FluWatch

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

November 17 to 23, 2019 (Week 47)

Overall Summary

- Influenza activity was at the seasonal threshold in week 47, indicating the beginning of the influenza season at the national level. Over the past decade, the flu season has typically begun around mid-November (week 47).
- The number of regions in Canada reporting influenza activity in week 47 was similar to the previous week.
- Although influenza A(H3N2) continues to be the most common influenza virus circulating in Canada for the season to date, an increasing proportion of detections of A(H1N1) and B have been observed. In week 47 a third of laboratory detections of influenza were influenza B, which is unusual for this time of year. Hospitalizations continue to be predominantly associated with influenza A.
- Weekly reporting of laboratory detections of respiratory viruses continues via the Respiratory Virus Detections Surveillance System.

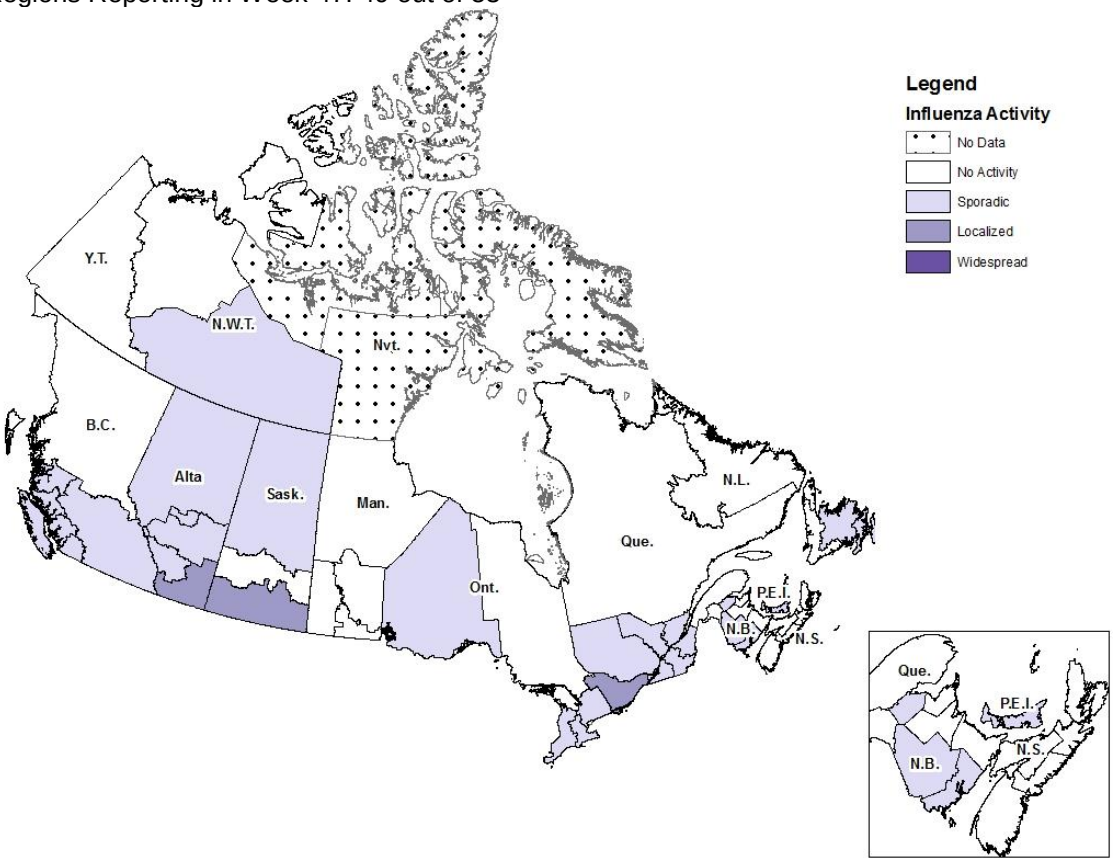
Influenza/Influenza-like Illness (ILI) Activity (geographic spread)

During week 47, levels of influenza activity were similar to the previous week (Figure 1).

- Activity was reported across 10 provinces and territories.
- Among regions with influenza activity, 25 reported a sporadic level of activity, and 4 reported localized activity.

Figure 1 – Map of influenza/ILI activity by province and territory, Canada, week 2019-47

Number of Regions Reporting in Week 47: 49 out of 53



Laboratory-Confirmed Influenza Detections

In week 47, the number of detections of influenza continued to increase. The following results were reported from sentinel laboratories across Canada (Figures 2 and 3):

- The percentage of tests positive for influenza is at the seasonal threshold of 5%. This is consistent with the median week that laboratory detections of influenza crossed the seasonal threshold over the previous five seasons.
- Compared to the past five seasons, the percentage of tests positive for influenza is slightly below average (8.3%) for this time of year.
- A total of 298 laboratory detections of influenza were reported, of which 61% (183) were influenza A.
- Both the proportion of detections of influenza B (39%) and the percentage of tests positive for influenza B (1.9%) are higher than the average for this time of year. The current level of influenza B activity is not normally seen until early-January.
- Among subtyped influenza A detections, a mix of A(H1N1) and A(H3N2) were detected; 55% (40 out of 72) were influenza A(H3N2).

