

SURVEILLANCE WEEK 16 (April 17, 2011– April 23, 2011)

This issue of the Ontario Influenza Bulletin provides information on the surveillance period from April 17, 2011 to April 23, 2011 (Week 16). **All data are for week 16** and data extraction and analysis for this issue of the Bulletin occurred on April 27, 2011 unless otherwise specified.

In order to enable our readers to better assess influenza activity in Ontario, we have combined various sources of information in the following table.

Assessment of Influenza Activity in Ontario

Measure	Assessment of measure compared to previous week (Lower, Similar, Higher)	Reasoning behind assessment
Laboratory Confirmed Cases	Lower	Thirty-eight (38) influenza cases were reported* in week 16, which is lower than the number reported in week 15 (56 influenza cases). The percent positivity of laboratory tests for influenza A in Ontario was 0.5% for week 16. This is lower than week 15 (1.6%) (Figure 6). Among other circulating respiratory viruses, RSV had the highest percent positivity (7.69%) (Table 5).
Influenza Outbreaks	No Change	No new institutional influenza outbreaks were reported for the current reporting week.
Influenza Activity Levels Reported by Health Units	Lower	One health region reported 'localized' level activity, 4 reported 'sporadic' level activity and 2 reported 'no activity'. By health unit, none reported widespread activity, 2 reported localized activity and the remainder reported sporadic activity, no activity or did not report for week 16 (Figure 9).
ILI Consultation Rate reported by Sentinel Physicians	Lower	The overall ILI consultation rate has decreased from 29.51/1,000 patient visits in Week 15 to 22.99/1,000 patient visits in Week 16. This rate is lower than the average rate for week 16 from previous years.
Hospitalizations Among Lab Confirmed Cases of Influenza	Lower	There were 34 hospitalized cases reported* from April 17 to April 23, which is lower than the 41 that were reported from April 10 to April 16.
Deaths Among Lab Confirmed Cases of Influenza	No Change	One death was reported* from April 17 to April 23, which is the same as the number reported from April 10 to April 16.
OVERALL ASSESSMENT	Influenza activity in Ontario was <i>lower</i> compared to the previous week.	Overall, the indicators show that influenza activity was <i>lower</i> during week 16 compared to week 15.

*The number of **reported** cases needs to be interpreted with caution because there is a lag between the onset of illness, hospital admission or death and when this information is reported to public health.

Overall, influenza activity in Ontario during week 16, 2011, was lower compared to week 15, 2011. Ontario health units reported 38 new laboratory confirmed cases of influenza for the current week through the integrated Public Health Information System (iPHIS). A total of 854 institutional respiratory infection outbreaks have been reported in the 2010/11 season up to Week 16. No new institutional influenza outbreaks were reported for week 16. Eastern health region reported 'localized' level activity; North West, Central East, Central West and Toronto health regions reported 'sporadic' level activity; and North East and Southwest health regions reported 'no activity'. The ILI rate is lower than the average rate for week 16 from previous years.

For a definition of 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 Soma Sarkar (soma.sarkar@ontario.ca, 416-326-3095) or Michael Whelan (michael.whelan@ontario.ca, 416-327-9174).

Table 1: Summary of confirmed influenza cases and institutional influenza outbreaks by health region (Week 16, 2010-2011)

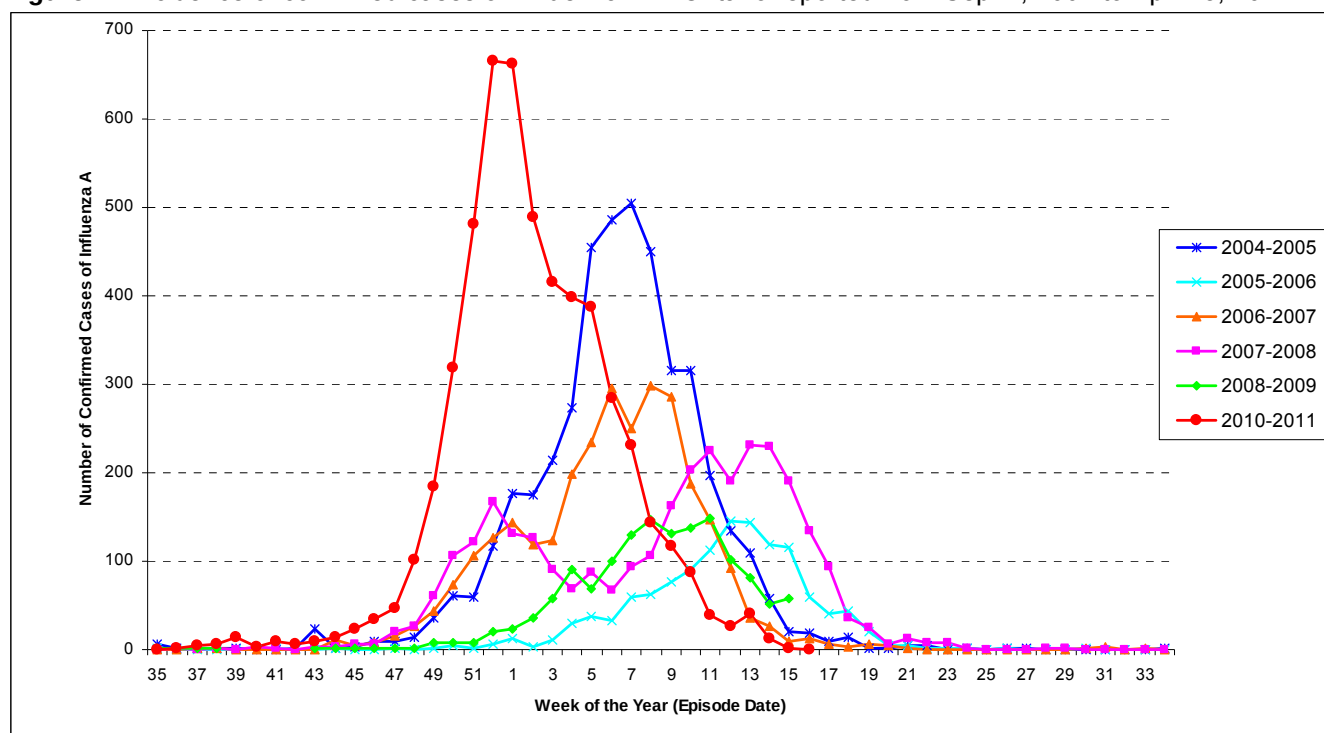
Confirmed influenza cases*†	HEALTH REGION							TOTAL
	North West	North East	Eastern	Central East	Toronto	South West	Central West	
Pandemic (H1N1) 2009	0	0	0	0	0	0	0	0
Influenza A (Not Subtyped/No Subtype)	0	0	0	0	0	0	0	0
Influenza A (Seasonal H1)	0	0	0	0	0	0	0	0
Influenza A (Seasonal H3)	0	1	0	0	0	0	0	1
Influenza A** (Other)	0	0	0	0	0	0	0	0
Influenza B	2	0	4	21	5	1	4	37
Influenza A & B	0	0	0	0	0	0	0	0
Total new cases	2	1	4	21	5	1	4	38
Institutional outbreaks of Influenza A‡	0	0	0	0	0	0	0	0
Institutional outbreaks of Influenza B‡	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 [2011/04/27].

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

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

** Includes indeterminate, untypeable and other subtypes. Note: Several influenza A cases have been reported as seasonal H1N1; however, these cases have been classified as 'No subtype/not subtyped' in this table until the subtype has been verified.

Figure 1: Incidence of confirmed cases of influenza A in Ontario reported from Sep. 1, 2004 to Apr. 23, 2011[†]

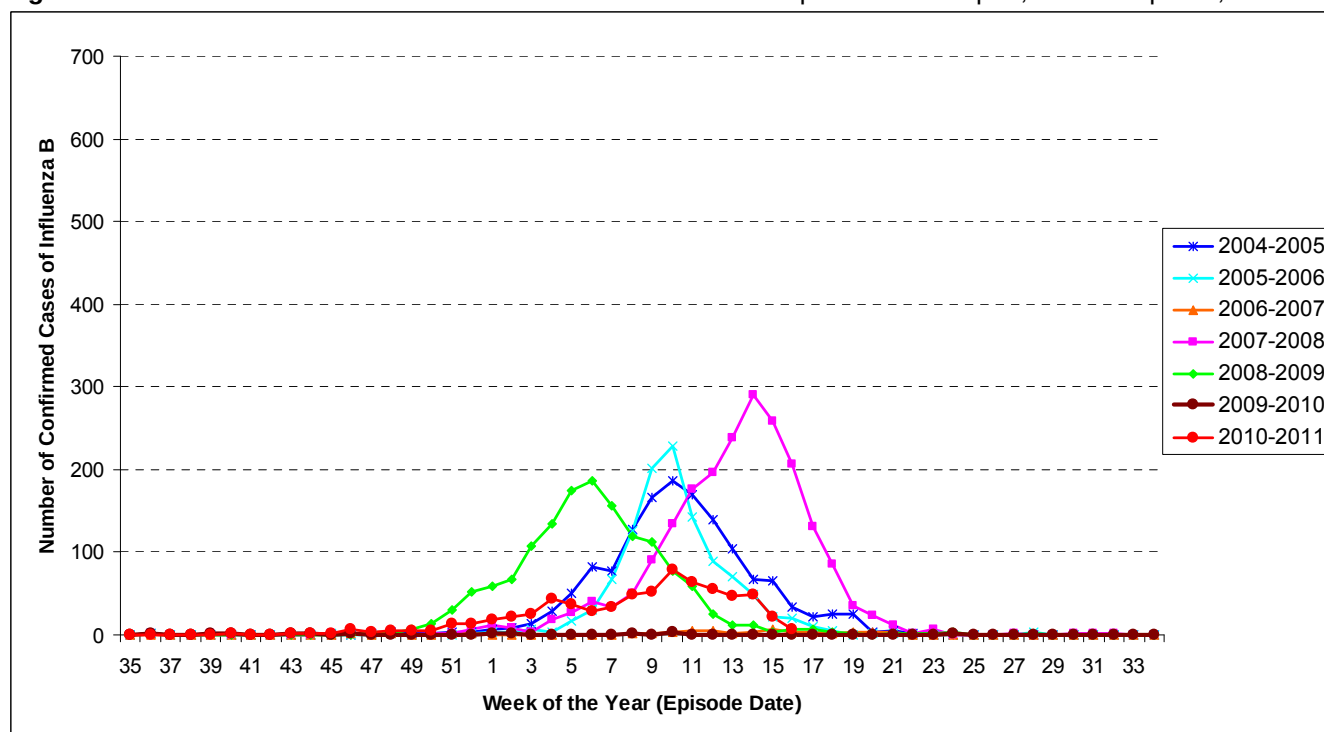
SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [2011/04/27].

