

November 11 to 17, 2018 (Week 46)

Overall Summary

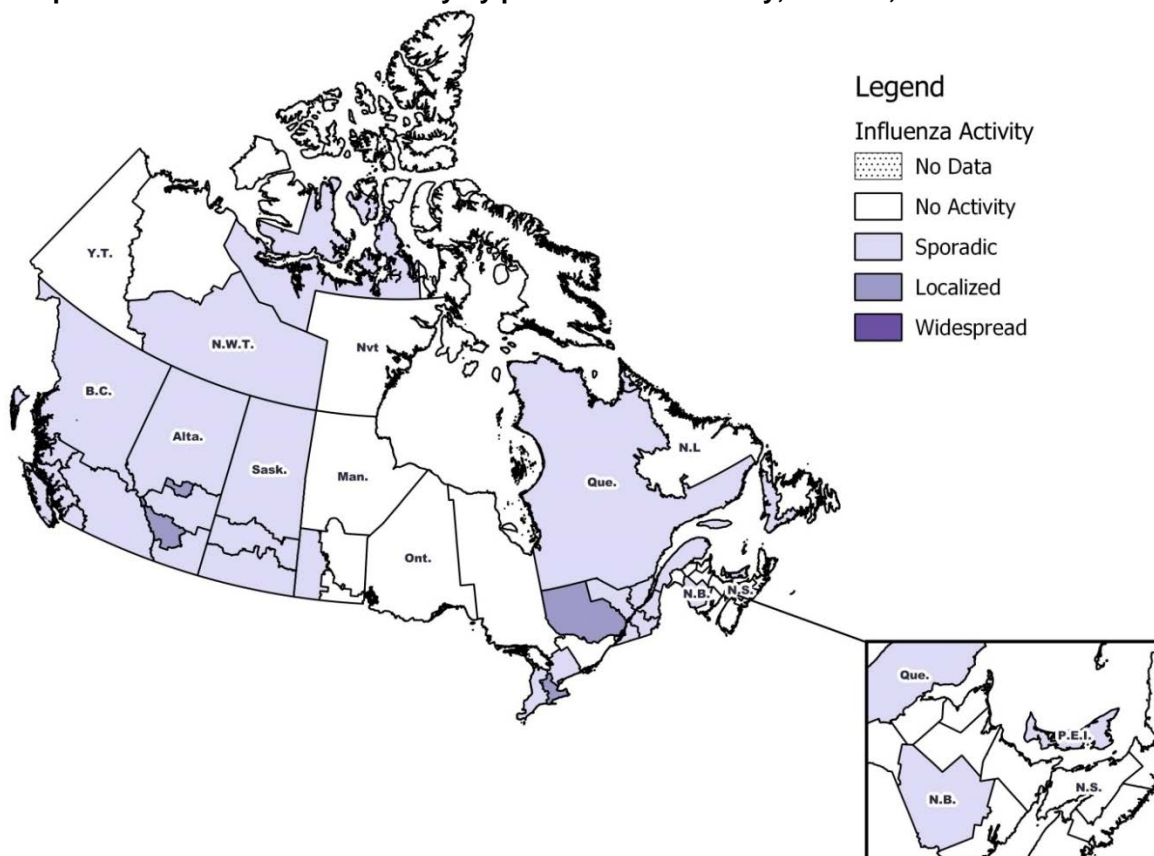
- Influenza activity continued to increase in week 46. The influenza season has started earlier than in recent years. The number of regions in Canada reporting localized influenza activity in week 46 increased slightly compared to the previous week.
- Influenza A is the most common influenza virus circulating in Canada, and the majority of these viruses are A(H1N1)pdm09.
- The number of influenza-associated hospitalizations continued to increase in week 46. In particular, the number of pediatric hospitalizations is significantly higher than in recent years.
- The number of influenza outbreaks remains within expected levels. However, the settings in which outbreaks have been reported this season suggests that younger age-groups are being affected more than in previous seasons.

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

During week 46, influenza activity levels increased slightly compared to the previous week (Figure 1):

- Five regions reported localized activity: in Alta.(2), Ont.(2), and Que.(1),.
- Sporadic activity was reported by 25 regions, in B.C.(5), Alta.(3), Sask.(3), Man.(2), Ont.(2), Que.(5), N.B.(1), P.E.I.(1), N.L.(1), N.W.T.(1) and Nvt.(1).
- No activity was reported by 23 regions.

