

November 20 to 26, 2016 (Week 47)

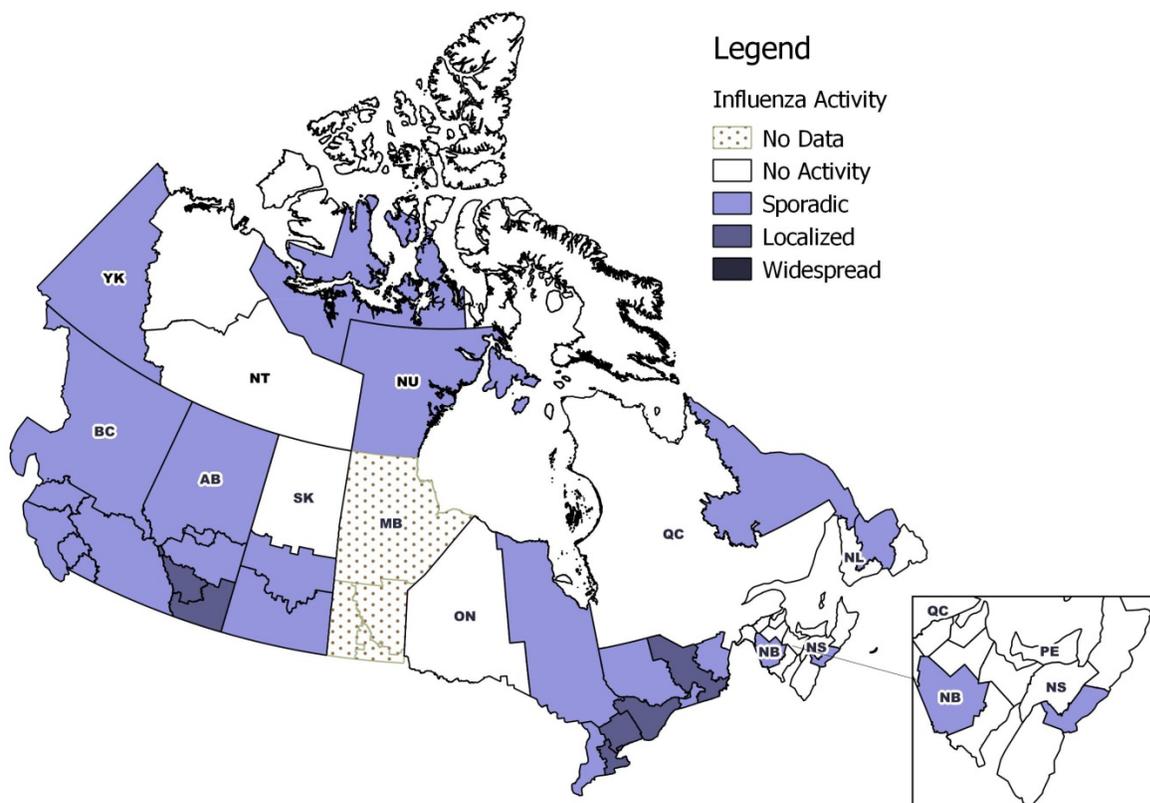
## Overall Summary

- Influenza activity is reaching seasonal levels with many regions in Canada reporting increasing influenza activity.
- A total of 256 positive influenza detections were reported in week 47. Influenza A(H3N2) continues to be the most common subtype detected.
- In week 47, 1.2% of visits to sentinel healthcare professionals were due to influenza-like symptoms.
- Nine laboratory-confirmed influenza outbreaks were reported in week 47 with the majority in long-term care facilities.
- Thirty-seven hospitalizations were reported from participating provinces and territories in week 47; the majority due to influenza A(H3N2).
- For more information on the flu, see our [Flu\(influenza\)](#) web page.

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

In week 47, a total of 18 regions in Canada reported no influenza activity. Sporadic influenza activity was reported in 23 regions across ten provinces and territories (BC, AB, SK, ON, QC, NB, NS, YK, NF and NU). Localized activity was reported in seven regions across three provinces and territories (AB, ON and QC). For more details on a specific region, click on the map.

