

SURVEILLANCE WEEK 16 (April 13, 2008– April 19, 2008)

This issue of the Ontario Influenza Bulletin provides information on the surveillance period from April 13, 2008-April 19, 2008, (Week 16). The analysis for this issue occurred on Thursday April 24, 2008, therefore all data is current to that date unless otherwise specified.

Overall, influenza activity in Ontario during week 16, 2008 was lower than week 14, 2008. There were 87 confirmed cases of influenza A and 121 confirmed cases of influenza B reported through iPHIS from health units. There were 5 new reports of institutional influenza outbreaks. For week 16, the highest level of influenza activity was 'widespread' reported from Toronto, while the remaining health regions reported 'localized' activity with the exception of North West, which reported 'no activity.'

In Canada for week 15, influenza activity declined slightly from the previous week: 2 regions reported 'widespread' influenza activity (in ON and QC) and 'localized' influenza activity was reported by 21 regions. Six regions reported 'no activity' and 25 reported 'sporadic' activity.[†]

Outbreak Data Entry Reminder:

Please ensure when entering confirmed institutional outbreaks using the iPHIS summary outbreak functionality, that the number of cases is entered along with the aetiologic agent (if known). This is particularly important for influenza outbreaks. This enables us to provide you with the most accurate and timely description of influenza activity in Ontario.

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 16, 2008).

Confirmed influenza cases*	HEALTH REGION							TOTAL
	North West	North East	Eastern	Central East	Toronto	South West	Central West	
Influenza A	0	1	6	33	26	2	19	87
Influenza B	0	5	18	32	40	4	22	121
Influenza A & B	0	0	0	0	0	0	0	0
Total new cases	0	6	24	65	66	6	41	208
Institutional influenza outbreaks‡	0	0	1	1	1	0	2	5

SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [24/04/2008].

* 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 15, 2008.

[‡] 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 16, 2008

Region	Health Unit	Confirmed Influenza		
		Influenza A	Influenza B	TOTAL
North West	Northwestern	0	0	0
	Thunder Bay District	0	0	0
	TOTAL NORTH WEST	0	0	0
North East	Algoma	0	2	2
	North Bay Parry Sound District		0	0
	Porcupine	0	0	0
	Sudbury & District	0	2	2
	Timiskaming	1	1	2
	TOTAL NORTH EAST	1	5	6
Eastern	City of Ottawa	6	8	14
	Eastern Ontario	0	0	0
	Hastings & Prince Edward Counties	0	3	3
	Kingston, Frontenac, Lennox & Addington	0	4	4
	Leeds, Grenville And Lanark District	0	3	3
	Renfrew County And District	0	0	0
	TOTAL EASTERN	6	18	24
Central East	Durham Region	0	0	0
	Haliburton, Kawartha, Pine Ridge	0	2	2
	Peel Region	5	7	12
	Peterborough County-City	2	1	3
	Simcoe Muskoka District	22	20	42
	York Region	4	2	6
	TOTAL CENTRAL EAST	33	32	65
Toronto	Toronto	26	40	66
	TOTAL TORONTO	26	40	66
South West	Chatham-Kent	0	0	0
	Elgin-St. Thomas	0	0	0
	Grey Bruce	1	1	2
	Huron County	0	0	0
	Lambton County	0	0	0
	Middlesex-London	1	1	2
	Oxford County	0	0	0
	Perth District	0	2	2
	Windsor-Essex County	0	0	0
	TOTAL SOUTHWEST	2	4	6
Central West	Brant County	0	0	0
	City Of Hamilton	5	7	12
	Haldimand-Norfolk	0	0	0
	Halton Region	2	4	6
	Niagara Region	5	0	5
	Waterloo Region	3	4	7
	TOTAL CENTRAL WEST	19	22	41
	TOTAL ONTARIO	87	121	208

SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [24/04/2008].

