

SURVEILLANCE WEEK 44 (November 1, 2009– November 7, 2009)

This issue of the Ontario Influenza Bulletin provides information on the surveillance period from November 1, 2009–November 7, 2009, (Week 44). **All data are for week 44 unless otherwise specified. Death and hospitalization information among pandemic (H1N1) 2009 (abbreviated as pH1N1) confirmed cases is current as of November 12, 2009.** Data extraction and analysis for this issue of the Bulletin occurred on November 12, 2009.

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	1591 total influenza cases (1185 pH1N1) in week 44 compared to 1604 reported in week 43 (1088 pH1N1)*. The percent positivity of laboratory tests for pH1N1 was 46.1%, which is higher than the peak in June (>40%).
Influenza A Outbreaks	Lower	Six new institutional influenza outbreaks were reported for the current reporting week. There were no new pH1N1 outbreaks declared in schools for Week 44.
Influenza Activity Levels Reported by Health Units	Similar	Fifteen health units reported 'widespread' influenza activity and ten health units reported 'localized' activity for the current reporting week.
ILI Consultation Rate reported by Sentinel Physicians	Slightly lower	The overall ILI consultation rate decreased slightly from 138.54/1,000 patient visits to 134.72/1,000 patient visits.
Hospitalizations Among Lab Confirmed Cases of pandemic (H1N1) 2009 virus	Higher	More hospitalized cases were reported from November 4 to November 12 as compared to October 28 to November 4 (312 compared to 212).
Deaths Among Lab Confirmed Cases of pandemic (H1N1) 2009 virus	Higher	Twenty four new deaths were reported from November 4 to November 12 compared to 7 new deaths reported from October 28 to November 4.
OVERALL ASSESSMENT	Influenza activity in Ontario is <i>similar</i> compared to the previous week.	All of the measures indicate that influenza activity is similar in week 44 compared to week 43. This is the first week that the overall assessment has not increased since week 38.

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

Ontario Influenza Bulletin, 2009-2010

Surveillance Week 44 (November 1, 2009 – November 7, 2009)

Overall, influenza activity in Ontario during week 44, 2009, was **similar** when compared to week 43, 2009. Ontario health units reported 1591 new confirmed cases of influenza through the integrated Public Health Information System (iPHIS). This count includes 1185 laboratory confirmed cases of pH1N1. During week 44, new laboratory confirmed cases of pH1N1 continued to be seen in all regions of Ontario. Six new institutional influenza outbreaks were reported. For week 44, fifteen health units reported widespread influenza activity and ten health units reported localized activity, and the remaining health units reported 'sporadic' level influenza activity. The rate of influenza-like illness (ILI) in patients seen by sentinel physicians was much higher than the range that is expected for this time of the year based on the average ILI rate reported in week 44 from the past 3 years.

From November 2, 2009 to November 6, 2009 there were 50 VE study specimens tested by the Central Public Health Laboratory. A total of 15 isolates (30%), tested positive for other respiratory organisms, including rhinovirus and parainfluenza. **The isolates were from the following areas, including: Ottawa, Toronto, Middlesex-London, Niagara, Hastings & Prince Edward, Peel, Brant, Oxford and Simcoe-Muskoka areas. Please refer to page 23 for detailed testing results.**

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), Michael Whelan (michael.whelan@ontario.ca, 416-327-9174) 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 44, 2009-2010)

Confirmed influenza cases*†	HEALTH REGION							TOTAL
	North West	North East	Eastern	Central East	Toronto	South West	Central West	
Pandemic (H1N1) 2009	65	85	260	231	226	156	162	1185
Influenza A (Other Subtypes/Not Subtyped)	12	24	0	167	24	38	140	405
Influenza B	0	0	0	1	0	0	0	1
Influenza A & B	0	0	0	0	0	0	0	0
Total new cases	77	109	260	399	250	194	302	1591
Institutional outbreaks of pandemic (H1N1) 2009 ‡	0	1	0	0	0	1	2	4
Institutional outbreaks of Influenza (Other Subtypes/Not Subtyped)‡	0	0	0	1	0	0	1	2

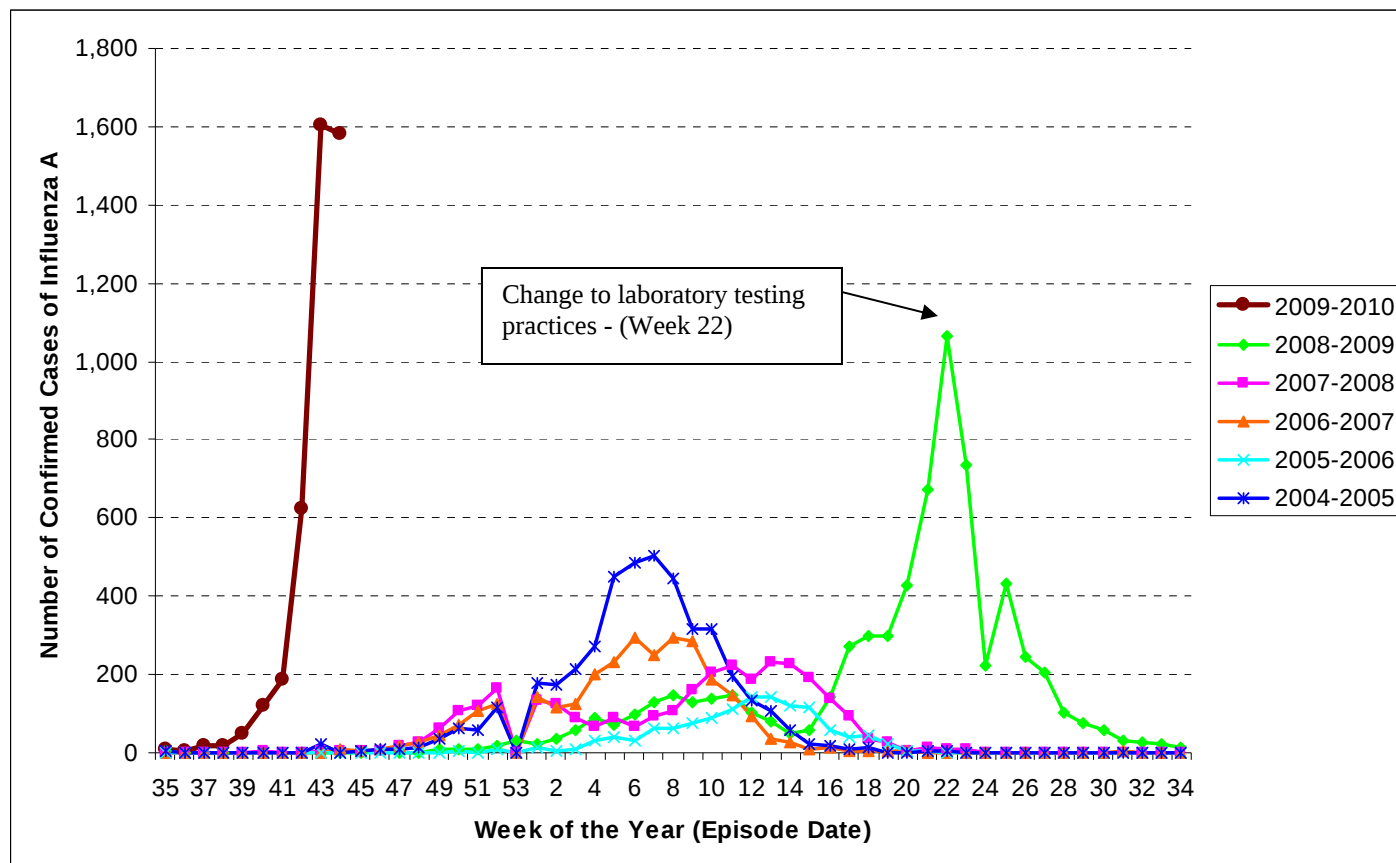
SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [12/11/2009].

* 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.

As seen in Figure 1, the total number of influenza A positive cases occurring between weeks 17 and 22, for the 2008-2009 season, was higher than the seasonal peak that was seen in late-February to mid-March (weeks 8 – 11). A change in laboratory testing patterns is reflected in week 23, as the population eligible for testing was drastically reduced, resulting in a decline in the number of laboratory confirmed cases of influenza A. Beginning June 21, 2009 (week 25) health units began reporting weekly aggregate counts of pH1N1. Aggregate reports are based on the date the health unit was informed of the pH1N1 subtype as opposed to the reported symptom onset date for the case. It is clear that the number of laboratory confirmed cases of influenza A reported to date in the 2009-2010 season is much higher than in the previous five seasons at this time.

