• As of 10 June, 2009, 9 provinces and 3 territories have reported a total of 2,978 laboratory-confirmed cases of H1N1 flu virus including 149 hospitalizations and 4 deaths to the Public Health Agency of Canada (PHAC). In the last week (4-10 June, 2009), the number of cases has continued to increase mainly in 5 provinces (AB, SK, MB, ON and QC) and one territory (NU).

• Overall illness from H1N1 flu virus in Canada has been mild thus far. Only 4.8% of laboratory-confirmed cases have been hospitalized.

•Of those hospitalized cases, more than 35% were reported this week. Children less than 10 years were particularly affected, accounting for a third of the hospitalized cases. Based on a proportion of hospitalized cases for whom the information was provided, only a quarter of the cases had one or more underlying medical conditions (including pregnancy).

• The World Health Organization (WHO) has raised the pandemic alert to Phase 6 on 11 June 2009. As of 10 June 2009, 74 countries worldwide have officially reported 27,737 cases of H1N1 flu virus, including 141 deaths, to WHO.

• During week 22, overall activity level of influenza is higher than excepted at this time of the year with increased influenza virus detections and medical visits for influenza symptoms.

H1N1 flu virus Surveillance and Epidemiology

As of 10 June, 2009, 9 provinces and 3 territories have reported a total of 2,978 laboratory-confirmed cases of H1N1 flu virus, of which 149 H1N1 cases were admitted to hospital. These cases were from British Columbia (3.4%), Alberta (5.4%), Saskatchewan (2.7%), Manitoba (8.1%), Ontario (25.5%), Quebec (49.0%), Nova Scotia (0.7%) and Nunavut (5.4%). Of the 149 hospitalized cases, core data are available for 137 (91.9%) cases. The median age of the hospitalized cases was 15 years (range <1 to 80 years). Cases were distributed similarly between males and females (46.0% for males, 53.3% for females, 0.7% unknown). Twenty-one (15.8%) of the hospitalized cases were reported to have been admitted to the intensive care unit (ICU). Information regarding underlying medical conditions was available for 61 (40.9%) of hospitalized cases. The 13 cases with underlying medical conditions reported lung disease (6), diabetes (2), kidney disease (2), immune suppression (3) and chronic heart disease (3), and others (note that some cases reported more than one underlying condition). Two hospitalized cases were pregnant women, both in their 3rd trimester. There have been also 4 deaths reported since the beginning of the outbreak (1 in Alberta, 2 in Ontario and 1 in Quebec). Three had underlying medical conditions and one was over age 65.

Weekly and cumulative numbers of hospitalizations and deaths due to H1N1 flu virus, Canada, to 10 June 2009

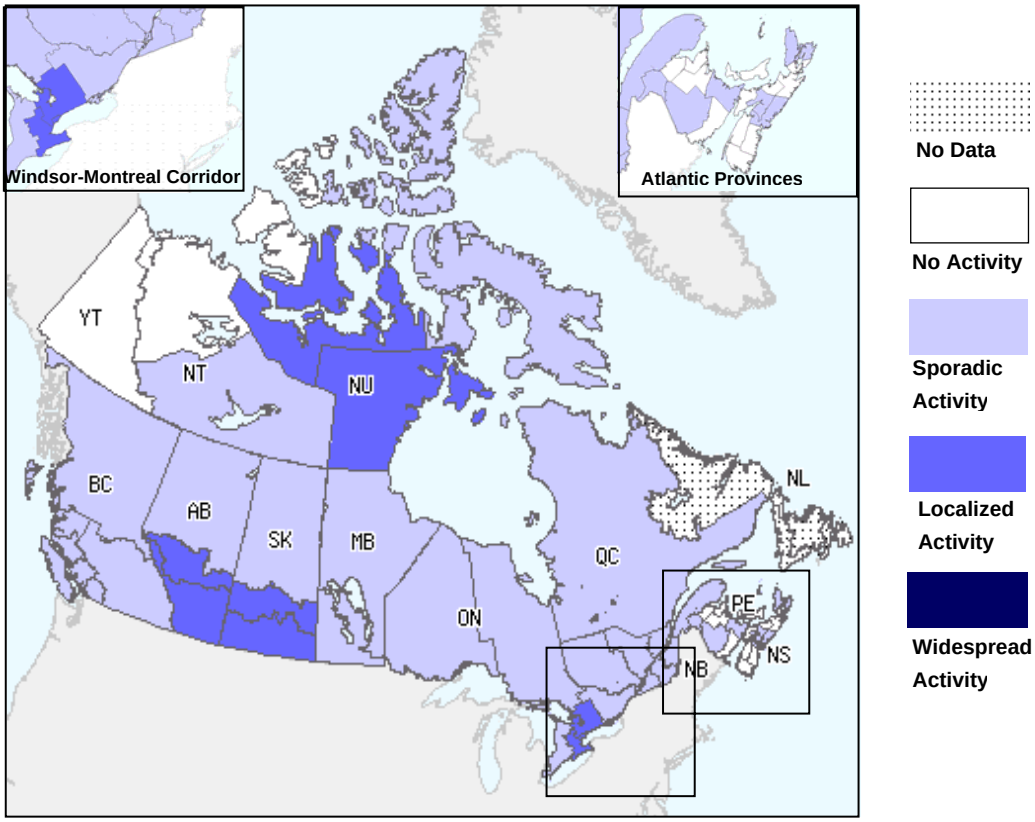
Province/ Territory	This week (4-10 June, 2009) hospitalized cases	This week (4-10 June, 2009) deaths	Cumulative hospitalized cases	Cumulative deaths
BC	2	0	5	0
AB	0	0	8	1
SK	0	0	4	0
MB	3	0	12	0
ON	14	0	38	2
QC	31	1	73	1
NB	0	0	0	0
NS	1	0	1	0
PE	0	0	0	0
NL	0	0	0	0
YT	0	0	0	0
NT	0	0	0	0
NU	5	0	8	0
Canada	56	1	149	4