[†] 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: Cases after week 14 in the 2008-09 season were excluded because seasonal influenza cases from this period may have been detected due to heightened surveillance for all influenza-like illness, therefore this period is not comparable to a regular flu season. Additionally, all cases from the 2009-10 influenza season were excluded from this graph due to its incomparability to a regular flu season as a result of the pH1N1 pandemic.

Note: Week 53 of the 2008-09 season has been removed for continuity in displaying trends.

Note: Interpret tail of 2010-2011 line with caution due to reporting lags.

Figure 2: Incidence of confirmed cases of influenza B in Ontario reported from Sep. 1, 2004 to Apr. 23, 2011[†]

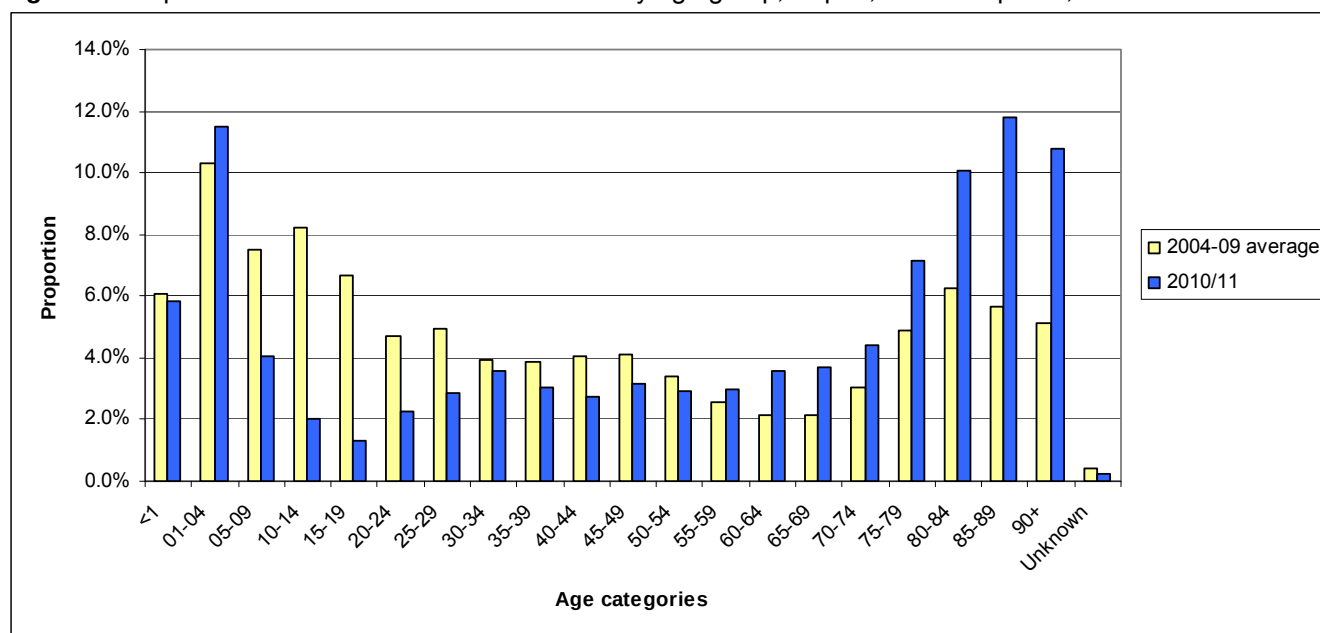
SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [2011/04/27].

[†] 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: Week 53 of the 2008-09 season has been removed for continuity in displaying trends.

Note: Interpret tail of 2010-2011 line with caution due to reporting lags.

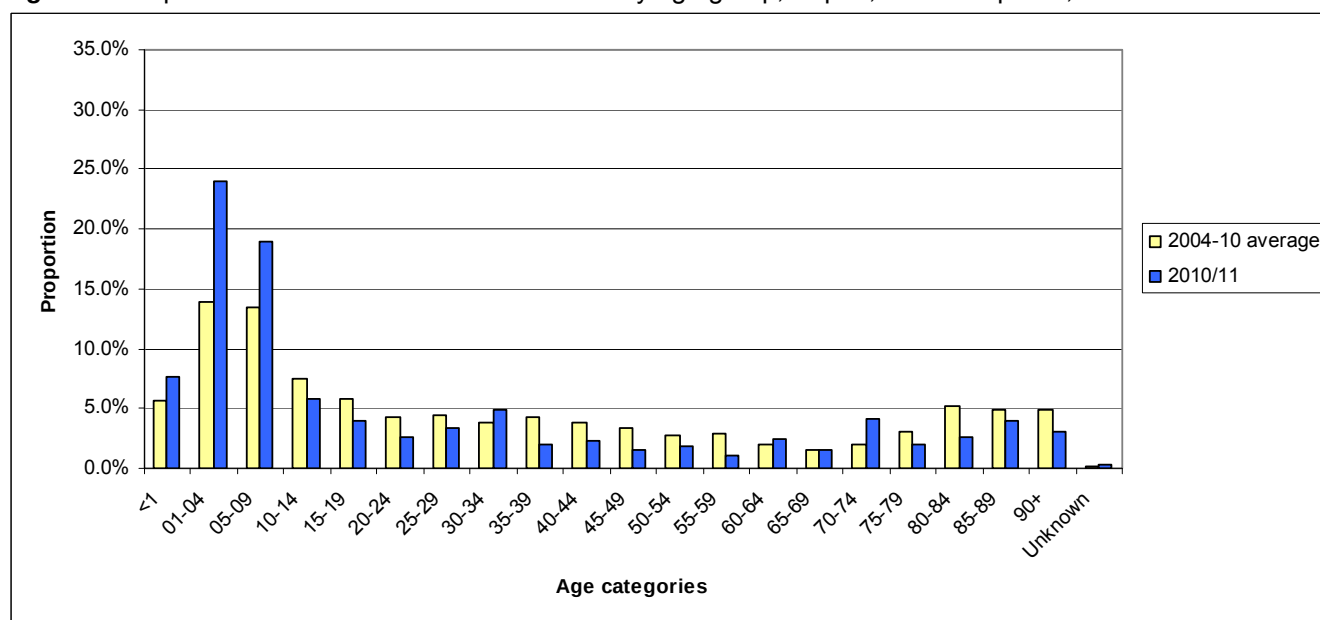
Figure 3: Proportion of influenza A cases in Ontario by age group, Sep. 1, 2004 to Apr. 23, 2011



Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [2011/04/27].

Note: The 2009-10 influenza season has been excluded since the majority were pandemic H1N1 cases. These counts were excluded for comparability of seasonal influenza between the seasons.

Figure 4: Proportion of influenza B cases in Ontario by age group, Sep. 1, 2004 to Apr. 23, 2011



Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [2011/04/27].

Table 2: Confirmed cases of influenza by health unit & health region with a reported date during Week 16, 2010-2011

Region	Health Unit	Influenza A					Influenza A & B	Influenza B	TOTAL
		pH1N1	No Subtype/ Not Subtyped	Other*	H1	H3			
North West	Northwestern	0	0	0	0	0	0	1	1
	Thunder Bay District	0	0	0	0	0	0	1	1
	TOTAL NORTH WEST	0	0	0	0	0	0	2	2
North East	Algoma	0	0	0	0	0	0	0	0
	North Bay Parry Sound District	0	0	0	0	1	0	0	1
	Porcupine	0	0	0	0	0	0	0	0
	Sudbury & District	0	0	0	0	0	0	0	0
	Timiskaming	0	0	0	0	0	0	0	0
	TOTAL NORTH EAST	0	0	0	0	1	0	0	1
Eastern	City of Ottawa	0	0	0	0	0	0	0	0
	Eastern Ontario	0	0	0	0	0	0	3	3
	Hastings & Prince Edward Counties	0	0	0	0	0	0	1	1
	Kingston, Frontenac, Lennox & Addington	0	0	0	0	0	0	0	0
	Leeds, Grenville And Lanark District	0	0	0	0	0	0	0	0
	Renfrew County And District	0	0	0	0	0	0	0	0
	TOTAL EASTERN	0	0	0	0	0	0	4	4
Central East	Durham Region	0	0	0	0	0	0	1	1
	Haliburton, Kawartha, Pine Ridge	0	0	0	0	0	0	1	1
	Peel Region	0	0	0	0	0	0	12	12
	Peterborough County-City	0	0	0	0	0	0	4	4
	Simcoe Muskoka District	0	0	0	0	0	0	1	1
	York Region	0	0	0	0	0	0	2	2
	TOTAL CENTRAL EAST	0	0	0	0	0	0	21	21
Toronto	Toronto	0	0	0	0	0	0	5	5
	TOTAL TORONTO	0	0	0	0	0	0	5	5
South West	Chatham-Kent	0	0	0	0	0	0	0	0
	Elgin-St. Thomas	0	0	0	0	0	0	0	0
	Grey Bruce	0	0	0	0	0	0	0	0
	Huron County	0	0	0	0	0	0	0	0
	Lambton County	0	0	0	0	0	0	0	0
	Middlesex-London	0	0	0	0	0	0	1	1
	Oxford County	0	0	0	0	0	0	0	0
	Perth District	0	0	0	0	0	0	0	0
	Windsor-Essex County	0	0	0	0	0	0	0	0
	TOTAL SOUTHWEST	0	0	0	0	0	0	1	1
Central West	Brant County	0	0	0	0	0	0	0	0
	City Of Hamilton	0	0	0	0	0	0	1	1
	Haldimand-Norfolk	0	0	0	0	0	0	0	0
	Halton Region	0	0	0	0	0	0	1	1
	Niagara Region	0	0	0	0	0	0	1	1
	Waterloo Region	0	0	0	0	0	0	1	1
	Wellington-Dufferin-Guelph	0	0	0	0	0	0	0	0
	TOTAL CENTRAL WEST	0	0	0	0	0	0	4	4
	TOTAL ONTARIO	0	0	0	0	1	0	37	38

SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [2011/04/27].

