



The overall influenza activity decreased this week; the reported activity level (2 regions reported localized activity), the proportion of influenza positive tests (4.2%), the overall number of influenza outbreaks (1) are lower compared to last week. The national ILI consultation rate (15 consultations per 1,000 visits) remains similar to the previous week.

- As of August 15, 2009, a total of 1,422 hospitalized cases and 275 cases admitted to an intensive care unit (ICU) had been reported to the Public Health Agency of Canada. This week, four new deaths were reported for a total of 70 deaths since the beginning of the pandemic. 90% of the hospitalized cases and more than 85% of the deaths have been reported by only 4 provinces (Alberta, Manitoba, Ontario and Quebec).
- The overall Pandemic (H1N1) 2009 influenza activity is still decreasing across Canada.
- Those under 15 have the highest rates of hospitalization, however mortality is highest in those 45 years and older. Mortality is also elevated in the population under one year of age.
- The proportion of females affected, the median age and the proportion of cases with underlying medical conditions increase with increasing severity of illness (on a gradient from all cases, to hospitalized cases, to ICU-admitted cases, to deaths).

Pandemic (H1N1) 2009 virus Surveillance and Epidemiology

National line list data was available for 7,083 cases including 1,420 (20.0%) hospitalized cases, 275 (19.4%) patients admitted to ICU and 69 deaths. The proportion of females affected, the median age and the proportion of cases with underlying medical conditions increase with severity of illness (see Characteristics table). Aboriginals are over-represented amongst those who are hospitalized or admitted to ICU. They account for only 3% of the national population, however 17% of hospitalizations and 15% of cases admitted to ICU are in this group. Pregnant women also have a higher burden of morbidity and mortality. Assuming 1% of the population is pregnant in a given year, approximately 4% of hospitalized cases (including those admitted to ICU) and 6% of deaths have occurred in this group.

The age distribution was available for 1,331 (93.6%) hospitalized cases and 69 (98.6%) deaths in the national line-list. Those under 1 year of age have the higher hospitalization rate (21.3 per 100,000) followed by the cases between 1 and 4 years of age (10.3 per 100,000). In comparison, the highest mortality rate is occurring in those over 65 years of age (0.41 per 100,000), followed by the cases below 1 year of age and between 45 and 64 years (0.27 per 100,000).

Amongst all laboratory- confirmed cases, 885 (12.5%) were Aboriginal (ie. First Nations, Inuit or Metis). First Nations cases (259) were from Manitoba (186), Quebec (41), British Columbia (15), Alberta (11), Saskatchewan (3) and Northwest territories (3). The 553 lab-confirmed cases from Nunavut were assumed to be persons of Inuit ethnicity as 85% of the population in this territory is Inuit. Other inuit cases were reported in Quebec (9), Northwest Territories (3), Alberta (2), and Manitoba (1). Those cases that were Metis were from Manitoba (41), Alberta (4), Northwest Territories (3) Saskatchewan (1) and British Columbia (1). Cases from Nunavut and those who are Inuit have higher hospitalisation rates than that of the First-Nations population (134.7 vs. 20.5 per 100,000). However, hospitalized cases from Nunavut and those that are Inuit are younger (median age 4 vs. 20), admitted to ICU less frequently (11.8% vs. 21.0%) and have fewer underlying medical conditions (2.5% vs. 66.2%) than those First Nations hospitalized cases.

Weekly and cumulative numbers of deaths among Pandemic (H1N1) 2009 confirmed cases, Canada, to 15 August, 2009

| Province/ Territory | This week (August 9-15, 2009) hospitalized cases | This week (August 9-15, 2009) deaths | Cumulative hospitalized cases | Cumulative deaths |
|------------------------|--|--|-------------------------------------|----------------------|
| BC | 3 | 0 | 39 | 4 |
| AB | 1 | 0 | 123 | 7 |
| SK | 2 | 0 | 24 | 4 |
| MB | 16 | 0 | 217 | 7 |
| ON | 14 | 0 | 346 | 21 |
| QC | 6 | 4 | 590 | 25 |
| NB | 0 | 0 | 2 | 0 |
| NS | 2 | 0 | 17 | 1 |
| PE | 0 | 0 | 1 | 0 |
| NL | 1 | 0 | 3 | 0 |
| YT | 0 | 0 | 0 | 0 |
| NT | 3 | 0 | 4 | 0 |
| NU | 8 | 0 | 56 | 1 |
| Canada | 56 | 4 | 1422 | 70 |

Note that 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.

