Ontario

Ontario Influenza Bulletin
2009-2010 Season

Ministry of Health & Long-Term Care
Public Health Division

SURVEILLANCE WEEK 21 (May 23, 2010– May 29, 2010)

This issue of the Ontario Influenza Bulletin provides information on the surveillance period from May 23, 2010 to May 29, 2010 (Week 21). **All data are for week 21 unless otherwise specified.** Data extraction and analysis for this issue of the Bulletin occurred on June 2, 2010.

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	Similar	One influenza case (1 pH1N1) reported in week 21 compared to one reported in week 20 (0 pH1N1)*. The percent positivity of laboratory tests for influenza A at the Toronto Public Health Laboratory was 0% for week 21. This is lower than week 20 (1.7%). Several other respiratory viruses continue to circulate in Ontario (Table 5).
Influenza A Outbreaks	No change	No new institutional influenza outbreaks were reported for the current reporting week.
Influenza Activity Levels Reported by Health Units	Similar	One health unit reported 'sporadic' activity for the current reporting week.
ILI Consultation Rate reported by Sentinel Physicians	Similar	The overall ILI consultation rate has increased slightly from 8.34/1,000 patient visits in Week 20 to 10.02/1,000 patient visits in Week 21. The ILI rate is lower than the average rate for week 21 from previous years.
Hospitalizations Among Lab Confirmed Cases of Influenza	Similar	No new hospitalizations in influenza cases were reported from May 23 to May 29, compared to one in the previous week (May 16 to May 22).
Deaths Among Lab Confirmed Cases of Influenza	No change	No new deaths in influenza cases were reported from May 23 to May 29, which is the same as the previous week (May 16 to May 22).
OVERALL ASSESSMENT	Influenza activity in Ontario is *similar* compared to the previous week.	Overall, the indicators show that influenza activity was similar in week 21 compared to week 20.

*Counts from previous weeks may be updated and therefore may not match reports in earlier Bulletins

Ontario Influenza Bulletin, 2009-2010
Surveillance Week 21 (May 23, 2010 – May 29, 2010)

Overall, influenza activity in Ontario during week 21, 2010, was **similar** when compared to week 20, 2010. Ontario health units reported one new confirmed case of influenza for the current week through the integrated Public Health Information System (iPHIS). During week 21, 2010, one new laboratory confirmed case of pH1N1 was seen in Toronto. No new institutional influenza outbreaks were reported. For week 21, one health unit reported sporadic level influenza activity, while the remaining health units either reported no activity or did not report their activity level. The rate of influenza-like illness (ILI) in patients seen by sentinel physicians is similar to what is expected for this time of the year based on the average ILI rate reported in week 21 from previous years.

Publication of the Ontario Influenza Bulletin

Please note that this is the last weekly edition of the Bulletin for the 2009/10 season. The Bulletin will be published on alternate weeks until October 2010. Influenza activity level maps will be available on weeks the Bulletin is not published at: http://www.health.gov.on.ca/english/providers/program/pubhealth/flu/flu_09/flumap_mn.html

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 Christine D'Souza (christine.dsouza1@ontario.ca, 416-212-5323) 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 21, 2009-2010)

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	1	0	0	**1**
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	0	0	0	0	0	0	**0**
Influenza A** (Other)	0	0	0	0	0	0	0	**0**
Influenza B	0	0	0	0	0	0	0	**0**
Influenza A & B	0	0	0	0	0	0	0	**0**
Total new cases	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**
Institutional outbreaks of pandemic (H1N1) 2009 ‡	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Institutional outbreaks of Influenza (Other Subtypes/Not Subtyped)‡	**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 [02/06/2010].

* 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.

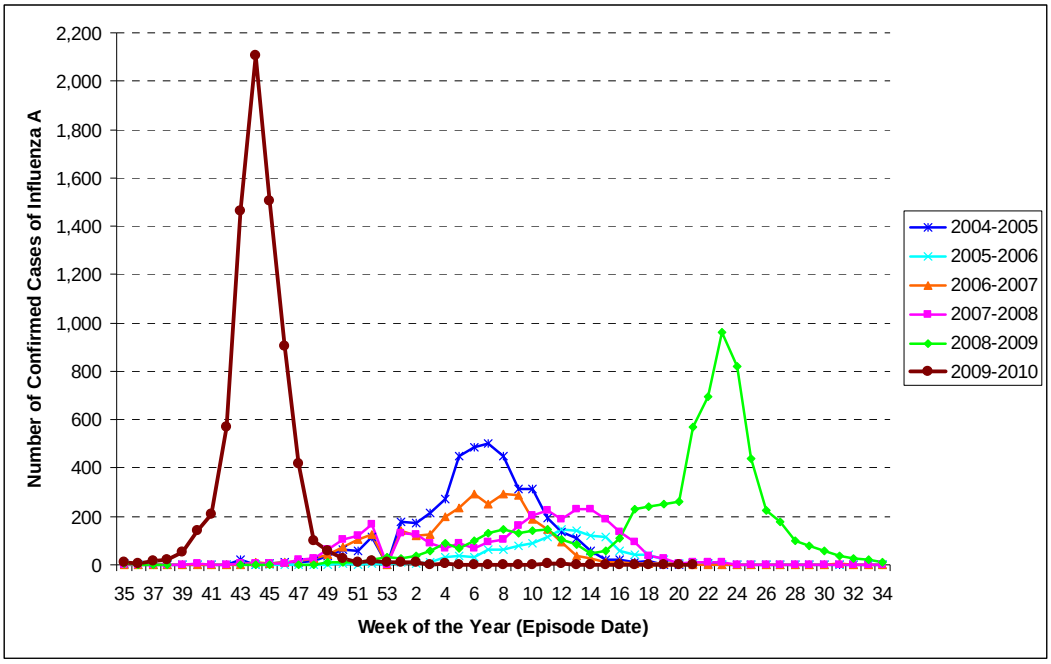
‡ Confirmed outbreaks in institutions with onset date of symptoms during the surveillance period.

** Includes indeterminate, untypeable and other subtypes.

The number of influenza A cases reported during the second wave of the pandemic began to increase in early September, with a maximum number of cases reported in week 44 (November 1-7, 2009). The maximum case volume observed to date in the 2009-2010 season has exceeded the maximum case volume in all of the past five influenza seasons (however in other influenza seasons, there has been less extensive testing). The number of cases of influenza A reported in week 21 of the 2009-2010 season is close to the number reported from previous seasons in the same week.

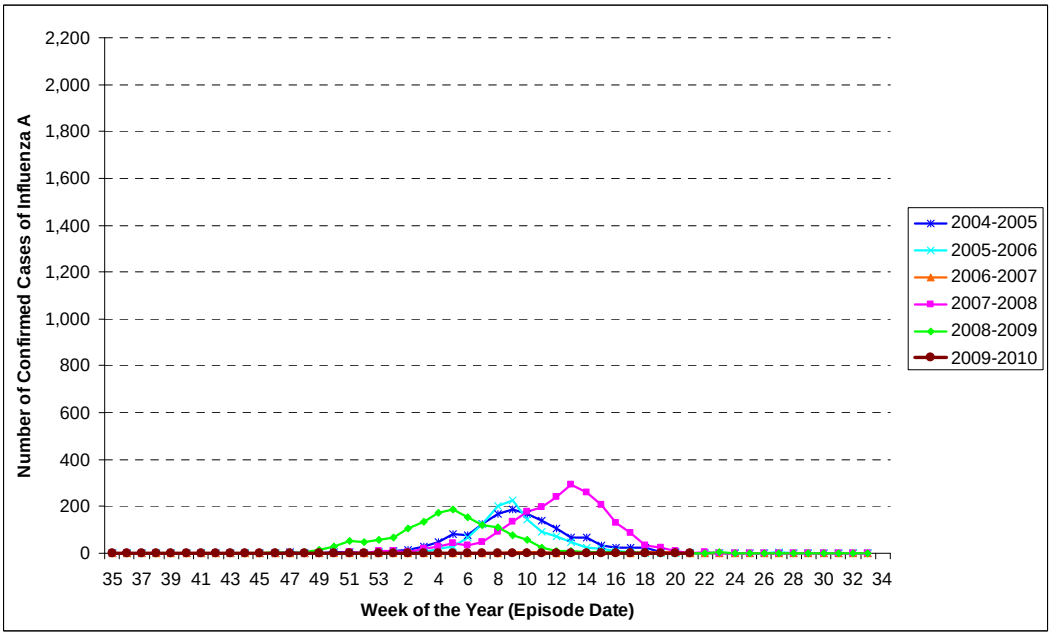
The number of influenza B cases reported to date for week 21 is close to the number reported in previous seasons but the total number of influenza B cases is lower in the 2009-2010 season than in previous seasons.