**Figure 1 – Map of overall influenza/ILI activity level by province and territory, Canada, Week 47**

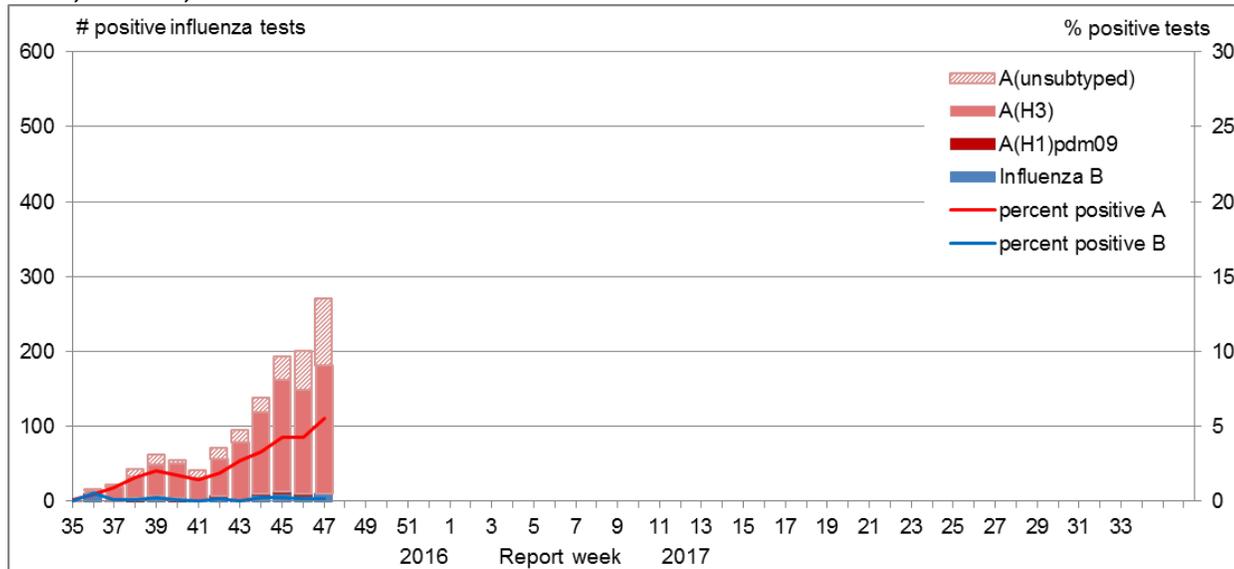


Note: Influenza/ILI activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates and reported outbreaks. Please refer to detailed definitions at the end of the report. Maps from previous weeks, including any retrospective updates, are available in the mapping feature found in the [Weekly Influenza Reports](#).

