



Flu Watch

January 11, 2009 to January 17, 2009 (Week 02)

Influenza activity in Canada is increasing; six regions reporting localized activity

During week 02, influenza activity in Canada started to increase with more regions reporting localized (n=6; in ON, AB, BC & NT) and sporadic activity (n=20). The majority of regions still reported no activity (n=28) (see map). The proportion of tests that were positive for influenza continued to increase steadily with a percentage positive of 5.5% (170/3,111) this week (see table). The majority of influenza virus detections to date this season were influenza A viruses (57.4% or 335/584). In week 02, the ILI consultation rate was 16 ILI consultations per 1,000 patient visits (see ILI graph), which is below the expected range for this week. The sentinel response rate was 64%. In week 02, 5 new influenza outbreaks were reported: 3 in LTCFs (in ON, BC & NT), 1 in a hospital and 1 in a school (both from BC).

Antigenic Characterization:

Since 1 September 2008, the NML has antigenically characterized 69 influenza viruses: 16 influenza A/Brisbane/59/2007(H1N1)-like (from BC, AB, ON & NS), 2 influenza A/Brisbane/10/2007(H3N2)-like (from BC & ON), 4 influenza B/Florida/4/2006-like (from AB & ON) and 47 B/Malaysia/2506/2004-like (from QC, ON & AB). 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 23 influenza A isolates (16 H1N1 and 7 H3N2) for amantadine resistance. All of the H1N1 isolates were susceptible; however all of the H3N2 isolates were resistant to amantadine (resistance = 100% or 7/7). The resistant isolates were from ON, AB and BC.

The NML has also tested 51 influenza isolates (15 A/H1N1, 2 A/H3N2 & 34 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% or 15/15). The resistant isolates were from NS, ON, AB and BC.

All 47 influenza isolates (11 A/H1N1, 2 A/H3N2 & 34 B) tested for zanamivir resistance to date were sensitive to zanamivir.

Oseltamivir resistance findings from Provincial laboratories:

To date this season, 46 influenza isolates in BC have been sub-typed as A/H1 and were assessed genotypically for oseltamivir resistance using an SNP assay. Forty-two isolates tested positive for the H274Y mutation (resistance = 100% or 42/42), with the other 4 specimens still pending confirmatory testing.

Influenza-associated Paediatric Hospitalizations:

In week 02, one laboratory-confirmed influenza-associated paediatric hospitalization (from QC) due to influenza A infection was reported through the Immunization Monitoring Program Active (IMPACT) network. To date, 20 hospitalizations have been reported of which half (50%) have been due to influenza A and half due to influenza B. The proportion of cases to date by age group are as follows: 15% were 0-5 month olds; 20% were 6-23 month olds; 25% were 2-4 year-olds; 15% were 5-9 year-olds; and 25% were 10-16 year-olds.

*** Due to technical difficulties with IMPACT's electronic reporting system, reports of hospitalizations were not received until this week. Over the next several weeks, more retrospective reports of cases may be reported. The first hospitalization for the 2008-2009 season occurred in late November 2008. To date, cases have been reported in QC, ON, AB & BC.

International:

CDC: During week 01, overall influenza activity in the United States remained relatively low but increased compared to previous weeks. More states reported widespread, regional and local influenza activity compared to previous weeks. Of the 3,394 specimens tested this week for influenza viruses, 242 (7.1%) were positive. Since 1 October 2008, the CDC has antigenically characterized 158 influenza viruses: 93 influenza A(H1) (all A/Brisbane/59/2007-like), 13 A(H3) (all A/Brisbane/10/2007-like) and 52 influenza B (17 were B/Florida/04/2006-like belonging to the B/Yamagata lineage and the other 35 belonged to the B/Victoria lineage). Since 1 October, 2008, 187 influenza viruses (103 A(H1N1), 23 A(H3N2), and 61 B) have been tested for resistance to neuraminidase inhibitors. Of the A(H1N1) viruses tested, 98% (101/103) were resistant to oseltamivir however all were sensitive to zanamivir. All of the A(H3N2) and B viruses tested were sensitive to both oseltamivir and zanamivir. The CDC tested 126 influenza A viruses (103 H1, 23 H3) for amantadine resistance: only one of the H1N1 viruses was resistant to amantadine (1%, 1/103) however all the H3N2 viruses (100%) were resistant. <<http://www.cdc.gov/flu/weekly/>>