Figure 1 – Map of overall influenza/ILI activity by province and territory, Canada, week 2018-46



Laboratory-Confirmed Influenza Detections

In week 46, the following results were reported from sentinel laboratories across Canada (Figure 2):

- The percentage of tests positive for influenza continued to increase to 13.8% of tests positive
- The percentage of tests positive for influenza A is higher for this time of year compared to the same period during the previous eight seasons.
- In week 46, 642 laboratory detections of influenza were reported, of which 99% were influenza A.

To date this season 2,063 laboratory-confirmed influenza detections have been reported (Figure 3):

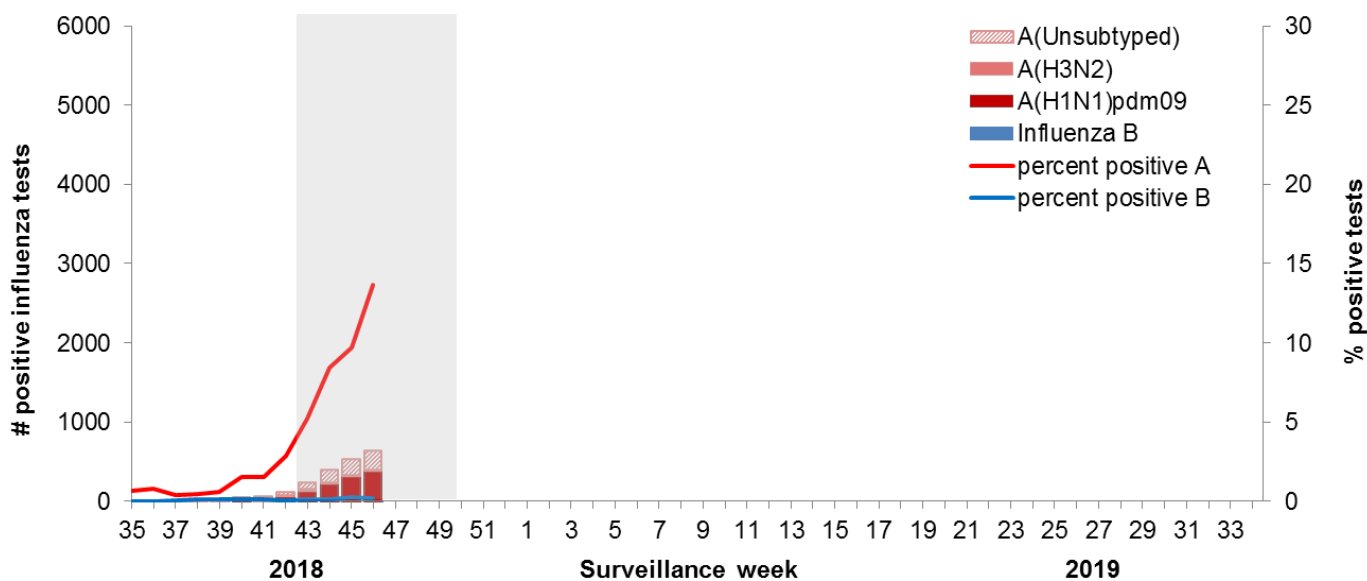
- 98% have been influenza A
- Among the 1,203 influenza A viruses subtyped, 91% have been A(H1N1)pdm09

To date this season, detailed information on age and type/subtype has been received for 2,069 laboratory-confirmed influenza cases (Table 1):

- Adults 20-44 years of age represent the largest proportion of cases (25%), followed by individuals 5-19 years of age (20%).

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 2018-35 to 2018-46



The shaded area indicates weeks where the positivity rate was at least 5% and a minimum of 15 positive tests were observed, signalling the period of [seasonal influenza activity](#).