Figure 1: All confirmed cases of Influenza A in Ontario by week, 2004-2010[†]*



SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [12/11/2009].
[†] Episode Date for a case corresponds to the earliest date on record for the case according to the iPHIS hierarchy (Symptom Date > Clinical Diagnosis Date > Specimen Collection Date > Lab Test Date > Reported Date)

Table 2: Laboratory confirmed cases of pandemic (H1N1) 2009 virus by health unit & health region, reported during Week 44[†], 2009-10, wave two, wave one, and cumulative* confirmed cases between April 1, 2009 – November 7, 2009

Region	Health Unit	Confirmed pH1N1			
		Current week (WK 44)	Wave 2 (WK 35-current)	Wave 1 (WK 15-WK 34)	Total cumulative
North West	Northwestern	32	42	74	116
	Thunder Bay District	33	67	10	77
	TOTAL NORTH WEST	65	109	84	193
North East	Algoma	17	45	6	51
	North Bay Parry Sound District	18	37	7	44
	Porcupine	34	94	4	98
	Sudbury & District	0	31	24	55
	Timiskaming	16	39	0	39
	TOTAL NORTH EAST	85	246	41	287
Eastern	City of Ottawa	105	276	361	637
	Eastern Ontario	44	136	24	160
	Hastings & Prince Edward Counties	36	62	4	66
	Kingston, Frontenac, Lennox & Addington	42	127	15	142
	Leeds, Grenville And Lanark District	17	62	10	72
	Renfrew County And District	16	25	12	37
	TOTAL EASTERN	260	688	426	1,114
Central East	Durham Region	36	92	118	210
	Haliburton, Kawartha, Pine Ridge	15	25	13	38
	Peel Region	81	161	704	865
	Peterborough County-City	4	33	4	37
	Simcoe Muskoka District	38	76	64	140
	York Region	57	132	493	625
	TOTAL CENTRAL EAST	231	519	1,396	1,915
Toronto	Toronto	226	503	1,589	2,092
	TOTAL TORONTO	226	503	1,589	2,092
South West	Chatham-Kent	4	16	6	22
	Elgin-St. Thomas	4	15	0	15
	Grey Bruce	7	23	12	35
	Huron County	13	15	2	17
	Lambton County	15	42	1	43
	Middlesex-London	44	141	27	168
	Oxford County	14	47	3	50
	Perth District	8	21	3	24
	TOTAL SOUTHWEST	156	390	103	493
Central West	Brant County	4	12	8	20
	City Of Hamilton	49	181	124	305
	Haldimand-Norfolk	0	0	6	6
	Halton Region	40	117	219	336
	Niagara Region	65	165	20	185
	Waterloo Region	0	66	38	104
	Wellington-Dufferin-Guelph	4	36	26	62
	TOTAL CENTRAL WEST	162	577	441	1,018
	Out of Province	0	0	6	6
	TOTAL ONTARIO	1,185	3,032	4,086	7,118

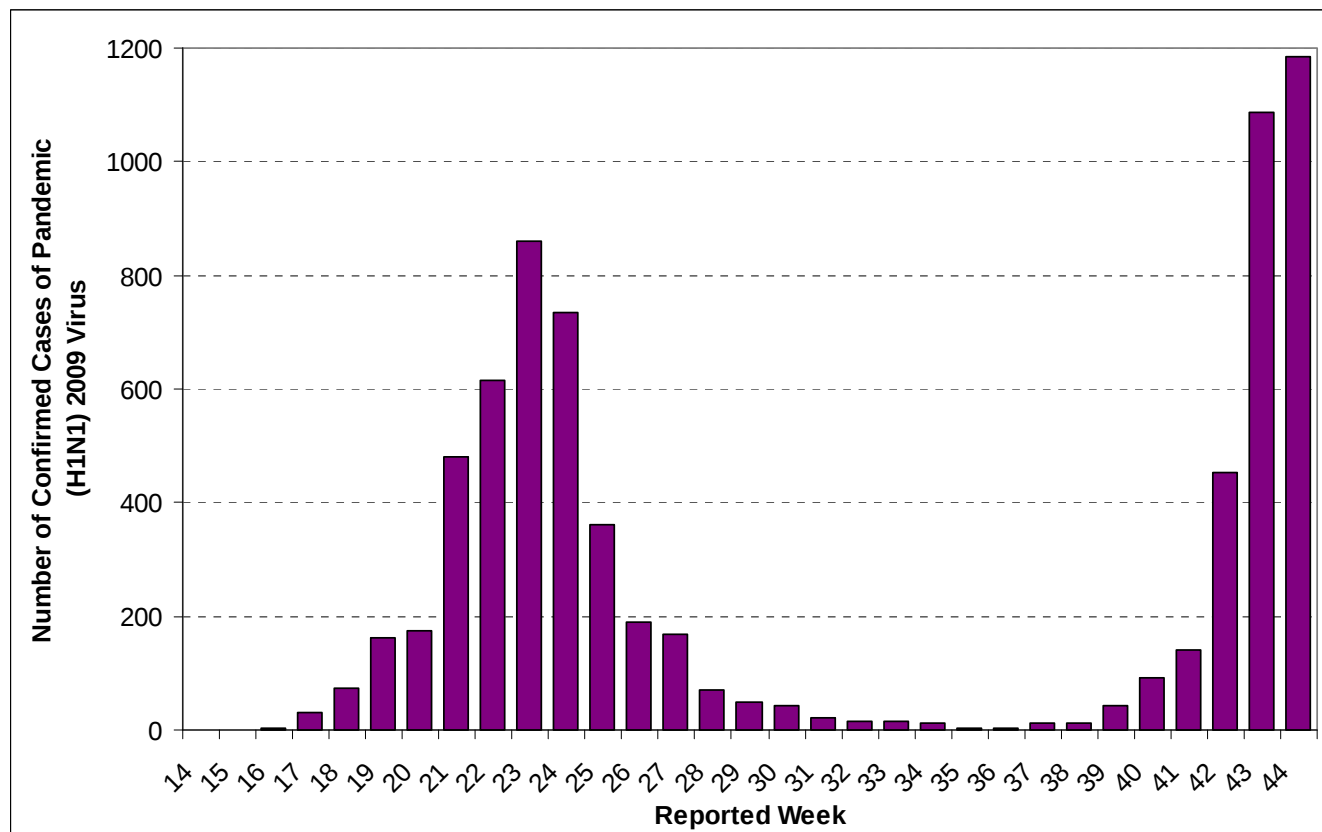
SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [12/11/2009].

[†] Reported date corresponds to the date pandemic (H1N1) 2009 was reported to the health unit

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

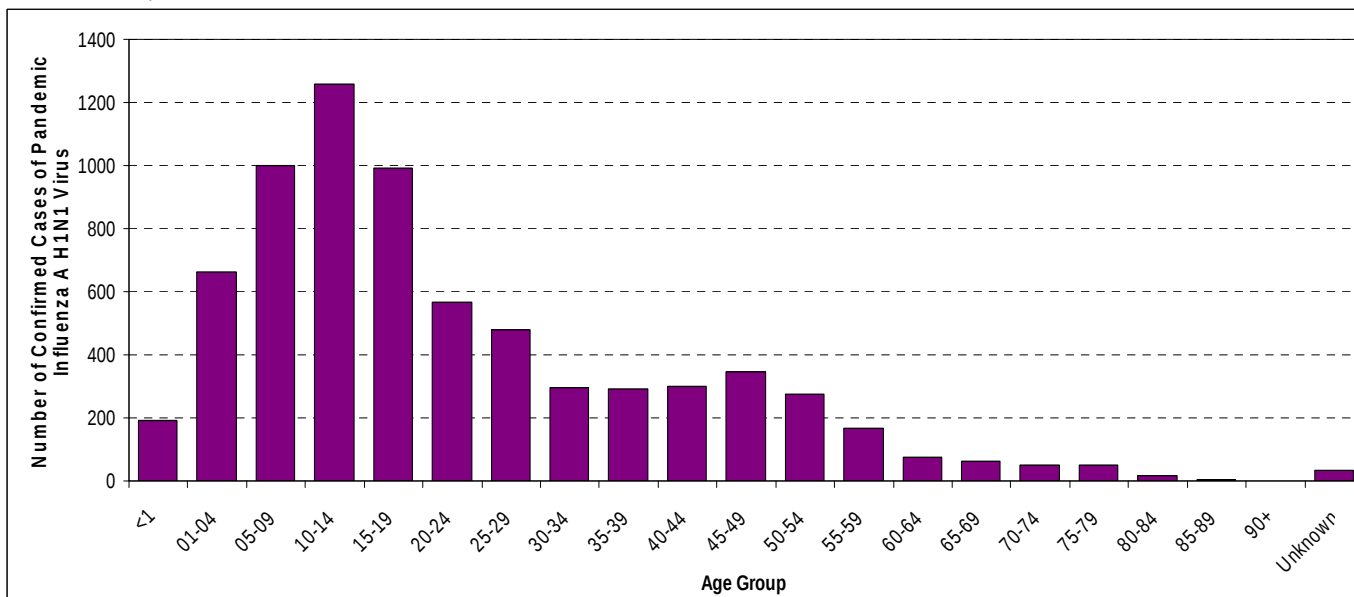
Note: Wave 1 corresponds to April 12, 2009 to August 29, 2009; Wave 2 corresponds to August 30, 2009 to the last date of the current week.

Figure 2: Laboratory confirmed cases of pandemic (H1N1) 2009 in Ontario by week between April 13 and November 7, 2009



SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [12/11/2009].

Figure 3: Laboratory confirmed cases of pandemic (H1N1) 2009 in Ontario by age group between April 13 and November 7, 2009



SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [12/11/2009].

Table 3: Confirmed cases of influenza by health unit & health region, excluding laboratory confirmed pandemic (H1N1) 2009, with an episode date[†] during Week 44, 2009-10

Region	Health Unit	Confirmed Influenza			
		Influenza A (Other subtypes/Not yet Subtyped)	Influenza A & B	Influenza B	TOTAL
North West	Northwestern	4	0	0	4
	Thunder Bay District	8	0	0	8
	TOTAL NORTH WEST	12	0	0	12
North East	Algoma	6	0	0	6
	North Bay Parry Sound District	6	0	0	6
	Porcupine	7	0	0	7
	Sudbury & District	5	0	0	5
	Timiskaming	0	0	0	0
	TOTAL NORTH EAST	24	0	0	24
Eastern	City of Ottawa	0	0	0	0
	Eastern Ontario	0	0	0	0
	Hastings & Prince Edward Counties	0	0	0	0
	Kingston, Frontenac, Lennox & Addington	0	0	0	0
	Leeds, Grenville And Lanark District	0	0	0	0
	Renfrew County And District	0	0	0	0
	TOTAL EASTERN	0	0	0	0
Central East	Durham Region	27	0	0	27
	Haliburton, Kawartha, Pine Ridge	10	0	0	10
	Peel Region	103	0	1	104
	Peterborough County-City	7	0	0	7
	Simcoe Muskoka District	11	0	0	11
	York Region	9	0	0	9
	TOTAL CENTRAL EAST	167	0	1	168
Toronto	Toronto	24	0	0	24
	TOTAL TORONTO	24	0	0	24
South West	Chatham-Kent	0	0	0	0
	Elgin-St. Thomas	0	0	0	0
	Grey Bruce	5	0	0	5
	Huron County	14	0	0	14
	Lambton County	0	0	0	0
	Middlesex-London	16	0	0	16
	Oxford County	3	0	0	3
	Perth District	0	0	0	0
	Windsor-Essex County	0	0	0	0
	TOTAL SOUTHWEST	38	0	0	38
Central West	Brant County	8	0	0	8
	City Of Hamilton	49	0	0	49
	Haldimand-Norfolk	3	0	0	3
	Halton Region	32	0	0	32
	Niagara Region	30	0	0	30
	Waterloo Region	15	0	0	15
	Wellington-Dufferin-Guelph	3	0	0	3
	TOTAL CENTRAL WEST	140	0	0	140
	TOTAL ONTARIO	405	0	1	406

SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [12/11/2009].

