FluWatch

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

October 27 to November 2, 2013 (Week 44)

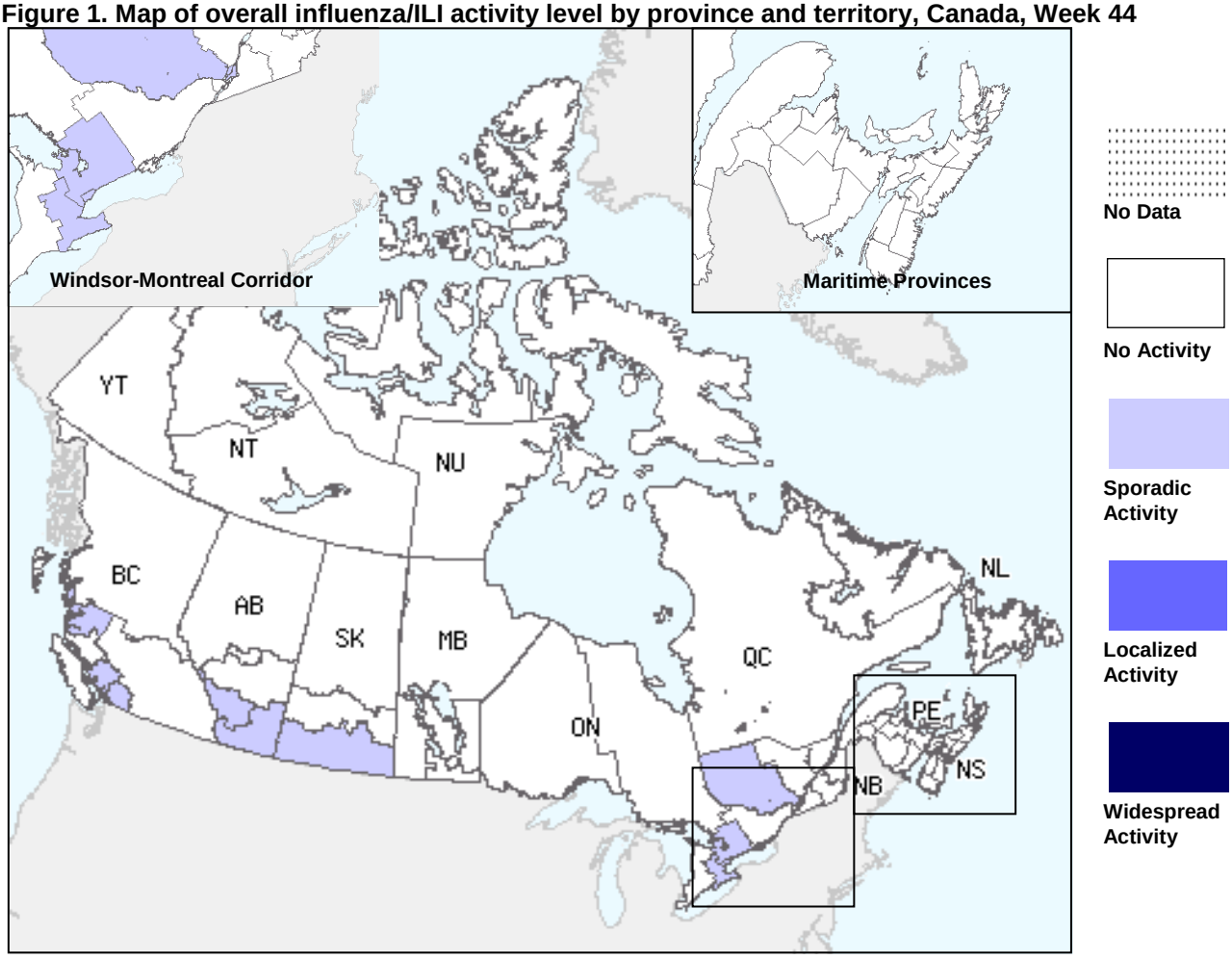
Overall Summary

- Influenza activity in Canada increased slightly in week 44.
- Laboratory detections of influenza increased and ten regions reported sporadic influenza activity.
- Both paediatric and adult hospitalizations with influenza were reported in week 44.
- The ILI consultation rate declined slightly in week 44.

Influenza/ILI Activity (geographic spread)

In week 44, ten regions (in BC(2), AB(2), SK(1), ON(3) and QC(2)) reported sporadic activity (Figure 1). The number of regions reporting sporadic activity has increased over the past three weeks.

Figure 1. Map of overall influenza/ILI activity level by province and territory, Canada, Week 44