Overall Influenza Summary

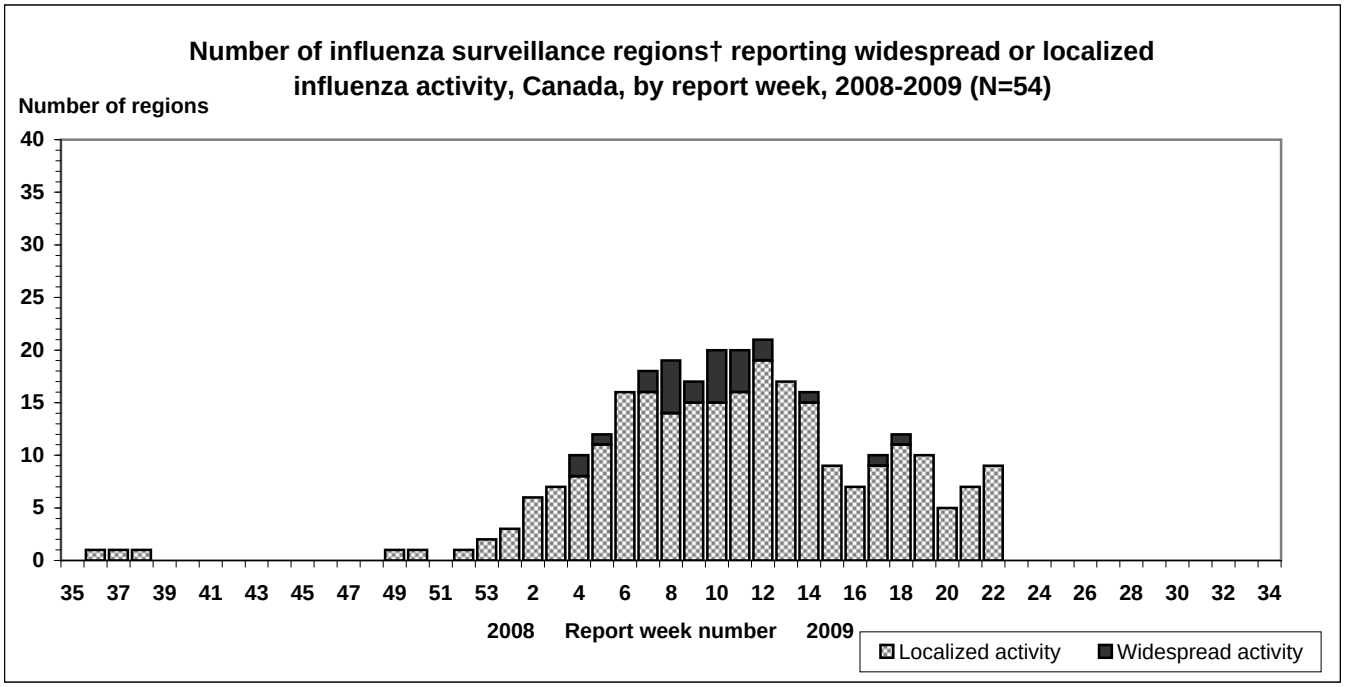
During week 22, the reported activity level, ILI consultations rates (28 consultations per 1,000 visits) and proportion of influenza positive tests (25.1%) are still higher than expected for this time of the year.

