

January 31 to February 6, 2016 (Week 5)

Overall Summary

- Overall in week 05, several seasonal influenza indicators increased from the previous week.
- Laboratory detections reached expected levels for this time of the year.
- An increase in the number of outbreaks was reported in week 05 with the majority due to influenza A.
- In the past 3 weeks young/middle age adults are accounting for an increasing proportion of hospitalizations as reported by participating provinces and territories.
- Influenza A(H1N1) is the most common influenza subtype circulating in Canada.
- For more information on the flu, see our [Flu\(influenza\)](#) web page.

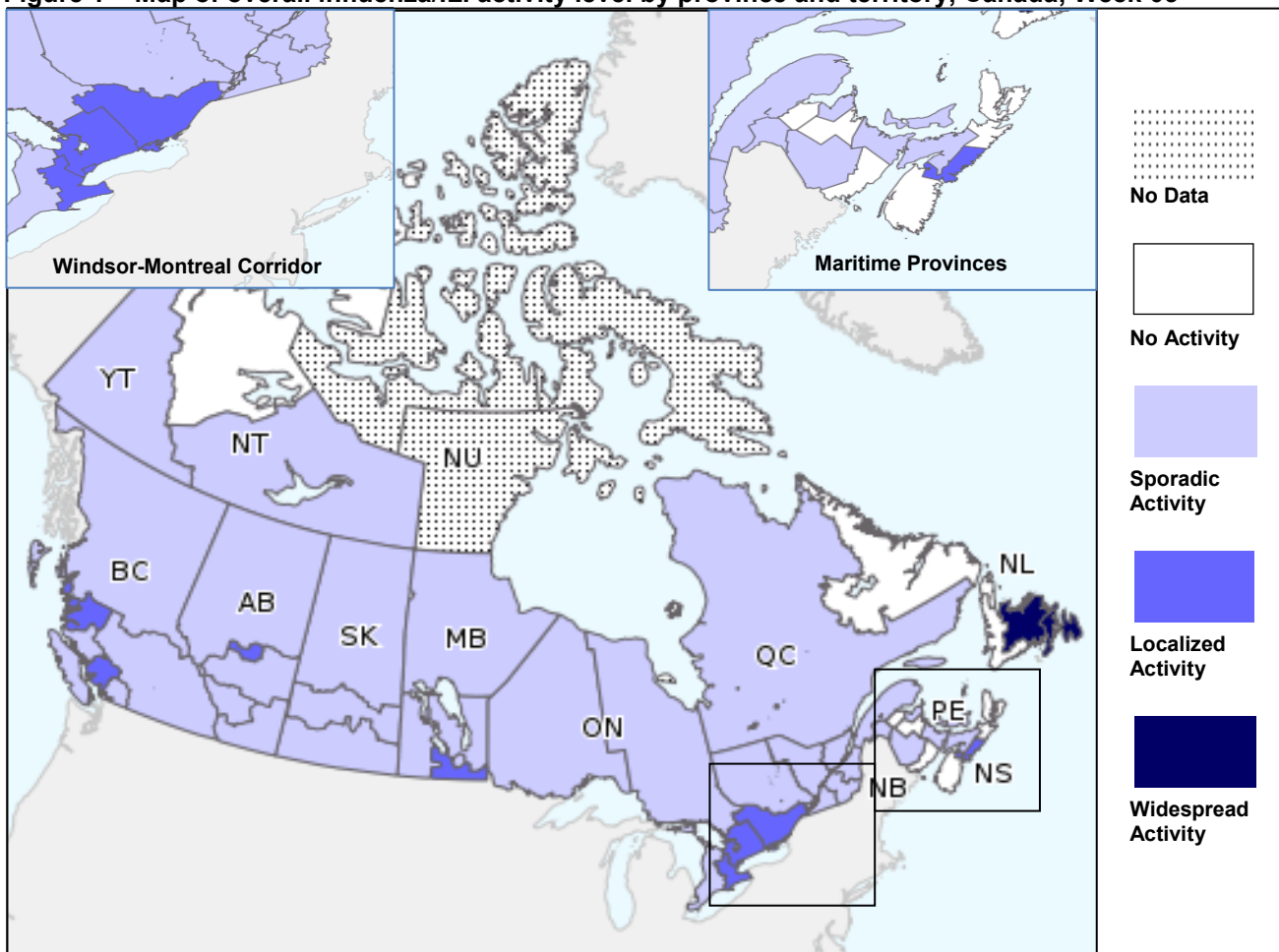
Are you a primary health care practitioner (General Practitioner, Nurse Practitioner or Registered Nurse) interested in becoming a FluWatch sentinel for the 2015-16 influenza season? Contact us at