EISS: Influenza activity continued to intensify and spread across Europe with most countries now reporting medium to high intensity with a west-to-east spread being observed. Influenza A(H3) viruses continue to predominate. With the exception of the few B/Victoria lineage viruses, the viruses circulating in Europe are similar to the strains included in the current influenza vaccine. Of the 89 A(H3N2) isolates that were tested for adamantanes susceptibility, 88 (99%) were resistant. Of the 60 A(H1N1) virus isolates tested for resistance against neuraminidase inhibitors, 59 (98%) were resistant to oseltamivir, but all were sensitive to zanamivir. <http://www.eiss.org/cgi-files/bulletin_v2.cgi>

Human Avian Influenza: Since 17 January 2009, the WHO has reported 5 new cases of human H5N1 avian influenza infection. Three cases were reported from China (all from different provinces) of which 1 died; and 2 cases were reported from Indonesia (also from different provinces) of which both died. <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**

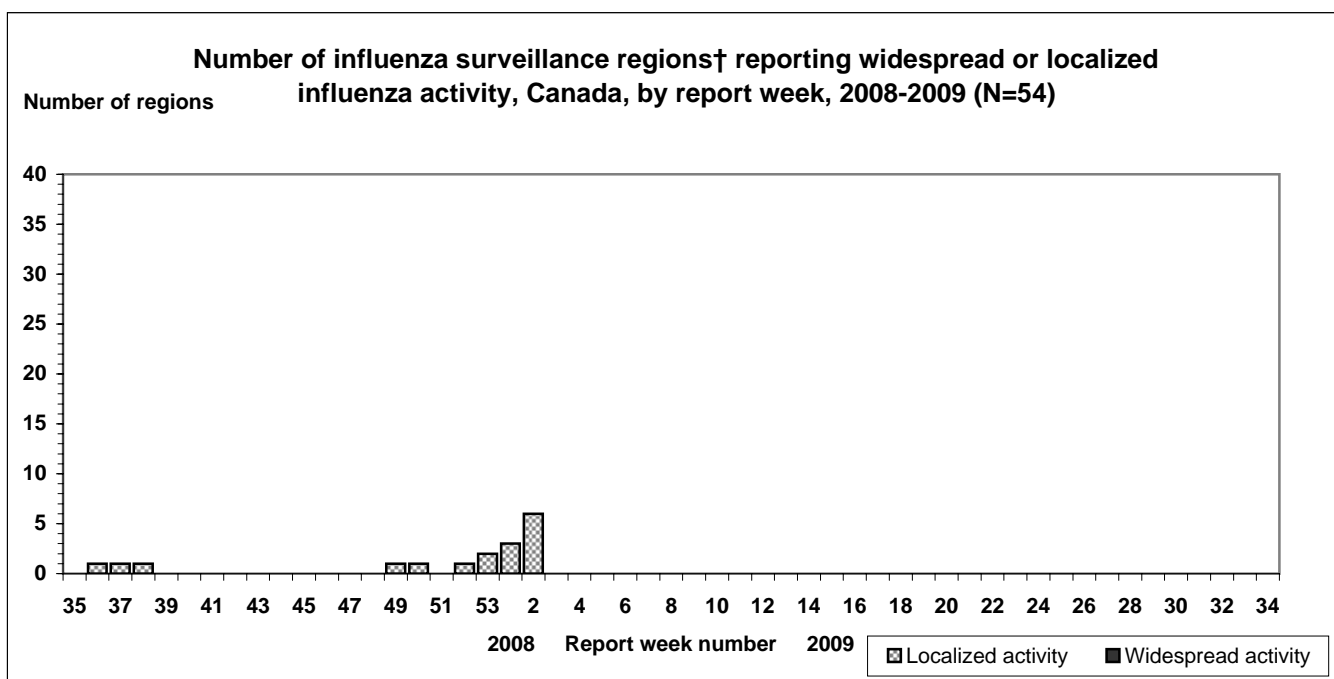
Province of reporting laboratories	Report Period: January 11, 2009 to January 17, 2009				Season to Date: August 24, 2008 to January 17, 2009			
	Total # of influenza	# of positive tests			Total # of influenza	# of positive tests		
		Influenza A	Influenza B	Total		Influenza A	Influenza B	Total
NL	13	0	0	0	218	0	0	0
PE	7	0	1	1	70	0	1	1
NS	38	1	0	1	323	2	0	2
NB	55	4	0	4	281	5	0	5
QC	963	26	2	28	8918	91	7	98
ON	1187	23	51	74	11296	67	169	236
MB	59	0	1	1	998	0	2	2
SK	191	2	0	2	1779	5	0	5
AB	503	34	2	36	9410	92	66	158
BC	95	22	1	23	839	73	4	77
Canada	3111	112	58	170	34132	335	249	584