*includes indeterminate, untypeable and other subtypes

Table 3: Cumulative[†] confirmed cases of influenza by health unit & health region with a reported date between September 1, 2010 – April 23, 2011

Region	Health Unit	Influenza A					Influenza A & B	Influenza B	TOTAL Cumulative
		pH1N1	No Subtype/ Not Subtyped	Other*	H1	H3			
North West	Northwestern	1	8	0	0	18	0	8	35
	Thunder Bay District	0	4	0	0	28	0	5	37
	TOTAL NORTH WEST	1	12	0	0	46	0	13	72
North East	Algoma	1	5	0	0	48	0	5	59
	North Bay Parry Sound District	2	32	0	0	35	0	2	71
	Porcupine	0	2	0	0	51	0	0	53
	Sudbury & District	0	12	0	0	39	0	11	62
	Timiskaming	0	1	0	0	1	0	1	3
	TOTAL NORTH EAST	3	52	0	0	174	0	19	248
Eastern	City of Ottawa	0	149	0	0	34	0	13	196
	Eastern Ontario	0	19	1	0	56	0	5	81
	Hastings & Prince Edward Counties	2	5	0	0	62	0	6	75
	Kingston, Frontenac, Lennox & Addington	2	15	0	0	45	0	7	69
	Leeds, Grenville And Lanark District	2	22	0	0	21	0	3	48
	Renfrew County And District	0	8	0	0	11	0	1	20
	TOTAL EASTERN	6	218	1	0	229	0	35	489
Central East	Durham Region	12	31	0	0	89	0	24	156
	Haliburton, Kawartha, Pine Ridge	5	16	0	0	63	0	8	92
	Peel Region	30	133	0	0	280	0	139	582
	Peterborough County-City	3	34	0	0	92	0	22	151
	Simcoe Muskoka District	22	64	0	0	159	0	13	258
	York Region	17	90	1	0	138	0	47	293
	TOTAL CENTRAL EAST	89	368	1	0	821	0	253	1532
Toronto	Toronto	112	328	5	0	925	1	178	1549
	TOTAL TORONTO	112	328	5	0	925	1	178	1549
South West	Chatham-Kent	1	8	0	0	7	0	2	18
	Elgin-St. Thomas	2	16	0	0	15	0	4	37
	Grey Bruce	0	19	0	0	60	0	5	84
	Huron County	0	21	0	0	29	0	2	52
	Lambton County	3	12	0	0	31	0	8	54
	Middlesex-London	2	189	0	0	53	0	34	278
	Oxford County	0	16	0	0	30	0	2	48
	Perth District	1	8	0	0	62	0	4	75
	Windsor-Essex County	10	46	0	0	38	0	17	111
	TOTAL SOUTHWEST	19	335	0	0	325	0	78	757
Central West	Brant County	1	16	0	0	28	0	5	50
	City Of Hamilton	5	361	0	0	72	0	26	464
	Haldimand-Norfolk	1	17	0	0	16	0	1	35
	Halton Region	6	45	0	0	126	0	39	216
	Niagara Region	4	31	0	0	85	0	15	135
	Waterloo Region	11	156	0	0	86	0	21	274
	Wellington-Dufferin-Guelph	8	40	0	0	79	0	6	133
	TOTAL CENTRAL WEST	36	666	0	0	492	0	113	1307
	TOTAL ONTARIO	266	1979	7	0	3012	1	689	5954

SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [2011/04/27].

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

*includes indeterminate, untypeable and other subtypes

Hospitalizations and deaths among laboratory confirmed influenza cases, Sep. 1, 2010 – Apr. 23, 2011

As of April 23, 2011, 2241 hospitalizations and 194 deaths have been reported among lab confirmed influenza cases reported in Ontario for the 2010-2011 season. Most of the hospitalizations and deaths have occurred in influenza A cases. The highest rates of hospitalization have been observed in people under the age of five and 65 years of age and older. The highest rates of death have been seen in people 65 years of age and older.

Table 4a. Incidence of hospitalizations among lab confirmed influenza cases in Ontario, Sep. 1, 2010 – Apr. 23, 2011

Age Group	Influenza A*						Influenza B		All Influenza		
	pH1N1	No Subtype/ Not Subtyped	Other*	H1	H3	Total	Rate/ 100,000	Total	Rate/ 100,000	Total	Rate/ 100,000
<1	9	68	0	0	71	148	108.48	28	20.52	176	129.01
1-4	12	123	0	0	100	235	42.62	73	13.24	308	55.86
5-14	10	48	0	0	33	91	6.02	58	3.84	149	9.86
15-24	8	22	0	0	7	37	2.08	8	0.45	45	2.53
25-44	21	34	1	0	79	135	3.62	14	0.37	149	3.99
45-64	47	90	1	0	122	260	7.08	20	0.54	280	7.63
65+	20	362	1	0	688	1071	59.04	62	3.42	1133	62.46
TOTAL	127	747	3	0	1100	1977	14.98	263	1.99	2240	16.98

Source (incidence): Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted at 8:30 am [2011/04/27]

Source (incidence): Ontario population projections for 2010: Ontario Ministry of Health and Long-Term Care, Public Health Planning Database (PHPDB), extracted [2010/11/30]

* One hospitalization with unknown age was excluded

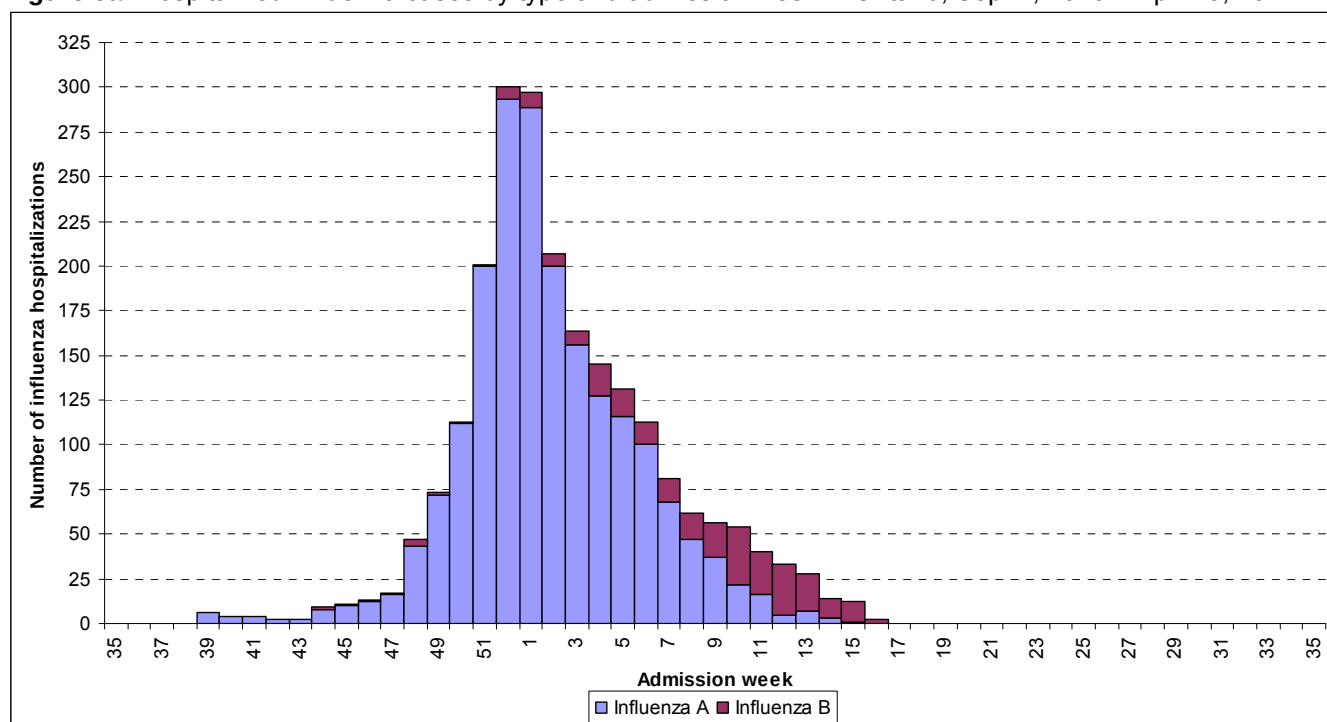
Table 4b. Incidence of deaths among lab confirmed influenza cases in Ontario, Sep. 1, 2010 – Apr. 23, 2011

