

SURVEILLANCE WEEK 14 (April 5, 2009– April 11, 2009)

This issue of the Ontario Influenza Bulletin provides information on the surveillance period from April 5, 2009-April 11, 2009, (Week 14). The analysis for this issue occurred on April 16, 2009, therefore all data is current to that date unless otherwise specified.

Overall, influenza activity in Ontario during week 14, 2009 was lower as compared to week 13, 2009. There were 38 confirmed cases of influenza reported through iPHIS from health units. There were no new reports of institutional influenza outbreaks. For week 14, North West health region reported 'sporadic' level activity while the remaining health regions reported 'localized' level activity.

In Canada for week 13, no region reported widespread activity, 17 regions localized (in British Columbia, Alberta, Saskatchewan, Ontario, Quebec, New Brunswick, Newfoundland/Labrador & Northwest Territories), 34 regions sporadic and 2 regions reported no activity.[†]

From April 5, 2009 to April 11, 2009 there were no new influenza A subtypes identified by the Central Public Health Laboratory.

For a definition of influenza-like illness (ILI) activity levels and links to websites providing current influenza information from other sources, please refer to the attached Appendix- I. If you would like to provide feedback on the Bulletin, please contact Christine D'Souza (christine.dsouza1@ontario.ca, 416-212-5323) or Anne-Luise Winter (anne-luise.winter@ontario.ca, 416-327-7301).

Table 1: Summary of confirmed influenza cases and institutional influenza outbreaks by health region (Week 14, 2009).

Confirmed influenza cases*	HEALTH REGION							TOTAL
	North West	North East	Eastern	Central East	Toronto	South West	Central West	
Influenza A	0	1	1	8	8	3	8	29
Influenza B	0	0	0	1	5	1	2	9
Influenza A & B	0	0	0	0	0	0	0	0
Total new cases	0	1	1	9	13	4	10	38
Institutional influenza outbreaks‡	0	0	0	0	0	0	0	0

SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [16/04/2009].

* Includes reports of confirmed influenza through iPHIS, as well as cases in institutional outbreaks, with dates of onset in the surveillance period.

† These data have been obtained from the FluWatch report of the Public Health Agency of Canada for Week 13, 2009.

‡ Confirmed outbreaks in institutions with onset date of symptoms during the surveillance period.

Table 2: Confirmed cases of influenza by health unit & health region, with an episode date[†] during Week 14, 2008-09

Region	Health Unit	Confirmed Influenza			
		Influenza A	Influenza A & B	Influenza B	TOTAL
North West	Northwestern	0	0	0	0
	Thunder Bay District	0	0	0	0
	TOTAL NORTH WEST	0	0	0	0
North East	Algoma	0	0	0	0
	North Bay Parry Sound District	0	0	0	0
	Porcupine	1	0	0	1
	Sudbury & District	0	0	0	0
	Timiskaming	0	0	0	0
	TOTAL NORTH EAST	1	0	0	1
Eastern	City of Ottawa	1	0	0	1
	Eastern Ontario	0	0	0	0
	Hastings & Prince Edward Counties	0	0	0	0
	Kingston, Frontenac, Lennox & Addington	0	0	0	0
	Leeds, Grenville And Lanark District	0	0	0	0
	Renfrew County And District	0	0	0	0
	TOTAL EASTERN	1	0	0	1
Central East	Durham Region	0	0	0	0
	Haliburton, Kawartha, Pine Ridge	3	0	0	3
	Peel Region	4	0	1	5
	Peterborough County-City	0	0	0	0
	Simcoe Muskoka District	1	0	0	1
	York Region	0	0	0	0
	TOTAL CENTRAL EAST	8	0	1	9
Toronto	Toronto	8	0	5	13
	TOTAL TORONTO	8	0	5	13
South West	Chatham-Kent	0	0	0	0
	Elgin-St. Thomas	0	0	0	0
	Grey Bruce	0	0	0	0
	Huron County	2	0	1	3
	Lambton County	0	0	0	0
	Middlesex-London	0	0	0	0
	Oxford County	0	0	0	0
	Perth District	1	0	0	1
	Windsor-Essex County	0	0	0	0
	TOTAL SOUTHWEST	3	0	1	4
Central West	Brant County	1	0	0	1
	City Of Hamilton	3	0	0	3
	Haldimand-Norfolk	0	0	0	0
	Halton Region	1	0	0	1
	Niagara Region	0	0	2	2
	Waterloo Region	2	0	0	2
	Wellington-Dufferin-Guelph	1	0	0	1
	TOTAL CENTRAL WEST	8	0	2	10
	TOTAL ONTARIO	29	0	9	38

SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [16/04/2009].

[†] Episode Date for a case corresponds to the earliest date on record for the case according to the iPHIS hierarchy (Symptom Date > Clinical Diagnosis Date > Specimen Collection Date > Lab Test Date > Reported Date)

Table 3: Cumulative* confirmed cases of influenza by health unit & health region with an episode date[†] between September 1, 2008 – April 11, 2009