Nine regions in AB, SK, ON & NU reported localized activity, 28 regions sporadic activity in BC, AB, SK, MB, ON, QC, NB, NS, NT & NU and 13 regions in NB, NS, PE, YK & NT reported no activity (no report received from NL so far). Six new influenza outbreaks were reported this week; two were in LTCFs (AB & ON), two were in schools (AB) and two occured in unspecified locations (SK & NU).

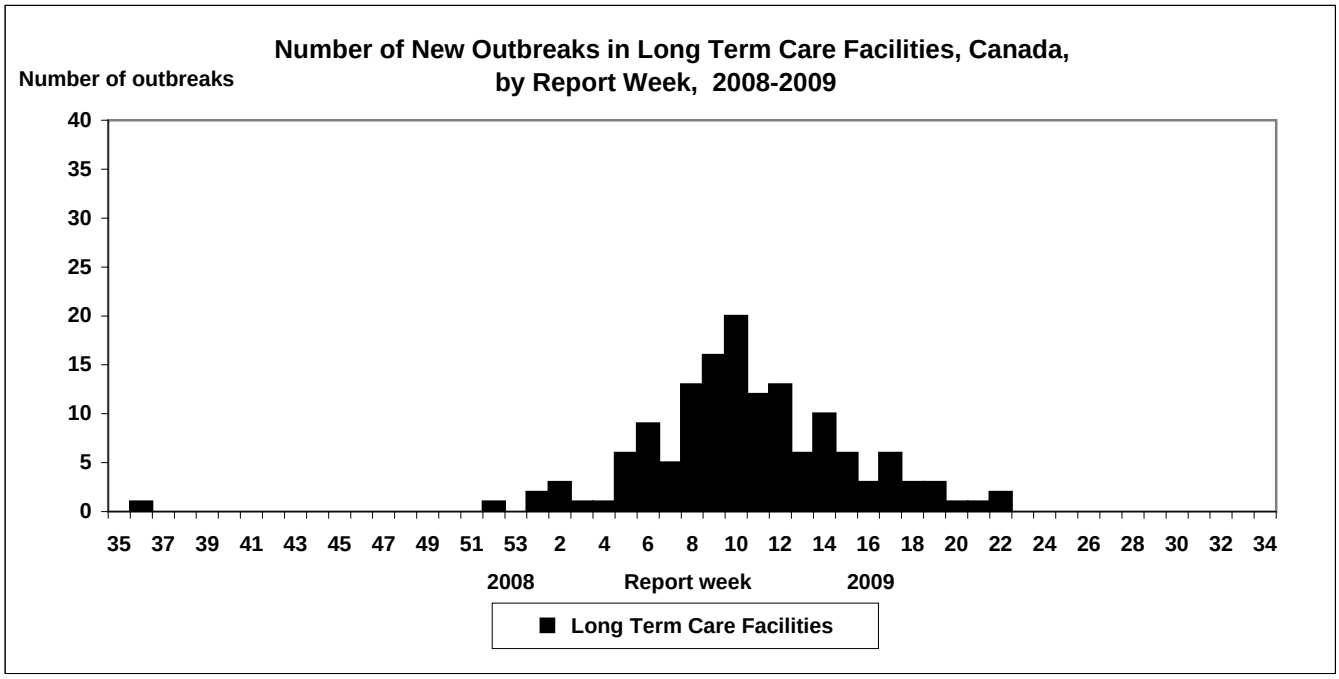
Map of overall Influenza activity level by provinces and territories, week 22, Canada



Note: Influenza 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 (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

