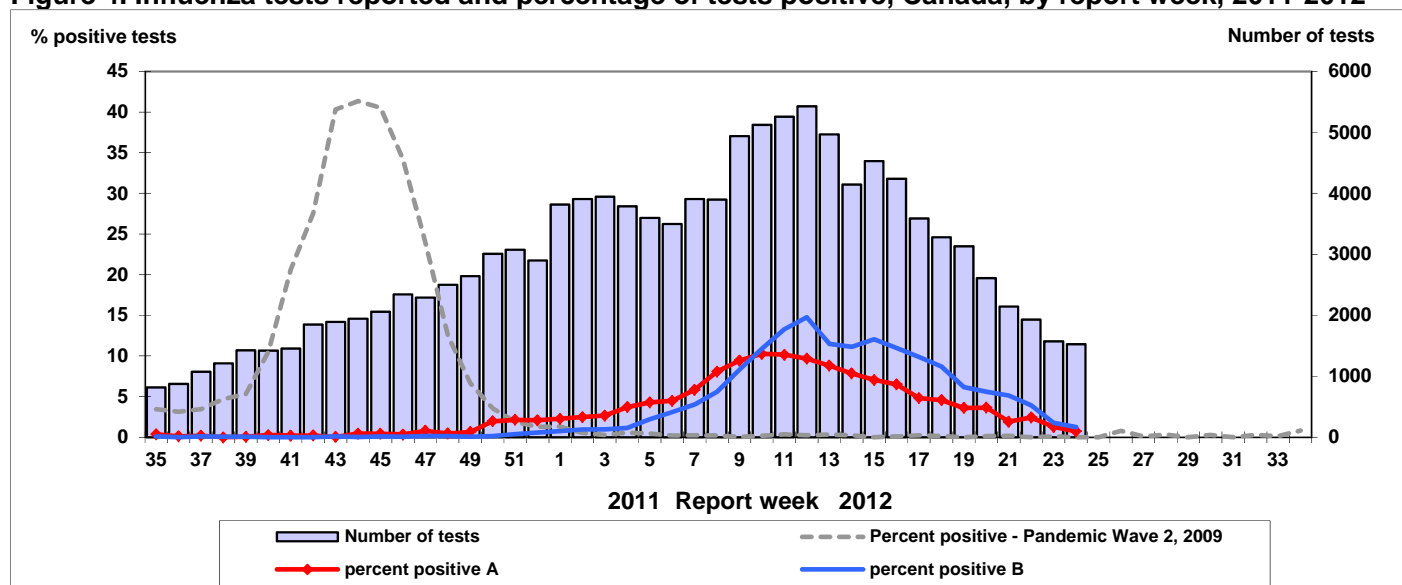
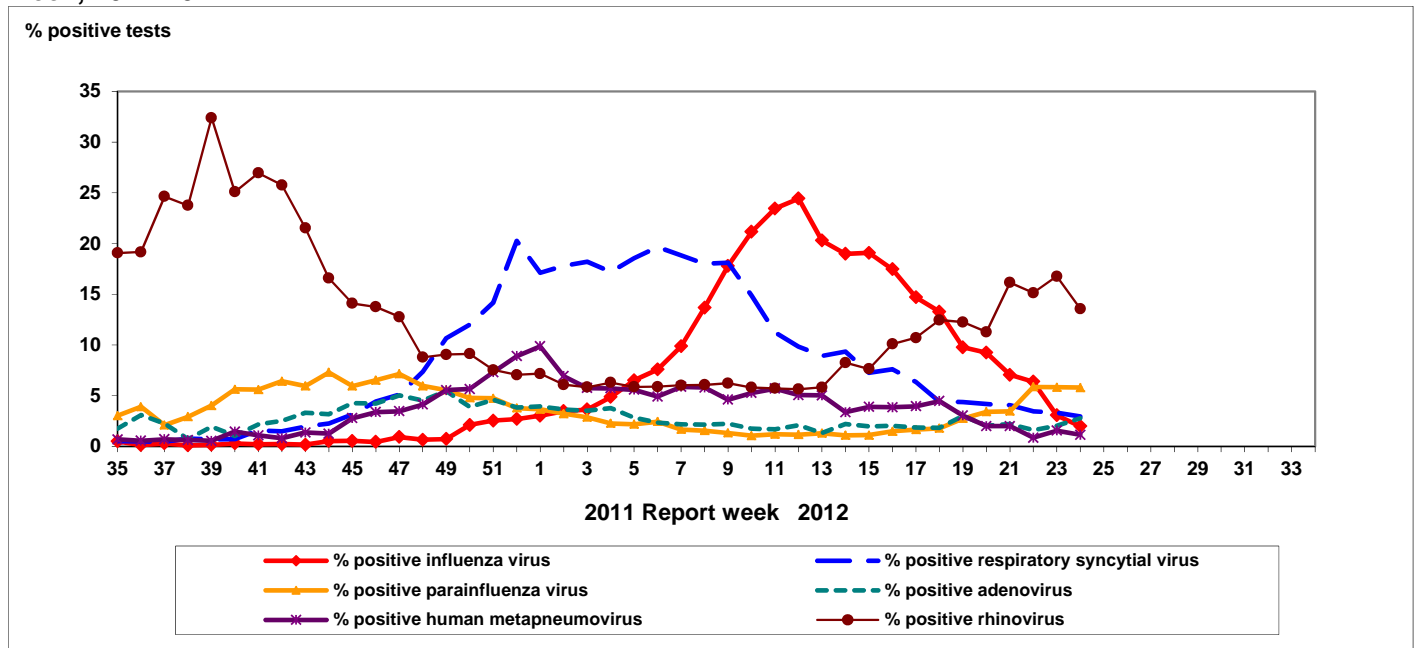