Figure 3 – Cumulative numbers of positive influenza specimens by type/subtype and province/territory, Canada, weeks 2018-35 to 2018-46

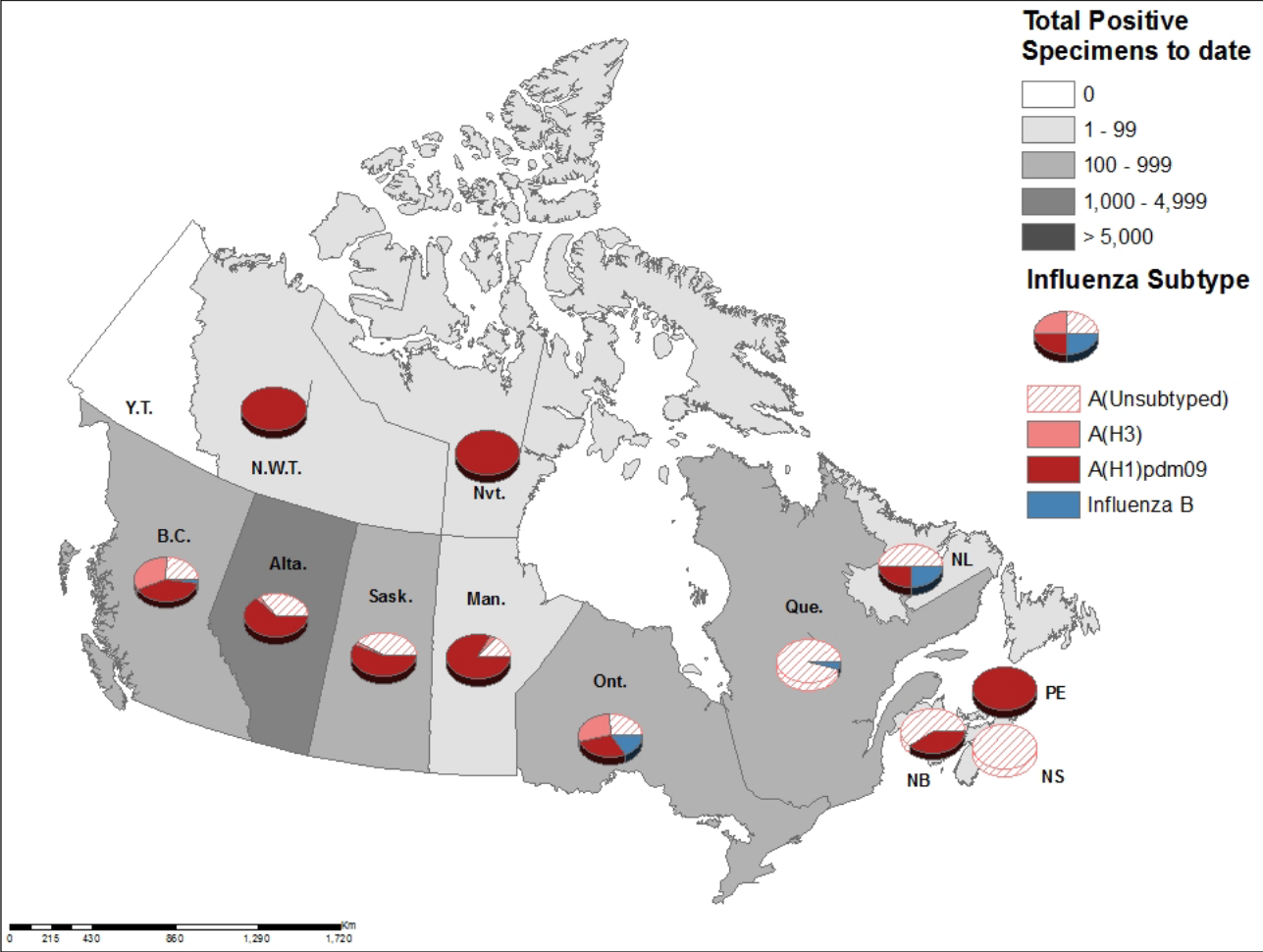


Table 1 – Cumulative numbers of positive influenza specimens by type, subtype and age-group reported through case-based laboratory reporting, Canada, weeks 2018-35 to 2018-46

Age groups (years)	Cumulative (August 26, 2018 to November 17, 2018)						
	Influenza A				B	Influenza A and B	
	A Total	A(H1N1) pdm09	A(H3N2)	A (UnS) ¹		Total	#
0-4	387	246	3	138	5	392	19%
5-19	411	213	4	194	7	418	20%
20-44	519	272	12	235	8	527	25%
45-64	371	195	28	148	7	378	18%
65+	342	140	124	78	12	354	17%
Total	2030	1066	171	793	39	2069	100%