[†] 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, 2007 – April 19, 2008

Region	Health Unit	Confirmed Influenza		
		Influenza A	Influenza B	TOTAL
North West	Northwestern	30	0	30
	Thunder Bay District	19	2	21
	TOTAL NORTH WEST	49	2	51
North East	Algoma	25	12	37
	North Bay Parry Sound District	46	27	73
	Porcupine	9	1	10
	Sudbury & District	15	16	31
	Timiskaming	10	12	22
	TOTAL NORTH EAST	105	68	173
Eastern	City Of Ottawa	74	110	184
	Eastern Ontario	17	27	44
	Hastings & Prince Edward Counties	19	16	35
	Kingston, Frontenac, Lennox & Addington	25	24	49
	Leeds, Grenville And Lanark District	9	12	21
	Renfrew County And District	5	10	15
	TOTAL EASTERN	149	199	348
Central East	Durham Region	69	34	103
	Haliburton, Kawartha, Pine Ridge	57	56	113
	Peel Region	318	147	465
	Peterborough County-City	58	52	110
	Simcoe Muskoka District	143	78	221
	York Region	109	71	180
	TOTAL CENTRAL EAST	754	438	1,192
Toronto	Toronto	768	482	1,250
	TOTAL TORONTO	768	482	1,250
South West	Chatham-Kent	11	9	20
	Elgin-St. Thomas	1	0	1
	Grey Bruce	48	19	67
	Huron County	65	16	81
	Lambton County	24	8	32
	Middlesex-London	49	10	59
	Oxford County	24	4	28
	Perth District	23	24	47
	Windsor-Essex County	24	17	41
	TOTAL SOUTHWEST	269	107	376
Central West	Brant County	6	11	17
	City Of Hamilton	201	91	292
	Haldimand-Norfolk	16	6	22
	Halton Region	104	49	153
	Niagara Region	77	13	90
	Waterloo Region	126	60	186
	Wellington-Dufferin-Guelph	68	35	103
	TOTAL CENTRAL WEST	598	265	863
	TOTAL ONTARIO	2,692	1,561	4,253

SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [24/04/2008].

* 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)

‡ Note that one of the cases of influenza reported from Simcoe Muskoka District represents a case co-infected with Influenza A & B

Influenza Subtype(s):

During week 16, 4517 isolates were received by the Public Health Agency of Canada, with 351 testing positive for influenza A and 407 for influenza B. Among the reported influenza A isolates, 214 were from Ontario (61.0%), 79 from Quebec (22.5%), and 21 from Alberta (6.0%), and British Columbia reporting 14 (4.0%). Among the reported influenza B isolates, 229 were from Ontario (56.3%), 135 from Quebec (33.2%), 14 (3.4%) from Nova Scotia and 10 from British Columbia (2.5%).*

Antigenic Characterization:

The National Microbiology Laboratory (NML) has characterized 1,078 influenza viruses for the 2007-2008 influenza season: 440 (41%) A(H1N1), 147 (14%) A(H3N2) and 491 (46%) B viruses. Of the 440 influenza A(H1N1) viruses characterized, 422 (96%) were antigenically similar to A/Solomon Islands/3/2006 and 18 (4%) were antigenically similar to A/Brisbane/59/2007. Of the 147 influenza A(H3N2) viruses characterized, 6 (4%) were antigenically similar to A/Wisconsin/67/2005 and 141 (96%) were antigenically similar to A/Brisbane/10/2007. One of the 6 A/Wisconsin-like viruses had reduced titer to A/Wisconsin/67/2005 reference antiserum. Of the 491 influenza B isolates characterized, 8 (2%) were antigenically similar to B/Malaysia/2506/2004 and 483 (98%) were antigenically similar to B/Florida/4/2006 (belonging to the B/Yamagata lineage).**

Antiviral Resistance:

Since the start of the season, the NML has tested 806 influenza A isolates (515 H1N1 and 291 H3N2) for amantadine resistance and found that 289 (99%) of the 291 H3N2 isolates were resistant to amantadine and 5 (1%) of 515 H1N1 isolates were resistant.