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

Table 4: Cumulative* confirmed cases of influenza by health unit & health region, excluding laboratory confirmed pandemic (H1N1) 2009, with an episode date[†] between September 1, 2009 – November 7, 2009

Region	Health Unit	Confirmed Influenza			
		Influenza A (Other subtypes/Not yet Subtyped)	Influenza A & B	Influenza B	TOTAL
North West	Northwestern	19	0	0	19
	Thunder Bay District	38	0	0	38
	TOTAL NORTH WEST	57	0	0	57
North East	Algoma	26	0	0	26
	North Bay Parry Sound District	46	0	0	46
	Porcupine	27	0	0	27
	Sudbury & District	23	0	0	23
	Timiskaming	0	0	0	0
	TOTAL NORTH EAST	122	0	0	122
Eastern	City Of Ottawa	1	0	0	1
	Eastern Ontario	2	0	0	2
	Hastings & Prince Edward Counties	1	0	0	1
	Kingston, Frontenac, Lennox & Addington	0	0	0	0
	Leeds, Grenville And Lanark District	1	0	0	1
	Renfrew County And District	0	0	0	0
	TOTAL EASTERN	5	0	0	5
Central East	Durham Region	56	0	0	56
	Haliburton, Kawartha, Pine Ridge	18	0	0	18
	Peel Region	184	0	1	185
	Peterborough County-City	25	0	0	25
	Simcoe Muskoka District	26	0	0	26
	York Region	15	0	0	15
	TOTAL CENTRAL EAST	324	0	1	325
Toronto	Toronto	71	0	1	72
	TOTAL TORONTO	71	0	1	72
South West	Chatham-Kent	0	0	0	0
	Elgin-St. Thomas	0	0	0	0
	Grey Bruce	31	0	0	31
	Huron County	24	0	0	24
	Lambton County	1	0	0	1
	Middlesex-London	67	0	0	67
	Oxford County	15	0	0	15
	Perth District	11	0	2	13
	Windsor-Essex County	0	0	0	0
	TOTAL SOUTHWEST	149	0	2	151
Central West	Brant County	20	0	0	20
	City Of Hamilton	178	0	1	179
	Haldimand-Norfolk	5	0	0	5
	Halton Region	84	0	0	84
	Niagara Region	64	0	0	64
	Waterloo Region	94	0	0	94
	Wellington-Dufferin-Guelph	19	0	1	20
	TOTAL CENTRAL WEST	464	0	2	466
TOTAL ONTARIO		1,192	0	6	1,198

SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [12/11/2009].

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

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

NOTE: Data presented on deaths and hospitalizations includes cases reported up to November 12, 2009.

Deaths among pandemic (H1N1) 2009 virus cases, April 13 – November 12, 2009

A total of 61 deaths have been reported, with 41% (25) reported in wave 1 and 59% (36) in wave 2. Of the reported deaths, 77% were hospitalized prior to their date of death. Overall, cases that died ranged in age from 0 to 87 years and had a mean and median age of 52 and 55 years, respectively. Women accounted for more than half of all cases that have died with 31 out of 61 (51%) deaths occurring among women.

Mortality due to pH1N1 increased with increasing age, with people in the 45-64 and in the 65 and older age groups accounting for the highest mortality rates. These rates were significantly higher than the overall provincial rate. A similar trend was observed for both waves one and two.

Hospitalizations among pandemic (H1N1) 2009 virus cases, April 13 – November 12, 2009

One thousand and sixty-seven hospitalizations were reported, with 35.6% (380) reported in wave 1 and 64.4% (687) reported in wave 2. The cumulative hospitalization rate of pH1N1 related hospitalizations is 8.3 hospitalizations per 100,000 population. In general, the incidence of infection with pH1N1 decreased with increasing age, with persons in the three youngest age ranges (under 15 years) accounting for the highest number of cases and the highest incidence rates. Persons aged 15 years and older had the lowest incidence rates which were all below the overall provincial incidence rate for pH1N1. A similar trend was observed for wave one and wave two cases. Cases under the age of 20 years account for 47% of hospitalized cases in wave 1 and 48% of hospitalized cases in wave 2.

Admission to ICU and/or use of a ventilator was reported for 21% of wave one cases and 14% of wave 2 cases. Overall, 16% of hospitalizations have been admitted to ICU and/or placed on a ventilator. Fever, cough, shortness of breath, vomiting, malaise, myalgia and sore throat/difficulty swallowing have been the most commonly reported symptoms among hospitalized cases.

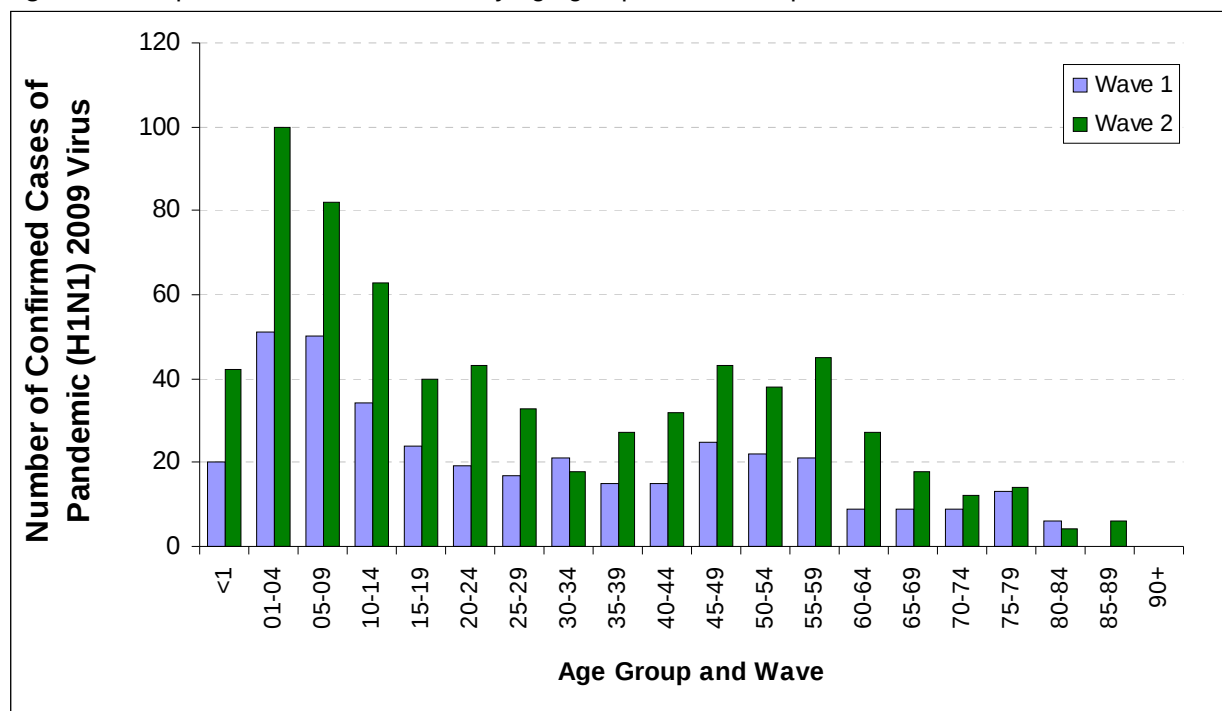
Table 5. Overview of key surveillance indicators among fatal and hospitalized cases in Ontario

Surveillance Indicators	Wave 1 (Apr - Aug 31, 2009)*	Wave 2 (Sep 1 – Nov 12, 2009)	Total (Apr - Nov 12, 2009)
Number of deaths	25 (41%)	36 (59%)	61 (100%)
Number of hospitalizations	380 (35.6%)	687 (64.4%)	1067 (100%)
Hospitalization status			
Discharged	97% (370)	77% (531)	84% (901)
Currently hospitalized	3% (10)	23% (156)	16% (168)
Length of hospital stay (days)			
Mean	10	4	6
Median	4	3	3
Range	0-95	0-37	0-95

Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (IPHIS) database, extracted at 8:30 am [12/11/2009]