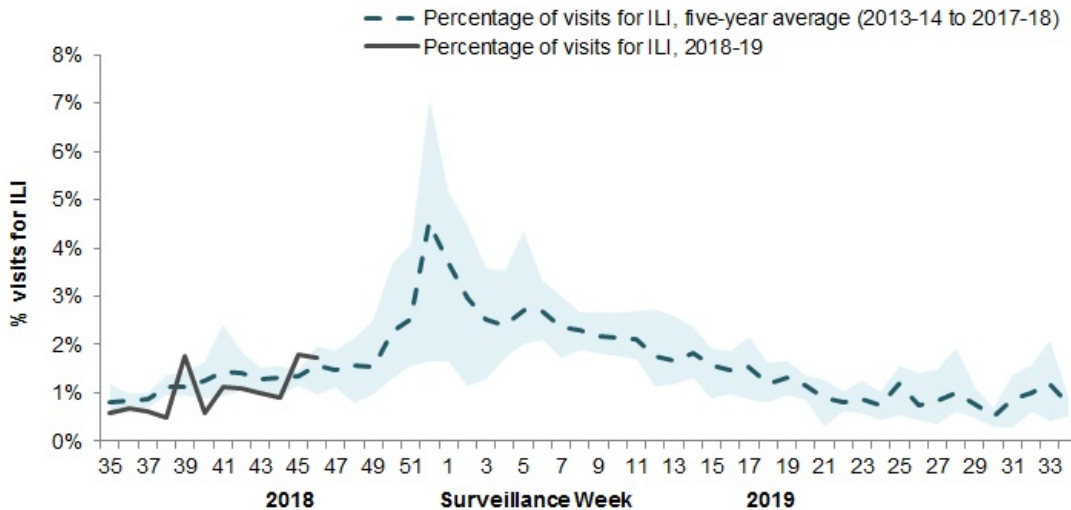
¹UnS: unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available.

Syndromic / Influenza-like Illness Surveillance

Healthcare Practitioners Sentinel Syndromic Surveillance

In week 46, 1.7% of visits to healthcare professionals were due to influenza-like illness (ILI) (Figure 4). The percentage of visits for ILI is within expected levels.

Figure 4 – Percentage of visits for ILI reported by sentinels by report week, Canada, weeks 2018-35 to 2018-46
 Number of Sentinels Reporting in Week 46: 84



The shaded area represents the maximum and minimum percentage of visits for ILI reported by week from seasons 2013-14 to 2017-18

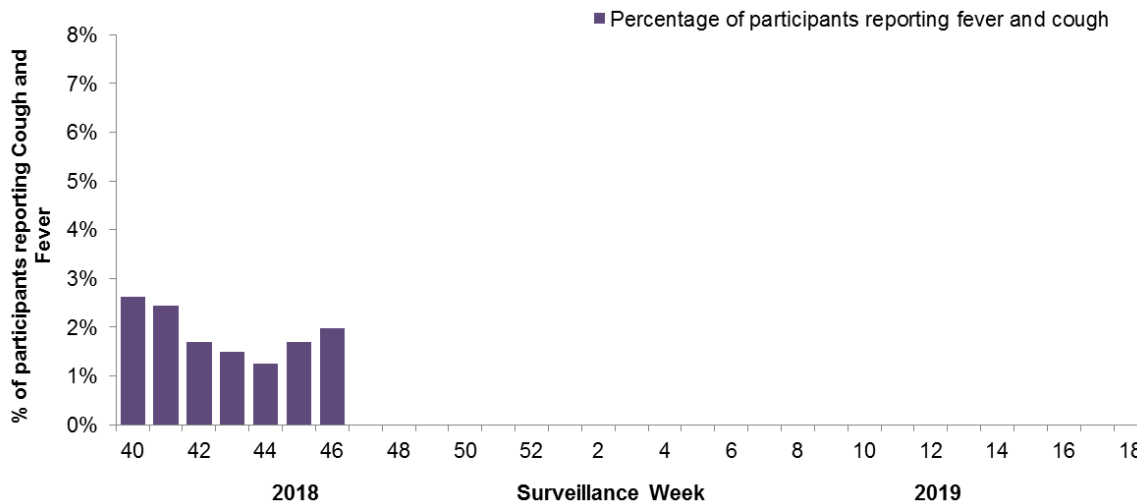
Participatory Syndromic Surveillance

In week 46, 2,183 participants reported to FluWatchers, of which 43 (2.0%) reported symptoms of cough and fever (Figure 5).