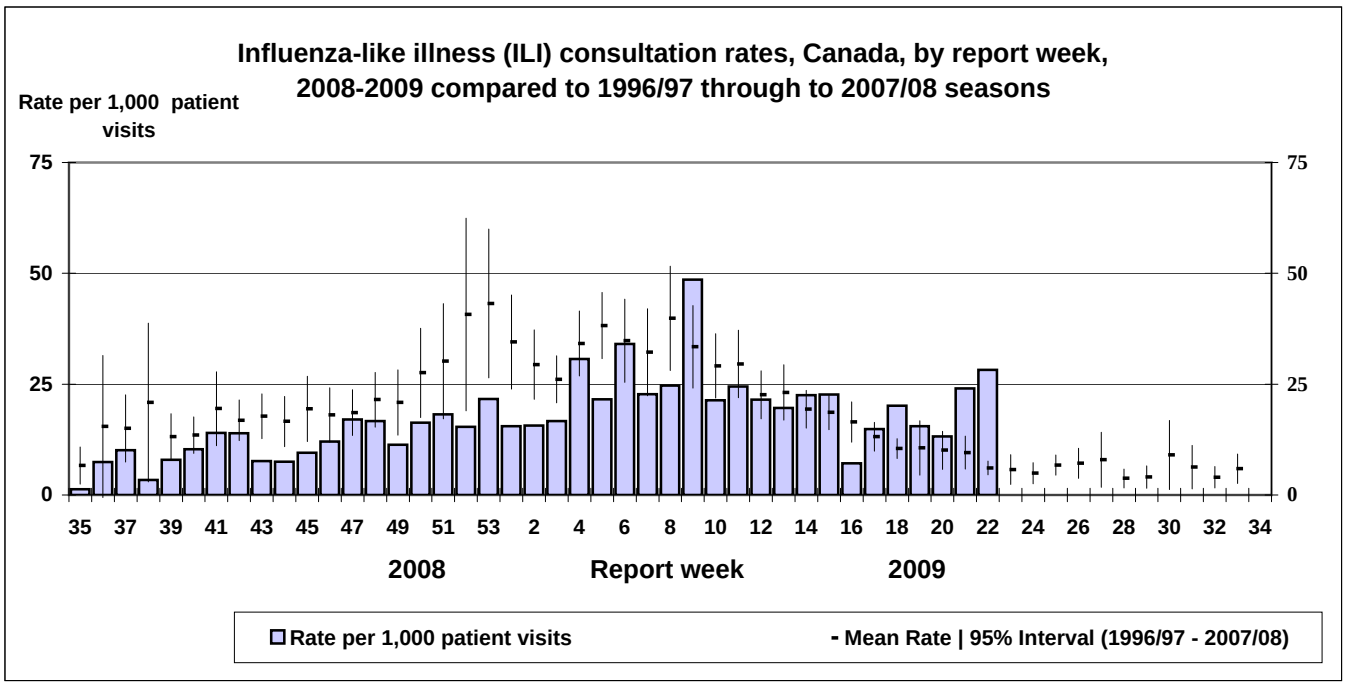


† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.



ILI consultation rate

This week, the ILI consultation rate increased to 28 consultations per 1,000 patient visits (see ILI graph) which is higher than expected for this time of year. The sentinel response rate was 63.9%.



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons).

Paediatric Influenza Hospitalizations and deaths

In week 22, thirty-eight laboratory-confirmed influenza-associated paediatric hospitalizations were reported through the Immunization Monitoring Program Active (IMPACT) network from AB, ON & QC. Twenty-two (57.9%) cases were due to H1N1 flu virus this week. To date this season, 500 hospitalizations have been reported; 52.8% of hospitalizations have been due to influenza A. The proportion of cases to date by age group are as follows: 12% were 0-5 month olds; 29% were 6-23 month olds; 23% were 2-4 year olds; 17% were 5-9 year olds; and 19% were 10-16 year olds. The distribution of cases to date by province are as follows: 8.5% from BC, 8% from AB, 4% from SK, 5% from MB, 28% from ON, 44% from QC, 2% from NS & 0.5% from NL.