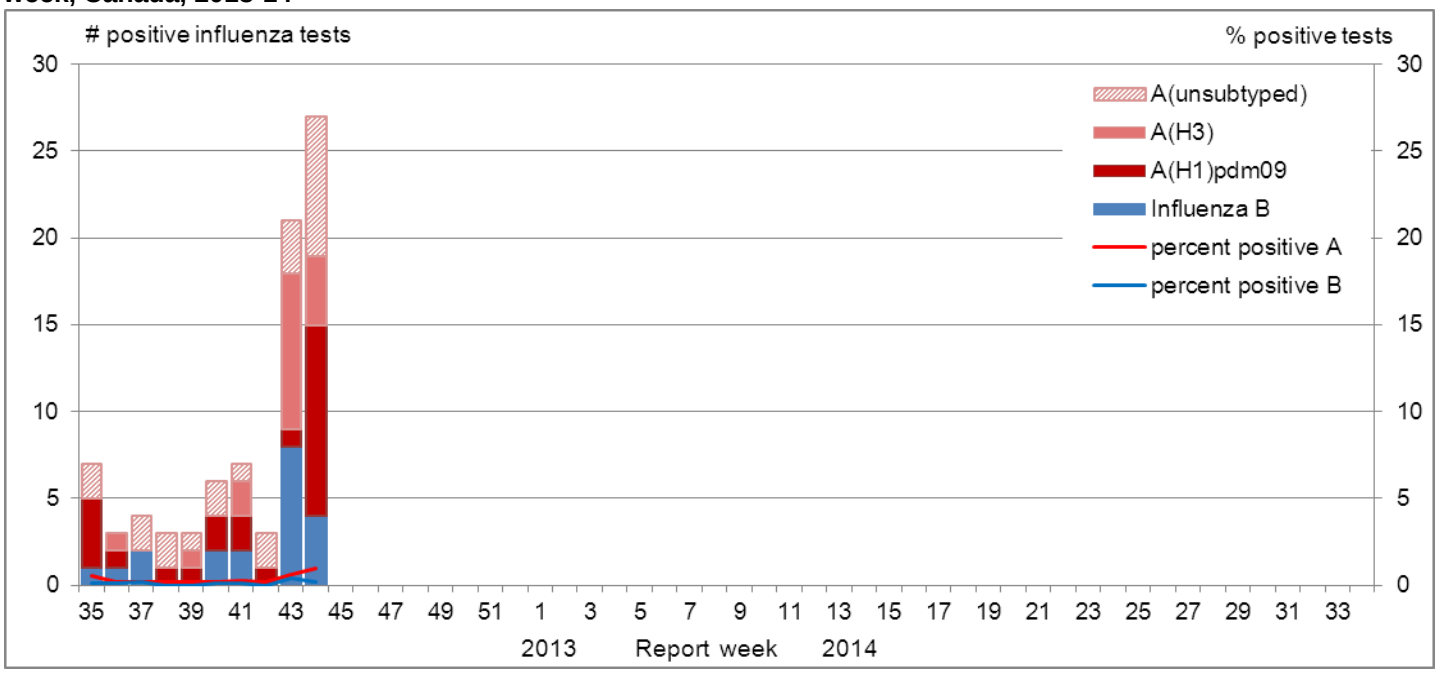


Note: Influenza/ILI activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates and reported outbreaks. Please refer to detailed definitions at the end of the report. Maps from previous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

Influenza and Other Respiratory Virus Detections

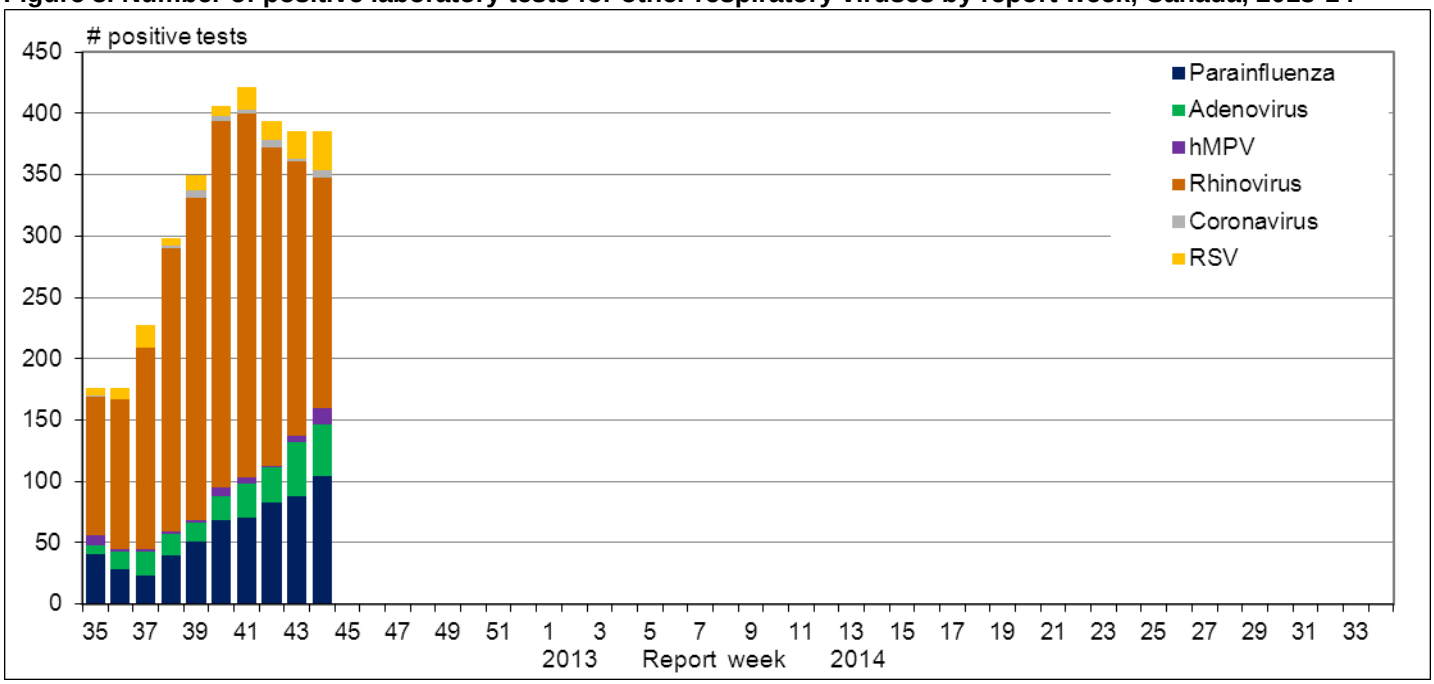
The number of positive influenza tests increased for the second week in a row, from 21 in week 43 to 27 in week 44, bringing the percentage of positive influenza tests to 1.2%, driven predominantly by detections of influenza A (Figure 2). Cumulative influenza virus detections by type/subtype to date have been predominantly influenza A (76%) with more A(H1N1)pdm09 identified compared to A(H3) among those subtyped (Table 1). Detailed information on age and type/subtype has been received for 69 cases to date this season. The majority of cases have been adults 45-64 years of age (44%), followed by children under 5 years of age (23%) (Table 2).

