

January 26 to February 1, 2020 (week 05)

Overall Summary

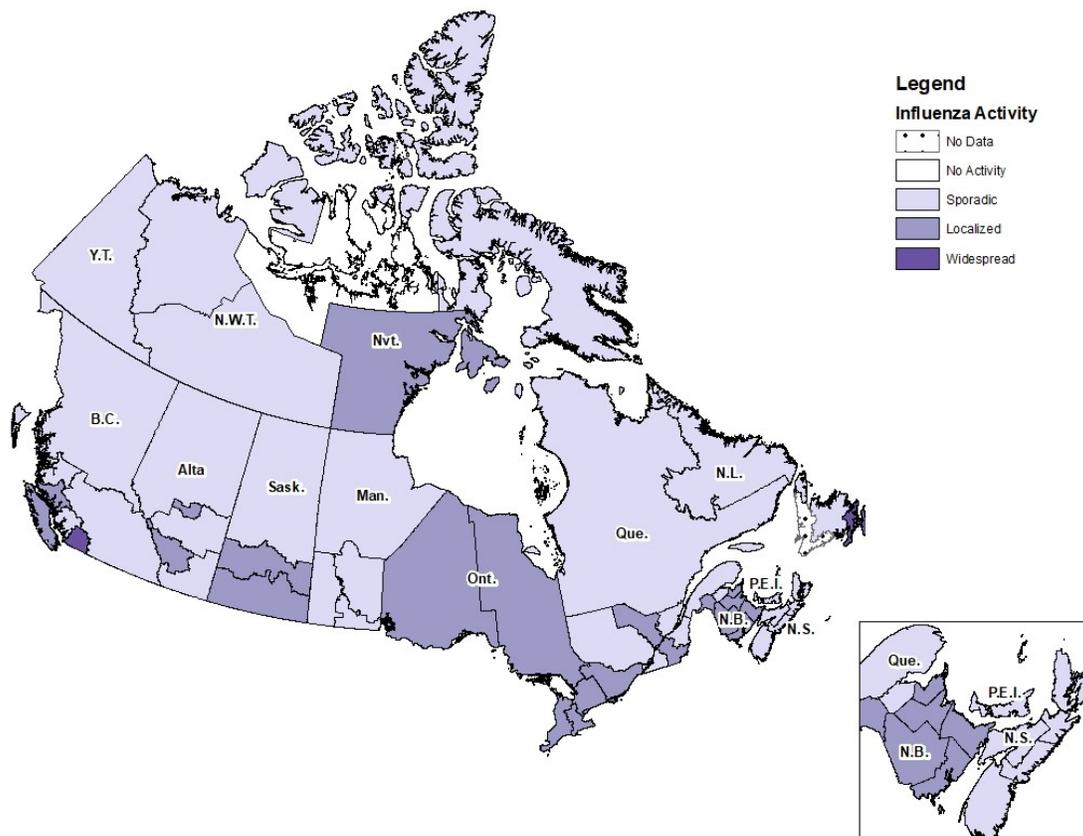
- Influenza activity remained high in week 05, with almost all indicators increasing from the previous week.
- Influenza A and B continue to co-circulate.
- Influenza A(H1N1) is currently the dominant influenza A circulating in Canada, representing 84% of subtyped influenza A specimens in week 05.
- The highest cumulative hospitalization rates are among children under 5 years of age and adults 65 years of age and older.

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

During week 05, influenza activity was reported in all provinces and territories and in almost all regions (51). Among these regions, 56% reported sporadic activity, 38% reported localized activity, and 4% reported widespread activity (Figure 1).

Figure 1 – Map of influenza/ILI activity by province and territory, Canada, week 2019-05

Number of Regions Reporting in Week 05: 52 out of 53



Laboratory-Confirmed Influenza Detections

In week 05, the percentage of laboratory tests positive for influenza continued to increase and surpassed the previous peak reported in late December. The percentage of tests positive for influenza was 30% in week 05, up from 28% in week 04. Influenza A and B continue to co-circulate; however, the recent increase in laboratory detections is mainly driven by an increase in influenza B detections.

The following results were reported from sentinel laboratories across Canada (Figures 2 and 3):

- The percentage of tests positive for influenza B was 14% week 05. This continues to be three times greater than the average (4.2%) for this time of year.
- The percentage of tests positive for influenza A was 16% in week 05, which is average for this time of year.
- Among subtyped influenza A detections, influenza A(H1N1) accounted for 84% of detections, up from 75% in week 04.

To date this season (weeks 35 to 05), 29,023 laboratory detections of influenza were reported:

- 58% (16,763) were influenza A.
- Among subtyped influenza A detections (4,470), A(H1N1) is the predominant subtype this season (61%).