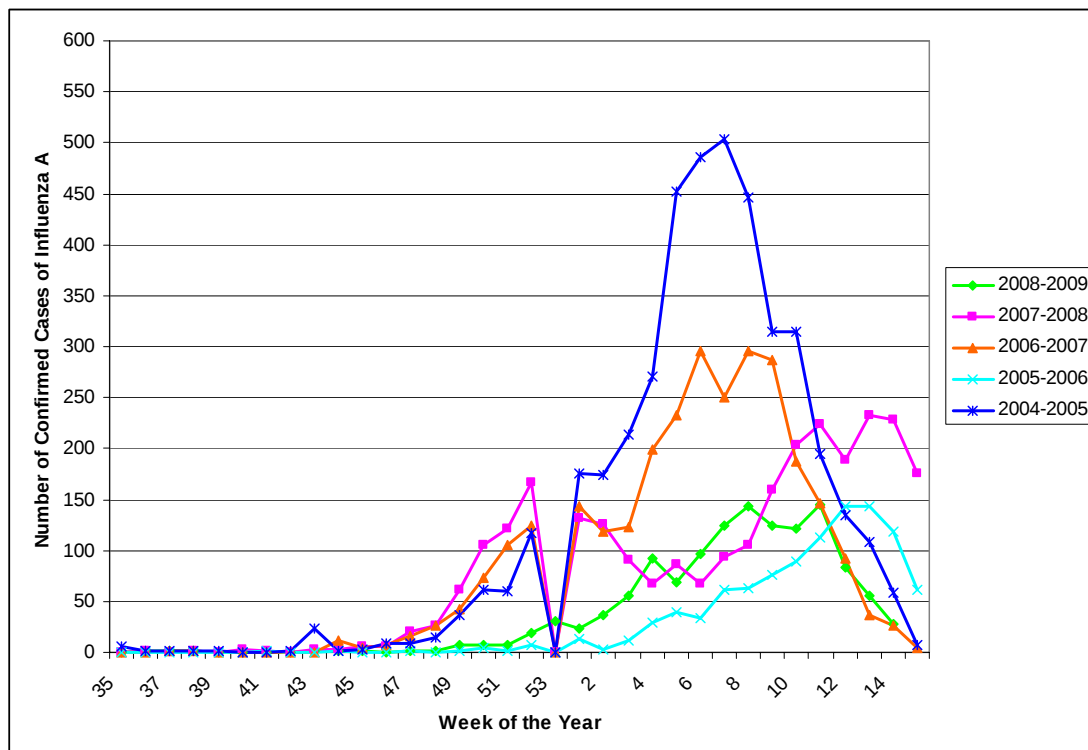
Region	Health Unit	Confirmed Influenza			
		Influenza A	Influenza A & B	Influenza B	TOTAL
North West	Northwestern	2	0	7	9
	Thunder Bay District	3	0	7	10
	TOTAL NORTH WEST	5	0	14	19
North East	Algoma	0	0	10	10
	North Bay Parry Sound District	11	0	74	85
	Porcupine	6	0	30	36
	Sudbury & District	6	0	6	12
	Timiskaming	2	0	5	7
	TOTAL NORTH EAST	25	0	125	150
Eastern	City Of Ottawa	96	2	54	152
	Eastern Ontario	8	0	38	46
	Hastings & Prince Edward Counties	8	0	20	28
	Kingston, Frontenac, Lennox & Addington	28	0	31	59
	Leeds, Grenville And Lanark District	11	0	22	33
	Renfrew County And District	7	0	10	17
	TOTAL EASTERN	158	2	175	335
Central East	Durham Region	39	1	55	95
	Haliburton, Kawartha, Pine Ridge	66	0	49	115
	Peel Region	154	0	135	289
	Peterborough County-City	20	0	10	30
	Simcoe Muskoka District	45	0	74	119
	York Region	48	0	42	90
	TOTAL CENTRAL EAST	372	1	365	738
Toronto	Toronto	300	2	235	537
	TOTAL TORONTO	300	2	235	537
South West	Chatham-Kent	3	0	4	7
	Elgin-St. Thomas	1	0	1	2
	Grey Bruce	15	1	53	69
	Huron County	11	0	32	43
	Lambton County	5	0	6	11
	Middlesex-London	15	0	8	23
	Oxford County	11	0	9	20
	Perth District	19	0	12	31
	Windsor-Essex County	23	0	32	55
	TOTAL SOUTHWEST	103	1	157	261
Central West	Brant County	14	0	16	30
	City Of Hamilton	86	0	95	181
	Haldimand-Norfolk	4	0	10	14
	Halton Region	44	0	57	101
	Niagara Region	48	0	54	102
	Waterloo Region	98	0	85	183
	Wellington-Dufferin-Guelph	36	0	41	77
	TOTAL CENTRAL WEST	330	0	358	688
	TOTAL ONTARIO	1,293	6	1,429	2,728

SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [16/04/2009].

* Cumulative case counts include late reports and records that are otherwise reconciled. Therefore, cumulative counts may not equal new cases plus previous cumulative value.

† Episode Date for a case corresponds to the earliest date on record for the case according to the iPHIS hierarchy (Symptom Date > Clinical Diagnosis Date > Specimen Collection Date > Lab Test Date > Reported Date)

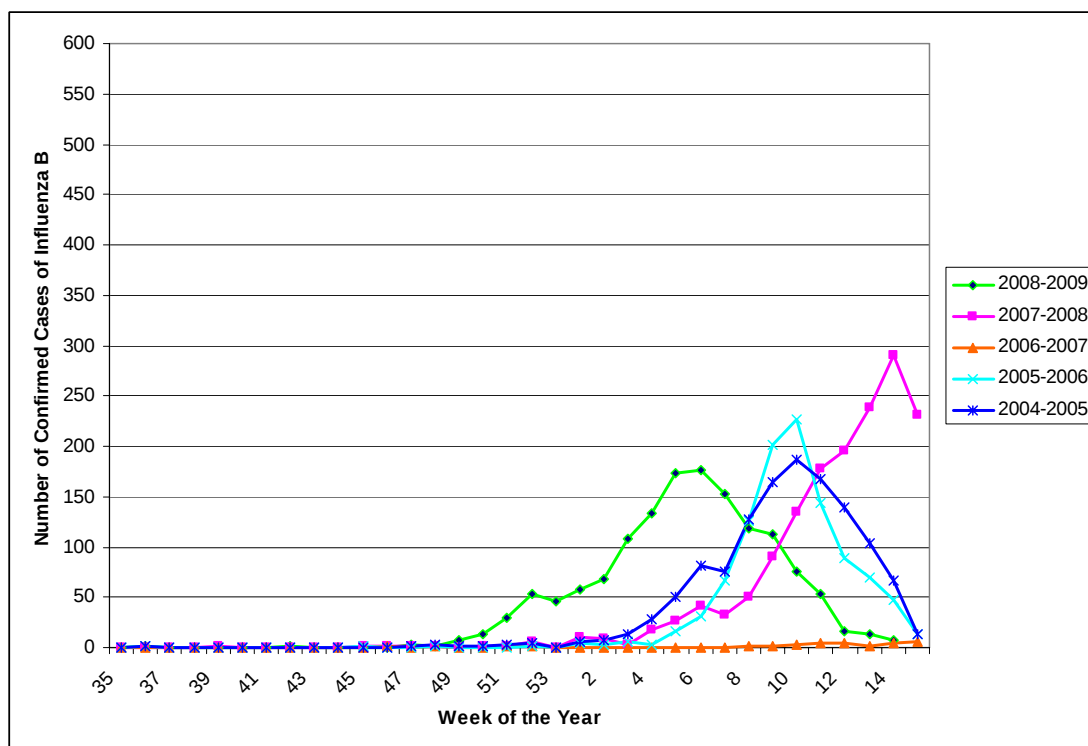
Figure 1: Confirmed Cases of Influenza A in Ontario by week between September 1 and April 11, 2004-2009[†]



SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [16/04/2009].