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 15 August 2009

| | Overall cases reported (n=7,083) | Hospitalized cases (n=1,422) | Cases admitted to ICU (n=275) | Deaths (n=70) |
|--|----------------------------------|------------------------------|-------------------------------|---------------|
| Females, % | 51.9 | 51.4 | 56.7 | 60 |
| Median age | 18 | 25 | 40 | 51 |
| Aboriginal status, % | 12.5 | 16.5 | 14.5 | 11.4 |
| Underlying medical conditions ¹ , % | 36.4 (641/1,761) | 54.2 (486/897) | 65.3 (128/196) | 75.5 (37/49) |
| Pregnancy ² , % | 4.1 (71/1,717) | 22.4 (60/268) | 15.7 (11/70) | 33.3 (4/12) |

¹ Among those for whom the information was provided excluding pregnancy.

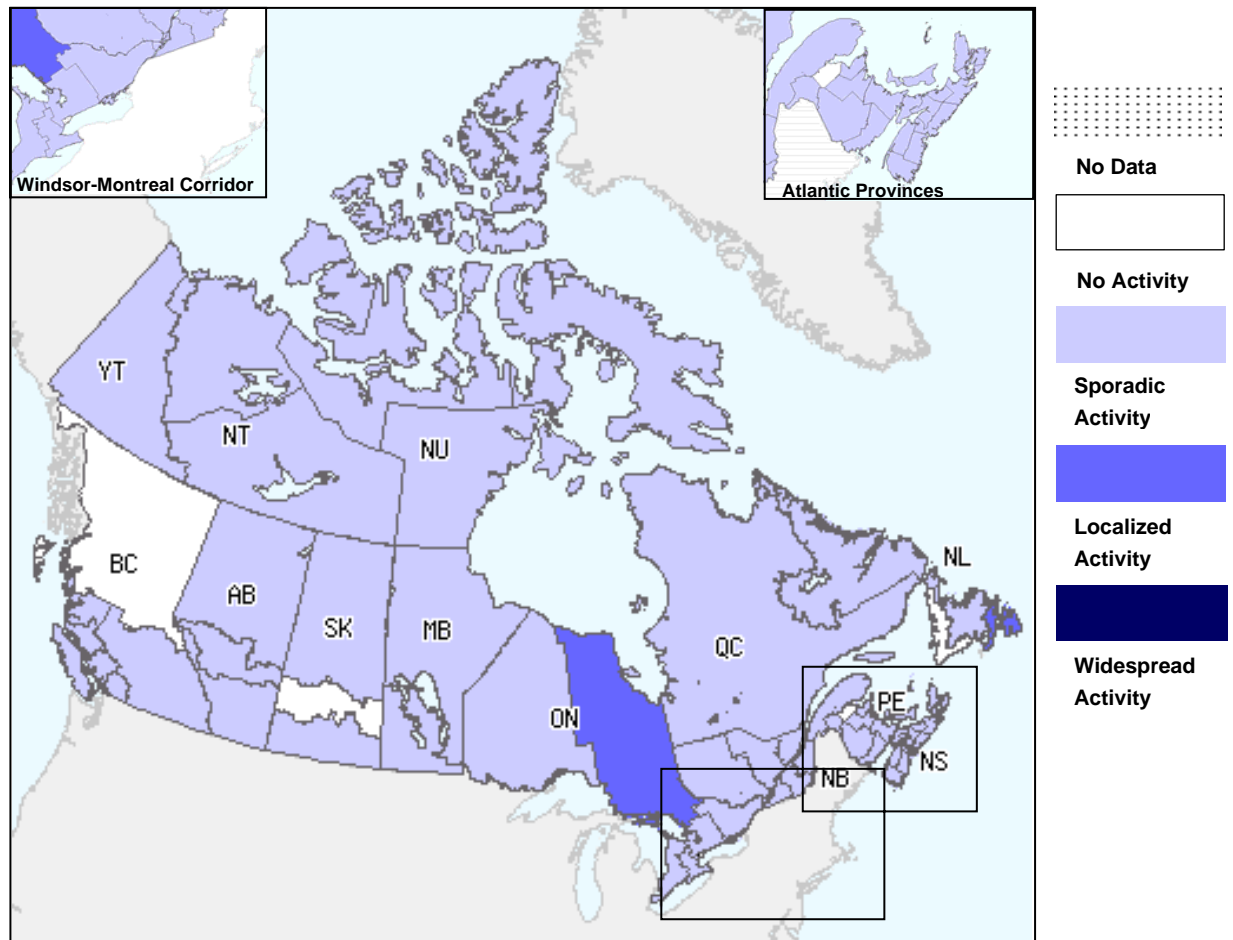
² Among women between 15 and 44 years old.