## Laboratory Confirmed Influenza Detections

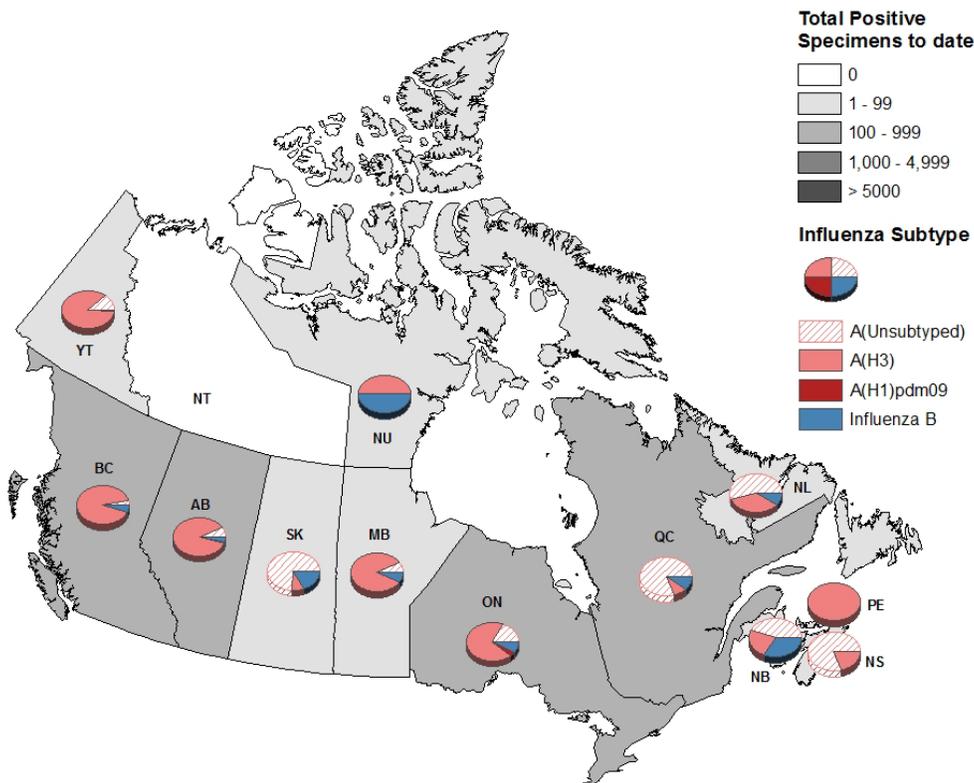
In week 47, the percentage of tests positive for influenza increased with 5.7% of tests positive for influenza. The percentage of tests positive for influenza is entering seasonal levels. For data on other respiratory virus detections, see the [Respiratory Virus Detections in Canada Report](#) on the Public Health Agency of Canada (PHAC) website.

**Figure 2 – Number of positive influenza tests and percentage of tests positive, by type, subtype and report week, Canada, 2016-17**



Nationally in week 47, there were 256 positive influenza tests. AB reported the largest proportion of positive influenza detections (35%) in week 47. To date, influenza A(H3N2) is the most common subtype detected, representing 78% of laboratory-confirmed cases. 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 3 – Cumulative numbers of positive influenza specimens by type/subtype and province/territory, Canada, 2016-17**



To date this season, detailed information on age and type/subtype has been received for 1047 laboratory confirmed influenza cases. Adults aged 65+ accounted for over 41% of reported influenza cases. Among cases of influenza A(H3N2), adults aged 65+ accounted for 42% of cases.

**Table 1 – Weekly and cumulative numbers of positive influenza specimens by type, subtype and age-group reported through case-based laboratory reporting<sup>1</sup>, Canada, 2016-17**

| Age groups (years)            | Week (November 20, 2016 to November 26, 2016) |             |       |                      |       | Cumulative (August 28, 2016 to November 26, 2016) |             |       |                      |       |                   |      |
|-------------------------------|---|-------------|-------|----------------------|-------|---|-------------|-------|----------------------|-------|-------------------|------|
|                               | Influenza A                                   |             |       |                      | B     | Influenza A                                       |             |       |                      | B     | Influenza A and B |      |
|                               | A Total                                       | A(H1) pdm09 | A(H3) | A (UnS) <sup>3</sup> | Total | A Total   | A(H1) pdm09 | A(H3) | A (UnS) <sup>3</sup> | Total | #                 | %    |
| 0-4                           | 14  | 0           | 5     | 9                    | <5    | 67  | 0           | 49    | 18                   | 16    | 83                | 8%   |
| 5-19                          | 33  | 0           | 15    | 18                   | 0     | 131   | 0           | 104   | 27                   | 5     | 136               | 13%  |
| 20-44                         | 28  | 0           | 16    | 12                   | 0     | >180  | <5          | 143   | 37                   | 11    | >191              | x%   |
| 45-64                         | 30  | 0           | 13    | 17                   | <5    | 197   | 6           | 150   | 41                   | 9     | 206               | 20%  |
| 65+                           | 60  | 0           | 38    | 22                   | 0     | >416  | <5          | 329   | 87                   | 9     | >425              | x%   |
| <b>Total</b>                  | 165   | 0           | 87    | 78                   | 5     | 997   | 12          | 775   | 210                  | 50    | 1047              | 100% |
| <b>Percentage<sup>2</sup></b> | 97%   | 0%          | 53%   | 47%                  | 3%    | 95%   | 1%          | 78%   | 21%                  | 5%    |                   |      |

<sup>1</sup>Table 1 includes specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Cumulative data include updates to previous weeks.

