FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

July 14 to 27, 2013 (Weeks 29 & 30)

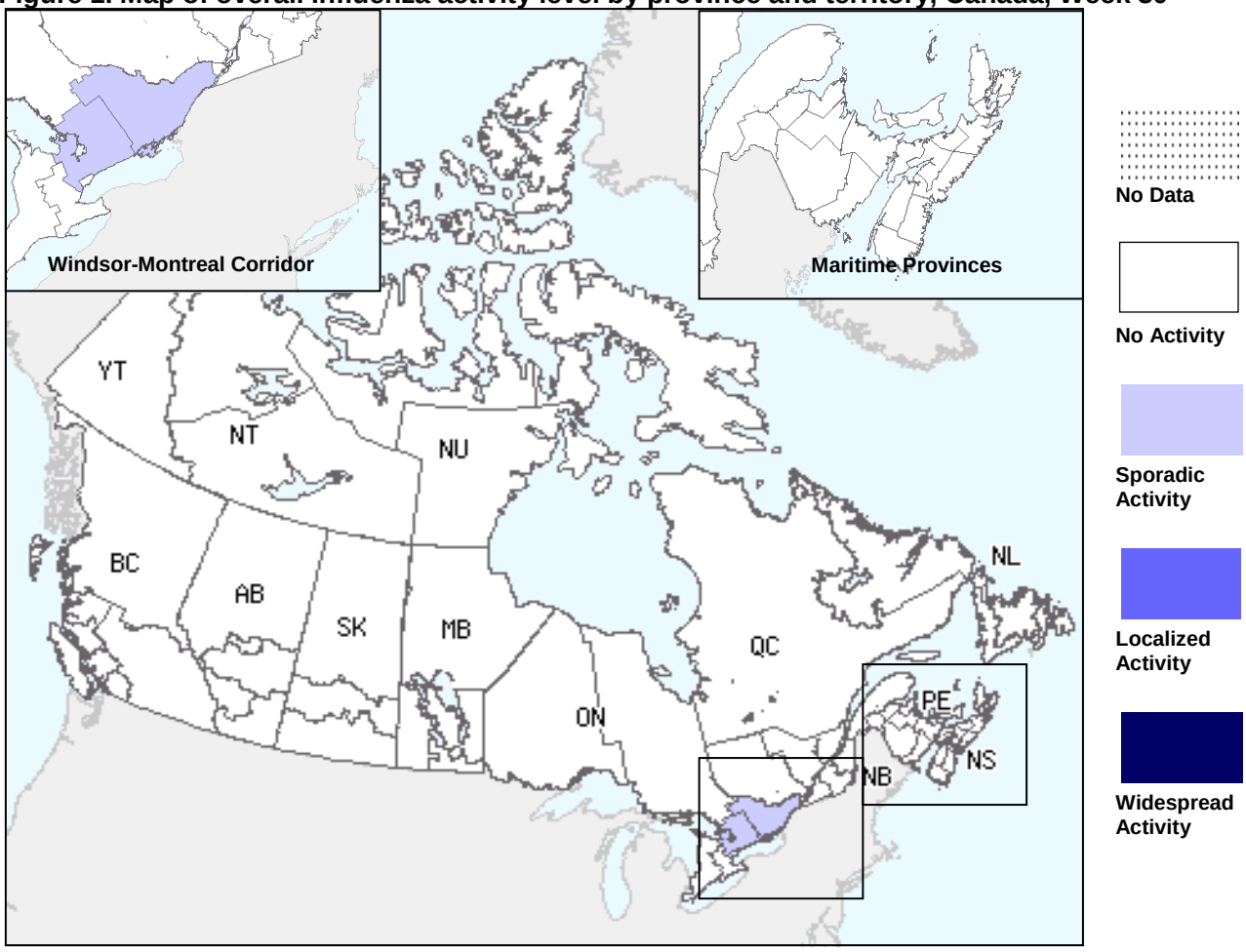
Overall Summary

- Influenza activity in Canada remained at inter-seasonal levels during this 2-week period.
- Detections of rhinovirus declined. Detections of all other respiratory viruses were low. The percentage of laboratory tests positive for influenza was 0.2% in week 30.
- The ILI consultation rate has been fairly stable over weeks 15 to 29, but decreased in week 30.