Figure 2. Number of positive influenza tests and percentage of tests positive, by type, subtype and report week, Canada, 2013-14



The number of positive tests for parainfluenza and RSV increased in week 44, although rhinovirus and parainfluenza remained the two predominant viruses detected (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, 2013-14



RSV: Respiratory syncytial virus; hMPV: Human metapneumovirus

Table 1. Weekly and cumulative numbers of positive influenza specimens by type, subtype and province, Canada, 2013-14

Reporting provinces[1]	Weekly (October 27 to November 2, 2013)					Cumulative (August 25, 2013 to November 2, 2013)				
	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	2	2	0	0	0	3	2	0	1	3
AB	5	3	0	2	2	19	12	5	2	9
SK	1	1	0	0	0	3	1	0	2	0
MB	1	1	0	0	1	1	1	0	0	1
ON	12	4	4	4	0	26	7	12	7	6
QC	2	0	0	2	1	11	0	0	11	1
NB	0	0	0	0	0	1	1	0	0	0
NS	0	0	0	0	0	0	0	0	0	0
PE	0	0	0	0	0	0	0	0	0	0
NL	0	0	0	0	0	0	0	0	0	0
Canada	**23**	**11**	**4**	**8**	**4**	**64**	**24**	**17**	**23**	**20**
Percentage[2]	85.2%	47.8%	17.4%	34.8%	14.8%	76.2%	37.5%	26.6%	35.9%	23.8%

Table 2. Weekly and cumulative numbers of positive influenza specimens by type, subtype and age-group reported through case-based laboratory reporting[3], Canada, 2013-14

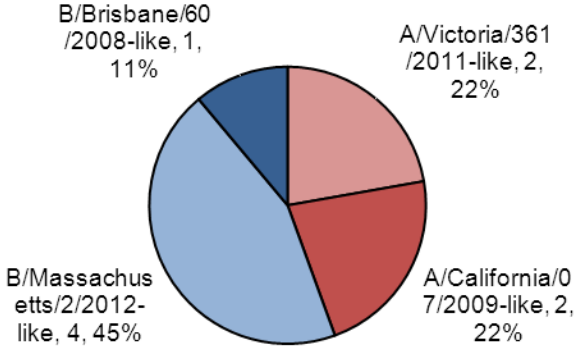
Age groups (years)	Weekly (October 27 to November 2, 2013)					Cumulative (August 25, 2013 to November 2, 2013)						
	Influenza A				B	Influenza A				B	Influenza A and B	
	A Total	A(H1) pdm09	A(H3)	A (UnS)	Total	A Total	A(H1) pdm09	A(H3)	A (UnS)	Total	#	%
<5	3	1	0	2	0	12	5	3	4	4	16	23.2%
5-19	0	0	0	0	0	2	0	0	2	1	3	4.3%
20-44	2	0	0	2	0	8	2	1	5	2	10	14.5%
45-64	3	0	0	3	0	25	9	8	8	5	30	43.5%
65+	1	0	0	1	1	7	1	3	3	3	10	14.5%
Unknown	0	0	0	0	0	0	0	0	0	0	0	0.0%
Total	9	1	0	8	1	54	17	15	22	15	69	100.0%
Percentage[2]	90.0%	11.1%	0.0%	88.9%	10.0%	78.3%	31.5%	27.8%	40.7%	21.7%		

[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

During the 2013-2014 influenza season, the National Microbiology Laboratory (NML) has antigenically characterized nine influenza viruses [two A(H3N2), two A(H1N1)pdm09 and five influenza B]. Eight of the nine viruses were similar to the strains recommended by the WHO for the 2013-14 seasonal influenza vaccine; one influenza B virus was similar to the strain recommended by the WHO for the 2012-13 vaccine (Figure 4).

Figure 4. Influenza strain characterizations, Canada, 2013-14, N = 9



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 2013-2014 northern hemisphere trivalent influenza vaccine include: an A/California/7/2009 (H1N1)pdm09-like virus, an A(H3N2) virus antigenically like the cell-propagated prototype virus A/Victoria/361/2011b, and a B/Massachusetts/2/2012-like virus (Yamagata lineage).

Antiviral Resistance

During the 2013-2014 influenza season, NML has tested nine influenza viruses for resistance to oseltamivir and zanamivir, and all were sensitive. Four influenza A viruses were tested for amantadine resistance, and all were resistant (Table 3).

