FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

21 September to 4 October, 2014 (weeks 39 & 40)

Overall Summary

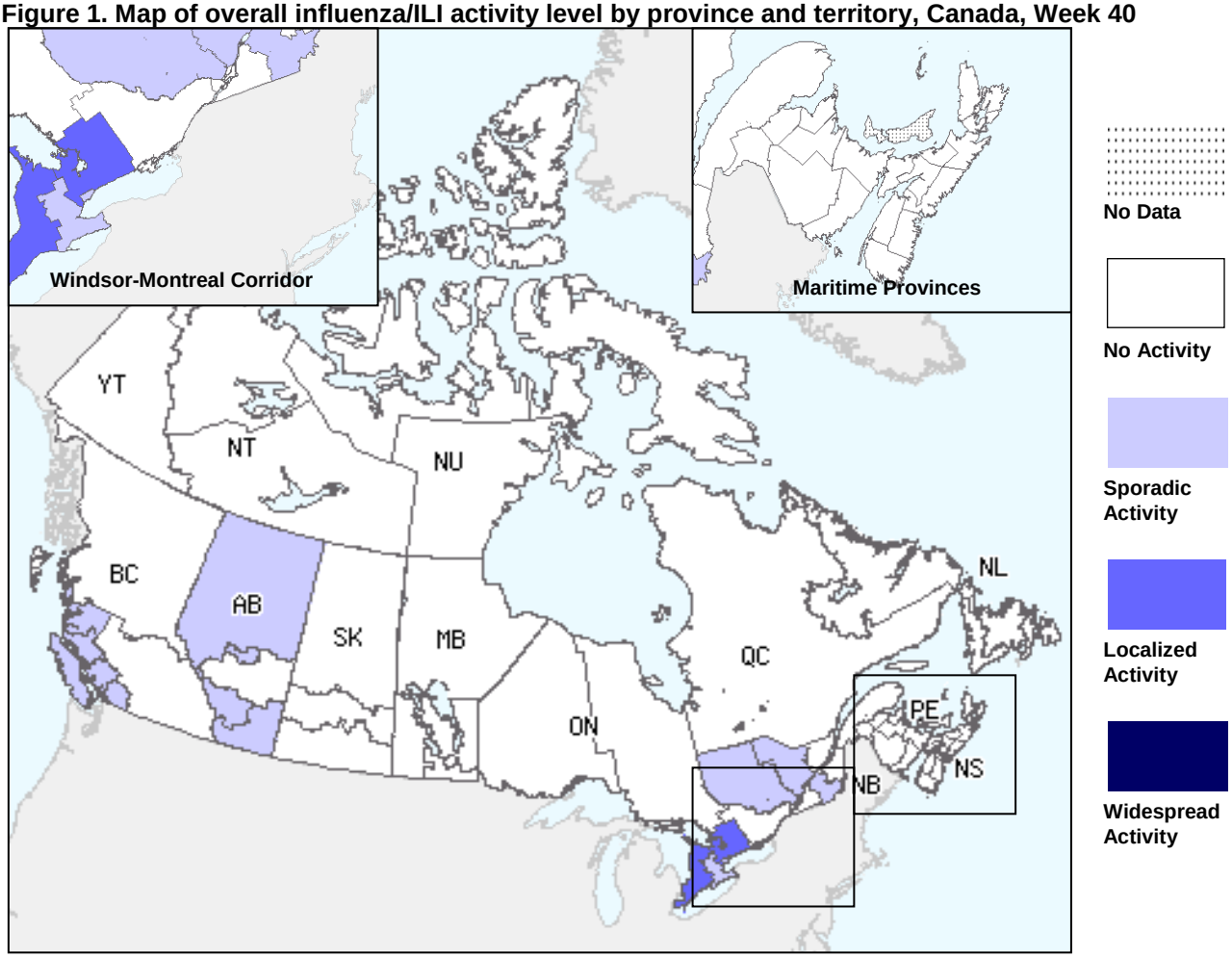
- Several influenza indicators (activity levels, influenza detections, ILI and hospitalizations) continued to increase in weeks 39 and 40. Influenza activity was reported in several regions in six provinces (BC, AB, SK, MB, ON & QC) over the two-week period.
- Early season influenza detections show influenza A(H3N2) to be the predominant virus circulating, followed by co-circulation of influenza B.
- In week 39, six influenza outbreaks and two ILI outbreaks were reported. No new outbreaks were reported in week 40.
- Among laboratory detections and hospitalizations, the majority of cases were ≥65 years of age.

Are you a primary health care practitioner (General Practitioner, Nurse Practitioner or Registered Nurse) interested in becoming a FluWatch sentinel for the 2014-15 influenza season?
Contact us at FluWatch@phac-aspc.gc.ca

Influenza/ILI Activity (geographic spread)

In weeks 39 and 40, the number of regions in Canada reporting influenza/ILI activity increased compared to the previous two week period. In week 39, five regions (BC(2), AB(1), ON(2)) reported localized activity, and 11 regions (BC(1), AB(4), SK(1), MB(1), ON(2) and QC(2)) reported sporadic activity. In week 40, two regions in Ontario reported localized activity, and 11 regions (BC(3), AB(4), ON(2) and QC(2)) reported sporadic activity (Figure 1).