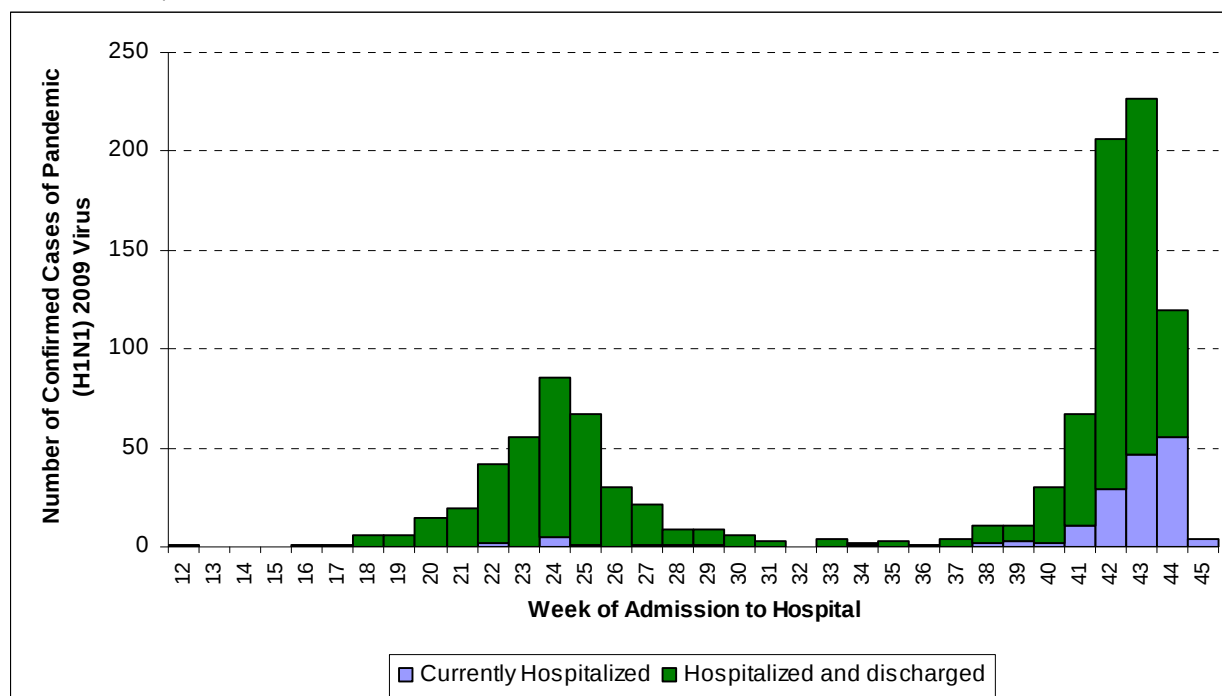
* **Note:** Cases that were hospitalized or that have died are not mutually exclusive.

Figure 4: Hospitalized cases in Ontario by age group and wave, April 13 to November 12, 2009



Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted at 8:30 am [12/11/2009]

Figure 5: Hospitalized cases of pandemic (H1N1) 2009 by hospital admission date in Ontario, April 13 – November 12, 2009*



Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted at 8:30 am [12/11/2009]

Note: Interpret tail with caution due to reporting lags, changes in lab testing, case identification and data entry.

Influenza Subtype(s):

During week 44, a total of 21152 isolates were received by the Public Health Agency of Canada, with 8054 testing positive for influenza A and two positive for influenza B. 2678 of the reported influenza A isolates were from Quebec (33.3%), 1392 were from Ontario (17.3%), 1155 were from British Columbia (14.3%), and 752 were from New Brunswick (9.3%).*

(Antigenic Characterization and Antiviral Resistance data are current as of November 12, 2009)

Antigenic Characterization (National):

Since September 1, 2009, National Microbiology Laboratory (NML) has antigenically characterized 70 pandemic H1N1 viruses and two seasonal influenza viruses (one influenza A/H1N1 and one B virus) that were received from Canadian laboratories.

Pandemic Influenza A (H1N1):

All 70 pandemic influenza A (H1N1) viruses characterized were antigenically related to A/California/7/2009, which is the pandemic reference virus selected by WHO for the 2009 influenza A (H1N1) vaccine.

Seasonal Influenza A (H1N1):

The one seasonal influenza A/H1N1 virus characterized was related to A/Brisbane/59/07, which is the influenza A/H1N1 component for the 2009-10 influenza vaccine.

Influenza B:

The one influenza B virus characterized was antigenically related to B/Brisbane/60/08, which is the influenza B component for the 2009-10 influenza vaccine.

Antigenic Characterization (Provincial):

The National Microbiology Laboratory (NML) has antigenically characterized the following strains from Ontario: 44 influenza A/California/07/2009-like and 1 influenza B/Brisbane/60/2008-like.

Antiviral Resistance (National):

Four seasonal influenza A viruses (one H1N1 and three H3N2) and 62 pandemic H1N1 viruses were tested for resistance to amantadine and found that all were resistant. Three seasonal influenza viruses (one H1N1, one H3N2 and one B) and 69 pandemic H1N1 viruses were tested for resistance to oseltamivir and found that one seasonal H1N1 isolate was resistant to oseltamivir. Two pH1N1 isolates were resistant to oseltamivir with the H275Y mutation. The resistance was associated with oseltamivir treatment. 67 pH1N1 isolates were sensitive to oseltamivir. The H3N2 and B viruses were sensitive to oseltamivir.

Three seasonal influenza viruses (one H1N1, one H3N2 and one B) and 70 pandemic H1N1 viruses were tested for resistance to zanamivir and all were sensitive.

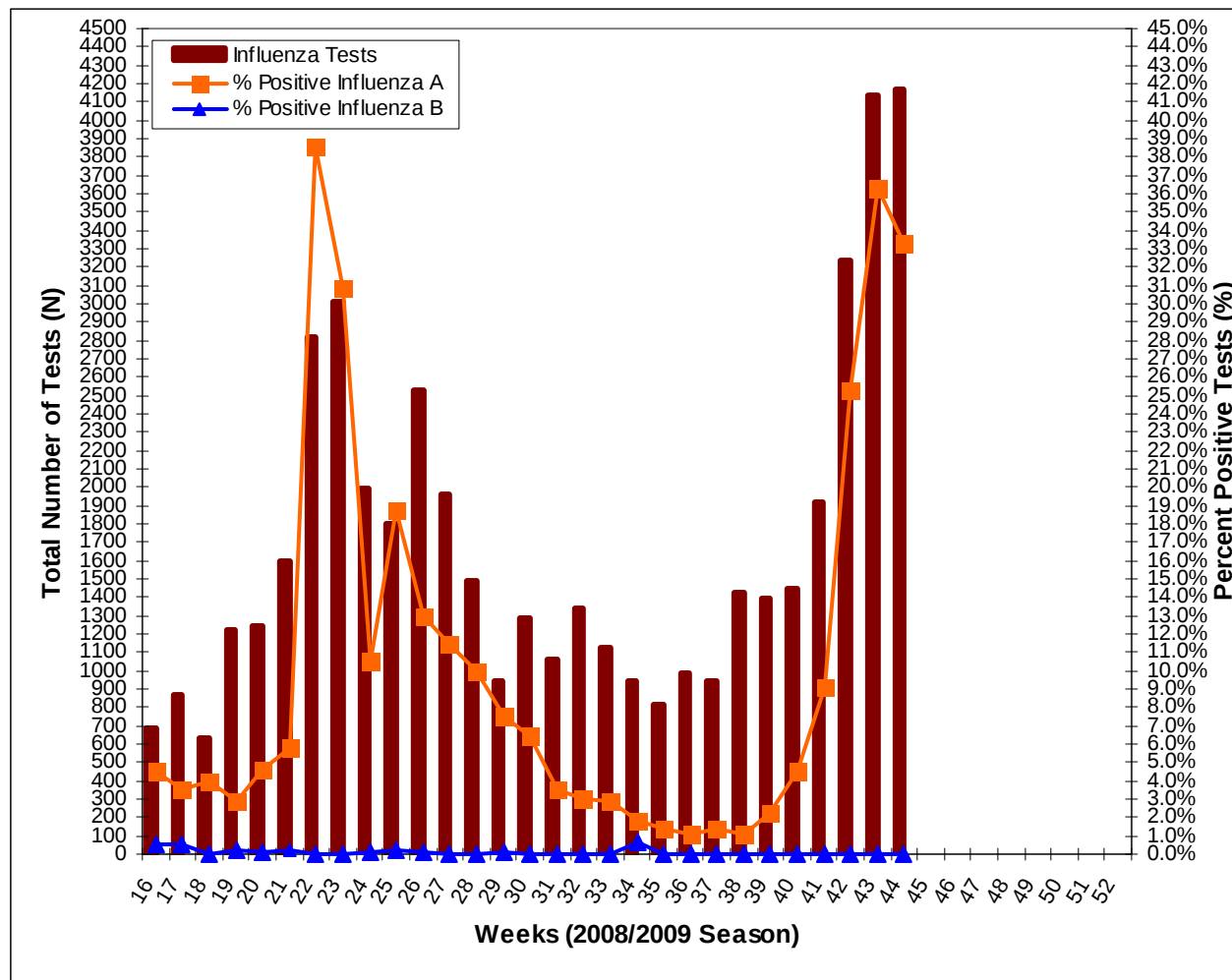
Antiviral Resistance (Provincial):

41/43 influenza pH1N1 isolates were sensitive to oseltamivir, 44 of 44 tested were sensitive to zanamivir, and 31 of 31 tested were resistant to amantadine. The influenza B isolate was sensitive to oseltamivir and zanamivir. The one H3N2 isolate was also resistant to amantadine.†

* 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 44, 2009. Please note that the last version received from PHAC as of 4:00PM on November 11, 2009 was used.

† These data have been obtained from the National Microbiology Laboratory of the Public Health Agency of Canada for Week 44, 2009.

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*.