[†] Episode Date for a case corresponds to the earliest date on record for the case according to the iPHIS hierarchy (Symptom Date > Clinical Diagnosis Date > Specimen Collection Date > Lab Test Date > Reported Date)

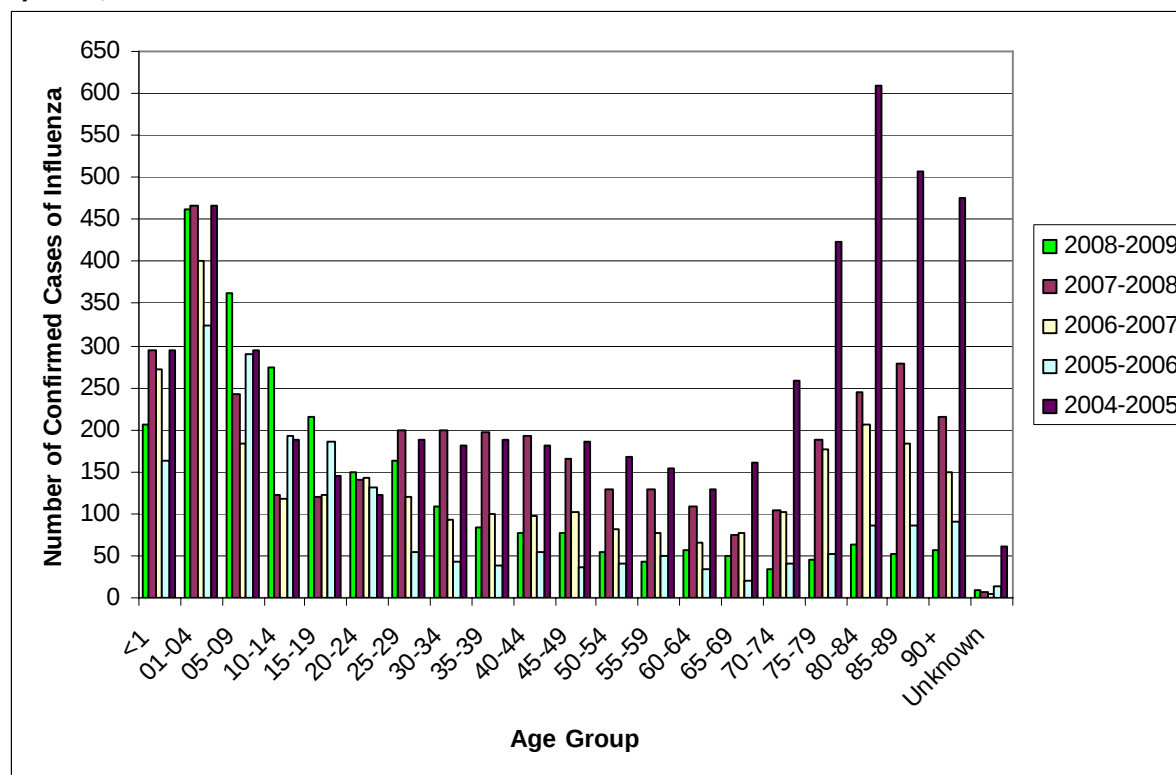
Figure 2: Confirmed Cases of Influenza B in Ontario by week between September 1 and April 11, 2004-2009[†]



SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [16/04/2009].

[†] Episode Date for a case corresponds to the earliest date on record for the case according to the iPHIS hierarchy (Symptom Date > Clinical Diagnosis Date > Specimen Collection Date > Lab Test Date > Reported Date)

Figure 3: Confirmed Cases of Influenza in Ontario by age group between September 1 and April 11, 2004-2009[†]



SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [16/04/2009].

[†] Episode Date for a case corresponds to the earliest date on record for the case according to the iPHIS hierarchy (Symptom Date > Clinical Diagnosis Date > Specimen Collection Date > Lab Test Date > Reported Date)

Influenza Subtype(s):

During week 14, a total of 3239 isolates were received by the Public Health Agency of Canada, with 217 testing positive for influenza A and 128 positive for influenza B. 68 reported influenza A isolates were from Quebec (31.3%), 58 were from Ontario (26.7%), 33 were from Alberta (15.2%) and 27 were from British Columbia (12.4%). 44 of the influenza B isolates were from Quebec (34.4%), 36 were from Alberta (28.1), 15 (11.7%) were from Ontario and 11 (8.6%) were from Saskatchewan.*

Antigenic Characterization (National):

Since the start of the season, the NML has antigenically characterized 828 influenza viruses that were received from Canadian provincial and hospital laboratories: 142 influenza A (H3N2), 202 influenza A (H1N1) and 484 B viruses.

The 142 influenza A/H3N2 isolates characterized were antigenically similar to A/Brisbane/10/07, which is the influenza A (H3N2) component recommended for the 2008-09 influenza vaccine.

The 202 influenza A/H1N1 isolates characterized were antigenically similar to A/Brisbane/59/2007, which is the influenza A (H1N1) component recommended for the 2008-09 influenza vaccine.

Influenza B viruses currently circulating can be divided into two antigenically distinct lineages represented by B/Yamagata/16/88 and B/Victoria/2/87 viruses.

