



Flu Watch

March 1, 2009 to March 7, 2009 (Week 09)

Overall influenza activity in Canada continues to increase

During week 09, influenza activity in Canada continued to increase: 2 regions (in BC) reported widespread activity, 15 regions localized (in BC, AB, SK, ON, QC, NB & NF), 30 regions sporadic and 7 regions reported no activity (see map). The proportion of tests that were positive for influenza increased from the previous week (percentage positive = 18.6%; 1,092/5,878) (see table). To date this season, 57% (3,179/5,533) of detections are influenza A (see graph). This week, the ILI consultation rate increased to 48 ILI consultations per 1,000 patient visits (see ILI graph) which is above the expected range for this time of year. The sentinel response rate was 59%. In week 09, 31 new influenza outbreaks were reported: 16 in LTCFs (BC, AB, SK, ON, QC, NB & NL), 13 in schools (BC, AB & NS) and 2 other outbreaks.

Antigenic Characterization:

Since 1 September 2008, the NML has antigenically characterized 547 influenza viruses: 117 influenza A/Brisbane/59/2007(H1N1)-like (from BC, AB, SK, ON, QC, NS, NB & PEI), 87 influenza A/Brisbane/10/2007(H3N2)-like (from BC, AB, SK, MB, ON, QC, PEI & NL), 6 influenza B/Florida/4/2006-like (from AB, ON & QC) and 337 B/Malaysia/2506/2004-like (in all provinces except the Territories). A/Brisbane/59/2007(H1N1), A/Brisbane/10/2007(H3N2) and B/Florida/4/2006 are the influenza A and influenza B components recommended for the 2008-09 influenza vaccine. B/Malaysia/2506/2004 was the influenza B component for the 2007-2008 season vaccine (see pie chart).

Antiviral Resistance:

Results from the NML:

Since the start of the season, the NML has tested 268 influenza A isolates (128 H1N1 and 140 H3N2) for amantadine resistance. All of the H1N1 isolates were susceptible; however all of the H3N2 isolates were resistant to amantadine (resistance = 100%). The resistant isolates were from BC, AB, SK, ON, QC, NB, PEI, NL & NT.

The NML has also tested 461 influenza isolates (110 A/H1N1, 63 A/H3N2 & 288 B) for oseltamivir (Tamiflu) resistance. All of the A/H3N2 and B isolates were sensitive; however all of the A/H1N1 isolates were resistant to oseltamivir due to the H274Y mutation (resistance = 100%). The resistant isolates were from BC, AB, SK, ON, QC, NB, NS & PEI.

All 451 influenza isolates (100 A/H1N1, 63 A/H3N2 & 288 B) tested for zanamivir resistance to date were sensitive to zanamivir.

Oseltamivir resistance findings from Provincial laboratories:

To date this season, 119 influenza isolates in BC have been sub-typed as A/H1 and were assessed genotypically for oseltamivir resistance using an SNP assay. One hundred and seven isolates tested positive for the H274Y mutation (resistance = 100% or 107/107), with the other 12 specimens still pending confirmatory testing.

Influenza-associated Paediatric Hospitalizations:

In week 09, 29 laboratory-confirmed influenza-associated paediatric hospitalizations were reported through the Immunization Monitoring Program Active (IMPACT) network. The cases were from BC, AB, SK, ON, QC, NS & NL and 66% were due to influenza A. To date, 286 hospitalizations have been reported of which 69% have been due to influenza A. The proportion of cases to date by age group are as follows: 21% were 0-5 month olds; 16% were 6-23 month olds; 13% were 2-4 year-olds; 14% were 5-9 year-olds; and 36% were 10-16 year-olds. The distribution of cases to date by province are as follows: 10% from BC, 7% from AB, 1% from SK, 2% from MB, 40% from ON, 36% from QC, 3% from NS & 1% from NL.