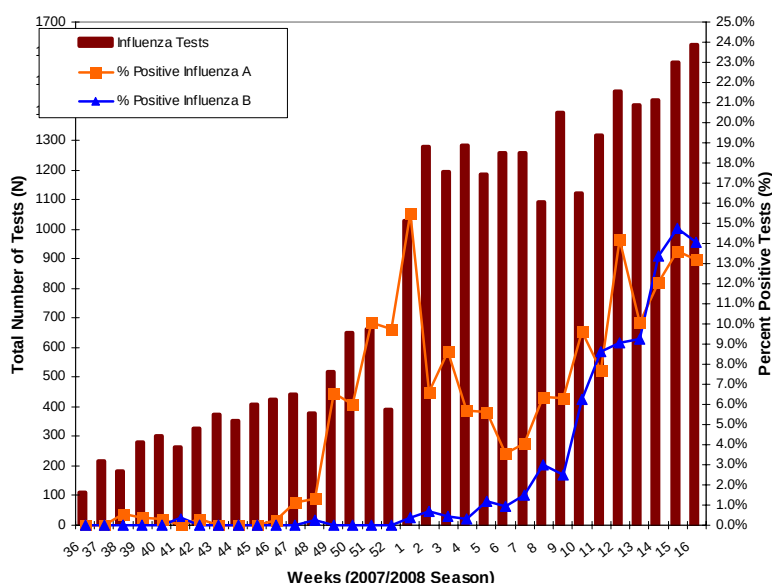
The NML has also tested 1,069 influenza isolates (454 A/H1N1, 146 A/H3N2 & 469 B) for oseltamivir (Tamiflu) resistance and found that 107 (23.6%) of the 454 H1N1 isolates tested were resistant to oseltamivir. The resistant isolates were from NL, NS, NB, QC, ON, MB, AB and BC. Fifty-one of Ontario's 181 H1N1 influenza isolates were resistant to oseltamivir. Of the 107 resistant viruses from across Canada, 105 were A/Solomon Islands/3/06/-like and 2 were A/Brisbane/59/07-like. These oseltamivir resistant strains remain sensitive to the antiviral amantadine.

The WHO recommends that the influenza vaccine to be used in the 2008-2009 season for the northern hemisphere contain the following: an A/Brisbane/59/2007 (H1N1)-like virus; an A/Brisbane/10/2007 (H3N2)-like virus; and a B/Florida/4/2006-like virus. http://www.who.int/csr/disease/influenza/recommendations2008_9north/en/index.html

* 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 16, 2008

** These data have been obtained from the FluWatch report of the Public Health Agency of Canada for Week 15, 2008.

Figure 1: 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/>

Table 4a: Institutional respiratory infection outbreaks in Ontario: New Outbreaks* in Week 16 and Total Outbreaks for the Season**

Institutional Respiratory Infection Outbreaks		
New Outbreaks*	N	% (of outbreaks)
Influenza A	3	37.5
Influenza B	2	25.0
Influenza A and B	0	0.0
Parainfluenza (All types)	0	0.0
RSV	0	4.8
Other organisms	0	0.0
No organism identified	3	37.5
TOTAL	8	100
Total Respiratory Infection Outbreaks of the Season to date**	N	% (of outbreaks)
Influenza A	124	19.4
Influenza B	97	15.2
Influenza A and B	11	1.7
Parainfluenza (All types)	33	5.2
RSV	40	6.3
Combined Outbreaks [†]	0	0.0
Other organisms	22	3.5
No organism identified	311	48.8
TOTAL	638	100
Types of Institutions (All Outbreaks) **	N	% (of outbreaks)
Long-Term Care Homes	349	54.7
Hospitals	31	4.9
Retirement Homes	65	10.2
Other	8	1.3
Unknown	185	29.0
TOTAL	638	100

SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [24/04/2008]

* 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 13, 2008 – April 19, 2008

** Season to date includes all outbreaks in which the date of onset of illness in the first case occurred from September 1, 2007 – April 19, 2008