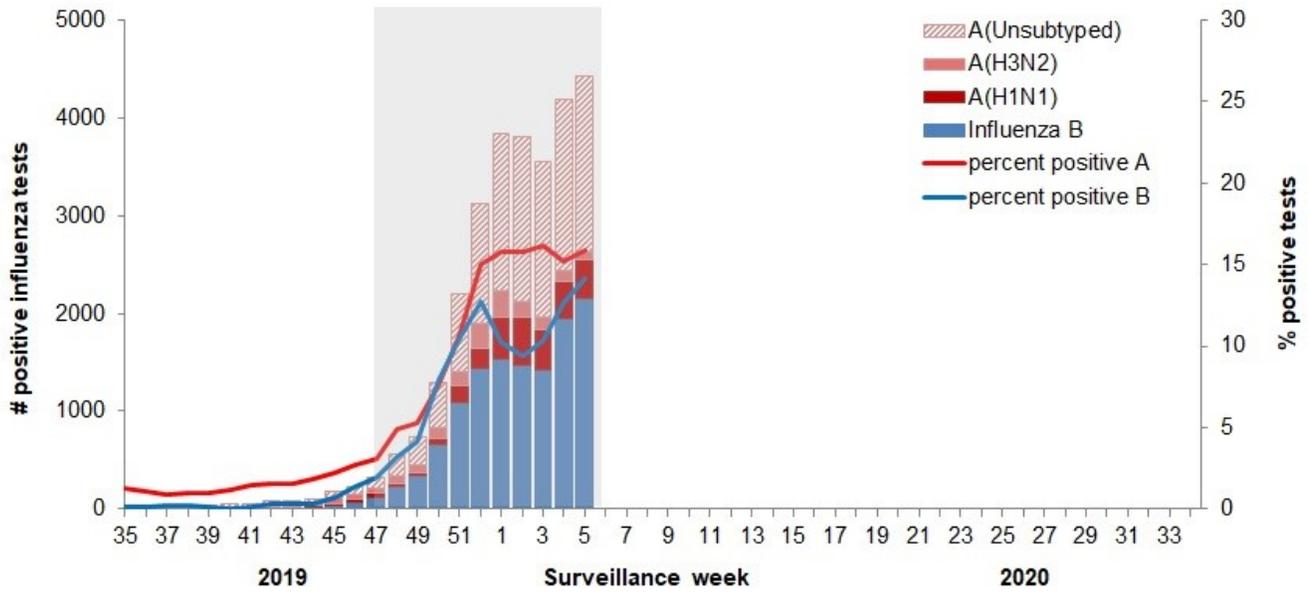
Detailed information on age and type/subtype has been received for 20,036 laboratory-confirmed influenza cases (Table 1). To date this season (weeks 35 to 05):

- Among cases of influenza A(H3N2) (1,524), the largest proportion were in adults 65 years of age and older (47%).
- Cases of influenza B (8,993) were primarily in younger age groups; 55% of cases were under 20 years of age and 32% between 20 and 44 years of age.
- Among cases of influenza A(H1N1) (1,934), 31% of cases were in adults 65 years of age and older, with approximately equal proportions in adults 20-44 years and 45-64 years (~25%).

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](#).

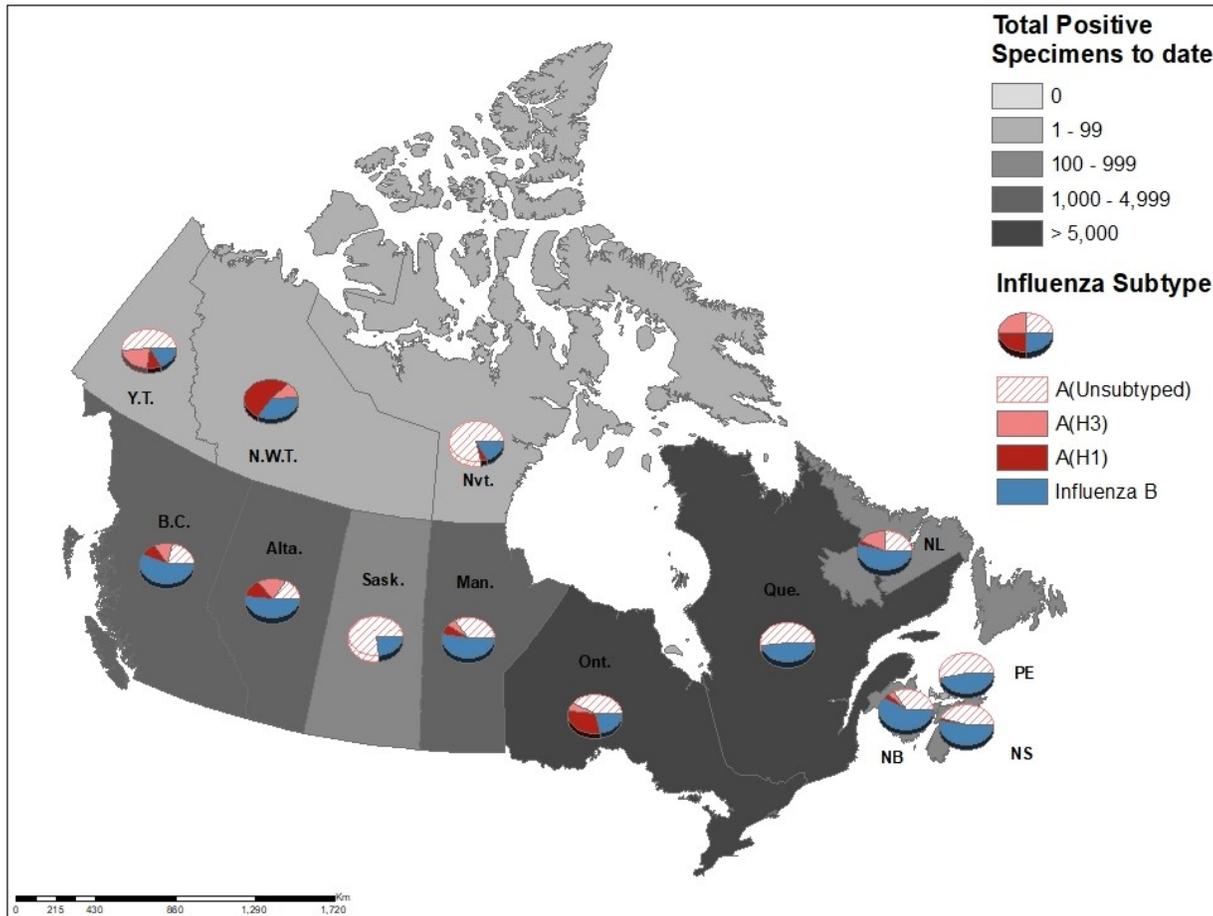
Figure 2 – Number of positive influenza tests and percentage of tests positive, by type, subtype and report week, Canada, weeks 2019-35 to 2020-05

Number of Laboratories Reporting in Week 05: 34 out of 36



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 – Distribution of positive influenza specimens by type/subtype and province/territory*, Canada, weeks 2019-35 to 2020-05



* Specimens from NWT, YT, and Nvt are sent to reference laboratories in other provinces.

