

November 18 to 24, 2018 (Week 47)

## Overall Summary

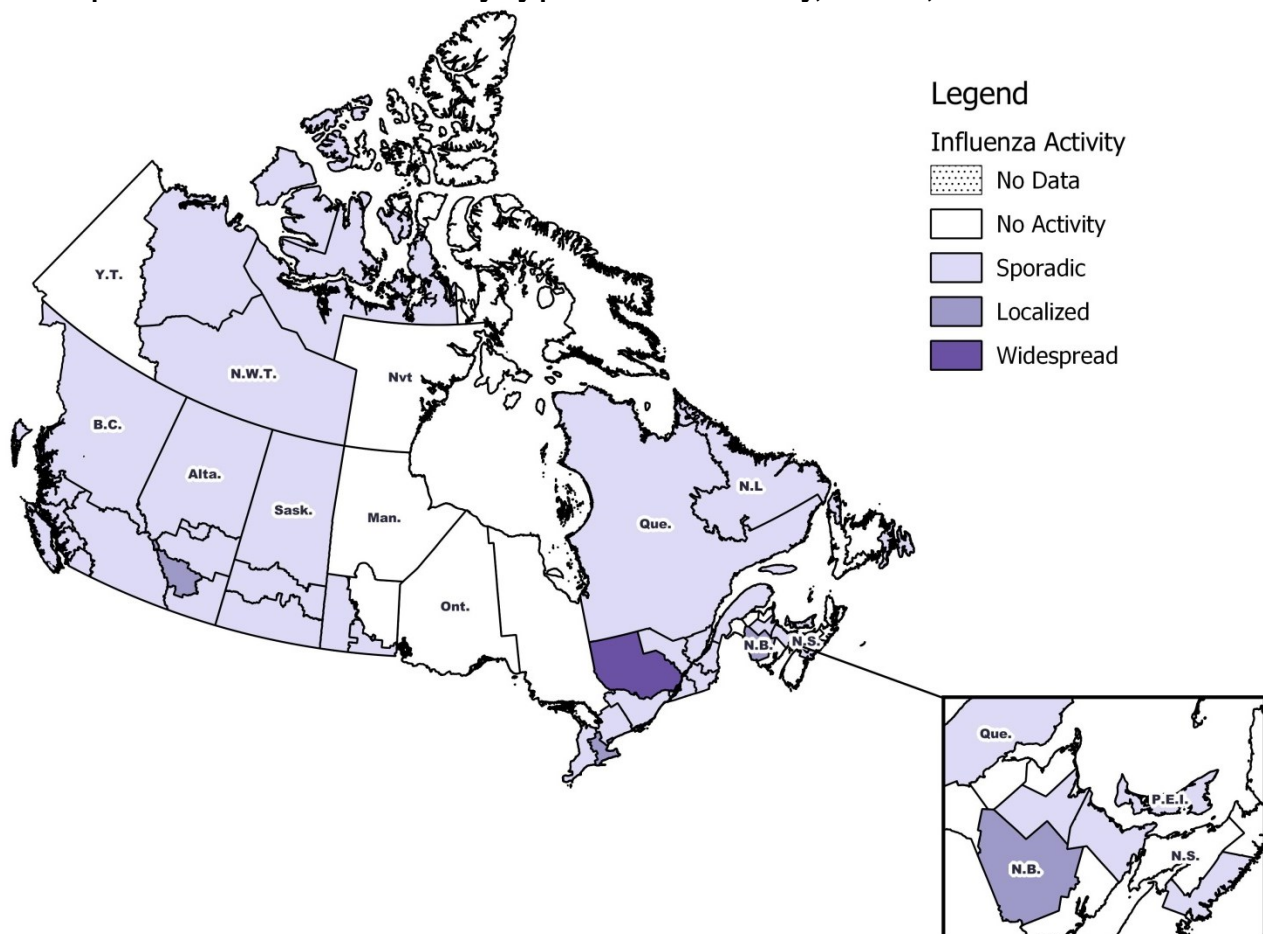
- Influenza activity continued to increase in week 47.
- Influenza A is the most common influenza virus circulating in Canada, and the majority of these viruses are A(H1N1)pdm09.
- The number of influenza-associated hospitalizations continued to increase in week 47. In particular, the number of pediatric hospitalizations is significantly higher than in recent years.