Overall Influenza Summary - Week 32 (August 9 to August 15, 2009)

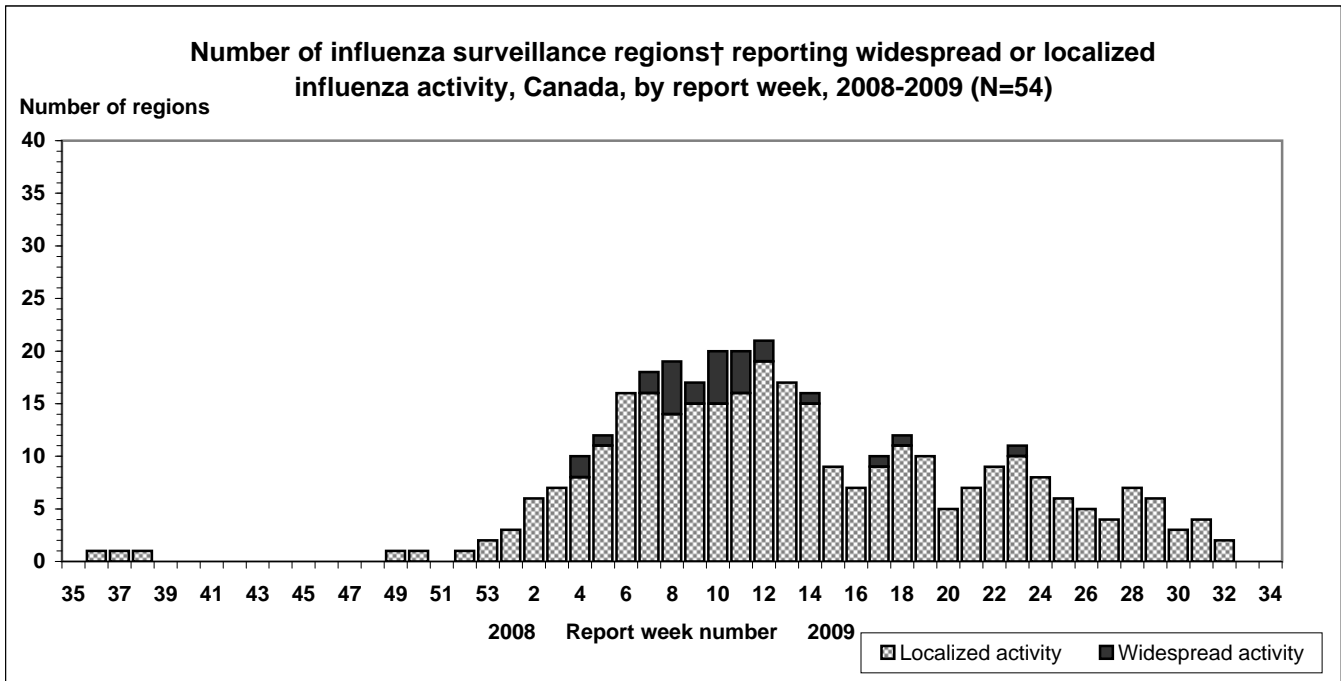
The overall influenza activity decreased this week relative to the previous week; two regions reported localized activity as opposed to four last week, the proportion of influenza positive tests decreased to 4.2% from 5.5% and only one outbreak was reported (down from 4). The national ILI consultation rate (15 consultations per 1,000 visits) is similar to the previous week.