Influenza Activity (geographic spread) and Outbreaks

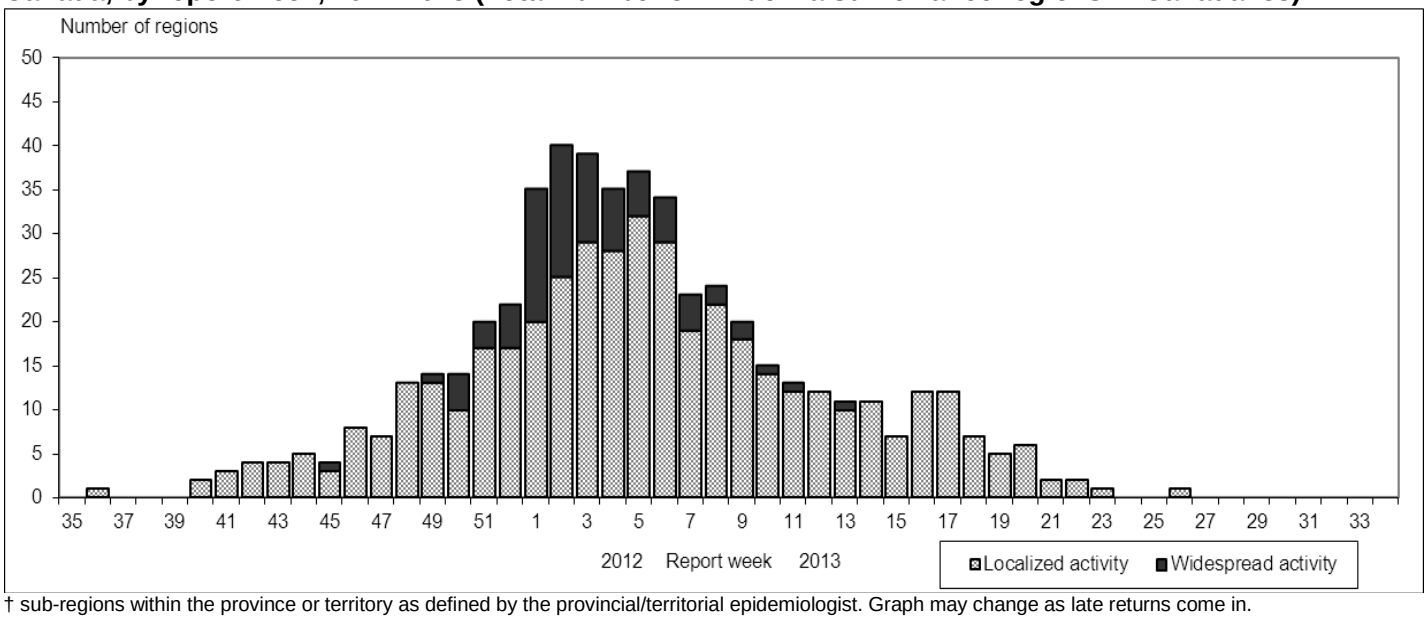
The number of regions reporting influenza activity was at inter-seasonal levels in weeks 29 and 30. No regions reported localized activity; in weeks 29 and 30, five and two regions reported sporadic activity, respectively (Figures 1 and 2). No new influenza outbreaks were reported in weeks 29 or 30 (Figure 3).

Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 30



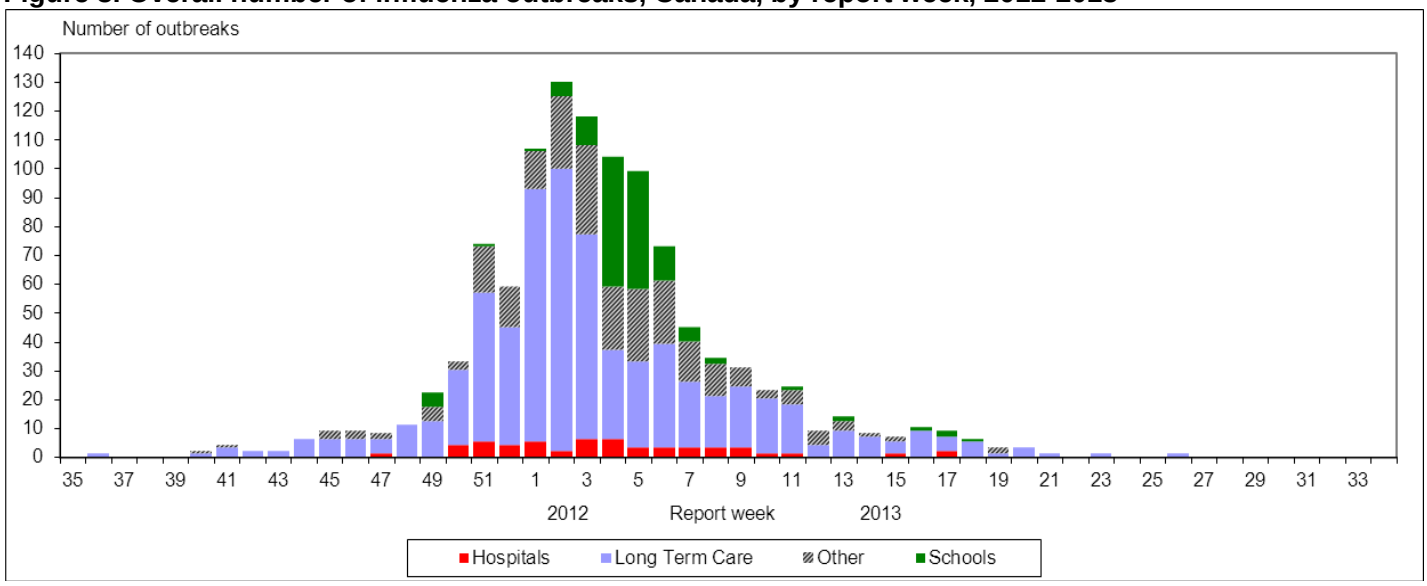
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas 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, 2012-2013 (Total number of influenza surveillance regions in Canada=58)