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2013-14

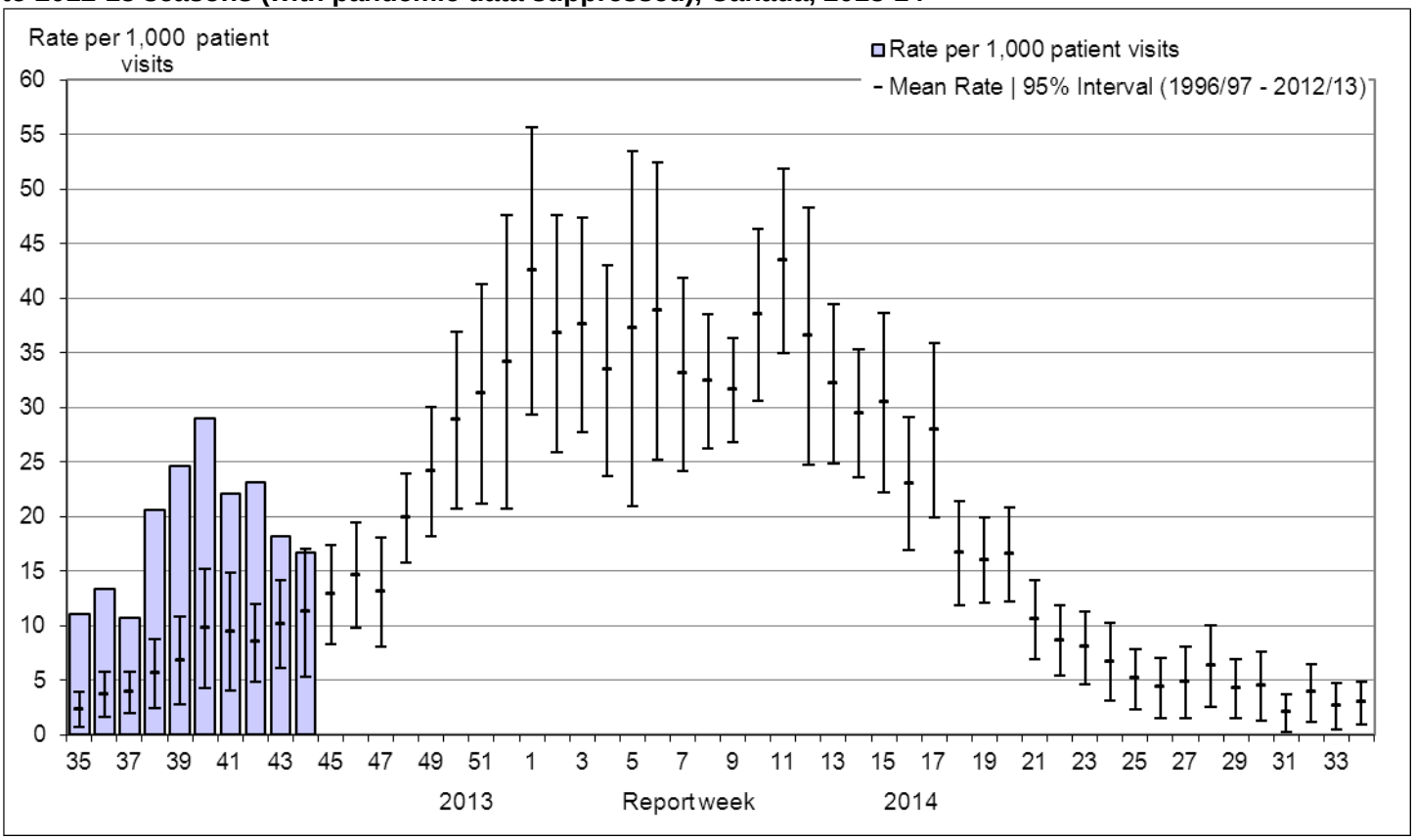
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	2	0	2	0	2	2 (100%)
A (H1N1)	2	0	2	0	2	2 (100%)
B	5	0	5	0	NA[1]	NA[1]
TOTAL	9	0	9	0	4	4 (100%)

[1] NA – not applicable

Influenza-like Illness Consultation Rate

The national influenza-like-illness (ILI) consultation rate decreased slightly from 18.2/1,000 in week 43 to 16.7/1,000 in week 44 (Figure 5).