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.

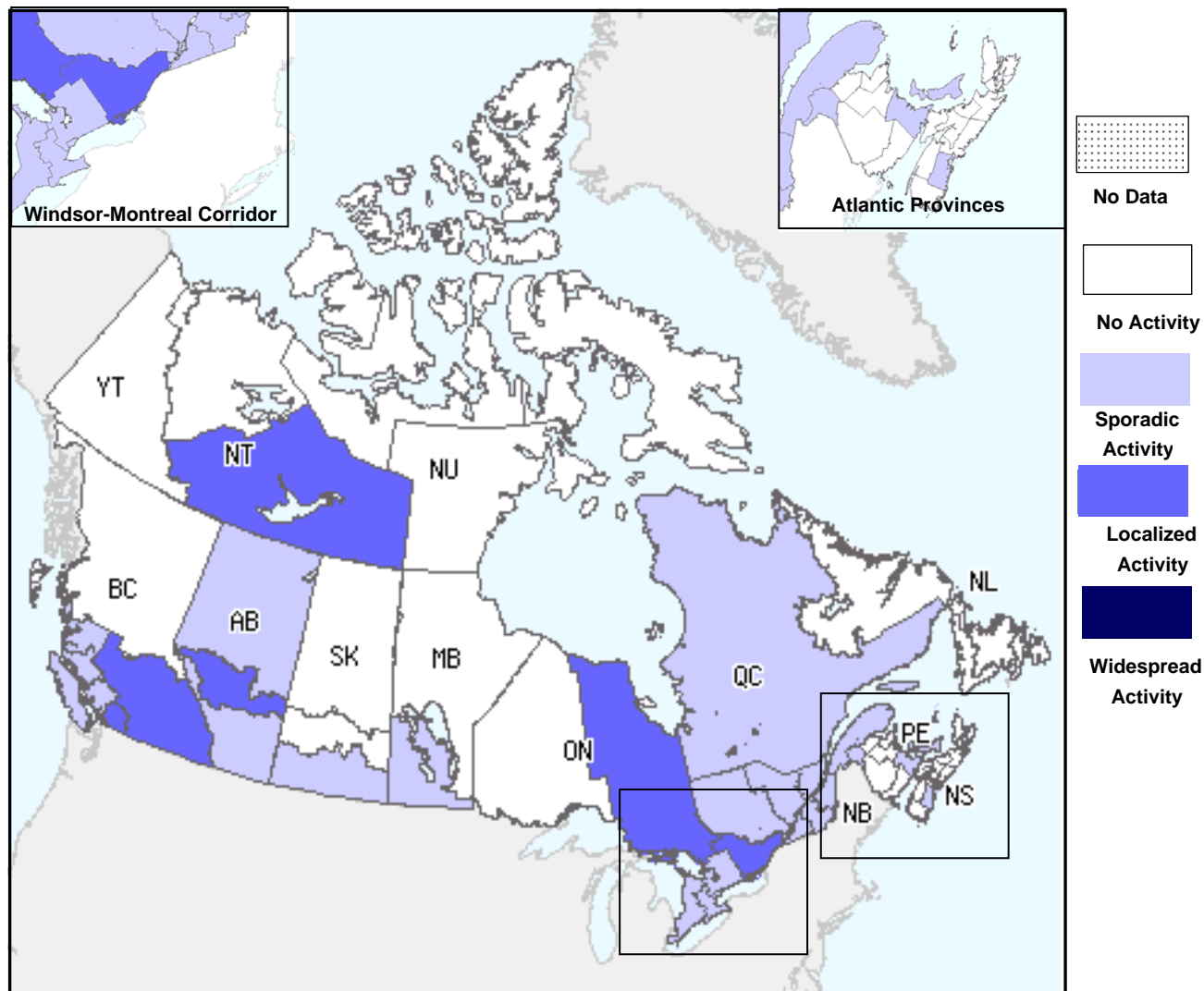
Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU)