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

During week 47, influenza activity levels increased slightly compared to the previous week (Figure 1):

- One region reported widespread activity: in Que.(1),
- Four regions reported localized activity: in Alta.(1), Ont.(2), and N.B.(1),
- Sporadic activity was reported by 32 regions, in B.C.(5), Alta.(4), Sask.(3), Man.(3), Ont.(3), Que.(5), N.B.(2), N.S.(1), P.E.I.(1), N.L.(2), N.W.T.(2) and Nvt.(1).
- No activity was reported by 16 regions.

Figure 1 – Map of overall influenza/ILI activity by province and territory, Canada, week 2018-47



## Laboratory-Confirmed Influenza Detections

In week 47, the following results were reported from sentinel laboratories across Canada (Figure 2):

- The percentage of tests positive for influenza continued to increase to 15.3% 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 47, 950 laboratory detections of influenza were reported, of which 99% were influenza A.

To date this season, 3,176 laboratory-confirmed influenza detections have been reported (Figure 3):

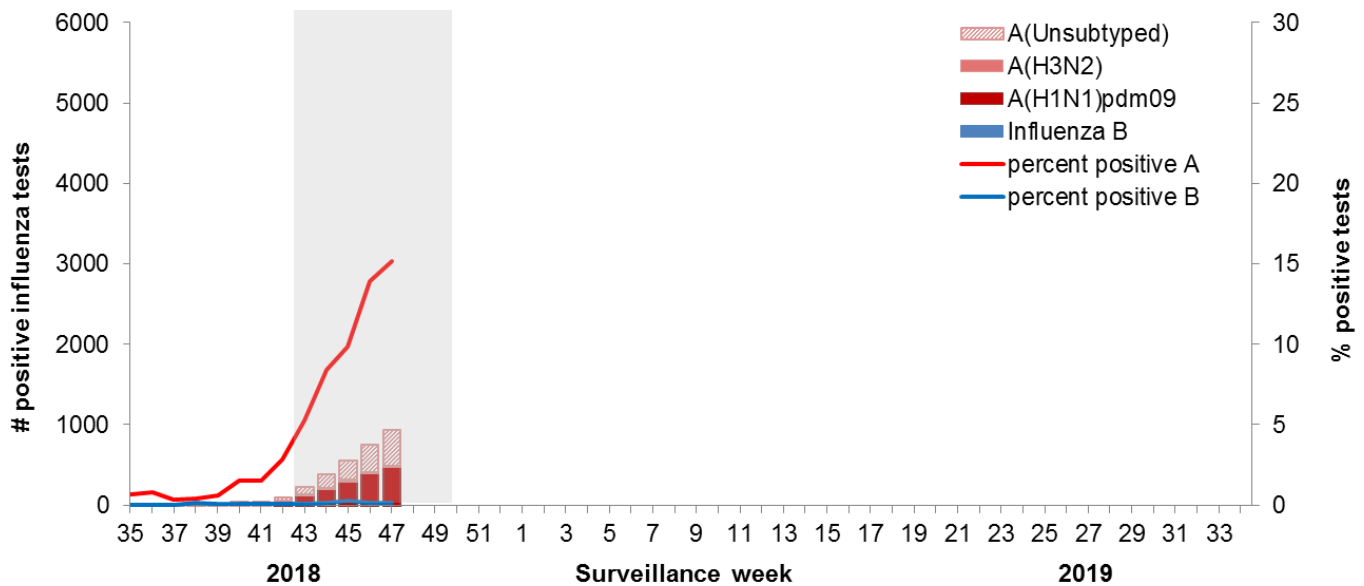
- 92% have been influenza A.
- Among the 1,760 influenza A viruses subtyped, 82% have been A(H1N1)pdm09.
- Provincial and territorial differences in influenza type/subtype distribution are observed (Figure 3).

To date this season, detailed information on age and type/subtype has been received for 3,155 laboratory-confirmed influenza cases (Table 1):

- 69% of all influenza A(H1N1)pdm09 detections have been reported in individuals younger than 45 years of age.
- 70% of all influenza A(H3N2) detections have been reported in adults 65 years of age and older.