Figure 1. Map of overall influenza/ILI activity level by province and territory, Canada, Week 40

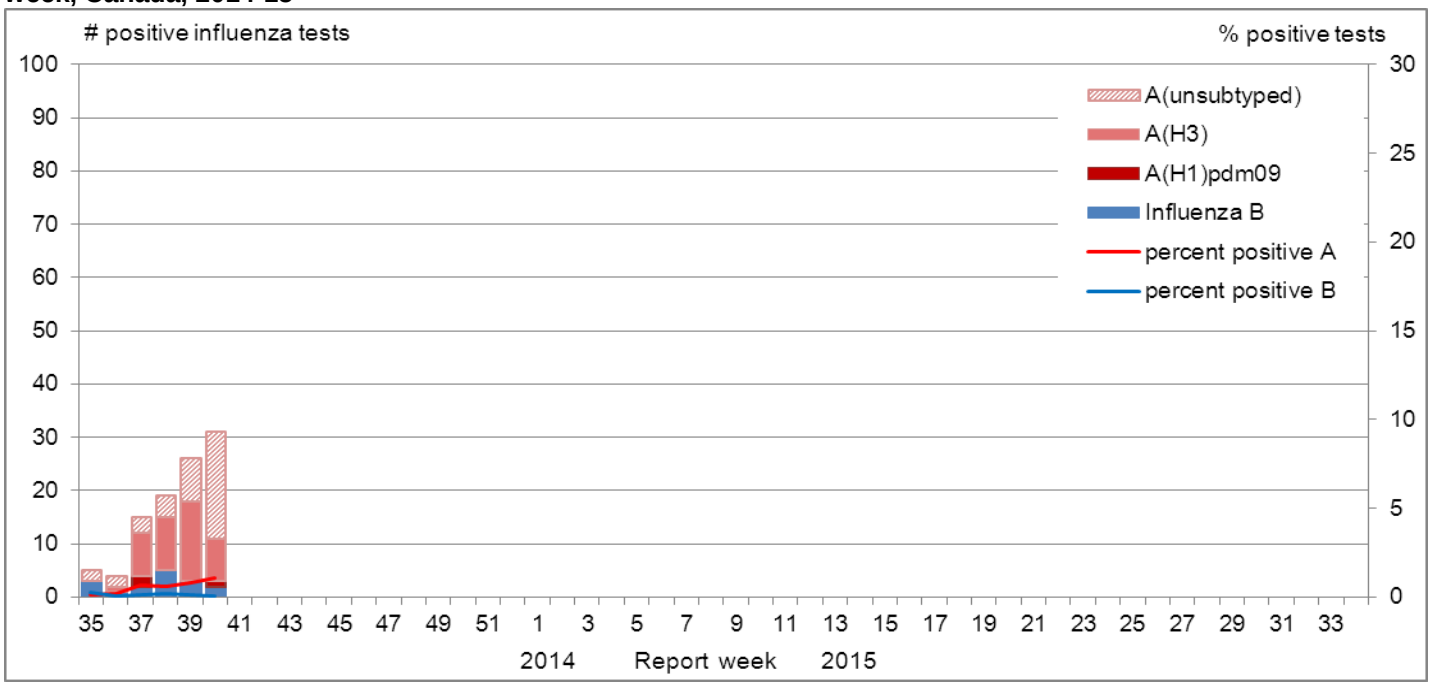


Note: Influenza/ILI activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates and reported outbreaks. Please refer to detailed definitions at the end of the report. Maps from previous weeks, including any retrospective updates, are available on the FluWatch website.

Influenza and Other Respiratory Virus Detections

The number of positive influenza tests increased during weeks 39 and 40. The percent positive for influenza detections remains low, and reached 1.2% in week 40 (Figure 2). To date, 84% of influenza detections have been influenza A, and the majority of those subtyped have been A(H3) (Table 1). Among cases with reported age, the largest proportion was in those ≥65 years of age (55%) (Table 2).

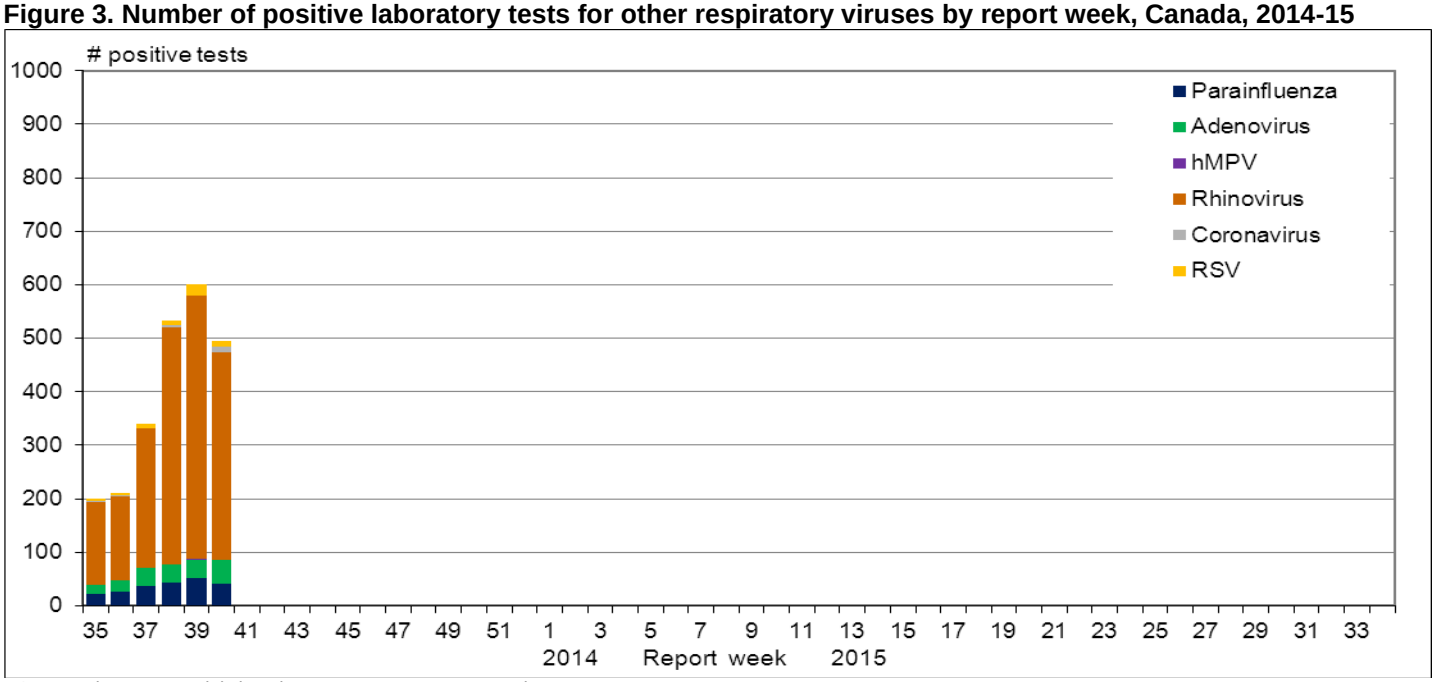
Figure 2. Number of positive influenza tests and percentage of tests positive, by type, subtype and report week, Canada, 2014-15