† 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 overall percentage of positive influenza tests was low and stable, at 0.8% in week 29 and 0.2% in week 30. Among the 12 influenza viruses detected in weeks 29 and 30, nine were influenza A (Table 1). Cumulative influenza virus detections by type/subtype to date are as follows: 85.1% influenza A [34.8% A(H3), 4.7% A(H1N1)pdm09 and 60.5% A(unsubtyped)] and 14.9% influenza B (Table 1).

Detailed information on laboratory detections of influenza was received for 26,324 cases to date this season. Data on age and type/subtype was complete for 26,112 cases (Table 2). The proportion of cases by age group is as follows: 14.8% <5 years; 10.4% between 5-19 years; 16.3% between 20-44 years; 17.0% between 45-64 years of age; 41.5% ≥65 years.

The percentage of positive tests for rhinovirus decreased from its peak of 25.6% in week 26 to 19.4% in week 29 and to 11.0% in week 30. The percentage of positive tests for parainfluenza was stable at 4.5% in weeks 29 and 30. The percentages of positive tests for other respiratory viruses were low in week 30: human metapneumovirus (hMPV) (0.7%), respiratory syncytial virus (RSV) (0.8%), coronavirus (0.2%) and adenovirus (2.2%) (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 (July 14 to July 27, 2013)						Cumulative (August 26, 2012 to July 27, 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	4	0	3	0	1	0	1935	0	1473	221	241	407
AB	0	0	0	0	0	0	2363	0	1771	448	144	843
SK	1	0	0	0	1	1	843	0	476	74	293	325
MB	0	0	0	0	0	1	660	0	79	10	571	115
ON	3	0	2	0	1	0	8291	0	3793	385	4113	953
QC	1	0	0	0	1	1	9821	0	546	36	9239	1940
NB	0	0	0	0	0	0	1872	0	771	75	1026	102
NS	0	0	0	0	0	0	388	0	165	8	215	9
PE	0	0	0	0	0	0	117	0	76	10	31	1
NL	0	0	0	0	0	0	718	0	240	2	476	20
Canada	**9**	**0**	**5**	**0**	**4**	**3**	**27008**	**0**	**9390**	**1269**	**16349**	**4715**

*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 (July 14 to July 27, 2013)					Cumulative (Aug. 26, 2012 to July 27, 2013)				
	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	1	0	0	1	0	3007	224	838	1945	853
5-19	0	0	0	0	0	1632	71	613	948	1080
20-44	0	0	0	0	0	3537	356	1223	1958	730
45-64	3	0	2	1	0	3731	329	1223	2179	702
65+	2	0	1	1	1	9998	136	3716	6146	842
Unknown	0	0	0	0	0	210	29	178	3	2
Total	**6**	**0**	**3**	**3**	**1**	**22115**	**1145**	**7791**	**13179**	**4209**