Figure 1: Confirmed cases of Influenza A (all subtypes) in Ontario by week, 2004-2010†*



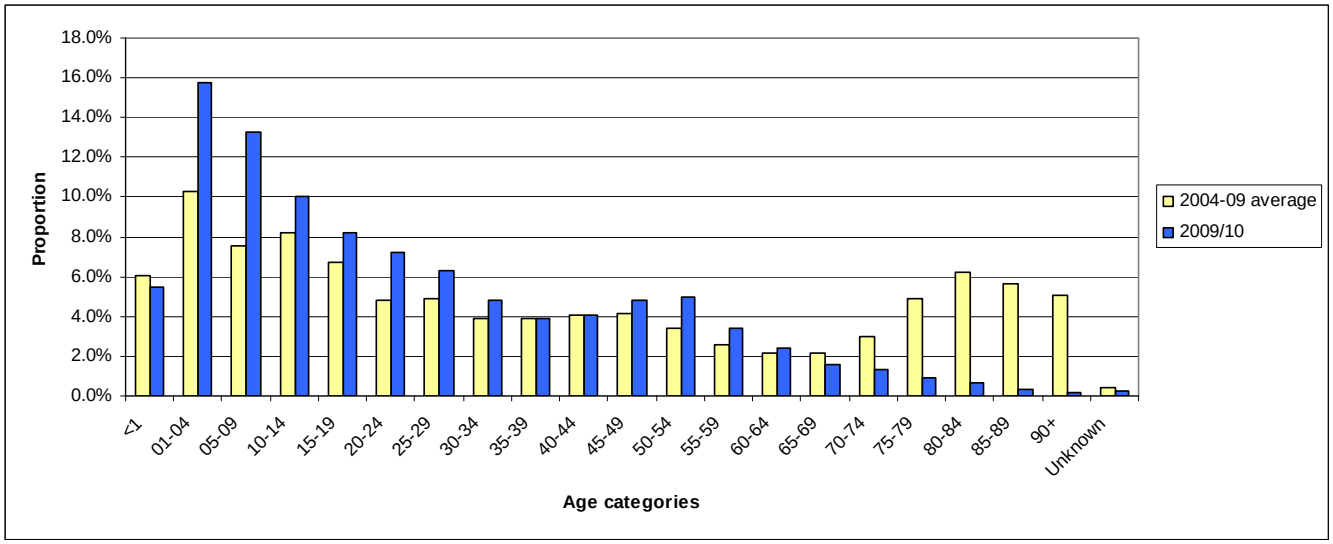
SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [02/06/2010].
† Episode Date for a case corresponds to the earliest date on record for the case according to the iPHIS hierarchy (Symptom Date > Clinical Diagnosis Date > Specimen Collection Date > Lab Test Date > Reported Date)

Figure 2: Confirmed Cases of Influenza B in Ontario by week, 2004-2010†



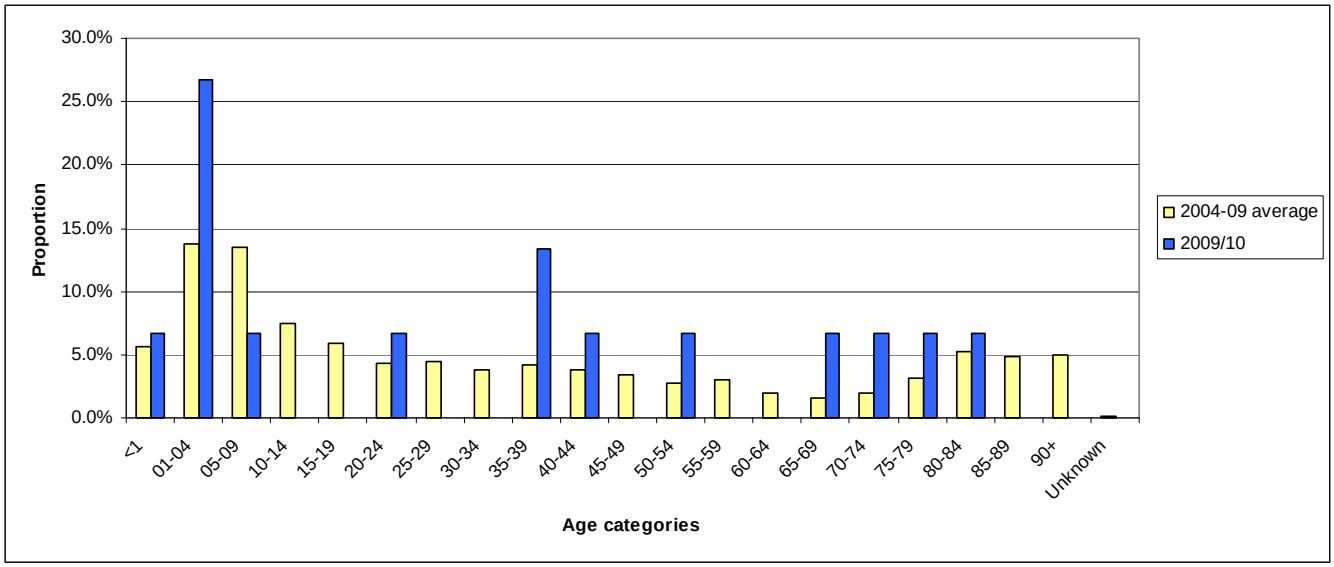
SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [02/06/2010].
† Episode Date for a case corresponds to the earliest date on record for the case according to the iPHIS hierarchy (Symptom Date > Clinical Diagnosis Date > Specimen Collection Date > Lab Test Date > Reported Date)

Figure 3: Proportion of influenza A cases in Ontario by age group, September 1 – May 29, 2004-2010



SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [02/06/2010].
* Pandemic influenza cases captured through aggregate reporting are included

Figure 4: Proportion of influenza B cases in Ontario by age group, September 1 – May 29, 2004-2010



SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [02/06/2010].

Table 2: Confirmed cases of influenza by health unit & health region with an episode date† during Week 21, 2009-10

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	0	0
	Thunder Bay District	0	0	0	0	0	0	0	0
	TOTAL NORTH WEST	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
North East	Algoma	0	0	0	0	0	0	0	0
	North Bay Parry Sound District	0	0	0	0	0	0	0	0
	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**	**0**	**0**	**0**	**0**
Eastern	City of Ottawa	0	0	0	0	0	0	0	0
	Eastern Ontario	0	0	0	0	0	0	0	0
	Hastings & Prince Edward Counties	0	0	0	0	0	0	0	0
	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**	**0**	**0**
Central East	Durham Region	0	0	0	0	0	0	0	0
	Haliburton, Kawartha, Pine Ridge	0	0	0	0	0	0	0	0
	Peel Region	0	0	0	0	0	0	0	0
	Peterborough County-City	0	0	0	0	0	0	0	0
	Simcoe Muskoka District	0	0	0	0	0	0	0	0
	York Region	0	0	0	0	0	0	0	0
	TOTAL CENTRAL EAST	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Toronto	Toronto	1	0	0	0	0	0	0	1
	TOTAL TORONTO	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
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	0	0
	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**	**0**	**0**
Central West	Brant County	0	0	0	0	0	0	0	0
	City Of Hamilton	0	0	0	0	0	0	0	0
	Haldimand-Norfolk	0	0	0	0	0	0	0	0
	Halton Region	0	0	0	0	0	0	0	0
	Niagara Region	0	0	0	0	0	0	0	0
	Waterloo Region	0	0	0	0	0	0	0	0
	Wellington-Dufferin-Guelph	0	0	0	0	0	0	0	0
	TOTAL CENTRAL WEST	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	TOTAL ONTARIO	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**

SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [02/06/2010].
† 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)
*includes indeterminate, untypeable and other subtypes

Table 3: Cumulative* confirmed cases of influenza by health unit & health region with an episode date† between September 1, 2009 – May 29, 2010

Region	Health Unit	Influenza A					Influenza A & B	Influenza B	TOTAL Cumulative
		pH1N1	No Subtype/ Not Subtyped	Other*	H1	H3			
North West	Northwestern	73	56	3	1	0	0	0	133
	Thunder Bay District	89	64	2	0	0	0	0	155
	TOTAL NORTH WEST	**162**	**120**	**5**	**1**	**0**	**0**	**0**	**288**
North East	Algoma	61	46	1	0	0	0	0	108
	North Bay Parry Sound District	48	59	2	0	0	0	0	109
	Porcupine	108	39	7	0	0	0	0	154
	Sudbury & District	45	63	2	0	0	0	0	110
	Timiskaming	53	9	1	0	0	0	0	63
	TOTAL NORTH EAST	**315**	**216**	**13**	**0**	**0**	**0**	**0**	**544**
Eastern	City of Ottawa	415	9	0	0	0	0	0	424
	Eastern Ontario	175	26	0	0	0	0	0	201
	Hastings & Prince Edward Counties	76	29	0	0	0	0	0	105
	Kingston, Frontenac, Lennox & Addington	149	31	0	0	0	0	0	180
	Leeds, Grenville And Lanark District	95	20	0	0	0	0	0	115
	Renfrew County And District	40	7	0	1	0	0	0	48
	TOTAL EASTERN	**950**	**122**	**0**	**1**	**0**	**0**	**0**	**1073**
Central East	Durham Region	170	87	5	0	0	0	0	262
	Haliburton, Kawartha, Pine Ridge	51	34	2	0	0	0	0	87
	Peel Region	354	271	3	0	1	0	5	634
	Peterborough County-City	47	33	3	0	0	0	0	83
	Simcoe Muskoka District	166	144	4	0	0	0	0	314
	York Region	206	155	3	0	0	0	1	365
	TOTAL CENTRAL EAST	**994**	**724**	**20**	**0**	**1**	**0**	**6**	**1745**
Toronto	Toronto	849	386	20	0	1	0	3	1259
	TOTAL TORONTO	**849**	**386**	**20**	**0**	**1**	**0**	**3**	**1259**
South West	Chatham-Kent	33	27	0	0	0	0	0	60
	Elgin-St. Thomas	21	22	1	0	0	0	0	44
	Grey Bruce	37	72	0	0	0	0	0	109
	Huron County	25	28	0	0	0	0	0	53
	Lambton County	54	25	1	0	0	0	0	80
	Middlesex-London	204	134	2	0	1	0	0	341
	Oxford County	62	25	5	0	0	0	0	92
	Perth District	33	16	0	0	0	0	2	51
	Windsor-Essex County	146	199	3	2	0	0	0	350
	TOTAL SOUTHWEST	**615**	**548**	**12**	**2**	**1**	**0**	**2**	**1180**
Central West	Brant County	22	28	0	0	0	0	0	50
	City Of Hamilton	212	215	1	0	0	0	1	429
	Haldimand-Norfolk	25	27	0	1	0	0	0	53
	Halton Region	174	120	2	0	1	0	1	298
	Niagara Region	233	113	7	0	0	0	1	354
	Waterloo Region	125	112	0	0	1	0	0	238
	Wellington-Dufferin-Guelph	55	53	0	0	0	1	1	110
	TOTAL CENTRAL WEST	**846**	**668**	**10**	**1**	**2**	**1**	**4**	**1532**
	TOTAL ONTARIO	**4,731**	**2,784**	**80**	**5**	**5**	**1**	**15**	**7,621**

SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [02/06/2010].
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)
*includes indeterminate, untypeable and other subtypes

Hospitalizations and deaths among influenza cases, Sep. 1, 2009 – May 29, 2010

As of May 29, 2010, a total of 2,222 hospitalizations were reported among influenza cases reported in Ontario for the 2009-2010 season. This represents a population-based incidence rate of 17.20 cases per 100,000 population. During this time frame, a total of 122 deaths were reported for a mortality rate of 0.94 cases per 100,000 population. Almost all of the hospitalizations (2,216/2,222) and deaths (120/122) were due to influenza A.