In weeks 39 and 40, detections of other respiratory viruses were at inter-seasonal levels (RSV, coronavirus, and human metapneumovirus). Detections of parainfluenza were in keeping with their usual pattern of seasonal circulation. Detections of adenovirus were higher than in previous seasons. Detections of rhinovirus increased in week 39 to a level higher than observed in previous seasons, but decreased in week 40 (Figure 3).

For more details, see the weekly Respiratory Virus Detections in Canada Report.

Figure 3. Number of positive laboratory tests for other respiratory viruses by report week, Canada, 2014-15



RSV: Respiratory syncytial virus; hMPV: Human metapneumovirus

Table 1. Weekly and cumulative numbers of positive influenza specimens by type, subtype and province, Canada, 2014-15

Reporting provinces[1]	Two weeks (September 21 to October 4, 2014)					Cumulative (August 24 to October 4, 2014)				
	Influenza A				B	Influenza A				B
	A Total	A(H1)pdm09	A(H3)	A(UnS)	B Total	A Total	A(H1)pdm09	A(H3)	A(UnS)	B Total
BC	18	0	0	18	1	25	2	5	18	2
AB	18	0	16	2	2	29	0	27	2	4
SK	1	0	0	1	0	2	0	0	2	0
MB	1	0	1	0	0	1	0	1	0	0
ON	8	1	6	1	2	13	1	9	3	4
QC	5	0	0	5	0	12	0	0	12	6
NB	0	0	0	0	0	0	0	0	0	0
NS	0	0	0	0	0	0	0	0	0	0
PE	0	0	0	0	0	1	0	0	1	0
NL	1	0	0	1	0	1	0	0	1	0
Canada	**52**	**1**	**23**	**28**	**5**	**84**	**3**	**42**	**39**	**16**
Percentage[2]	91.2%	1.9%	44.2%	53.8%	8.8%	84.0%	3.6%	50.0%	46.4%	16.0%

Table 2. Weekly and cumulative numbers of positive influenza specimens by type, subtype and age-group reported through case-based laboratory reporting[3], Canada, 2014-15

Age groups (years)	Two weeks (September 21 to October 4, 2014)					Cumulative (August 24 to October 4, 2014)						
	Influenza A				B	Influenza A				B	Influenza A and B	
	A Total	A(H1) pdm09	A(H3)	A (UnS)	Total	A Total	A(H1) pdm09	A(H3)	A (UnS)	Total	#	%
<5	2	1	1	0	0	5	2	1	2	5	10	9.5%
5-19	4	0	0	4	1	10	0	4	6	2	12	11.4%
20-44	0	0	0	0	1	6	0	0	6	1	7	6.7%
45-64	7	0	2	5	1	12	0	4	8	6	18	17.1%
65+	33	0	16	17	0	55	1	27	27	3	58	55.2%
Unknown	0	0	0	0	0	0	0	0	0	0	0	0.0%
Total	46	1	19	26	3	88	3	36	49	17	105	100.0%
Percentage[2]	93.9%	2.2%	41.3%	56.5%	6.1%	83.8%	3.4%	40.9%	55.7%	16.2%		

[1] Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Cumulative data includes updates to previous weeks.
[2] Percentage of tests positive for sub-types of influenza A are a percentage of all influenza A detections.
[3] Table 2 includes specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported.
UnS: unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available.

Influenza Strain Characterizations

The National Microbiology Laboratory (NML) has not yet reported any influenza strain characterizations for the 2014-15 season (Figure 4).