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 2020-05

Age groups (years)	Cumulative (August 25, 2019 to February 1, 2020)						
	Influenza A				B	Influenza A and B	
	A Total	A(H1N1)	A(H3N2)	A (Un subtyped) ¹	Total	#	%
0-4	1659	227	149	1283	1915	3574	18%
5-19	1094	126	192	776	3051	4145	21%
20-44	2254	500	237	1517	2876	5130	26%
45-64	2077	477	235	1365	506	2583	13%
65+	3959	604	711	2644	645	4604	23%
Total	11043	1934	1524	7585	8993	20036	100%

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

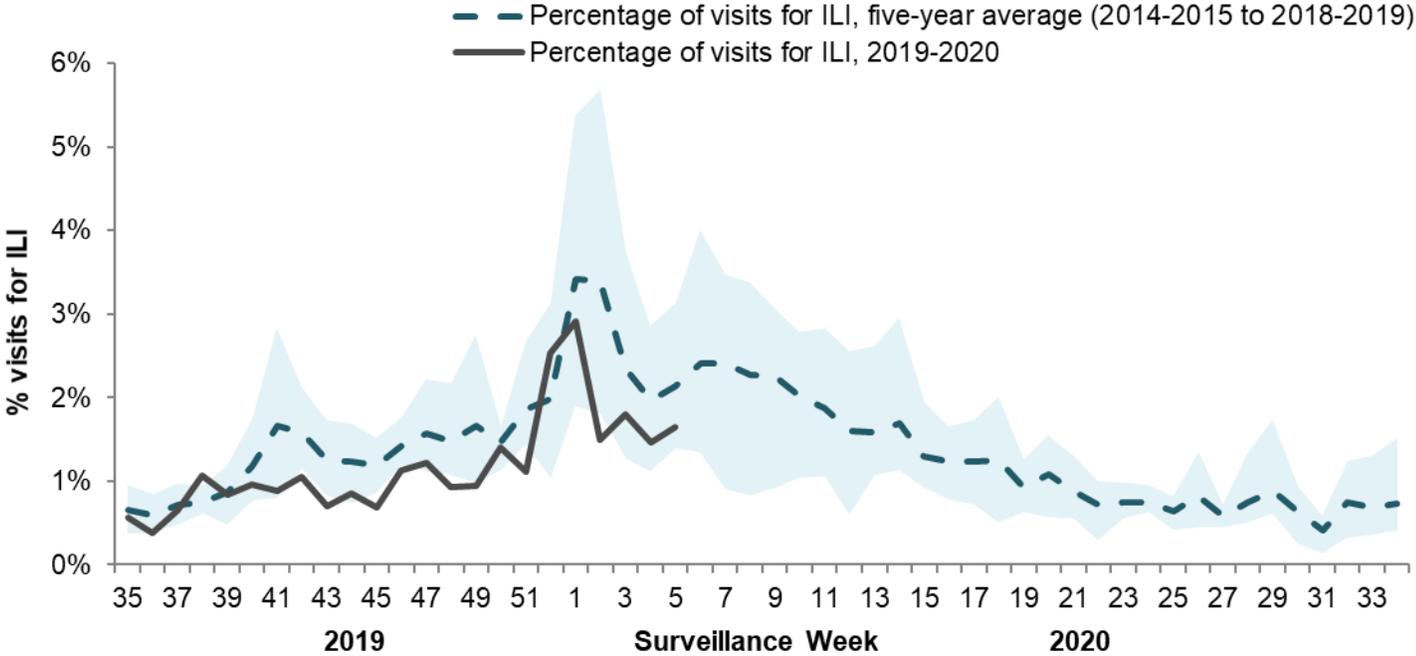
Syndromic / Influenza-like Illness Surveillance

Healthcare Practitioners Sentinel Syndromic Surveillance

In week 05, 1.6% of visits to healthcare professionals were due to influenza-like illness (ILI) which is below 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 2020-05

Number of Sentinels Reporting in Week 05: 90



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

FluWatchers

The proportion of FluWatchers participants reporting symptoms of cough and fever increased in week 05 compared to the previous week. In week 05, 3,165 participants reported to FluWatchers, of which 3.4% (109) reported symptoms of cough and fever (Figure 5).