<sup>2</sup>Percentage of tests positive for sub-types of influenza A are a percentage of all influenza A detections.

<sup>3</sup>UnS: unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available.

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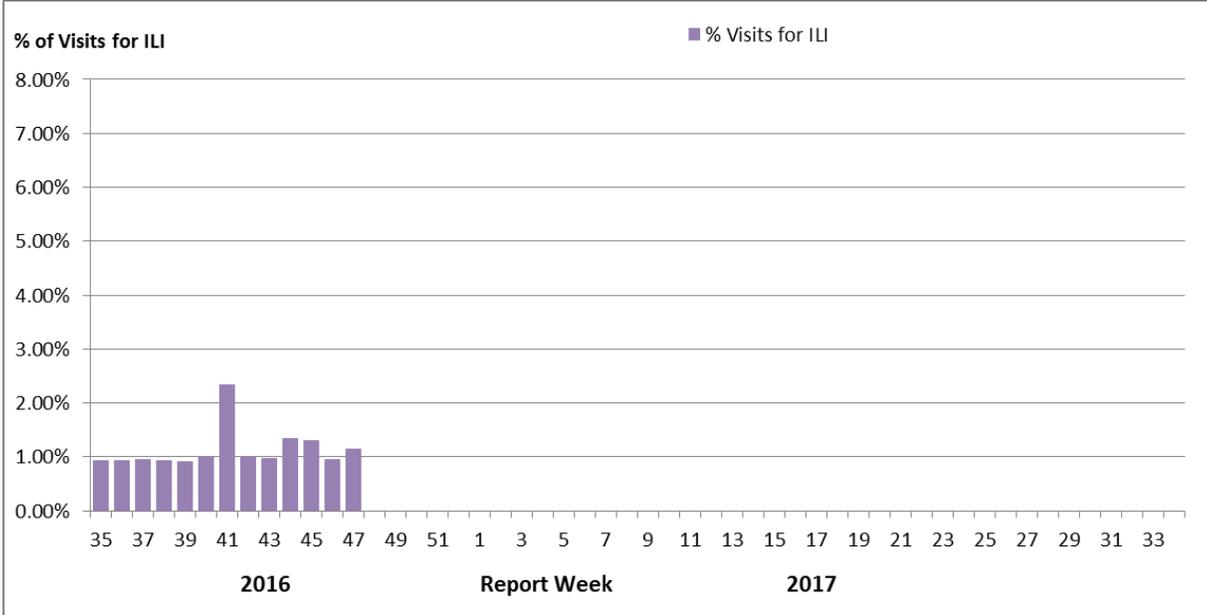
Specimens from NT, YT, and NU are sent to reference laboratories in the provinces

## Syndromic/Influenza-like Illness Surveillance

### Healthcare Professionals Sentinel Syndromic Surveillance

In week 47, 1.2% of visits to healthcare professionals were due to ILI, a slight increase from the previous week.

**Figure 4 – Percentage of visits for ILI reported by sentinels by report week, Canada, 2016-17**  
Number of Sentinels Reporting Week 47: 116



