

January 20 to 26, 2013 (Week 04)

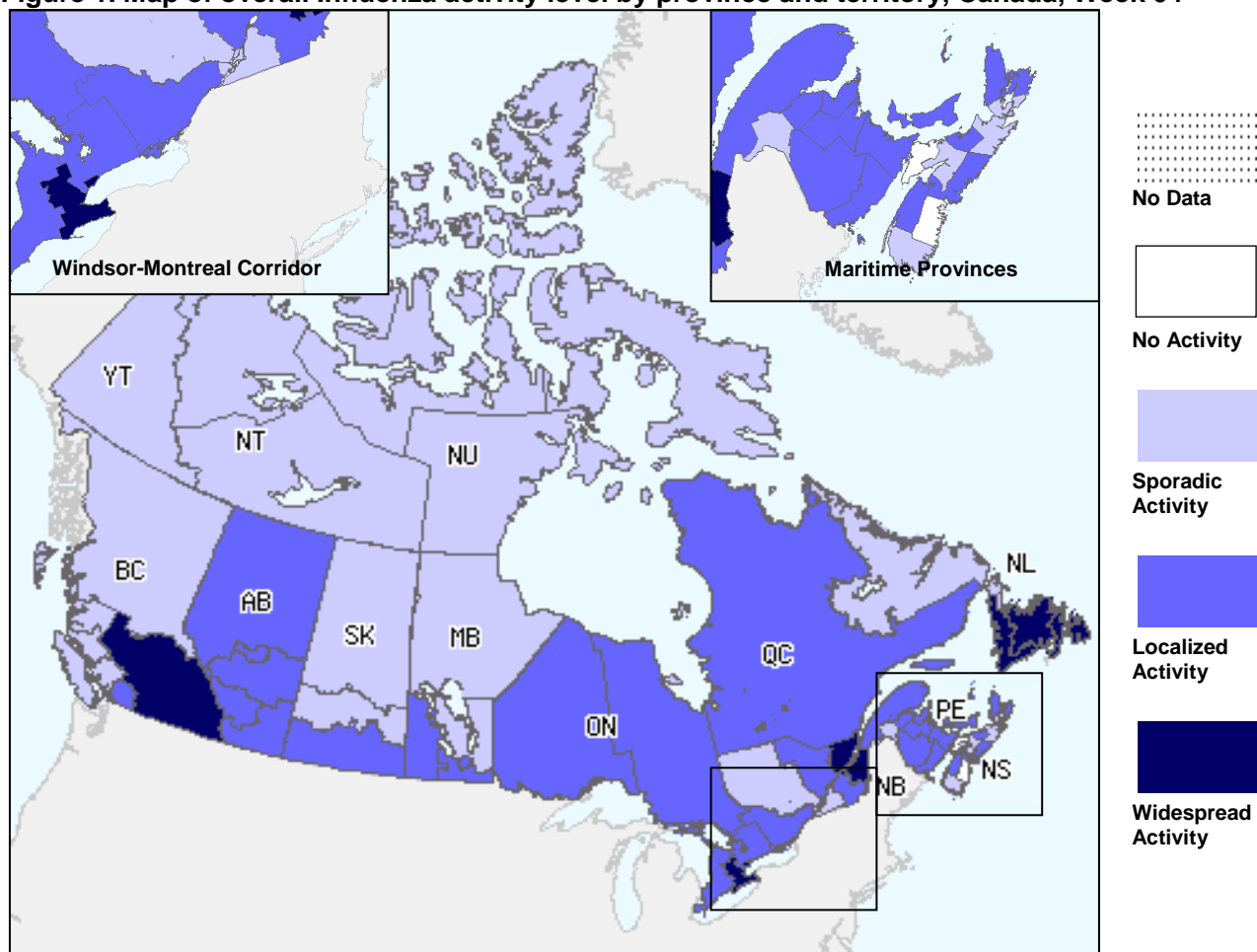
## Overall Influenza Summary

- In week 04, several indicators of influenza activity decreased: the percentage of positive laboratory tests for influenza, the ILI consultation rate, the proportion of antiviral prescriptions, and the number of adult and paediatric influenza-associated hospitalizations reported by the PCIRN-SOS and IMPACT networks.
- Many regions across Canada continue to report widespread and localized influenza activity and 104 new influenza outbreaks were reported.
- The ILI consultation rate decreased but continues to be above the expected range for this time of year.