Table 4a. Incidence of hospitalizations among influenza cases in Ontario, Sep. 1, 2009 – May 29, 2010

	Influenza A		Influenza B		Total Influenza	
Age Group	**Number**	**Rate/100,000**	**Number**	**Rate/100,000**	**Number**	**Rate/100,000**
<1	159	118.67	0	0.00	159	118.67
1-4	330	60.42	1	0.18	331	60.60
5-14	371	24.03	1	0.06	372	24.10
15-24	207	11.83	1	0.06	208	11.89
25-44	362	9.67	1	0.03	363	9.69
45-64	572	16.47	0	0.00	572	16.47
65+	215	12.44	2	0.12	217	12.56
TOTAL	**2216**	**17.15**	**6**	**0.05**	**2222**	**17.20**

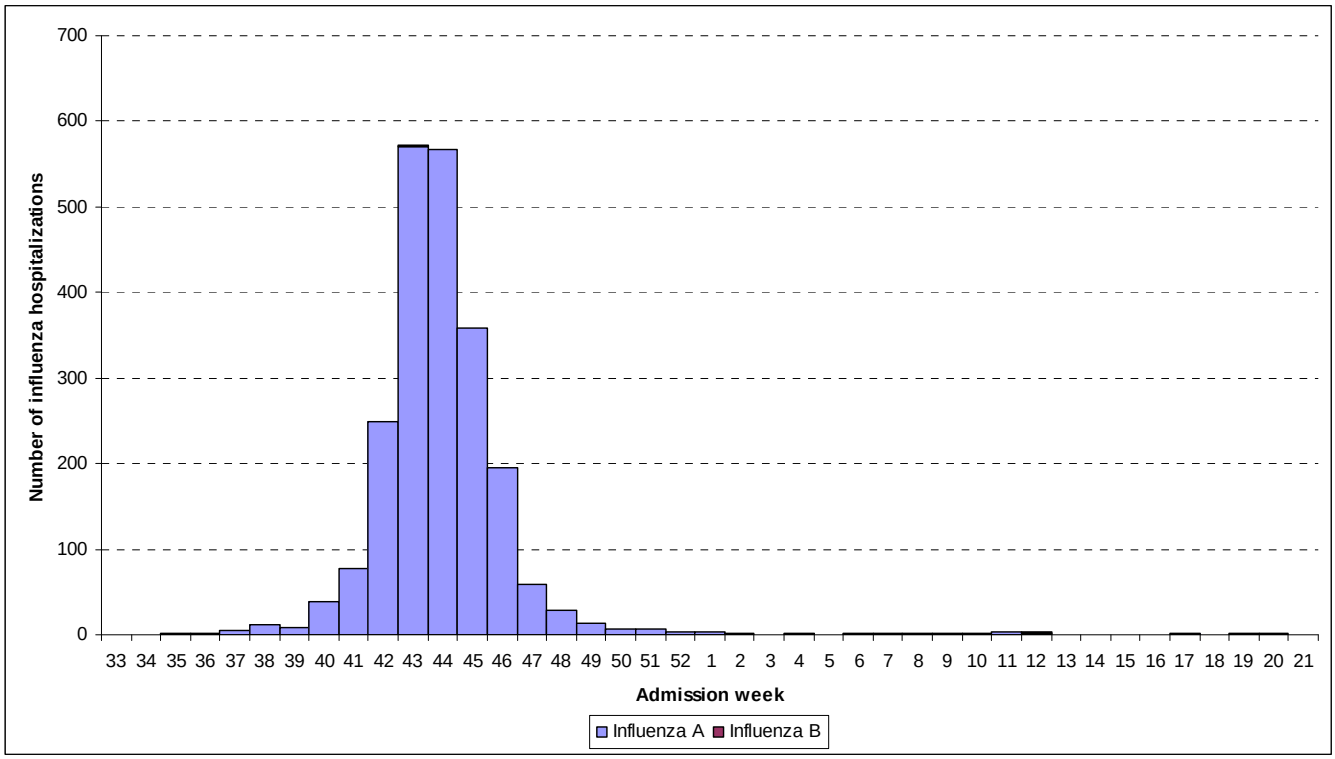
Source (incidence): Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted at 8:30 am [03/06/2010]
Source (incidence): Ontario population projections for 2008: Ontario Ministry of Health and Long-Term Care, Public Health Planning Database (PHPDB), extracted [12/02/2009]

Table 4b. Incidence of deaths among influenza cases in Ontario, Sep. 1, 2009 – May 29, 2010

	Influenza A		Influenza B		Total Influenza	
Age Group	**Number**	**Rate/100,000**	**Number**	**Rate/100,000**	**Number**	**Rate/100,000**
<1	1	0.75	0	0.00	1	0.75
1-4	1	0.18	0	0.00	1	0.18
5-14	4	0.26	0	0.00	4	0.26
15-24	9	0.51	0	0.00	9	0.51
25-44	19	0.51	0	0.00	19	0.51
45-64	55	1.58	1	0.03	56	1.61
65+	31	1.79	1	0.06	32	1.85
TOTAL	**120**	**0.93**	**2**	**0.02**	**122**	**0.94**

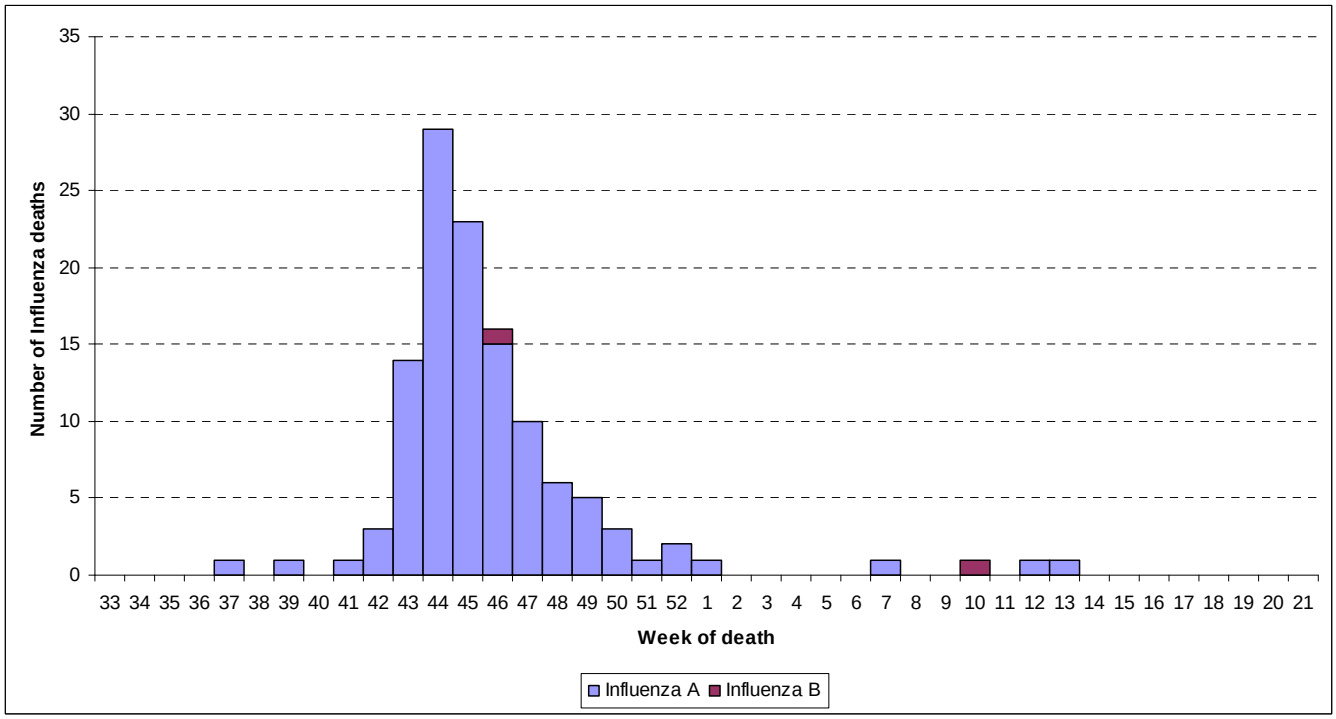
Source (incidence): Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted at 8:30 am [03/06/2010]
Source (incidence): Ontario population projections for 2008: Ontario Ministry of Health and Long-Term Care, Public Health Planning Database (PHPDB), extracted [12/02/2009]

Figure 5a: Hospitalized influenza cases by type and admission week in Ontario, Sep. 1, 2009 – May 29, 2010*



Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted at 8:30 am [03/06/2010]
Note: Interpret tail with caution due to reporting lags, changes in lab testing, case identification and data entry.
*There are two hospitalized influenza B cases in Week 43 & one in each of Weeks 6, 9, 10, and 12

Figure 5b: Deaths among influenza cases by type and week of death in Ontario, Sep. 1, 2009 – May 29, 2010*



Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted at 8:30 am [03/06/2010]
Note 1: Chart does not include 2 deaths with unknown death dates.