International:

CDC: During week 08, influenza activity increased slightly in the United States; 1,418 (21.2%) specimens tested positive for influenza, of which 62% were influenza A and 38% were influenza B. Testing for antiviral resistance indicated that of the influenza virus A/H1N1 tested, 98.6% were resistant to oseltamivir and 0.8% resistant to amantadine. Of the influenza A/H3N2 viruses tested for resistance, 100% were resistant to amantadine. All tested viruses remain sensitive to zanamivir. To date this season, 22 influenza-associated pediatric deaths have been reported to the CDC (5 of which were reported in week 08). Bacterial co-infections were confirmed in 14 (70%) of 20 tested children; *Staphylococcus aureus* was identified in 12 (79%) of 14 tested children. An increase in the number of influenza-associated pediatric deaths with bacterial co-infections was first recognized during the 2006-07 influenza season. One human infection with a novel influenza A virus (swine influenza A/H1N1) was reported this week in a person who had reported exposure to ill pigs. <<http://www.cdc.gov/flu/weekly/>>

EISS: Influenza activity has continued to decline in western Europe and is below baseline levels in most countries. For many of the remaining countries activity has shown relatively little change compared to the previous week although some central and eastern European countries as well as in a large part of the Russian Federation increased activity has been reported. Influenza A(H3N2) continues to be the dominant influenza virus circulating in Europe however the proportion of influenza B detections per week continues to show a rising trend, with an increasing number of countries reporting influenza B as the dominant or co-dominant virus type. Of the 272 A(H3N2) isolates that were tested for adamantanes susceptibility, 272 (100%) were resistant. Of the 204 A(H1N1) virus isolates tested for resistance against neuraminidase inhibitors, 200 (98%) were resistant to oseltamivir, but all were sensitive to zanamivir. <http://www.eiss.org/cgi-files/bulletin_v2.cgi>

Human Avian Influenza: Since 7 March 2009, the WHO reported two new cases of human H5N1 avian influenza infection in Egypt. <http://www.who.int/csr/disease/avian_influenza/en/index.html>

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

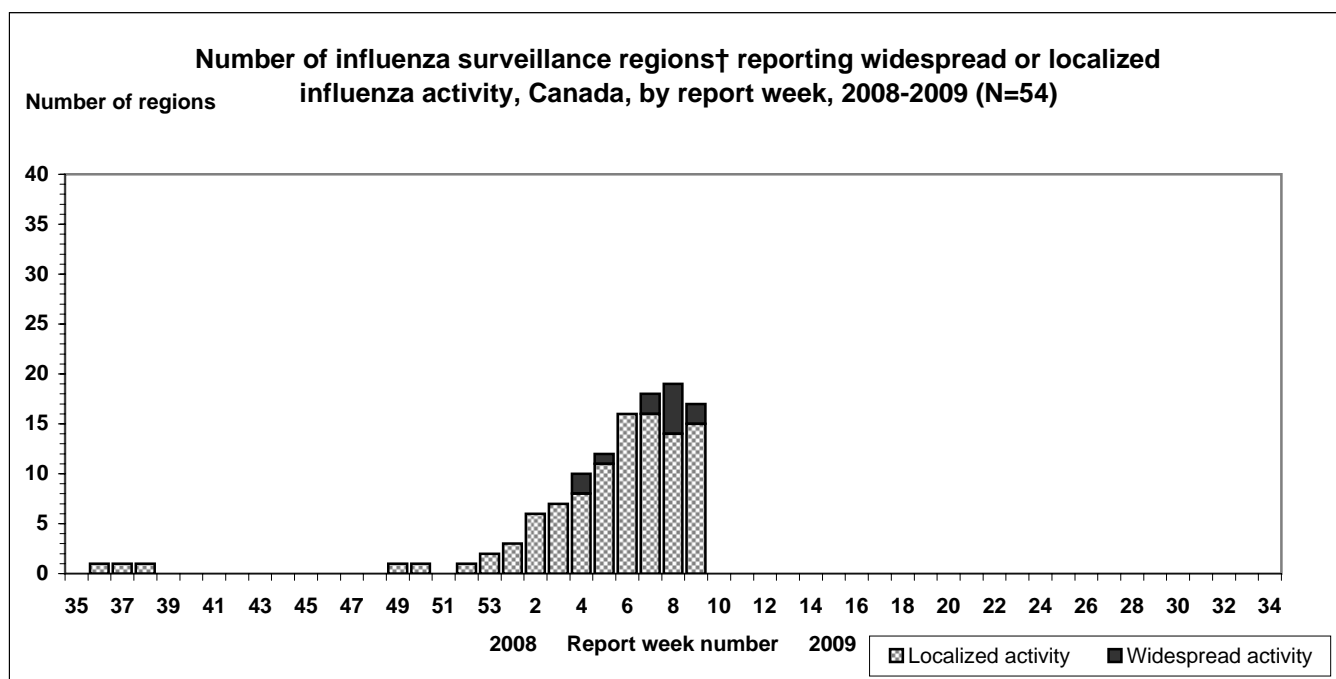
Province of reporting laboratories	Report Period: March 1, 2009 to March 7, 2009				Season to Date: August 24, 2008 to March 7, 2009			
	Total # of influenza	# of positive tests			Total # of influenza	# of positive tests		
		Influenza A	Influenza B	Total		Influenza A	Influenza B	Total
NL	66	21	2	23	521	59	7	66
PE	9	0	2	2	160	12	8	20
NS	82	5	6	11	711	29	31	60
NB	102	26	13	39	912	118	60	178
QC	2502	295	199	494	22099	1462	888	2350
ON	1437	122	153	275	21352	543	1027	1570
MB	94	0	6	6	1559	15	10	25
SK	312	17	12	29	3553	61	51	112
AB	1051	90	21	111	15657	493	149	642
BC	223	75	27	102	2017	387	123	510
Canada	5878	651	441	1092	68541	3179	2354	5533