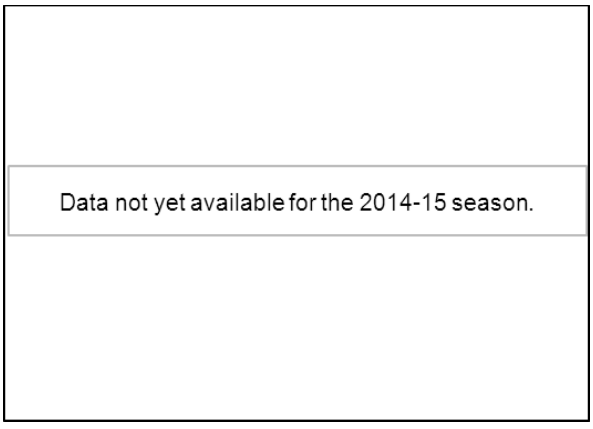


Figure 4. Influenza strain characterizations, Canada, 2014-15, N = 0

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

The recommended components for the 2014-2015 northern hemisphere trivalent influenza vaccine include: an A/California/7/2009(H1N1)pdm09-like virus, an A/Texas/50/2012 (H3N2)-like virus, and a B/Massachusetts/2/2012-like virus (Yamagata lineage). For quadrivalent vaccines, the addition of a B/Brisbane/60/2008-like virus is recommended.

Antiviral Resistance

The NML has not yet reported antiviral resistance results for influenza viruses collected during the 2014-15 season (Table 3).

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2014-15

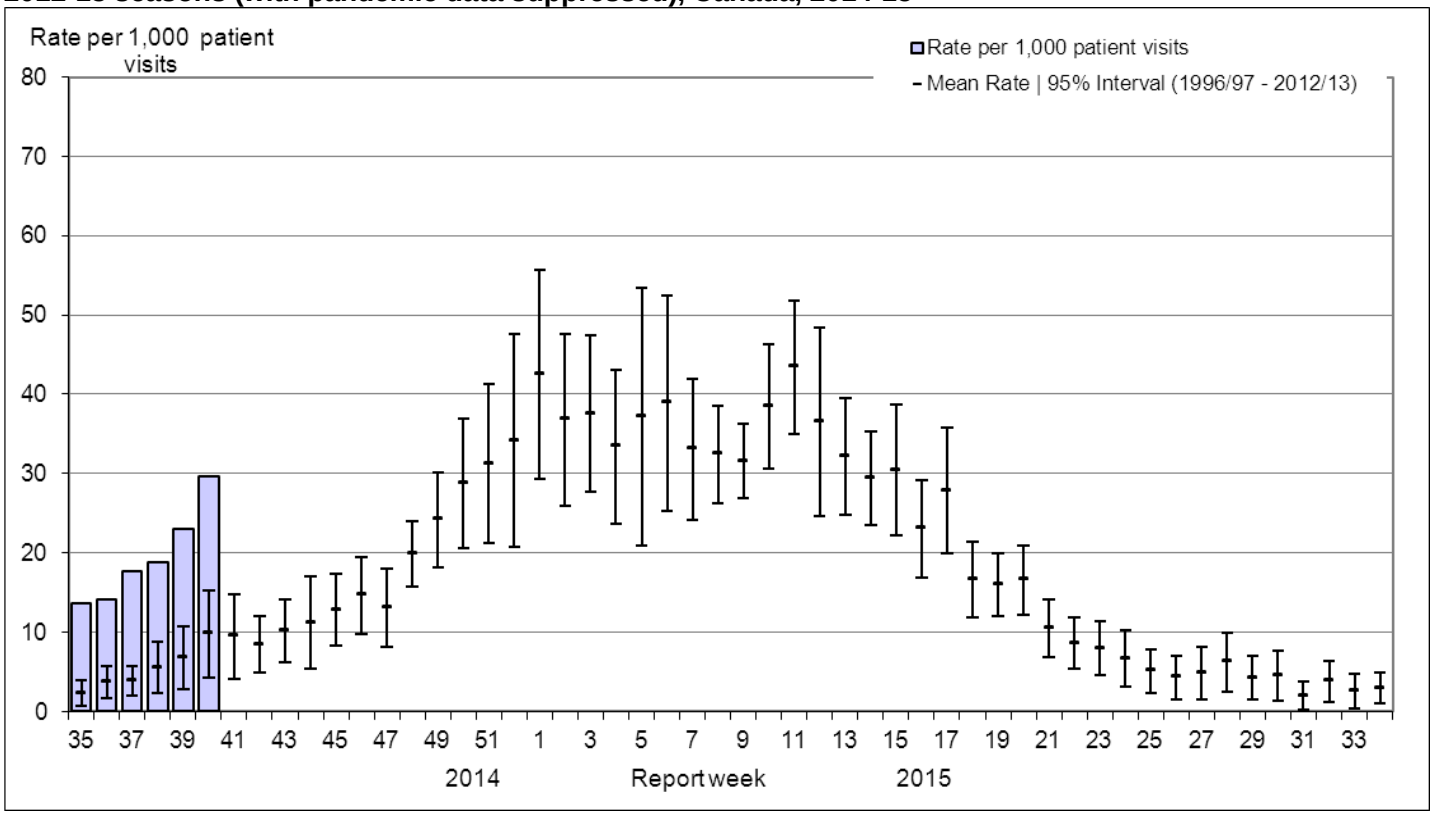
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	0	0	0	0	0	0
A (H1N1)	0	0	0	0	0	0
B	0	0	0	0	NA[1]	NA[1]
TOTAL	0	0	0	0	0	0

[1] NA – not applicable

Influenza-like Illness Consultation Rate

The national influenza-like-illness (ILI) consultation rate continued to increase, and was 23.1 and 29.6 per 1,000 consultations in weeks 39 and 40, respectively (Figure 5). The rates since mid-June have been above the expected range for this time of year.