[†] 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	7677	72.2
Patients	429	4.0
Staff	2502	23.5
Total Cases	10634	100
Deaths		% (of cases per role)
Residents	207	2.7
Patients	13	3.0
Staff	0	0.0
Pneumonia (Chest x-ray confirmed)		% (of cases per role)
Residents	281	3.7
Patients	13	3.0
Staff	12	0.5
Hospitalizations		% (of cases per role)
Residents	364	4.7
Staff	3	0.1
Outbreak Related Complications (Influenza Outbreaks)	N	% (of total cases)
Total Cases		
Residents	2646	71.6
Patients	118	3.2
Staff	913	24.7
Total Cases	3697	100
Deaths		% (of cases per role)
Residents	103	3.9
Patients	4	3.4
Staff	0	0.0
Pneumonia (Chest x-ray confirmed)		% (of cases per role)
Residents	120	4.5
Patients	6	5.1
Staff	9	1.0
Hospitalizations		% (of cases per role)
Residents	186	7.0
Staff	2	0.2

SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [24/04/2008]

* Season to date includes all outbreaks in which the date of onset of illness in the first case occurred from September 1, 2007 – April 19, 2008

Figure 2: Institutional respiratory infection outbreaks in Ontario by onset of illness in the first case: Total Outbreaks from September 1, 2007 – April 19, 2008 by causative organism