Influenza Subtype(s):

During week 21, a total of 1114 results of isolate testing were received by the Public Health Agency of Canada, with two testing positive for influenza A and two positive for influenza B. The two influenza A isolates were from Ontario (100.0%). Both reported influenza B isolates were from Alberta (100%).*

(Antigenic Characterization and Antiviral Resistance data are current as of May 5, 2010)

Antigenic Characterization (National):

Since September 1, 2009, National Microbiology Laboratory (NML) has antigenically characterized 851 pandemic H1N1 viruses and 17 seasonal influenza viruses (three A/H1N1, ten A/H3N2 and four B viruses) that were received from Canadian laboratories.

Pandemic Influenza A (H1N1):
Among the 851 pandemic influenza A (H1N1) viruses characterized, 847 (99.5%) were antigenically related to A/California/7/2009, which is the pandemic reference virus selected by WHO as a potential candidate for 2009 influenza A (H1N1) vaccine. Four viruses (0.5%) tested showed reduced titer with antisera produced against A/California/7/2009.

Seasonal Influenza A (H1N1):
Three seasonal influenza A/H1N1 viruses characterized were related to A/Brisbane/59/2007, which is the influenza A/H1N1 component for the 2009-2010 influenza vaccine.

Seasonal Influenza A (H3N2):
Of the ten H3N2 viruses, two seasonal influenza A (H3N2) virus characterized were related to A/Brisbane/10/2007, which is the influenza A/H3N2 component recommended for the 2009-10 influenza vaccine. Eight viruses were antigenically related to A/Perth/16/2009, which is the WHO recommended influenza A (H3N2) component for the 2010 -11 Northern Hemisphere vaccine formulation.

Influenza B:
Among the four influenza B viruses characterized, two were antigenically related to B/Brisbane/60/2008, which is the recommended influenza B component for the 2009-2010 influenza vaccine. One B virus was related to the previous vaccine virus B/Florida/4/2006 (Yamagata lineage) and one B virus was related to the 2007-2008 vaccine virus B/Malaysia/2506/2004 (Victoria lineage).

Antigenic Characterization (Provincial):

Since September 1, 2009, The National Microbiology Laboratory (NML) has antigenically characterized the following strains from Ontario: 295 influenza A/California/07/2009-like, 2 influenza B/Brisbane/60/2008-like and 1 influenza B/Malaysia/2506/2004-like.

Antiviral Resistance and Sensitivity (National):

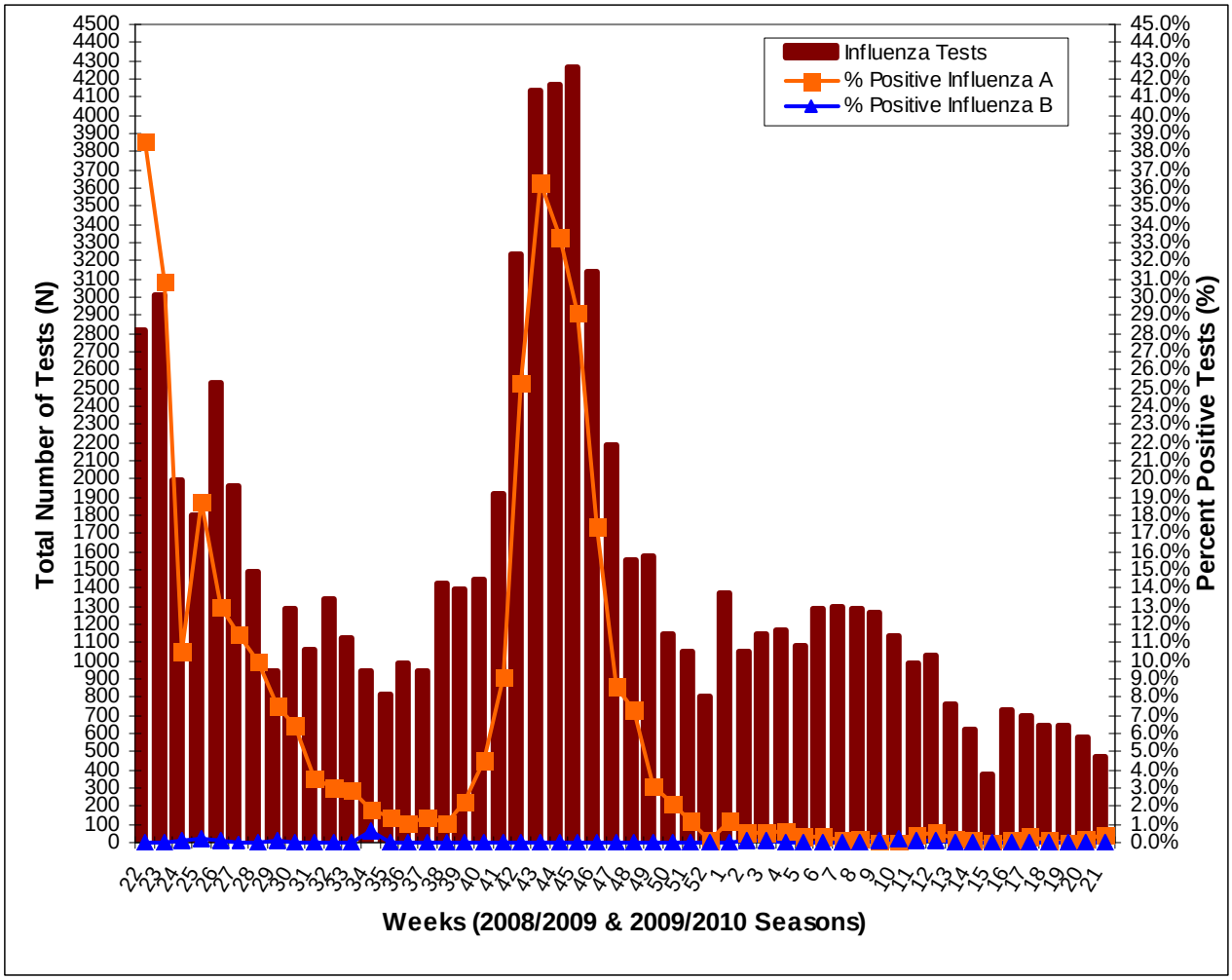
a) Amantadine
Twenty-nine seasonal influenza A viruses (five H1N1 and 24 H3N2) and 1136 pandemic H1N1 viruses were tested for resistance to amantadine and found that one H1N1 virus, all 24 H3N2 viruses and all 1136 pandemic H1N1 viruses were resistant. Four seasonal H1N1 viruses were sensitive to amantadine.
b) Oseltamivir:
Twenty-three seasonal influenza viruses (six H1N1, thirteen H3N2 and four B) and 1079 pandemic H1N1 viruses were tested for resistance to oseltamivir. Six seasonal H1N1 isolates were resistant to oseltamivir. Of the 1079 pandemic H1N1 viruses tested, 1067 were sensitive to oseltamivir and 12 pH1N1 isolates were resistant to oseltamivir with the H275Y mutation. Twelve of the resistant cases were associated with oseltamivir treatment
c) Zanamivir:
Nineteen seasonal influenza viruses (two H1N1, thirteen H3N2 and four B) and 1057 pandemic H1N1 viruses were tested for resistance to zanamivir. All 19 seasonal influenza viruses and all 1057 pandemic H1N1 viruses were sensitive to zanamivir.

Antiviral Resistance and Sensitivity (Provincial):

a) Amantadine
Of the 315 pH1N1 isolates tested, all were resistant to amantadine. Two H3N2 isolates were also resistant to amantadine.[†]
b) Oseltamivir
Of the 313 influenza pH1N1 isolates from Ontario tested at NML, 4 were resistant to oseltamivir. One seasonal influenza A/H1N1 virus was also resistant. Of 770 Ontario isolates tested provincially by the OAHPP 15, representing 5 patients, were resistant to oseltamivir.[‡] Three influenza B isolates were sensitive to oseltamivir.
c) Zanamivir
All 306 pH1N1 isolates tested were sensitive to zanamivir. Three influenza B isolates were sensitive to zanamivir.