International update

CDC: During week 21 (May 24-30, 2009), influenza activity decreased in the United States, however, there are still higher levels of influenza-like illness than is normal for this time of year. 1,558 specimens tested positive for influenza A (75.7%) were positive for H1N1 flu virus. One-hundred and fifty-six samples of H1N1 flu virus were tested for antiviral resistance. None were resistant to oseltamivir or zanamivir. Of 125 samples tested for resistance to adamantanes 100% were resistant. Five influenza -associated pediatric deaths were reported this week due to influenza A; three with H1N1 flu virus, one with seasonal influenza A (H1N1), and one with influenza A virus subtype unknown. The deaths reported this week occurred between February 8, 2009 and May 26, 2009. Bacterial co-infections were observed in 14 (42.4%) of children and Staphylococcus aureus was identified in nine (64.3%) of children tested. <http://www.cdc.gov/flu/weekly/>

EISS: In week 23 (June 1-7, 2009), overall influenza activity remains low in the European region while H1N1 flu virus detections again doubled over the past seven days. As of 11 June, 1803 confirmed cases of H1N1 flu virus have been reported in 30 European region countries (1701 in 25 EU/EEA countries and 102 in five non-EU/EEA countries). To date, there is no indication that the occurrence of H1N1 flu virus infection has given rise to increased levels of ILI or ARI in European seasonal influenza surveillance systems. All H1N1 flu viruses tested have been sensitive to oseltamivir and zanamivir but resistant to M2 inhibitors. <http://www.eiss.org/cgi-files/bulletin_v2.cgi>

Human Avian Influenza: During week 22, the WHO reported two new cases of H5N1 avian influenza infection in Egypt for a total of 433 worldwide since 2003.

Laboratory Surveillance Summary

This week, the proportion of tests that were positive for influenza was 25.1% which is considerably higher than the previous weeks (see table). The majority (66.5%) of influenza virus detections this season have been for influenza A. 99.7% of influenza virus detections this week have been for influenza A.

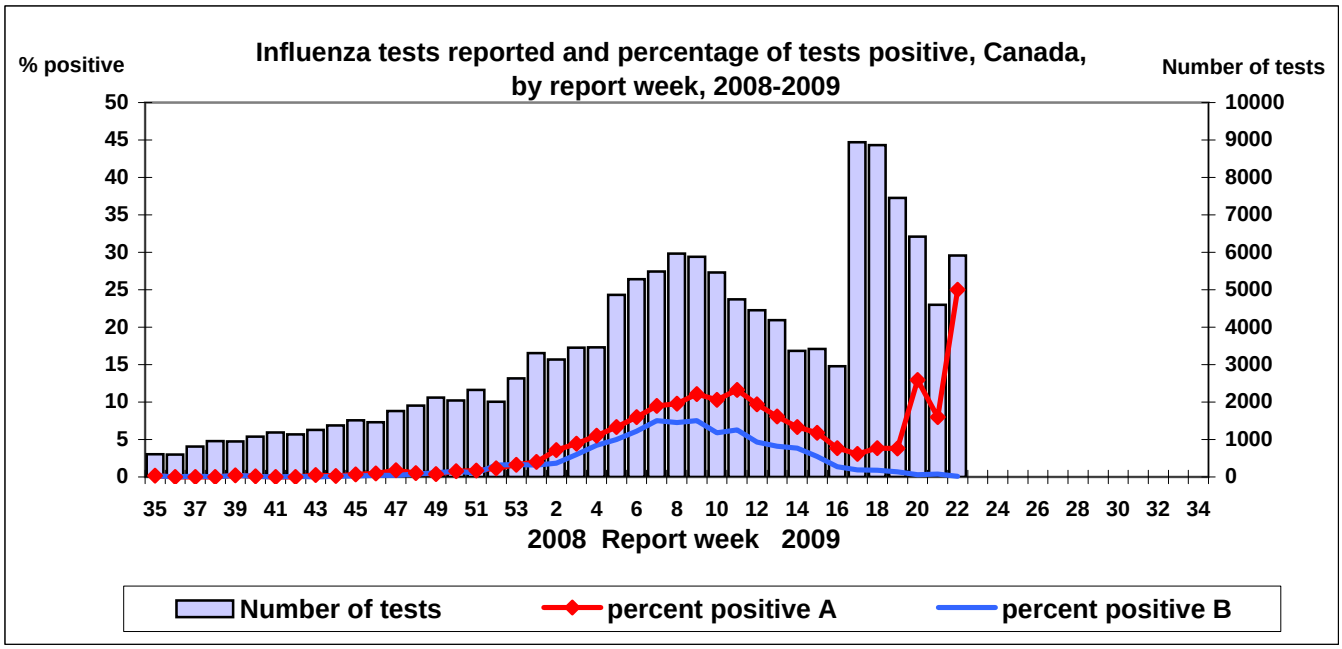
Total number of influenza tests performed and number of positive tests by province/territory of testing laboratory, Canada, 2008-2009