## Influenza Activity (geographic spread) and Outbreaks

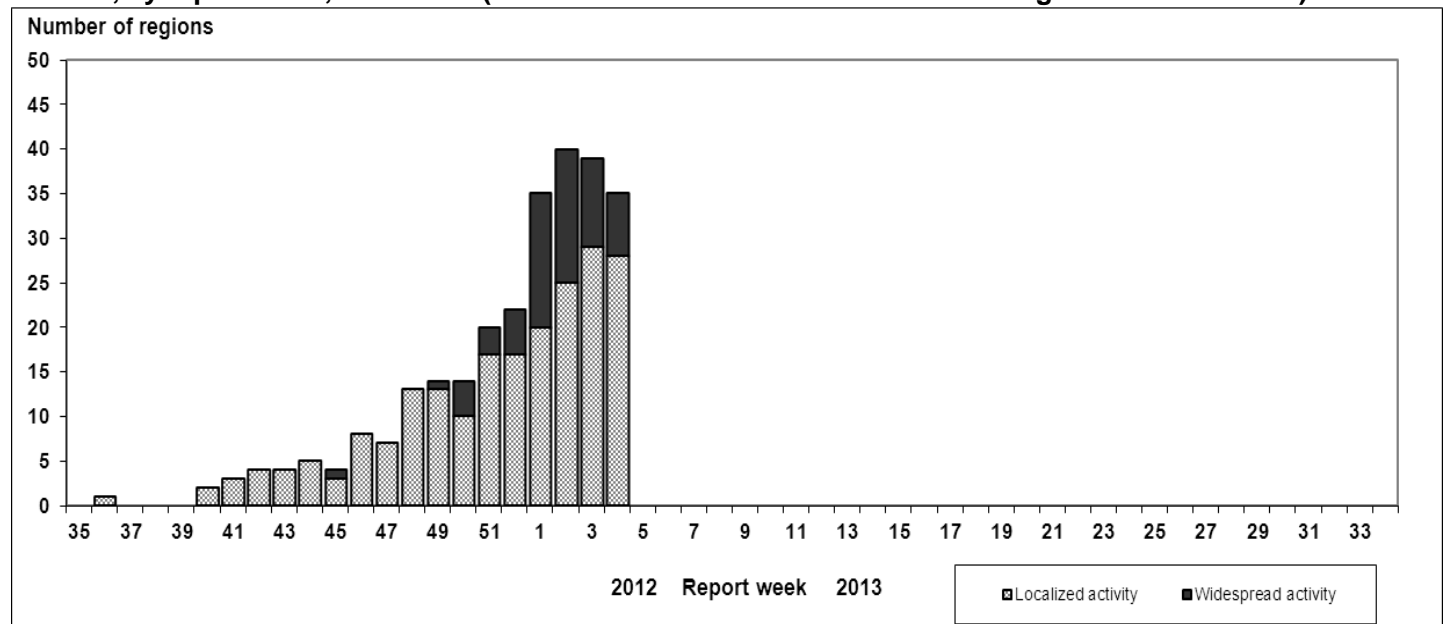
In week 04, 7 regions [in BC(1), ON(2), QC(1) and NL(3)] reported widespread activity and 28 regions [in BC(1), AB(5), SK(1), MB(3), ON(5), QC(2), NB(6), NS(4), and PE(1)] reported localized activity (Figures 1 and 2). In week 04, 104 new influenza outbreaks were reported: 31 in long-term-care facilities, 6 in hospitals, 45 in schools, and 22 in other facilities or communities (Figure 3). The greater proportion of school outbreaks in week 04 may reflect the increasing circulation of influenza in regions where school surveillance is in place.

**Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 04**



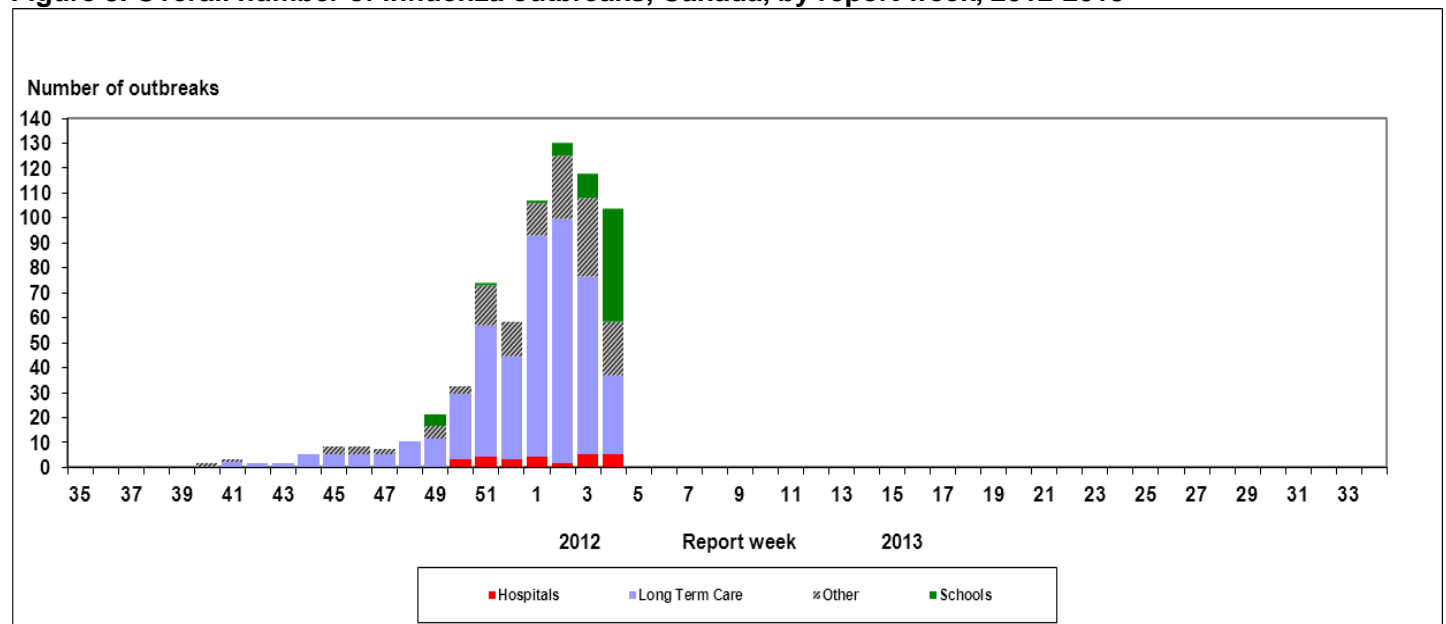
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas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