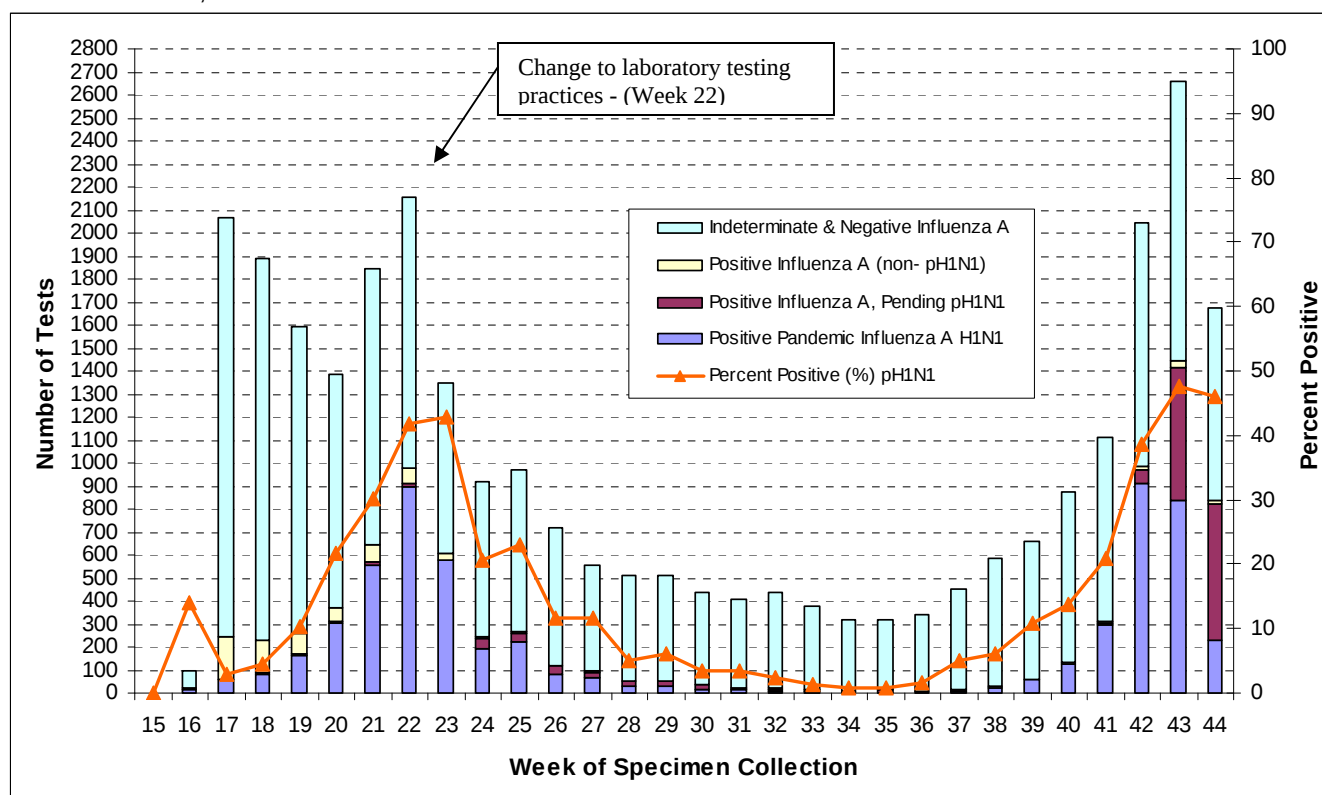


Source: Public Health Agency of Canada. These data have been obtained from the Respiratory Virus Detection tables of Public Health Agency of Canada from 17 labs in Ontario and do not include data from late reports to PHAC for the current season: Week 44, 2009. Please note that the last version received from PHAC as of 4:00PM on November 11, 2009 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/>

Figure 6a: 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 April 12 –November 9, 2009



Source: Adapted from Table 1 in the "OAHPP Laboratory Pandemic H1N1 Surveillance Report"; Monday, November 9, 2009

Note: Not all cases with specimens collected during week 44 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: Beginning on Week 43, subtyping will be only performed on 20% of influenza A positive tests, in addition to all intensive care patients and outbreak samples.

Table 6: Summary of Other Respiratory Virus Detections/Isolations in Ontario in Week 44

Organism Name	Number of Positive Tests	Number of Tests	% Positive
Respiratory Syncytial Virus	6	2653	0.23
Parainfluenza (all types)	105	2810	3.74
Adenovirus	16	2810	0.57
Human Metapneumovirus	1	554	0.18

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 44, 2009. Please note that the last version received from PHAC as of 4:00PM on November 11, 2009 was used.

Table 7: Institutional respiratory infection outbreaks in Ontario: new outbreaks* in Week 44 and total outbreaks for the season**

Institutional Respiratory Infection Outbreaks		
New Outbreaks*	N	% (of outbreaks)
Influenza A (All subtypes)	6	85.7
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	14.3
TOTAL	7	100.0
Total Respiratory Infection Outbreaks of the Season to date**	N	% (of outbreaks)
Influenza A	37	24.7
Influenza B	0	0.0
Influenza A and B	0	0.0
Parainfluenza (All types)	2	1.3
RSV	1	0.7
Combined Outbreaks [†]	14	9.3
Other organisms	36	24.0
No organism identified	60	40.0
TOTAL	150	100.0
Types of Institutions – All Outbreaks **	N	% (of outbreaks)
Long-Term Care Homes	84	56.0
Hospitals	14	9.3
Retirement Homes	9	6.0
Other	3	2.0
Unknown	40	26.7
TOTAL	150	100.0
	N	% (of outbreaks)
New Outbreaks – Pandemic (H1N1) 2009*	4	13.3
Total pH1N1 2009 Infection Outbreaks of the Season to date**	30	100.0
Types of Institutions (pH1N1 Outbreaks)	N	% (of outbreaks)
Long-Term Care Homes	4	13.3
Hospitals	10	33.3
Retirement Homes	2	6.7
Other	2	6.7
Unknown	12	40.0
TOTAL	30	100.0

SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [10/11/2009]

* New outbreaks are those in which the date of onset of illness in the first case occurred and recorded through iPHIS in the current surveillance period; i.e. November 1, 2009 – November 7, 2009

** Season to date includes all outbreaks in which the date of onset of illness in the first case occurred up to Week 44. For pH1N1 note that there have been 4 outbreaks between April 13, 2009 and August 31, 2009 - 2 in LTCHs and 2 in Hospitals.

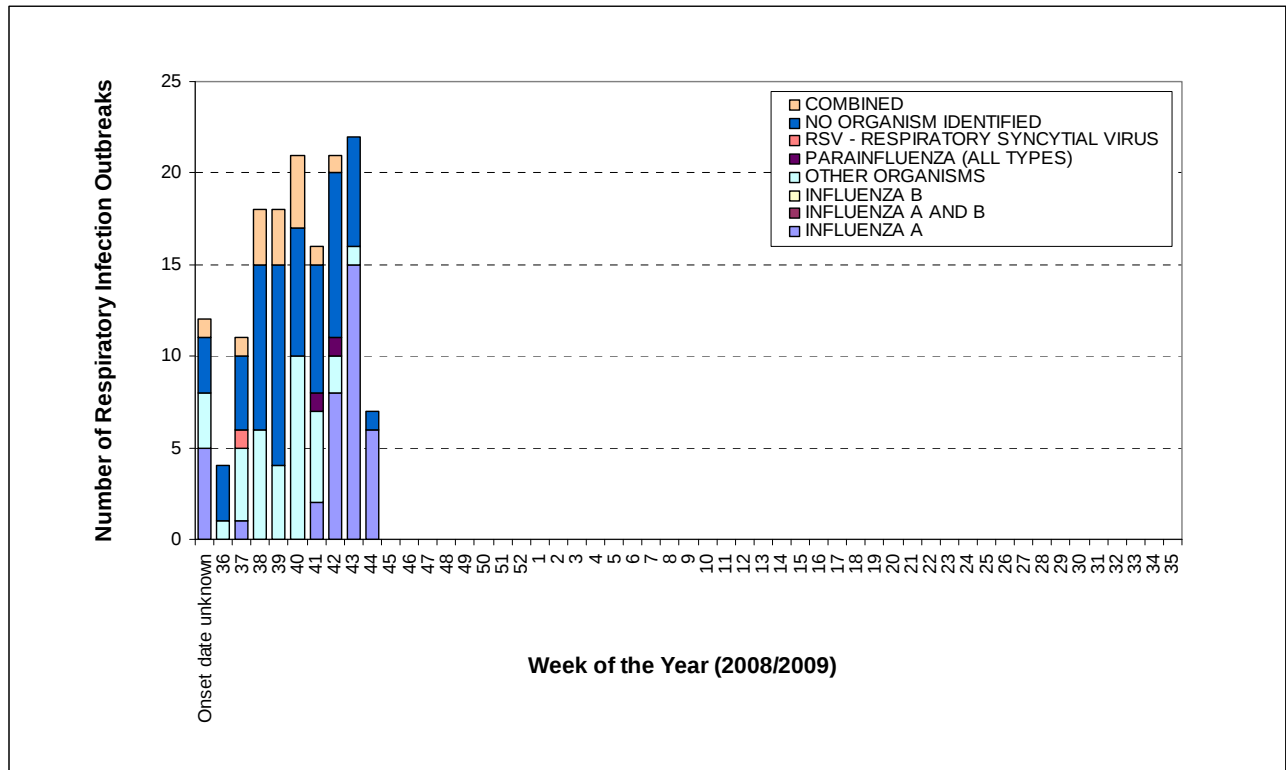
[†] Combined outbreaks include outbreaks in which more than one non-influenza organism has been identified (e.g. RSV, parainfluenza, rhinovirus, etc.)