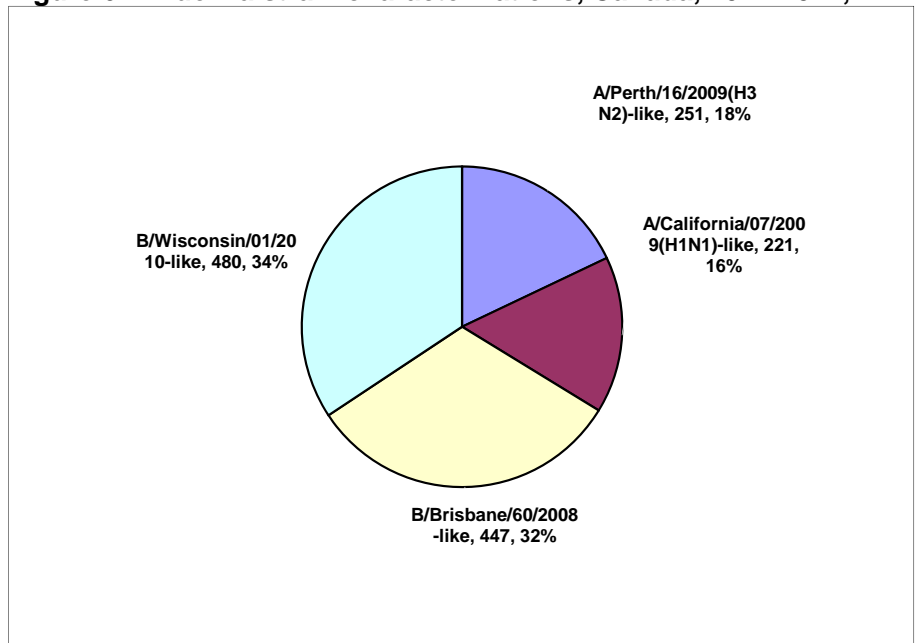
Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2011-2012



Influenza Strain Characterizations

Since the start of the season, the National Microbiology Laboratory (NML) has antigenically characterized 1,399 influenza viruses (251 A/H3N2, 221 A/H1N1 and 927 B). Of the 251 A/H3N2 viruses (from BC, AB, SK, MB, ON, QC, NB, NS, PEI & NT), 92.0% (231) were antigenically similar to A/Perth/16/2009 while 8.0% (20) viruses showed reduced titers with antiserum produced against A/Perth/16/2009. Of the 221 A/H1N1 viruses characterized (from BC, AB, SK, MB, ON, QC & NB), 97.7% (216) were antigenically similar to A/California/07/2009 and 2.3% (5) viruses tested showed reduced titer with antiserum produced against A/California/07/2009. Of the 927 influenza B viruses characterized, 48.2% (447) (from BC, AB, SK, MB, ON, QC, NB, NS & NL) were antigenically similar to the vaccine strain B/Brisbane/60/2008 (Victoria lineage); however 1 virus out of the 447 tested showed reduced titer with antiserum produced against B/Brisbane/60/2008. The remaining 51.8% (480) of the influenza B viruses (from BC, AB, SK, MB, ON, QC, NB, NS, NT & NU) are antigenically related to the reference virus B/Wisconsin/01/2010-like, which belongs to the Yamagata lineage. (Figure 6)

Figure 6. Influenza strain characterizations, Canada, 2011-2012, N = 1,399



Note: The recommended components for the 2011-2012 Northern Hemisphere influenza vaccine include: A/Perth/16/2009 (H3N2), A/California/7/2009 (H1N1) and B/Brisbane/60/2008.