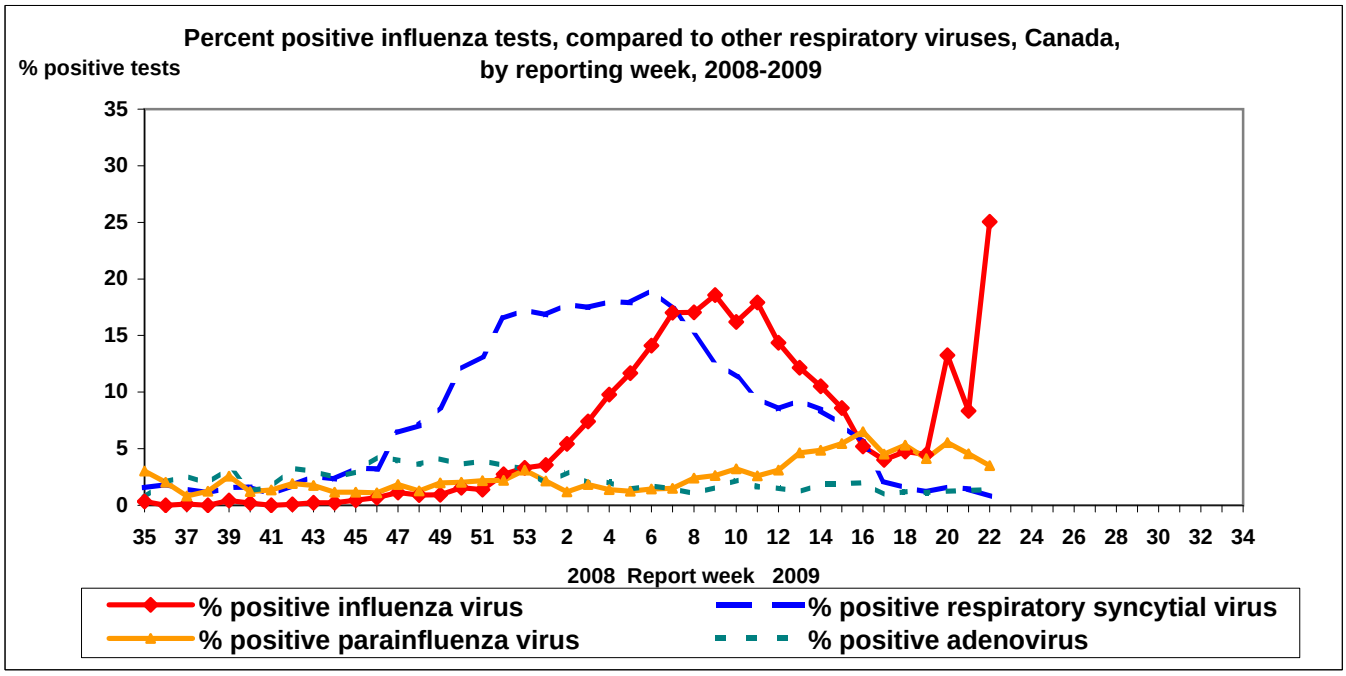
Province of reporting laboratorie	Report Period: May 31, 2009 to June 06, 2009				Season to Date: August 24, 2008 to June 06, 2009			
	Total # of influenza	# of positive tests			Total # of influenza tests	# of positive tests		
		Influenza A	Influenza B	Total		Influenza A	Influenza B	Total
NL	25	0	0	0	1237	128	26	154
PE	12	0	0	0	233	17	9	26
NS	50	4	0	4	2199	104	60	164
NB	16	0	0	0	2235	267	95	362
QC	1085	125	2	127	39662	2721	1413	4134
ON	2963	1124	0	1124	39521	3114	1346	4460
MB	302	75	0	75	3406	222	37	259
SK	281	54	0	54	7235	559	218	777
AB	1022	76	2	78	36418	1111	462	1573
BC	159	20	0	20	7158	931	208	1139
Canada	5915	1478	4	1482	139304	9174	3874	13048
Specimens from NT, YT, and NU are sent to reference laboratories in other provinces.								