*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

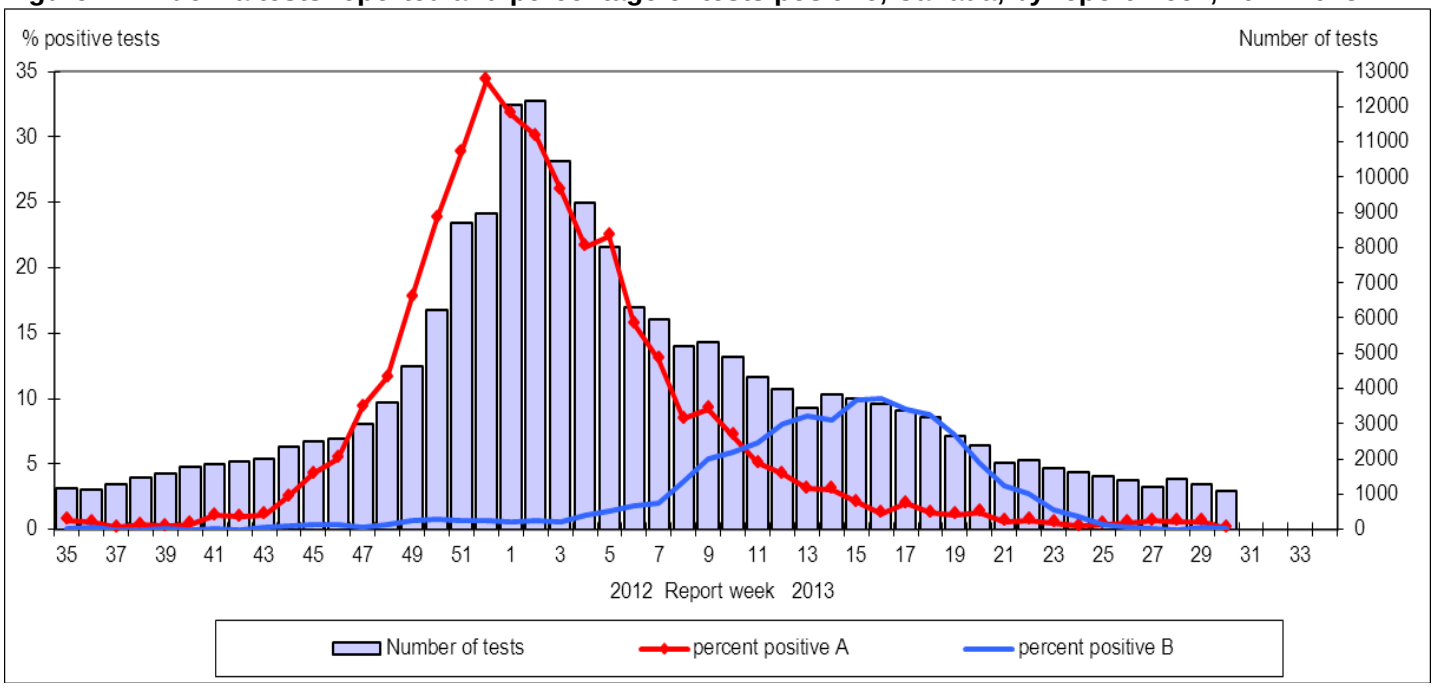
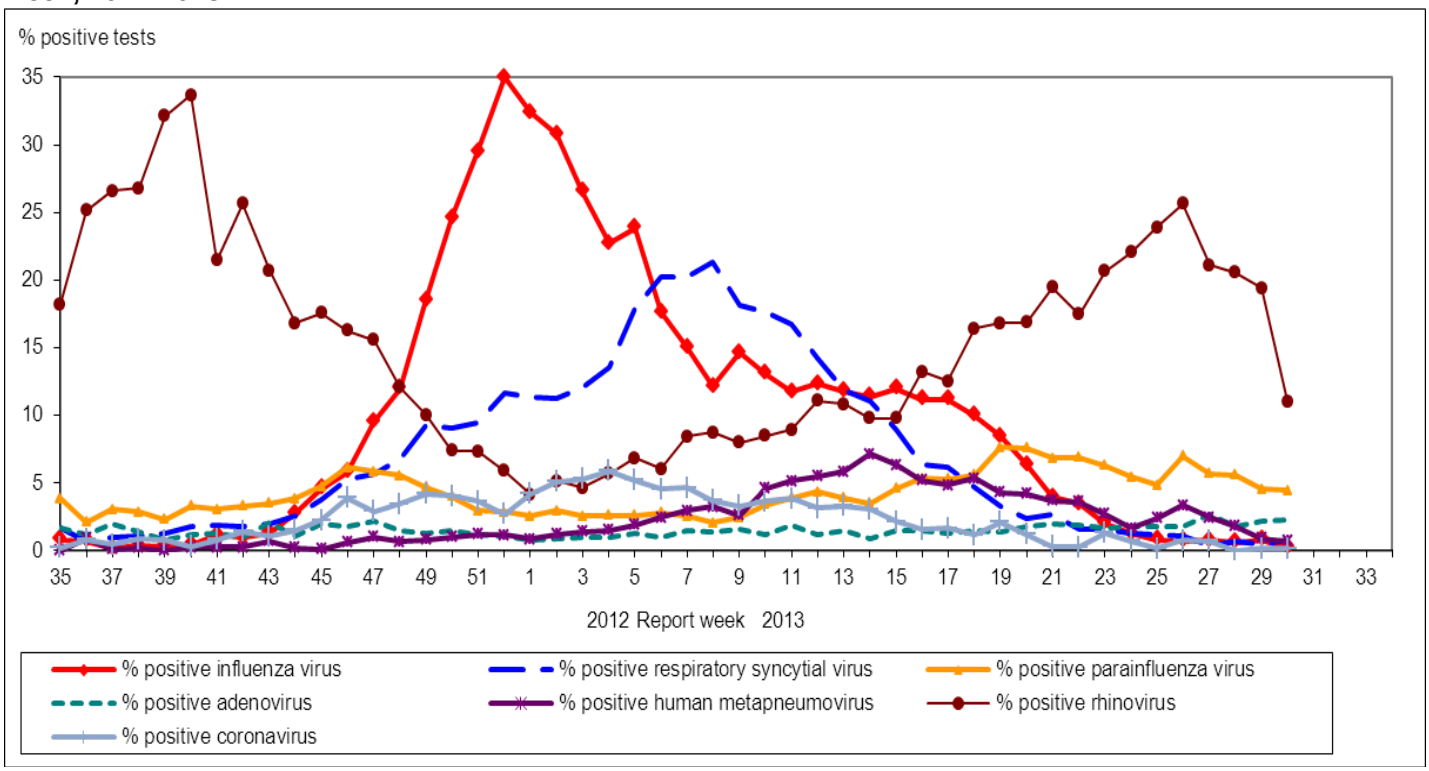