Two regions in ON & NL reported localized activity, 47 regions reported sporadic activity in BC, AB, SK, MB, ON, QC, NB, NS, PEI, NL, YT, NT & NU and 4 regions in BC, SK, NB & NL reported no activity (One region in ON did not report). Only one new influenza outbreak was reported this week in a hospital in NL.

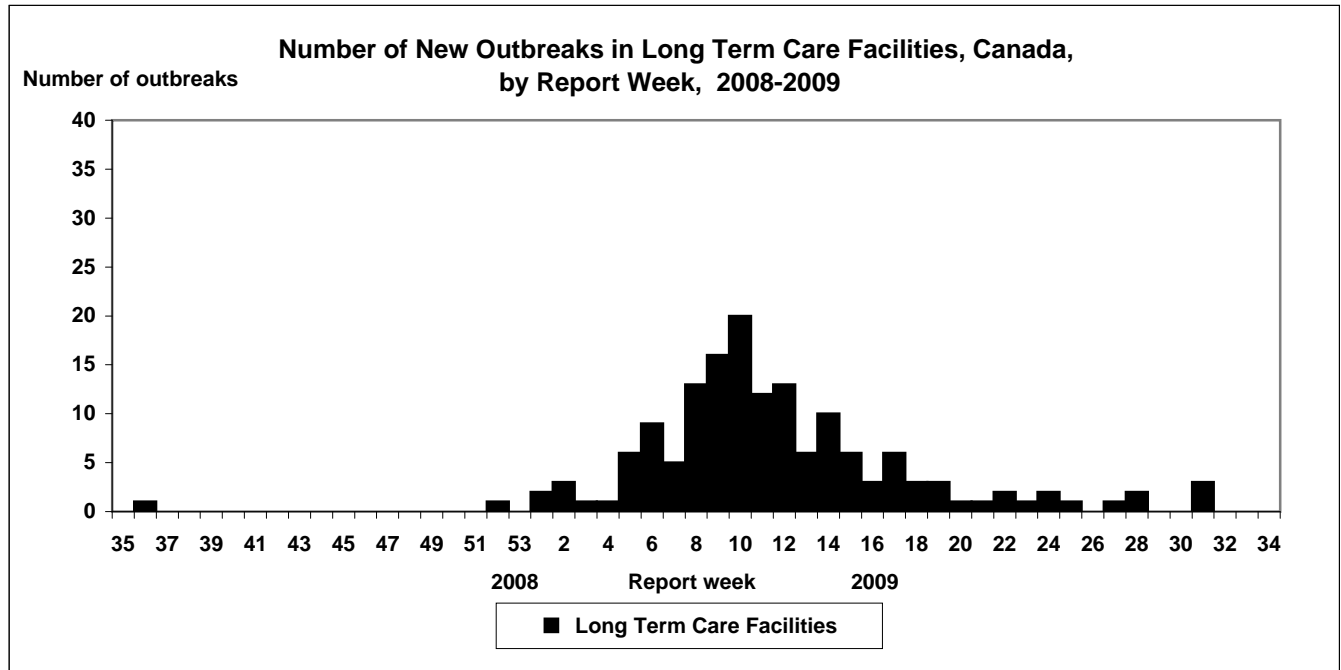
Map of overall Influenza activity level by provinces and territories, week 32, Canada



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.