Table 8: Outbreak Related Complications in institutional respiratory infection outbreaks in Ontario during the Surveillance Season*

Outbreak Related Cases – All Outbreaks	N	% (of total cases)
Residents	1206	65.4
Patients	120	6.5
Staff	517	28.1
Total Cases	1843	100.0
Deaths		% (of cases per role)
Residents	25	2.1
Patients	1	0.8
Staff	0	0.0
Pneumonia (Chest x-ray confirmed)		% (of cases per role)
Residents	26	2.2
Patients	6	5.0
Staff	0	0.0
Hospitalizations		% (of cases per role)
Residents	46	3.8
Staff	0	0.0
Outbreak Related Cases – All Influenza Outbreaks	N	% (of total cases)
Residents	77	44.8
Patients	42	24.4
Staff	53	30.8
Total Cases	172	100.0
Deaths		% (of cases per role)
Residents	2	2.6
Patients	0	0.0
Staff	0	0.0
Pneumonia (Chest x-ray confirmed)		% (of cases per role)
Residents	0	0.0
Patients	2	2.6
Staff	0	0.0
Hospitalizations		% (of cases per role)
Residents	8	10.4
Staff	0	0.0
Outbreak Related Cases – Pandemic (H1N1) 2009 Outbreaks	N	% (of total cases)
Residents	56	41.8
Patients	36	26.9
Staff	42	31.3
Total Cases	134	100.0
Deaths		% (of cases per role)
Residents	1	1.8
Patients	0	0.0
Staff	0	0.0
Pneumonia (Chest x-ray confirmed)		% (of cases per role)
Residents	0	0.0
Patients	2	5.6
Staff	0	0.0
Hospitalizations		% (of cases per role)
Residents	6	10.7
Staff	0	0.0

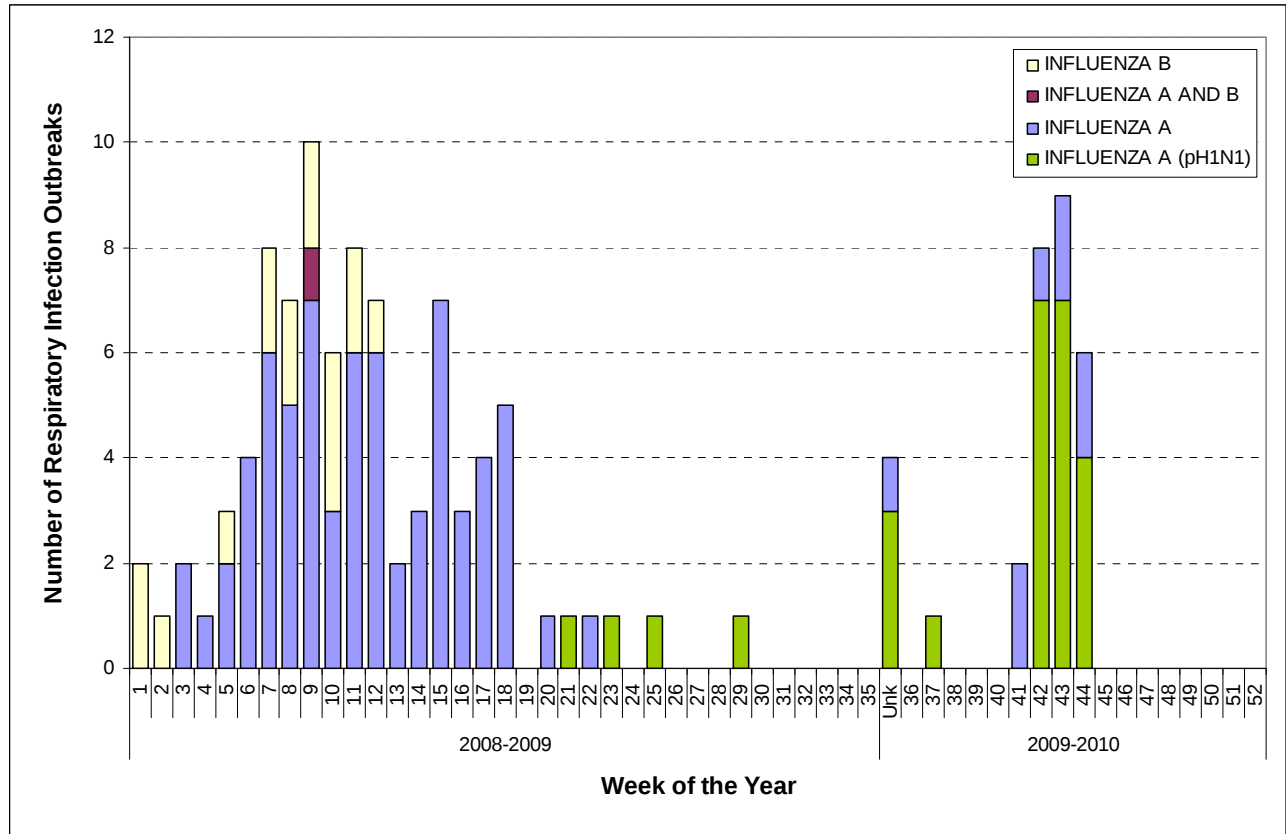
SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [10/11/2009]

Figure 8: Institutional respiratory infection outbreaks in Ontario by onset of illness in the first case: Total Outbreaks up to and including Week 44 by causative organism



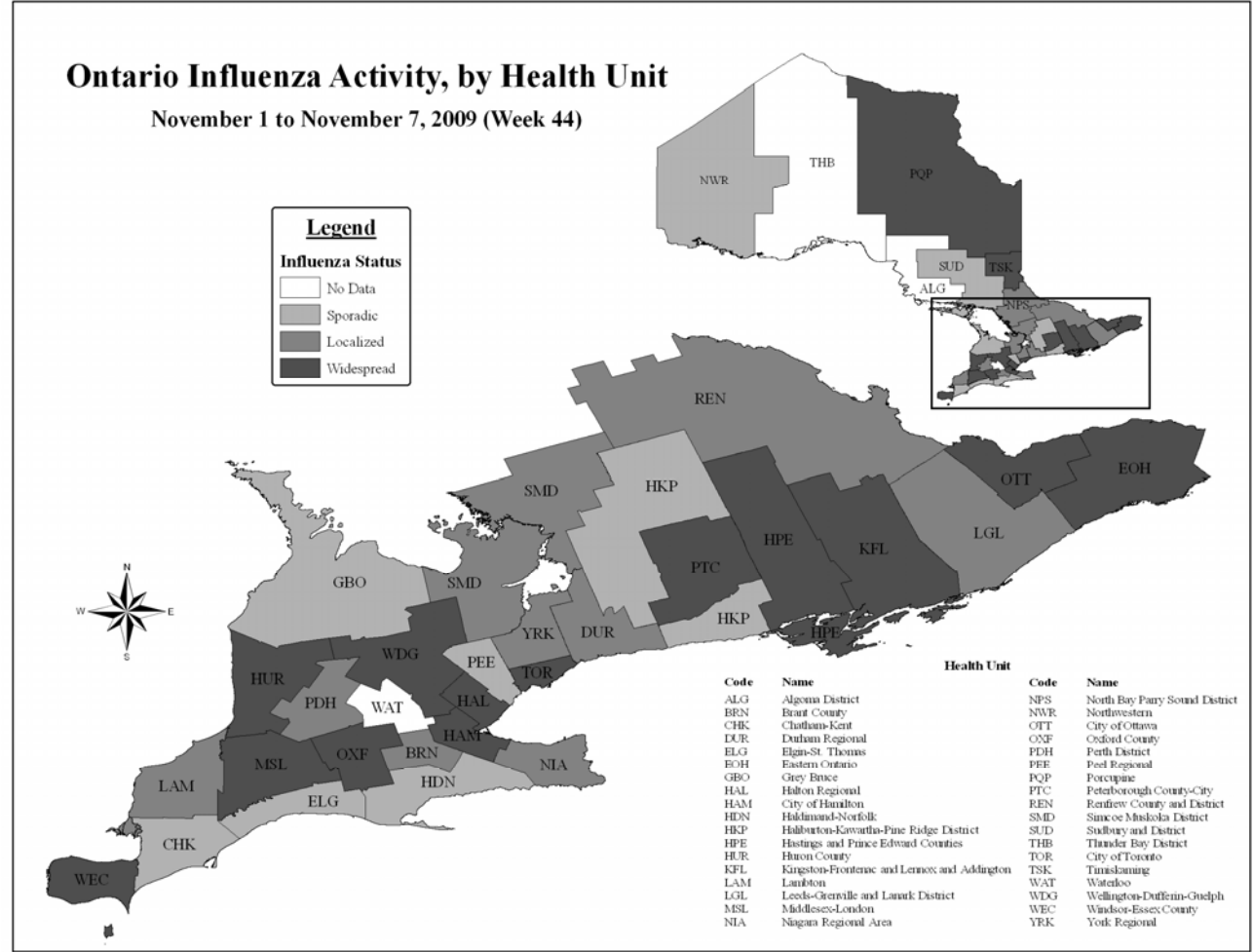
Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [10/11/2009]

Figure 9: Institutional influenza outbreaks in Ontario by onset of illness in the first case: Total Outbreaks up to and including Week 44 by subtype



Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [10/11/2009]