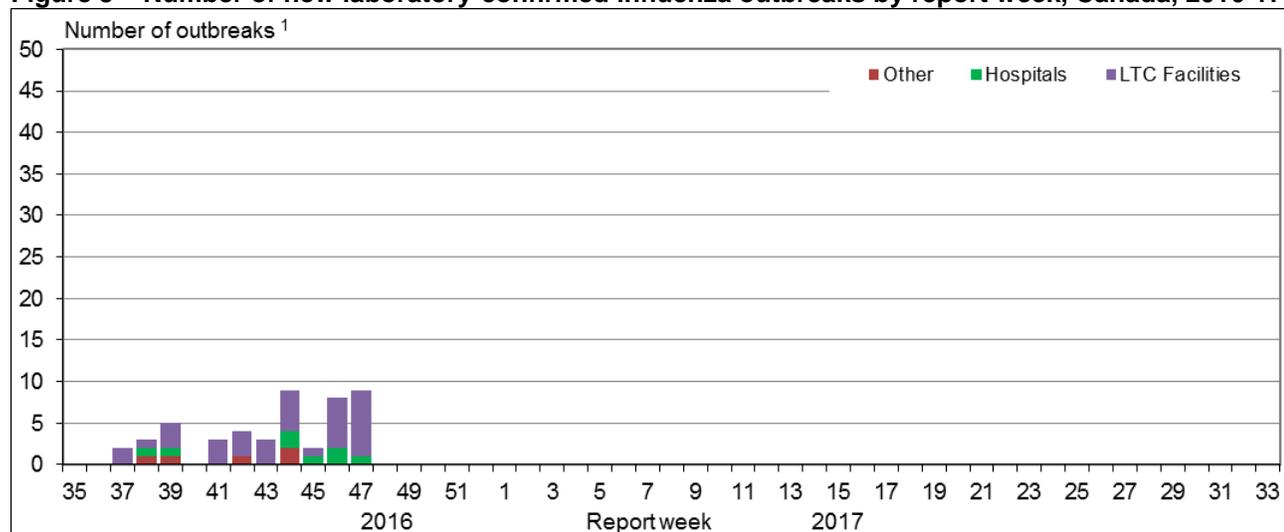
Delays in the reporting of data may cause data to change retrospectively. In BC, AB, and SK, data are compiled by a provincial sentinel surveillance program for reporting to FluWatch. Not all sentinel physicians report every week.

**Are you a primary healthcare practitioner (General Practitioner, Nurse Practitioner or Registered Nurse) interested in becoming a FluWatch sentinel? Please visit our [Influenza Sentinel page](#) for more details.**

## Influenza Outbreak Surveillance

In week 47, nine laboratory confirmed influenza outbreaks were reported. Eight outbreaks were reported in long-term care (LTC) facilities and one outbreak was reported in a hospital. Of the outbreaks with known strains or subtypes, two outbreaks (in a LTC facility and in a hospital) were due to influenza A(H3N2). To date this season, 50 outbreaks have been reported and the majority (70%) have occurred in LTC facilities.

**Figure 5 – Number of new laboratory-confirmed influenza outbreaks by report week, Canada, 2016-17**



<sup>1</sup>All provinces and territories except NU report influenza outbreaks in long-term care facilities. All provinces and territories with the exception of NU and QC report outbreaks in hospitals. Outbreaks of influenza or influenza-like-illness in other facilities are reported to FluWatch but reporting varies between jurisdictions. Outbreak definitions are included at the end of this report.

## Provincial/Territorial Influenza Hospitalizations and Deaths

In week 47, 37 influenza-associated hospitalizations were reported by participating provinces and territories\*. Influenza A accounted for 97% (n=36) of the reported hospitalizations, of which 76% (n=25) were influenza A(H3N2). Adults aged 65+ accounted for the largest proportion of hospitalizations (60%).

To date this season, 175 hospitalizations have been reported, of which 135 (77%) were due to influenza A(H3N2). Adults 65+ accounted for 61% of the hospitalizations. Twelve ICU admissions (majority were due to influenza A[H3N2]) and less than five deaths have been reported.