FluWatch@phac-aspc.gc.ca

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

In week 05, influenza/ILI activity continued to increase in Canada. A total of 32 regions across Canada reported sporadic influenza/ILI activity. Localized activity was reported in 8 regions in Canada and widespread activity was reported in 2 regions of NL.

Figure 1 – Map of overall influenza/ILI activity level by province and territory, Canada, Week 05

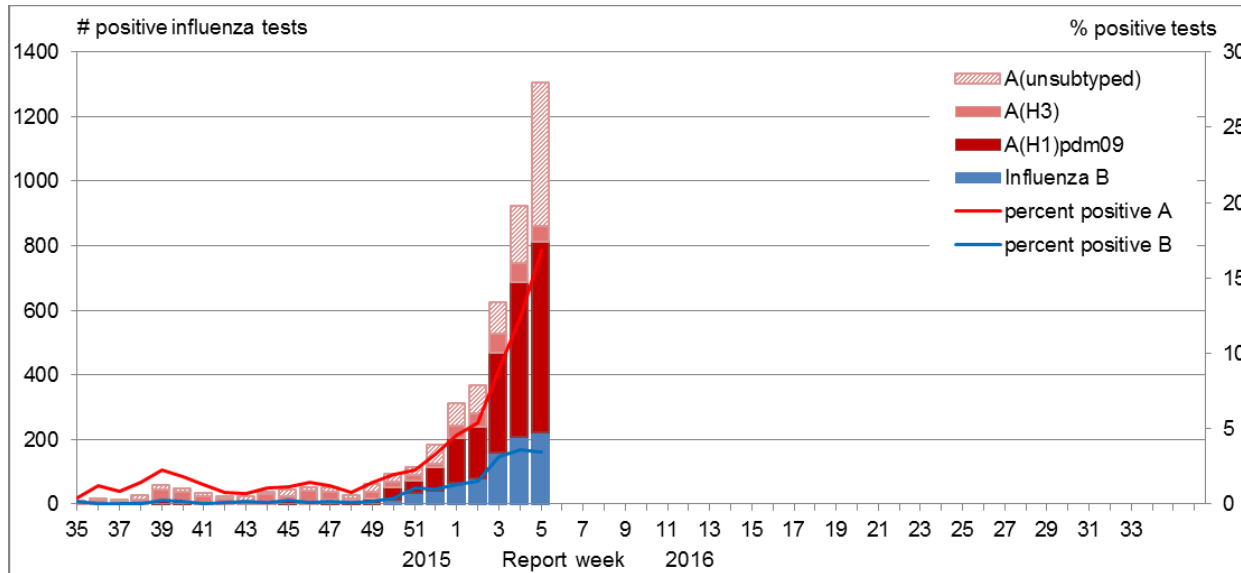


Note: Influenza/ILI activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates and reported outbreaks. Please refer to detailed definitions at the end of the report. Maps from previous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