To date this season (weeks 35 to 47), 1,258 laboratory detections of influenza were reported:

- 76% (954) were influenza A. The proportion of detections of influenza B to date (24%) is higher than average (8.5%); and higher than was observed during the 2017-18 season (16 %) when influenza A and B circulated in almost equal proportions,
- Among subtyped influenza A detections (405), 73% were influenza A(H3N2).

Detailed information on age and type/subtype has been received for 1,017 laboratory-confirmed influenza cases (Table 1). To date this season (weeks 35 to 47):

- Among cases of influenza A(H3N2) (265), the largest proportion were in adults 65 years of age and older (44%).
- Cases of influenza B (270) were primarily in younger age groups; 54% of cases were under 20 years of age and 33% between 20 and 44 years of age.
- Among cases of influenza A(H1N1) (95), the largest proportion were in adults between 45 and 64 years of age (37%).

For more detailed weekly and cumulative influenza data, see the text descriptions for Figures 2 and 3 or the Respiratory Virus Detections in Canada Report.

Figure 2 – Number of positive influenza tests and percentage of tests positive, by type, subtype and report week, Canada, weeks 2019-35 to 2019-47

Number of Laboratories Reporting in Week 47: 34 out of 34

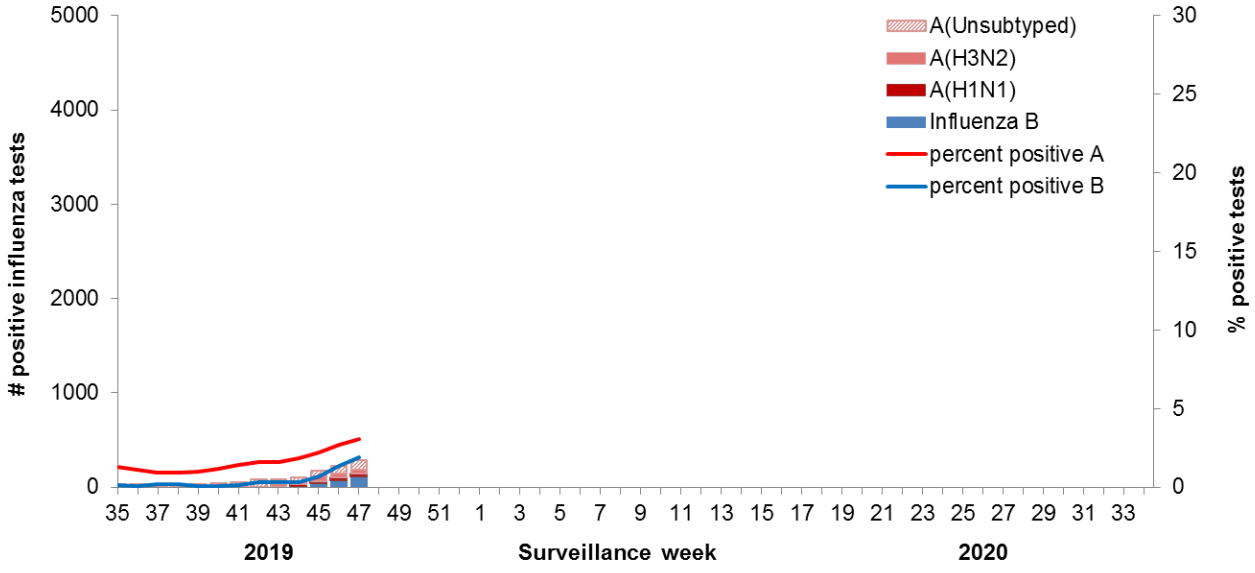
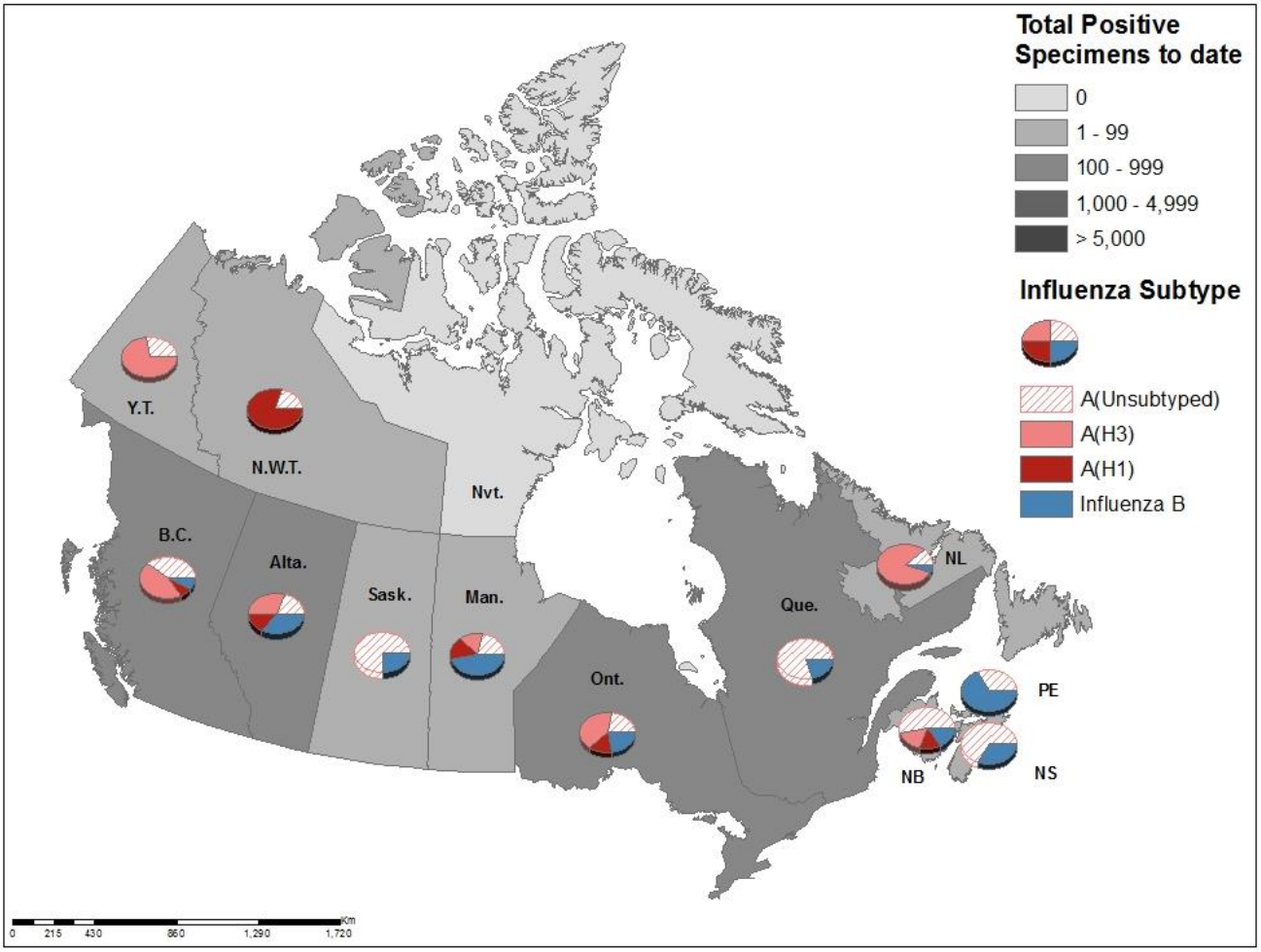