***** 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 21, 2010. Please note that the last version received from PHAC as of 4:00PM on June 3, 2010 was used.[†] These data have been obtained from the National Microbiology Laboratory of the Public Health Agency of Canada as of May 5, 2010.
[‡] OAHPP – Laboratory Pandemic H1N1 Surveillance Report –May 25, 2010

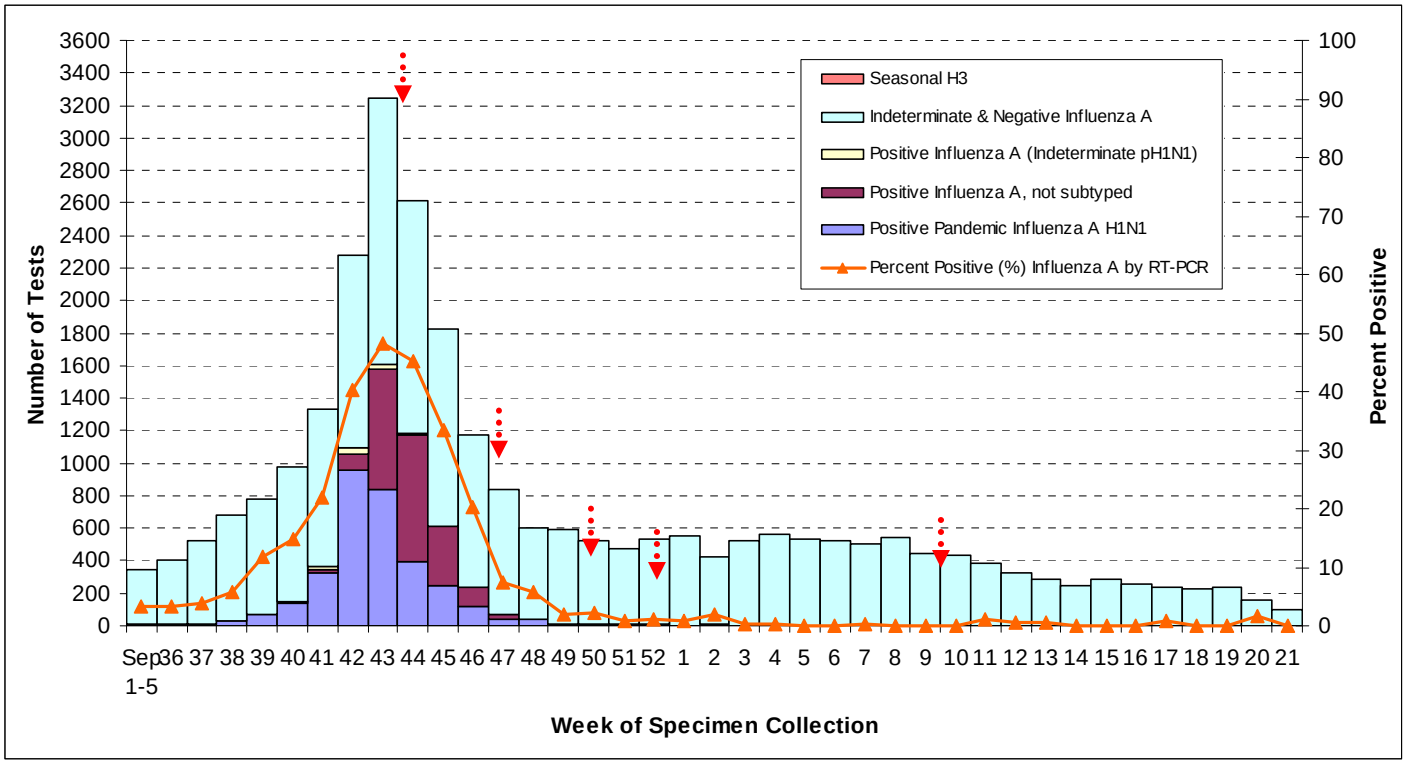
Figure 6a: Total number of influenza tests performed and percent of positive tests in Ontario reported to the Centre for Immunization and Respiratory Infectious Diseases (CIRID), by report week*.



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 21, 2010. Please note that the last version received from PHAC as of 4:00PM on June 3, 2010 was used.

* Total numbers reported include late reports from pervious 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/

Figure 6b: Total number of influenza tests performed and percent of positive tests in Ontario conducted by the Ontario Agency for Health Protection and Promotion Laboratory – Toronto, by specimen collection week September 1, 2009 – May 29, 2010



Source: These data have been obtained from the PHL, Ontario Agency for Health Protection and Promotion (OAHPP).
Note: Not all cases with specimens collected during week 21 are included in this summary due to the lag in time from the date of specimen collection to the date the final test result is confirmed.
Note: The downward arrows indicate changes in the testing algorithm. For details on the changes, please refer to Appendix 1 of the OAHPP: Weekly Laboratory Surveillance Report

Table 5: Summary of Other Respiratory Virus Detections/Isolations in Ontario in Week 21

Organism Name	Number of Positive Tests	Number of Tests	% Positive
Respiratory Syncytial Virus	2	394	0.51
Parainfluenza (all types)	30	387	7.75
Adenovirus	2	389	0.51
Human Metapneumovirus	8	206	3.88

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 21, 2010. Please note that the last version received from PHAC as of 4:00PM on June 3, 2010 was used.

Table 6: Institutional respiratory infection outbreaks in Ontario: new outbreaks* in Week 21 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	0	0.0
Other organisms	0	0.0
No organism identified	1	100.0
TOTAL	***1***	***100.0***
Total Respiratory Infection Outbreaks of the Season to date**	**N**	**% (of outbreaks)**
Influenza A	57	11.4
Influenza B	0	0.0
Influenza A and B	0	0.0
Parainfluenza (All types)	20	4.0
RSV	59	11.8
Combined Outbreaks†	32	6.4
Other organisms	149	29.9
No organism identified	182	36.5
TOTAL	***499***	***100.0***
Types of Institutions – All Outbreaks **	**N**	**% (of outbreaks)**
Long-Term Care Homes	303	60.7
Hospitals	38	7.6
Retirement Homes	42	8.4
Other	11	2.2
Unknown	105	21.0
TOTAL	***499***	***100.0***

SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [02/06/2010]

* 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. May 23, 2010 – May 29, 2010

** Season to date includes all outbreaks in which the date of onset of illness in the first case occurred up to Week 21.

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

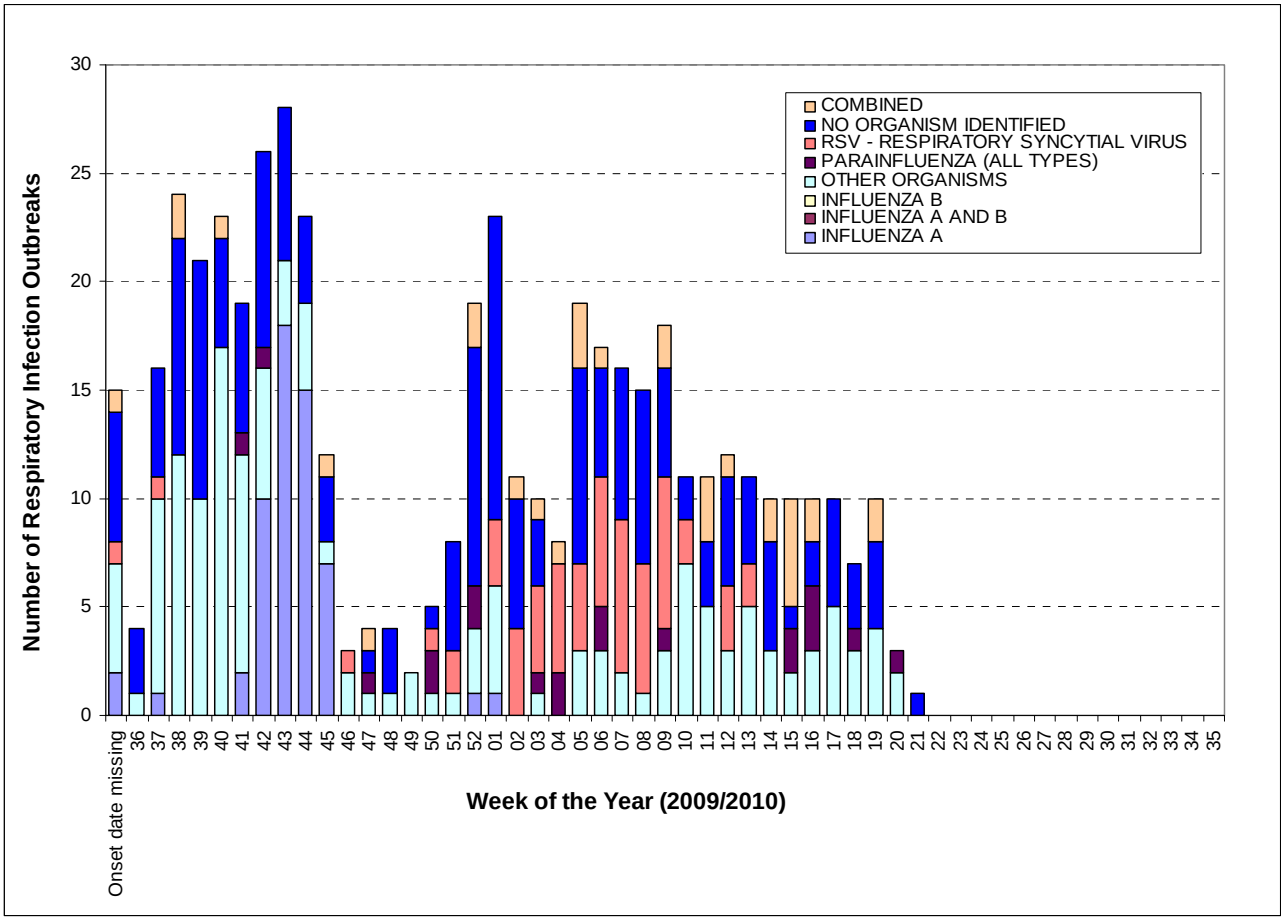
Table 7: Outbreak Related Complications in institutional respiratory infection outbreaks in Ontario during the Surveillance Season*

Outbreak Related Cases – All Outbreaks	**N**	**% (of total cases)**
Residents	5152	70.5
Patients	343	4.7
Staff	1812	24.8
Total Cases	**7307**	**100.0**
Deaths		**% (of cases per role)**
Residents	130	2.5
Patients	3	0.9
Staff	0	0.0
Pneumonia (Chest x-ray confirmed)		**% (of cases per role)**
Residents	150	2.9
Patients	13	3.8
Staff	5	0.3
Hospitalizations		**% (of cases per role)**
Residents	242	4.7
Staff	2	0.1
Outbreak Related Cases – All Influenza Outbreaks	**N**	**% (of total cases)**
Residents	291	54.2
Patients	77	14.3
Staff	169	31.5
Total Cases	**537**	**100.0**
Deaths		**% (of cases per role)**
Residents	21	7.2
Patients	1	1.3
Staff	0	0.0
Pneumonia (Chest x-ray confirmed)		**% (of cases per role)**
Residents	7	2.4
Patients	4	5.2
Staff	0	0.0
Hospitalizations		**% (of cases per role)**
Residents	32	11.0
Staff	0	0.0

SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [02/06/2010]

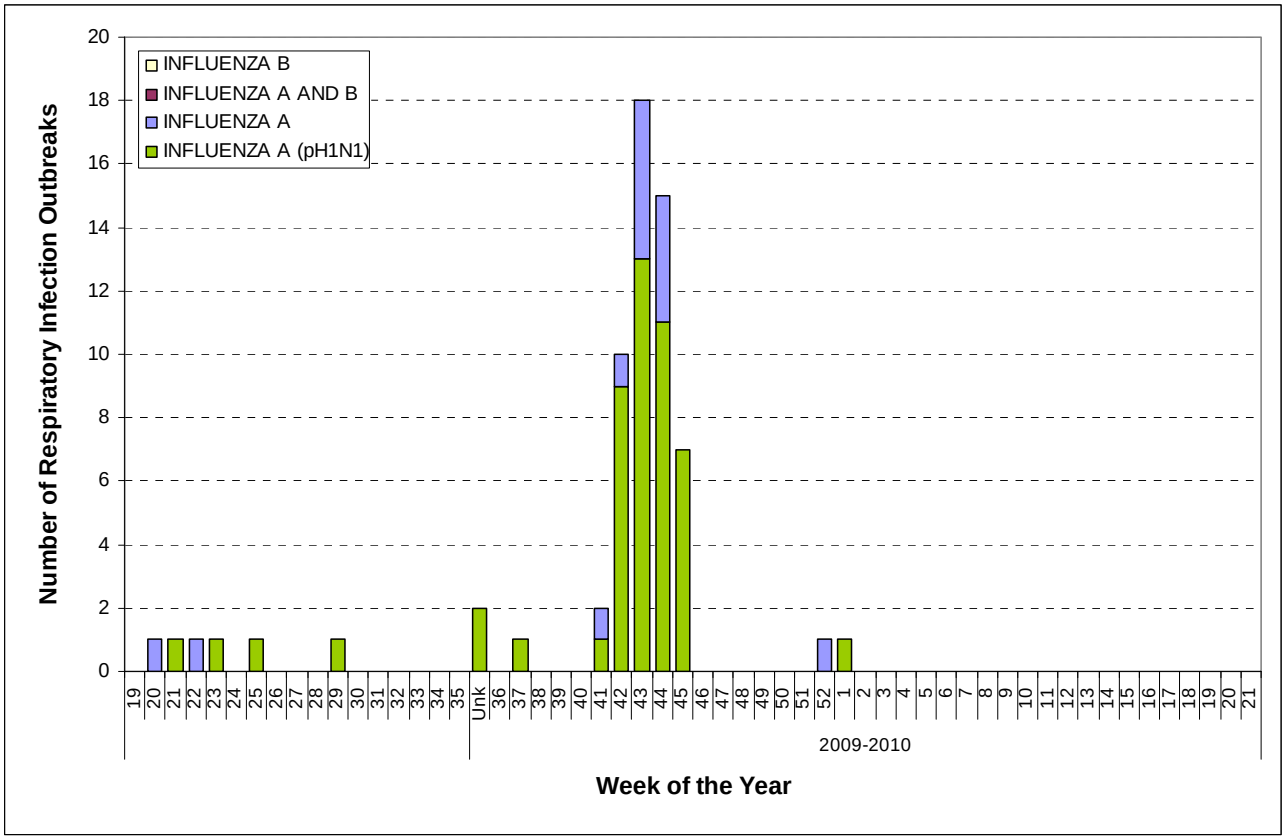
* Season to date includes all outbreaks in which the date of onset of illness in the first case occurred from September 1, 2009 – May 29, 2010

Figure 7: Institutional respiratory infection outbreaks in Ontario by onset of illness in the first case: Total Outbreaks up to and including Week 21 by causative organism



Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [02/06/2010]

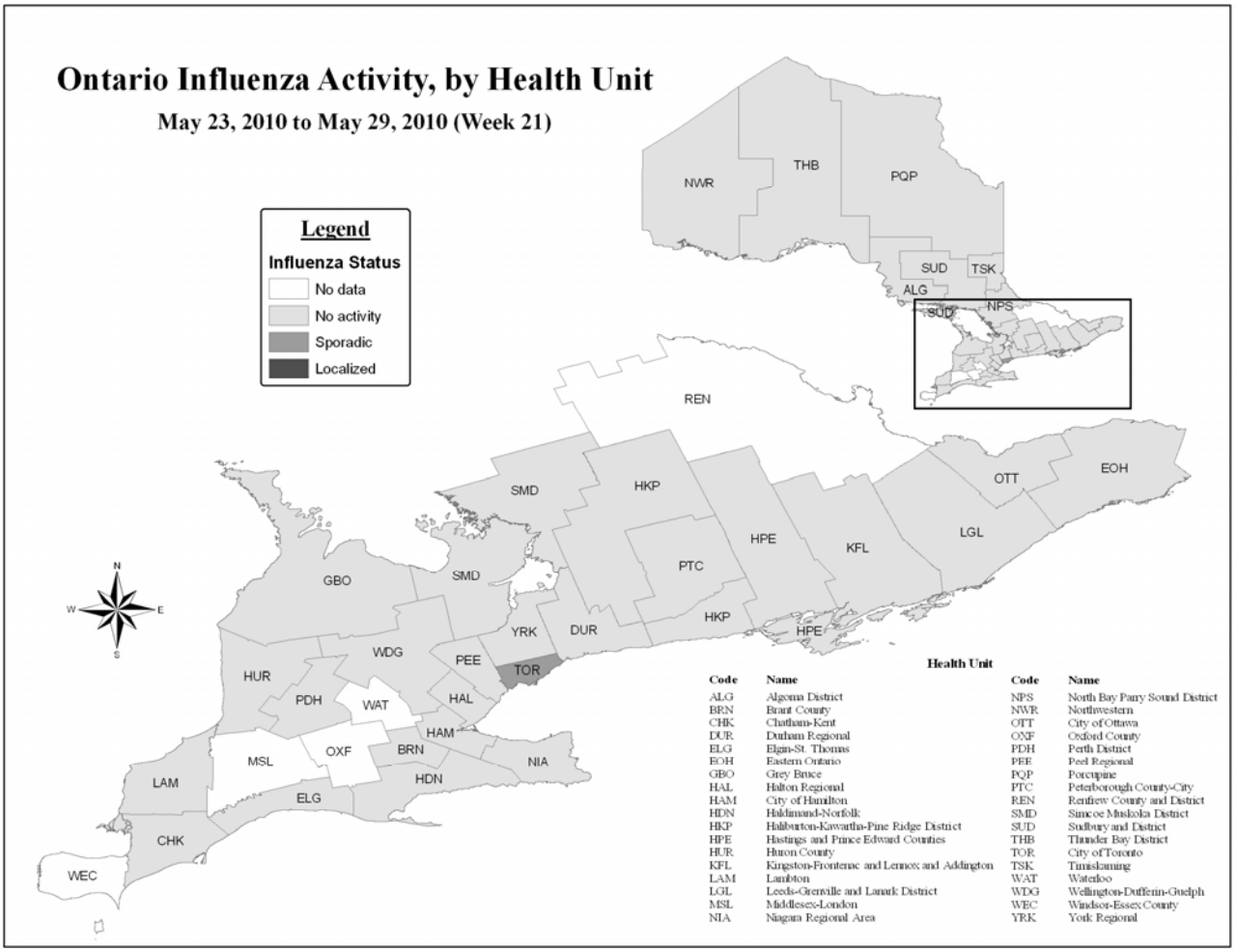
Figure 8: Institutional influenza outbreaks in Ontario by onset of illness in the first case: Total outbreaks up to and including Week 21 by subtype*



Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [02/06/2010]

*School outbreaks are not included in this chart.