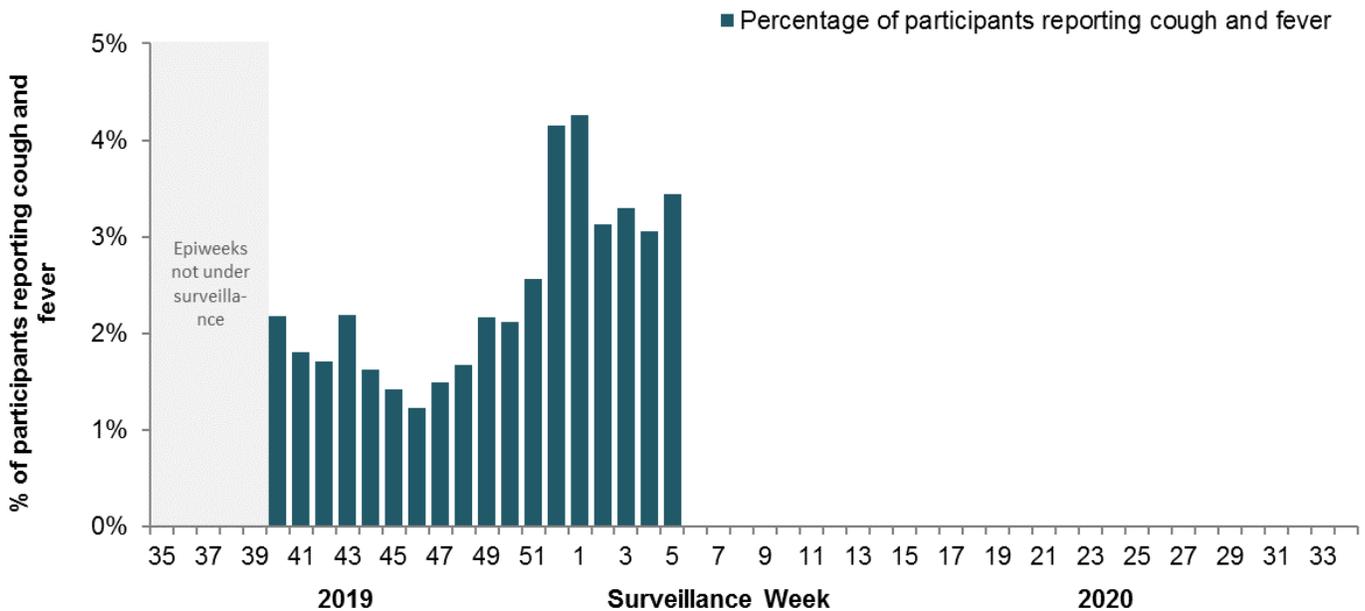
Among the 109 participants who reported cough and fever:

- 20% consulted a healthcare professional;
- 74% reported days missed from work or school, resulting in a combined total of 250 missed days of work or school.

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 2020-05

Number of Participants Reporting in Week 05: 3,165



Online Figure – Geographic distribution of FluWatchers participants reporting cough and fever, Canada, week 2020-05

Click on the map to access the link



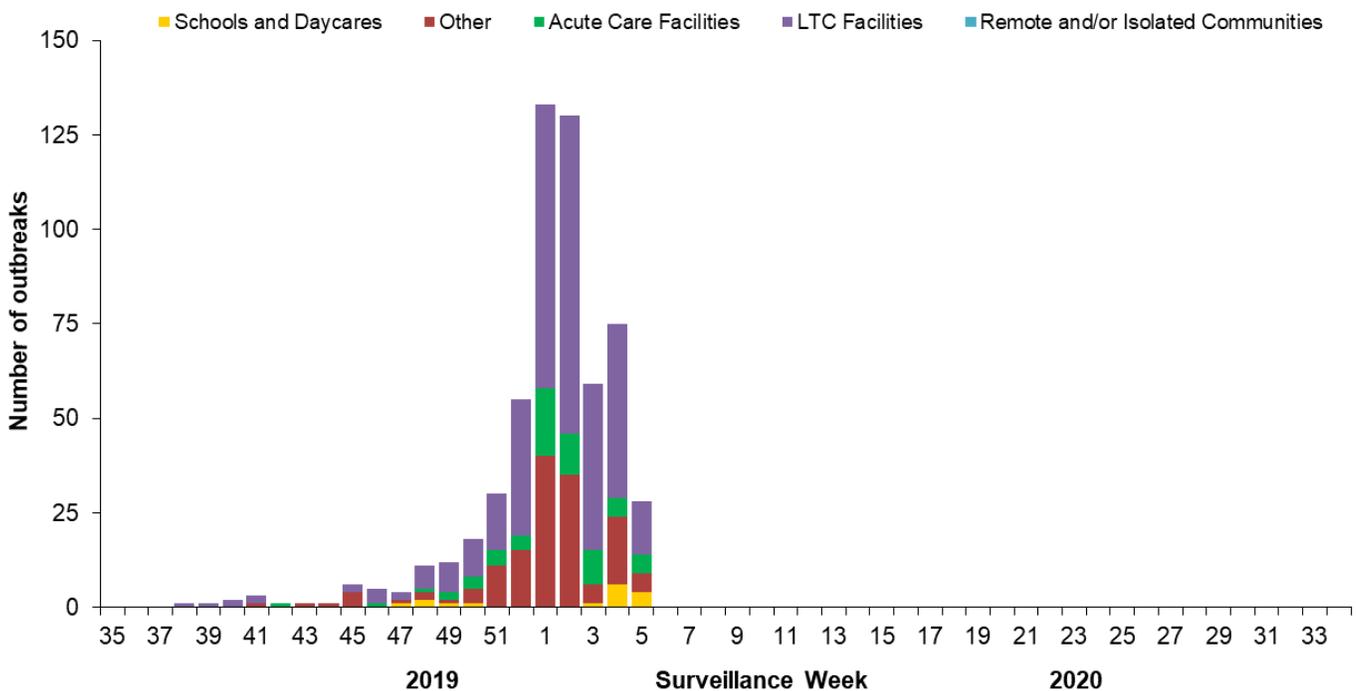
Influenza Outbreak Surveillance

In week 05, a total of 28 outbreaks were reported: 14 in long term care facilities, 5 in acute care facilities, 5 in facilities categorized as 'other', which includes facilities such as private personal care homes, correctional facilities, and colleges/universities and 4 in schools and daycares (Figure 6). In addition, 43 ILI outbreaks in schools/daycares were reported.