Age Group	Influenza A*							Influenza B		All Influenza	
	pH1N1	No Subtype/ Not Subtyped	Other*	H1	H3	Total	Rate/ 100,000	Total	Rate/ 100,000	Total	Rate/ 100,000
<1	0	1	0	0	0	1	0.73	0	0.00	1	0.73
1-4	1	2	0	0	0	3	0.54	1	0.18	4	0.73
5-14	1	0	0	0	0	1	0.07	0	0.00	1	0.07
15-24	0	1	0	0	1	2	0.11	0	0.00	2	0.11
25-44	2	3	0	0	4	9	0.24	0	0.00	9	0.24
45-64	3	5	1	0	11	20	0.54	1	0.03	21	0.57
65+	2	44	0	0	102	148	8.16	8	0.44	156	8.60
TOTAL	9	56	1	0	118	184	1.39	10	0.08	194	1.47

Source (incidence): Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted at 8:30 am [2011/04/27]

Source (incidence): Ontario population projections for 2010: Ontario Ministry of Health and Long-Term Care, Public Health Planning Database (PHPDB), extracted [2010/11/30]

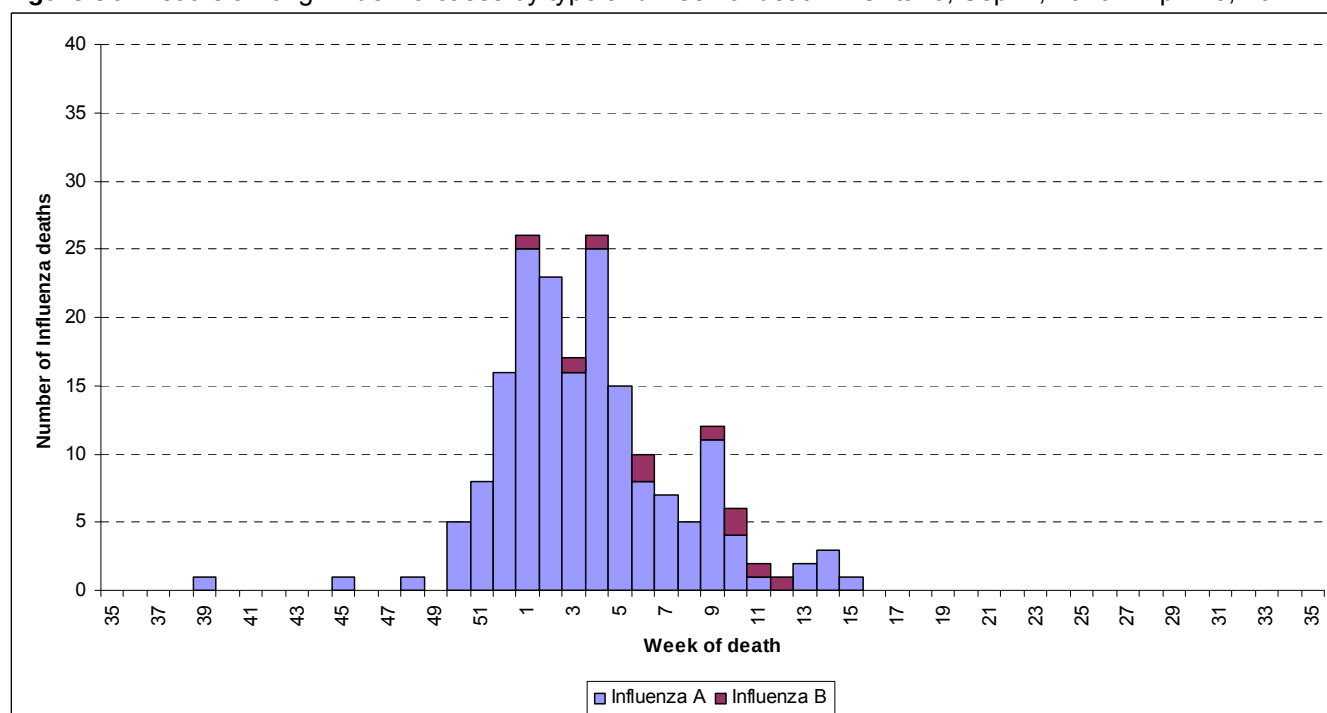
Figure 5a: Hospitalized influenza cases by type and admission week in Ontario, Sep. 1, 2010 – Apr. 23, 2011



Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted at 8:30 am [2011/04/27]

Note: Interpret tail with caution due to reporting lags

Figure 5b: Deaths among influenza cases by type and week of death in Ontario, Sep. 1, 2010 – Apr. 23, 2011



Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted at 8:30 am [2011/04/27]

Note: Interpret tail with caution due to reporting lags; 6 deaths with unknown death dates were excluded from this graph.

During week 16, a total of 2,935 results of isolate testing were received by the Public Health Agency of Canada, 55 isolates tested positive for influenza A and 157 isolates tested positive for influenza B. Of the reported influenza A isolates, 16 isolates were from Quebec (29.1%), 10 isolates were from Alberta (18.2%) and 7 isolates were from Newfoundland (12.7%). Five isolates were from Ontario (9.1%). Fifty-one of the reported influenza B isolates were from Quebec (32.5%), 39 were from Ontario (24.8%) and 25 were from Alberta (15.9%).

Antigenic Characterization (National) †:

Since September 1, 2010, the National Microbiology Laboratory (NML) has antigenically characterized 804 influenza viruses (252 H3N2, 137 H1N1 and 415 B viruses) that were received from Canadian laboratories.

Influenza A (H3N2):

249/252 influenza A (H3N2) viruses characterized were antigenically related to A/Perth/16/2009, which is the influenza A/H3N2 component recommended for the 2010-11 Northern Hemisphere influenza vaccine. Three viruses (1.2%) tested showed reduced titer with antiserum produced against A/Perth/16/2009.

Influenza A (H1N1):

136/137 influenza A (H1N1) viruses characterized were antigenically related to A/California/7/2009, which is the recommended H1N1 component for the 2010-11 Northern Hemisphere influenza vaccine. One virus (0.7%) tested showed reduced titer with antiserum produced against A/California/7/2009.

Influenza B:

Of the 415 influenza B viruses tested, 396 (95.4%) belong to the Victoria lineage and were characterized as B/Brisbane/60/08-like, which is the recommended influenza B component for the 2010-11 Northern Hemisphere influenza vaccine. Four of the 396 viruses tested showed reduced titer with antiserum produced against B/Brisbane/60/08.

19 (4.6%) influenza B viruses were characterized as B/Wisconsin/01/2010-like, which belongs to the B/Yamagata/16/88 lineage. B/Wisconsin/01/2010-like viruses are antigenically and genetically different from the previous Yamagata lineage vaccine strain B/Florida/04/2006.

Antigenic Characterization (Provincial) †:

Since September 1, 2010, the National Microbiology Laboratory (NML) has antigenically characterized the following strains from Ontario: 79 influenza A /Perth/16/2009-like (H3N2), 65 influenza A/California/7/2009-like (H1N1), 231 influenza B/Brisbane/60/2008-like and 18 B/Wisconsin/01/2010-like.

Antiviral Resistance and Sensitivity (National) †:

a) Amantadine:

A total of 444/445 H3N2 and the 146 pandemic H1N1 isolates tested for resistance to amantadine were found to be resistant. One H3N2 was sensitive to amantadine

b) Oseltamivir:

One (1/124) H1N1 isolate tested for resistance to oseltamivir was found to be resistant with the H275Y mutation. One (1/228) H3N2 was resistant with E119V mutation. The resistant cases were associated with oseltamivir prophylaxis/treatment. 123/124 H1N1, all 291 B and 227/228 H3N2 isolates were sensitive.

c) Zanamivir:

All 224 H3N2, 121 H1N1 and 288 B isolates tested for resistance to zanamivir were found to be sensitive.

Antiviral Resistance and Sensitivity (Provincial) †:

a) Amantadine:

Of the 174 H3N2 and 67 pandemic H1N1 isolates tested, 173 influenza A (H3N2) isolates and all of the pandemic H1N1 isolates were resistant to amantadine. One H3N2 isolate was sensitive to amantadine.

b) Oseltamivir:

Of the 62 H3N2, 162 influenza B and 59 pandemic H1N1 isolates tested, all influenza A (H3N2), all influenza B and 58 pandemic H1N1 were sensitive to oseltamivir. One pandemic H1N1 isolate was resistant.