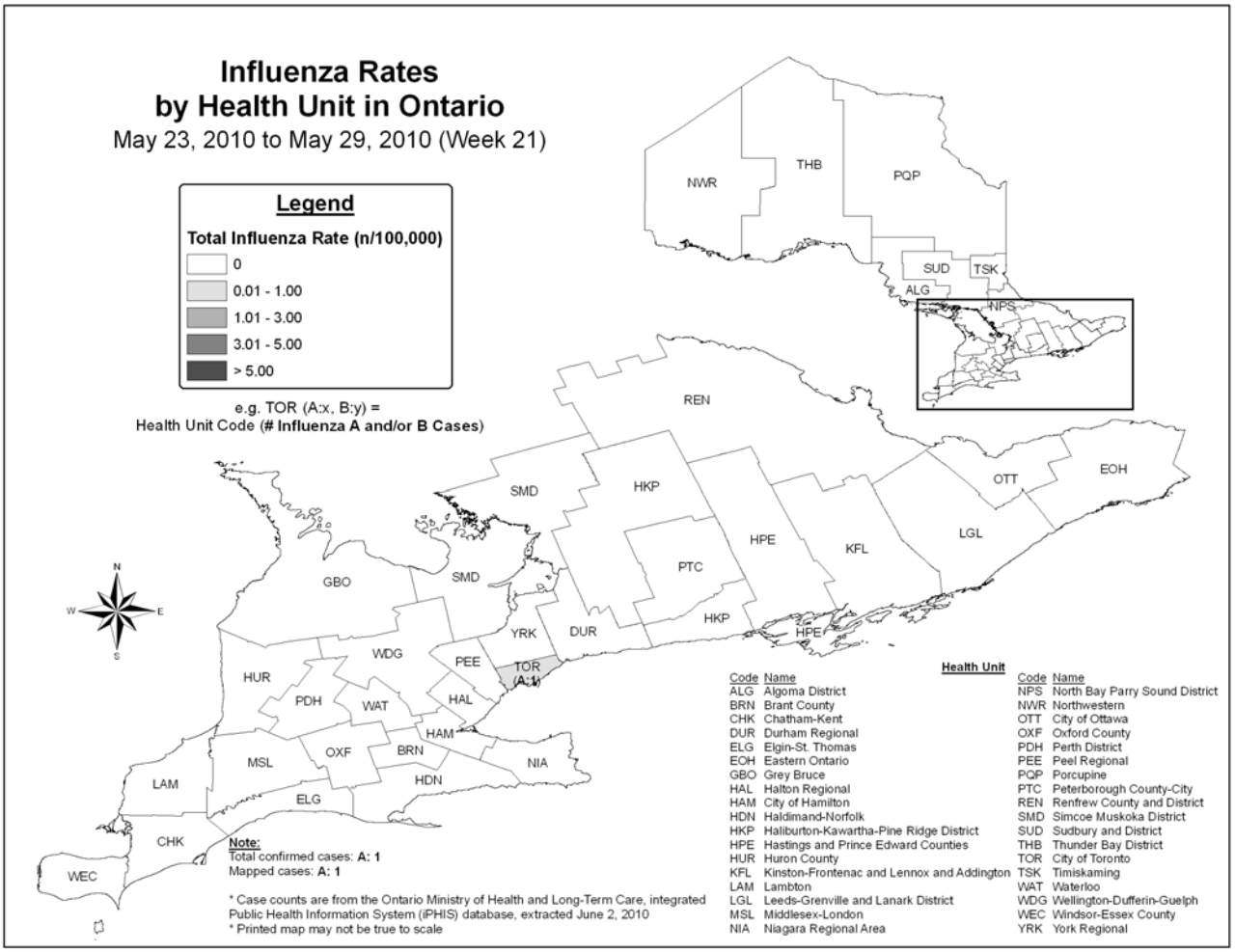
Figure 9: Influenza Activity* levels in Ontario by health unit for Week 21, 2010



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

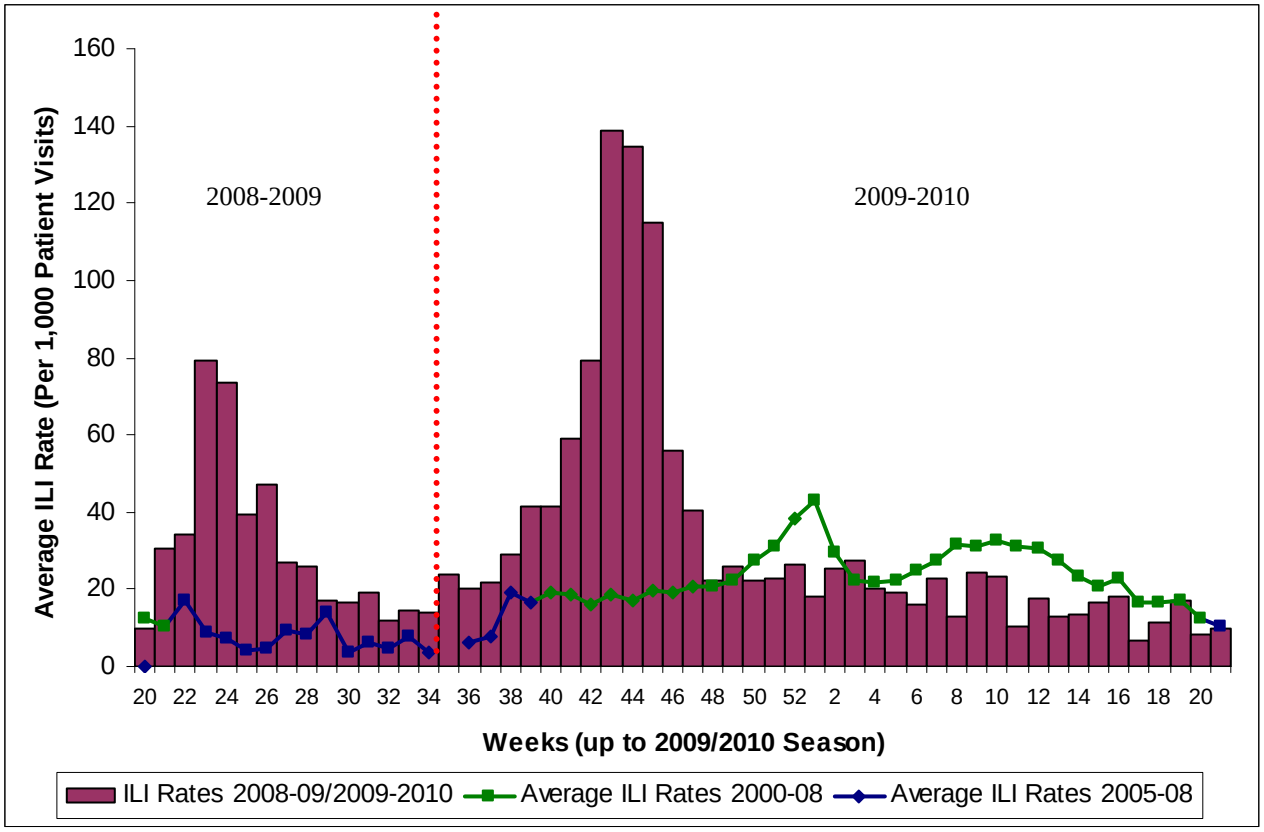
* Influenza activity levels are assigned by local public health units and reported to the MOHLTC by the Tuesday following the end of the surveillance week at 4 pm. Activity levels are assigned based on laboratory confirmations, ILI reports from various sources, and laboratory confirmed institutional outbreaks. Please refer to detailed definitions for the 2009-2010 season included in the Appendix-1]

Figure 10: Influenza incidence rates and counts in Ontario by health unit for Week 21, 2010



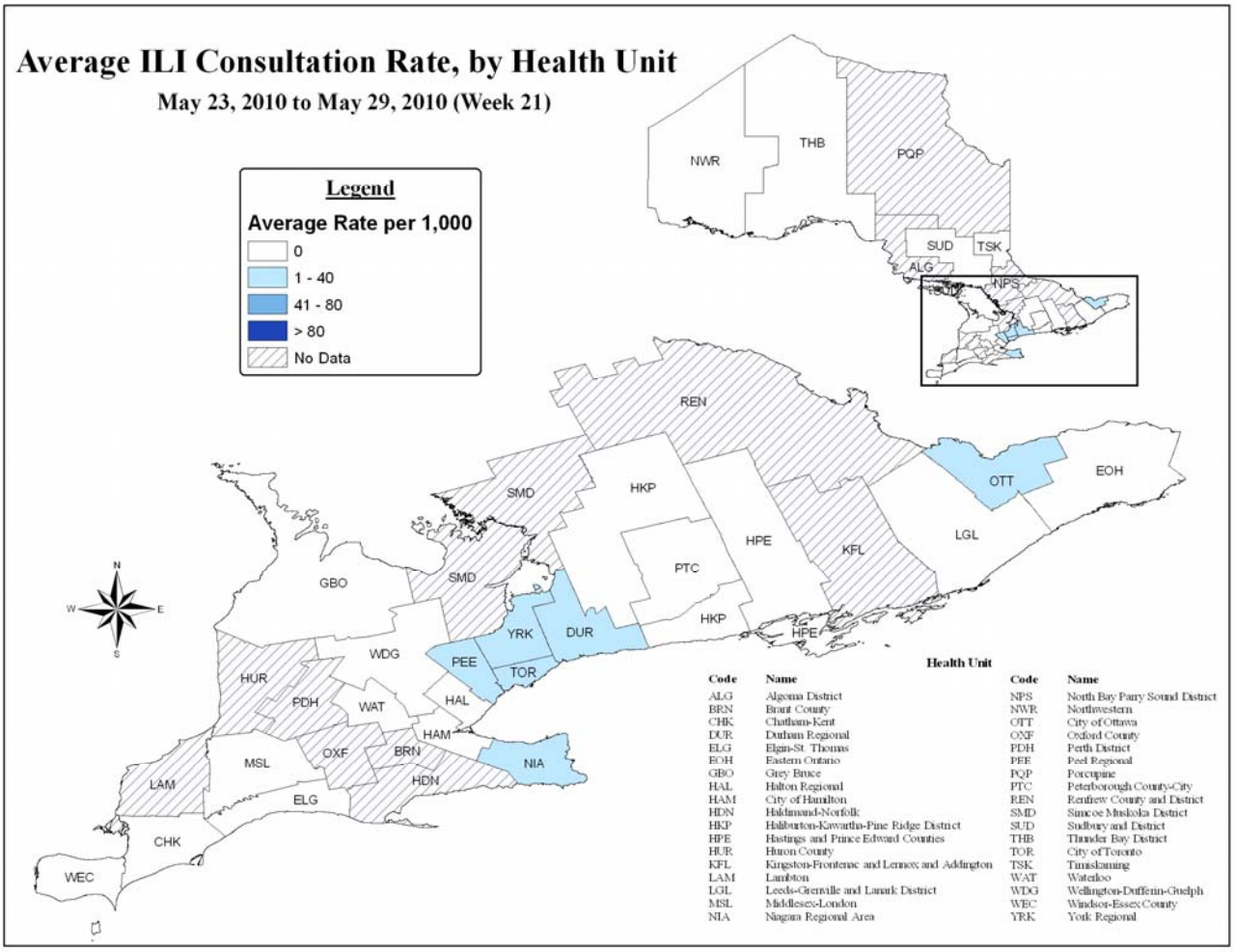
Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [02/06/2010]

Figure 11: Average influenza-like illness (ILI) consultation rate (per 1,000 patient visits) reported by sentinel physicians* in Ontario up to the 2009-10 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, 84 sentinels reported in week 21.
†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.
Since Week 23, 2009, the number of sentinel physicians has increased, which might affect ILI rate starting from week 23.