Figure 3 – Distribution of positive influenza specimens by type/subtype and province/territory*, Canada, weeks 2019-35 to 2019-47



* Specimens from NWT, YT, and Nvt are sent to reference laboratories in other provinces. However, data on laboratory-confirmed detections of influenza from Nunavut are not currently available.

Table 1 – Cumulative number of positive influenza specimens by type, subtype and age group reported through case-based laboratory reporting, Canada, weeks 2019-35 to 2019-47

Age groups (years)	Cumulative (August 25, 2019 to November 23, 2019)						
	Influenza A				B	Influenza A and B	
	A Total	A(H1N1)	A(H3N2)	A (Un subtyped)[1]	Total	#	%
0-4	93	21	29	43	38	131	13%
5-19	84	6	30	48	107	191	19%
20-44	137	20	42	75	90	227	22%
45-64	154	35	48	71	18	172	17%
65+	279	13	116	150	17	296	29%
Total	747	95	265	387	270	1017	100%

[1]Unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available.

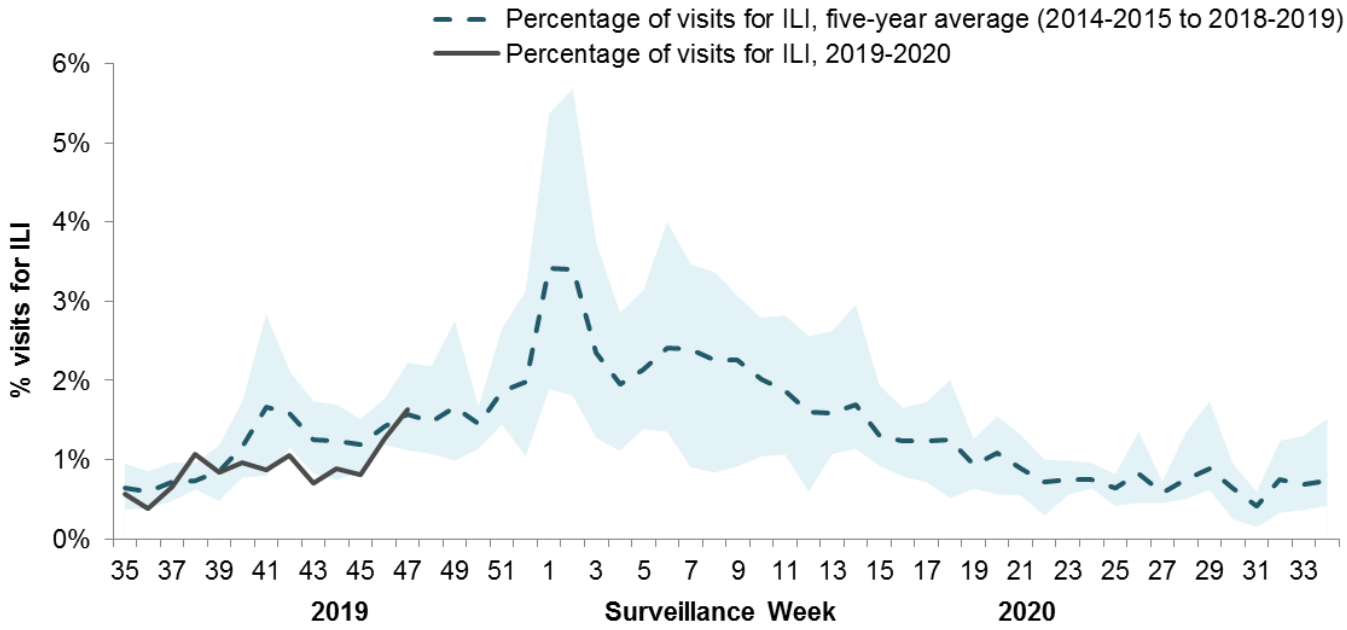
Syndromic / Influenza-like Illness Surveillance

Healthcare Practitioners Sentinel Syndromic Surveillance

In week 47, 1.6% of visits to healthcare professionals were due to influenza-like illness (ILI) which is the average for this time of year (Figure 4).

Figure 4 – Percentage of visits for ILI reported by sentinels by report week, Canada, weeks 2019-35 to 2019-47

Number of Sentinels Reporting in Week 47: 81



The shaded area represents the maximum and minimum percentage of visits for ILI reported by week from seasons 2014-2015 to 2018-2019

FluWatchers

In week 47, 3,057 participants reported to FluWatchers, of which 1.5% (46) reported symptoms of cough and fever (Figure 5).

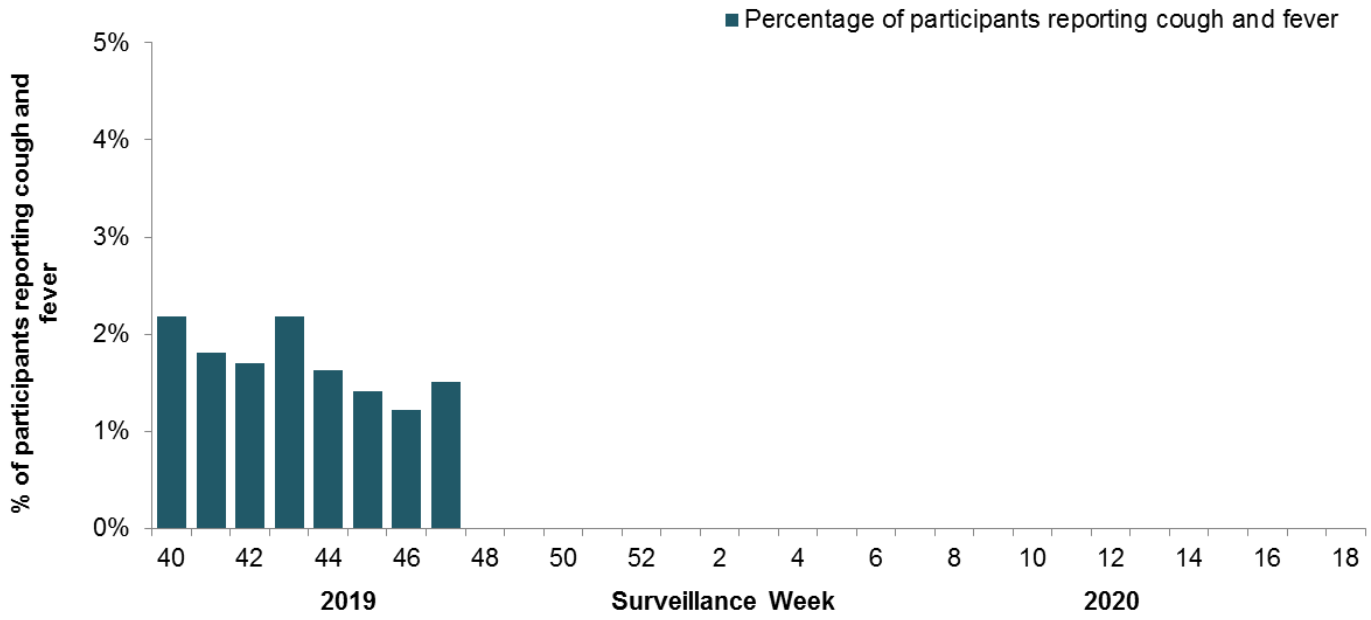
Among the 46 participants who reported cough and fever:

- 24% consulted a healthcare professional;
- 67% reported days missed from work or school, resulting in a combined total of 112 missed days of work or school.
- 62% reported having been vaccinated for influenza this season.

If you are interested in becoming a FluWatcher, sign up today.

Figure 5 – Percentage of FluWatchers participants reporting cough and fever, Canada, weeks 2019-40 to 2019-47

Number of Participants Reporting in Week 47 3,057



Online Figure – Geographic distribution of FluWatchers participants reporting cough and fever, Canada, week 2019-47

Click on the map to access the link

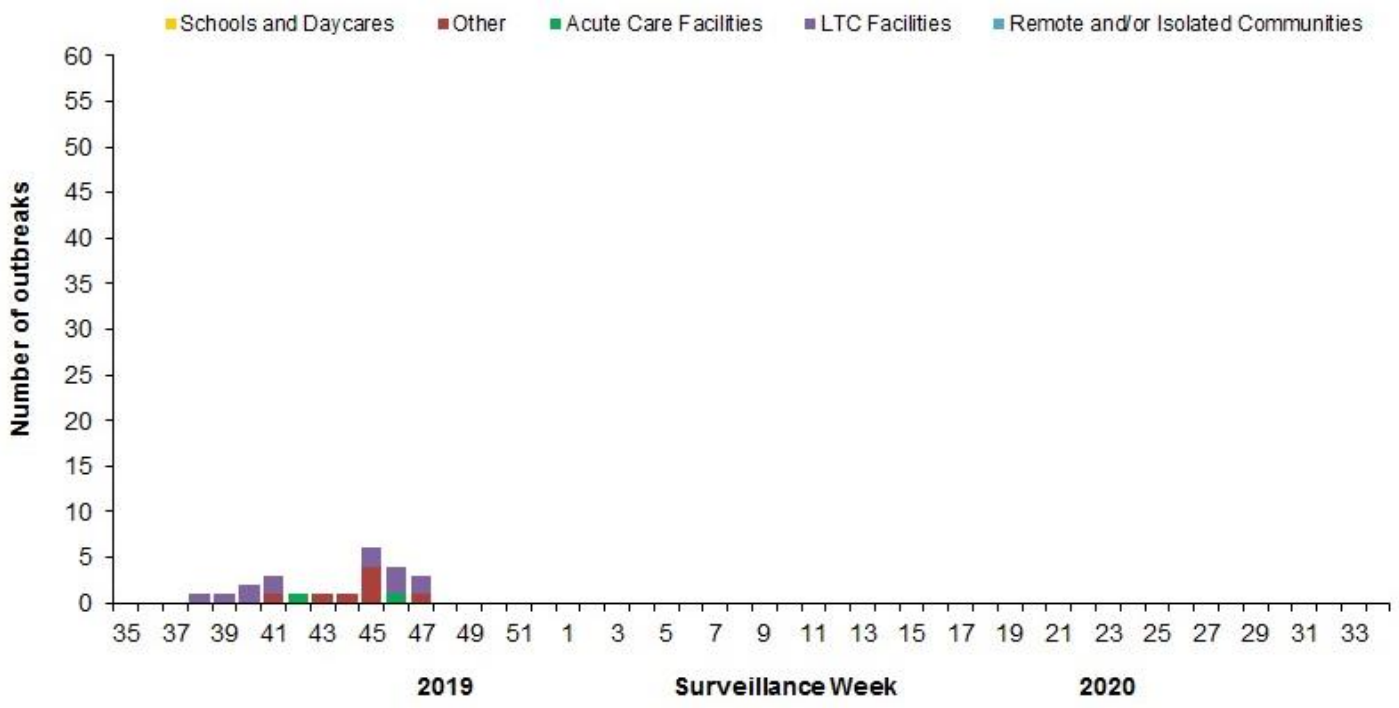
Influenza Outbreak Surveillance

In week 47, three new outbreaks were reported: two in long term care facilities and one in a facility type categorized as 'other', which includes facilities such as private personal care homes, correctional facilities, and colleges/universities (Figure 6).