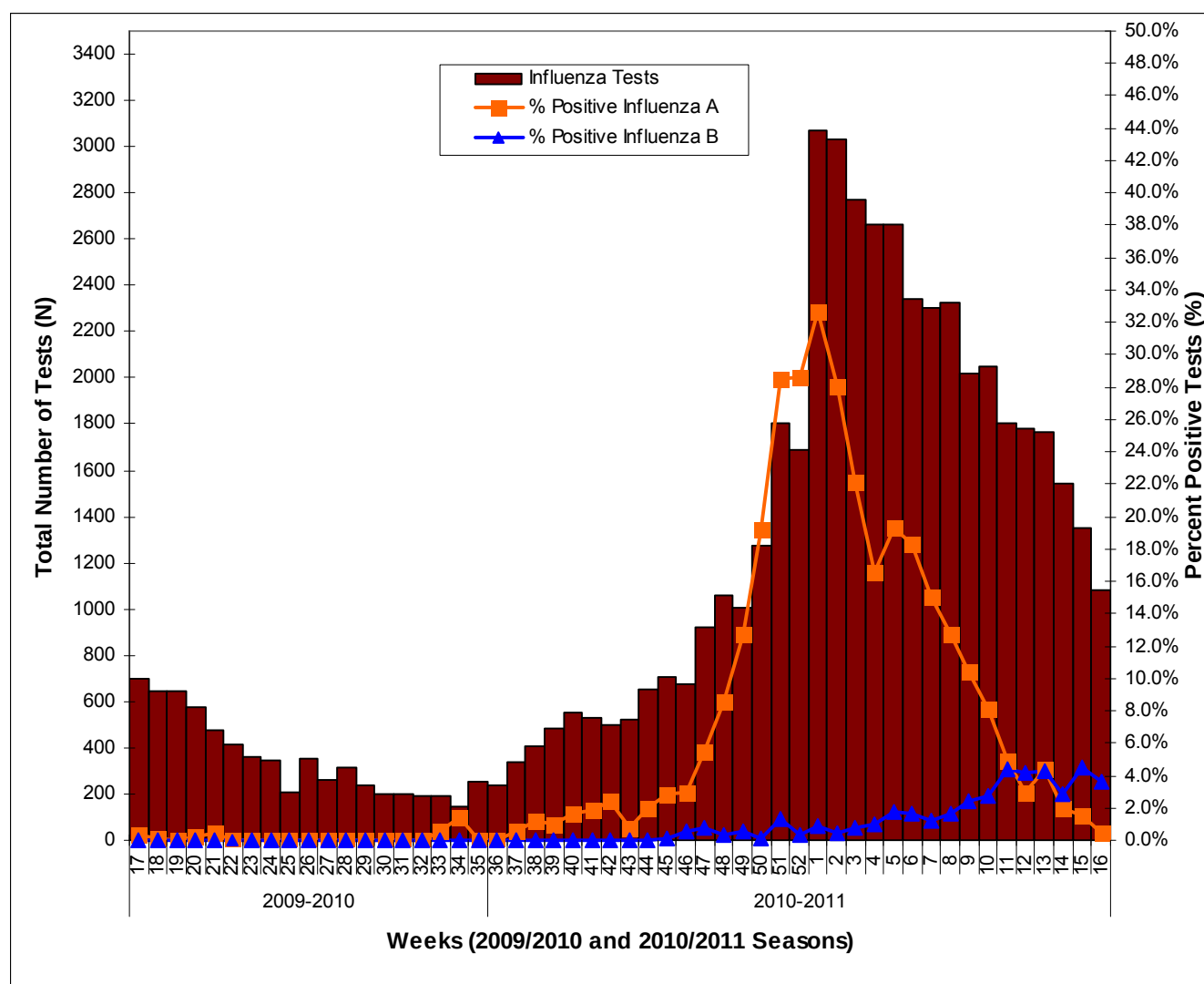
c) Zanamivir:

All 62 H3N2, 161 influenza B and 57 pandemic H1N1 isolates tested for resistance to zanamivir were sensitive.

†National Antigenic Characterization and Antiviral Resistance data are current as of April 28, 2011.

* 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, 2011. Please note that the last version received from PHAC as of 1:50PM on April 27, 2011 was used.

Figure 6: 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. These data have been obtained from the Respiratory Virus Detection tables of Public Health Agency of Canada from 17 labs in Ontario and do not include data from late reports to PHAC for the current season: Week 16, 2011. Please note that the last version received from PHAC as of 1:50PM on April 27, 2011 was used.

* Total numbers reported include late reports from previous seasons; 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 5: Summary of other respiratory virus detections/isolations in Ontario in Week 16

Organism Name	Number of Positive Tests	Number of Tests	% Positive
Respiratory Syncytial Virus	67	871	7.69%
Parainfluenza (all types)	53	809	6.55%
Adenovirus	4	809	0.49%
Human Metapneumovirus	25	458	5.46%
Rhinovirus	25	726	3.44%
Coronavirus	7	458	1.53%

Source: These data have been obtained from the Respiratory Virus Detection tables of Public Health Agency of Canada from 17 labs in Ontario and do not include data from late reports to PHAC: Week 16, 2011. Please note that the last version received from PHAC as of 1:50PM on April 27, 2011 was used.

Table 6: 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 (All subtypes)	0	0.0
Influenza B	0	0.0
Influenza A and B	0	0.0
Parainfluenza (All types)	0	0.0
RSV	1	25.0
Combined Outbreaks [†]	0	0.0
Other organisms ^α	0	0.0
Enterorhinovirus	0	0.0
No organism identified	3	75.0
TOTAL	4	100.0
Total Respiratory Infection Outbreaks of the Season to date**	N	% (of outbreaks)
Influenza A (All subtypes)	420	49.2
Influenza B	7	0.8
Influenza A and B	0	0.0
Parainfluenza (All types)	22	2.6
RSV	43	5.0
Combined Outbreaks [†]	31	3.6
Other organisms ^α	58	6.8
Enterorhinovirus	141	16.5
No organism identified	132	15.5
TOTAL	854	100.0
Types of Institutions – All Outbreaks **	N	% (of outbreaks)
Long-Term Care Homes	499	58.4
Hospitals	57	6.7
Retirement Homes	107	12.5
Other	4	0.5
Unknown	187	21.9
TOTAL	854	100.0

Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [2011/04/28]

* New outbreaks are those in which the date of onset of illness in the first case occurred and was recorded through iPHIS in the current surveillance period; i.e. April 17, 2011 – April 23, 2011

** Season to date includes all outbreaks in which the date of onset of illness in the first case occurred up to Week 16.

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

^α Other organisms include outbreaks involving other aetiological agents, such as human metapneumovirus, adenovirus and coronavirus.

Table 7: Outbreak related complications in institutional respiratory infection outbreaks in Ontario during the surveillance season*[†]

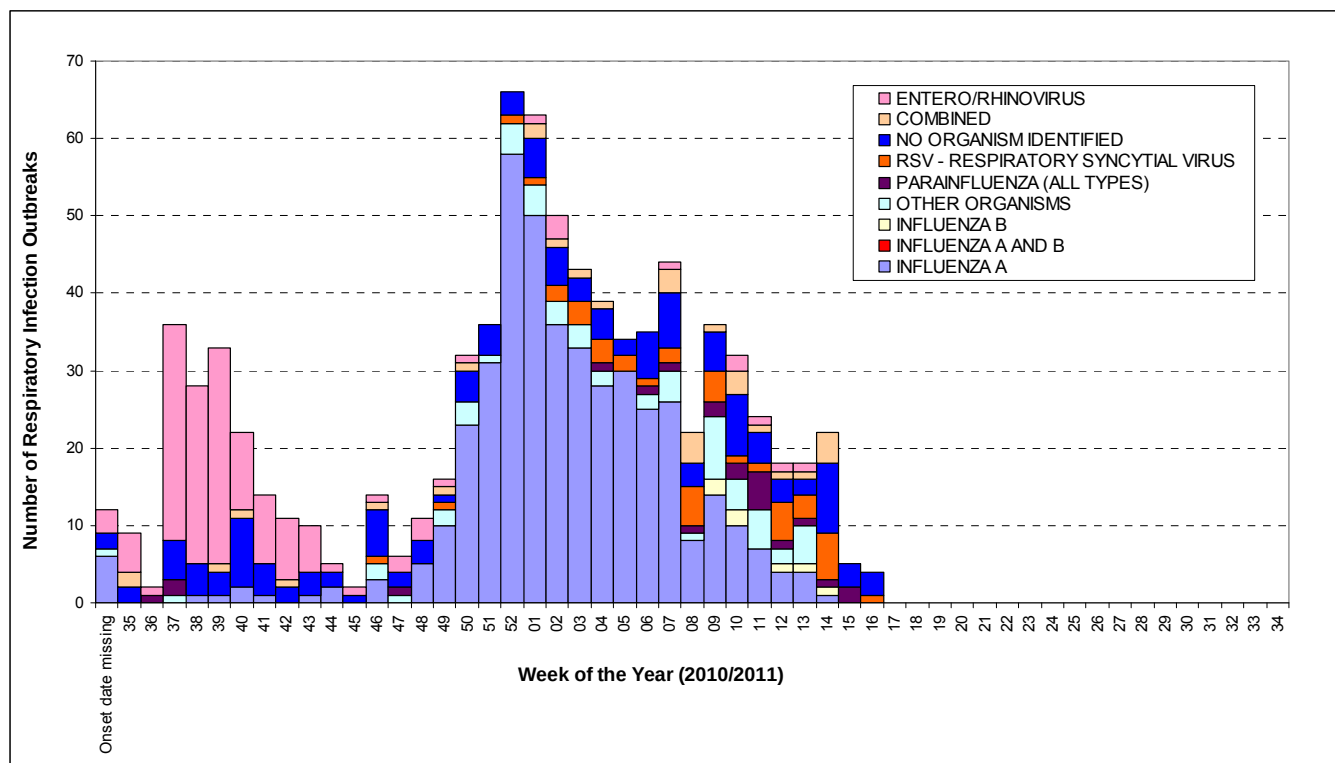
Outbreak Related Cases – All Outbreaks	N	% (of total cases)
Residents	10,018	71.8
Patients	532	3.8
Staff	3,410	24.4
Total Cases	13,960	100.0
Deaths		% (of cases per role)
Residents	299	3.0
Patients	13	2.4
Staff	0	0.0
Pneumonia (Chest x-ray confirmed)		% (of cases per role)
Residents	330	3.3
Patients	21	3.9
Staff	13	0.4
Hospitalizations		% (of cases per role)
Residents	618	6.2
Staff	3	0.1
Outbreak Related Cases – All Influenza Outbreaks	N	% (of total cases)
Residents	5,332	71.8
Patients	286	3.9
Staff	1,809	24.4
Total Cases	7,427	100.0
Deaths		% (of cases per role)
Residents	206	3.9
Patients	9	3.1
Staff	0	0.0
Pneumonia (Chest x-ray confirmed)		% (of cases per role)
Residents	202	3.8
Patients	16	5.6
Staff	11	0.6
Hospitalizations		% (of cases per role)
Residents	454	8.5
Staff	1	0.1

Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [2011/04/28]

* Season to date includes all outbreaks in which the date of onset of illness in the first case occurred from September 1, 2010 – April 23, 2011