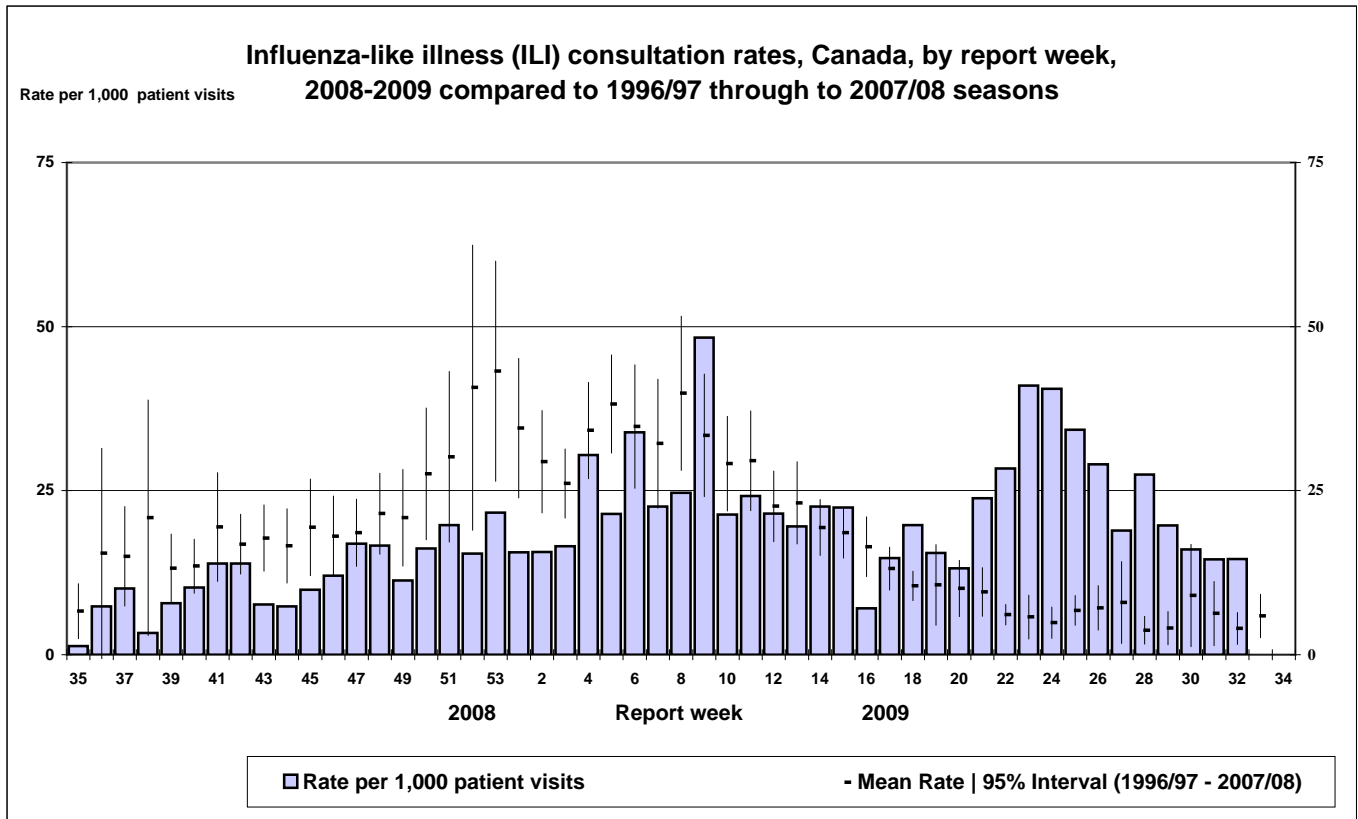


† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.



ILI consultation rate

This week, the ILI consultation rate was 15 consultations per 1,000 patient visits (see ILI graph) which is comparable to the previous week. The sentinel response rate was 75%.