Figure 12: Average influenza-like illness consultation rate (per 1,000 patient visits) by health unit as reported by sentinel physicians* in Ontario, for Week 21.



Source: Public Health Agency of Canada

* Sentinel physicians report ILI and patient data to the Public Health Agency of Canada; 84 sentinels reported this week of which all 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 21.

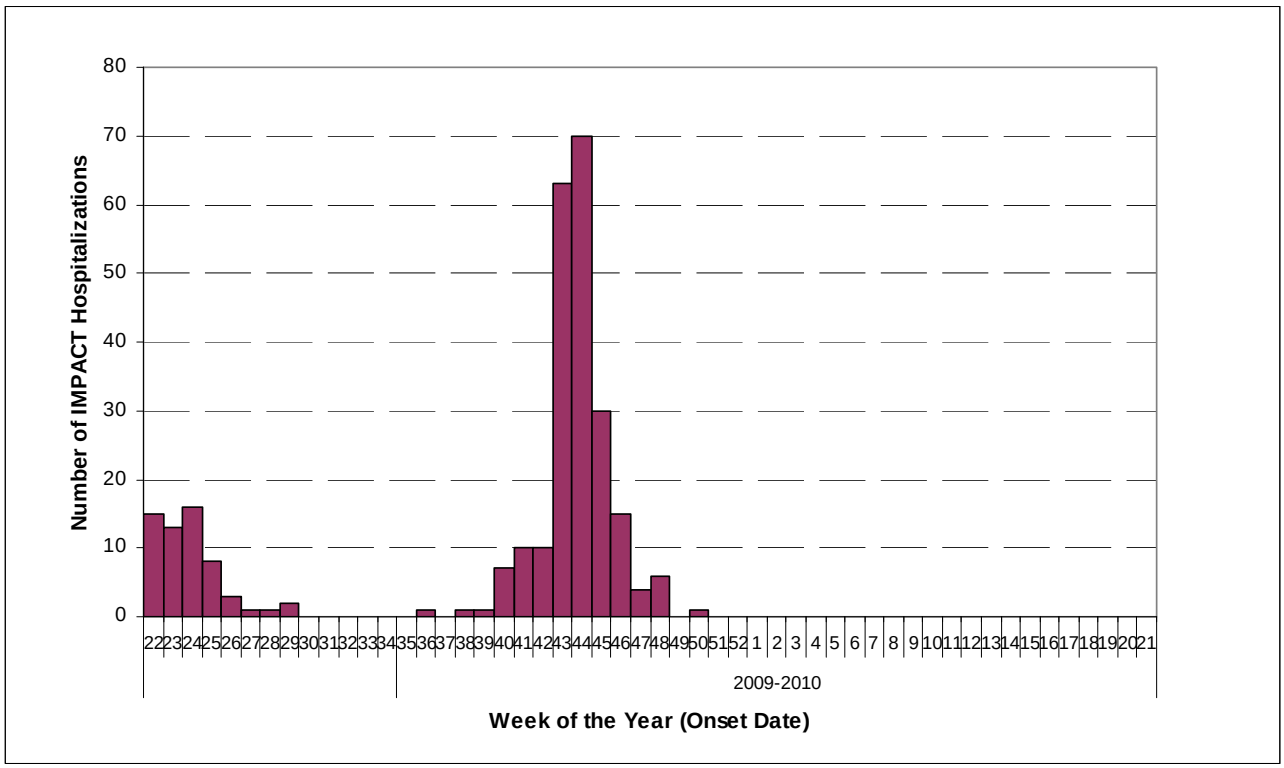
Age Category	0 – 4	5 – 19	20 – 64	65 +	Unknown	TOTAL
ILI Sum	9	4	8	0	0	21
ILI Consultation Rate (per 1,000 patient visits)	65.22	19.32	6.44	0.00	0.00	10.02

Source: Public Health Agency of Canada
Sentinel physician information is reported to the Public Health Agency of Canada; 84 sentinels reported this week.

Immunization Monitoring Program ACTive (IMPACT) is a paediatric 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.

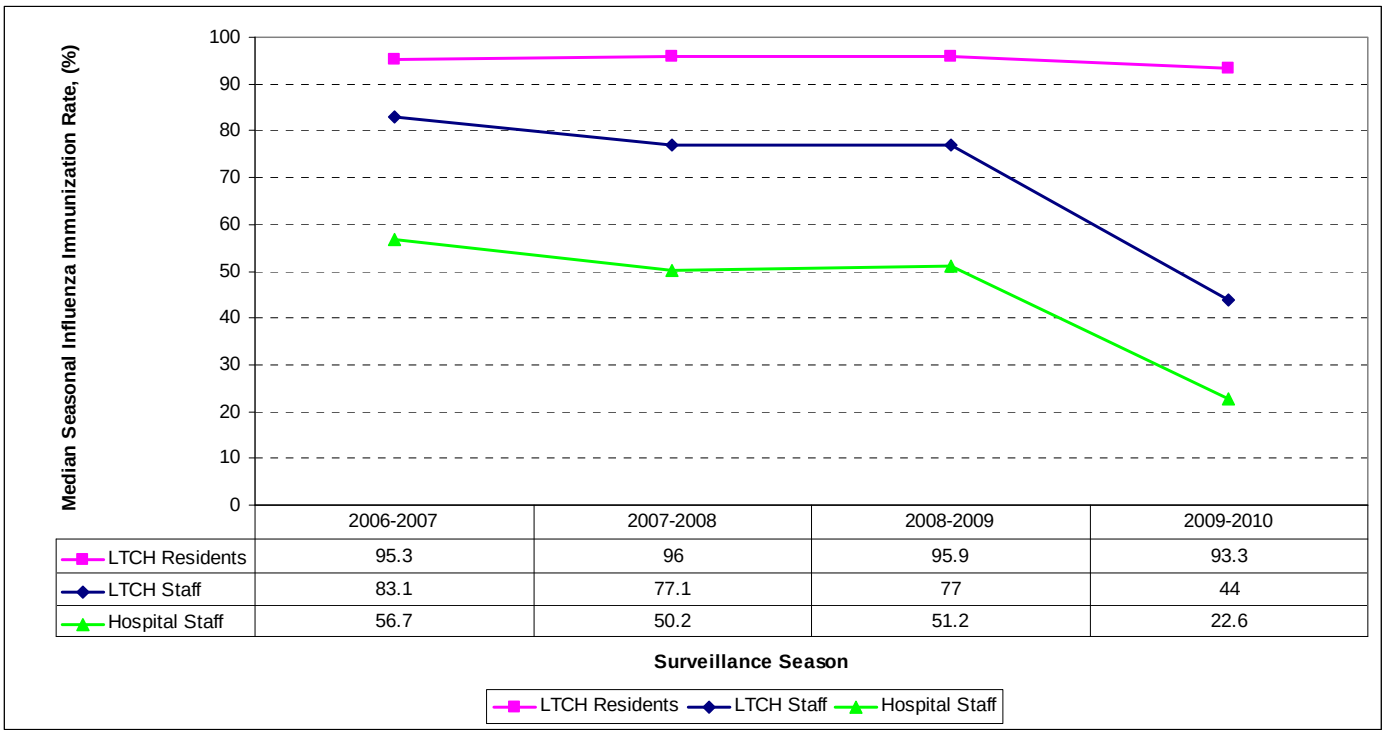
Figure 13: Number of influenza A related hospitalizations in Ontario reported through IMPACT up to Week 21, by onset date.



Source: Public Health Agency of Canada
***Note:** The number 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.

Seasonal influenza vaccine coverage rates as of November 15 of each year for residents and staff of Long Term Care Homes and staff of public hospitals are to be reported to the local medical officer of health by December 1st of each year. The rates are then reported to the province by the health unit. The following figure outlines trends in influenza immunization coverage rates for seasonal influenza up to the 2009-10 surveillance season. H1N1 influenza vaccine uptake in Long-Term Care home residents and staff along with hospital staff is summarized in Table 9.

Figure 14: Median Seasonal Influenza Immunization Rates by Surveillance Season



Source: Ontario Influenza Immunization Database

Table 9: pH1N1 Influenza Immunization Status for the 2009-2010 Surveillance Season

Role	pH1N1 Influenza immunization status as of January 15, 2010:
LTCH residents*:	Median rate 81.8% (range 0 - 100%)
LTCH staff:**	Median rate 50.9% (range 0 - 100%)
Hospital staff:	Median rate 65.2% (range 17.7% – 98.8%)

Source: Ontario Influenza Immunization Database
*LTCH residents were offered seasonal influenza vaccine in early October 2010
**LTCH staff were offered pH1N1 starting October 26th 2010

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_09/flubul_mn.html

   When referencing material from the Ontario Influenza Bulletin please use the following format:
   Ontario Ministry of Health and Long-Term Care, Ontario Influenza Bulletin 2009-2010 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.eiss.org/cgi-files/bulletin_v2.cgi

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 2009-2010 and date of submission of Appendix C

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

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**.