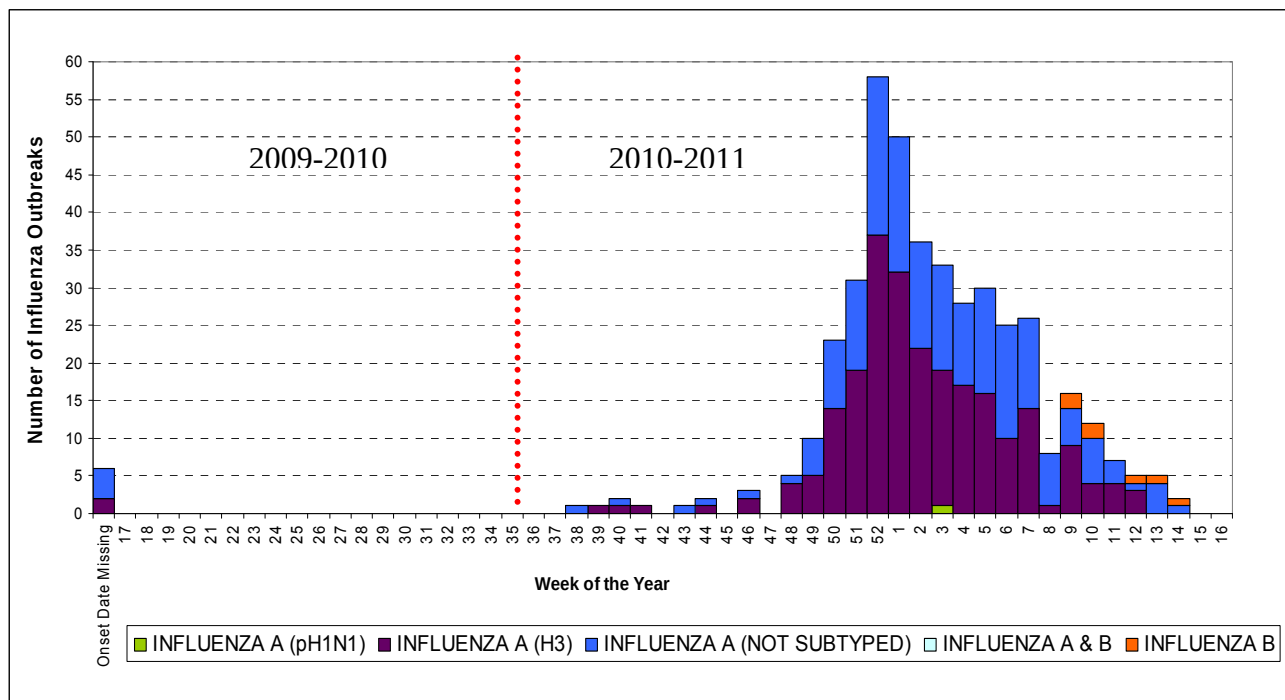
[†]Outbreak related case counts are based on aggregate case counts submitted for each outbreak and include laboratory and epidemiologically linked cases.

Figure 7: Institutional respiratory infection outbreaks in Ontario by onset of illness in the first case: Total outbreaks up to and including Week 16 by causative organism



Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [2011/04/28]

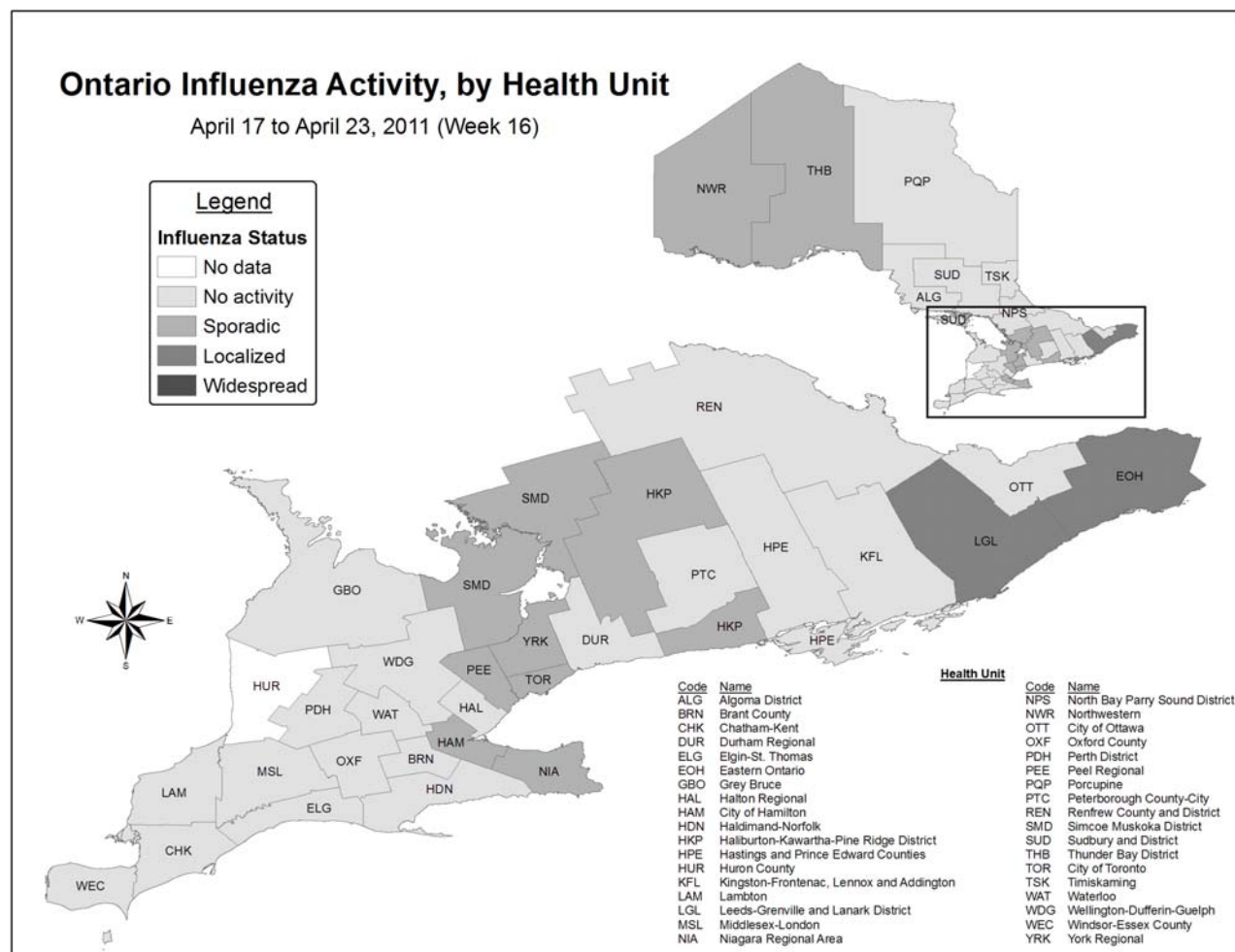
Figure 8: Institutional influenza outbreaks in Ontario by onset of illness in the first case: Total outbreaks up to and including Week 16 by subtype*



Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [2011/04/28]

*School outbreaks are not included in this chart.

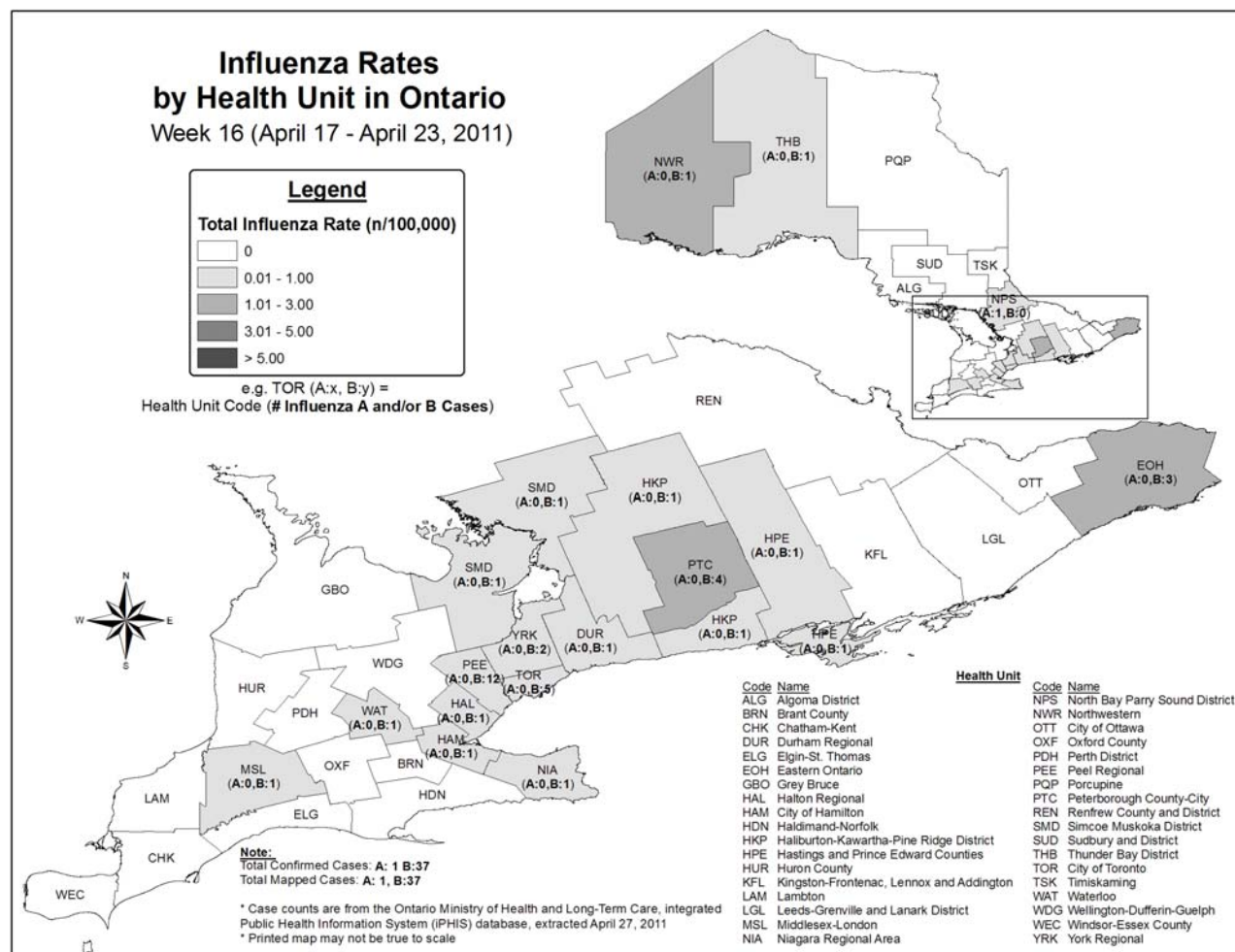
Figure 9: Influenza activity* levels in Ontario by health unit for Week 16, 2011