Among the 43 participants who reported fever and cough:

- 16% consulted a healthcare professional
- 79% reported days missed from work or school, resulting in a combined total of 87 missed days of work or school.

Figure 5 – Percentage of participants reporting cough and fever, Canada, weeks 2018-40 to 2018-46
 Number of Participants Reporting in Week 46: 2,183



Influenza Outbreak Surveillance

In week 46, five new laboratory-confirmed influenza outbreaks were reported in long-term care (3) and acute care (2) facilities.

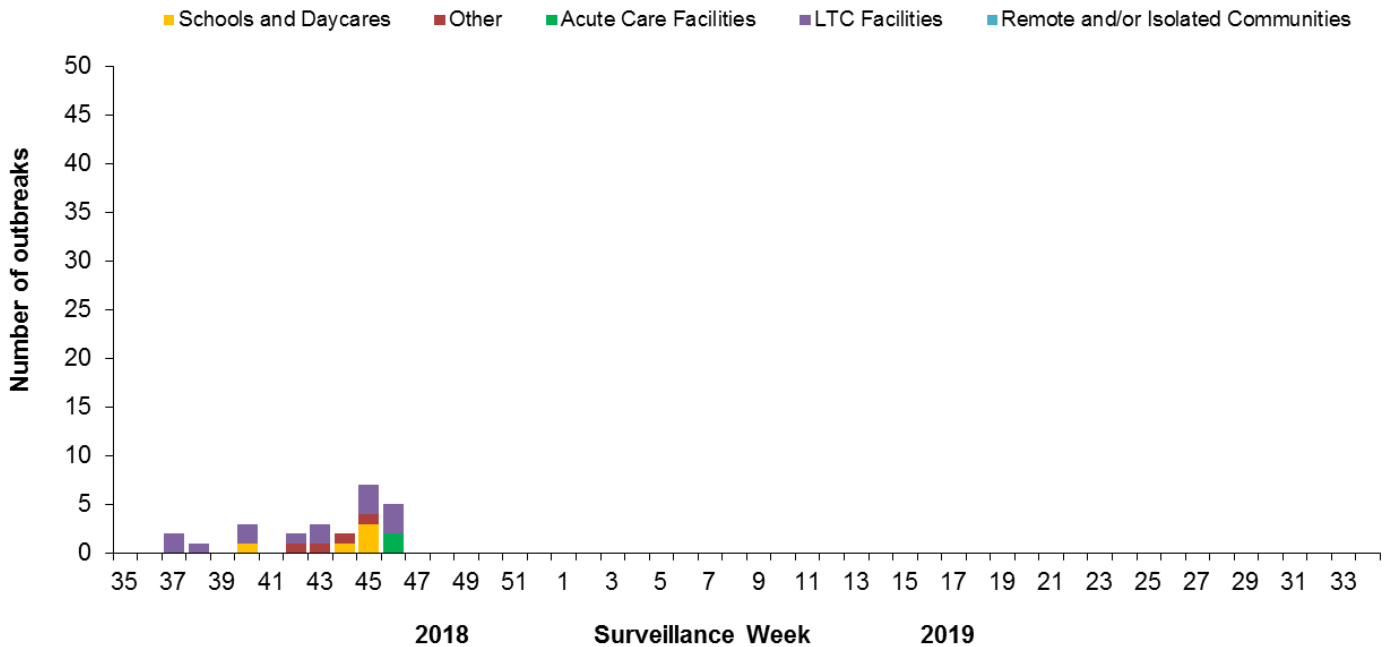
To date this season, 26 influenza outbreaks have been reported (Figure 6):

- 14 outbreaks were in LTCF, five were in schools, and four were in other settings.
- All of the 23 outbreaks for which the influenza type was available were associated with influenza A.
- Among the 15 outbreaks for which the influenza A subtype was available:
 - Eight were associated with influenza A(H1N1)pdm09, reported from schools, acute care facilities and other settings;
 - Four were associated with A(H3N2), reported from LTCF and other settings;
 - Three were associated with both A(H1N1)pdm09 and A(H3N2), reported from LTCF.
- Compared to previous seasons, a greater proportion of outbreaks have been reported in settings other than LTCF, suggesting an increased burden of disease in younger age-groups.