Laboratory Confirmed Influenza Detections

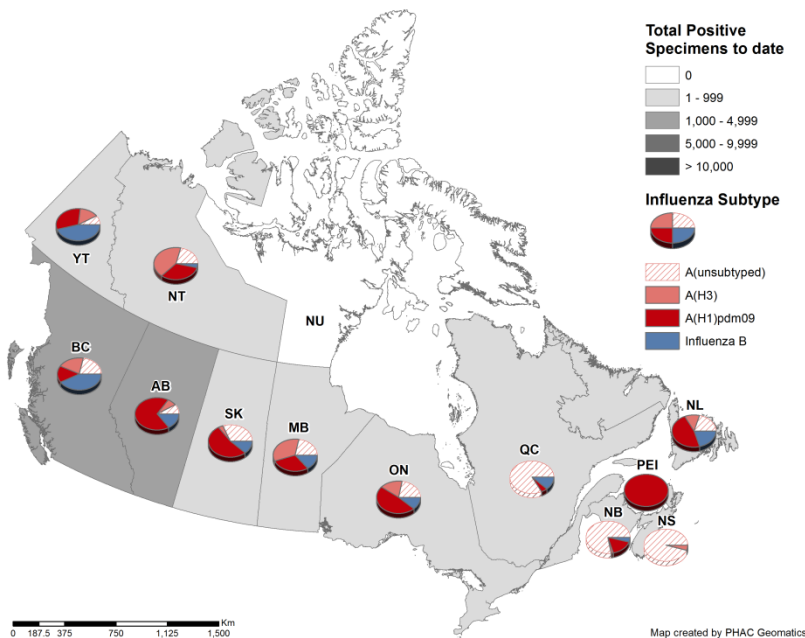
Laboratory confirmed influenza detections are on the rise in Canada. The percent positive for influenza increased from 16.0% in week 04 to 20.4% in week 05 (Figure 2). Compared to the previous five seasons, the percent positive (20.4%) reported in week 05 was above the five year average for that week but remained within expected levels (range 13.2%-24.4%).

Figure 2 – Number of positive influenza tests and percentage of tests positive, by type, subtype and report week, Canada, 2015-16



In week 05, there were 1,271 positive influenza tests reported. Influenza A(H1N1) was the most common subtype detected. The majority of influenza detections were reported in the provinces of AB, ON and QC. To date, 80% of influenza detections have been influenza A and among those subtyped, the majority have been influenza A(H1N1) [77% (1834/2390)].

Figure 3 – Cumulative numbers of positive influenza specimens by type/subtype and province, Canada, 2015-16



Note: Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Cumulative data include updates to previous weeks.

To date this season, detailed information on age and type/subtype has been received for 3,694 cases. Adults aged 20-44 years accounted for the greatest proportion of influenza cases (Table 1). Adults aged 20-44 and 45-64 years accounted for 57% of reported influenza A(H1N1) cases. Children 5-19 years and adults 20-44 years accounted for 60% of all influenza B cases reported.

Table 1 – Weekly and cumulative numbers of positive influenza specimens by type, subtype and age-group reported through case-based laboratory reporting¹, Canada, 2015-16

Age groups (years)	Weekly (Jan. 31, 2016 to Feb. 6, 2016)					Cumulative (August 30, 2015 to February 6, 2016)						
	Influenza A				B	Influenza A				B	Total Influenza A and B	
	A Total	A(H1) pdm09	A(H3)	A (UnS) ³		A Total	A(H1) pdm09	A(H3)	A (UnS) ³		Total	#
<5	114	55	0	59	10	469	294	37	138	70	539	14.6%
5-19	74	39	2	33	24	339	208	52	79	214	553	15.0%
20-44	208	100	0	108	22	838	530	78	230	212	1050	28.4%
45-64	220	97	6	117	10	760	421	112	227	106	866	23.4%
65+	86	42	2	42	16	558	196	205	157	112	670	18.1%
Unknown	4	2	2	0	0	15	9	6	0	1	16	0.4%
Total	706	335	12	359	82	2979	1658	490	831	715	3694	100.0%
Percentage²	89.6%	47.5%	1.7%	50.8%	10.4%	80.6%	55.7%	16.4%	27.9%	19.4%		

¹Table 1 includes specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported.