To date this season, a total of 576 laboratory-confirmed influenza outbreaks have been reported; 61% (352) in long-term care facilities, 25% (144) in facilities categorized as 'other', 11% (64) in acute care facilities, and 3% (16) in schools/daycares. Of the 544 outbreaks where influenza type was reported, 90% (487) were due to influenza A. Among the 233 outbreaks for which the influenza A subtype was reported, 55% (127) were associated with A(H3N2). To date this season, 79 ILI outbreaks in schools/daycares have also been reported.

Figure 6 – Number of new outbreaks of laboratory-confirmed influenza by report week, Canada, weeks 2019-35 to 2020-05

Number of provinces and territories reporting in week 05: 13 out of 13



Severe Outcomes Influenza Surveillance

Provincial/Territorial Influenza Hospitalizations and Deaths

To date this season, 1,358 influenza-associated hospitalizations were reported by participating provinces and territories¹.

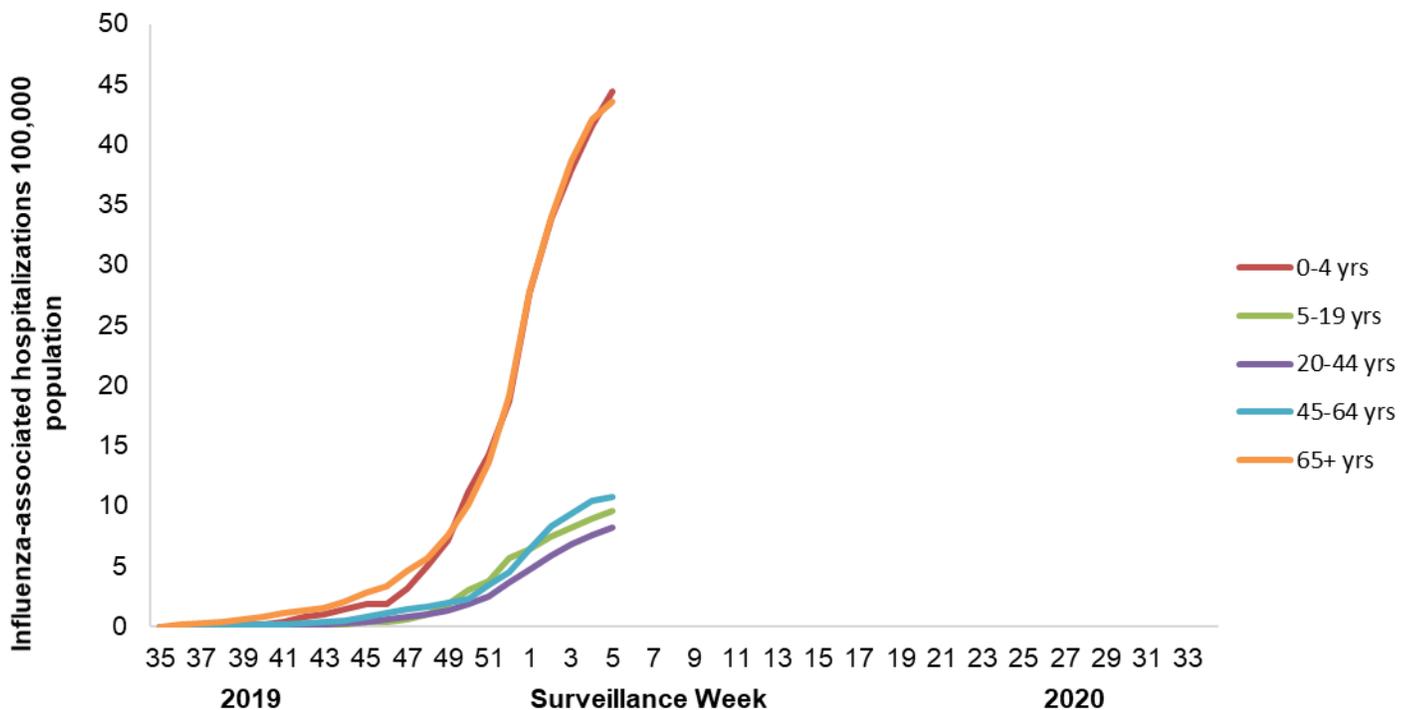
- 65% of the cases were associated with influenza A.
- Of the 661 cases for which subtype was reported, 67% were associated with influenza A(H3N2).
- The highest cumulative hospitalization rates up to week 05 were among children under 5 years of age and adults 65 years of age and older (44/100,000 population).

129 ICU admissions and 38 deaths have been reported.

- 58% of the ICU admissions and 76% of the deaths were associated with influenza A.

Figure 7 – Cumulative rates of influenza-associated hospitalization by age group and epidemiological week, Canada, participating provinces and territories¹ weeks 2019-35 to 2020-05

Number of provinces and territories reporting in week 05: 8 out of 9



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.