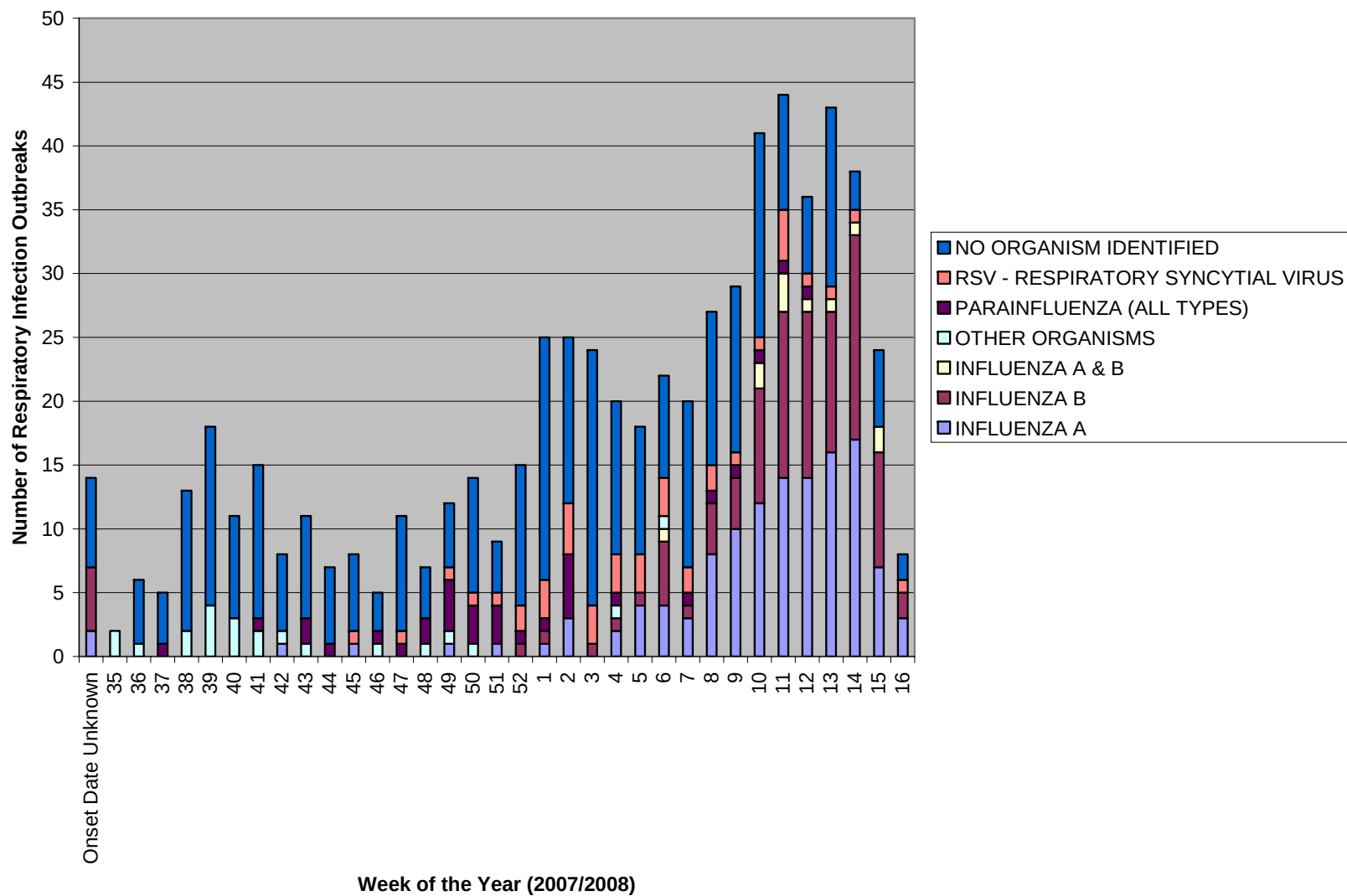
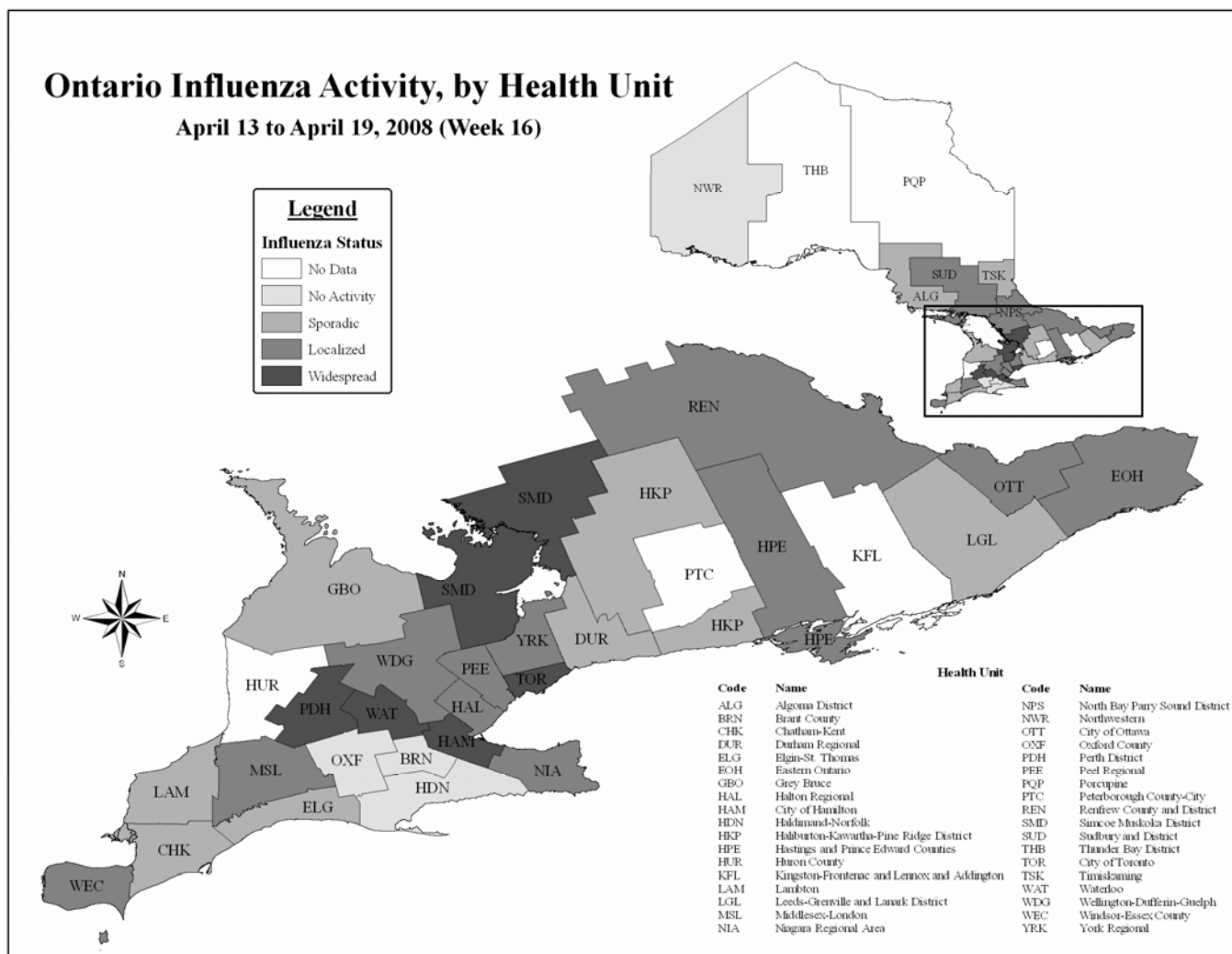