Of the 484 influenza B isolates characterized, 9 were antigenically similar to B/Florida/4/2006, which is the B component recommended for the 2008-09 influenza vaccine and belongs to B/Yamagata lineage. Three hundred and sixty-eight B isolates were characterized as B/Malaysia/2506/04-like and 107 were characterized as B/Brisbane/60/08-like, which belong to the Victoria lineage. B/Brisbane/60/08 is the recommended B component for the 2009-2010 influenza vaccine.†

Antigenic Characterization (Provincial):

The National Microbiology Laboratory (NML) has antigenically characterized the following strains from Ontario: 76 influenza A/Brisbane/59/2007(H1N1)-like, 19 influenza A (H3N2)/A/Brisbane/10/2007-like, 25 B/Brisbane/60/2008-like, 5 influenza B/Florida/4/2006-like, and 177 B/Malaysia/2506/2004-like.†

Antiviral Resistance (National):

Since the start of the season, the NML has tested 527 influenza A isolates (242 H1N1 and 285 H3N2) for amantadine resistance. All of the H1N1 isolates were sensitive; however all of the H3N2 isolates were resistant to amantadine. The NML has also tested 839 influenza isolates (225 A/H1N1, 154 A/H3N2 & 460 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 225/225).

All 794 influenza isolates (176 A/H1N1, 152 A/H3N2 & 466 B) tested for zanamivir resistance to date were sensitive to zanamivir.†

The WHO recommends that the vaccines to be used in the 2009-2010 season (northern hemisphere) contain the following: an A/Brisbane/59/2007 (H1N1)-like virus; an A/Brisbane/10/2007 (H3N2)-like virus; and a B/Brisbane/60/2008-like virus. <http://www.who.int/csr/disease/influenza/recommendations2009_10north/en/index.html>

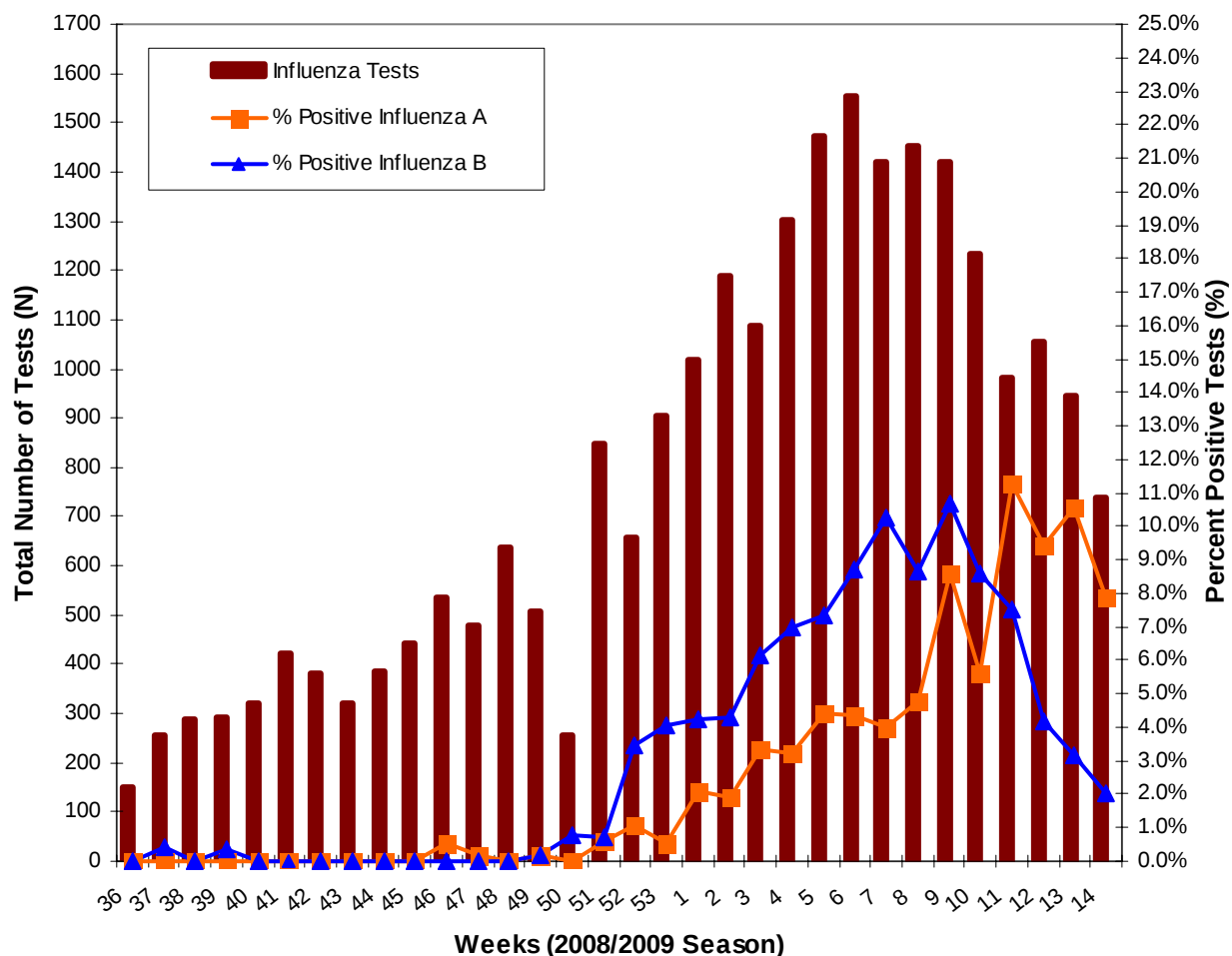
Antiviral Resistance (Provincial):

All 49 A/H3N2 isolates tested were resistant to amantadine in Ontario. All of the 87 H1N1 isolates tested were sensitive to amantadine. All 81 of the tested A/H1N1 isolates were resistant to oseltamivir due to the H274Y mutation.†

* These data have been obtained from the Respiratory Virus Detection tables of Public Health Agency of Canada and do not include data from late reports to PHAC: Week 14, 2009

† These data have been obtained from the National Microbiology Laboratory of the Public Health Agency of Canada for Week 14, 2009.

Figure 4: Total number of influenza tests performed and percent of positive tests in Ontario reported to the Centre for Immunization and Respiratory Infectious Diseases (CIRID), by report week*.