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

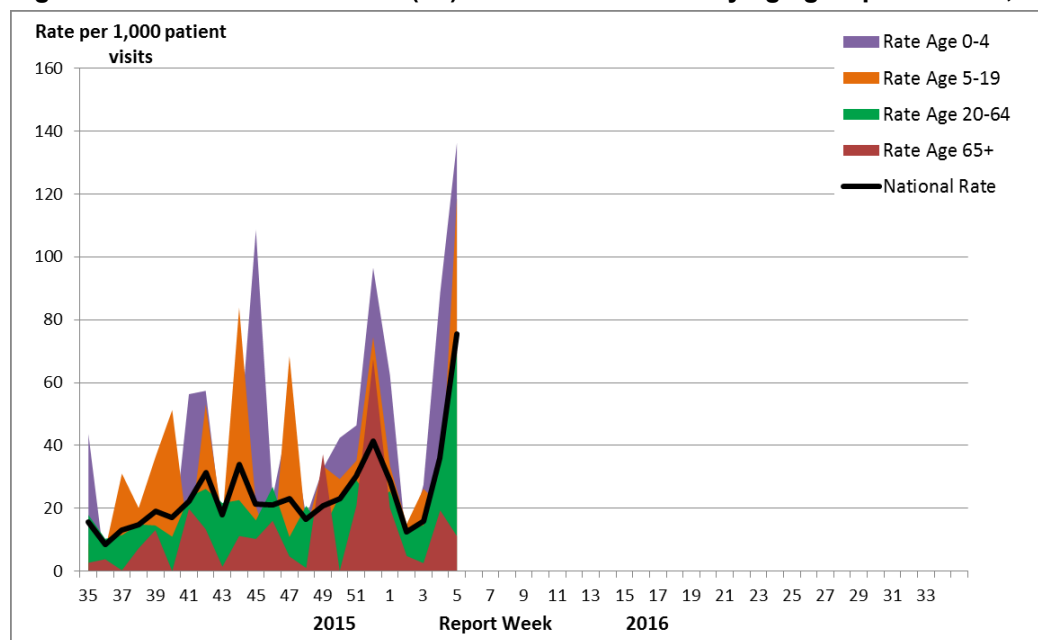
³UnS: unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available.

For data on other respiratory virus detections see the [Respiratory Virus Detections in Canada Report](#) on the Public Health Agency of Canada website.

Influenza-like Illness Consultation Rate

The national ILI consultation rate increased from the previous week from 35.9 per 1,000 patient visits in week 04, to 75.4 per 1,000 patient visits in week 05. In week 05, the highest ILI consultation rate was found in those 0-4 years of age (136.4 per 1,000) and the lowest was found in the ≥65 years age group (11.2 per 1,000) (Figure 4).

Figure 4 – Influenza-like illness (ILI) consultation rates by age group and week, Canada, 2015-16