Pediatric Influenza Hospitalizations and Deaths

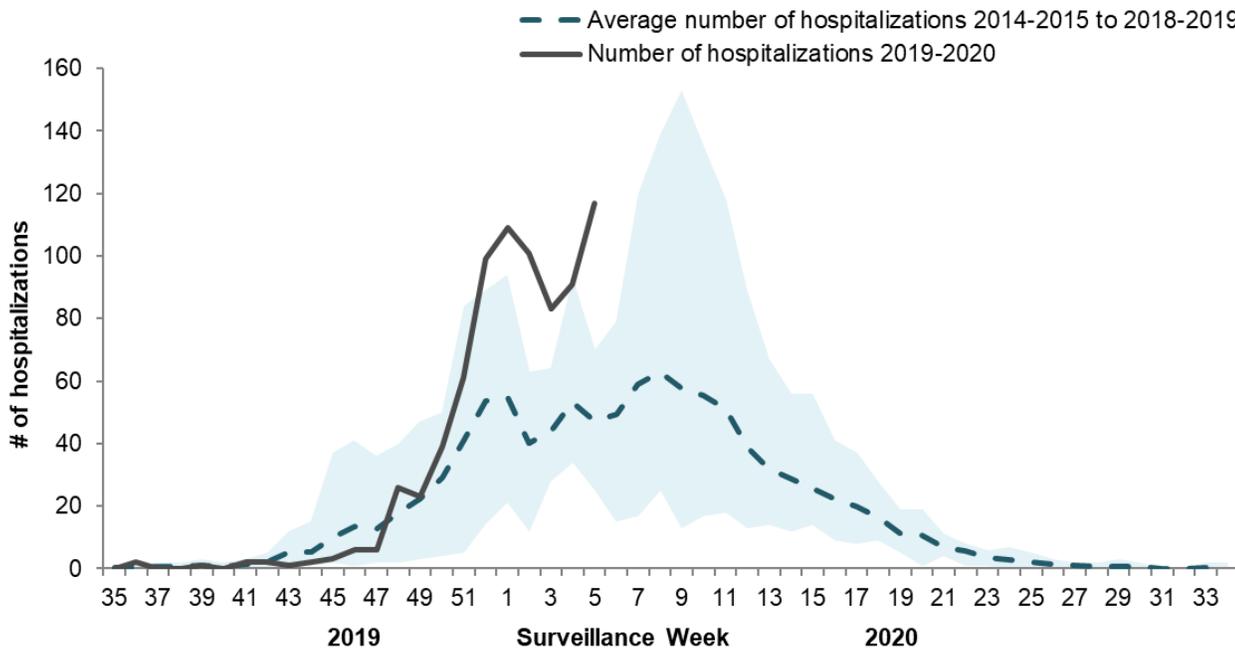
In week 05, 117 pediatric (≤ 16 years of age) laboratory-confirmed influenza-associated hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network (Figure 8). The weekly number of cases increased compared to the previous week. The number of cases due to influenza B remains high; however, in recent weeks, a growing proportion of cases have been due to influenza A.

The elevated number of cases this season compared to previous seasons is likely due to the concurrent circulation of influenza A and B this season. The number of influenza A-associated pediatric hospitalizations is above the average for this time of year. The number of hospitalizations with influenza B is well above average compared to previous seasons, and occurring earlier in the season.

To date this season (weeks 35 to 05):

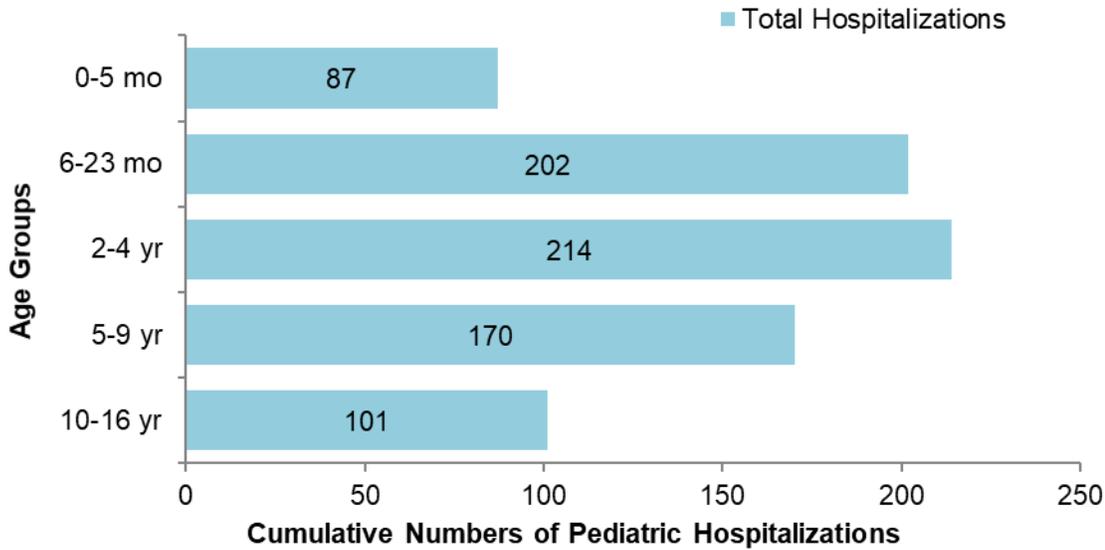
- 774 pediatric hospitalizations have been reported by the IMPACT network, of which 50% (389) were associated with influenza B and 50% (385) with influenza A.
- The largest proportion of hospitalizations (65%) were among children under 5 years of age (Figure 9).
- Among cases in children under 5 years of age (503), 56% were associated with influenza A, compared to cases in children 5 to 16 years of age (271), among whom 60% of cases were associated with influenza B.
- 114 ICU admissions were reported, of which 50% (46) were associated with influenza A.
- Less than five pediatric deaths have been reported.

Figure 8 – Number of pediatric (≤ 16 years of age) hospitalizations reported by the IMPACT network, by week, Canada, weeks 2019-35 to 2020-05



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

Figure 9 – Cumulative number of pediatric hospitalizations (≤16 years of age) with influenza by age-group reported by the IMPACT network, Canada, weeks 2019-35 to 2020-05



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. In week 05, the number of cases increased slightly, interrupting a recent declining trend.