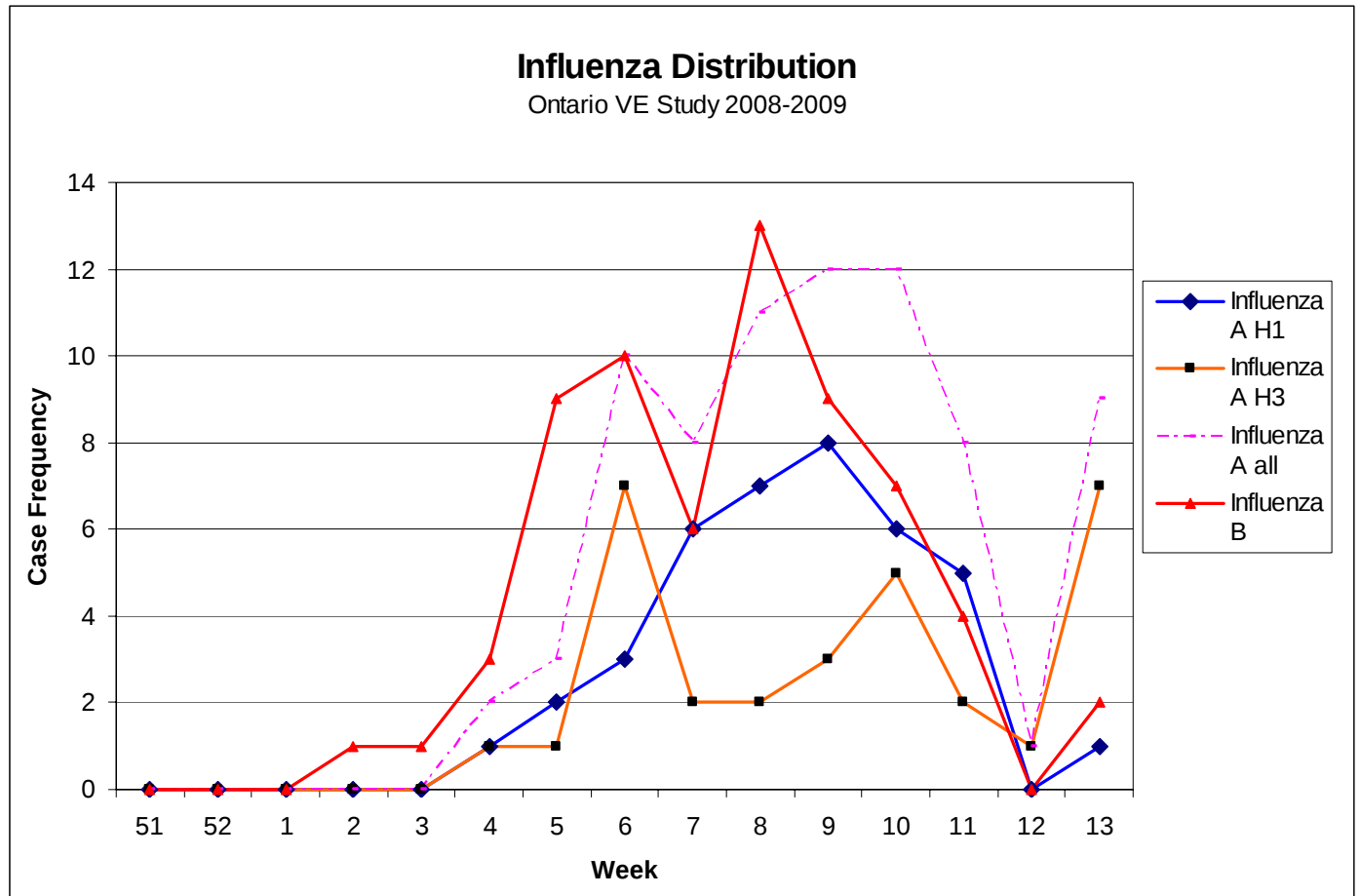


Source: Public Health Agency of Canada

* Total numbers reported include late reports; therefore totals may not be equal to the sum of the weekly numbers.

Note: Cumulative numbers for season to date are available through FluWatch: <http://www.phac-aspc.gc.ca/fluwatch/>

Figure 5: Influenza Distribution in Ontario, by report week.



Source: Bolotin S., Potapova N, Blair J and Drews SJ, Public Health Laboratories-Toronto, April 9, 2009.

Table 4a: Institutional respiratory infection outbreaks in Ontario: New Outbreaks* in Week 14 and Total Outbreaks for the Season**

Institutional Respiratory Infection Outbreaks		
New Outbreaks*	N	% (of outbreaks)
Influenza A	0	0.0
Influenza B	0	0.0
Influenza A and B	0	0.0
Parainfluenza (All types)	0	0.0
RSV	0	0.0
Other organisms	0	0.0
No organism identified	3	100.0
TOTAL	3	100.0
Total Respiratory Infection Outbreaks of the Season to date**	N	% (of outbreaks)
Influenza A	44	8.6
Influenza B	17	3.3
Influenza A and B	1	0.2
Parainfluenza (All types)	18	3.5
RSV	49	9.6
Combined Outbreaks [†]	0	0.0
Other organisms	27	5.3
No organism identified	353	69.4
TOTAL	509	100.0
Types of Institutions (All Outbreaks) **	N	% (of outbreaks)
Long-Term Care Homes	329	64.6
Hospitals	17	3.3
Retirement Homes	40	7.9
Other	1	0.2
Unknown	122	24.0
TOTAL	509	100.0

SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [16/04/2009]

* New outbreaks are those in which the date of onset of illness in the first case occurred and recorded through iPHIS in the current surveillance period; i.e. April 5, 2009 – April 11, 2009

** Season to date includes all outbreaks in which the date of onset of illness in the first case occurred from September 1, 2008 – April 11, 2009

[†] Combined outbreaks include outbreaks in which more than one non-influenza organism has been identified (e.g. RSV, parainfluenza, rhinovirus, etc.)