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

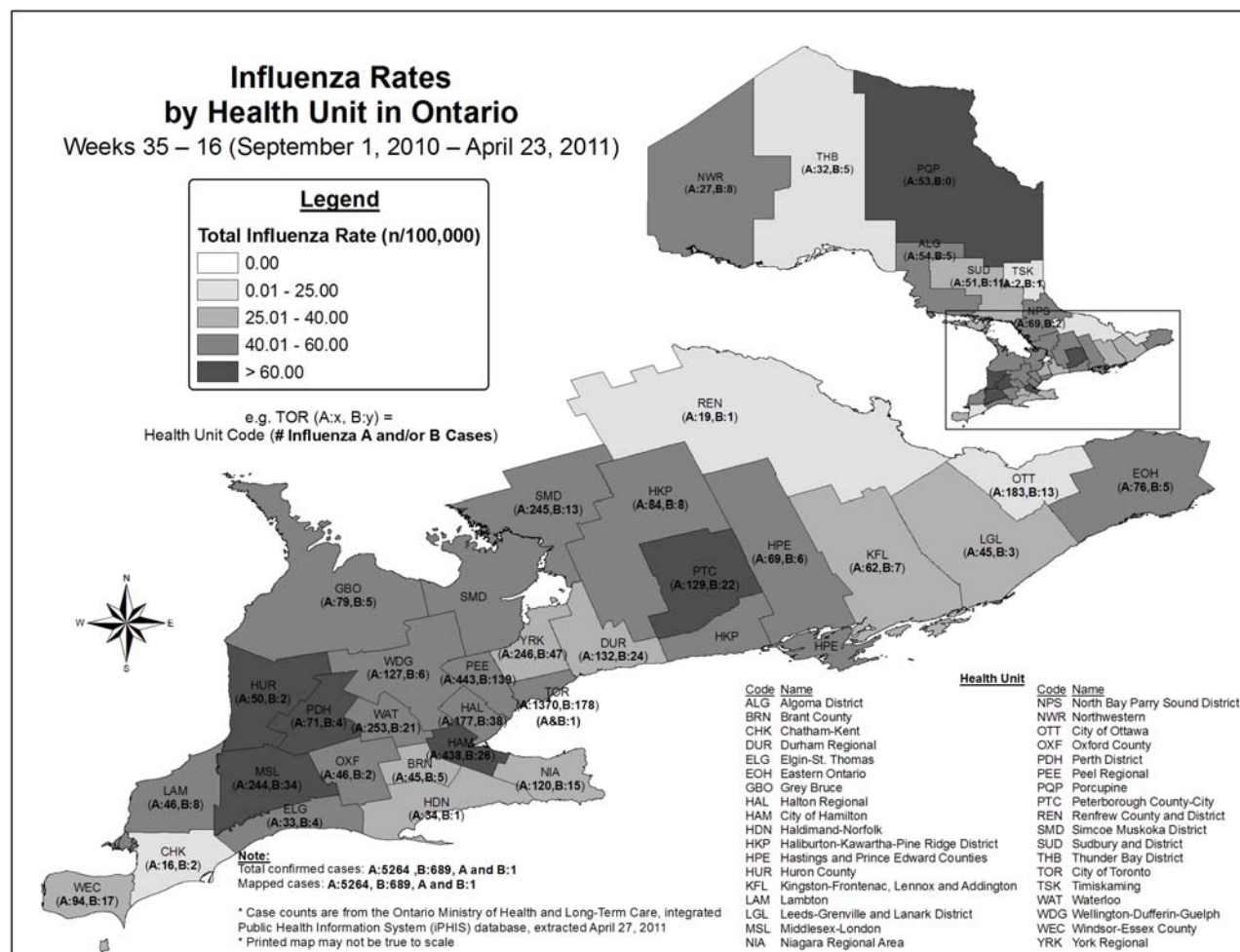
* Influenza activity levels are assigned by local public health units and reported to the MOHLTC by the Tuesday following the end of the surveillance week at 4 pm. Activity levels are assigned based on laboratory confirmations, ILI reports from various sources, and laboratory confirmed institutional outbreaks. Please refer to detailed definitions for the 2010-2011 season included in the Appendix-1]

Figure 10: Influenza incidence rates and counts in Ontario by health unit for Week 16, 2011



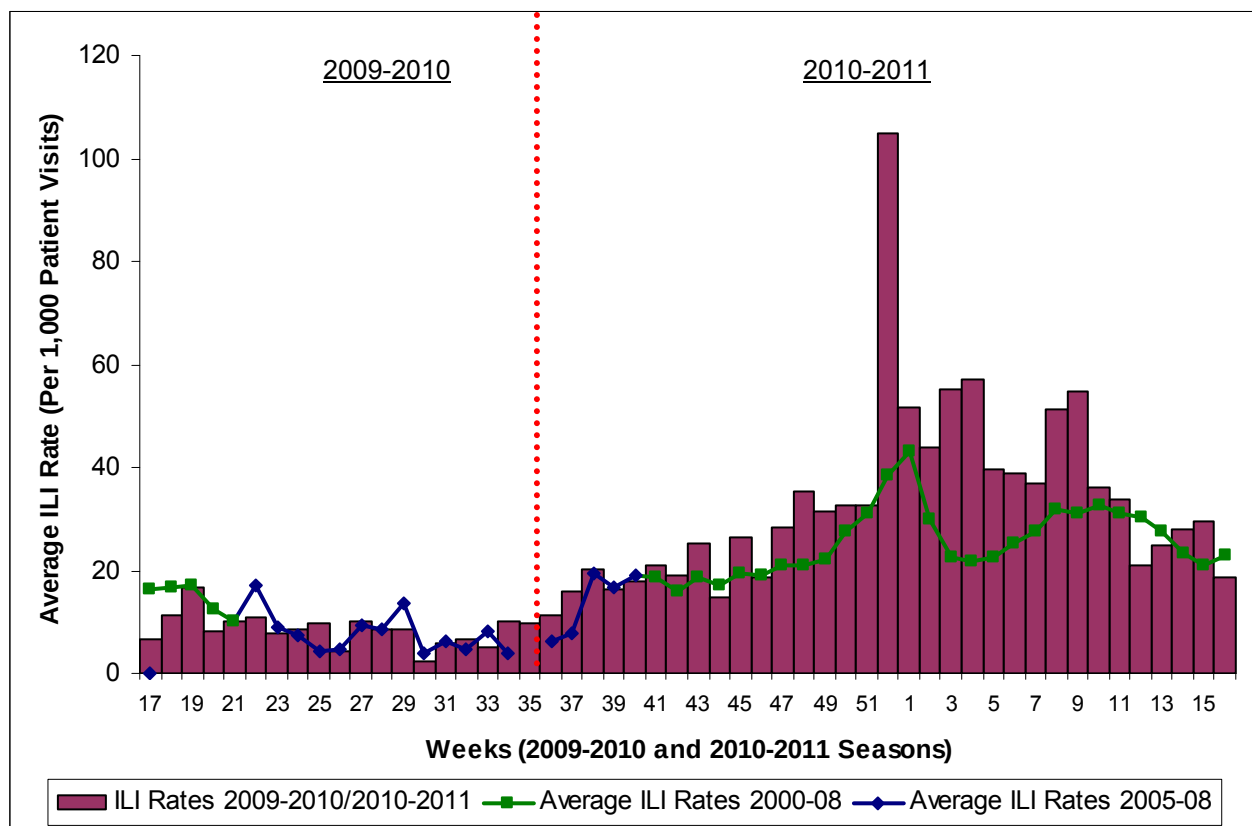
Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (IPHIS) database, extracted [2011/04/27]

Figure 11: Influenza cumulative incidence rates and counts in Ontario by health unit, Week 35 to Week 16 (September 1, 2010 – April 23, 2011)*



Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [2011/04/27]

Figure 12: Average influenza-like illness (ILI) consultation rate (per 1,000 patient visits) reported by sentinel physicians* in Ontario up to the 2010-11 surveillance season, by report week, compared to Ontario average^{†**} (1999/2000 to 2007/08 seasons).