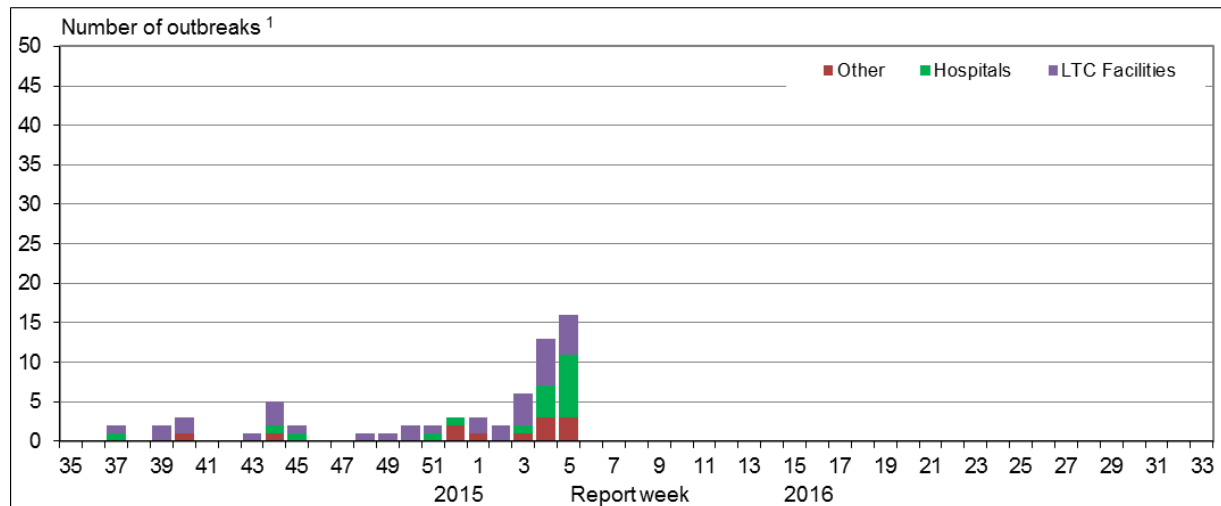
Delays in the reporting of data may cause data to change retrospectively. In BC, AB, and SK, data are compiled by a provincial sentinel surveillance program for reporting to FluWatch. Not all sentinel physicians report every week.

Influenza Outbreak Surveillance

In week 05, the number of outbreaks reported continued to increase. A total of 16 new laboratory confirmed influenza outbreaks were reported: nine in long-term care facilities (LTCF), four in hospitals and three in an institutional or community setting. Of the outbreaks with known strains or subtypes, one outbreak was due to Influenza A(H1N1). Additionally, one ILI outbreak was reported in a school.

To date this season, 80 outbreaks have been reported. In comparison, at week 05 in the 2014-15 season, 1,225 outbreaks were reported and in the 2013-14 season, 82 outbreaks were reported.

Figure 5 – Overall number of new laboratory-confirmed influenza outbreaks by report week, Canada, 2015-2016



¹All 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 the report.

Sentinel Hospital Influenza Surveillance

Paediatric Influenza Hospitalizations and Deaths

In week 05, 41 hospitalizations were reported by the the Immunization Monitoring Program Active (IMPACT) network (Figure 6). Eighteen hospitalizations were due to influenza A(H1N1) (44%), one was due to A(H3N2) (2.4%), eight were due to influenza B (20%) and the remainder were influenza A (UnS).