Figure 5. Influenza-like-illness (ILI) consultation rates by report week, compared to the 1996-97 through to 2012-13 seasons (with pandemic data suppressed), Canada, 2014-15

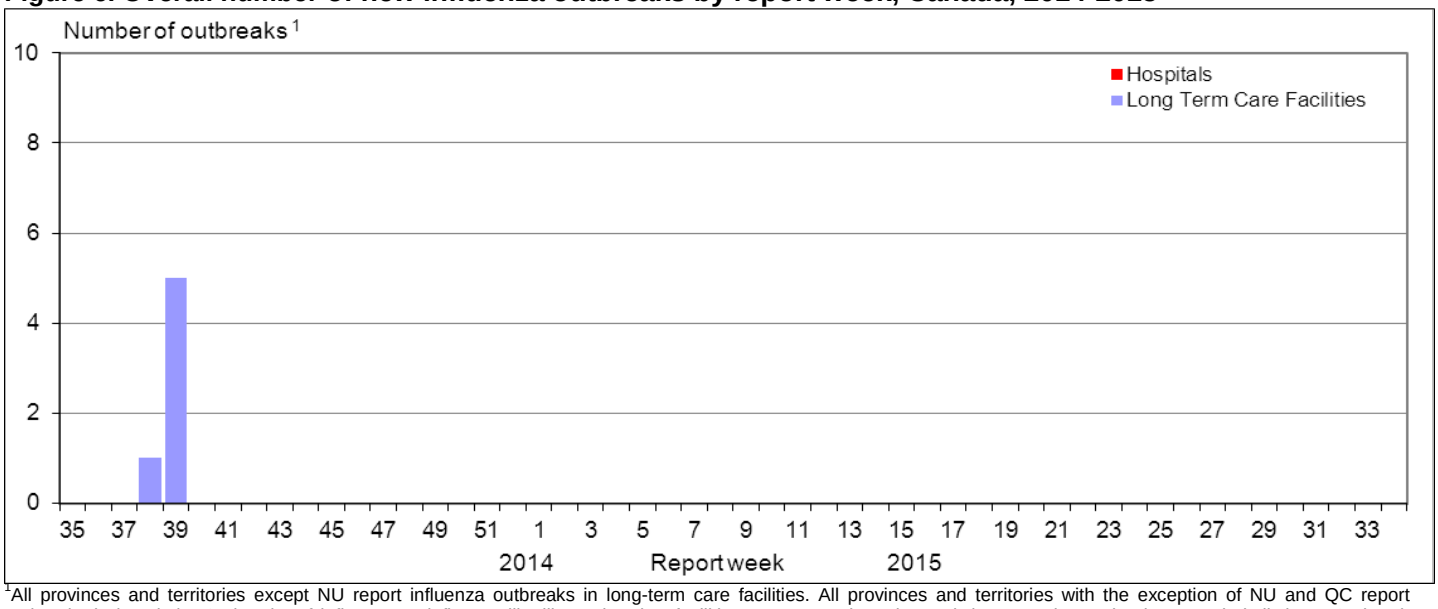


No data available for mean rate for weeks 19 to 39 for the 1996-1997 through 2002-2003 seasons. Delays in the reporting of data may cause data to change retrospectively. The calculation of the average ILI consultation rate over 17 seasons was aligned with influenza activity in each season. In BC, AB, and SK, data is compiled by a provincial sentinel surveillance program for reporting to FluWatch. The number of sentinel physicians in each province or territory is as follows: BC(21), AB(80), SK(11), MB(18), ON(169), QC(14), NB(29), NS(26), PE(4), NL(16), NU(1), NT(14), YT(13). Not all sentinel physicians report every week.

Influenza Outbreak Surveillance

In week 39, five influenza outbreaks were reported in long-term care facilities. One was due to influenza B, and among the four due to influenza A, one was A(H3N2) and the others were A(unsubtyped) (Figure 6). Two outbreaks of influenza-like illness in schools, and one outbreak of A(H3N2) in another facility were also reported in the same week. No new outbreaks were reported in week 40.

Figure 6. Overall number of new influenza outbreaks by report week, Canada, 2014-2015