**Table 2 – Cumulative number of hospitalizations, ICU admissions and deaths by age and influenza type reported by participating provinces and territories, Canada, 2016-17**

| Age Groups (years) | Cumulative (Aug. 28, 2016 to Nov. 26, 2016) |                   |               |                         |      |                         |      |
|--------------------|---|-------------------|---------------|-------------------------|------|-------------------------|------|
|                    | Hospitalizations                            |                   |               | ICU Admissions          |      | Deaths                  |      |
|                    | Influenza A Total                           | Influenza B Total | Total [# (%)] | Influenza A and B Total | %    | Influenza A and B Total | %    |
| 0-4                | 8   | <5                | >8 (x%)       | 0                       | 0%   | 0                       | 0%   |
| 5-19               | 13  | <5                | >13 (x%)      | <5                      | x%   | 0                       | 0%   |
| 20-44              | 15  | <5                | >15 (x%)      | <5                      | x%   | 0                       | 0%   |
| 45-64              | 27  | <5                | >27 (x%)      | <5                      | x%   | 0                       | 0%   |
| 65+                | 104   | <5                | >104 (x%)     | 6                       | 50%  | <5                      | 100% |
| <b>Total</b>       | 167   | 8                 | 175 (100%)    | 12                      | 100% | <5                      | 100% |

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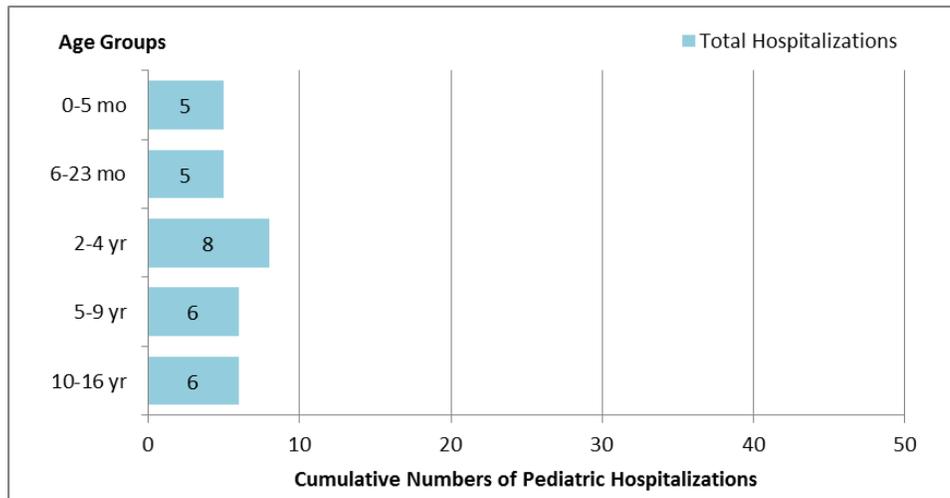
\*Note: Influenza-associated hospitalizations are not reported to PHAC by BC, NU, and QC. Only hospitalizations that require intensive medical care are reported by SK. ICU admissions are not distinguished among hospital admissions reported from ON. The hospitalization or death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting.

# Sentinel Hospital Influenza Surveillance

## Pediatric Influenza Hospitalizations and Deaths

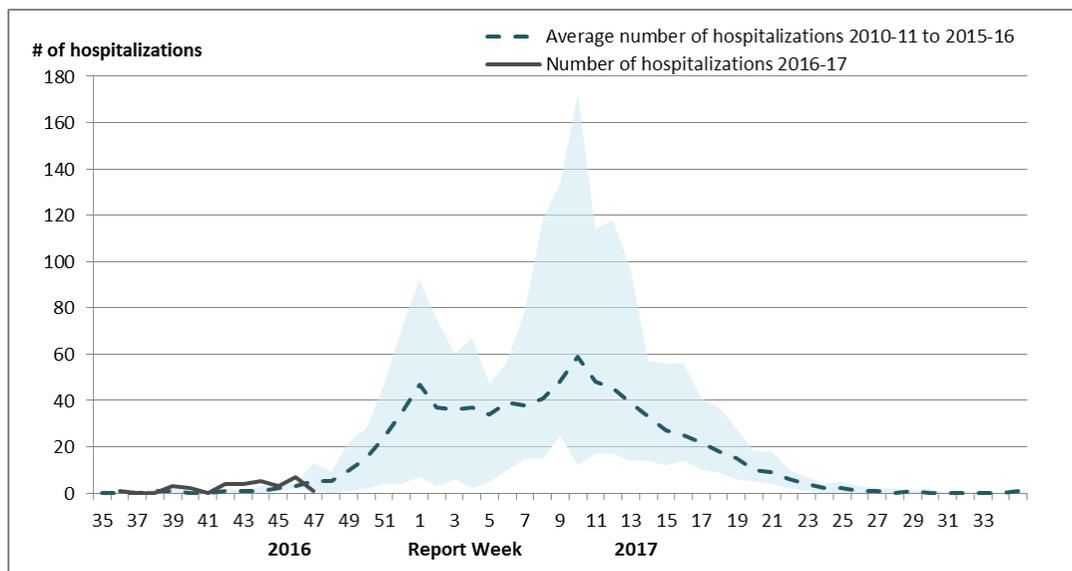
To date this season, 30 laboratory-confirmed influenza-associated pediatric ( $\leq 16$  years of age) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network. Children from all age groups are being affected similarly. Influenza A accounted for 80% ( $n=24$ ) of the reported hospitalizations, of which 71% ( $n=17$ ) were influenza A(H3N2).