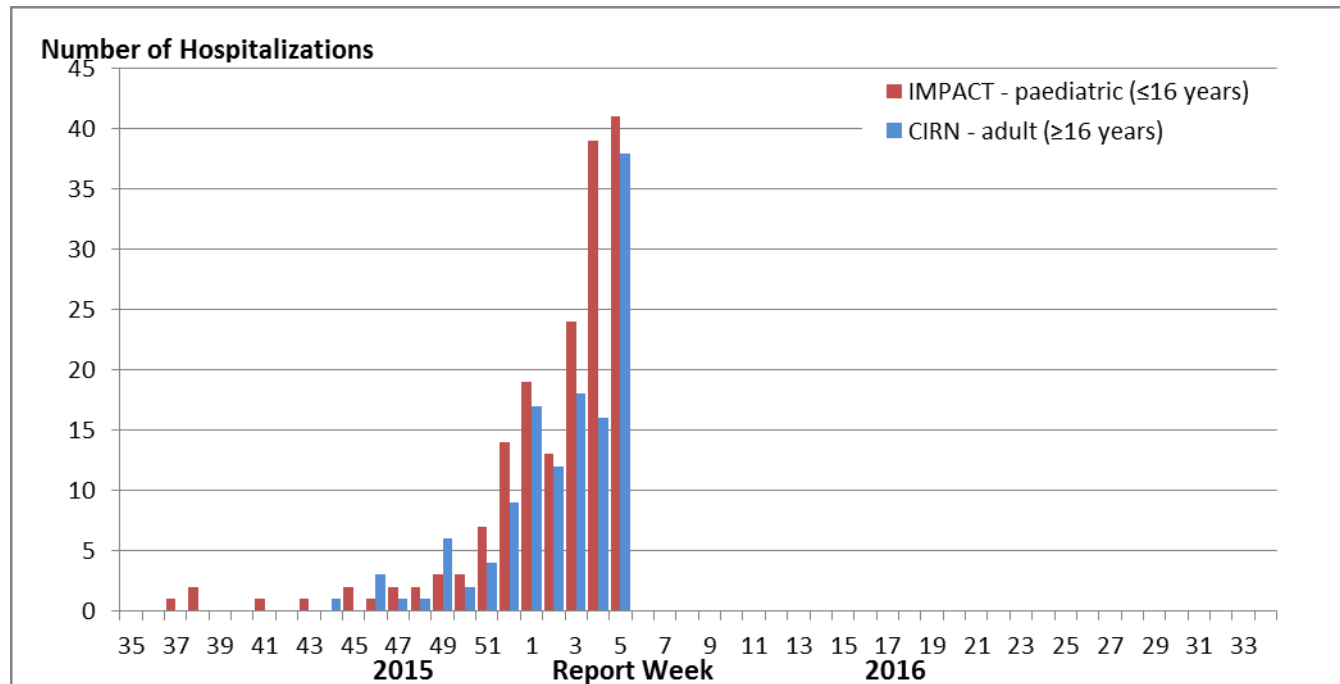
To date this season, 175 laboratory-confirmed influenza-associated paediatric (≤ 16 years of age) hospitalizations have been reported by the IMPACT network: 135 hospitalized cases were due to influenza A and 40 cases were due to influenza B. The highest proportion of hospitalizations was among children aged 2-4 years (34%). To date, 20 intensive care unit (ICU) admissions have been reported. The highest proportion of ICU admissions was reported in children 2-4 years (30%). Among ICU admissions for which the subtype of influenza A was reported, 75% were due to influenza A(H1N1). Less than five influenza-associated deaths have been reported.

Table 2 – Cumulative numbers of paediatric hospitalizations (≤ 16 years of age) with influenza reported by the IMPACT network, Canada, 2015-16

Age Groups	Cumulative (30 August 2015 to 6 February 2016)				
	Influenza A				Influenza B
	A Total	A(H1) pdm09	A(H3)	A (UnS)	B Total
0-5m	15	<5	<5	8	6
6-23m	33	20	<5	x	5
2-4y	47	22	<5	x	12
5-9y	30	18	0	12	13
10-16y	10	5	<5	<5	<5

x= Suppressed to prevent residual disclosure

Figure 6 – Number of hospitalized cases of influenza reported by sentinel hospital networks, by week, Canada, 2015-16, paediatric and adult hospitalizations (≤16 years of age, IMPACT; ≥16 years of age, CIRN-SOS)



*Not included in Table 2 and Figure 6 are two IMPACT cases that were due to co-infections of influenza A and B.

Adult Influenza Hospitalizations and Deaths

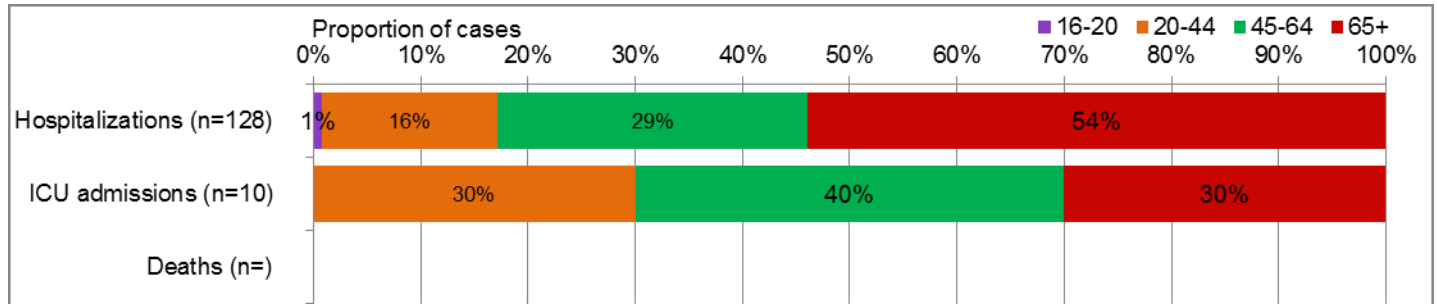
In week 05, 38 hospitalizations were reported by the Canadian Immunization Research Network Serious Outcome Surveillance (CIRN-SOS). The majority of hospitalizations were in adults 65+ years of age (58%) and have been due to influenza A (82%).