Table 4b: Outbreak Related Complications in institutional respiratory infection outbreaks in Ontario during the Surveillance Season*

Outbreak Related Complications (All Outbreaks)	N	% (of total cases)
Total Cases		
Residents	6204	76.6
Patients	283	3.5
Staff	1858	22.9
Total Cases	8404	100.0
Deaths		% (of cases per role)
Residents	133	2.1
Patients	8	2.8
Staff	0	0.0
Pneumonia (Chest x-ray confirmed)		% (of cases per role)
Residents	206	3.3
Patients	25	8.8
Staff	8	0.4
Hospitalizations		% (of cases per role)
Residents	246	4.0
Staff	1	0.1
Outbreak Related Complications (Influenza Outbreaks)	N	% (of total cases)
Total Cases		
Residents	724	71.4
Patients	21	2.1
Staff	256	25.2
Total Cases	1014	100.0
Deaths		% (of cases per role)
Residents	20	2.8
Patients	0	0.0
Staff	0	0.0
Pneumonia (Chest x-ray confirmed)		% (of cases per role)
Residents	27	3.7
Patients	3	14.3
Staff	4	1.6
Hospitalizations		% (of cases per role)
Residents	50	6.9
Staff	0	0.0

SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [16/04/2009]

* Season to date includes all outbreaks in which the date of onset of illness in the first case occurred from September 1, 2008 – April 11, 2009

Figure 5: Institutional respiratory infection outbreaks in Ontario by onset of illness in the first case: Total Outbreaks from September 1, 2008 – April 11, 2009 by causative organism

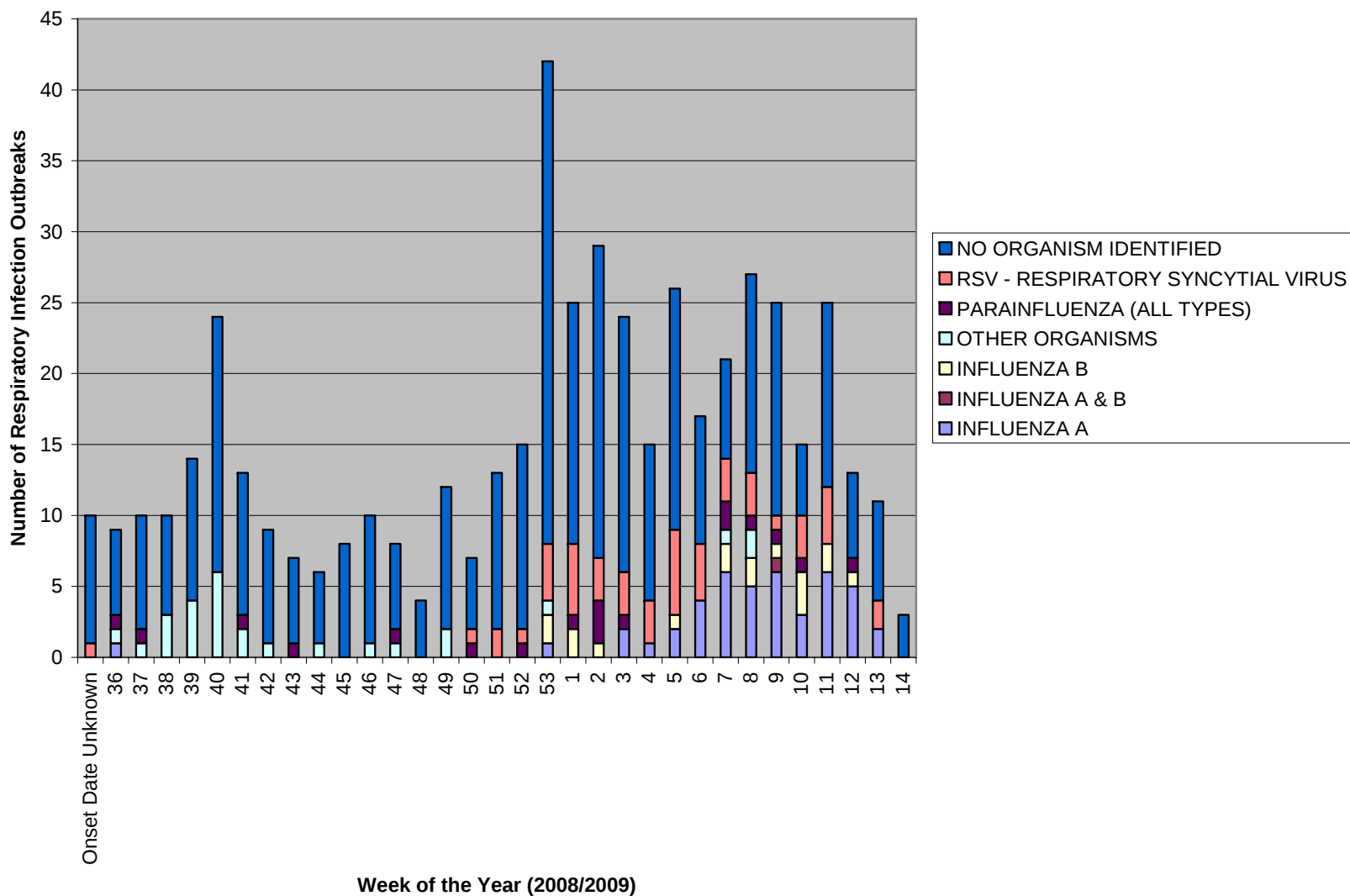
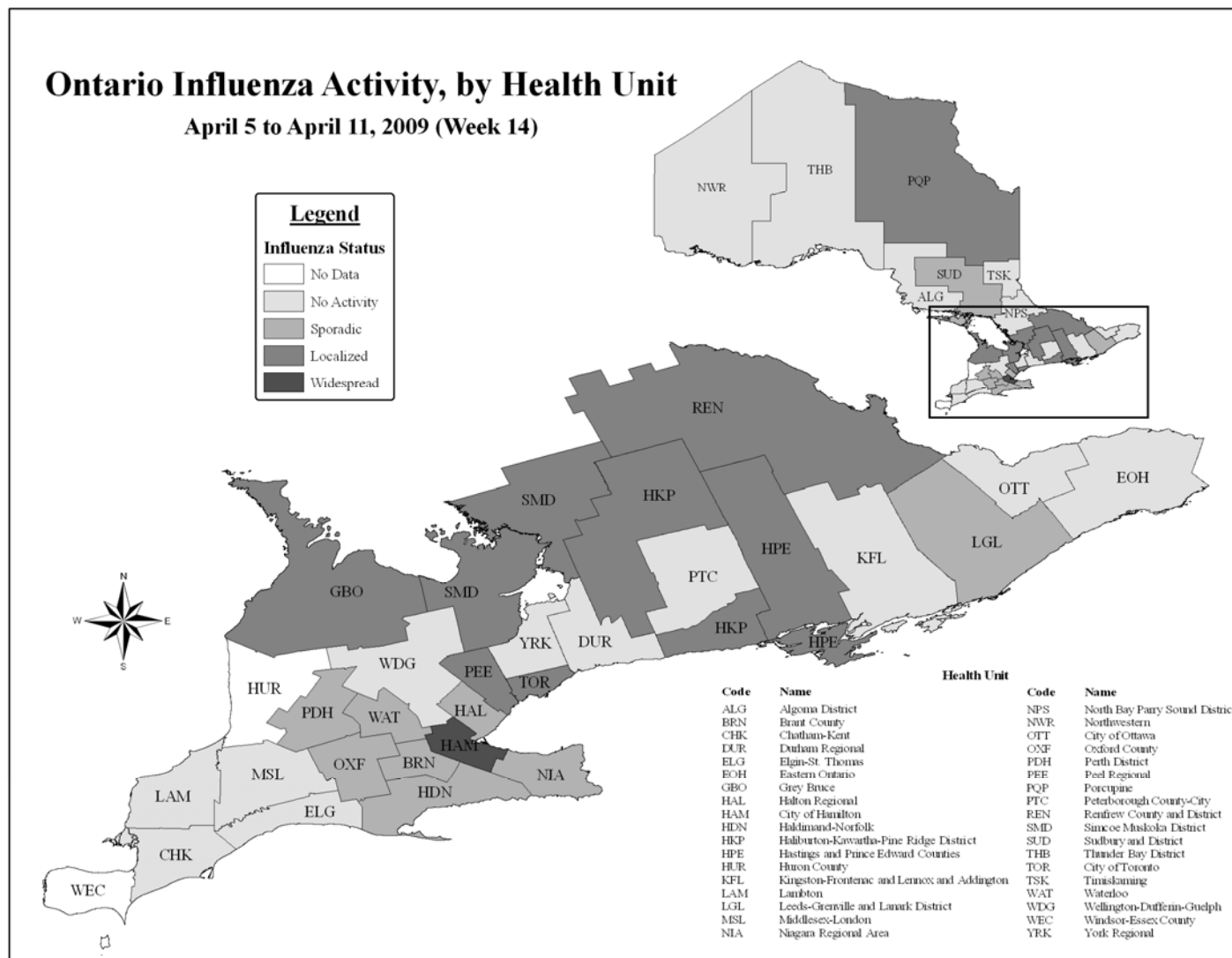