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

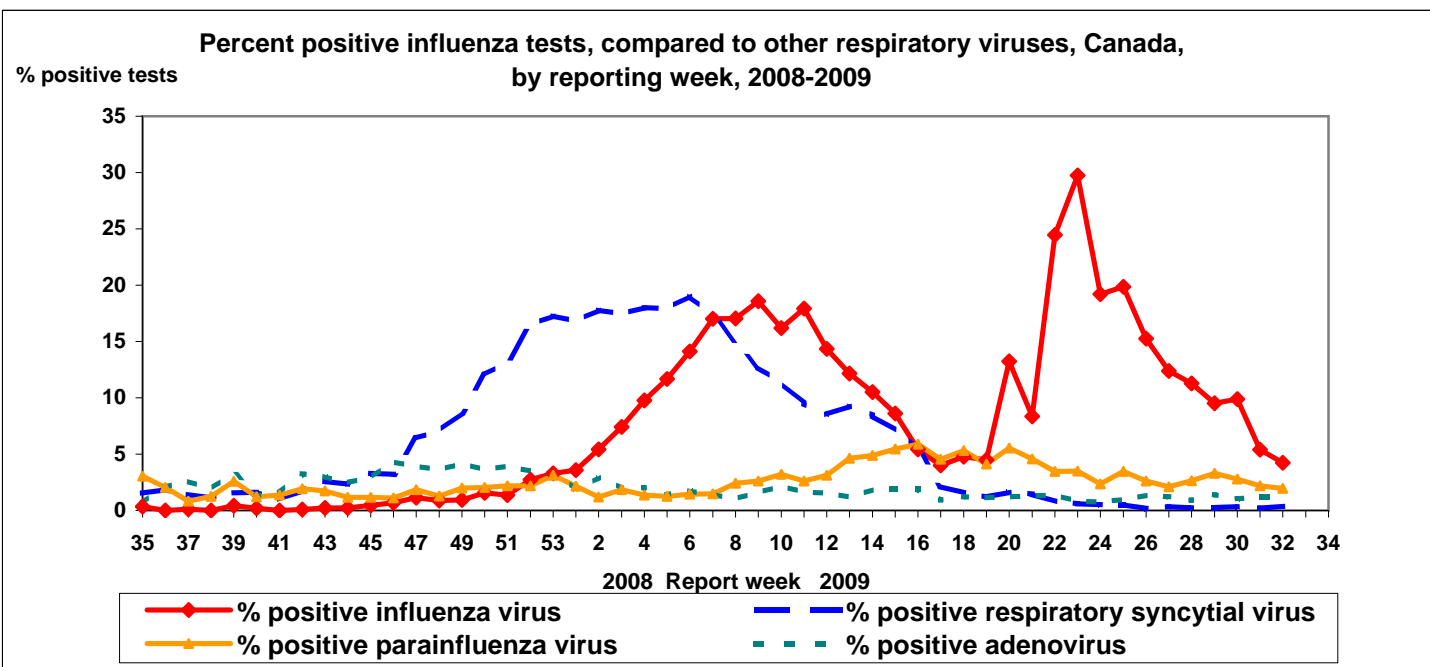
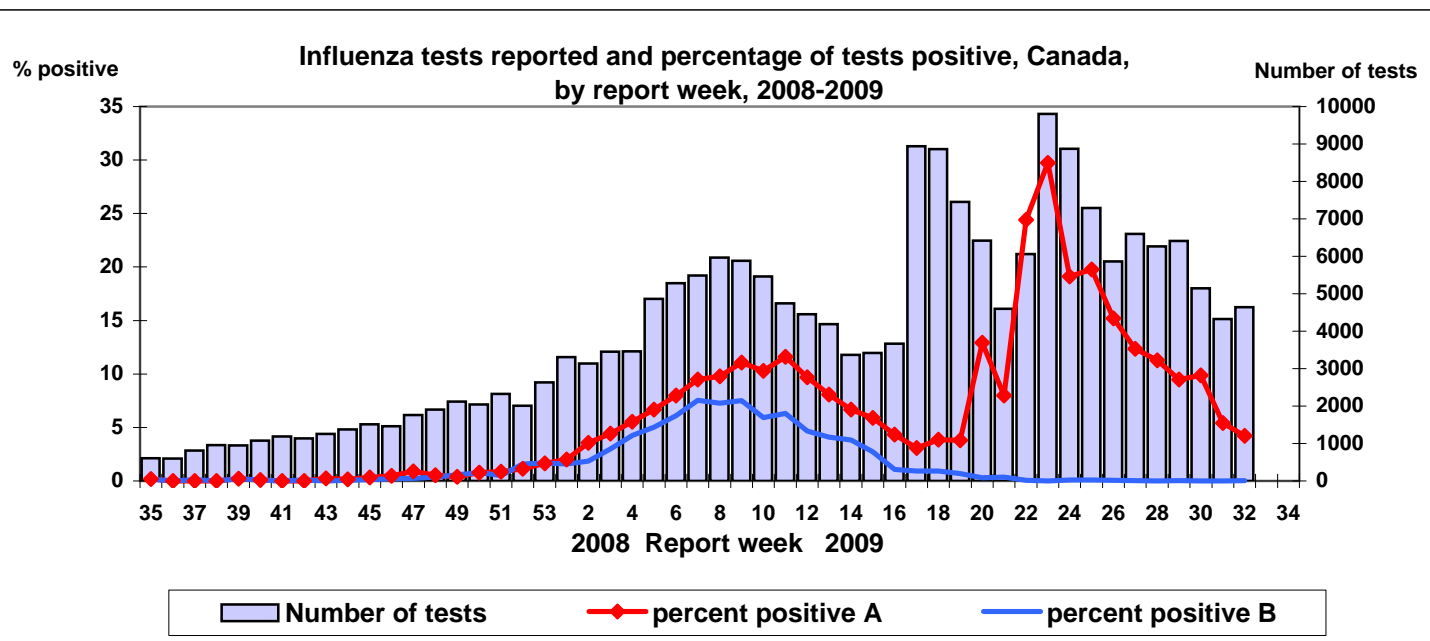
*Data arriving late may cause variations from results seen in previous weeks.