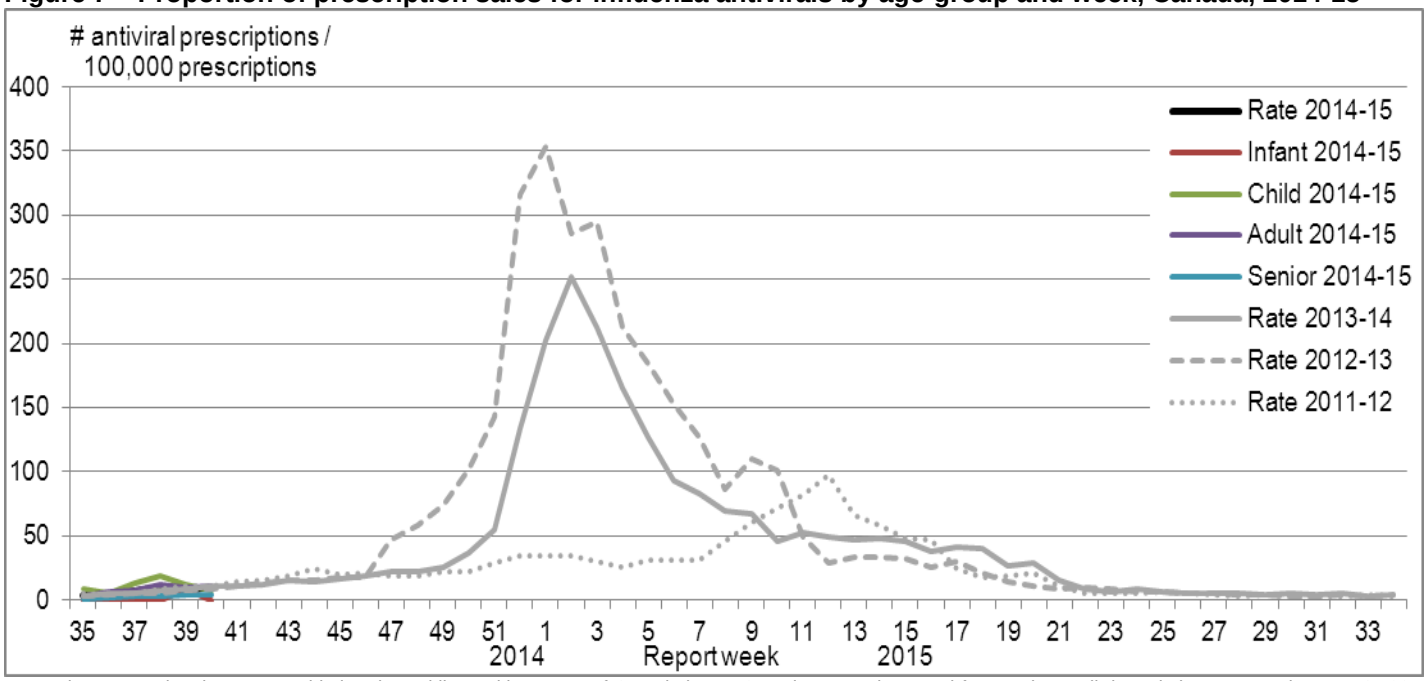


[1]All provinces and territories except NU report influenza outbreaks in long-term care facilities. All provinces and territories with the exception of NU and QC report outbreaks in hospitals. Outbreaks of influenza or influenza-like-illness in other facilities are reported to FluWatch but reporting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

Pharmacy Surveillance

During this two-week period, the proportion of prescriptions for antivirals was approximately 9 antiviral prescriptions per 100,000 total prescriptions, which is in keeping with previous seasons (Figure 7).

Figure 7 – Proportion of prescription sales for influenza antivirals by age-group and week, Canada, 2014-15



Note: Pharmacy sales data are provided to the Public Health Agency of Canada by Rx Canada Inc. and sourced from major retail drug chains representing over 2,500 stores nationwide (excluding Nunavut) in 85% of Health Regions. Data provided include the number of new antiviral prescriptions (for Tamiflu and Relenza) and the total number of new prescriptions dispensed by Province/Territory and age group. Age-groups: Infant: 0-2y, Child: 2-18y; Adult: 19-64y, Senior: ≥65y

Sentinel Hospital Influenza Surveillance

Paediatric Influenza Hospitalizations and Deaths (IMPACT)

In weeks 39 and 40, two new laboratory-confirmed influenza-associated paediatric (≤16 years of age) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network (Figure 8a). To date this season, five hospitalizations have been reported by the IMPACT network, all cases of influenza A (three A(H3N2) and two A(unsubtyped)). Two cases were admitted to the ICU. The age distribution of cases ranged from 2 to 16 years.

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

Adult Influenza Hospitalizations and Deaths (PCIRN)

Surveillance of laboratory-confirmed influenza-associated adult (≥16 years of age) hospitalizations by the PHAC/CIHR Influenza Research Network (PCIRN) Serious Outcomes Surveillance (SOS) network has not yet begun for the 2014-15 season (Figure 8b).

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

Table 4 – Cumulative numbers of paediatric hospitalizations with influenza reported by the IMPACT network, Canada, 2014-15

Age groups	Cumulative (24 Aug. 2014 to 4 Oct. 2014)					
	Influenza A				B	Influenza A and B
	A Total	A(H1) pdm09	A(H3)	A (UnS)	Total	# (%)
0-5m						
6-23m						
2-4y						
5-9y						
10-16y						
Total						
% [1]						

Data suppressed for the 2014-15 season due to small values. Table 4 will be updated when additional data are received.

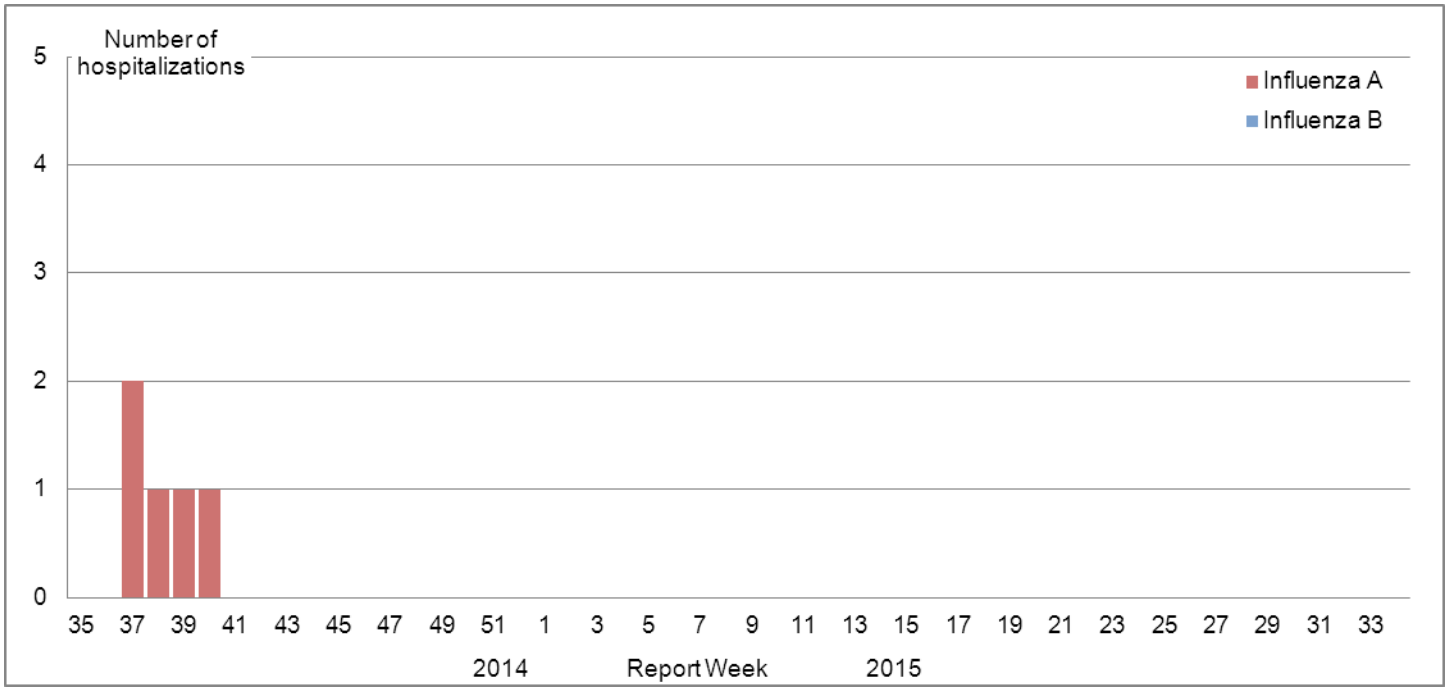
Table 5 – Cumulative numbers of adult hospitalizations with influenza reported by the PCIRN-SOS network, Canada, 2014-15