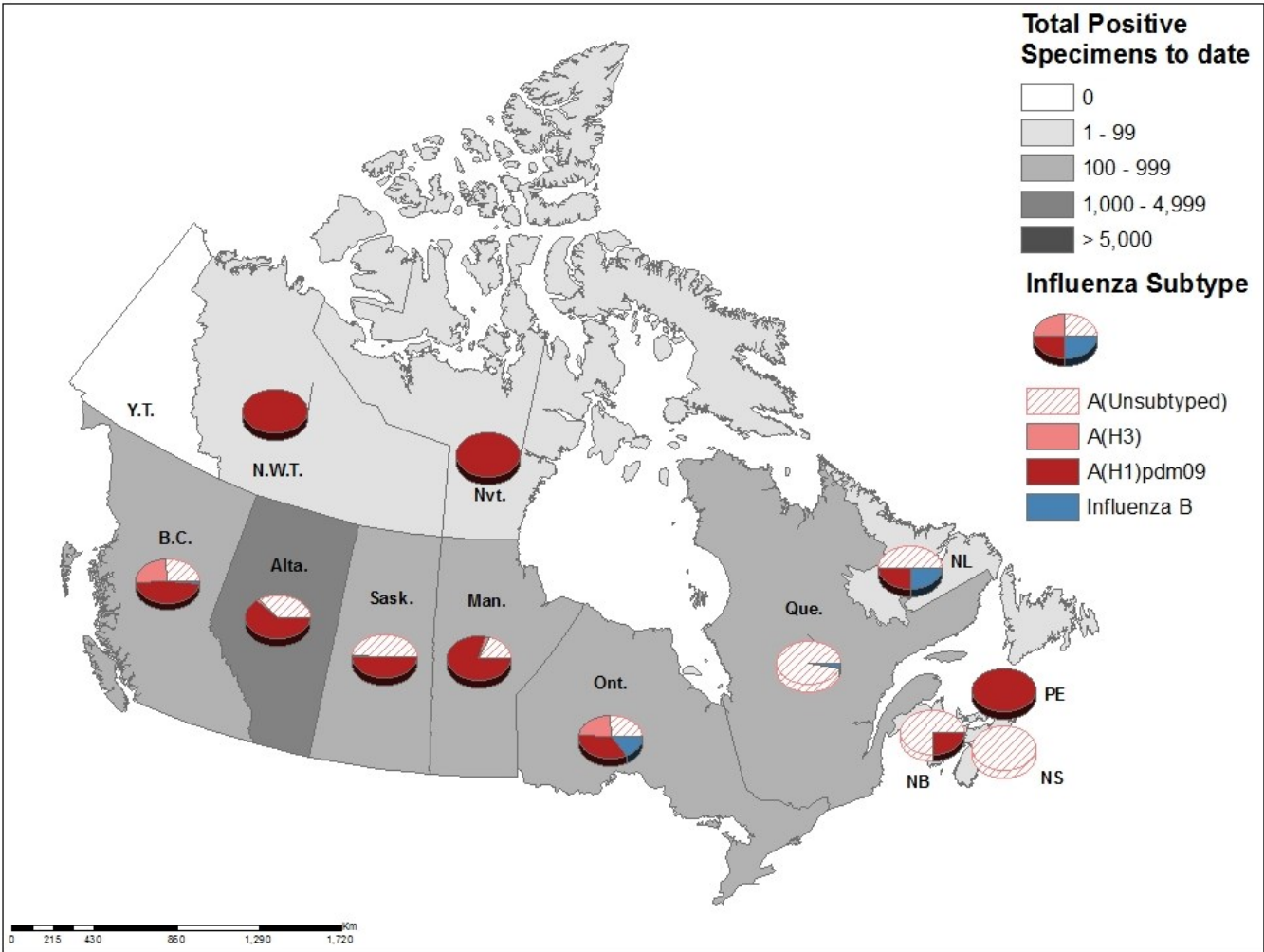
For more detailed weekly and cumulative influenza data, see the text descriptions for [Figures 2 and 3](#) or the [Respiratory Virus Detections in Canada Report](#).