Antiviral Resistance

Since the beginning of the season, NML has tested 1,433 influenza viruses for resistance to oseltamivir (by phenotypic assay and/or sequencing) and 1,431 for zanamivir (by phenotypic assay) and it was found that all viruses tested were susceptible to oseltamivir and zanamivir. A total of 778 influenza A viruses (426 H3N2 and 352 H1N1) were tested for amantadine resistance; all but 1 influenza A(H3N2) virus tested were resistant. (Table 3)

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2011-2012

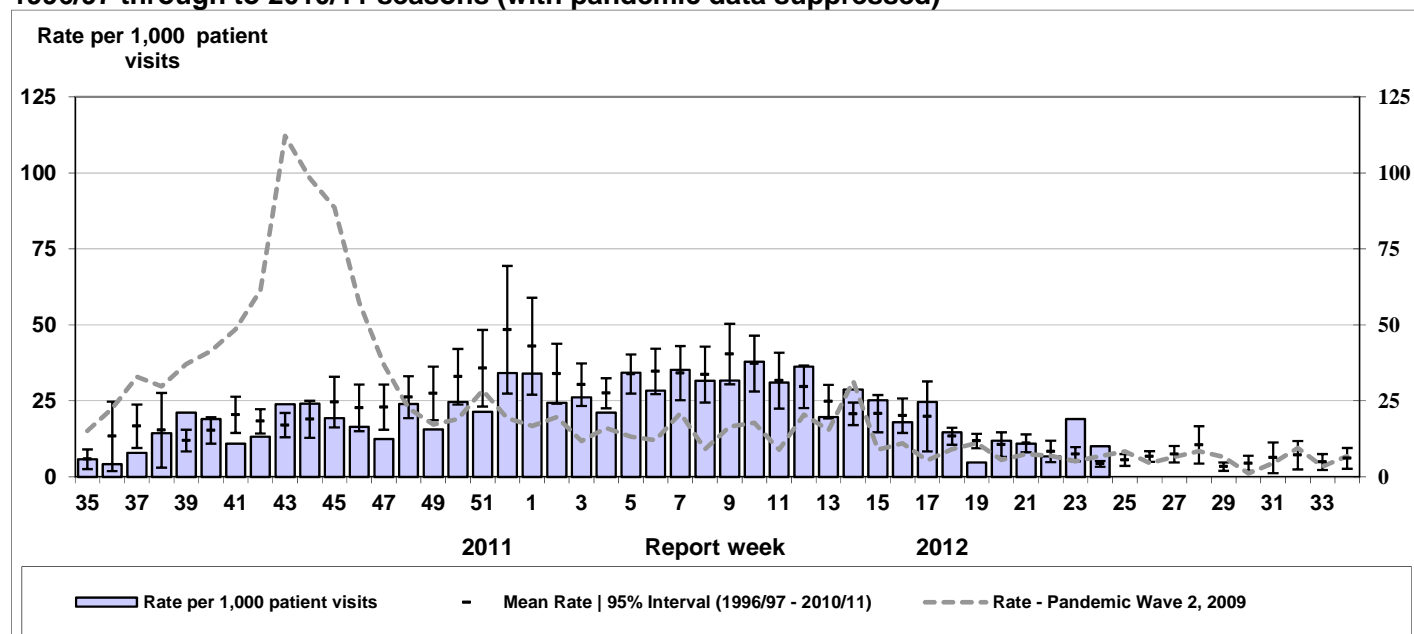
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	248	0	246	0	426	425 (99.8%)
A (H1N1)	256	0	256	0	352	352 (100%)
B	929	0	929	0	NA*	NA*
TOTAL	1433	0	1431	0	778	777 (99.9%)

* NA – not applicable

Influenza-like Illness (ILI) Consultation Rate

The national ILI consultation rate increased in week 23 to 19.0 ILI consultations per 1,000 patient visits, with the highest rates reported in ON and YT. The ILI rate declined in week 24 to 10.0/1,000 visits, with the highest ILI rates reported in MB, NB, YT & ON. In both weeks, the ILI consultation rate was higher than the expected level for this time of year and is most likely due to the higher circulation of other respiratory viruses (i.e. rhinoviruses and parainfluenza viruses) than influenza viruses. The highest consultation rates by age group was observed in those between 5 to 19 years old in week 23 and 24 (41.4/1,000 and 15.4/1,000 visits respectively) and in those between 20 to 64 years old (10.8/1,000 visits) in week 24.

Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2011-2012 compared to 1996/97 through to 2010/11 seasons (with pandemic data suppressed)



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.