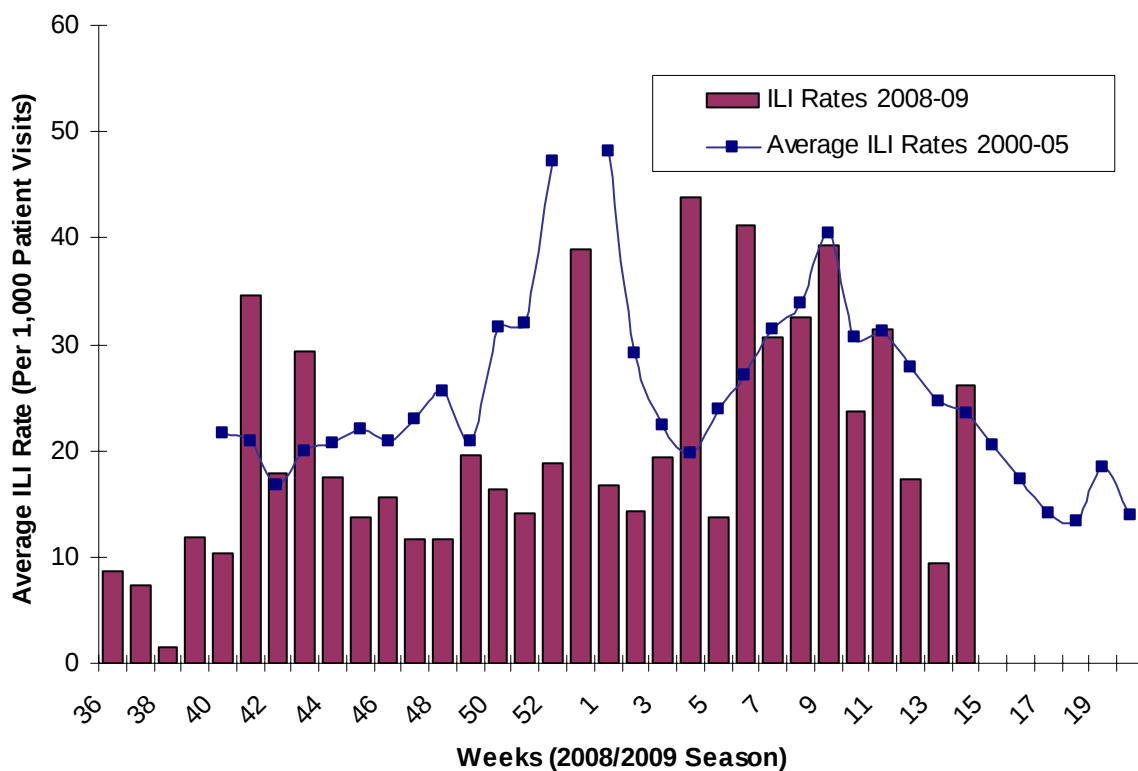
Figure 6: Influenza Activity* levels in Ontario by health unit for Week 14, 2009



SOURCE: MOHLTC [Provincial Influenza Activity Report (Appendix C) Database]

* Influenza activity levels are assigned by local public health units and reported to the MOHLTC by the Tuesday following the end of the surveillance week at 4 pm. Activity levels are assigned based on laboratory confirmations, ILI reports from various sources, and laboratory confirmed institutional outbreaks. [Please refer to detailed definitions for the 2007-2008 season included in the Appendix-1]

Figure 7: Average influenza-like illness (ILI) consultation rate (per 1,000 patient visits) reported by sentinel physicians* in Ontario in 2008- 2009 season, by report week, compared to Ontario average† (1999/2000 to 2004/05 seasons).



Source: Public Health Agency of Canada

* Sentinel physician information is reported to Public Health Agency of Canada.

† No data available for mean rate in previous years for weeks 21 to 39 (1999-2000 through 2004-2005 seasons). During weeks 20-39, 2002-2003/2004-2005 seasons, ILI is reported once every two weeks, on even weeks only.