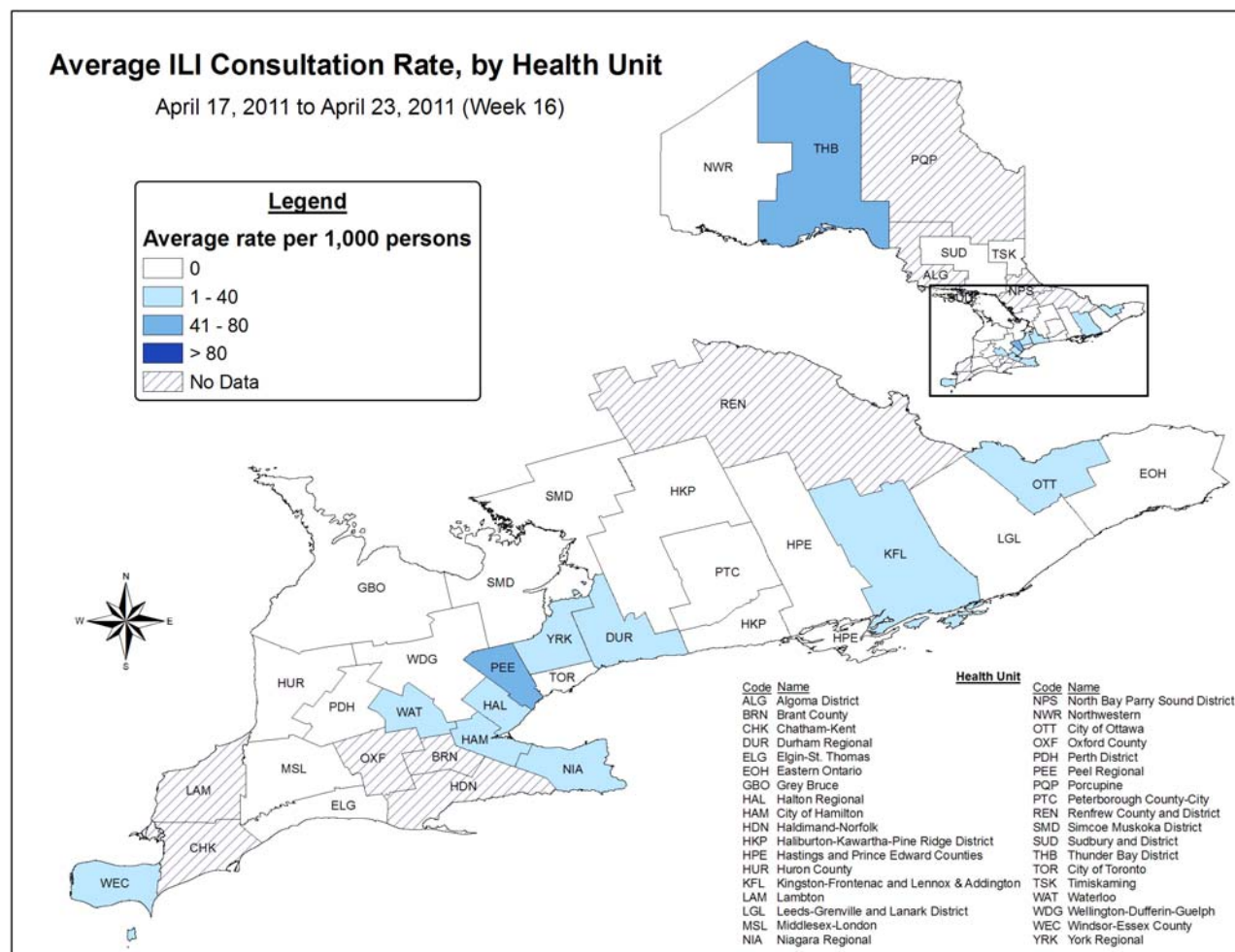
Source: Public Health Agency of Canada

* Sentinel physician information is reported to Public Health Agency of Canada, 83 sentinels reported in Week 16. The large increase in week 52 may be due to a combination of factors including: a true increase in influenza activity, reduced physician hours, fewer routine visits, and significantly fewer sentinel physicians reporting compared to normal (only 49 physicians reported in the last week of December, compared to at least 80 physicians normally reporting during any given week in the influenza season).

[†]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 was reported once every two weeks, on even weeks only.

^{**}Please note that the ILI consultation rate for Week 4 has been updated due to several data errors identified in the original file.

Figure 13: Average influenza-like illness consultation rate (per 1,000 patient visits) by health unit as reported by sentinel physicians* in Ontario, for Week 16



Source: Public Health Agency of Canada

* Sentinel physicians report ILI and patient data to the Public Health Agency of Canada; 83 sentinels reported in week 16, of which 81 were matched to a health unit and represented in the above map.

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

Table 8: Average influenza-like illness consultation rate (per 1,000 patient visits) by age group as reported by sentinel physicians* in Ontario, for Week 16.

Age Category	0 – 4	5 – 19	20 – 64	65 +	Unknown	TOTAL
ILI Sum	4	14	23	4	0	45
ILI Consultation Rate (per 1,000 patient visits)	23.53	31.67	17.75	8.15	0.00	18.76

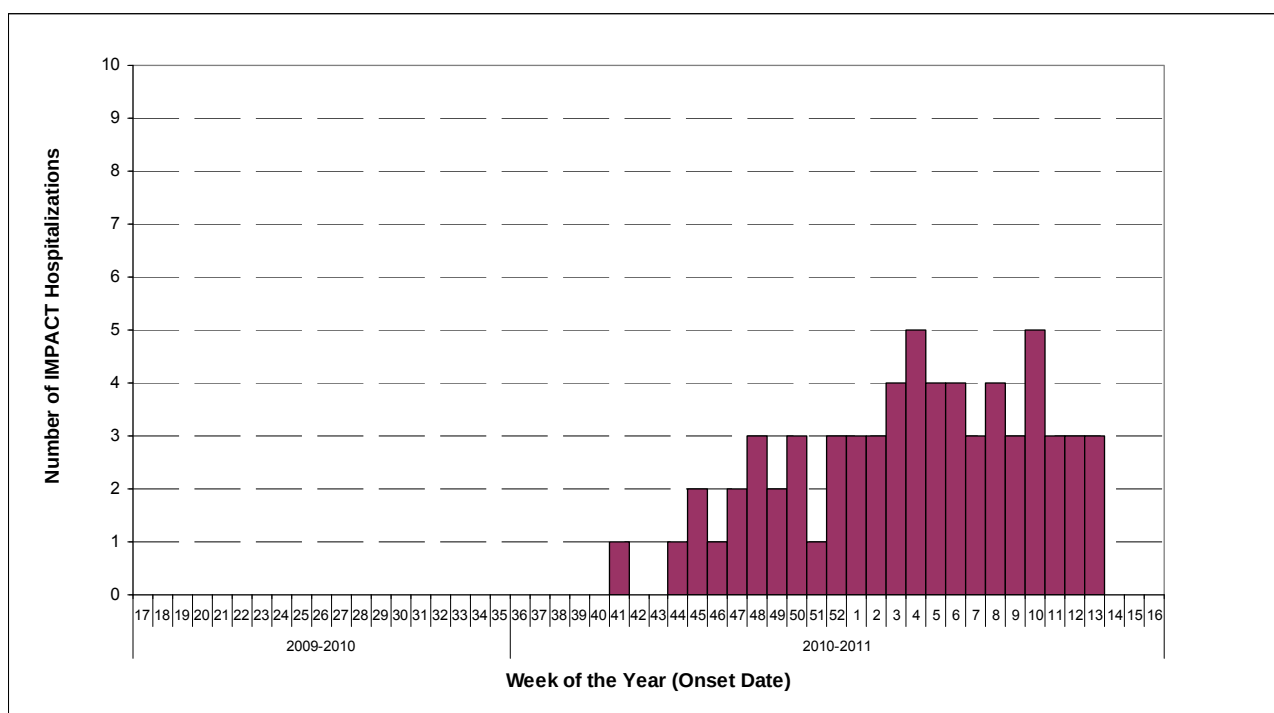
Source: Public Health Agency of Canada

Sentinel physician information is reported to the Public Health Agency of Canada; 83 sentinels reported in week 16.

Immunization Monitoring Program ACTive (IMPACT) is a pediatric hospital-based national active surveillance network for adverse events following immunization and selected infectious diseases in children, including influenza-associated pediatric hospitalizations and complements the [Canadian Adverse Event Following Immunization Surveillance System](#) (CAEFISS). It involves 12 Canadian centres, two of which are in Ontario (Children's Hospital of Eastern Ontario in Ottawa and the Hospital for Sick Children, Toronto).

Reports of adverse events following immunization are reported to the Vaccine Safety Unit at the Immunization Division of the Public Health Agency of Canada. Note that the number of IMPACT hospitalizations presented in this week's bulletin has been updated with the latest data received from PHAC.

Figure 14: Number of influenza A related hospitalizations in Ontario reported through IMPACT up to Week 16, by onset date.



Source: Public Health Agency of Canada

***Note:** The numbers of IMPACT hospitalizations presented reflect the latest data received at the time of publication, thus lower numbers of cases reported in recent weeks may be attributed in part to reporting delays.

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/en/pro/programs/publichealth/flu/bulletins/2010/default.aspx>

When referencing material from the Ontario Influenza Bulletin please use the following format:
Ontario Ministry of Health and Long-Term Care, Ontario Influenza Bulletin 2010-2011 Season, Surveillance Week ##. <URL>
2. Ontario Agency for Health Protection and Promotion
OAHPP Weekly Laboratory Surveillance Update
<http://www.oahpp.ca/SRI%20Bulletin.php>
3. Public Health Agency of Canada
Issues of FluWatch can be accessed at:
www.phac-aspc.gc.ca/fluwatch/
4. United States Centers for Disease Control and Prevention
<http://www.cdc.gov/flu/weekly/fluactivity.htm>
5. European Influenza Surveillance Scheme
<http://www.ecdc.europa.eu/en/activities/surveillance/EISN/Pages/home.aspx>

INFORMATION ABOUT H1N1 INFLUENZA (HUMAN SWINE INFLUENZA)

1. CDC (Human swine flu investigation)
<http://www.cdc.gov/swineflu/investigation.htm>
2. PHAC (Human swine flu investigation)
http://www.phac-aspc.gc.ca/alert-alerte/swine_200904-eng.php
3. WHO Swine Flu general info
<http://www.who.int/csr/disease/swineflu/en/index.html>
4. Ontario Ministry of Health (Important Health Notices)
<http://www.health.gov.on.ca/english/providers/program/emu/ihn.html>

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>

Influenza Surveillance Weeks 2010-2011 and date of submission of Appendix C

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

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

§Health units have been requested to consider laboratory confirmed pH1N1 outbreaks in camps in their region when evaluating ILI activity levels

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.**