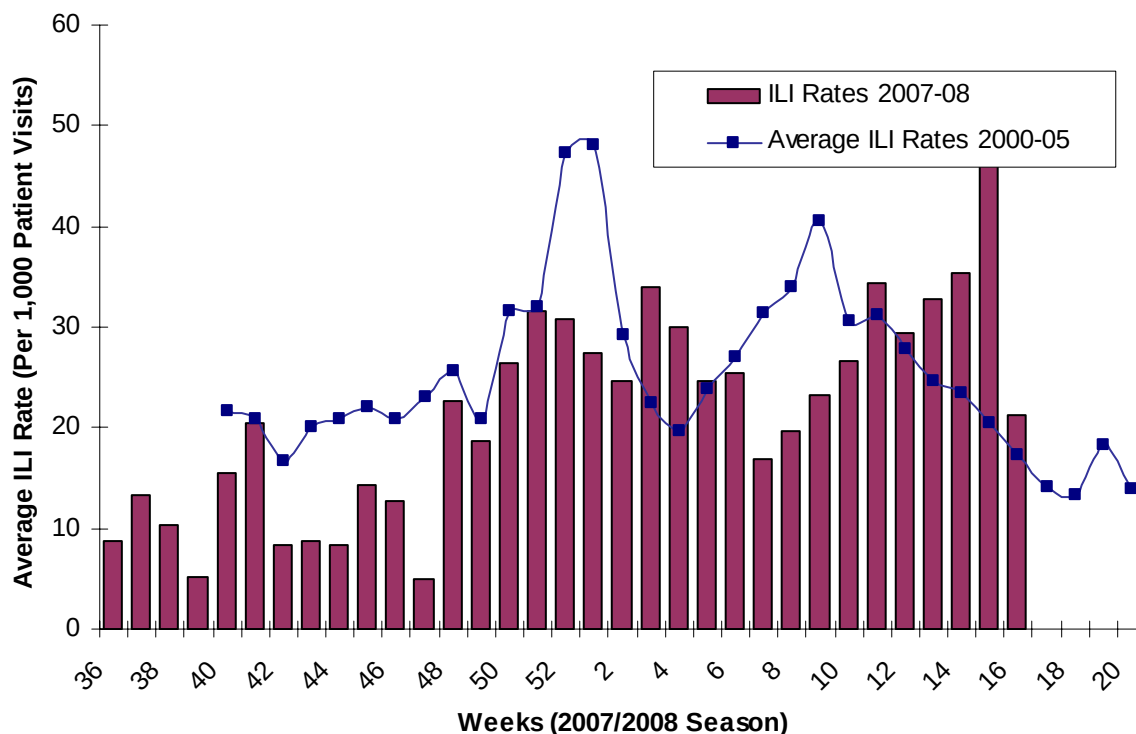
Figure 3: Influenza Activity* levels in Ontario by health unit for Week 16, 2008



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 4: Average influenza-like illness (ILI) consultation rate (per 1,000 patient visits) reported by sentinel physicians* in Ontario in 2007- 2008 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.