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, 2013-14

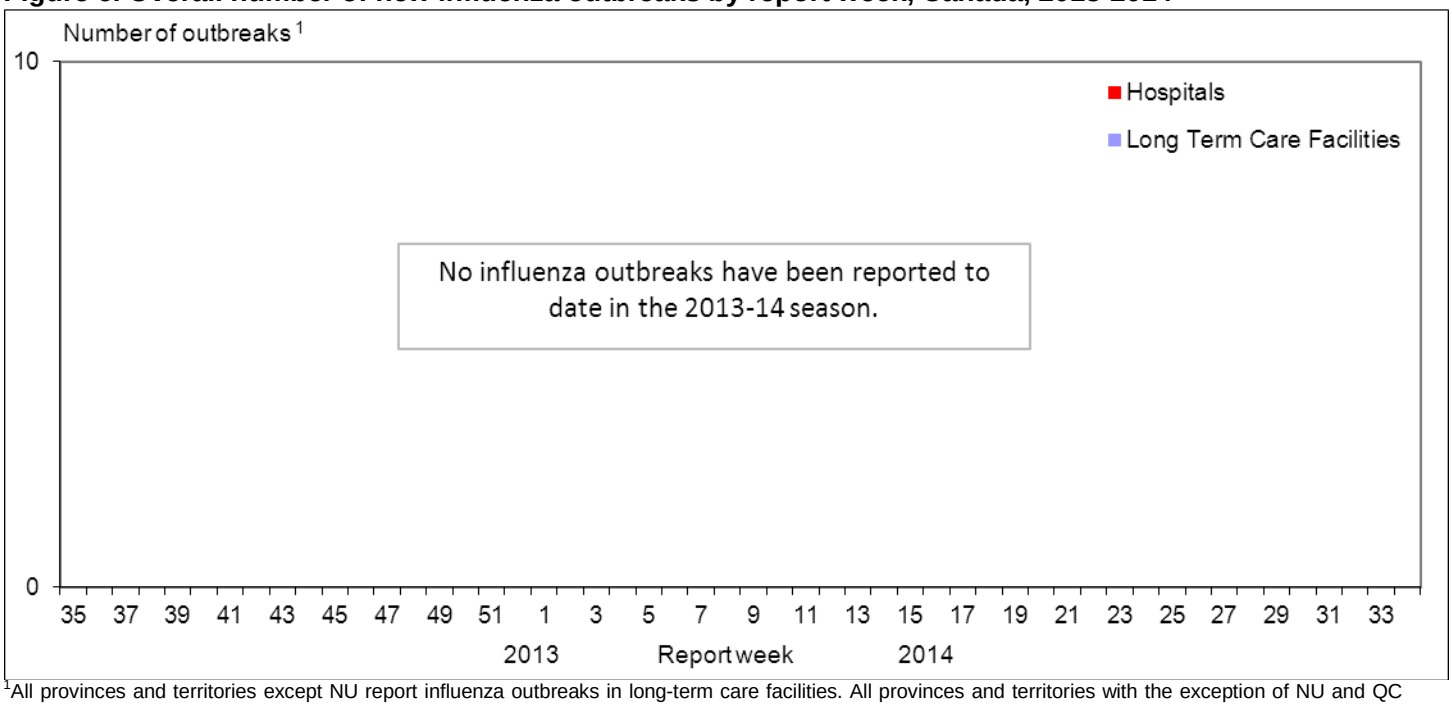


No data available for mean rate for weeks 19 to 39 for the 1996-1997 through 2002-2003 seasons. Delays in the reporting of data may cause data to change retrospectively. The calculation of the average ILI consultation rate over 17 seasons was aligned with influenza activity in each season. In BC, AB, 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

No new influenza outbreaks were reported in week 44 (Figure 6).

Figure 6. Overall number of new influenza outbreaks by report week, Canada, 2013-2014

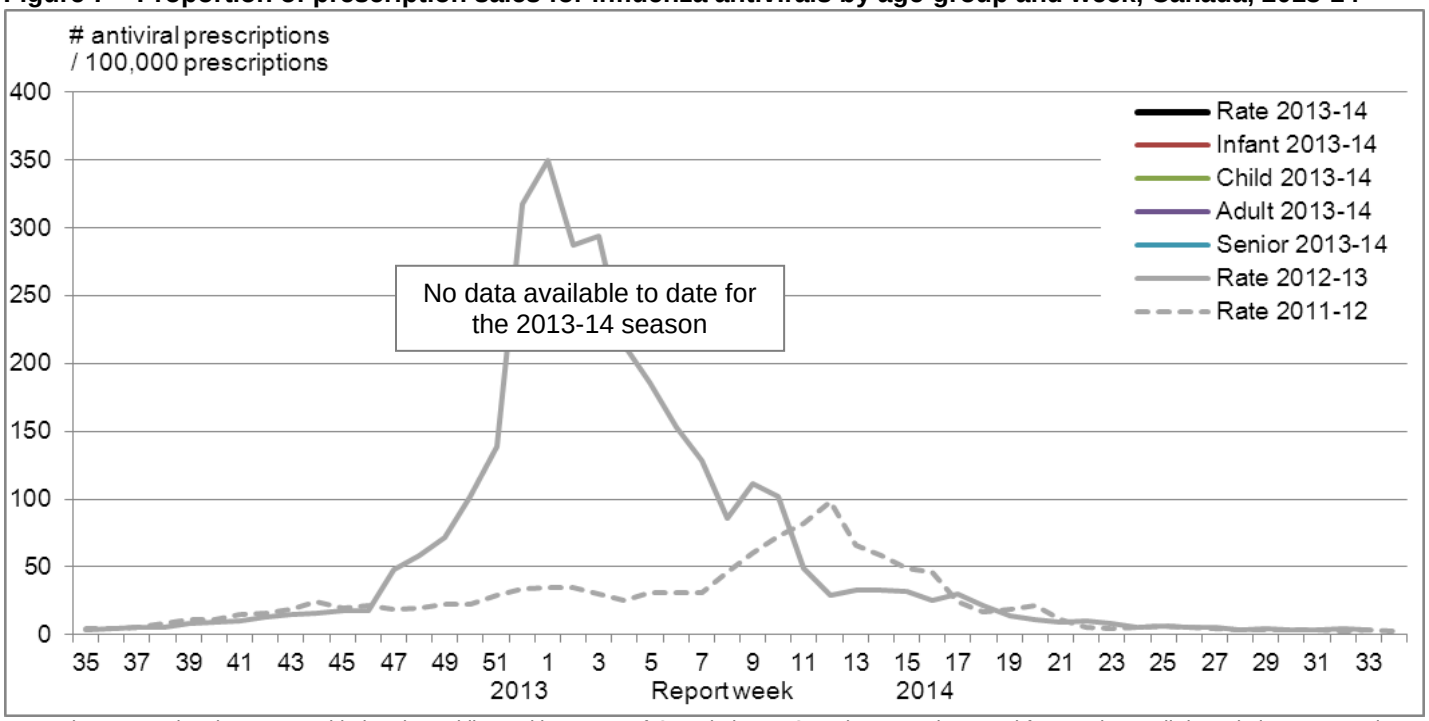


[1]All provinces and territories except NU report influenza outbreaks in long-term care facilities. All provinces and territories with the exception of NU and QC report outbreaks in hospitals. Outbreaks of influenza or influenza-like-illness in other facilities are reported to FluWatch but reporting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

Pharmacy Surveillance

Pharmacy surveillance for sales of influenza antivirals has not yet begun for the 2013-14 influenza season (Figure 7).