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>>

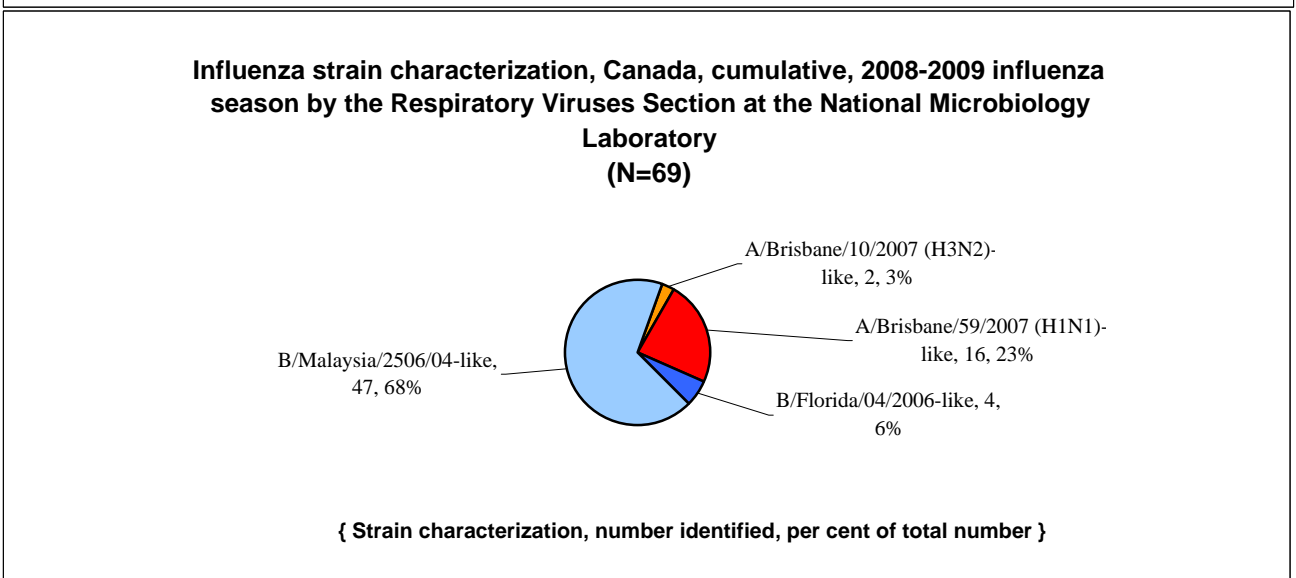
