

- The overall trend of influenza activity has slightly decreased this week compared to last week. In fact, the ILI consultation rate is nearly within the range of expected level at this time of the year. The peak period of Pandemic (H1N1) 2009 occurred between weeks 22 to 24 (May 31, 2009 and June 20, 2009).
- The intensity of Pandemic (H1N1) infection 2009 in the population is low with only a small number of hospitalizations (n=13) and one death reported this week. As of August 29, 2009, a total of 1,454 hospitalized cases, 283 cases admitted to an intensive care unit (ICU) and 72 deaths had been reported since the beginning of the pandemic.
- While the Pandemic (H1N1) 2009 has spread to all provinces and territories, approximately 90% of hospitalized cases and more than 85% of deaths are reported from 4 provinces (AB, MB, ON, QC). Hospitalized cases were reported from AB, MB and ON this week.
- Children under 2 years of age, pregnant women, persons under 65 years of age with underlying medical conditions and Aboriginal populations have higher rates of hospitalizations and greater risk of severe outcomes (ICU admissions and deaths). Aboriginal communities have more pregnant women, young children, and underlying chronic disease than the general Canadian population, which may explain the disproportionate number of severe cases in this population.

**Pandemic (H1N1) 2009 virus Surveillance and Epidemiology**

The proportion of females affected, the median age and the proportion of cases with underlying medical conditions increased with severity of illness (see Characteristics table). Aboriginals were over-represented amongst those who were hospitalized or admitted to ICU. They account for 3% of the national population; however, 17% of hospitalizations and 15% of cases admitted to ICU were in this group. Pregnant women also had a higher burden of morbidity and mortality. Assuming 1% of the population is pregnant in a given year, approximately 5% of hospitalized cases and 6% of deaths have occurred in this group.

Those under 1 year of age have the higher hospitalization rate (32.5 per 100,000) followed by the children between 1 and 4 years of age (12.4 per 100,000) and between 5 and 14 years (7.5 per 100,000). Children under 5 years of age have also the highest ICU admission rate (3.3 and 1.2 per 100,000 respectively). In comparison, the highest mortality rate is occurring in those over 65 years of age (0.42 per 100,000), followed by the cases between 45 and 64 years (0.27 per 100,000).

Amongst all laboratory-confirmed hospitalized cases, 241 (16.6%) were Aboriginal (ie. First Nations, Inuit or Metis). Among 148 First Nations cases, 92 were from MB, 40 from QC, 11 from AB, 4 from BC and one from SK. The 62 lab-confirmed hospitalized cases from Nunavut were assumed to be persons of Inuit ethnicity as the majority of the population in this territory is Inuit. Other Inuit cases were reported from QC (9), AB (2) and NWT (1). Metis cases (18) were from MB (13) and AB (5). Ethnicity is unknown for 1 hospitalized Aboriginal from NWT. Cases from Nunavut and those who were Inuit had higher hospitalization rates compared to First-Nations hospitalized cases (146.6 vs. 21.2 per 100,000) and higher mortality rates (4.0 vs 0.6 per 100,000). Because of small numbers reported, this should be interpreted with caution. However, hospitalized cases from Nunavut and of Inuit ethnicity were younger (median age 4 vs. 18), admitted to ICU less frequently (11.3% vs. 21.6%) and had fewer underlying medical conditions (17.6% vs. 62.7%) than those First Nations hospitalized cases.

**Weekly and cumulative numbers of deaths among Pandemic (H1N1) 2009 confirmed cases, Canada, to 29 August, 2009**

Province/ Territory <sup>1</sup>	This week (August 23-29, 2009) hospitalized cases	This week (August 23-29, 2009) deaths	Cumulative hospitalized cases	Cumulative deaths
BC	0	0	42	4
AB	1	0	127	7
SK	0	0	23	4
MB	4	0	221	7
ON	8	1	361	23
QC	0*	0	591	25
NB	0	0	2	0
NS	0	0	17	1
PE	0	0	1	0
NL	0	0	3	0
YT	0	0	0	0
NT	0	0	4	0
NU	0	0	62	1
Canada	13	1	1454	72

<sup>1</sup>Hospitalizations and deaths are reported within the province of residence or the province where the case has been identified if province of residence is not available.