To date this season, 474 hospitalizations, 33 intensive care unit admissions, and 14 deaths have been reported (Figure 10).

- The majority of hospitalizations have been due to influenza A (85%), and among those subtyped (112) 92% were influenza A(H1N1).
- Among cases with influenza A, the largest proportion of hospitalizations were in adults 65-79 years of age (32%) and adults 80 years of age and older (30%). Among the 72 cases with influenza B, 38% were between 16 and 34 years of age and 39% were 65 years of age and older (Figure 11).
- 73% of hospitalized cases reported at least one type of comorbid condition.

Figure 10 - Number of adult hospitalizations (≥16 years of age) with influenza reported by the CIRN-SOS network, by week, Canada, weeks 2019-35 to 2020-05

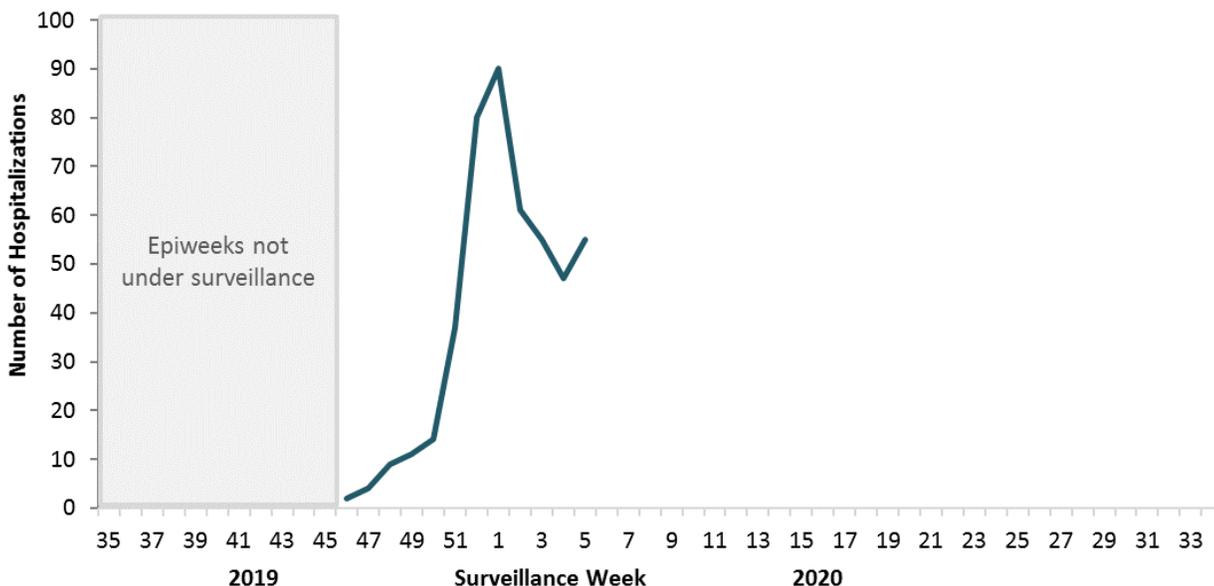
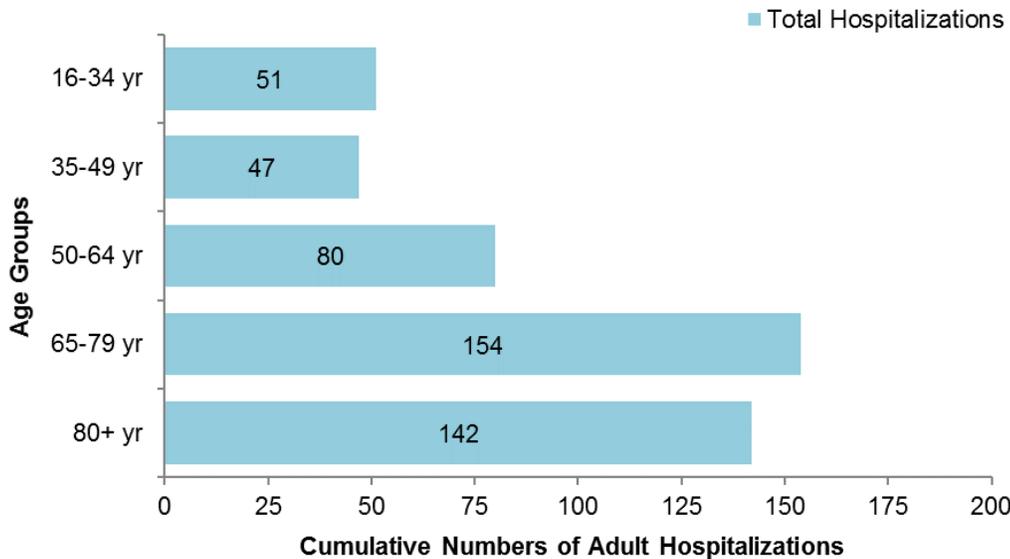


Figure 11 - Cumulative numbers of adult hospitalizations (≥16 years of age) with influenza by age-group reported by the CIRN-SOS network, Canada, weeks 2019-35 to 2020-05



Influenza Strain Characterizations

From September 1, 2019 to February 6, 2020, the National Microbiology Laboratory (NML) has characterized 555 influenza viruses (235 A(H1N1), 145 A(H3N2) and 175 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 41 influenza A(H3N2) viruses antigenically characterized to date, the majority (85%) showed reduced titer by HI assay to A Kansas/14/2017 using antiserum raised against egg-propagated A Kansas/14/2017. Six viruses were characterized as A Kansas/14/2017-like (Figure 12a).