Paediatric Influenza Hospitalizations and Deaths

In week 32, two laboratory-confirmed influenza-associated paediatric hospitalizations were reported through the Immunization Monitoring Program Active (IMPACT) network. One of the two hospitalizations this week was due to Pandemic (H1N1) 2009 and the other to seasonal influenza A. 323 hospitalizations have been reported since week 17 (April 26 to May 2, 2009); 99.1% of these hospitalizations have been due to Pandemic (H1N1) 2009. To date, 734 hospitalizations and six deaths have been reported this season. Four of the deaths were due to Pandemic (H1N1) 2009.

Laboratory Surveillance Summary

This week, the proportion of tests that were positive for influenza was 4.2% which is lower than the previous week (see Tests table). A total of 196 specimen tested positive for influenza this week (all type A except 1 B). This week, 97.4% of the positive influenza A subtyped specimens were Pandemic (H1N1) 2009. The majority (83.2%) of influenza virus detections this season have been for influenza A.



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 | 60 | 2 | 0 | 30 | 28 | 0 | 1673 | 11 | 9 | 571 | 1082 | 210 |
| AB | 53 | 0 | 0 | 12 | 41 | 0 | 3022 | 0 | 8 | 656 | 2358 | 467 |
| SK | 7 | 0 | 0 | 6 | 1 | 0 | 1415 | 31 | 79 | 868 | 437 | 219 |
| MB | 3 | 0 | 0 | 1 | 2 | 0 | 1076 | 7 | 35 | 770 | 264 | 37 |
| ON | 41 | 0 | 0 | 9 | 32 | 0 | 6795 | 146 | 157 | 3027 | 3465 | 1355 |
| QC | 11 | 0 | 0 | 0 | 11 | 1 | 3889 | 0 | 0 | 0 | 3889 | 1418 |
| NB | 3 | 0 | 0 | 3 | 0 | 0 | 491 | 3 | 3 | 118 | 367 | 95 |
| NS | 12 | 0 | 0 | 8 | 4 | 0 | 614 | 24 | 23 | 469 | 98 | 60 |
| PE | 2 | 0 | 0 | 2 | 0 | 0 | 35 | 6 | 0 | 15 | 14 | 9 |
| NL | 4 | 0 | 0 | 4 | 0 | 0 | 232 | 11 | 4 | 94 | 123 | 26 |
| Canada | 196 | 2 | 0 | 75 | 119 | 1 | 19242 | 239 | 318 | 6588 | 12097 | 3896 |

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 291 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 have been sensitive to oseltamivir (465 samples) and zanamivir (238 samples) but resistant to amantadine (340 samples). However, Canada reported one case of oseltamivir resistant Pandemic (H1N1) 2009 on July 21, 2009 in the province of Quebec.

International update

Global information

WHO: As of August 13th, 2009, WHO reports 1,799 deaths with Pandemic (H1N1) 2009.