To date this season, 128 laboratory-confirmed influenza-associated adult (≥16 years of age) hospitalizations have been reported by CIRN-SOS (Table 3). The majority of hospitalized cases were due to influenza A (80%) and were among adults ≥65 years of age (54%). Ten intensive care unit (ICU) admissions have been reported and among those, nine (90%) were due to influenza A. Less than five deaths have been reported this season.

Table 3 – Cumulative numbers of adult hospitalizations (≥16 years of age) with influenza reported by the CIRN-SOS, Canada, 2015-16

Age groups (years)	Cumulative (1 Nov. 2015 to 6 Feb. 2016)					
	Influenza A				B	Influenza A and B
	A Total	A(H1) pdm09	A(H3)	A(UnS)		
16-20	1	1	0	0	0	1 (1%)
20-44	11	2	0	9	10	21 (16%)
45-64	32	8	2	22	5	37 (29%)
65+	59	10	13	36	10	69 (54%)
Unknown	0	0	0	0	0	0 (%)
Total	103	21	15	67	25	128
%	80%	20%	15%	65%	20%	100%

Figure 7 – Percentage of hospitalizations, ICU admissions and deaths with influenza reported by age-group (≥16 year of age), CIRN-SOS, Canada 2015-16



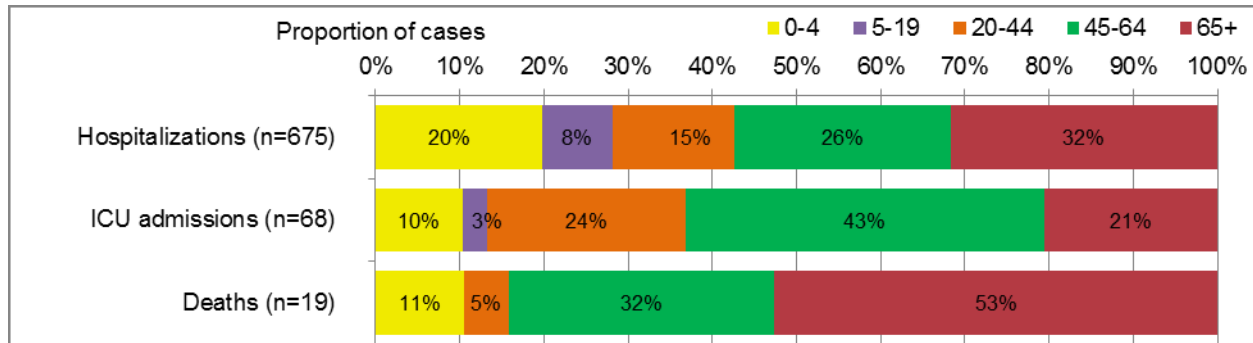
Note: The number of hospitalizations reported through CIRN-SOS and IMPACT represents a subset of all influenza-associated adult and paediatric hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Provincial/Territorial Influenza Hospitalizations and Deaths

In week 05, 171 hospitalizations have been reported from participating provinces and territories*. The majority of hospitalizations were due to influenza A (93%). The largest proportion of cases reported in week 05 were in adults 20-64 years (44%).