Figure 7 – Proportion of prescription sales for influenza antivirals by age-group and week, Canada, 2013-14



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 3,000 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

Paediatric Influenza Hospitalizations and Deaths (IMPACT)

In week 44, one laboratory-confirmed influenza-associated paediatric (≤16 years of age) hospitalization was reported by the Immunization Monitoring Program Active (IMPACT) network: a child 2-4 years of age with influenza A(H1N1)pdm09 (Figure 8a).

To date this season, a total of five influenza-associated paediatric hospitalizations have been reported by the IMPACT network: one child 0-5 months of age and four 2-4 years of age. One ICU admission was required in a child 2-4 years of age with influenza B. No deaths have been reported (Figure 9a and Table 4).

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)

Active surveillance of laboratory-confirmed influenza-associated adult (≥16 years of age) hospitalizations reported by the PHAC/CIHR Influenza Research Network (PCIRN) Serious Outcomes Surveillance (SOS) network will begin on November 15th 2013. The PCIRN-SOS network continues to report limited data on laboratory-confirmed cases of influenza identified through passive surveillance. One new hospitalization was reported in week 44, an adult ≥65 years of age with influenza A. No ICU admissions or deaths were reported in week 44 (Figure 8b).

To date this season, six influenza-associated hospitalizations have been reported by the PCIRN-SOS network, all adults over 45 years of age with influenza A. ICU admission was required for one hospitalization and no deaths have been reported (Figure 9b and Table 5).

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, 2013-14

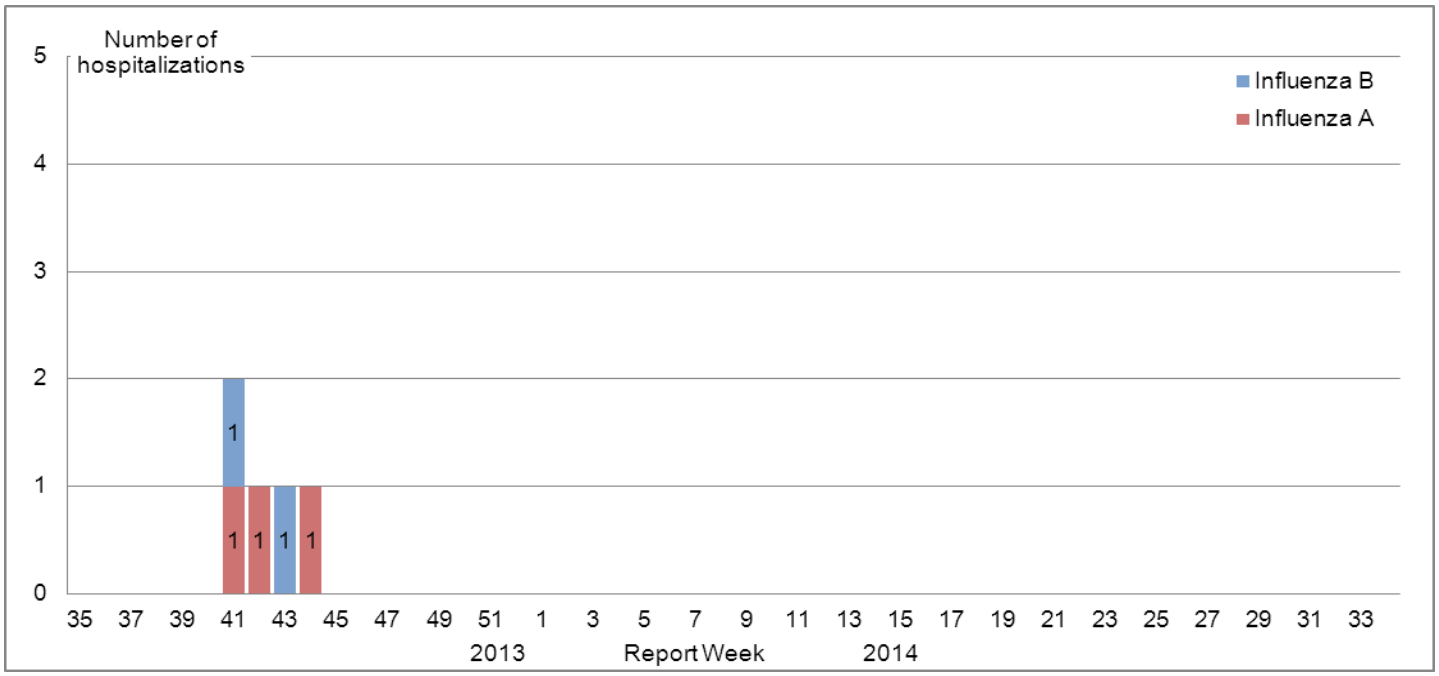
Age groups	Cumulative (25 Aug. 2013 to 2 Nov. 2013)					
	Influenza A				B	Influenza A and B
	A Total	A(H1) pdm09	A(H3)	A (UnS)	Total	# (%)
0-5m	1	0	0	1	0	1 (20%)
6-23m	0	0	0	0	0	0
2-4y	2	1	0	1	2	4 (80%)
5-9y	0	0	0	0	0	0
10-16y	0	0	0	0	0	0
Total	3	1	0	2	2	5
% [1]	60.0%	33.3%	0.0%	66.7%	40.0%	100.0%

Table 5 – Cumulative numbers of adult hospitalizations with influenza reported by the PCIRN-SOS network, Canada, 2013-14

Age groups (years)	Cumulative (25 Aug. 2013 to 2 Nov. 2013)					
	Influenza A				B	Influenza A and B
	A Total	A(H1) pdm09	A(H3)	A(UnS)	Total	# (%)
16-20	0	0	0	0	0	0
20-44	0	0	0	0	0	0
45-64	3	0	1	2	0	3 (50%)
65+	3	0	0	3	0	3 (50%)
Total	6	0	1	5	0	6
%	100%	0%	17%	83%	0%	100%