Note: Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

Influenza Tests Received from Provincial Labs with subtyping capacity, Canada, 2008-2009

Reporting provinces	Influenza A					Influenza B
	Total	A(H1)	A(H3)	A(H1N1 flu virus)	A (not subtyped)	Total
BC	**931**	**7**	**5**	**24**	**895**	**208**
AB	**1111**	**0**	**4**	**26**	**1081**	**462**
SK	**559**	**19**	**78**	**160**	**302**	**218**
MB	**222**	**7**	**34**	**0**	**181**	**37**
ON	**3114**	**118**	**85**	**687**	**2224**	**1346**
QC	**2721**	**0**	**0**	**0**	**2721**	**1413**
NB	**267**	**3**	**3**	**0**	**261**	**95**
NS	**104**	**23**	**22**	**4**	**55**	**60**
PE	**17**	**3**	**0**	**0**	**14**	**9**
NL	**128**	**2**	**3**	**0**	**123**	**26**
Canada	**9174**	**182**	**234**	**901**	**7857**	**3874**





Antigenic Characterization

Since 1 September 2008, the NML has antigenically characterized 965 influenza viruses: 241 influenza A/Brisbane/59/2007(H1N1)-like (from BC, AB, SK, MB, ON, QC, NB, NS & PEI), 164 influenza A/Brisbane/10/2007(H3N2)-like (from BC, AB, SK, MB, ON, QC, NB, NS, PEI & NL), 11 influenza B/Florida/4/2006-like (from AB, ON, QC & NB), 176 B/Brisbane/60/2008-like (from BC, AB, SK, MB, ON, QC, NB, NL & NU) and 373 B/Malaysia/2506/2004-like (in all provinces except the Territories). A/Brisbane/59/2007(H1N1), A/Brisbane/10/2007(H3N2) and B/Florida/04/2006 are the influenza A and influenza B components recommended for the 2008-09 influenza vaccine. All influenza A isolates are a good match to this season's influenza vaccine while only 11/560 (2%) of influenza B viruses match this season's vaccine. As of 12 June, 2009 the NML tested 468 specimens for influenza H1N1 Flu Virus and 250 were positive. Positive samples were from AB, SK, MB, ON, QC, NB, NS and PEI. *Provincial labs are also doing their own confirmation using RT-PCR.

Antiviral Resistance (from NML)

Oseltamivir: 290/290 A/H1N1 isolates were resistant (99.7%). Zanamivir: All A/H1N1 isolates tested were sensitive (0%). Adamantanes: 305/305 A/H3N2 isolates were resistant to amantadine (100%). All H1N1 flu viruses tested so far have been sensitive to oseltamivir and zanamivir but resistant to amantadine.

FluWatch reports include data and information from five main sources: laboratory reports of positive influenza tests in Canada; sentinel physician reporting of influenza-like illness (ILI); provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, school and work site absenteeism, and outbreaks; influenza-associated pediatric hospitalizations; WHO and other international reports of influenza activity.
The map shows influenza activity in the "influenza surveillance regions" † within each jurisdiction, as determined by the provincial/territorial epidemiologists.

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).

ILI definition for the 2008-2009 season
ILI in the general population: Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which could be due to influenza virus. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.
Definitions of ILI/Influenza outbreaks for the 2008-2009 season
Schools and work sites: greater than 10% absenteeism on any day most likely due to ILI
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.
Influenza Activity levels are defined as:
1 = No activity: i.e. no laboratory-confirmed influenza detections during the past four weeks, however, sporadically occurring ILI may be reported
2 = Sporadic: sporadically occurring ILI and lab confirmed influenza* with NO outbreaks detected within the influenza surveillance region†
3 = Localized: sporadically occurring ILI and lab confirmed influenza* together with outbreaks of ILI in schools and worksites or laboratory confirmed influenza in residential institutions occurring in less than 50% of the influenza surveillance region(s)†
4 = Widespread: sporadically occurring ILI and lab confirmed influenza* together with outbreaks of ILI in schools and worksites or laboratory confirmed influenza in residential institutions occurring in greater than or equal to 50% of the influenza surveillance region(s)†
* confirmation of influenza within the surveillance region at any time within the prior four weeks
† sub-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. Pour en recevoir un exemplaire dans l'autre langue chaque semaine, veuillez communiquer avec Estelle Arseneault, Division de l'immunisation et des infections respiratoires au (613) 952-8484