**Figure 6 – Cumulative numbers of pediatric hospitalizations ( $\leq 16$  years of age) with influenza by age-group reported by the IMPACT network, Canada, 2016-17**



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

**Figure 7 – Number of pediatric ( $\leq 16$  years of age) hospitalizations reported by the IMPACT network, by week, Canada, 2016-17**



The shaded area represents the maximum and minimum number of cases reported by week from seasons 2010-11 to 2015-16

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

## Adult Influenza Hospitalizations and Deaths

To date this season, seven laboratory-confirmed influenza-associated adult ( $\geq 20$  years of age) hospitalizations were reported by the Canadian Immunization Research Network (CIRN).

## Influenza Strain Characterizations

During the 2016-17 influenza season, the National Microbiology Laboratory (NML) has characterized 105 influenza viruses [89 A(H3N2), 6 A(H1N1), 10 influenza B]. All influenza A viruses (n=95) and 7 influenza B viruses characterized were antigenically or genetically similar to the vaccine strains included in both the trivalent and quadrivalent vaccines. Three influenza B viruses were similar to the strain which included only the quadrivalent vaccine.

**Table 3 – Influenza strain characterizations, Canada, 2016-17**

| Strain Characterization Results <sup>1</sup>           | Count | Description  |
|--|-------|--|
| <b>Influenza A (H3N2)</b>                              |       |  |
| Antigenically<br>A/Hong Kong/4801/2014-like            | 40    | Viruses antigenically similar to A/Hong Kong/4801/2014, the A(H3N2) component of the 2016-17 Northern Hemisphere's trivalent and quadrivalent vaccine.   |
| Genetically <sup>2</sup><br>A/Hong Kong/4801/2014-like | 49    | Viruses belonging to genetic group 3C.2a. A/Hong Kong/4801/2014-like virus belongs to genetic group 3C.2a and is the influenza A(H3N2) component of the 2016-17 Northern Hemisphere's trivalent and quadrivalent vaccine.<br><br>Additionally, genetic characterization of the 40 influenza A (H3N2) viruses that underwent HI testing, determined that 27 viruses belonged to genetic group 3C.2a and 5 viruses belonged to genetic group 3C.3a. Sequencing is pending for the remaining 8 isolates. The majority of viruses belonging to genetic group 3C.3a are inhibited by antisera raised against A/Hong Kong/4801/2014 <sup>3</sup> . |
| <b>Influenza A (H1N1)</b>                              |       |  |
| A/California/7/2009-like                               | 6     | Viruses antigenically similar to A/California/7/2009, the A(H1N1) component of the 2016-17 Northern Hemisphere's trivalent and quadrivalent vaccine influenza vaccine.   |
| <b>Influenza B</b>                                     |       |  |
| B/Brisbane/60/2008-like<br>(Victoria lineage)          | 7     | Viruses antigenically similar to B/Brisbane/60/2008, the influenza B component of the 2016-17 Northern Hemisphere's <b>trivalent</b> and <b>quadrivalent</b> influenza vaccine   |
| B/Phuket/3073/2013-like<br>(Yamagata lineage)          | 3     | Viruses antigenically similar to B/Phuket/3073/2013, the additional influenza B component of the 2016-17 Northern Hemisphere <b>quadrivalent</b> influenza vaccine.  |