No new ILI outbreaks were reported in week 46.

To date this season, 23 ILI outbreaks have been reported; 21 occurred in LTCF, one in a school, and one in an acute care facility.

Figure 6 – Number of new outbreaks of laboratory-confirmed influenza by report week, Canada, weeks 2018-35 to 2018-46



Severe Outcomes Influenza Surveillance

Provincial/Territorial Influenza Hospitalizations and Deaths

In week 46, 62 influenza-associated hospitalizations were reported, which is a slight increase compared to the previous week.

To date this season, more than 300 influenza-associated hospitalizations have been reported by participating provinces and territories¹.

Hospitalizations (Table 2):

- 99% (310) were associated with influenza A
- The highest estimated rates of hospitalization are among children under 5 years of age, and adults 65 years of age and older.

Intensive Care Unit (ICU) cases and deaths:

- To date this season 36 ICU admissions and <5 deaths have been reported.

Table 2 – Cumulative number and estimated rate of hospitalizations by age-group reported by participating provinces and territories¹, Canada, weeks 2018-35 to 2018-46

Age Groups (years)	Cumulative (August 26, 2018 to November 17, 2018)		
	Influenza A	Influenza B	Rate per 100,000 population
0-4	61	0	7.77
5-19	39	0	2.31
20-44	47	0	1.20
45-64	79	0	2.39
65+	84	<5	5.18
Total	310	<5	
%	99%	1%	

¹Influenza-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. The cumulative rate of hospitalizations is calculated using the total population by age-group in participating provinces and territories.

Pediatric Influenza Hospitalizations and Deaths

In week 46, 39 pediatric (≤ 16 years of age) hospitalizations with influenza have been reported by the Immunization Monitoring Program Active (IMPACT) network. Pediatric hospitalizations reported by IMPACT are at levels not normally seen until late December (4-6 weeks earlier than in recent seasons) (Figure 7).

To date this season, 108 pediatric hospitalizations have been reported (Figure 8):

- All but one case have been associated with influenza A.
- Among the 83 cases for which the influenza subtype was available, 82 were associated with A(H1N1)pdm09.
- 91 of the 108 cases (84%) were between 6 months and 9 years of age.

To date this season, 10 ICU admissions, and no deaths have been reported.

Figure 7 – Number of pediatric (≤16 years of age) hospitalizations reported by the IMPACT network, by week, Canada, weeks 2018-35 to 2018-46