\* Note that Quebec will revise their provincial line-list and next week update will reflect the current situation

**Descriptive characteristics of laboratory-confirmed Canadian Pandemic (H1N1) 2009 cases, hospitalized cases, ICU-admitted cases and deaths with core information available, reported to the Public Health Agency of Canada as of 29 August, 2009**

	Hospitalized cases (n=1,454)	Cases admitted to ICU (n=283)	Deaths (n=72)
Females, %	51.3	56.5	62.0
Median age	23	37	51
Aboriginal status, %	17.0	15.2	11.3
Underlying medical conditions <sup>1</sup> , %	57.9 (580/1,001)	67.1 (149/222)	75.5 (40/53)
Pregnancy <sup>2</sup> , %	28.2 (77/273)	19.2 (14/73)	30.8 (4/13)

<sup>1</sup> Percent of persons with at least one underlying medical condition among those for whom the information was provided excluding pregnancy.

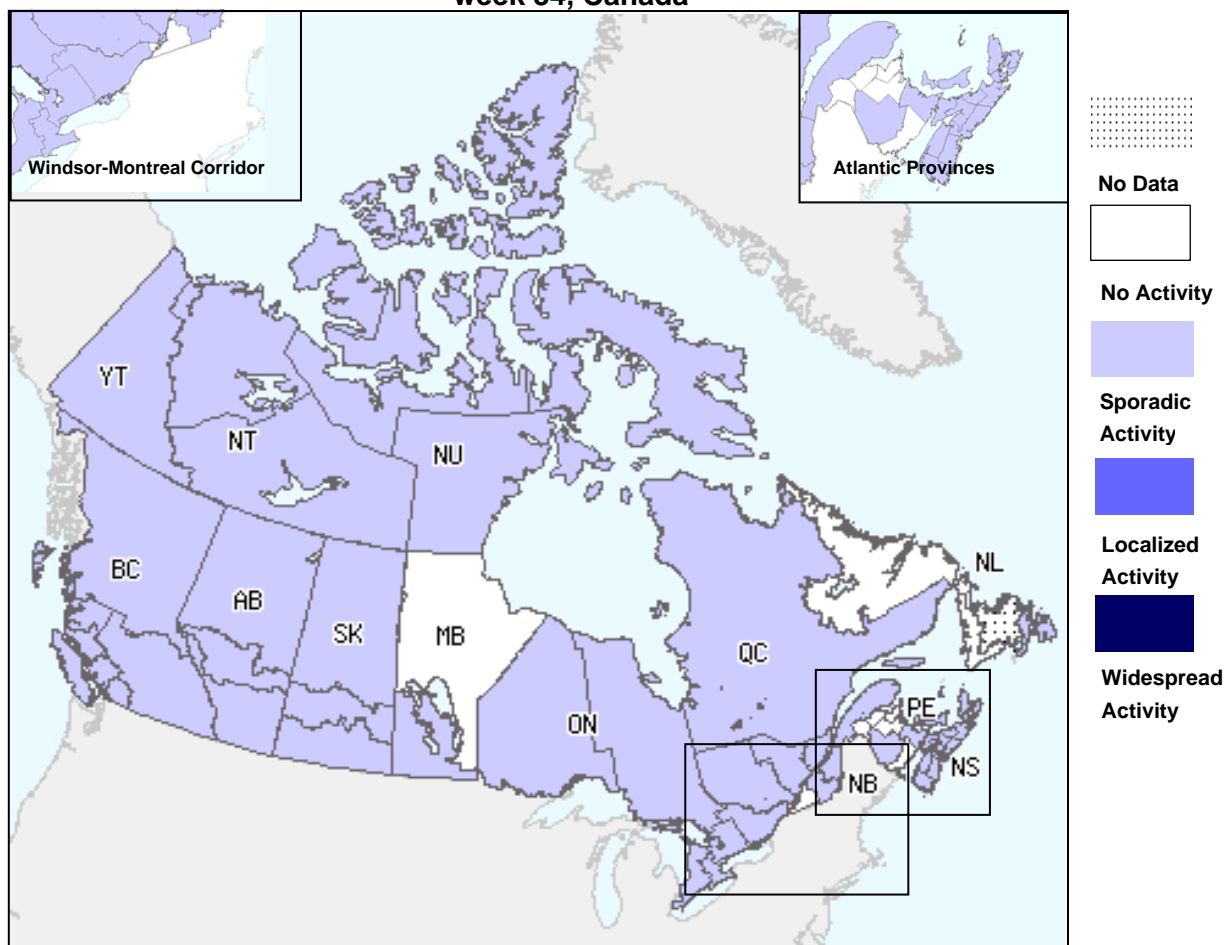
<sup>2</sup> Percent of pregnant women among women aged between 15 and 44.