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.

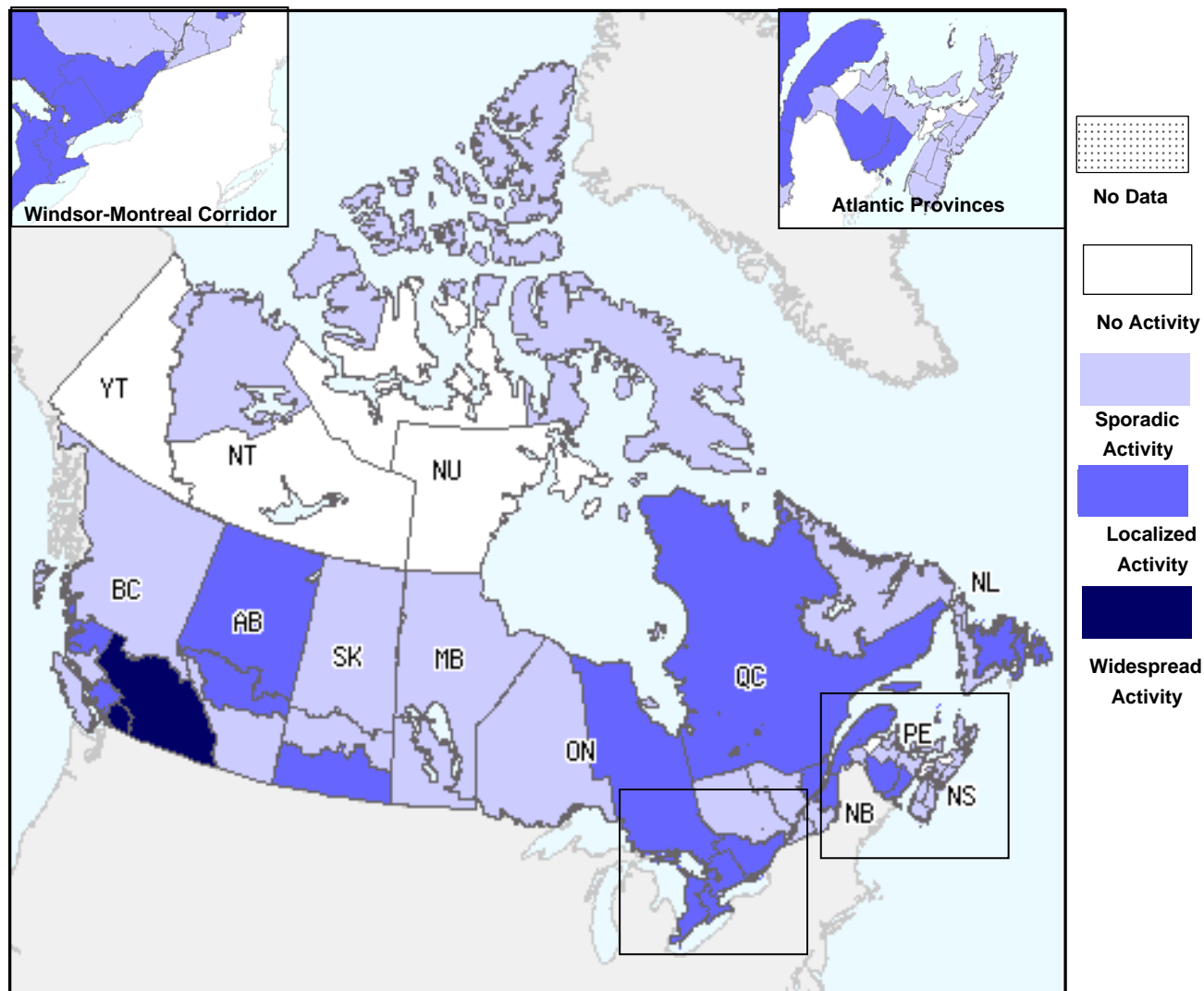
Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU)