**Figure 2. Number of influenza surveillance regions<sup>†</sup> reporting widespread or localized influenza activity, Canada, by report week, 2012-2013 (Total number of influenza surveillance regions in Canada=58)**



<sup>†</sup> 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, 2012-2013**



## Influenza and Other Respiratory Virus Detections

The percentage of positive influenza tests decreased from 26.5% in week 03 to 22.3% in week 04 (Figure 4). Among the influenza viruses detected in week 04 (n=1919), 96.5% were positive for influenza A viruses [of which 29.9% were A(H3), 4.1% were A(H1N1)pdm09, and 66.0% were A(untsubtyped)]; and 3.5% were positive for influenza B (Table 1). Cumulative influenza virus detections by type/subtype to date are as follows: 97.5% influenza A [35.5% A(H3), 2.2% A(H1N1)pdm09 and 62.3% A(untsubtyped)] and 2.5% influenza B (Table 1).

Detailed information on age and type/subtype was received for 17,164 cases to date this season (Table 2). The proportions of cases by age group were as follows: 12.8% were < 5 years; 7.3% were between 5-19 years; 15.0% were between 20-44 years; 16.3% were between 45-64 years of age; 48.5% were ≥ 65 years.

The percentage of tests positive for RSV increased from 12.0% in week 03 to 13.7% in week 04. The percentage of tests positive for rhinovirus (4.8%) and coronavirus (5.4%) were stable compared to the previous week. Other percentages of positive tests remained low in week 04: parainfluenza 2.3%; adenovirus 0.8%; hMPV 1.4% (Figure 5). For more details, see the weekly [Respiratory Virus Detections in Canada Report](#).

**Table 1. Weekly and Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2012-2013**

Reporting provinces	Weekly (January 20 to January 26, 2013)						Cumulative (August 26, 2012 to January 26, 2013)					
	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	292	0	144	16	132	23	1005	0	820	51	134	85
AB	138	0	69	34	35	14	1976	0	1632	206	138	128
SK	56	0	39	0	17	4	662	0	438	5	219	42
MB	69	0	11	1	57	5	432	0	72	2	358	29
ON	604	0	185	24	395	15	6803	0	3332	155	3316	112
QC	360	0	23	0	337	7	8847	0	527	16	8304	141
NB	236	0	46	0	190	0	720	0	428	15	277	2
NS	32	0	24	0	8	0	69	0	24	0	45	2
PE	14	0	13	1	0	0	51	0	37	2	12	1
NL	50	0	0	0	50	0	440	0	152	0	288	1
<b>Canada</b>	<b>1851</b>	<b>0</b>	<b>554</b>	<b>76</b>	<b>1221</b>	<b>68</b>	<b>21005</b>	<b>0</b>	<b>7462</b>	<b>452</b>	<b>13091</b>	<b>543</b>