CDC: The new Pandemic (H1N1) 2009 accounts for 66% of influenza viruses in the Northern Hemisphere and 89% of influenza viruses in the Southern Hemisphere. There are indications that disease may be decreasing in South America and part of Australia. Disease associated with new H1N1 influenza is continuing to increase in southern Africa.

Antiviral resistance: Three new cases of oseltamivir-resistance Pandemic H1N1 2009 influenza were reported this week, two from the US (Seattle) and one from Hong Kong. All three patients had received oseltamivir for treatment or prophylaxis.

Southern hemisphere

Australia: As of August 18th, 2009, Australia has 30,993 confirmed cases and 118 deaths. There are currently 445 people in hospital across Australia with Pandemic (H1N1) 2009, with 21% of these in ICU. Overall, as of August 7th, 2009, national influenza activity was still increasing. All jurisdictions except Victoria and New South Wales have reported that they believe that they have yet to reach their peak. Pandemic (H1N1) 2009 appears to be replacing the seasonal A(H1N1) strain. The highest hospitalisation rate occurred in young children aged less than 5 years of age, and people aged 50 to 60 years.

New Zealand: As of August 19th, 2009, the total number of confirmed cases in New Zealand is 3,074 and 15 deaths. The number of people presenting to GPs with influenza like illnesses continues to fall. Most regions are continuing to manage demand, with fewer influenza admissions, and less need for intensive care beds than in July. The number of ILI consultations has decreased over recent weeks, but is still higher than in previous years.

Argentina: From epi week 27, a downward trend in the number of cases is observed. At the peak of influenza A detection, Pandemic (H1N1) 2009 represented 93.3% of all respiratory viruses circulating in patients over 5 years old. In children under 5 years, RSV is responsible for 72.2% of cases. Children under 5 years old have been most affected by severe acute respiratory infection, requiring hospitalization. There have been 404 Pandemic (H1N1) 2009-associated deaths.

Chile: There has been a decline in the incidence of Pandemic (H1N1) 2009 throughout the country starting in epi week 28. As of August 11th, the number of laboratory-confirmed cases in Chile was 12,104. The highest rate of confirmed cases is observed in those 5-14 years old, followed by similar rates in the <5 year and 15-59 year old age groups. 1,212 have presented with severe acute respiratory infection, representing a hospitalization rate of 7.2 cases of acute infection per 100,000 population. The rate of severe infection has been declining since week 27, and is highest in those under 1 year old. There have been 105 Pandemic (H1N1)-associated deaths. The proportion of Pandemic (H1N1) 2009 relative to other respiratory viruses has declined. In patients over 5 years of age, influenza A (Pandemic and untyped) represents 88% of specimens. The proportion of RSV has increased considerably in those under 14 years old, as have parainfluenza detections in patients over 65 years old.

South Africa: As of August 17th, South Africa reported a total of 3,485 laboratory-confirmed cases and 6 deaths from Pandemic (H1N1) 2009. For week 32, ending August 9th, there has been a huge increase in the number of Pandemic (H1N1) 2009 detected, and this strain represents the vast majority of detections this week.

Northern Hemisphere

United States: As of August 14th, 2009, the CDC reports 7,511 hospitalized cases, and 477 deaths due to Pandemic (H1N1) 2009 in 51 reporting States and Territories. During epi week 31, influenza activity decreased slightly in the United States; however, there were still higher levels of influenza-like illness than is normal for this time of year.

Mexico: As of August 18th, 2009, Mexico reports 19,634 confirmed cases of Pandemic (H1N1) 2009, and 164 deaths. The majority (65.3%) 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% of all fatal cases in patients 20 to 54 years old.

UK: As of August 14th, 2009, Pandemic influenza activity continued 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 decline in the number of ILI assessments, and antiviral collections, from the National Pandemic Flu Service (NPFS) over the past week. HPA modelling gives an estimate of 25,000 (range 15,000 – 60,000) new cases in England in week 32 compared to an estimated 30,000 cases in the previous week. The cumulative number of deaths reported due to pandemic (H1N1) 2009 in the UK is 49. There was a total of 908 new patients hospitalised with suspected pandemic influenza in week 32. The highest hospitalisation rates have consistently been in the under 5-year age group.

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