[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, 2013-14
A) Paediatric hospitalizations (≤16 years of age, IMPACT)



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

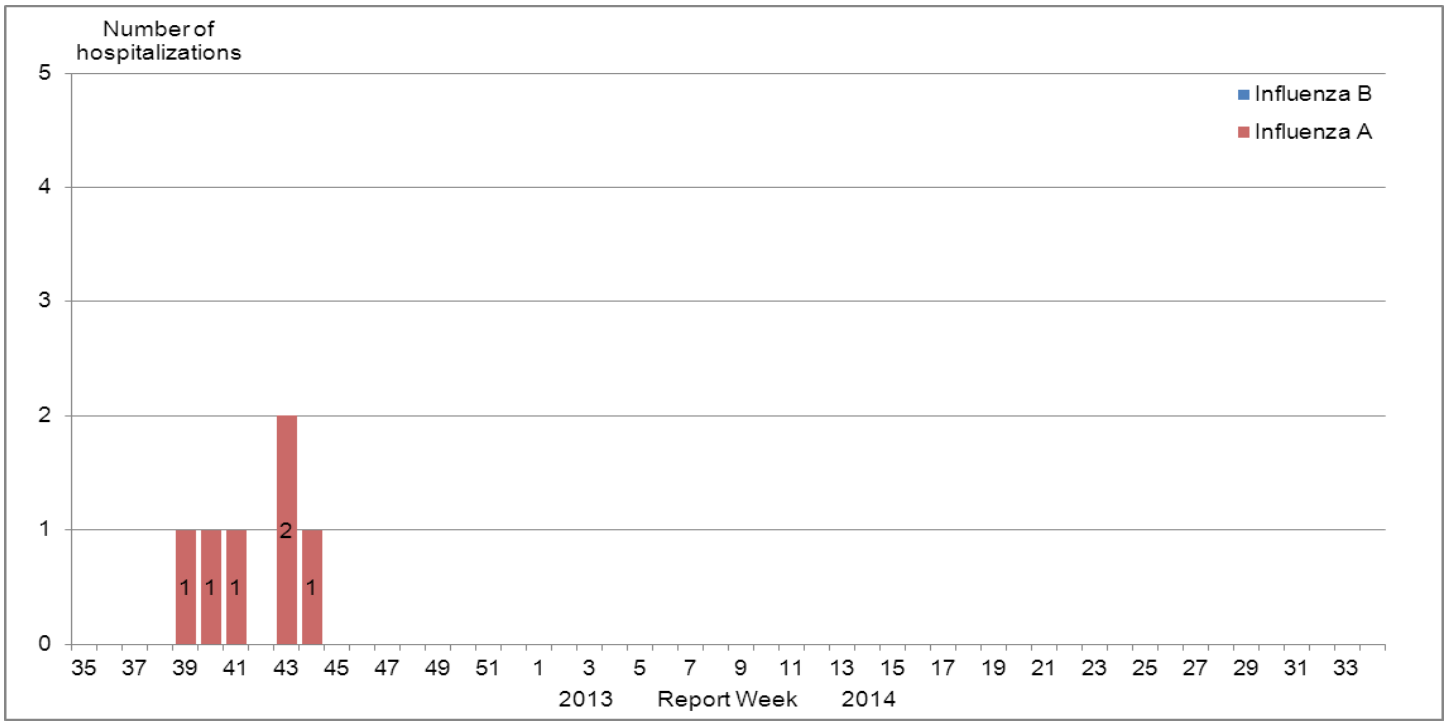
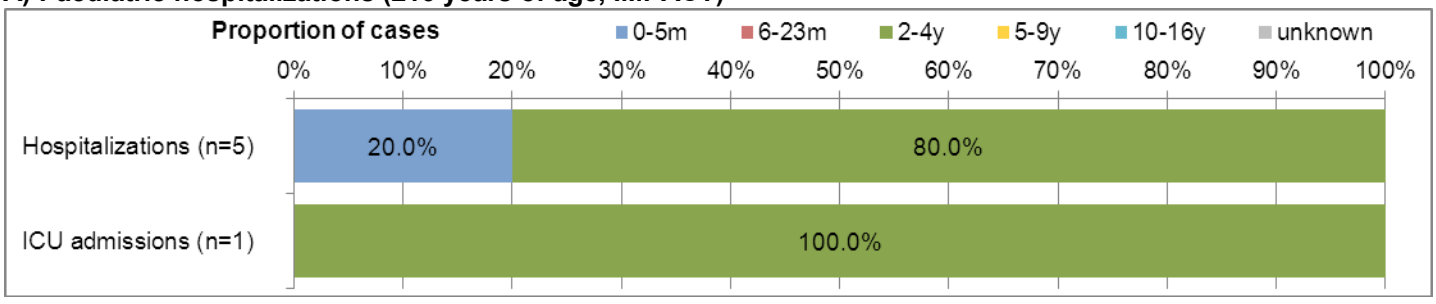
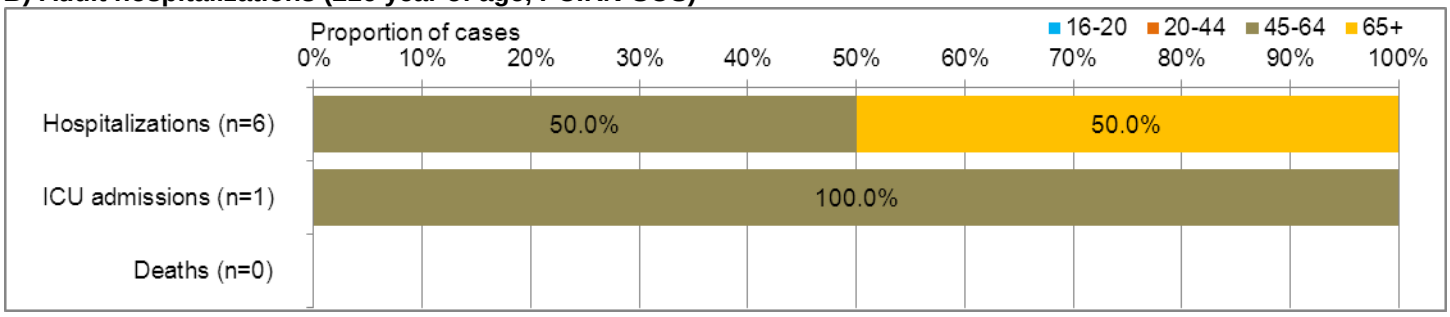