**Overall Influenza Summary - Week 34 (August 23 to August 29, 2009)**

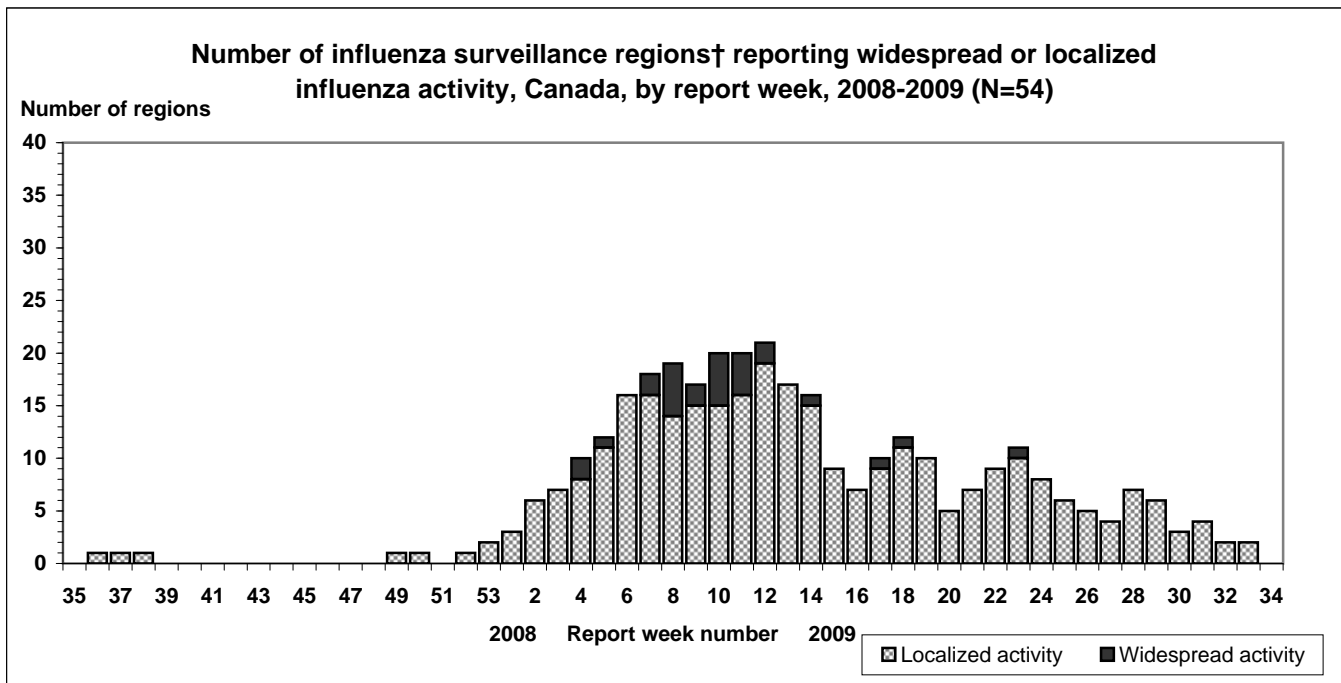
The overall influenza activity slightly decreased this week relative to the previous week; two regions reported localized activity last week compared to 0 reported this week and no influenza outbreak was reported (down from 1). The national ILI consultations rate and the proportion of positive tests remain stable compared to last week.

Forty-four regions reported sporadic activity in BC, AB, SK, MB, ON, QC, NB, NS, PEI, NL, YT, NT & NU and 9 regions in MB, QC, NB & NL reported no activity. One region in NL did not report. No new influenza outbreak was reported this week.