**Figure 2 – Number of positive influenza tests and percentage of tests positive, by type, subtype and report week, Canada, weeks 2018-35 to 2018-47**



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 2018-47**



**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 2018-47**

Age groups (years)	Cumulative (August 26, 2018 to November 24, 2018)						
	Influenza A				B	Influenza A and B	
	A Total	A(H1N1) pdm09	A(H3N2)	A (UnS) <sup>1</sup>		Total	#
0-4	632	377	3	252	5	637	20%
5-19	650	334	5	311	11	661	21%
20-44	797	399	15	383	9	806	26%
45-64	565	285	32	248	7	572	18%
65+	465	206	131	128	14	479	15%
<b>Total</b>	<b>3109</b>	<b>1601</b>	<b>186</b>	<b>1322</b>	<b>46</b>	<b>3155</b>	<b>100%</b>

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

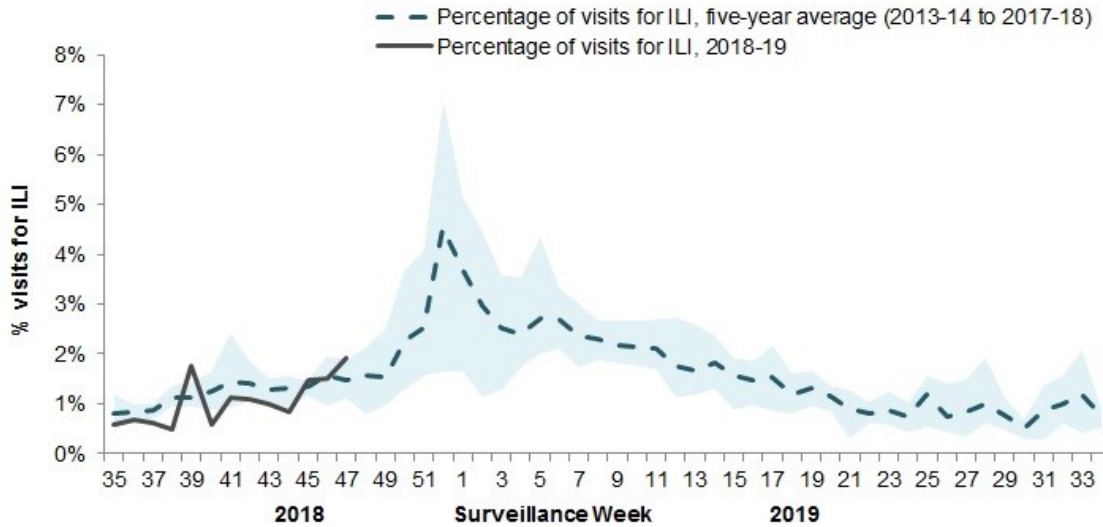
## Syndromic / Influenza-like Illness Surveillance

### Healthcare Practitioners Sentinel Syndromic Surveillance

In week 47, 1.9% 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 2018-47**

Number of Sentinels Reporting in Week 47: 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

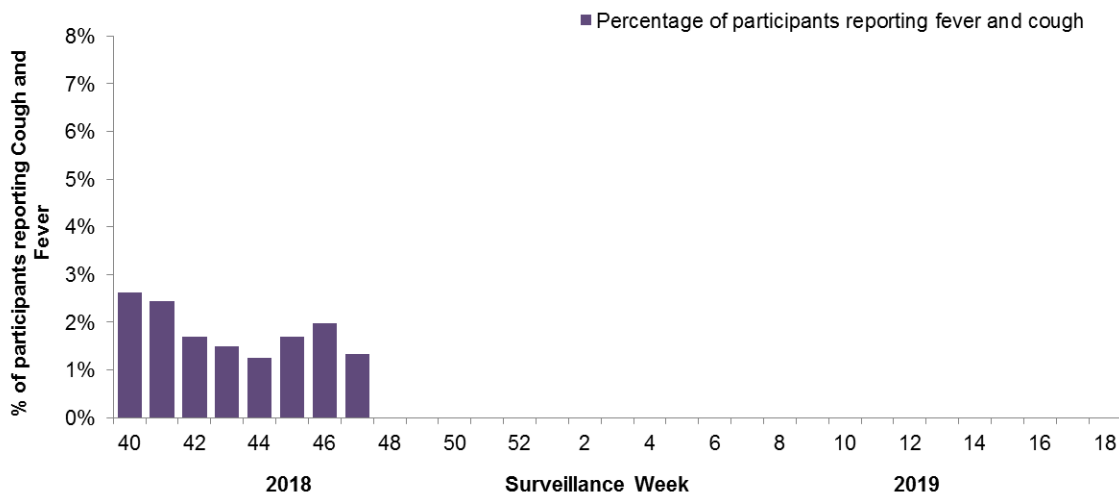
In week 47, 2,182 participants reported to FluWatchers, of which 29 (1.3%) reported symptoms of cough and fever (Figure 5).