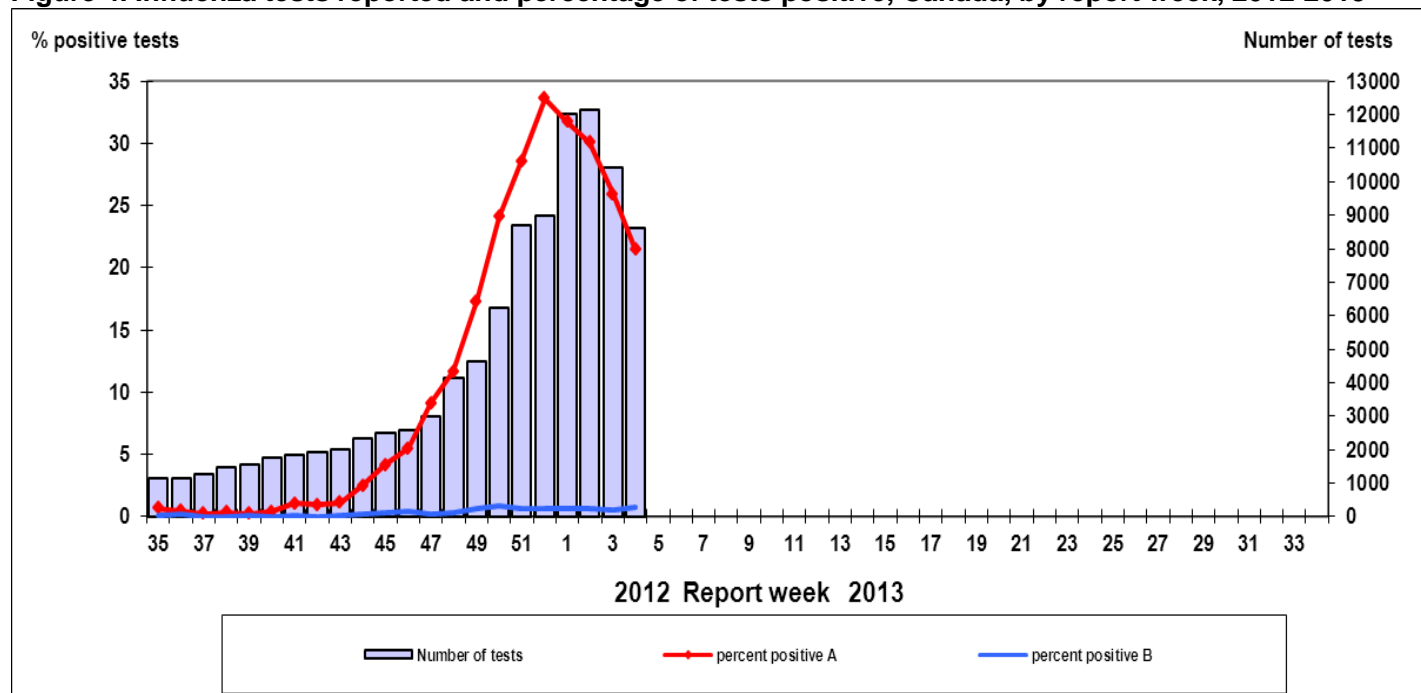
\*Unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to 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, 2012-2013\***

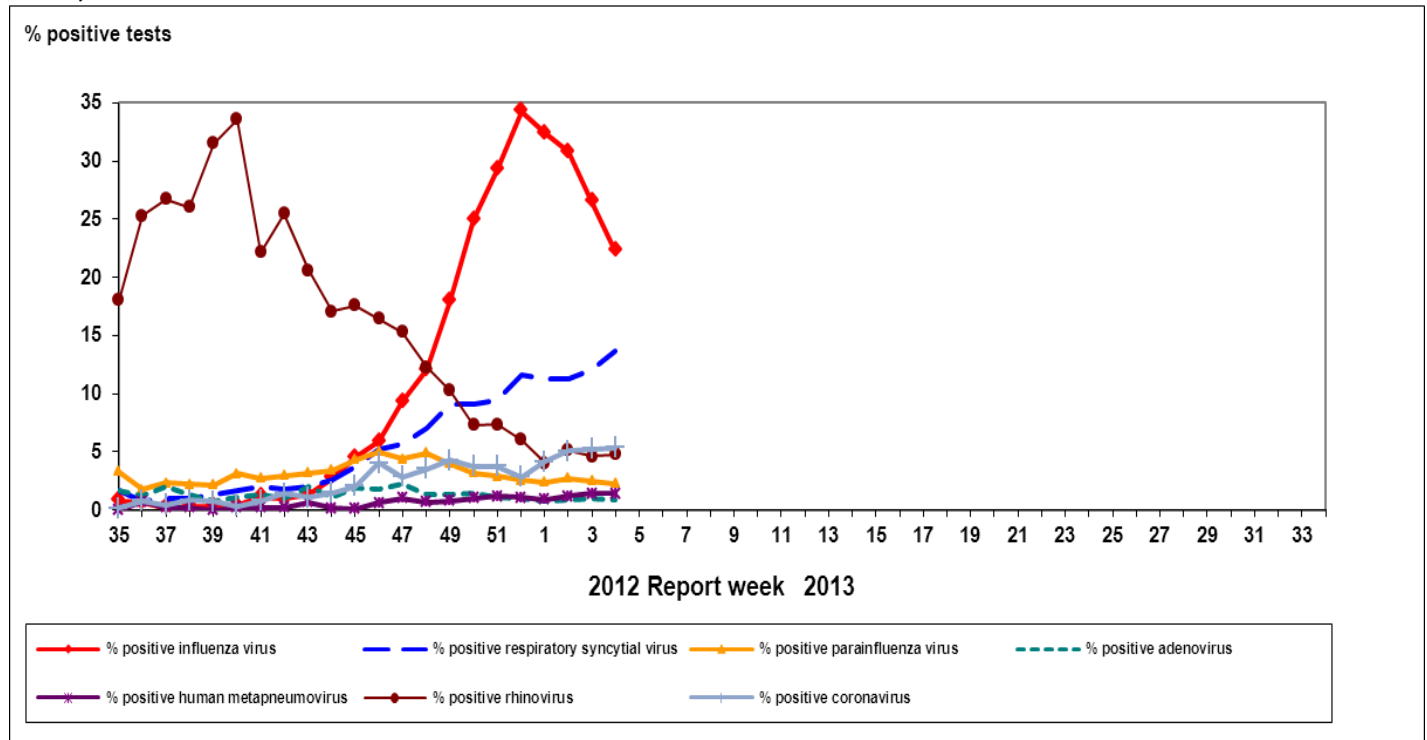
Age groups	Weekly (January 20 to January 26, 2013)					Cumulative (Aug. 26, 2012 to January 26, 2013)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtype	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtype	Total
<5	108	10	24	74	5	2110	89	722	1299	94
5-19	80	3	15	62	15	1152	26	515	611	97
20-44	135	10	33	92	12	2494	117	1002	1375	86
45-64	140	15	25	100	4	2740	114	986	1640	64
65+	306	2	86	218	4	8230	47	3064	5119	97
Unknown	7	0	6	1	0	135	6	126	3	0
<b>Total</b>	<b>776</b>	<b>40</b>	<b>189</b>	<b>547</b>	<b>40</b>	<b>16861</b>	<b>399</b>	<b>6415</b>	<b>10047</b>	<b>438</b>