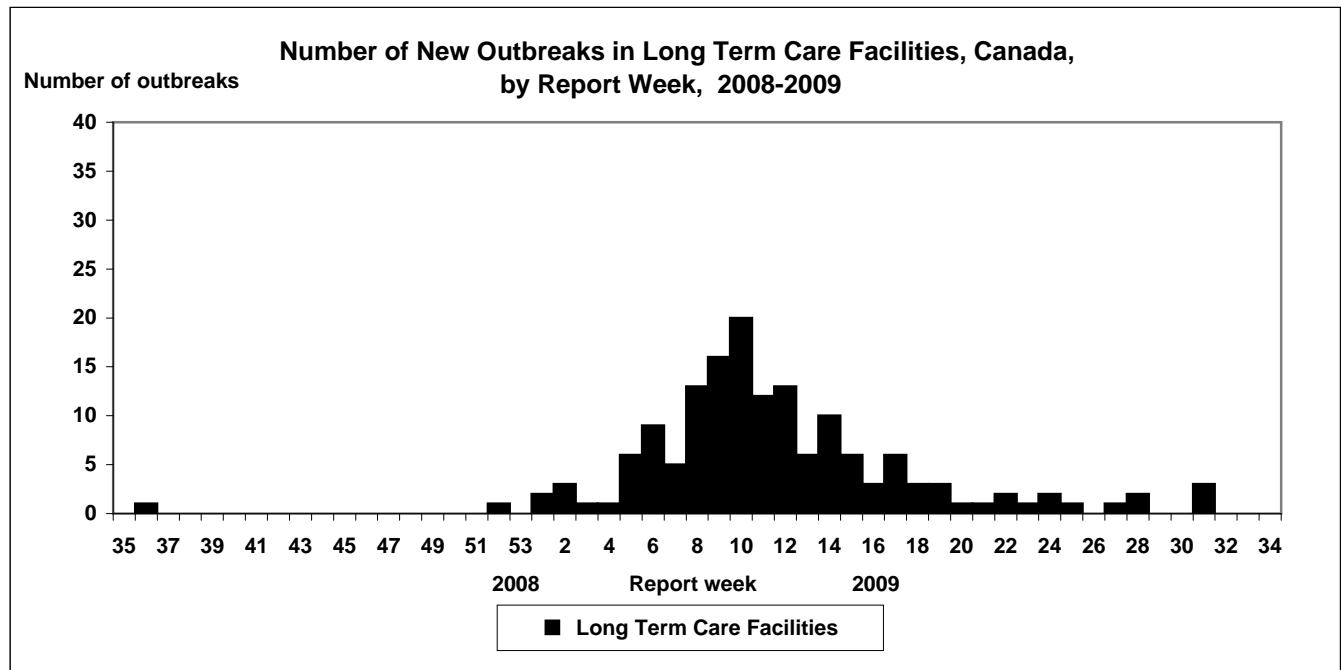
**Map of overall Influenza activity level by provinces and territories, week 34, Canada**



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.