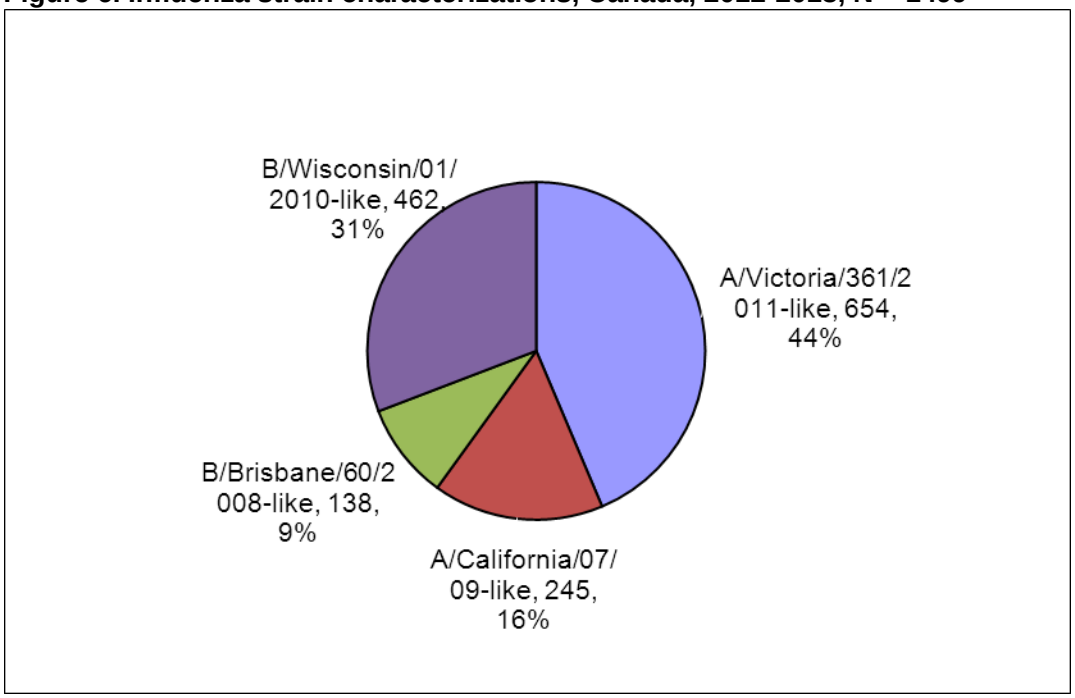
Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2012-2013



Influenza Strain Characterizations

During the 2012-13 season, the National Microbiology Laboratory (NML) has antigenically characterized 1499 influenza viruses. The 654 influenza A(H3N2) viruses were antigenically similar to the vaccine strain A/Victoria/361/2011 and the 245 A(H1N1)pdm09 viruses were antigenically similar to the vaccine strain A/California/07/09. Among the influenza B viruses, 462 were antigenically similar to the vaccine strain B/Wisconsin/01/2010 (Yamagata lineage) and 138 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 = 1499



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 1495 influenza viruses for resistance to oseltamivir, and 1492 influenza viruses for resistance to zanamivir. Among these, one A(H3N2) virus was resistant to oseltamivir and zanamivir, one A(H1N1)pdm09 virus was resistant to oseltamivir, and three influenza B virus samples were resistant to both oseltamivir and zanamivir. A total of 1334 influenza A viruses were tested for amantadine resistance and all but one A(H3N2) virus were resistant (Table 3).