\*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, 2012-2013**



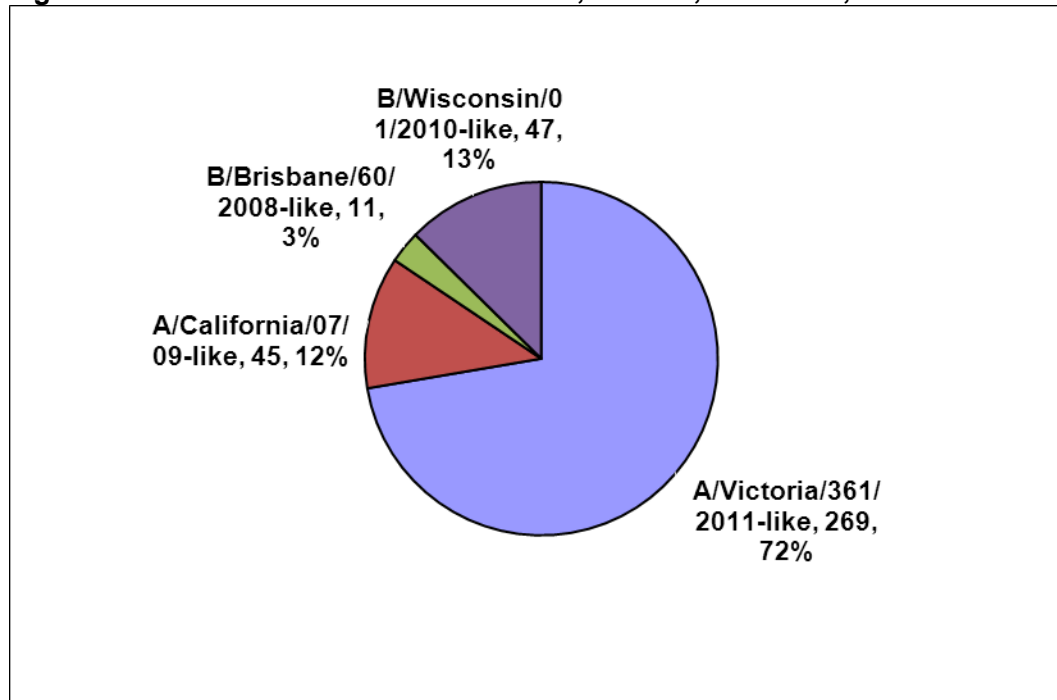
**Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2012-2013**



## Influenza Strain Characterizations

During the 2012-13 season, the National Microbiology Laboratory (NML) has antigenically characterized 372 influenza viruses [269 A(H3N2), 45 A(H1N1)pdm09, and 58 influenza B]. The 269 influenza A(H3N2) viruses were antigenically similar to the vaccine strain A/Victoria/361/2011 and the 45 A(H1N1)pdm09 viruses were antigenically similar to the vaccine strain A/California/07/09. Among the influenza B viruses, 47 were antigenically similar to the vaccine strain B/Wisconsin/01/2010 (Yamagata lineage) and 11 were similar to B/Brisbane/60/2008 (Victoria lineage; component of the 2011-2012 seasonal influenza vaccine) (Figure 6).

**Figure 6. Influenza strain characterizations, Canada, 2012-2013, N = 372**



Note: The recommended components for the 2012-2013 Northern Hemisphere influenza vaccine include: an A/Victoria/361/2011 (H3N2)-like virus; an A/California/7/2009 (H1N1)pdm09-like virus; and a B/Wisconsin/1/2010-like virus.

## Antiviral Resistance

During the 2012-13 season, NML has tested 329 influenza viruses for resistance to oseltamivir, and 328 influenza viruses for resistance to zanamivir. All viruses tested were sensitive to oseltamivir and zanamivir. A total of 479 influenza A viruses were tested for amantadine resistance and all were resistant (Table 3).

**Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2012-2013**

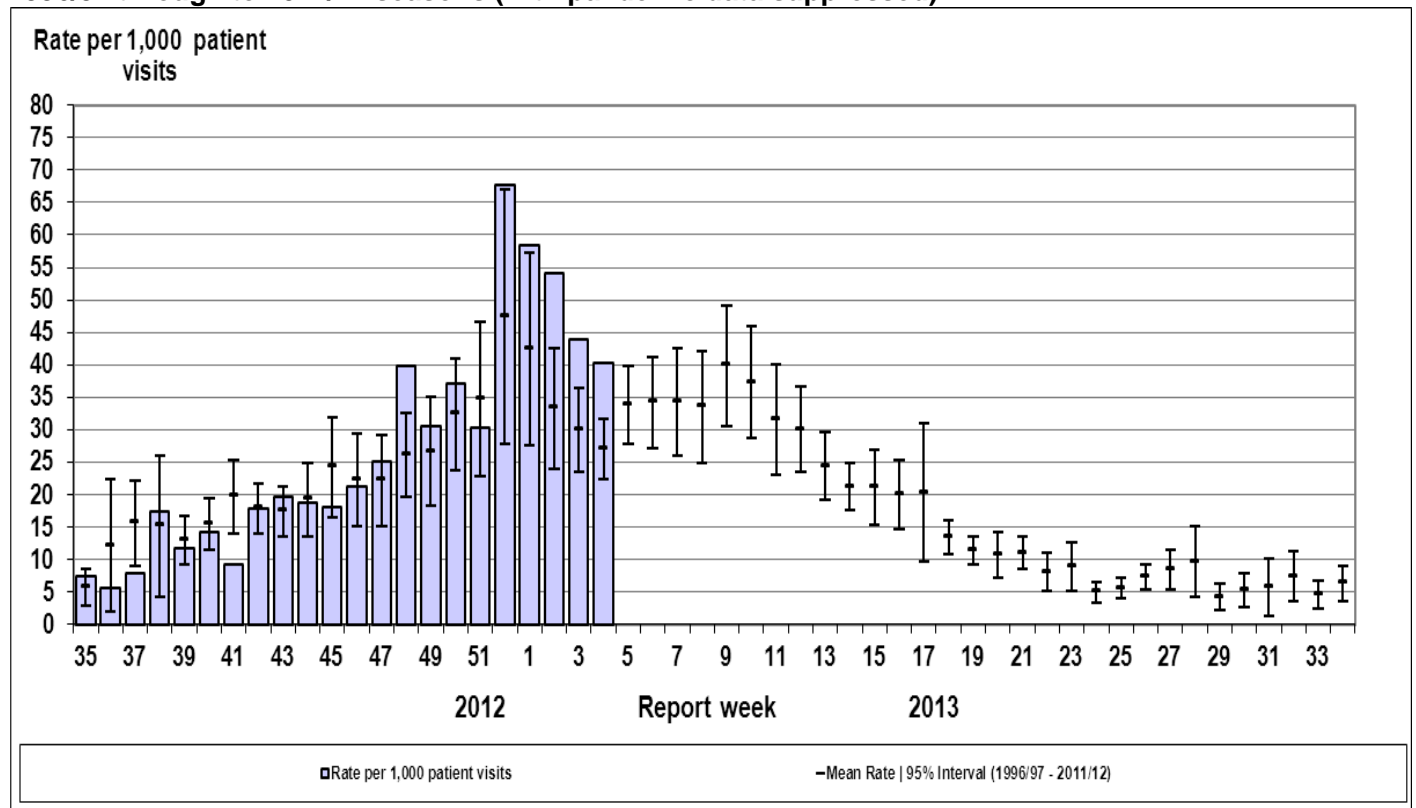
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
<b>A (H3N2)</b>	241	0	241	0	437	437 (100%)
<b>A (H1N1)</b>	40	0	39	0	42	42
<b>B</b>	48	0	48	0	NA*	NA*
<b>TOTAL</b>	329	0	328	0	479	479 (100%)

\* NA – not applicable

## Influenza-like Illness Consultation Rate

The national influenza-like-illness (ILI) consultation rate decreased from 43.8 ILI consultations per 1,000 patient visits in week 03 to 40.3 in week 04. This rate is above the expected level for this time of year (between 22.4 and 31.7 ILI consultations per 1,000 visits) (Figure 7). The elevated ILI consultation rate relative to the expected range for this time of year may be due to the unusually early influenza season, as well as continued circulation of influenza and RSV across Canada. In week 04, the highest consultation rates were observed in children 5-19 years of age (64.6/1,000) followed by children <5 years of age (58.1/1,000).

**Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2012-2013 compared to 1996/97 through to 2011/12 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.

## Pharmacy Surveillance

The Canadian antiviral prescription rate decreased from 294.7 antiviral prescriptions per 100,000 new prescriptions dispensed in week 03 to 214.1 in week 04. In week 04, the antiviral prescription rate decreased for all age groups. The highest rate continued to be observed for seniors  $\geq 65$  years of age, at 436.7/100,000. The current proportion of antiviral prescriptions of 214.1/100,000 is higher than the rate observed during the peak period of influenza activity last year (50-100/100,000). Since week 01, the proportion of antiviral prescriptions has followed the downward trend in the percentage of positive laboratory tests for influenza.

Note: Pharmacy sales data are provided to the Public Health Agency of Canada by Rx Canada Inc. and sourced from major retail drug chains representing over 3,000 stores nationwide (excluding Nunavut) in 85% of Health Regions. Data provided include the number of new antiviral prescriptions (for Tamiflu and Relenza) and the total number of new prescriptions dispensed by Province/Territory and age group.