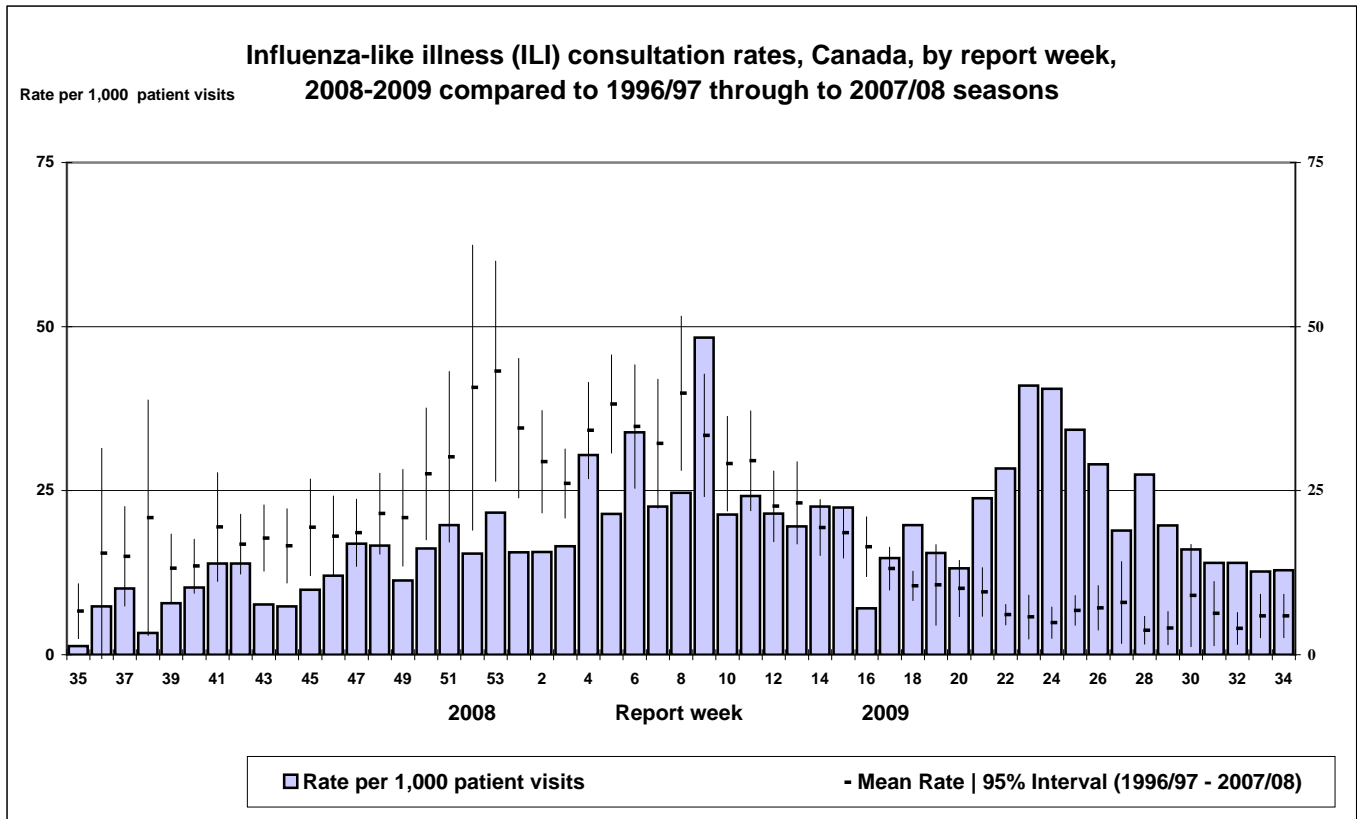


† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.



## ILI consultation rate

This week, the national ILI consultation rate was 12 consultations per 1,000 patient visits (see ILI graph) which is similar for the third consecutive week. The sentinel response rate was 71.4%.



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

\*Data arriving late may cause variations from results seen in previous weeks.