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

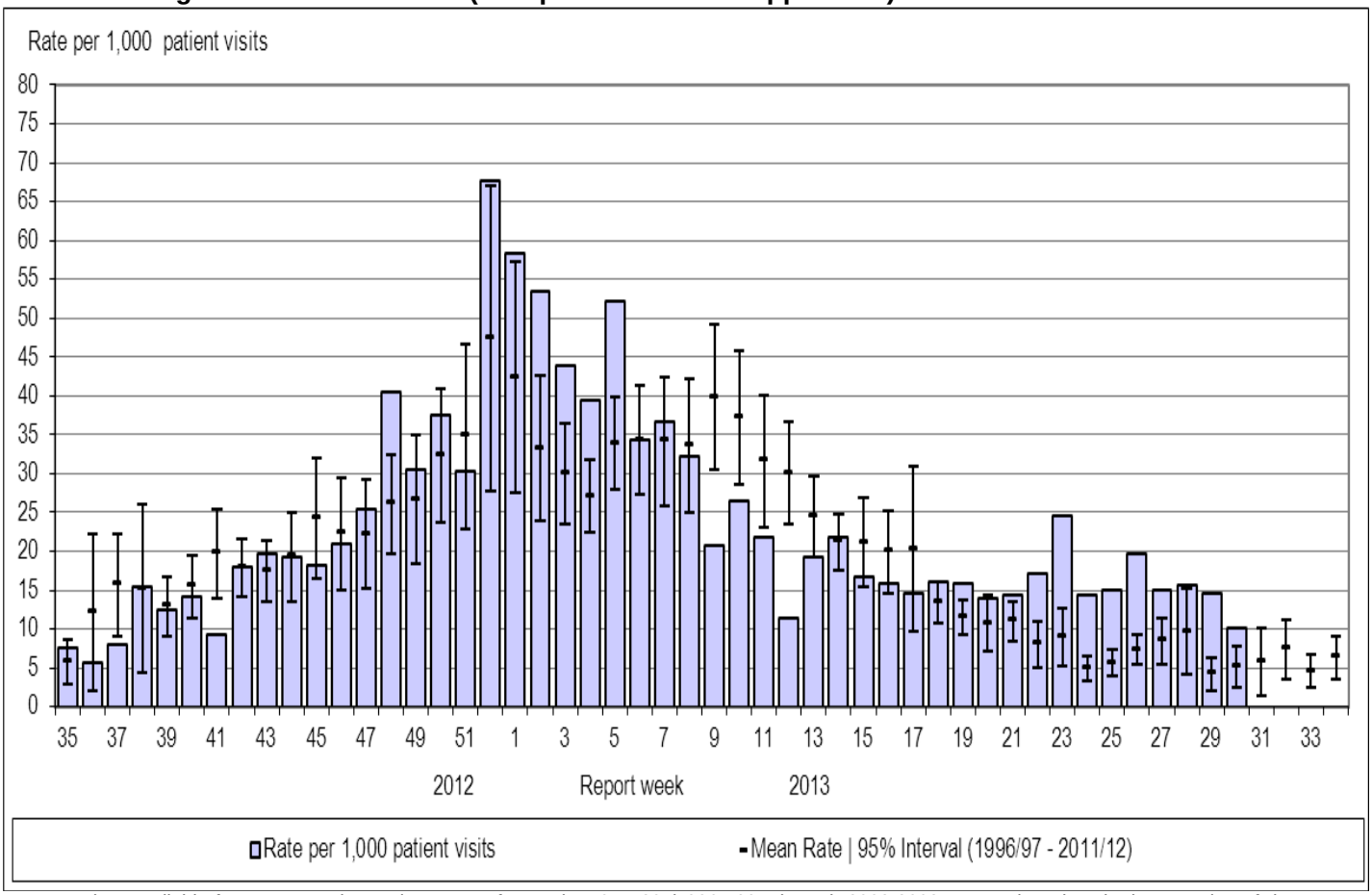
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	648	1 (0.2%)	648	1 (0.2%)	1044	1043 (99.9%)
A (H1N1)	251	1 (0.4%)	248	0	290	290 (100%)
B	596	3 (0.5%)	596	3 (0.5%)	NA*	NA*
TOTAL	1495	5 (0.3%)	1492	4 (0.3%)	1334	1333 (99.9%)

* NA – not applicable

Influenza-like Illness Consultation Rate

The national influenza-like-illness (ILI) consultation rate was similar between weeks 15 and 29, ranging from 13.9 to 24.6 ILI consultations per 1,000 patient visits, but the rate decreased to 10.0/1,000 in week 30. The rates observed in weeks 18 to 30 were above the expected range (Figure 7). The highest consultation rate was observed in children 5-19 years of age in both weeks 29 (28.7/1,000 visits) and 30 (20.0/1,000 visits).

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.

Severe Respiratory Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths (IMPACT)

In week 29, one laboratory-confirmed influenza-associated paediatric (≤16 years of age) hospitalization was reported by the Immunization Monitoring Program Active (IMPACT) network, in a child <6 months of age with influenza A. No hospitalizations were reported in week 30. No intensive care unit (ICU) admissions or deaths were reported during weeks 29 and 30.