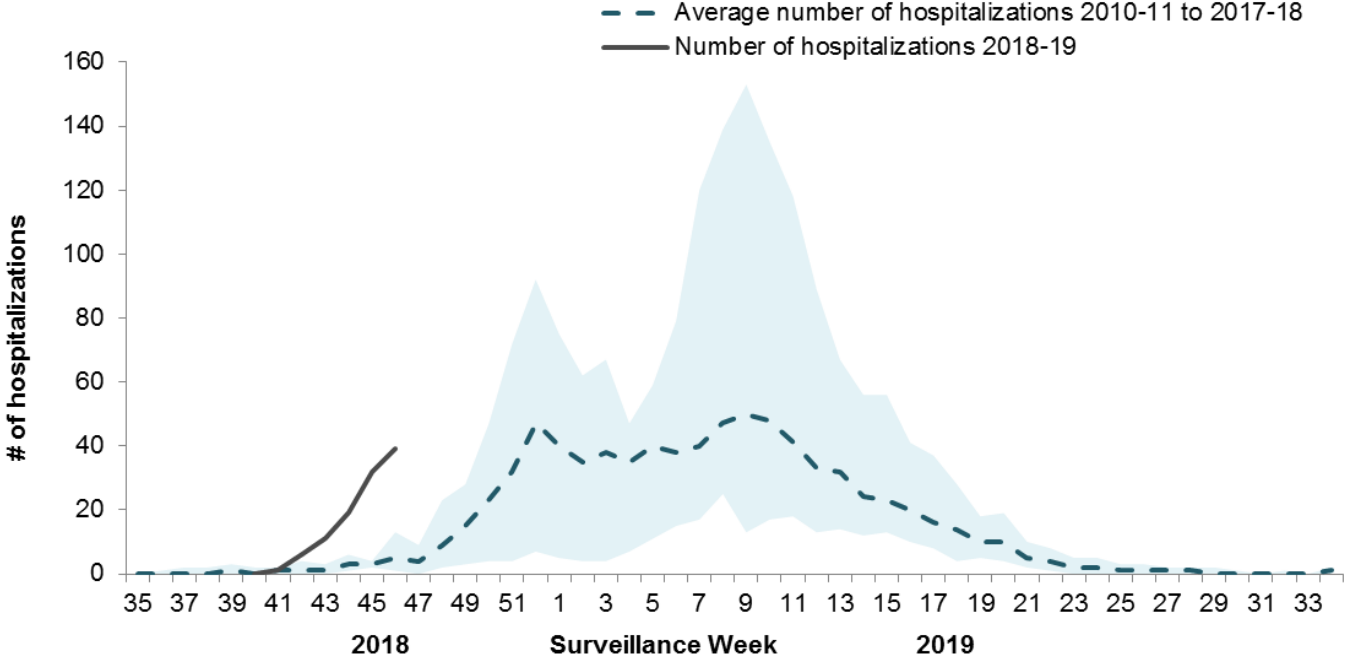
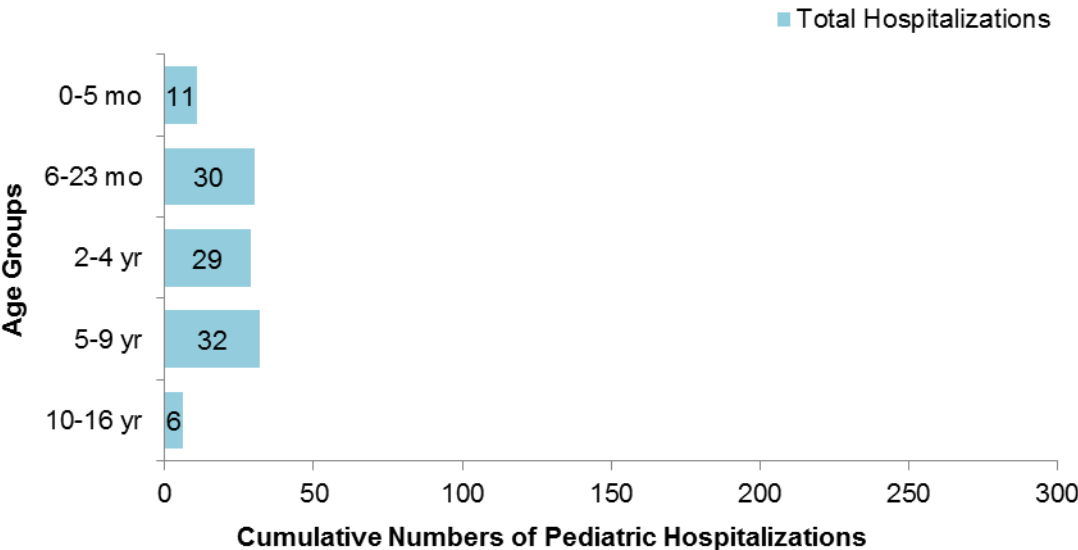


Figure 8 - Cumulative numbers of pediatric hospitalizations (≤16 years of age) with influenza by age-group reported by the IMPACT network, Canada, weeks 2018-35 to 2018-46



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 2018-19 season.

To date this season, seven hospitalizations have been reported, of which six were associated with influenza A and one with influenza B.

Influenza Strain Characterizations

Since September 1, 2018, the National Microbiology Laboratory (NML) has characterized 60 influenza viruses (11 A(H3N2), 48 A(H1N1) and one B) that were received from Canadian laboratories.

Genetic Characterization of Influenza A(H3N2):

Ten influenza A(H3N2) viruses did not grow to sufficient hemagglutination titer for antigenic characterization by hemagglutination inhibition (HI) assay. Therefore, NML has performed genetic characterization to determine the genetic group identity of these viruses.