Note: For Week 41, the number of sentinel physicians reporting is lower than previous years, which may affect the average ILI rate for this period.

Table 5: Average Influenza-like illness consultation rate (per 1,000 patient visits) by age group and postal code as reported by Sentinel Physicians* in Ontario, for Week 14.

Postal Code	0 – 4	5 – 19	20 – 64	65 +	Unknown
K1L8H2	1	0	1	0	0
K1V2G2	6	3	0	0	0
K0K2T0	0	0	0	0	0
L1S2H6	0	0	0	0	0
L4L4Y7	0	0	0	0	0
L4J7Y3	0	0	0	0	0
M5M1B2	0	0	0	0	0
M8Y1W3	0	0	0	0	0
M9W6N5	0	0	1	2	0
M8V2Z5	0	0	0	0	0
L5J2W4	0	0	1	0	0
L4Y2N8	0	0	0	0	0
L6W2A4	2	2	1	0	0
N1H4G2	0	0	0	0	0
L7R1M6	0	0	0	0	0
L9H1V1	0	1	0	0	0
L2V1P1	0	0	0	0	0
L2E7H1	0	0	0	0	0
L3M1P2	0	0	0	0	0
N0A1H0	0	0	0	0	0
N3R7K8	0	0	0	0	0
N0P2K0	0	0	0	0	0
N0P2C0	0	0	0	0	0
N6C2R5	0	0	0	0	0
N0M1L0	0	0	0	0	0
N0C1E0	0	0	0	0	0
L3V5W5	0	0	0	0	0
P0H2H0	0	0	0	0	0
P0A1C0	0	0	0	0	0
P0M2L0	0	0	0	0	0
P3E5M4	1	0	0	0	0
P6B1Y5	0	0	0	0	0
P0M1Z0	0	0	0	0	0
P7B6Y9	0	0	0	0	0
ILI Sum	10	6	4	2	0
ILI Consultation Rate (per 1,000 patient visits)	185.18	60.00	8.64	8.89	0.00

Source: Public Health Agency of Canada

* Sentinel physician information is reported to the Public Health Agency of Canada

Note: The small numbers of sentinel physicians reporting at the local level make the ILI rates unstable. Please interpret these data correspondingly.

FURTHER INFORMATION

1. Ontario Ministry of Health and Long-Term Care
Previous issues of the *Ontario Influenza Bulletin* can be accessed at:
http://www.health.gov.on.ca/english/providers/program/pubhealth/flu/flu_08/flubul_mn.html
2. Public Health Agency of Canada
Issues of FluWatch can be accessed at:
www.phac-aspc.gc.ca/fluwatch/
3. United States Centers for Disease Control and Prevention
<http://www.cdc.gov/flu/weekly/fluactivity.htm>
4. European Influenza Surveillance Scheme
http://www.eiss.org/cgi-files/bulletin_v2.cgi

INFORMATION ABOUT AVIAN INFLUENZA

For latest information on the status of avian influenza worldwide please use the following link:

Public Health Agency of Canada

<http://www.phac-aspc.gc.ca/h5n1/index.html>

APPENDIX - I

Definitions for influenza activity levels:

No Data: No activity report corresponding to the surveillance week was received at the Ministry of Health and Long-Term Care Call Centre by the Tuesday (at 4 p.m.) following the end of the surveillance period.

No Activity: **No laboratory-confirmed* influenza and NO outbreaks detected** within the health unit/ influenza surveillance area, within the prior week, although sporadically occurring ILI may or may not be present.†

Sporadic: Sporadically (infrequently) occurring **ILI and at least one lab-confirmed influenza* case with NO outbreaks** detected within the health unit area.†

Localized: sporadically occurring **ILI and lab-confirmed influenza* together with outbreaks of ILI** in schools and work sites, or laboratory-confirmed influenza in residential institutions occurring in < 50% of the health unit . Outbreaks affect a single and/or adjacent geographic area within the health unit jurisdiction, e.g. outbreaks in a nursing home and a school in close proximity to each other.†

Widespread: sporadically occurring **ILI and lab-confirmed influenza* together with outbreaks of ILI** in schools and work sites, or laboratory-confirmed influenza in residential institutions occurring in > 50% of the health unit. Outbreaks affect multiple and non-adjacent geographic areas within the health unit jurisdiction, such as two or more regions of the health unit, two or more municipalities, two or more electoral wards, etc.†

* Confirmation of influenza within the surveillance region at any time within the prior week

† Sub-regions within the province or territory as defined by the provincial/territorial epidemiologist

Influenza-Like Illness (ILI) Definitions:

A) 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.

B) ILI/Influenza outbreaks:

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.**

Influenza Surveillance Weeks 2008-2009 and date of submission of Appendix C

WEEKS	START	END	Appendix C Submission to MOHLTC
WK15	12-Apr-09	18-Apr-09	21-Apr-09
WK16	19-Apr-09	25-Apr-09	28-Apr-09
WK17	26-Apr-09	2-May-09	5-May-09
WK18	3-May-09	9-May-09	12-May-09
WK19	10-May-09	16-May-09	19-May-09
WK20	17-May-09	23-May-09	26-May-09
WK21	24-May-09	30-May-09	2-Jun-09
WK22	31-May-09	6-Jun-09	9-Jun-09
WK23	7-Jun-09	13-Jun-09	16-Jun-09
WK24	14-Jun-09	20-Jun-09	23-Jun-09
WK25	21-Jun-09	27-Jun-09	30-Jun-09
WK26	28-Jun-09	4-Jul-09	7-Jul-09
WK27	5-Jul-09	11-Jul-09	14-Jul-09
WK28	12-Jul-09	18-Jul-09	21-Jul-09
WK29	19-Jul-09	25-Jul-09	28-Jul-09
WK30	26-Jul-09	1-Aug-09	4-Aug-09
WK31	2-Aug-09	8-Aug-09	11-Aug-09
WK32	9-Aug-09	15-Aug-09	18-Aug-09
WK33	16-Aug-09	22-Aug-09	25-Aug-09
WK34	23-Aug-09	29-Aug-09	1-Sep-09
WK35	30-Aug-09	5-Sep-09	8-Sep-09