Figure 9 – Percentage of hospitalizations, ICU admissions and deaths with influenza reported by age-group, Canada, 2013-14

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



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



Provincial/Territorial Influenza Hospitalizations and Deaths

In week 44, four new laboratory-confirmed influenza-associated hospitalizations were reported from participating provinces and territories.* The cases were as follows: two adults 45-64 years of age, both with influenza A(H3N2), and two adults ≥65 years of age with influenza A(H3N2) and influenza A(unsubtyped). No ICU admissions or deaths were reported.

To date this season, 17 influenza-associated hospitalizations have been reported, of which 12 (70.6%) had influenza A (Table 6). Consistent with the data from IMPACT and PCIRN-SOS, there is a greater proportion of cases of influenza B among children under 5 years of age, whereas influenza A is predominant among adults over 45 years of age. One ICU admission was reported in an adult 45-64 years of age and no deaths have been reported. It is important to note that the cause of death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting. Detailed clinical information (e.g. underlying medical conditions) is not known for these cases.

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

Table 6 – Cumulative number of hospitalizations with influenza reported by the participating provinces and territories, Canada, 2013-14

Age groups (years)	Cumulative (Aug. 25, 2013 to Nov. 2, 2013)					
	Influenza A				B	Influenza A and B
	A Total	A(H1) pdm09	A(H3)	A (UnS)	Total	# (%)
0-4	2	0	1	1	3	5 (29.4%)
5-14	0	0	0	0	1	1 (5.9%)
15-19	0	0	0	0	0	0
20-44	0	0	0	0	0	0
45-64	6	2	3	1	1	7 (41.2%)
65+	4	1	1	2	0	4 (23.5%)
Total	12	3	5	4	5	17
Percentage[1]	70.6%	25.0%	41.7%	33.3%	29.4%	100%

[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.

Emerging Respiratory Pathogens

Human Avian Influenza

Influenza A(H7N9): Two new laboratory-confirmed cases of human infection with avian influenza A(H7N9) in China have been reported by the World Health Organization (WHO). The first case is a child and the second case is a 64-year-old woman. Both cases had reported contact with live poultry. As of 7 November 2013, the WHO has been informed of 139 laboratory-confirmed human cases with avian influenza A(H7N9), including 45 deaths.

PHAC – Avian influenza A(H7N9)

WHO – Avian Influenza A(H7N9)

Human Swine Influenza
Influenza A(H3N2)v: No new cases of human infection with influenza A(H3N2)v were reported in week 44. To date in 2013, a total of 19 A(H3N2)v cases including one hospitalization have been reported (data current as of October 18, 2013).
Centers for Disease Control and Prevention Influenza A(H3N2) Variant Virus

Middle East Respiratory Syndrome Coronavirus (MERS-CoV)
Since the FluWatch report for week 43, WHO has reported six additional laboratory-confirmed cases (including two deaths), and one probable case of MERS-CoV. Four of the confirmed cases were from Saudi Arabia, one from Qatar and one from Oman. The probable case was reported in Spain.

Of the four cases including two deaths reported from Saudi Arabia, two are women and two are men. All four cases, one of whom is a health care worker, had underlying medical conditions. Their ages range from 49 to 83 years old. All four patients reported having no contact with animals prior to their illness, while two cases were reported to have been in contact with a previously laboratory-confirmed case.

The case in Oman is a 68-year-old man. Preliminary epidemiological investigations revealed that he did not recently travel outside the country. However, investigations are currently ongoing to determine what exposures might be responsible for his infection.

The case in Qatar is a 23-year-old male, with no underlying medical conditions, who had contact with a previously reported laboratory confirmed case of MERS-CoV. This case was identified through epidemiological investigations. Preliminary investigations revealed that the case had no recent history of travel but had been working in the animal barn owned by the previously confirmed case.

The probable case in Spain is a 61-year-old female with no known chronic conditions. She stayed in Saudi Arabia from 2 October to 1 November 2013 for the Hajj and was hospitalized in Saudia Arabia and again upon her return to Spain. No contacts with animals or confirmed cases were reported. Initial laboratory screening tests for MERS-CoV were positive however further tests for case confirmation are pending.

Globally, from September 2012 to November 7, 2013, WHO has been informed of a total of 151 laboratory-confirmed cases of infection with MERS-CoV, including 64 deaths. All cases have either occurred in the Middle East or have had direct links to a primary case infected in the Middle East.
PHAC – Middle East respiratory syndrome coronavirus (MERS-CoV)
WHO – Coronavirus infections

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

EuroFlu weekly electronic bulletin

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 2013-2014 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.