Age groups (years)	Cumulative (data for 2014-15 not yet available)					
	Influenza A				B	Influenza A and B
	A Total	A(H1) pdm09	A(H3)	A (UnS)	Total	# (%)
16-20						
20-44						
45-64						
65+						
Total						
%						

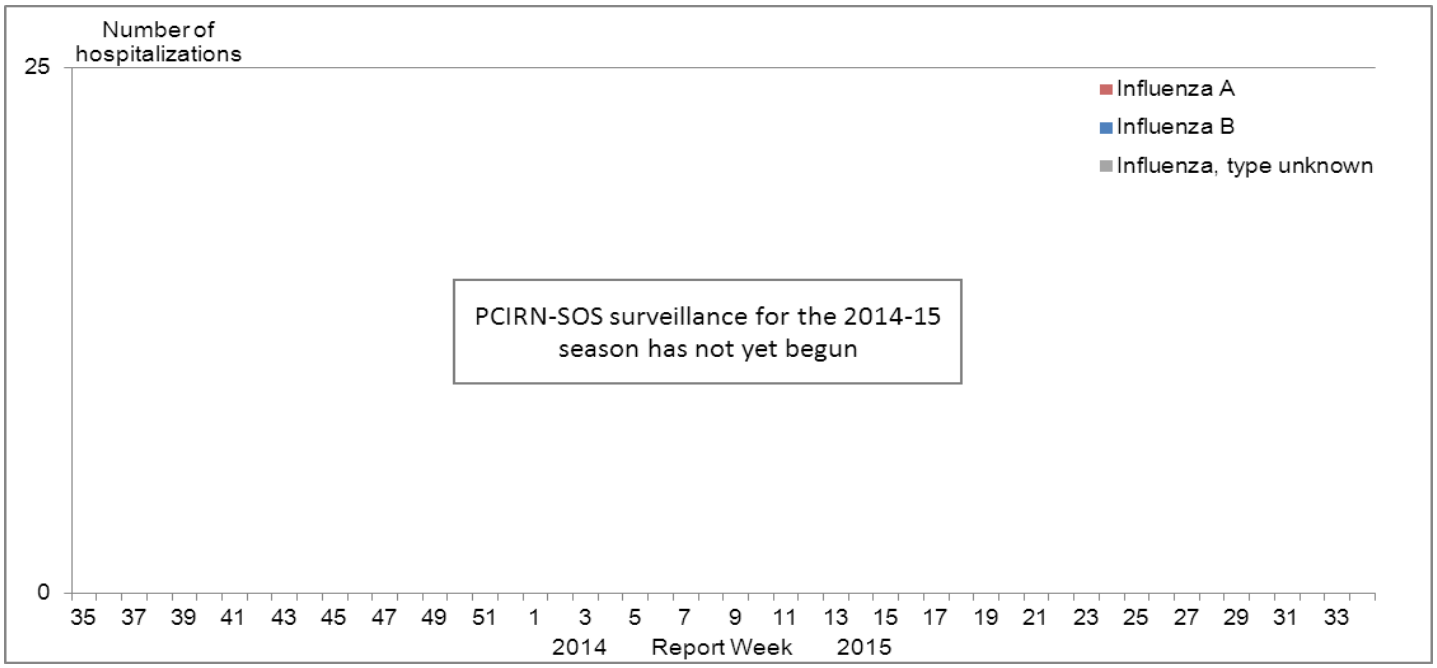
PCIRN-SOS surveillance for the 2014-15 season has not yet begun

[1] Percentage of tests positive for sub-types of influenza A are a percentage of all influenza A detections. UnS: unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available.