Sequence analysis of the HA gene of the viruses showed that:

- One virus belonged to genetic group 3C.2a.
- Nine viruses belonged to subclade 3C.2a1.

A/Singapore/INFIMH-16-0019/2016-like virus belongs to genetic group 3C.2a1 and is the influenza A(H3N2) component of the 2018-19 Northern Hemisphere influenza vaccine

Antigenic Characterization:

Influenza A (H3N2):

- One influenza A(H3N2) virus was antigenically characterized as A/Singapore/INFIMH-16-0019/2016-like by HI testing using antiserum raised against egg-propagated A/Singapore/INFIMH-16-0019/2016.
- A/Singapore/INFIMH-16-0019/2016-like virus is the influenza A(H3N2) component of the 2018-19 Northern Hemisphere influenza vaccine.
- The influenza A (H3N2) virus characterized belonged to genetic group 3C.2a1.

Influenza A(H1N1):

- 48 A(H1N1) viruses characterized were antigenically similar to A/Michigan/45/2015, which is the influenza A(H1N1) component of the 2018-19 Northern Hemisphere influenza vaccine.

Influenza B:

Influenza B viruses can be divided into two antigenically distinct lineages represented by B/Yamagata/16/88 and B/Victoria/2/87 viruses. The recommended influenza B components for the 2018-19 Northern Hemisphere influenza vaccine are B/Colorado/06/2017 (Victoria lineage) and B/Phuket/3073/2013 (Yamagata lineage).

- One influenza B viruses was characterized as B/Phuket/3073/2013-like, which belongs to the Yamagata lineage and is included as an influenza B component of the 2018-19 Northern Hemisphere **quadrivalent** influenza vaccine.

Antiviral Resistance

Antiviral Resistance – Amantadine:

59 influenza A (11 A(H3N2) and 48 A(H1N1)) viruses were tested for resistance to amantadine and it was found that:

- The 11A(H3N2) viruses tested were resistant to amantadine.
- The 48 A(H1N1) viruses tested were resistant to amantadine.

Antiviral Resistance – Oseltamivir:

59 influenza viruses (10 A(H3N2), 48 A(H1N1) and 1 B) were tested for resistance to oseltamivir and it was found that:

- The 10 A(H3N2) viruses tested were sensitive to oseltamivir
- The 48 A(H1N1) viruses tested were sensitive to oseltamivir
- The B virus was sensitive to oseltamivir

Antiviral Resistance – Zanamivir:

59 influenza viruses (10 A(H3N2), 48 H1N1 and 1 B) were tested for resistance to zanamivir and it was found that:

- The 10 A(H3N2) viruses were sensitive to zanamivir.
- The 48 A(H1N1) viruses were sensitive to zanamivir.
- The B virus was sensitive to zanamivir.

Provincial and International Surveillance Links

- Alberta – [Influenza Surveillance](#)
- British Columbia – [Influenza Surveillance](#)
- Manitoba - [Seasonal Influenza Reports](#)
- New Brunswick – [Influenza Surveillance Reports](#)
- Newfoundland and Labrador – [Surveillance and Disease Reports](#)
- Nova Scotia – [Respiratory Watch Report](#)
- Ontario – [Ontario Respiratory Pathogen Bulletin](#)
- Prince Edward Island – [Influenza Summary](#)
- Saskatchewan – [Influenza Reports](#)
- Québec – [Système de surveillance de la grippe](#)
- Australia – [Influenza Surveillance Report and Activity Updates](#)
- European Centre for Disease Prevention and Control – [Surveillance reports and disease data on seasonal influenza](#)
- New Zealand – [Influenza Weekly Update](#)
- United Kingdom -- [Weekly Influenza Activity Reports](#)
- Pan-American Health Organization – [Influenza Situation Report](#)
- United States Centres for Disease Control and Prevention – [Weekly Influenza Summary Update](#)
- World Health Organization – [FluNet](#)

Notes

To learn more about definitions, descriptions and the FluWatch program in general, see the [Overview of influenza monitoring in Canada](#) page. For more information on the flu, see our [Flu\(influenza\)](#) web page.

This [report](#) is available on the Government of Canada Influenza webpage.

Ce [rapport](#) est disponible dans les deux langues officielles.

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