Respiratory virus laboratory detections in Canada, by geographic regions, are available weekly on the following website:
<<http://www.phac-aspc.gc.ca/bid-bmi/dsd-dsm/rvdi-divr/index-eng.php>>

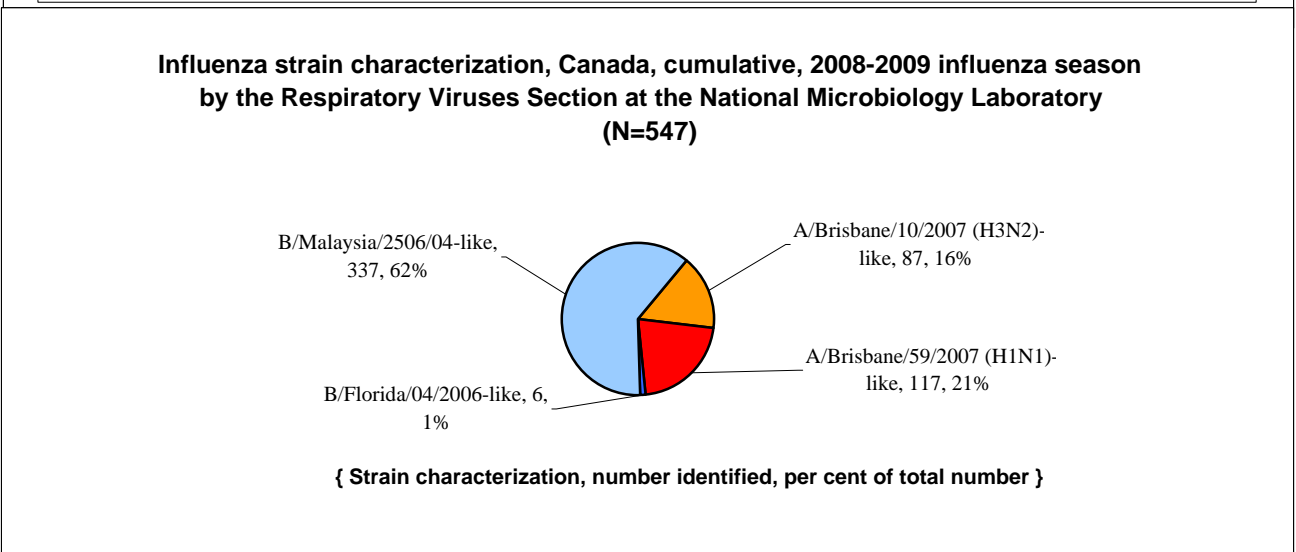
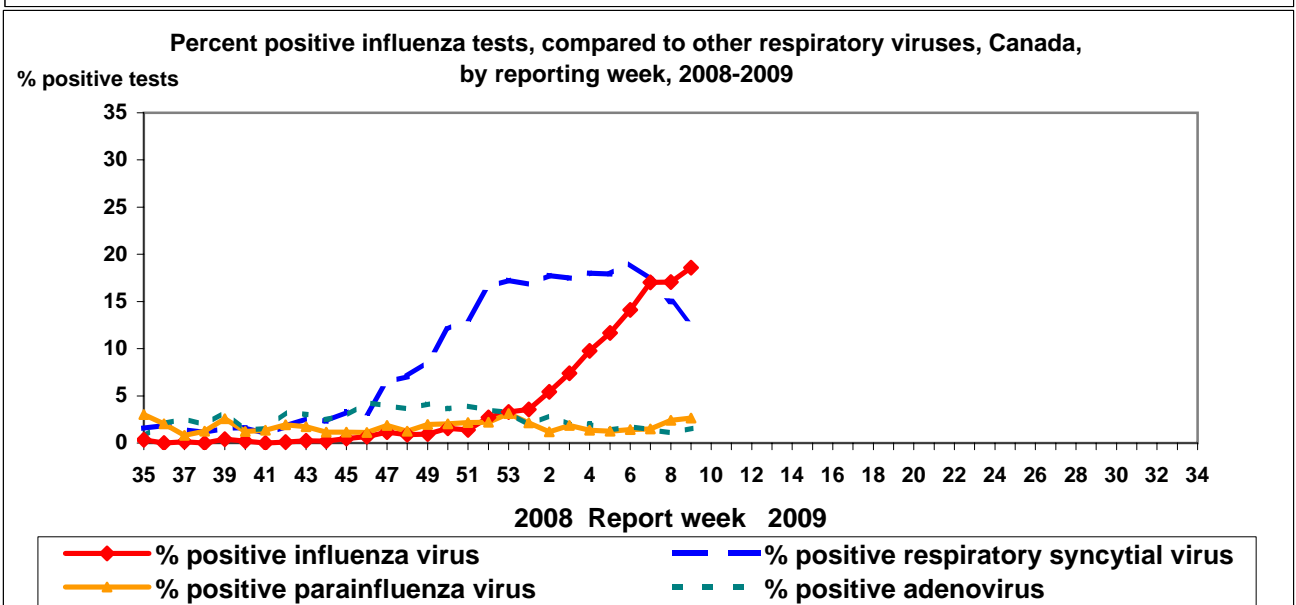
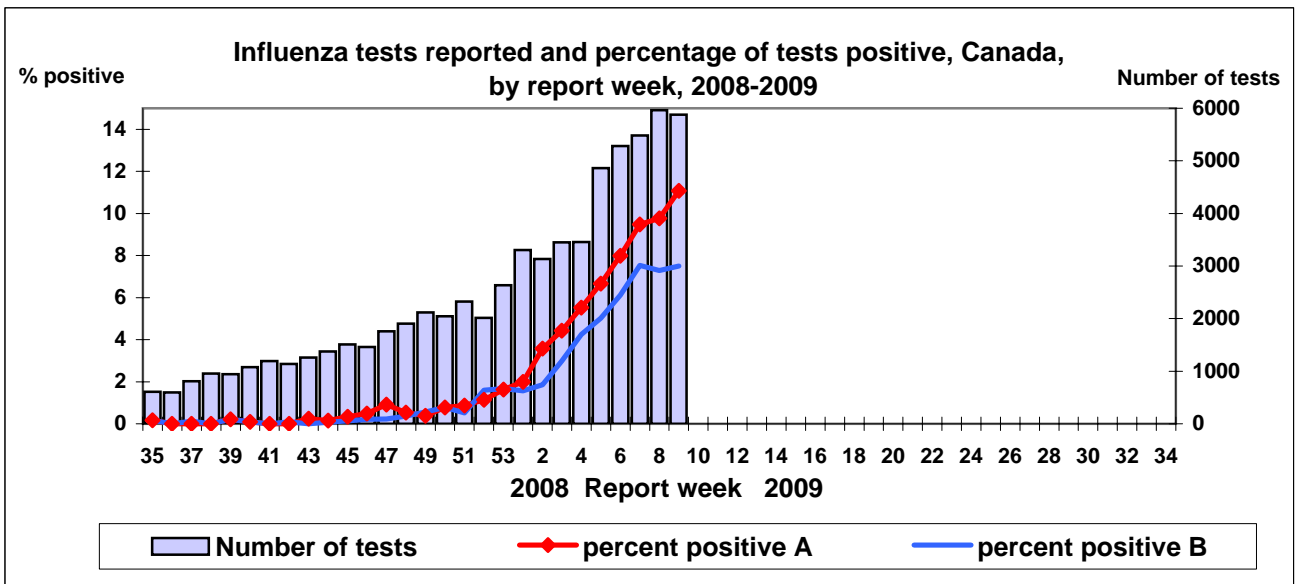


† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

**Influenza Activity Level by Provincial and Territorial Influenza Surveillance Regions,
Canada; March 1, 2009 to March 7, 2009 (Week 09)**

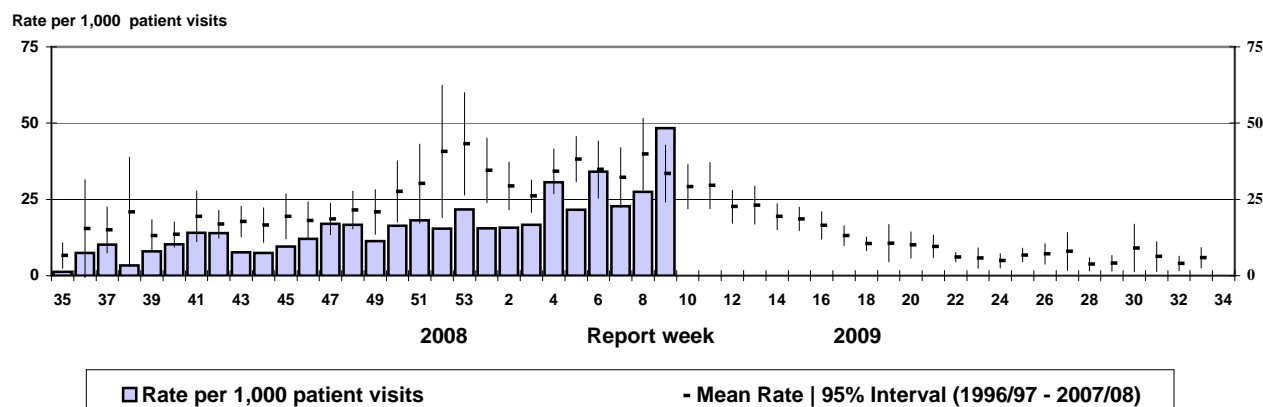


Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, **based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and outbreaks.** Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website. Select single maps by report week to get this updated information. <<http://dsol-smed.hc-sc.gc.ca/dsol-smed/fluwatch/fluwatch.phtml?lang=e>>



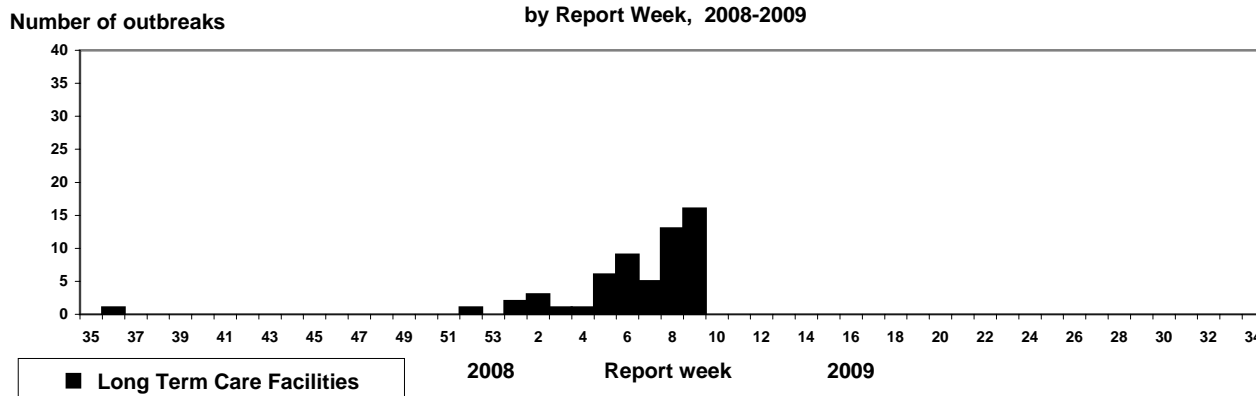
NACI recommends that the trivalent vaccine for the 2008-2009 season in Canada contain A/Brisbane/59/2007 (H1N1)-like virus; an A/Brisbane/10/2007 (H3N2)-like virus; and a B/Florida/4/2006-like virus.

**Influenza-like illness (ILI) consultation rates, Canada, by report week,
2008-2009 compared to 1996/97 through to 2007/08 seasons**



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

**Number of New Outbreaks in Long Term Care Facilities, Canada,
by Report Week, 2008-2009**



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.

ILI definitions 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