Since the start of the 2012-13 season, a total of 885 influenza-associated paediatric hospitalizations have been reported by the IMPACT network: 623 (70.4%) with influenza A [of which 124 (19.9%) were A(H3N2), 29 (4.7 %) were A(H1N1)pdm09 and the remaining 470 were A(unsubtyped); and 262 (29.6%) with influenza B. The distribution of cases by age group is as follows: 164 (18.5%) <6 months of age; 203 (22.9%) age 6-23 months; 254 (28.7 %) age 2-4 years; 189 (21.4%) age 5-9 years; and 75 (8.5%) age 10-16 years. Of the 885 cases, 110 (12.4%) were admitted to the ICU. Of the 82 ICU admissions with available data, 68 (82.9%) cases had at least one underlying condition. One death has been reported to date this season in a child 6-23 months of age with an underlying condition, with influenza B.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated paediatric hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Adult Influenza Hospitalizations and Deaths (PCIRN)

Active surveillance of laboratory-confirmed influenza-associated adult (≥16 years of age) hospitalizations reported by the PHAC/CIHR Influenza Research Network (PCIRN) Serious Outcomes Surveillance (SOS) network concluded for the 2012-13 influenza season on April 30th, 2013. However, the PCIRN-SOS network continues to report limited data on laboratory-confirmed cases of influenza identified through passive surveillance at 15 out of 17 hospital sites. No hospitalizations, ICU admissions or deaths were reported in week 29 or 30.

The cumulative data for the season to date includes data from active surveillance from November 4, 2012 to April 30, 2013 and data from passive surveillance since May 1, 2013. The cumulative number of cases is 1,810: 1,625 (89.8%) with influenza A [of which 312 were A(H3N2), 21 were A(H1N1)pdm09, and 1,292 were A(unsubtyped)]; 139 (7.7%) with influenza B, and the type has not been reported for 46 cases. The age distribution of hospitalizations is as follows: 1,230 (68.0%) were ≥65 years of age, 373 (20.6%) were 45-64 years, 195 (10.7%) were 20-44 years, and 12 (0.7%) were <20 years of age. ICU admission was required for 216 hospitalizations; the majority of which were adults ≥65 years of age (123; 56.9%). A total of 116 deaths have been reported: 26 with influenza A(H3N2), one with A(H1N1)pdm09, 82 with A(unsubtyped), 6 with influenza B, and one untyped. More than 85% of the deaths (99/116) were in adults ≥65 years of age, 14 (12.1%) were adults 45-64 years of age, and 3 (2.6%) were 20-44 years of age.

Note: The number of hospitalizations reported through PCIRN represents a subset of all influenza-associated adult hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

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

In weeks 29 and 30, one new laboratory-confirmed influenza-associated hospitalization was reported from participating provinces and territories*. To date this season, 5,074 influenza-associated hospitalizations have been reported, of which 86.3% have been influenza A. Of those subtyped (49.2%), influenza A(H3) was the predominant influenza strain. Age information was available for 5,071 cases, and the age distribution is as follows: 2,663 (52.5%) were ≥65 years of age; 843 (16.6%) were 45-64 years of age; 454 (9.0%) were 20-44 years of age; 41 (0.8%) were 15-19 years of age; 278 (5.5%) were 5-14 years; and 792 (15.6%) were 0-4 years of age. Of the 1,401 cases with available data, there have been 222 hospitalisations for which admission to an ICU was required; the highest proportions have been in adults ≥65 years of age, followed by adults 45-64 years of age (36.0% and 33.8%, respectively). To date, 317 deaths have been reported: 258 adults ≥65 years of age, 37 adults 45-64 years; 13 adults 20-44 years, two children 5-14 years of age, and seven 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

Northern Hemisphere

Influenza activity in temperate regions of the northern hemisphere was at inter-seasonal levels in weeks 27 to 29.
World Health Organization influenza update
Centers for Disease Control and Prevention seasonal influenza report
EuroFlu weekly electronic bulletin

Tropical Regions

Asia & Africa: Influenza activity decreased in most countries in tropical Asia, however, Viet Nam and India reported continued circulation of influenza A. Most countries in central Africa reported low influenza activity, with the exception of Cameroon, Cote d'Ivoire and Madagascar.