## Severe Respiratory Illness Surveillance

### Paediatric Influenza Hospitalizations and Deaths (IMPACT)

In week 04, 30 new laboratory-confirmed influenza-associated paediatric ( $\leq 16$  years of age) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network, compared to 52 in week 03. Among the 29 cases identified with influenza A, 26 (89.7%) were A(unsubtyped), 2 (6.9%) were A(H3N2) and 1 (3.4%) were A(H1N1)pdm09. One case was identified with influenza B. The age distribution is as follows: 4 cases (13.3%) under 6 months of age, 9 (30.0%) between 6-23 months, 5 (16.7%) 2-4 years of age, 8 (26.7%) 5-9 years of age, and 4 (13.3%) 10-16 years of age. Two ICU admissions were reported during this week, one case 6-23 months of age and one case 5-9 years of age.

Since the start of the 2012-13 season, a total of 490 influenza-associated paediatric hospitalizations have been reported by the IMPACT network: 472 (96.3%) with influenza A [of which 62 (13.1%) were A(H3N2), 8 (1.7%) were A(H1N1)pdm09 and 402 (85.2%) were A(unsubtyped)], and 18 (3.7%) with influenza B. The distribution of cases by age group is as follows: 104 (21.2%)  $< 6$  months of age; 117 (23.9%) age 6-23 months; 144 (29.4%) age 2-4 years; 83 (16.9%) age 5-9 years; and 42 (8.6%) age 10-16 years. Forty-two of the 490 cases (8.6%) were admitted to the ICU. No deaths have been reported to date.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated paediatric hospitalizations in Canada.

### Adult Influenza Hospitalizations and Deaths (PCIRN)

In week 04, 44 new laboratory-confirmed influenza-associated adult ( $\geq 16$  years of age) hospitalizations were reported by the PHAC/CIHR Influenza Research Network (PCIRN) Serious Outcomes Surveillance (SOS) network, compared to 57 in week 03. The age distribution is as follows: 23 cases (52.3%) were  $\geq 65$  years of age, 12 cases (27.3%) were 45-64 years of age, and 9 cases (20.5%) were 20-44 years of age. Among the 41 cases identified with influenza A, one was A(H3N2), and the rest were A(unsubtyped). Two cases were identified with influenza B, and in one case the influenza type has yet to be reported. Five ICU admissions were reported during the current week. Four had influenza A(unsubtyped), and the fifth had influenza B. Three of the ICU admissions were individuals  $\geq 65$  years of age, one was 45-64 years of age, and one was 20-44 years of age. One death was reported with influenza A(unsubtyped) in an individual  $\geq 65$  years of age.

From November 4, 2012 to January 26, 2013, a total of 685 influenza-associated adult hospitalizations were reported by the PCIRN-SOS network: 647 (94.5%) with influenza A [of which 57 (8.8%) were A(H3N2), 4 (0.6%) were A(H1N1)pdm09, and 586 (90.6%) were A(unsubtyped)]; 14 (2.0%) with influenza B, and the type has not been reported for 24 (3.5%) cases. Among the 683 cases with available data, the distribution of cases by age group is as follows: 465 cases (68.1%) were aged  $\geq 65$  years, 144 cases (21.1%) were aged 45-64 years, 71 cases (10.4%) were aged 20-44 years, and 3 cases (0.4%) were  $< 20$  years of age. Fifty-nine of the 685 cases (8.6%) were admitted to the ICU. Among the 57 cases with available data: 34 (59.6%) were in adults  $\geq 65$  years of age, 16 (28.1%) were 45-64 years of age, and 7 (12.3%) were 20-44 years of age. Of the 59 ICU admissions, 15 cases (25.4%) had at least one co-morbidity, 2 (3.4%) had no co-morbidities, and 42 (71.2%) had no available information to date. A total of 34 deaths have been reported, 3 (8.8%) with influenza A(H3N2), and the remaining 31 (91.2%) with influenza A(unsubtyped). Thirty of the 34 deaths (88.2%) were in adults  $\geq 65$  years of age, three (8.8%) were 45-64 years of age, and one (2.9%) was 20-44 years of age. Nine deaths occurred in individuals who had at least one co-morbidity. Detailed clinical information on comorbidities is not known for the remaining 25 cases.

Note: The number of hospitalizations reported through PCIRN represents a subset of all influenza-associated adult hospitalizations in Canada.

### Provincial/Territorial Influenza Hospitalizations and Deaths (Aggregate Surveillance System)

The number of laboratory confirmed influenza associated hospitalizations declined in week 04 to 472 (from 583 in week 03)\*. The majority of cases were influenza A (97.7%), predominately A(H3). More than half of the cases (62.1%, 293/472) were  $\geq 65$  years of age. Of the 104 cases with available data, 12 (11.5%) were admitted to the Intensive Care



Unit (ICU). Thirty-four deaths were reported in week 04: 30 (88.2%) were persons ≥65 years of age; 2 (5.9%) were adults 45-64 years of age and 2 (5.9%) were adults 20-44 years of age. It is important to note that the cause of death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting. Detailed clinical information (e.g. underlying medical conditions) is not known for these cases.