<sup>1</sup>The NML receives a proportion of the influenza positive specimens from provincial laboratories for strain characterization and antiviral resistance testing. Strain characterization data reflect the results of hemagglutination inhibition (HI) testing compared to the reference influenza strains recommended by [WHO](#).

<sup>2</sup>Determined by sequence analysis

<sup>3</sup>[WHO](#) - Recommended composition of the influenza virus vaccines for use in the 2016-17 northern hemisphere influenza season.

## Antiviral Resistance

During the 2016-17 season, the National Microbiology Laboratory (NML) has tested 102 influenza viruses for resistance to oseltamivir and zanamivir and 43 influenza viruses for resistance to amantadine. All viruses were sensitive to oseltamivir and zanamivir. All 39 influenza A viruses were resistant to amantadine (Table 4).

**Table 4 – Antiviral resistance by influenza virus type and subtype, Canada, 2016-17**

| Virus type and subtype | Oseltamivir |                 | Zanamivir |                 | Amantadine      |                 |
|------------------------|-------------|-----------------|-----------|-----------------|-----------------|-----------------|
|                        | # tested    | # resistant (%) | # tested  | # resistant (%) | # tested        | # resistant (%) |
| <b>A (H3N2)</b>        | 88          | 0 (0%)          | 88        | 0 (0%)          | 39              | 39 (100%)       |
| <b>A (H1N1)</b>        | 5           | 0 (0%)          | 5         | 0 (0%)          | 4               | 4 (100%)        |
| <b>B</b>               | 9           | 0 (0%)          | 9         | 0 (0%)          | NA <sup>1</sup> | NA <sup>1</sup> |
| <b>TOTAL</b>           | 102         | 0 (0%)          | 102       | 0 (0%)          | 43              | 43 (100%)       |

<sup>1</sup>NA: Not Applicable

## Provincial and International Influenza Reports

- [World Health Organization influenza update](#)
- [World Health Organization FluNet](#)
- [WHO Influenza at the human-animal interface](#)
- [Centers for Disease Control and Prevention seasonal influenza report](#)
- [European Centre for Disease Prevention and Control - epidemiological data](#)
- [South Africa Influenza surveillance report](#)
- [New Zealand Public Health Surveillance](#)
- [Australia Influenza Report](#)
- [Pan-American Health Organization Influenza Situation Report](#)
- [Alberta Health – Influenza Surveillance Report](#)
- [BC - Centre for Disease Control \(BCCDC\) - Influenza Surveillance](#)
- [New Brunswick – Influenza Surveillance Reports](#)
- [Newfoundland and Labrador – Surveillance and Disease Reports](#)
- [Nova Scotia - Flu Information](#)
- [Public Health Ontario – Ontario Respiratory Pathogen Bulletin](#)
- [Quebec - Système de surveillance de la grippe](#)
- [Manitoba – Epidemiology and Surveillance – Influenza Reports](#)
- [Saskatchewan – influenza Reports](#)
- [PEI – Influenza Summary](#)

### **FluWatch Definitions for the 2016-2017 Season**

**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).

**Influenza-like-illness (ILI):** 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.

#### **ILI/Influenza outbreaks**

**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. 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.

*Note that reporting of outbreaks of influenza/ILI from different types of facilities differs between jurisdictions.*

#### **Influenza/ILI Activity Levels**

**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\* ;  
(2) lab confirmed influenza detection(s);  
(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\*;  
(2) lab confirmed influenza detection(s);  
(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 Government of Canada Influenza webpage. Ce rapport est disponible dans les deux langues officielles.*