To date this season, a total of 23 laboratory-confirmed influenza outbreaks have been reported; thirteen in long-term care facilities, two in acute care facilities and eight in a facility type categorized as 'other'. Of the outbreaks where influenza type was reported (21), eighteen were due to influenza A. Among the 11 outbreaks for which the influenza A subtype was reported, all were associated with A(H3N2). One ILI outbreak in a school/daycare has also been reported.

Figure 6 – Number of new outbreaks of laboratory-confirmed influenza by report week, Canada, weeks 2019-35 to 2019-47

Number of provinces and territories reporting in week 47: 12 out of 13



Severe Outcomes Influenza Surveillance

Provincial/Territorial Influenza Hospitalizations and Deaths

To date this season, 106 influenza-associated hospitalizations were reported by participating provinces and territories[1].

- 85% of the cases were influenza A.
- Of the cases for which subtype was reported (78), 72% were associated with influenza A(H3N2).
- The greatest proportion of hospitalizations (42%) were among adults ≥ 65 years of age.

Thirteen ICU admissions and no deaths have been reported.

Number of provinces and territories reporting in week 47: 9 out of 9

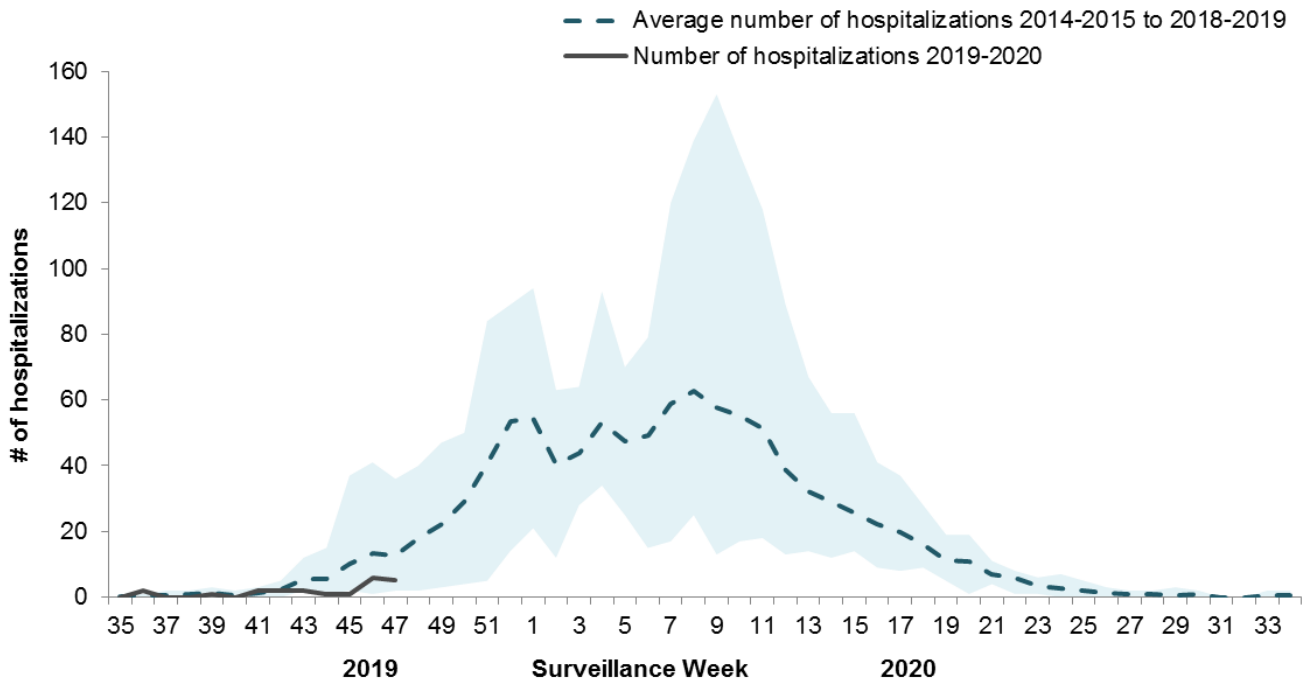
[1]Influenza-associated hospitalizations are reported by Alberta, Manitoba, New Brunswick, Newfoundland and Labrador, Northwest Territories, Nova Scotia, Prince Edward Island and Yukon. Only hospitalizations that require intensive medical care are reported by Saskatchewan.

Pediatric Influenza Hospitalizations and Deaths

In week 47, five pediatric (≤16 years of age) laboratory-confirmed influenza-associated hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network (Figure 7). This is slightly below the average (13) for week 47 over the previous five seasons.