Among the 29 participants who reported fever and cough:

- 28% consulted a healthcare professional;
- 83% reported days missed from work or school, resulting in a combined total of 66 missed days of work or school.

**Figure 5 – Percentage of participants reporting cough and fever, Canada, weeks 2018-40 to 2018-47**

Number of Participants Reporting in Week 47: 2,182



## Influenza Outbreak Surveillance

In week 47, five new laboratory-confirmed influenza outbreaks were reported in long-term care (3) and acute care (2) facilities.

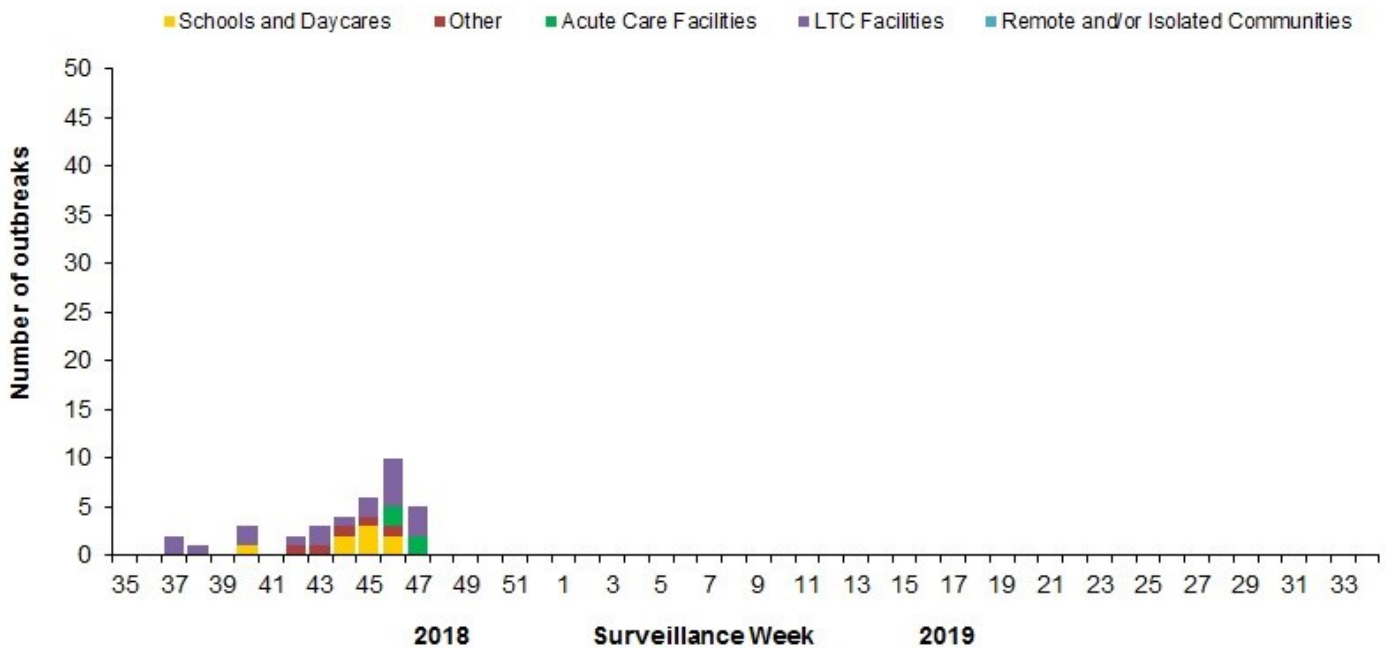
To date this season, 36 laboratory-confirmed influenza outbreaks have been reported (Figure 6):

- 19 outbreaks were in LTCF, eight were in schools, and five were in other settings.
- All of the 30 outbreaks for which the influenza type was available were associated with influenza A.
- Among the 21 outbreaks for which the influenza A subtype was available:
  - 17 were associated with influenza A(H1N1)pdm09;
  - Four were associated with A(H3N2);

One new ILI outbreak in a LTCF was reported in week 47.