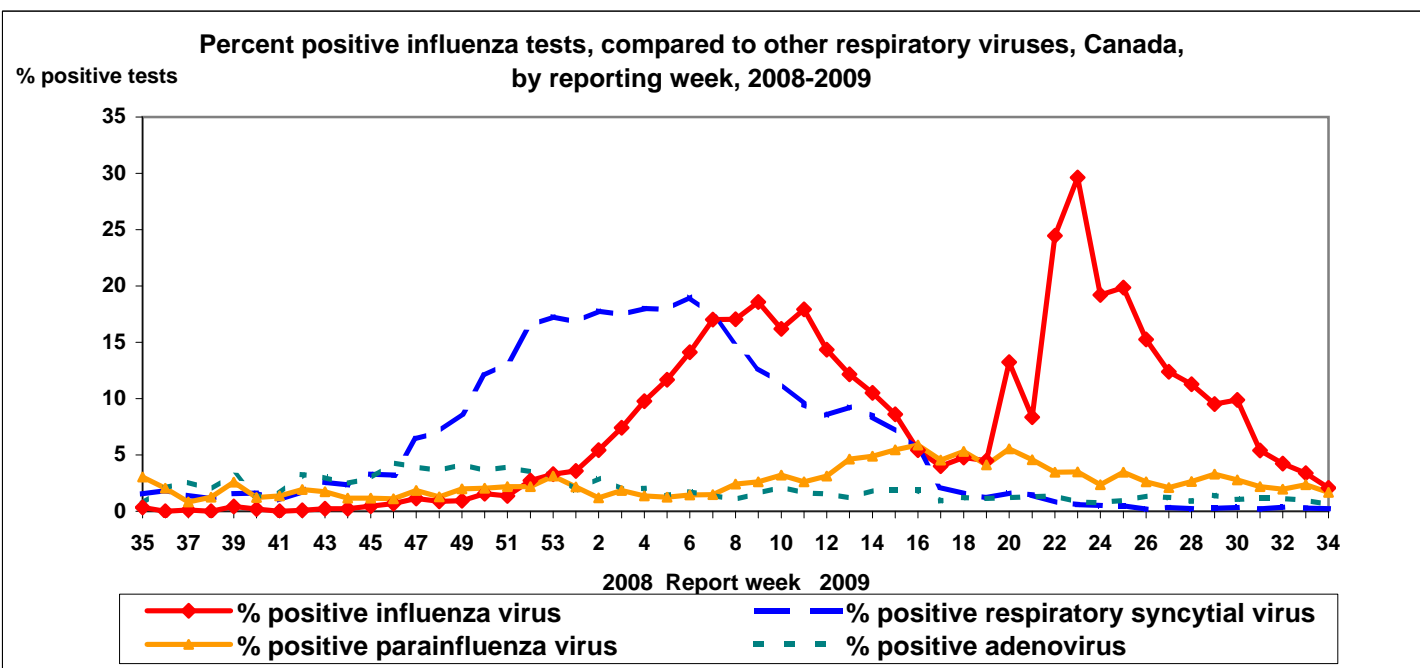
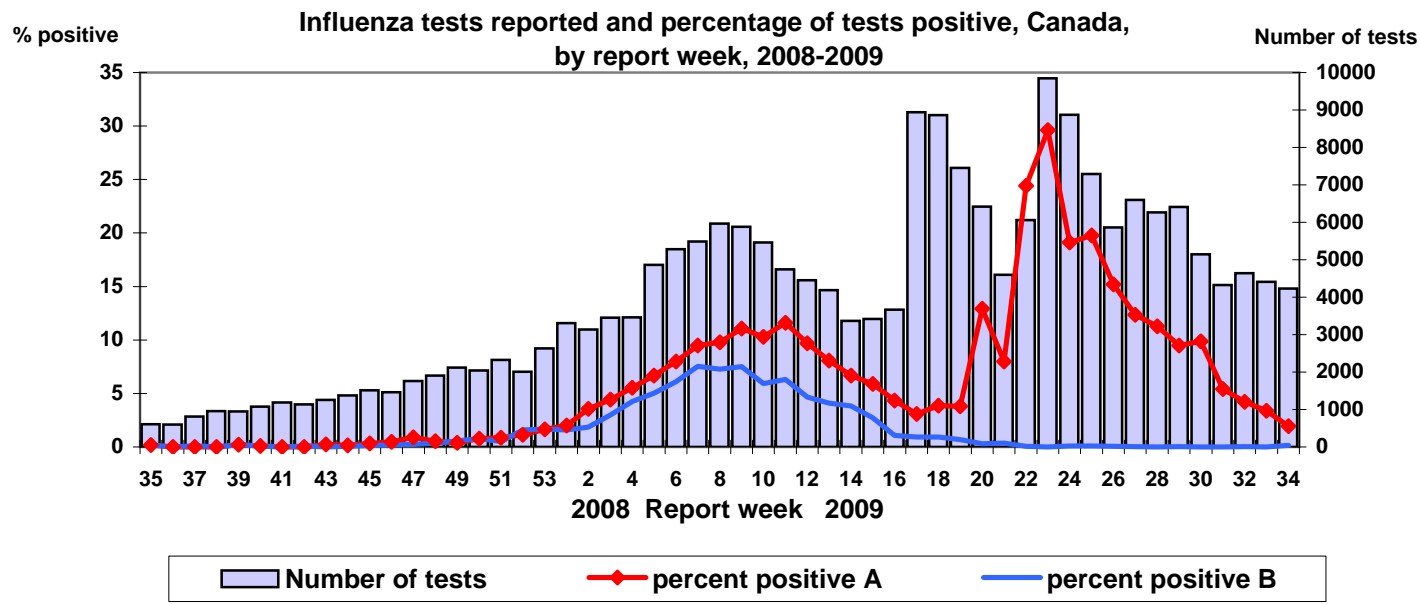
## Paediatric Influenza Hospitalizations and Deaths