Since the start of the 2015-16 season, 675 laboratory-confirmed influenza-associated hospitalizations have been reported. A total of 599 hospitalizations (89%) were due to influenza A and 76 (11%) were due to influenza B. Among cases for which the subtype of influenza A was reported, 83% (329/395) were influenza A(H1N1). The highest proportion (32%) of hospitalized cases were among those aged ≥65 years. Sixty-eight ICU admissions have been reported of which 58 (85%) were due to influenza A and 29 (43%) were in the 45-64 age group. A total of 19 deaths have been reported, all due to influenza A. The majority of deaths were reported in adults 65+ of age (53%).

Figure 8 – Percentage of hospitalizations, ICU admissions and deaths with influenza reported by age-group, Canada 2015-16



* Note: Influenza-associated hospitalizations are not reported to PHAC by the following Provinces and Territory: 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. Data may also include cases reported by the IMPACT and CIRN-SOS networks. The number of new influenza-associated hospitalizations and deaths reported for the current week may include cases from ON that occurred in previous weeks, as a result of retrospective updates to the cumulative total. It is important to note that the hospitalization or death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting.

See additional data on [Reported Influenza Hospitalizations and Deaths in Canada: 2011-12 to 2015-16](#) on the Public Health Agency of Canada website.

Influenza Strain Characterizations

During the 2015-16 influenza season, the National Microbiology Laboratory (NML) has characterized 330 influenza viruses [107 A(H3N2), 152 A(H1N1) and 71 influenza B].

Influenza A (H3N2): When tested by hemagglutination inhibition (HI) assays, 15 H3N2 virus were antigenically characterized as A/Switzerland/9715293/2013-like using antiserum raised against cell-propagated A/Switzerland/9715293/2013.

Sequence analysis was done on 92 H3N2 viruses. All viruses belonged to a genetic group for which most viruses were antigenically related to A/Switzerland/9715293/2013.

A/Switzerland/9715293/2013 is the A(H3N2) component of the 2015-16 Northern Hemisphere's vaccine.

Influenza A (H1N1): One hundred and fifty-two H1N1 viruses characterized were antigenically similar to A/California/7/2009, the A(H1N1) component of the 2015-16 influenza vaccine.

Influenza B: Twenty-two influenza B viruses characterized were antigenically similar to the vaccine strain B/Phuket/3073/2013. Thirty-nine influenza B viruses were characterized as B/Brisbane/60/2008-like, one of the influenza B components of the 2015-16 Northern Hemisphere quadrivalent influenza vaccine.

The recommended components for the 2015-2016 northern hemisphere trivalent influenza vaccine include: an A/California/7/2009(H1N1)pdm09-like virus, an A/Switzerland/9715293/2013(H3N2)-like virus, and a B/Phuket/3073/2013 -like virus (Yamagata lineage). For quadrivalent vaccines, the addition of a B/Brisbane/60/2008-like virus (Victoria lineage) is recommended.

The NML receives a proportion of the influenza positive specimens from provincial laboratories for strain characterization and antiviral resistance testing. Characterization data reflect the results of haemagglutination inhibition testing compared to the reference influenza strains recommended by [WHO](#).

Antiviral Resistance

During the 2015-16 season, the National Microbiology Laboratory (NML) has tested 327 influenza viruses for resistance to oseltamivir, 326 to zanamivir and 257 for resistance to amantadine. All viruses were sensitive to zanamivir. All but one virus were sensitive to oseltamivir and a total of 256 influenza A viruses (99%) were resistant to amantadine (Table 4).

Table 4 – Antiviral resistance by influenza virus type and subtype, Canada, 2015-16

Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	109	0	109	0	111	110 (99.1%)
A (H1N1)	150	1	149	0	146	146 (100%)
B	68	0	68	0	NA ¹	NA ¹
TOTAL	327	1	326	0	257	256

¹NA: Not Applicable

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](#)

FluWatch Definitions for the 2015-2016 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 under [Weekly influenza reports](#).

Ce rapport est disponible dans les deux langues officielles.