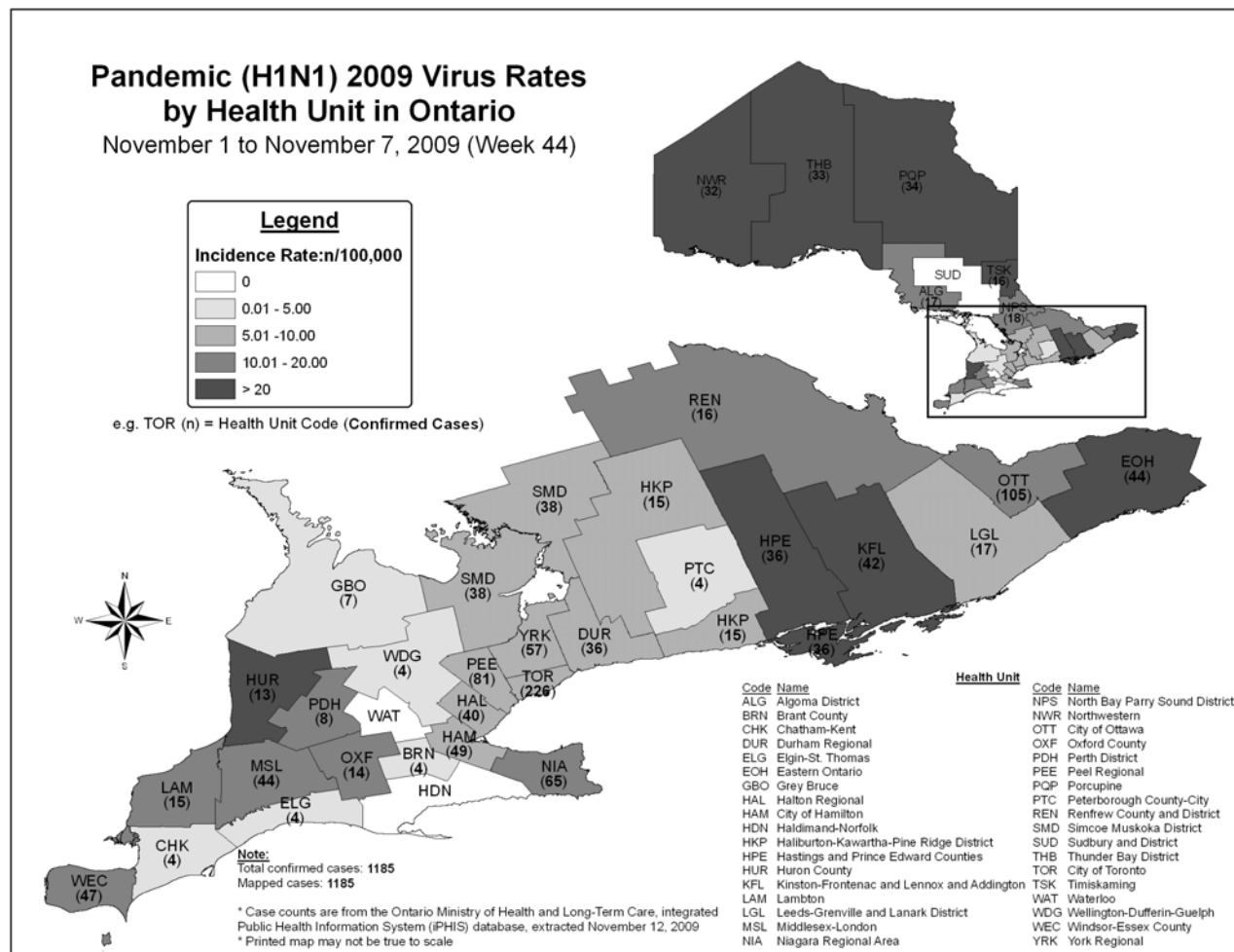
Figure 10: Influenza Activity* levels in Ontario by health unit for Week 44, 2009



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

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

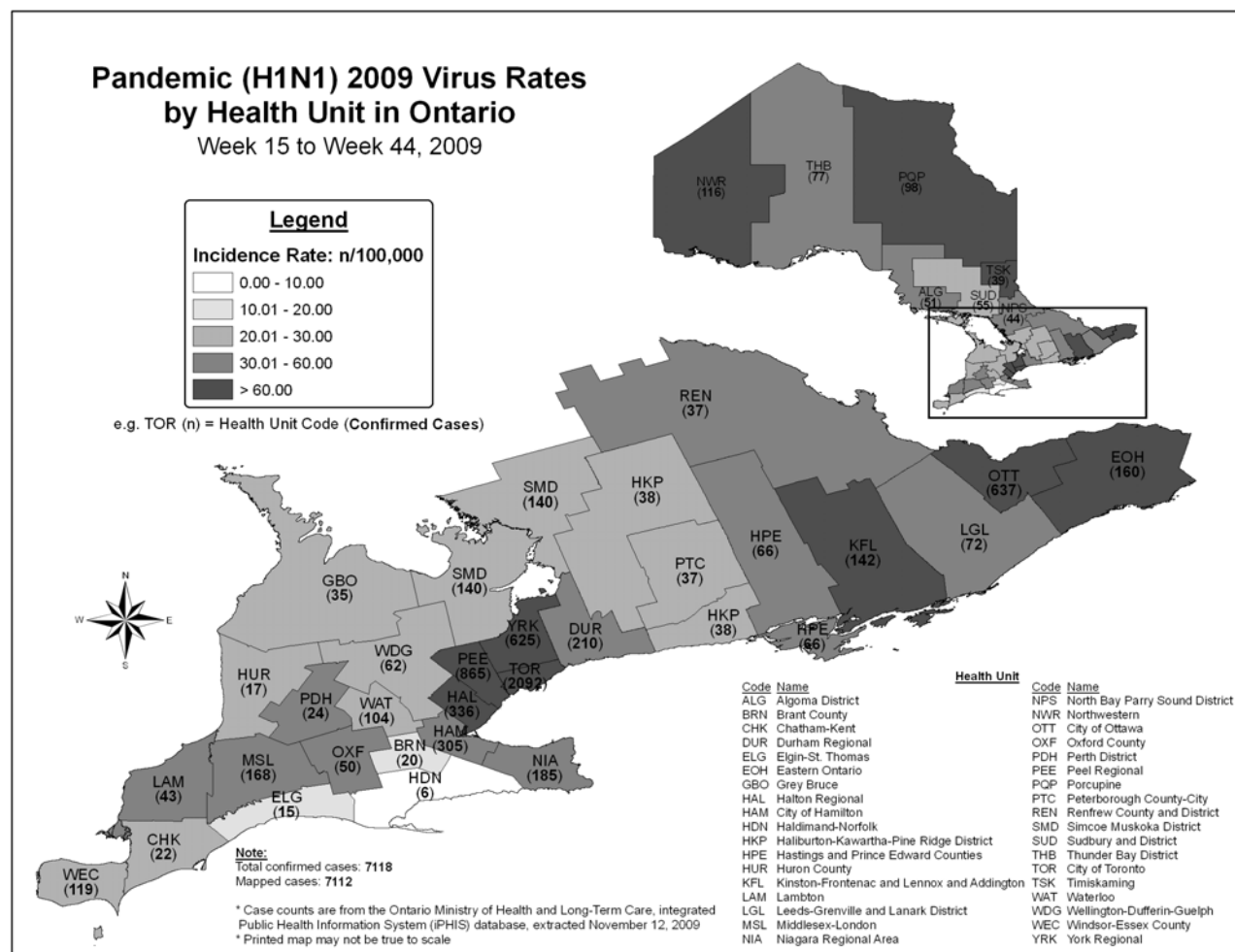
Figure 11: Pandemic (H1N1) 2009 Virus incidence rates and counts in Ontario by health unit for Week 44, 2009



Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [12/11/2009]

Note: Health units with a hatch indicates unavailable data for this week since an outbreak was not created in iPHIS

Figure 12: Pandemic (H1N1) 2009 Virus cumulative incidence rates and counts in Ontario by health unit, Week 15 – 44 (April 12 – November 7, 2009)



Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (IPHIS) database, extracted [12/11/2009]

Figure 13: 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).