Severe Respiratory Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths (IMPACT)

In weeks 23 and 24, a total of 4 (2 in each week) new laboratory-confirmed influenza-associated paediatric (16 years of age and under) hospitalizations were reported through the Immunization Monitoring Program Active (IMPACT)

network. Two hospitalizations were due to influenza A (unsubtyped) (in BC & ON) and 2 were due to influenza B (in BC & AB). A retrospective paediatric death associated with influenza A infection was reported in week 24 but occurred in week 09; the death was in a child between 6-23 months of age with pre-existing co-morbidities.

To date this season, 587 influenza-associated paediatric hospitalizations have been reported through IMPACT (from BC, AB, SK, MB, ON, QC, NS & NL); 42.1% (247) were due to influenza A and 57.9% (340) were due to influenza B. The proportion of cases by age group is as follows: 14.5% among infants <6 months of age; 20.4% among children 6-23 months of age; 29.8% were between 2-4 years; 24.9% were between 5-9 years; and 10.4% were between 10-16 years. To date this season, 6 influenza-associated paediatric deaths have been reported through the IMPACT network; 83% (5) were associated with influenza B infection.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated paediatric hospitalizations in Canada; therefore, the number of hospitalizations included in this report may differ from those reported by other Provincial and Territorial Health Authorities.

Influenza Hospitalizations and Deaths (Aggregate Surveillance System)

In weeks 23 and 24, a total of 24 (24 in week 23 and 0 in week 24) new laboratory-confirmed influenza-associated hospitalizations were reported of which 33.3% (8) were in those < 20 years of age and 66.7% (16) in those ≥ 20 years of age; 16.7% were due to influenza A and 83.3% due to influenza B. The hospitalizations were reported from AB (6), ON (17), and YT (1). Of the 24 hospitalizations, 3 required admission to ICU and were associated with influenza B (in AB). In week 23, 4 influenza-associated deaths were reported (ON); 3 were associated with influenza B and 1 with influenza A unsubtyped infection and all were ≥ 45 years of age.

To date this season, 1,804 influenza-associated hospitalizations have been reported from 7 provinces (AB, SK, MB, ON, NS, PE & NL) and 2 territories (YT & NT); 39.2% (708) were in those < 20 years of age, 60.7% (1,095) in those ≥ 20 years of age, and 0.1% (1) of unknown age. The largest proportion of cases was observed in those ≥ 65 years of age (33.4%). Influenza B (57.1%) continues to be the predominant influenza type among hospitalized cases compared to influenza A; of the influenza A hospitalizations where subtype was available, influenza A(H3N2) predominated (60.6%). There have been 77 hospitalizations requiring ICU admission reported (from AB, SK, MB, NS & NL) of which 28.6% were in those < 20 years of age and 71.4% were in those ≥ 20 years of age. To date this season, 98 influenza-associated deaths have been reported (from AB, SK, MB, ON & NS) of which 1.1% were of unknown age, 7.1% were among those < 20 years of age and 91.8% in those ≥ 20 years of age. Of the adult deaths, 81.1% were in those ≥ 65 years of age.

Note: Some of the hospitalizations and deaths reported in those ≤ 16 years of age may also have been reported in the IMPACT summary above if the hospitalization or death occurred in one of the 12 IMPACT hospitals. The reason for hospitalization or cause of death does not have to be attributable to influenza in order to be reported. Influenza-associated hospitalizations are not reported to PHAC by the following Provinces: BC, & QC. Only hospitalizations that require intensive medical care are reported by SK. ICU admissions are not reported in ON.

International Influenza Updates

WHO: No new updates have been reported by the WHO since June 8, 2012. [World Health Organization influenza update](#)

United States: The proportion of tests positive for influenza viruses declined compared to the previous week and was 9.7% in week 23. Of the positive influenza detections reported between May 20 to June 9, 2012, the majority (61%) were positive for influenza B viruses. Of the influenza A viruses for which subtype information was available, the large majority (78%) were influenza A(H3) viruses. All other indicators of influenza activity remained low. [Centers for Disease Control and Prevention seasonal influenza report](#)

Europe: Influenza activity is at out-of-season levels throughout the European Region. In week 24, only 1.0% (1/98) of the samples collected from sentinel sources was positive for influenza virus; from non-sentinel sources, only 39 samples were influenza-positive, indicating low influenza activity in the Region. Consultation rates for influenza-like illness (ILI) and acute respiratory infection (ARI) are now at low levels in all countries in the Region. [EuroFlu weekly electronic bulletin](#)

Human Avian Influenza Updates

No new cases of human avian influenza A/H5N1 infection were reported by the WHO since June 7, 2012. [WHO Avian influenza situation updates](#)

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 2011-2012 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 2011-2012 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 2011-2012 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.