Figure 8 – Number of cases of influenza reported by sentinel hospital networks, by week, Canada, 2014-15
A) Paediatric hospitalizations (≤16 years of age, IMPACT)



B) Adult hospitalizations (≥16 year of age, PCIRN-SOS)



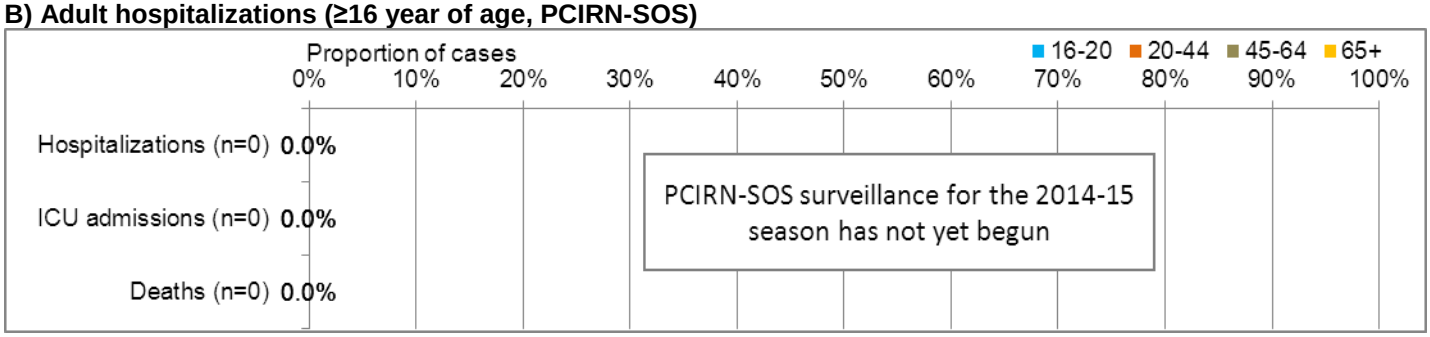
* See footnote on page 6 following the section related to PCIRN-SOS data.

Figure 9 – Percentage of hospitalizations, ICU admissions and deaths with influenza reported by age-group, Canada, 2014-15

A) Paediatric hospitalizations (≤16 years of age, IMPACT)

Data suppressed for the 2014-15 season due to small values.
Figure 9a will be updated when additional data are received.

B) Adult hospitalizations (≥16 year of age, PCIRN-SOS)



Provincial/Territorial Influenza Hospitalizations and Deaths

Since the start of the 2014-15 season, 20 laboratory-confirmed influenza-associated hospitalizations have been reported from participating provinces and territories*; 19 were cases of influenza A, of which the majority were A(H3N2); 50% were patients ≥65 years of age. No ICU admissions or deaths were reported.

* Note: Influenza-associated hospitalizations are not reported to PHAC by the following Provinces and Territory: BC, NU, QC, and NB. Only hospitalizations that require intensive medical care are reported by Saskatchewan. ICU admissions are not distinguished among hospital admissions reported from Ontario. Data may also include cases reported by the IMPACT and PCIRN networks.

Table 6 – Cumulative number of hospitalizations with influenza reported by the participating provinces and territories, Canada, 2014-15

Age groups (years)	Cumulative (24 Aug. 2014 to 4 Oct. 2014)					
	Influenza A				B	Influenza A and B
	A Total	A(H1) pdm09	A(H3)	A (UnS)	Total	# (%)
0-4	2	0	1	1	0	2 (10%)
5-19	3	0	3	0	0	3 (15%)
20-44	1	1	0	0	0	1 (5%)
45-64	3	0	3	0	1	4 (20%)
65+	10	0	5	5	0	10 (50%)
Unknown	0	0	0	0	0	0 (0%)
Total	19	1	12	6	1	20
Percentage[1]	95.0%	5.3%	63.2%	31.6%	5.0%	100.0%

[1] Percentage of tests positive for sub-types of influenza A are a percentage of all influenza A detections.
UnS: unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available.

See additional data on Reported Influenza Hospitalizations and Deaths in Canada: 2009-10 to 2014-15 on the Public Health Agency of Canada website.

Emerging Respiratory Pathogens

Human Avian Influenza
Influenza A(H7N9): No new cases of human infection with influenza A(H7N9) have been reported by the World Health Organization since the last FluWatch report. Globally to October 9, 2014, the WHO has been informed of a total of 453 laboratory-confirmed human cases with avian influenza A(H7N9) virus, including 175 deaths.

Documents related to the public health risk of influenza A(H7N9), as well as guidance for health professionals and advice for the public is updated regularly on the following websites:
PHAC – Avian influenza A(H7N9)
WHO – Avian Influenza A(H7N9)

Middle East Respiratory Syndrome Coronavirus (MERS-CoV)
Globally, from September 2012 to October 9, 2014, the WHO has been informed of a total of 855 laboratory-confirmed cases of infection with MERS-CoV, including 302 deaths. Since the last FluWatch, Austria has reported their first case of MERS-CoV. All cases have either occurred in the Middle East or have had direct links to a primary case infected in the Middle East. The public health risk posed by MERS-CoV in Canada remains low (see the PHAC Assessment of Public Health Risk).

Documents related to the public health risk of MERS-CoV, as well as guidance for health professionals and advice for the public is updated regularly on the following websites:
PHAC – Middle East respiratory syndrome coronavirus (MERS-CoV)
WHO – Coronavirus infections

Enterovirus D68 (EV-D68)
Information related to enterovirus D68, as well as guidance for health professionals and advice for the public is updated regularly on the following website:
PHAC – Non-polio enterovirus

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 2014-2015 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. Institutional outbreaks should be reported within 24 hours of identification. 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 Public Health Agency website at the following address: http://www.phac-aspc.gc.ca/fluwatch/index.html.

Ce rapport est disponible dans les deux langues officielles.