To date this season, 25 ILI outbreaks have been reported; 23 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 2018-47**



## Severe Outcomes Influenza Surveillance

### Provincial/Territorial Influenza Hospitalizations and Deaths

To date this season, more than 471 influenza-associated hospitalizations have been reported by participating provinces and territories<sup>1</sup>.

#### Hospitalizations (Table 2):

- 99% (471) were associated with influenza A
- The highest estimated rate of hospitalization are among children under 5 years of age.

#### Intensive Care Unit (ICU) cases and deaths:

- To date this season 49 ICU admissions and nine deaths have been reported.

**Table 2 – Cumulative number and estimated rate of hospitalizations by age-group reported by participating provinces and territories<sup>1</sup>, Canada, weeks 2018-35 to 2018-47**

Age Groups (years)	Cumulative (August 26, 2018 to November 24, 2018)		
	Influenza A	Influenza B	Rate per 100,000 population
0-4	95	0	7.77
5-19	64	0	2.31
20-44	72	0	1.20
45-64	115	0	2.39
65+	125	<5	5.18
<b>Total</b>	471	<5	
<b>%</b>	99%	1%	

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

### Pediatric Influenza Hospitalizations and Deaths

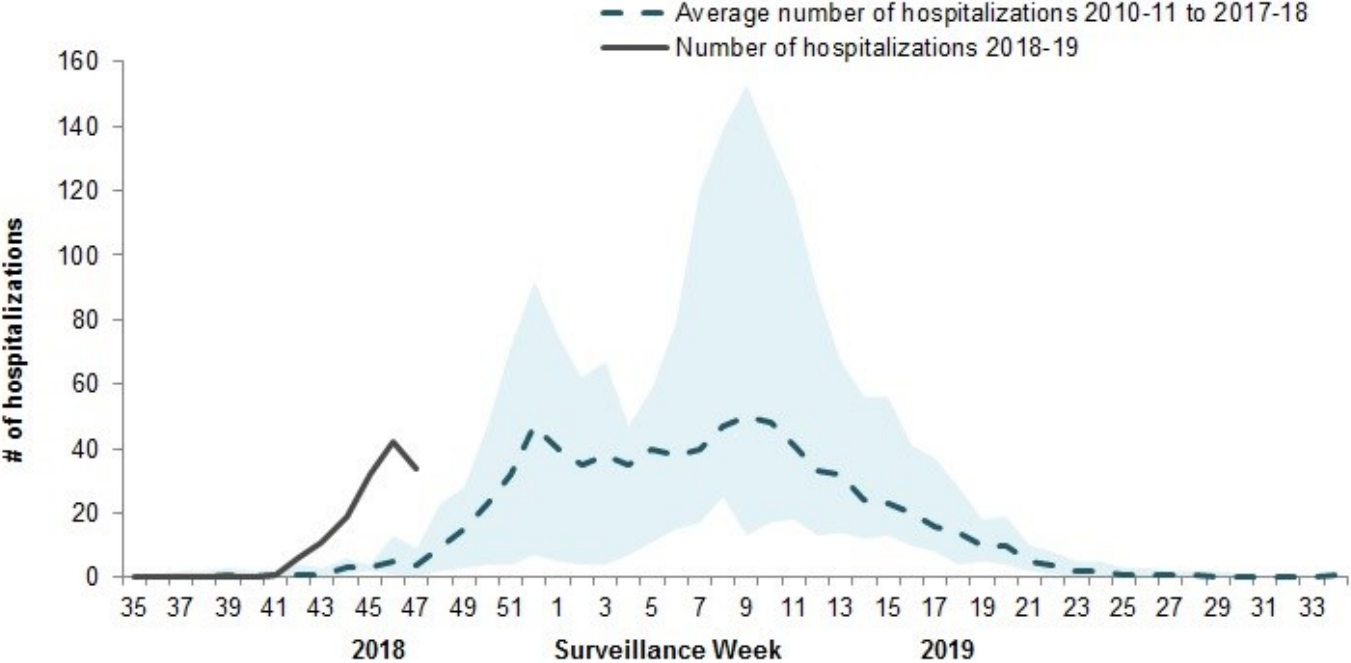
In week 47, 34 pediatric (≤16 years of age) hospitalizations with influenza have been reported by the Immunization Monitoring Program Active (IMPACT) network. Pediatric hospitalizations reported by IMPACT are at levels not normally seen until late December (4-6 weeks earlier than in recent seasons) (Figure 7).