Carribean, Central America & tropical South America: Cuba and the Dominican Republic reported decreasing trends in influenza circulation in weeks 28-29; both countries reported approximately 30% of specimens positive for influenza during weeks 26-29, predominantly A(H1N1)pdm09. Influenza activity increased in Costa Rica, Nicaragua and Panama in weeks 24-28, with A(H1N1)pdm09 and A(H3N2) co-circulating in varying proportions.
Peru reported a sharp increase in laboratory detections of influenza in weeks 28-29, predominantly A(H1N1)pdm09. Columbia reported a declining trend in the proportion of Severe Acute Respiratory Infection (SARI) hospitalizations and ICU admissions over weeks 24-29; and a decreasing proportion of laboratory detections positive for influenza. In Bolivia, decreasing trends in influenza circulation were observed in weeks 26-28; influenza A continued to circulate around La Paz, and influenza B in Santa Cruz. Laboratory detections declined in Venezuela in week 28, despite sustained acute respiratory infection (ARI) activity above the epidemic threshold.

World Health Organization influenza update
PAHO Influenza Situation Report

Southern Hemisphere

Influenza activity continued in South America. Activity was low but beginning to increase in Oceania during weeks 27-29.

South America – Southern Cone: Influenza circulation declined in several countries in temperate South America in week 29, while RSV continued to be the predominant respiratory virus. In Argentina, influenza detections increased in early July and the number of positive specimens has been higher than in previous seasons (excluding 2009). In 2013 (to week 27), 97.2% of influenza detections were influenza A and of these 56.9% A(H1N1)pdm09. The number of ILI cases and SARI hospitalizations showed a decreasing trend in week 29. In Chile, RSV remained the predominant respiratory virus in week 29. Influenza A(H1N1)pdm09 continued to circulate, although the percentage of positive laboratory detections for influenza decreased over weeks 26-29. The ILI consultation rate also declined. In Paraguay, A(H3N2) and RSV continue to co-circulate. In Brazil, respiratory virus activity decreased in weeks 23-29. Influenza A(H1N1)pdm09 and influenza B continue to co-circulate.

South Africa: Circulation of A(H1N1)pdm09 has been reported since the end of April 2013. The number of laboratory detections seems to have peaked in week 23.
South Africa Influenza surveillance report

Australia & New Zealand: Compared to recent years, the start of the 2013 influenza season has been delayed in Australia and New Zealand. In New Zealand, consultation rates for ILI remained below the baseline level but with an increasing trend. Among the 391 influenza viruses identified between weeks 1 and 30, 54% were influenza B and 46% were influenza A; and among the 111 subtyped influenza A, 66.7% were A(H3N2).
In Australia, as of July 5 the ILI consultation rate was low, with 9.9% of sentinel specimens positive for influenza between June 22 and 5 July. The number of laboratory-confirmed influenza notifications increased nearly 60% in the period of 22 June to 5 July compared to the previous fortnight. Among the 3,681 influenza viruses identified between 1 January and 5 July 2013, 72% were influenza A and 27% were influenza B. Although the majority of influenza A have not been subtyped, to date 10% have been A(H1N1)pdm09 in 2013 compared to <1% during the 2012 season.
New Zealand Public Health Surveillance
Australia Influenza Report

World Health Organization influenza update
PAHO Influenza Situation Report
WHO FluNet

Emerging Respiratory Pathogens

Human Avian Influenza

Influenza A(H7N9): One new case of human infection with avian influenza A(H7N9) was reported by the World Health Organization (WHO) on 20 July 2013. The patient was a 61-year-old female in Hebei Province who became ill on 10 July 2013 and was hospitalized the same day. Since March 2013, 134 laboratory-confirmed human cases, with 43 deaths, of infection with avian influenza A(H7N9) have been reported from nine provinces and two municipalities, primarily in eastern China.

PHAC – Avian influenza A(H7N9)
WHO – Avian Influenza A(H7N9)

Human Swine Influenza

Influenza A(H3N2)v: The CDC has reported two additional cases of human infection with variant influenza A(H3N2)v in week 30, one each in Indiana and Ohio. Since June 2013, 14 cases of human infection with variant influenza A(H3N2)v have been reported in the United States.

Centers for Disease Control and Prevention Influenza A(H3N2) Variant Virus

Middle East Respiratory Syndrome Coronavirus (MERS-CoV)

Since 19 July 2013, WHO has reported six additional cases in Saudi Arabia, with one death of a previously confirmed case. The cases include a 41-year-old male, a 59-year-old female and a 67-year-old female with underlying medical conditions; and an 83-year-old male with no apparent comorbidities. None of four cases have had contact with animals or confirmed MERS-CoV cases, and all were hospitalized in an ICU. Two cases were female health care workers who had exposure to previously confirmed cases. The death was a 66-year-old male who developed acute respiratory distress syndrome and respiratory failure. Since April 2012, 94 laboratory-confirmed cases and one probable case of human infection with MERS-CoV have been reported, with 46 deaths. Most patients are male (60%; 54 of 90 cases) and range in age from 2 to 94 years (median 52 years).

PHAC – Middle East respiratory syndrome coronavirus (MERS-CoV)
WHO – Coronavirus infections

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.