Table 6: 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 16.

Postal Code	0 – 4	5 – 19	20 – 64	65 +	Unknown
K0C1A0	0	0	0	0	0
K1L8H2	0	0	0	0	0
K1J9M2	0	0	1	0	0
K0H2N0	0	0	0	0	0
K7H2W6	0	0	0	0	0
K0K2T0	0	0	1	0	0
L1A3W4	0	0	0	0	0
K0M1A0	0	0	0	0	0
L1S2H6	0	0	5	0	0
L1B1H8	0	0	0	0	0
L4L4Y7	0	0	1	0	0
L4J7Y3	0	2	0	0	0
L4C2N9	0	0	1	0	0
L4G3W3	1	0	0	0	0
L4G7Y3	0	0	0	0	0
M4X1W4	0	0	0	0	0
M6G4A1	0	0	0	0	0
M4E1V8	0	0	1	0	0
M8Y1W3	0	0	0	0	0
M4M3P3	0	0	0	0	0
M2N6H7	0	0	1	0	0
M2K1E1	0	0	0	0	0
M9W6N5	0	0	0	0	0
M8V2Z5	0	0	0	0	0
L4Y2N8	0	0	0	0	0
L6W2A4	1	1	3	0	0
L9W1G2	0	0	0	0	0
L6L2X4	0	0	2	0	0
L9H1V1	1	0	0	0	0
L0R1H0	0	0	1	0	0
L2E7H1	0	0	0	0	0
N2G1P2	0	0	0	0	0
N5C1G5	0	0	0	0	0
N5H1K9	0	0	0	0	0
N0M1T0	0	0	0	0	0
N0L1Z0	0	0	0	1	0
N6C2R5	0	0	0	0	0
N0C1E0	0	0	0	0	0
L3V5W5	0	0	0	0	0
L3V5S2	0	0	0	0	0
P0H2H0	0	0	0	0	0
P0A1C0	0	0	0	0	0
P0M2L0	0	0	0	0	0
P4N1C6	0	0	0	0	0
P0S1K0	0	0	0	0	0
P0M1Z0	0	0	0	0	0
P7E1H5	0	0	0	0	0
P0W1E0	0	0	0	0	0
P0W1E0	0	0	0	0	0
P9N3W7	0	0	0	0	0
P8N2Z6	0	0	0	0	0
ILI Sum	3	3	17	1	0
ILI Consultation Rate (per 1,000 patient visits)	35.29	31.91	26.90	3.15	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_07/flubul_mn.html
2. 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 and date of submission of Appendix C

WEEKS	START	END	Appendix C Submission to MOHLTC
WK17	20-Apr-08	26-Apr-08	29-Apr-08
WK18	27-Apr-08	3-May-08	6-May-08
WK19	4-May-08	10-May-08	13-May-08
WK20	11-May-08	17-May-08	20-May-08
WK21	18-May-08	24-May-08	27-May-08
WK22	25-May-08	31-May-08	3-Jun-08
WK23	1-Jun-08	7-Jun-08	10-Jun-08
WK24	8-Jun-08	14-Jun-08	17-Jun-08
WK25	15-Jun-08	21-Jun-08	24-Jun-08
WK26	22-Jun-08	28-Jun-08	1-Jul-08
WK27	29-Jun-08	5-Jul-08	8-Jul-08
WK28	6-Jul-08	12-Jul-08	15-Jul-08
WK29	13-Jul-08	19-Jul-08	22-Jul-08
WK30	20-Jul-08	26-Jul-08	29-Jul-08
WK31	27-Jul-08	2-Aug-08	5-Aug-08
WK32	3-Aug-08	9-Aug-08	12-Aug-08
WK33	10-Aug-08	16-Aug-08	19-Aug-08
WK34	17-Aug-08	23-Aug-08	26-Aug-08
WK35	24-Aug-08	30-Aug-08	2-Sep-08