To date this season, 2732 influenza-associated hospitalizations have been reported. Of these, 97.7% (2671/2732) have been influenza A, predominately A(H3) [95.0% (1228/1293) of subtyped influenza A]; and 2.2% have been influenza B. More than half (58.1%) of the 2730 cases with available age were ≥65 years of age; 16.5% were 45-64 years; 8.5% were 20-44 years; 1.1% were 15-19 years; 2.9% were children aged 5-14 years and 12.9% were children 0-4 years of age. Among the 625 cases with available data, there have been 66 hospitalisations for which admission to ICU was required; the highest proportions were among adults ≥65 years of age (37.9%), and between 45 and 64 years of age (33.3%). To date this season, 182 deaths have been reported: 83.5% were persons ≥65 years of age, 11.0% were adults 45-64 years; 3.3% were adults 20-44 years and 2.2% were children 0-4 years of age. It is important to note that the cause of death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting. Detailed clinical information (e.g. underlying medical conditions) is not known for these cases.

Note: \* The number of new influenza-associated hospitalizations and deaths reported by the Aggregate Surveillance System each week may be overestimated, as it may include retrospective updates to data from Ontario for previous weeks. These data may also include cases reported by the IMPACT and PCIRN networks. Influenza-associated hospitalizations are not reported to PHAC by the following Provinces and Territory: BC, NU, QC, NS, and NB. Only hospitalizations that require intensive medical care are reported by Saskatchewan. ICU admissions are not reported in Ontario.

## International Influenza Updates

**WHO:** No new influenza surveillance update has been published since 18 January 2013.

[World Health Organization influenza update](#)

**United States:** During week 04, influenza activity remained high in the United States, but decreased in some areas. Forty-two states reported widespread influenza activity, 7 states reported regional influenza activity, and the District of Columbia and one state reported local activity. The national percentage of outpatient visits for ILI was 4.2% which is above the national baseline of 2.2%. All 10 regions reported ILI above region-specific baseline levels, and 24 states and New York City experienced high ILI activity in week 04. During week 04, the percentage of deaths due to pneumonia and influenza was 9.4%, which is above the epidemic threshold of 7.4%. The proportion of tests positive for influenza viruses declined to 25.5% in week 04. Of the positive influenza detections, 79.3% were positive for influenza A viruses. Of the 1107 influenza A viruses for which subtype information was available, 95.1% were A(H3) and 4.9% were A(H1N1)pdm09. Since October 1, 2012, the CDC has antigenically characterized 920 influenza viruses. Among influenza A viruses, 556 were A/Victoria/361/2011-like, two (0.4%) of which showed reduced titers; and 66 were A/California/7/2009-like. Among influenza B viruses, 211 (70.8%) were B/Wisconsin/01/2010-like belong to the Yamagata lineage of viruses; and 87 (29.2%) to the B/Victoria lineage. One oseltamivir-resistant A(H1N1)pdm09 virus has been reported to date this season. Among the 7,224 influenza-associated hospitalizations reported to date this season, 87.1% were associated with influenza A of which 98.0% were A(H3N2), and more than 50% were among adults ≥65 years. Forty-five influenza-associated paediatric deaths have been reported to date this season, 27 with influenza A and 18 with influenza B.

[Centers for Disease Control and Prevention seasonal influenza report](#)

**Europe:** Influenza activity continues to move from west to east across the region, with countries in the west potentially having reached their peak activity. Consultation rates for ILI and ARI are increasing across the region, with 49% of specimens from sentinel clinics positive for influenza. There is continued co-circulation of A(H1N1)pdm09, A(H3N2) and influenza B, but A(H1N1)pdm09 is the predominant strain, accounting for 81% of subtyped influenza A in week 04. This is similar to the distribution of subtypes observed during the 2010-11 season, but different from 2011-12 when A(H3N2) was predominant. Since week 40, 20,029 specimens of influenza viruses have been typed: 69% were influenza A and 31% were influenza B. Among the 9163 influenza A viruses for which subtype information was available, 70% were A(H1N1)pdm09 and 30% were A(H3N2). Among 999 characterized influenza B viruses, 90% belonged to the Yamagata lineage, and 10% to the Victoria lineage. The number of hospitalizations due to severe acute respiratory illness (SARI) is increasing slowly, in keeping with the rising influenza activity in the region. The majority of cases reported have been in children 0-4 years of age.

[EuroFlu weekly electronic bulletin](#)

## Human Avian and Swine Influenza Updates

### Human Avian Influenza

As of February 1, 2013, the WHO reports 5 new human cases of avian influenza, including 4 deaths, in Cambodia.

[WHO Influenza at the human-animal interface](#)

### Human Swine Influenza

No new human cases of infection with swine influenza viruses or variants were reported in week 04.

[Centers for Disease Control and Prevention seasonal influenza report](#)

**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 2012-2013 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 2012-2013 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.

**Workplace:** Greater than 10% absenteeism on any day which is most likely due to ILI.

**Other settings:** two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

#### **Influenza Activity Levels Definition for the 2012-2013 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.