Genetic Characterization:

Nearly all (98%) of the 135 A(H3N2) viruses genetically characterized this season belonged to genetic group 3C.2a1b based on sequence analysis of the HA gene. Three viruses belonged to the genetic group 3C.3a (Figure 13).

Group 3C.2a1b viruses analysed represent:

- 90% (28 out of 31) viruses that were also antigenically characterized.
- 100% (104 out of 104) 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 235 A(H1N1) viruses characterized to date, 62% were antigenically similar to A/Brisbane/02/2018 by HI testing using antiserum raised against egg-propagated A/Brisbane/02/2018 (Figure 12b).

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

Influenza B

Among the 175 influenza B viruses antigenically characterized this season, the vast majority (173) belonged to the B/Victoria lineage. Two viruses were antigenically characterized as similar to B/Phuket/3073/2013 (B/Yamagata lineage).

The majority (91%, 157) of B/Victoria lineage viruses showed reduced titer by HI assay to B/Colorado/06/2017 using antiserum raised against cell culture-propagated B/Colorado/06/2017 (Figure 12c).

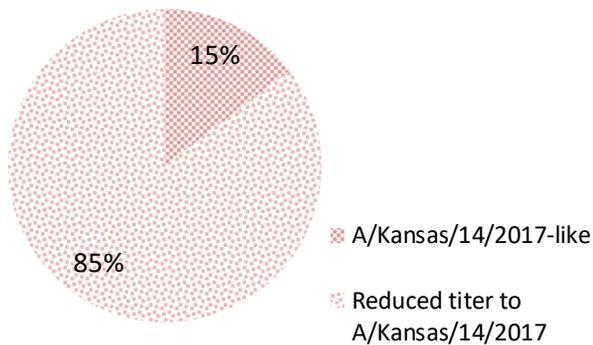
Sequence analysis of 105 B/Victoria lineage viruses with reduced titre to B/Colorado/06/2017 showed that 100% had a three amino acid deletion (162-164) in the HA gene. Sequencing is pending for the remaining viruses.

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 12 – Distribution of antigenic phenotypes among characterized influenza viruses, Canada, September 1, 2019 to February 6, 2020

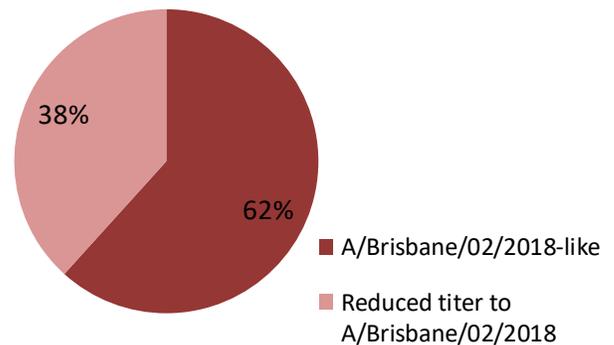
A) A(H3N2) viruses

Number of viruses characterized: 41



B) A(H1N1) viruses

Number of viruses characterized: 235



C) B viruses

Number of viruses characterized: 175

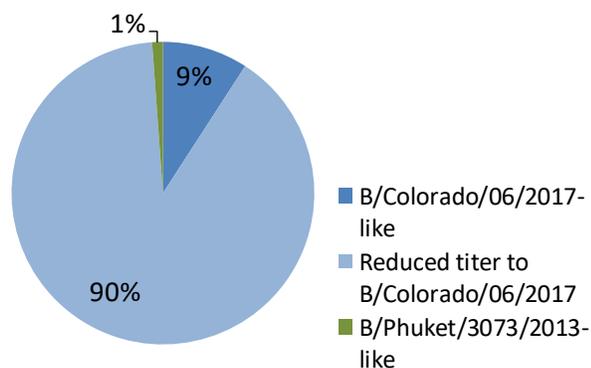
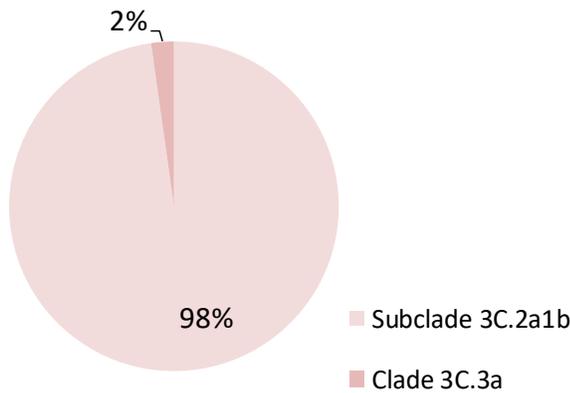


Figure 13 – Distribution of genetic clades among characterized A(H3N2) influenza viruses, Canada, September 1, 2019 to February 6, 2020

Number of viruses sequenced: 135



Antiviral Resistance

The National Microbiology Laboratory (NML) also tests influenza viruses received from Canadian laboratories for antiviral resistance. From September 1, 2019 to February 6, 2020, the following results were reported:

Oseltamivir:

371 influenza viruses (132 A(H3N2), 117 A(H1N1) and 122 B) were tested for resistance to oseltamivir:

- All influenza A(H3N2) and B viruses were sensitive to oseltamivir.
- Among the A(H1N1) viruses tested, 116 (99%) were sensitive to oseltamivir and one virus was resistant to oseltamivir with the H275Y mutation in the neuraminidase gene.

Zanamivir:

371 influenza viruses (132 A(H3N2), 117 A(H1N1) and 122 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.