In week 34, no laboratory-confirmed influenza-associated paediatric hospitalizations were reported through the Immunization Monitoring Program Active (IMPACT) network. 327 hospitalizations have been reported since week 17 (April 26); 99.4% of these hospitalizations have been due to Pandemic (H1N1) 2009. To date, 738 hospitalizations and five\* deaths have been reported this season. Three of the deaths were due to Pandemic (H1N1) 2009.

\*Note that the total number of death reported by IMPACT decreased from six to five due to removal of a duplicate case.

## Laboratory Surveillance Summary

This week, the proportion of tests that were positive for influenza was 3.4% which is slightly lower than the previous week (see Tests table). The overall trend of the proportion of positive tests has been decreasing since the peak observed during week 23. A total of 88 specimen tested positive for influenza this week (82 A and 6 B). This week, 97.4% of the positive influenza A subtyped specimens were Pandemic (H1N1) 2009.



**Weekly & Cumulative numbers of positive influenza specimens by Provincial Laboratories**

Reporting provinces	Weekly						Cumulative					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand (H1N1)	A (NS)*		A Total	A(H1)	A(H3)	Pand (H1N1)	A (NS)*	
BC	33	0	0	20	13	0	1743	11	9	605	1118	210
AB	16	0	0	4	12	0	3082	0	8	664	2410	467
SK	2	0	0	2	0	0	1425	31	79	878	437	219
MB	4	0	0	3	1	0	1082	7	35	774	266	37
ON	17	0	0	4	13	6	6845	146	158	3043	3498	1361
QC	4	0	0	0	4	0	3905	0	0	0	3905	1418
NB	0	0	0	0	0	0	495	3	3	122	367	95
NS	0	0	0	0	0	0	620	24	24	472	100	60
PE	2	1	0	1	0	0	37	7	0	16	14	9
NL	4	0	0	4	0	0	240	11	4	102	123	26
<b>Canada</b>	<b>82</b>	<b>1</b>	<b>0</b>	<b>38</b>	<b>43</b>	<b>6</b>	<b>19474</b>	<b>240</b>	<b>320</b>	<b>6676</b>	<b>12238</b>	<b>3902</b>

*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.

\* Not subtyped

## Canadian situation

### Antigenic Characterization

NML has antigenically characterized 296 Pandemic (H1N1) 2009 isolates by HI assay. The results reveal that these viruses are antigenically related to A/California/7/2009 (H1N1), which is the variant reference virus selected by WHO as a potential candidate for Pandemic (H1N1) 2009 vaccine. Antigenic characterization also indicates that these viruses are antigenically and genetically unrelated to seasonal influenza A (H1N1) viruses, which suggests that there is little or no protection to be expected from vaccination with seasonal influenza vaccine.

### Antiviral Resistance

**NML:** All Pandemic (H1N1) 2009 viruses tested so far by NML have been sensitive to oseltamivir (527 samples) and zanamivir (280 samples) but resistant to amantadine (361 samples). However, one case of oseltamivir resistant Pandemic (H1N1) 2009 on July 21, 2009 was reported by the province of Quebec.

## International update

### Global information

**WHO:** As of August 23, 2009, WHO reports 2,185 deaths with Pandemic (H1N1) 2009. Pandemic (H1N1) 2009 is the predominant influenza strain worldwide. The highest hospitalisation rates in many countries are reported among young children <5 years of age. Most countries in the southern hemisphere (Chile, Argentina, New Zealand, Australia) appear to have passed their peak of influenza activity, but others (South Africa and Bolivia) continue to experience high levels of influenza activity. Tropical areas continue to see increasing or sustained high levels of influenza activity. In the northern hemisphere, respiratory disease activity remains low, with some localized outbreaks. Japan reports influenza activity about the seasonal epidemic threshold, signalling a very early beginning to the annual influenza season.