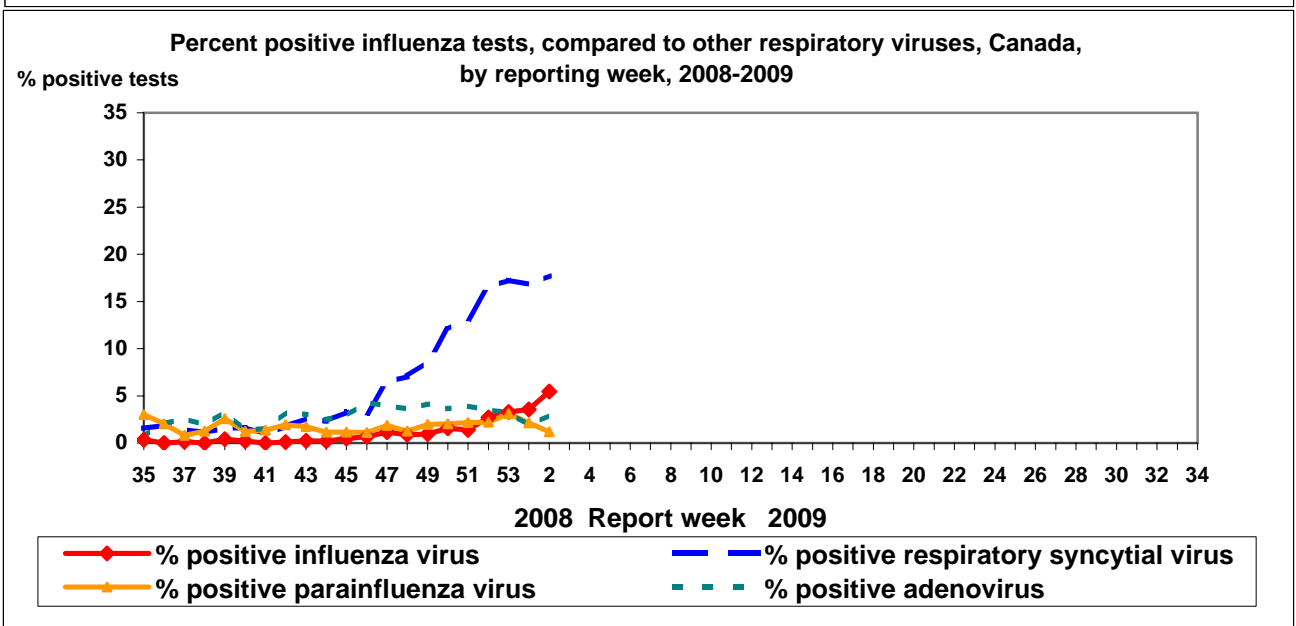
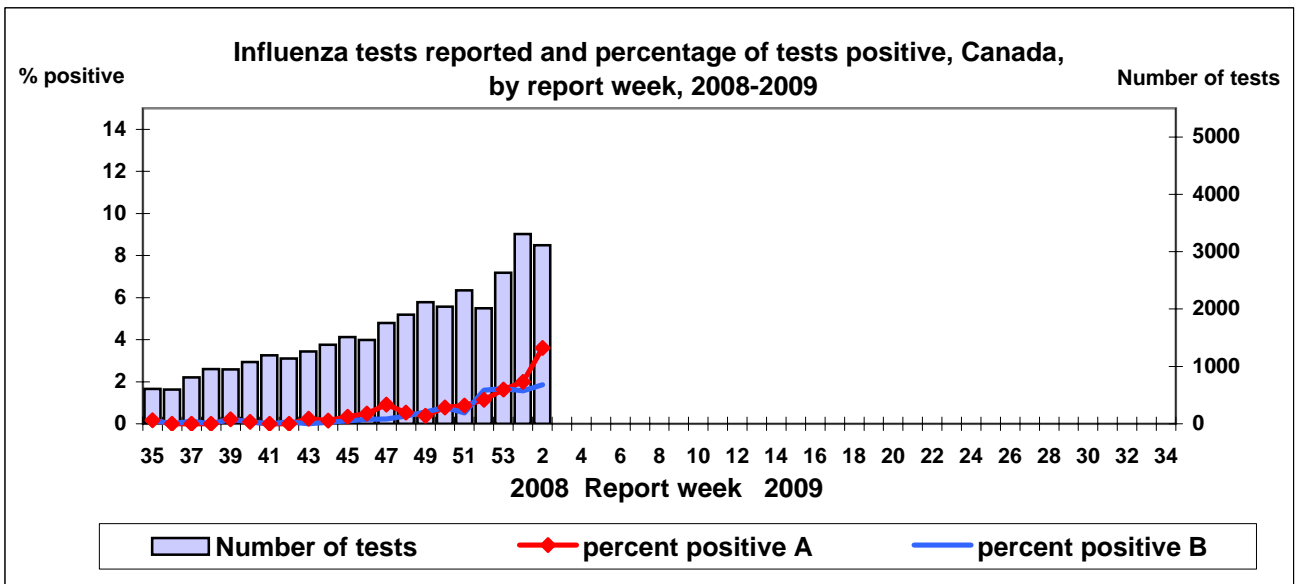


† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

**Influenza Activity Level by Provincial and Territorial Influenza Surveillance Regions,
Canada; January 11, 2009 to January 17, 2009 (Week 02)**

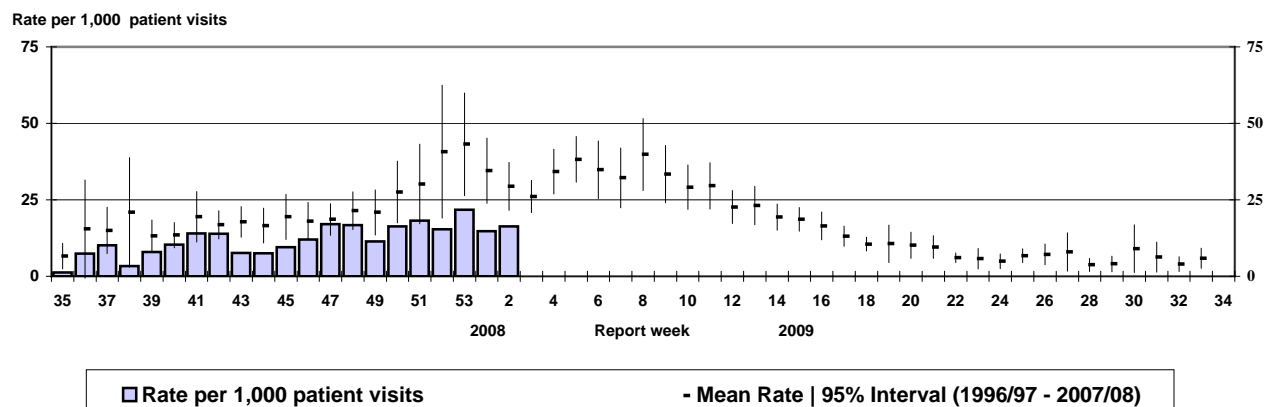


Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, **based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and outbreaks.** Please refer to detailed definitions on the last page. For areas 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>>



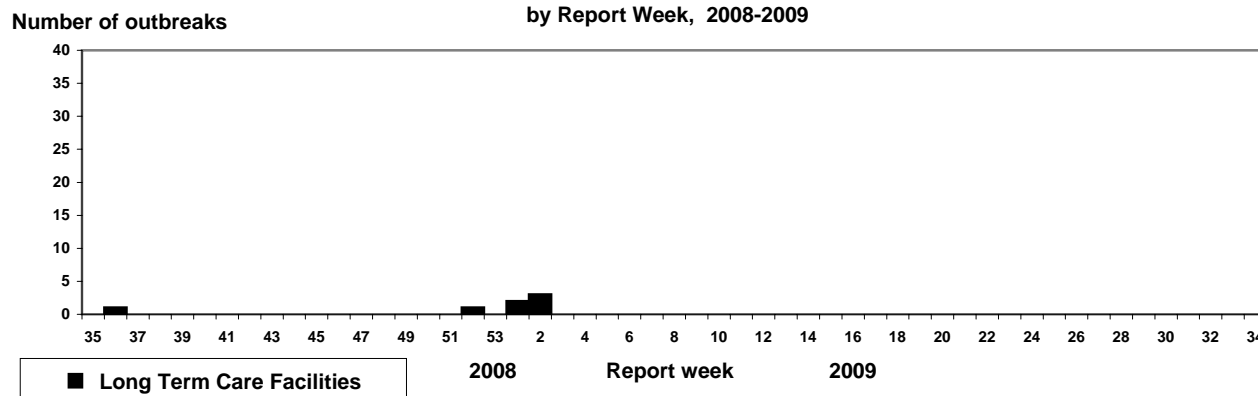
NACI recommends that the trivalent vaccine for the 2008-2009 season in Canada contain A/Brisbane/59/2007 (H1N1)-like virus; an A/Brisbane/10/2007 (H3N2)-like virus; and a B/Florida/4/2006-like virus.

**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