To date this season, 22 pediatric hospitalizations have been reported by the IMPACT network; 73% (16) cases were associated with influenza A and 27 % (6) with influenza B. Among the six cases for which the influenza A subtype was reported, all were associated with A(H1N1).

Figure 7 – Number of pediatric (≤16 years of age) hospitalizations reported by the IMPACT network, by week, Canada, weeks 2018-35 to 2019-47



The shaded area represents the maximum and minimum number of cases reported by week from seasons 2014-15 to 2018-19

Adult Influenza Hospitalizations and Deaths

Surveillance of laboratory-confirmed influenza-associated adult (≥16 years of age) hospitalizations by the Canadian Immunization Research Network (CIRN) Serious Outcomes Surveillance (SOS) network began on November 1st for the 2019-20 season. To date this season, five cases have been reported.

Influenza Strain Characterizations

From September 1 to November 28, 2019, the National Microbiology Laboratory (NML) has characterized 60 influenza viruses (30 A(H3N2), 17 A(H1N1) and 13 influenza B) that were received from Canadian laboratories.

Influenza A(H3N2)

Over recent years, circulating strains of A(H3N2) have evolved, and are increasingly difficult to characterize by hemagglutination inhibition (HI) assay. Genetic characterization is established by sequencing the hemagglutinin (HA) gene of the influenza viruses to compare their genetic properties.

Antigenic Characterization:

Among the eight influenza A(H3N2) viruses antigenically characterized to date, the majority (88%) showed reduced titer by HI assay to A Kansas/14/2017 using antiserum raised against egg-propagated A Kansas/14/2017 (Figure 8a).

Genetic Characterization:

Nearly all (97%) of the 30 A(H3N2) viruses genetically characterized this season belonged to genetic group 3C.2a1b based on sequence analysis of the HA gene. One virus belonged to the genetic group 3C.3a (Figure 9).

Group 3C.2a1b viruses analysed represent:

- 88% (7 out of 8) viruses that were also antigenically characterized.
- 100% (22 out of 22) viruses which did not grow to sufficient hemagglutination titer for antigenic characterization by HI assay.

A/Kansas/14/2017 belongs to genetic group 3C.3a and is the influenza A(H3N2) component of the 2019-20 Northern Hemisphere influenza vaccine.

Influenza A(H1N1)

Among the 17 A(H1N1) viruses characterized to date, all were antigenically similar to A/Brisbane/02/2018 by HI testing using antiserum raised against egg-propagated A/Brisbane/02/2018 (Figure 8b).

A/Brisbane/02/2018 is the influenza A(H1N1) component of the 2019-20 Northern Hemisphere influenza vaccine.

Influenza B

Among the 13 influenza B viruses antigenically characterized this season, all belonged to the B/Victoria lineage, and the majority (62%) showed reduced titer by HI assay to B/Colorado/06/2017 using antiserum raised against cell culture-propagated B/Colorado/06/2017 (Figure 8c).

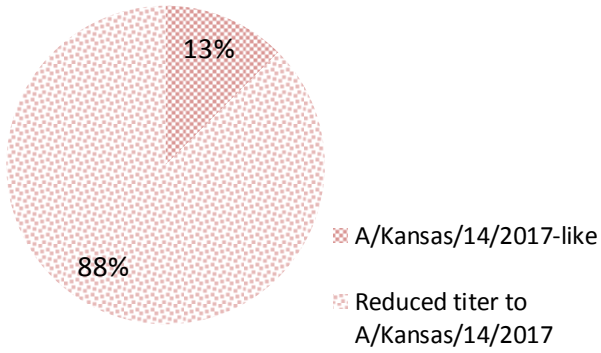
Sequence analysis showed that all of the eight viruses showing reduced titre had a three amino acid deletion (162-164) in the HA gene.

The recommended influenza B components for the 2019-20 Northern Hemisphere influenza vaccine are B/Colorado/06/2017 (Victoria lineage) and B/Phuket/3073/2013 (Yamagata lineage). B/Phuket/3073/2013 is included in the quadrivalent influenza vaccine.

Figure 8 – Distribution of antigenic phenotypes among characterized influenza viruses, Canada, September 1 to November 28, 2019