**Antiviral resistance:** 14 cases of oseltamivir-resistant virus have been reported worldwide, following post-exposure prophylaxis, treatment, or in immunocompromised patients. These isolated cases have arisen in different parts of the world (Japan, USA, Hong Kong SAR China, Denmark, Canada, Singapore and China).

**Zoonotic transmission:** To date, 7 outbreaks of Pandemic (H1N1) 2009 have been identified in swine herds (Canada (2), Australia (3), Argentina (2)), and one in turkey flocks (Chile). The latter has caused some international concern about the possibility of Pandemic (H1N1) recombination with avian A(H5N1) should it be introduced into poultry in H5N1-affected areas.

### Southern hemisphere

**Australia:** As of September 2, 2009, Australia has 35,095 confirmed cases and 155 deaths. National influenza activity appears to be decreasing. Most jurisdictions have reported that Pandemic (H1N1) 2009 activity has peaked or has plateaued. ILI presentation rates to General Practitioners are below 2007 levels, and absenteeism rates have decreased. Indigenous Australians are approximately 5 times more likely than non-Indigenous Australians to be hospitalized for Pandemic (H1N1) 2009.

**New Zealand:** As of September 2, 2009, the total number of confirmed cases in New Zealand is 3,143 and 17 deaths. The number of ILI consultations continues to decrease, but is still higher than in previous years. Healthline calls continue to be about 20% above normal levels.

**Argentina:** As of August 22, Argentina reports 8,240 confirmed cases of Pandemic (H1N1) 2009, a total of 8,584 cases of severe acute respiratory infection requiring hospitalization, and 465 Pandemic (H1N1)-associated deaths. Argentina has reported at high level of influenza activity for the past 3 weeks, with an estimated ILI rate of 14.1/10,000 population for epi week 31.

**Chile:** As of August 22, the number of laboratory-confirmed cases in Chile is 12,194. In week 33 ILI activity is reported as mild and decreased to 7.2 per 100,000 population. Of confirmed cases, 1,480 have presented with severe acute respiratory infection, representing a hospitalization rate of 8.7 cases per 100,000 population. Since epi week 28 the proportion of Pandemic (H1N1) 2009 relative to other respiratory viruses has declined to reach 4% of respiratory virus detections in week 33. In persons over 5 years old, Pandemic (H1N1) 2009 predominates (88% of isolates). In the past three weeks, RSV represents 86.7% of respiratory virus detections in week 33, identified predominantly in children <5 years old.

**South Africa:** As of August 31, South Africa reported a total of 5,841 laboratory-confirmed cases and 27 deaths from Pandemic (H1N1) 2009. Pandemic (H1N1) 2009 represents the majority of influenza virus detections. South Africa represents 93% of the cases reported to WHO from the African Region.

## **Northern Hemisphere**

**United States:** As of August 28, 2009, the CDC reports 8,843 hospitalized cases, and 556 deaths due to Pandemic (H1N1) 2009. From August 16-22, influenza activity remained stable in the United States; however, activity appears to be increasing in the Southeast. Consultations for ILI have decreased, but are higher than expected in the summer and have increased over the last 2 weeks.

**Mexico:** As of August 27, 2009, Mexico reports 21,264 confirmed cases of Pandemic (H1N1), and 184 deaths. The majority (65.1%) of confirmed cases were in patients 5 to 29 years of age. However, the largest proportion of all deaths was observed in the older age groups, with 72.3% of all fatal cases in patients 20 to 54 years old.

**UK:** As of August 27, 2009, Pandemic (H1N1) 2009 activity continues to decrease across all regions of the UK and in all age groups, though remains at levels higher than expected for this time of year. There has been a general decrease in the number of assessments, and antiviral collections, from the National Pandemic Flu Service (NPFs) over the past week. HPA modelling gives an estimate of 5000 (range 3000 – 12, 000) new cases in England in week 34 compared to an estimated 11,000 (range 6000 – 25, 000) cases in the previous week. The cumulative number of deaths reported due to pandemic (H1N1) 2009 in the UK is 65.

**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