To date this season, 145 pediatric hospitalizations have been reported (Figure 8):

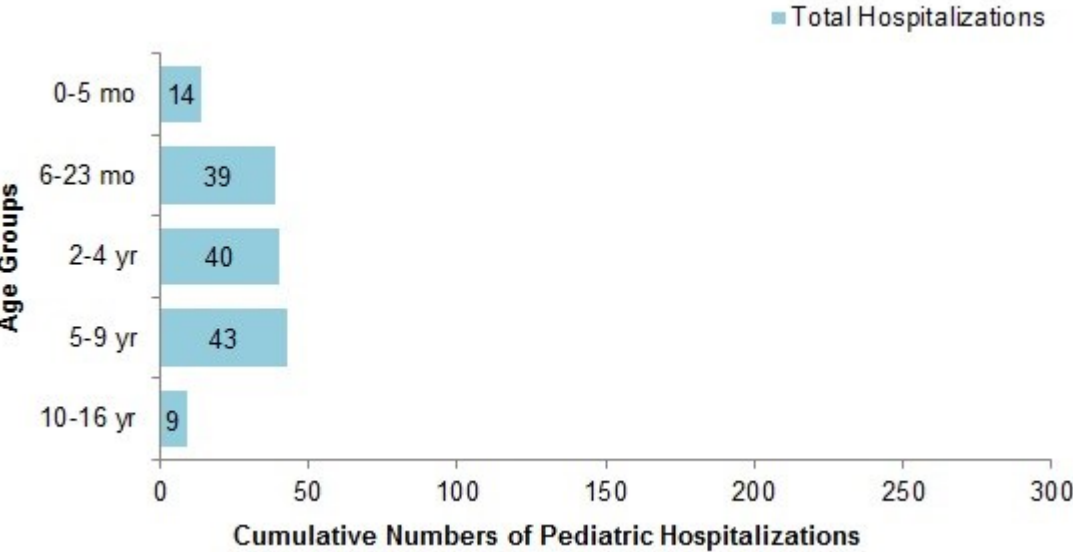
- All but two cases have been associated with influenza A.
- Among the 109 cases for which the influenza subtype was available, 108 were associated with A(H1N1)pdm09.

To date this season, 18 ICU admissions, and no deaths have been reported.

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



**Figure 8 - Cumulative numbers of pediatric hospitalizations ( $\leq 16$  years of age) with influenza by age-group reported by the IMPACT network, Canada, weeks 2018-35 to 2018-47**



**Adult Influenza Hospitalizations and Deaths**

Surveillance of laboratory-confirmed influenza-associated adult ( $\geq 16$  years of age) hospitalizations by the Canadian Immunization Research Network (CIRN) Serious Outcomes Surveillance (SOS) network began on November 1<sup>st</sup> for the 2018-19 season.

To date this season, 17 hospitalizations have been reported, of which 15 were associated with influenza A and 2 with influenza B.

## Influenza Strain Characterizations

Since September 1, 2018, the National Microbiology Laboratory (NML) has characterized 101 influenza viruses (11 A(H3N2), 80 A(H1N1) and 10 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):

- 80 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).

- Ten influenza B viruses were 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:

95 influenza A (18 A(H3N2) and 77 A(H1N1)) viruses were tested for resistance to amantadine and it was found that:

- All 95 influenza A viruses were resistant to amantadine.

### Antiviral Resistance – Oseltamivir:

102 influenza viruses (16 A(H3N2), 76 A(H1N1) and 10 B) were tested for resistance to oseltamivir and it was found that:

- All influenza viruses were sensitive to oseltamivir

### Antiviral Resistance – Zanamivir:

102 influenza viruses (16 A(H3N2), 76 H1N1 and 10 B) were tested for resistance to zanamivir and it was found that:

- All influenza viruses were 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.*