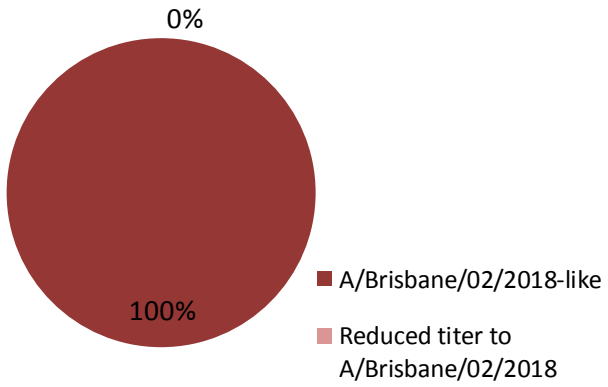
A) A(H3N2) viruses

Number of viruses characterized: 8



B) A(H1N1) viruses

Number of viruses characterized: 17



C) B viruses

Number of viruses characterized: 13

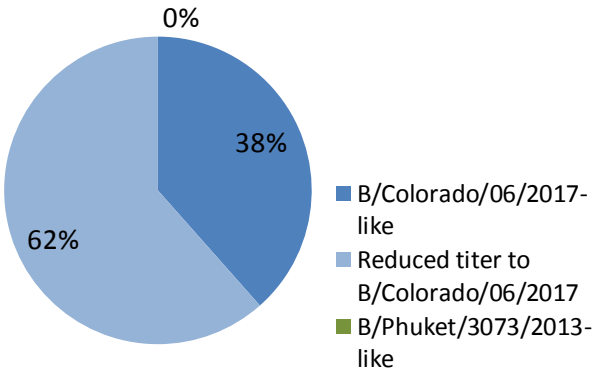
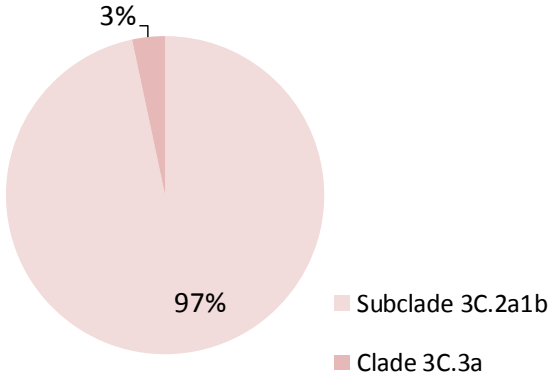


Figure 9 – Distribution of genetic clades among characterized A(H3N2) influenza viruses, Canada, September 1 to November 28, 2019

Number of viruses sequenced: 30



Antiviral Resistance

The National Microbiology Laboratory (NML) also tests influenza viruses received from Canadian laboratories for antiviral resistance.

Oseltamivir:

60 influenza viruses (36 A(H3N2), 12 A(H1N1) and 12 B) were tested for resistance to oseltamivir:

- All influenza viruses tested were sensitive to oseltamivir.

Zanamivir:

60 influenza viruses (36 A(H3N2), 12 A(H1N1) and 12 B) were tested for resistance to zanamivir:

- All influenza viruses tested were sensitive to zanamivir.

Amantadine:

High levels of resistance to amantadine persist among influenza A(H1N1) and influenza A(H3N2) viruses. All viruses tested this season were resistant.

Vaccine Monitoring

Vaccine monitoring refers to activities related to the monitoring of influenza vaccine coverage and effectiveness.

Vaccine Coverage

Influenza vaccine coverage estimates for the 2019-20 season are anticipated to be available in February or March 2020.

Vaccine Effectiveness

Influenza vaccine effectiveness estimates for the 2019-20 season are anticipated to be available in February or March 2020.

Provincial and International Surveillance Links

- British Columbia – Influenza Surveillance; Vaccine Effectiveness Monitoring
- Alberta – Respiratory Virus Surveillance
- Saskatchewan – Influenza Reports
- Manitoba – Seasonal Influenza Reports
- Ontario – Ontario Respiratory Pathogen Bulletin
- Québec – Système de surveillance de la grippe *(available in French only)*
- New Brunswick – Influenza Surveillance Reports
- Prince Edward Island – Influenza Summary
- Nova Scotia – Respiratory Watch Report
- Newfoundland and Labrador – Surveillance and Disease Reports
- Yukon – Information on Pandemic, Influenza, Seasonal Flu, Avian Flu and H1N1
- Northwest Territories – Influenza/ Flu Information
- Nunavut – Influenza Information
- World Health Organization – FluNet (Global Influenza Surveillance Network)
- Pan American Health Organization – Influenza situation report
- U.S. Centers for Disease Prevention & Control (CDC) - Weekly Influenza Summary Update
- ECDC – Surveillance reports and disease data on seasonal influenza
- United Kingdom – Weekly Influenza Activity Reports
- Hong Kong Centre for Health Protection - Flu Express
- Australia – Influenza Surveillance Report and Activity Updates
- New Zealand – Influenza Weekly Update

Notes

The data in the FluWatch report represent surveillance data available at the time of writing. All data are preliminary and may change as more reports are received.

To learn more about the FluWatch program, see the Overview of influenza monitoring in Canada page.

For more information on the flu, see our Flu (influenza) web page.

We would like to thank all the Fluwatch surveillance partners participating in this year's influenza surveillance program.

This report is available on the Government of Canada Influenza webpage.

Ce rapport est disponible dans les deux langues officielles.