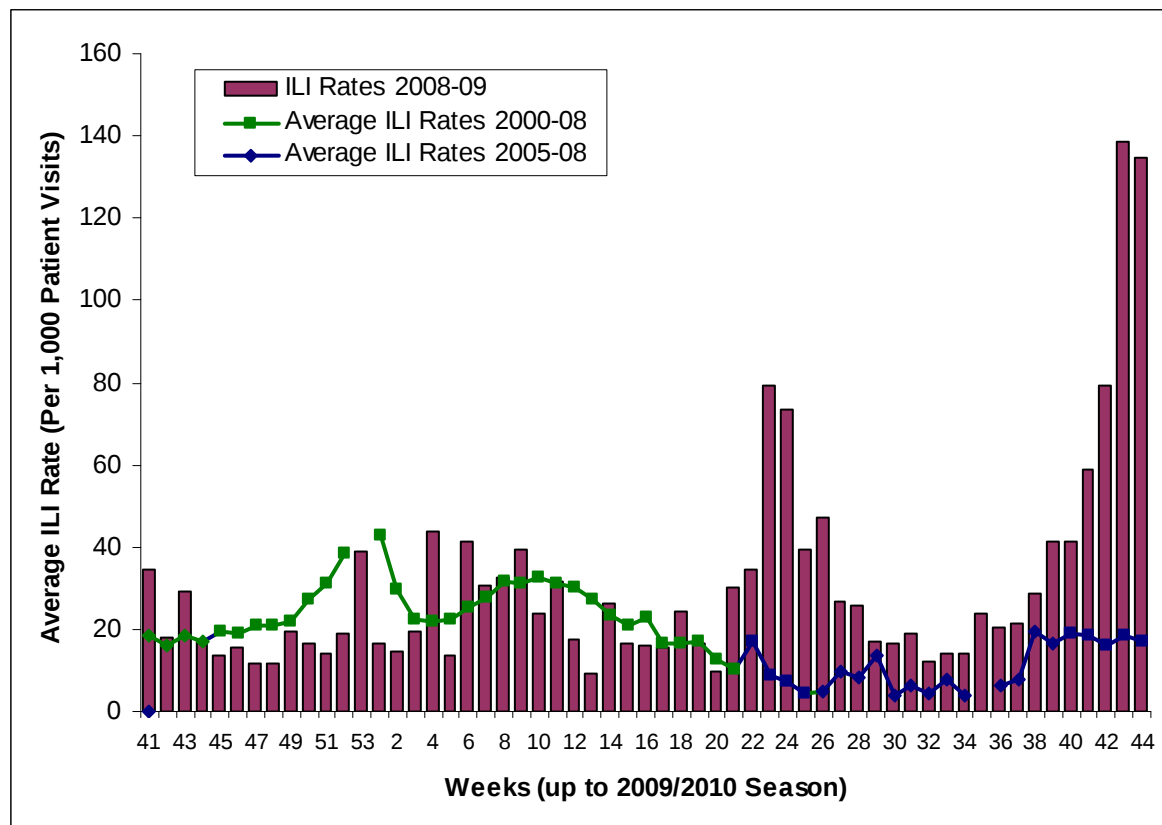
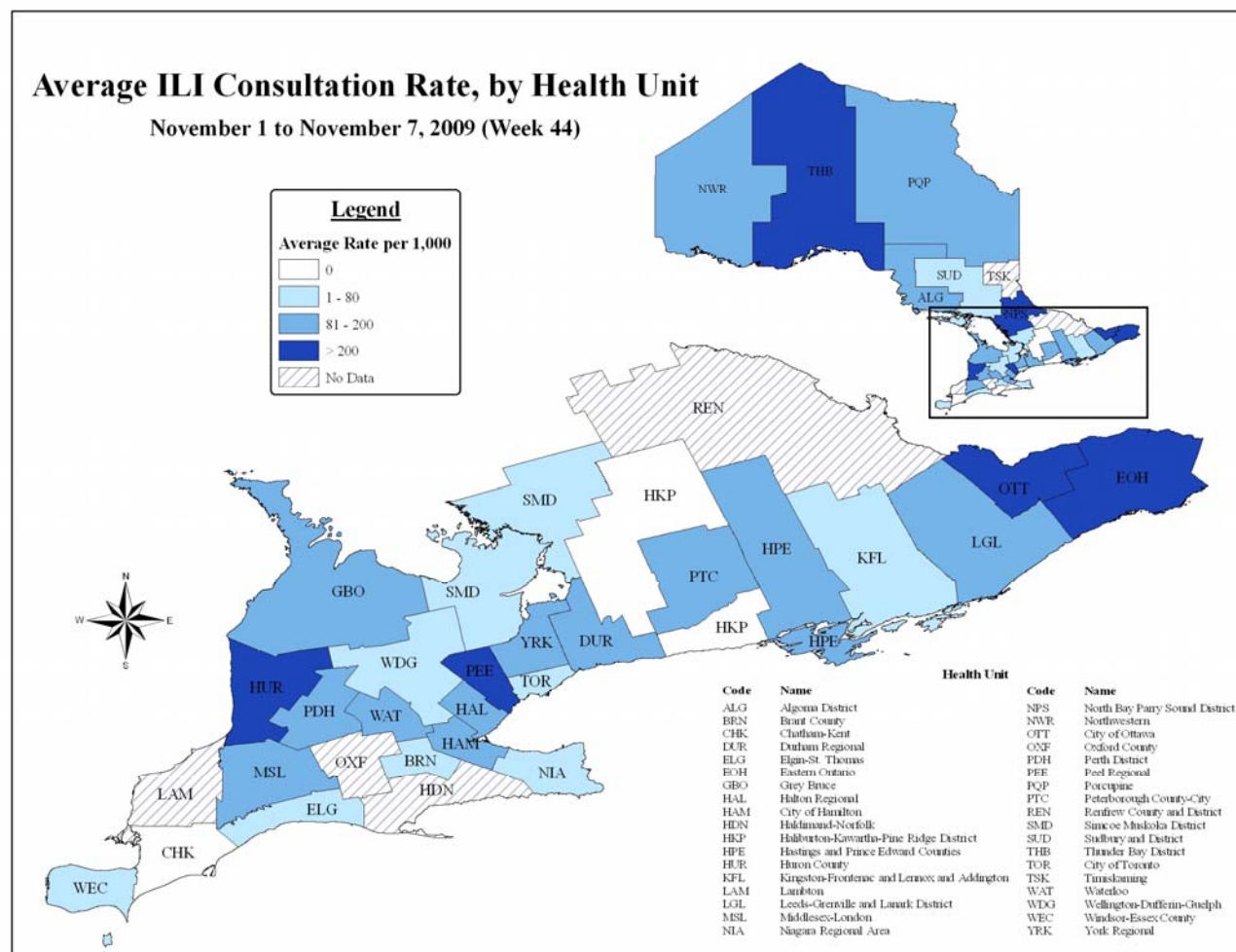


Figure 14: Average influenza-like illness consultation rate (per 1,000 patient visits) by health unit as reported by sentinel physicians* in Ontario, for Week 44.



Source: Public Health Agency of Canada

* Sentinel physicians report ILI and patient data to the Public Health Agency of Canada; 111 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 9: Average influenza-like illness consultation rate (per 1,000 patient visits) by age group as reported by sentinel physicians* in Ontario, for Week 44.

Age Category	0 – 4	5 – 19	20 – 64	65 +	Unknown	TOTAL
ILI Sum	72	162	200	18	0	452
ILI Consultation Rate (per 1,000 patient visits)	269.66	332.65	107.64	24.23	0.00	134.72

Source: Public Health Agency of Canada

* Sentinel physician information is reported to the Public Health Agency of Canada; 111 sentinels reported this week.

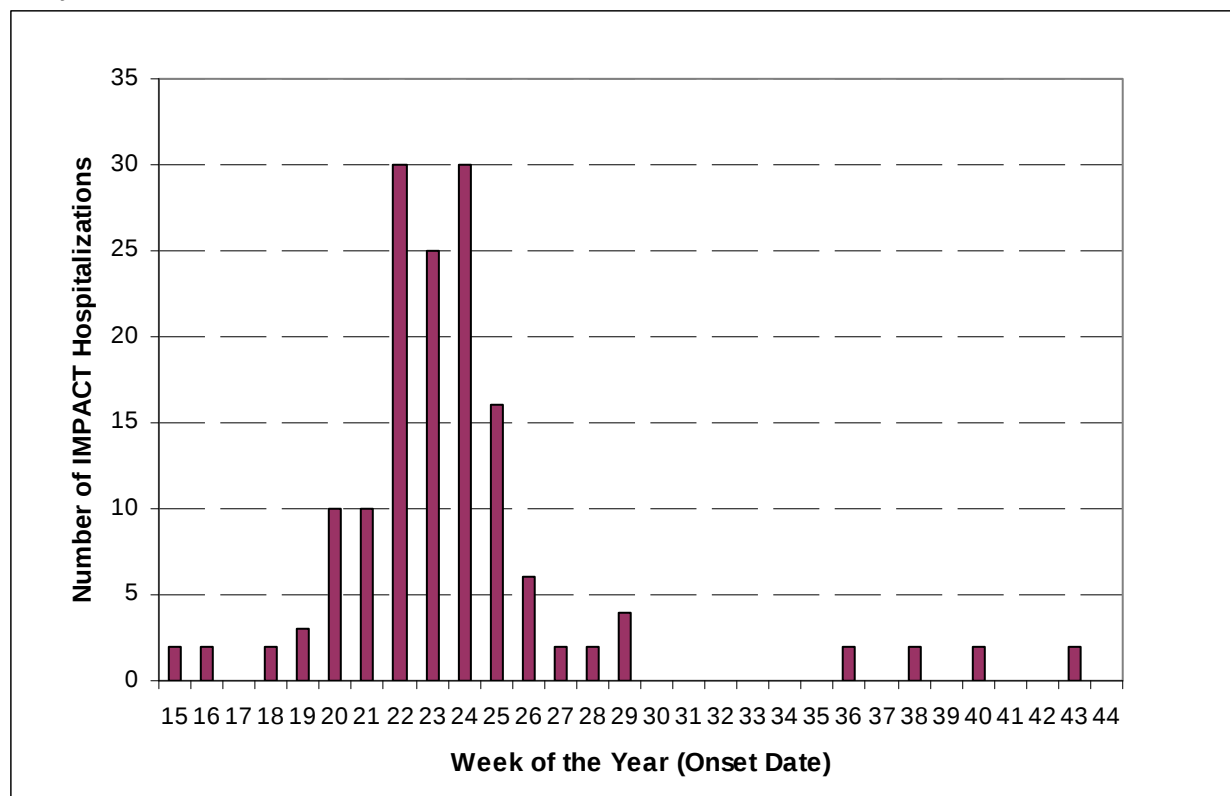
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Immunization Monitoring Program ACTive (IMPACT) is a paediatric hospital-based national active surveillance network for adverse events following immunization and selected infectious diseases in children, including influenza-associated pediatric hospitalizations 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 15: Number of influenza related hospitalizations in Ontario reported through IMPACT up to Week 44, 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.

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Table 10: Number of Seegene test results by health unit and agent in Ontario conducted by the Ontario Agency for Health Protection and Promotion Laboratory, for the period November 2, 2009 to November 6, 2009

HEALTH UNIT	SEEGENE RESULTS	Total
BRANT COUNTY	Parainfluenza 1	1
CITY OF OTTAWA	Rhinovirus	2
CITY OF TORONTO	Parainfluenza 1/Rhinovirus	2
HASTINGS AND PRINCE EDWARD COUNTIES	Rhinovirus	1
MIDDLESEX-LONDON	Parainfluenza 2	1
	Rhinovirus	1
	Rhinovirus	1
NIAGARA REGIONAL AREA	Rhinovirus	1
OXFORD COUNTY	Rhinovirus	1
PEEL REGIONAL	Rhinovirus	1
SIMCOE MUSKOKA DISTRICT	Rhinovirus	3
Grand Total		15

Source: Ontario Agency for Health Protection and Promotion, November 12, 2009

FURTHER INFORMATION

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

INFORMATION ABOUT 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
WK45	8-Nov-09	14-Nov-09	17-Nov-09
WK46	15-Nov-09	21-Nov-09	24-Nov-09
WK47	22-Nov-09	28-Nov-09	1-Dec-09
WK48	29-Nov-09	5-Dec-09	8-Dec-09
WK49	6-Dec-09	12-Dec-09	15-Dec-09
WK50	13-Dec-09	19-Dec-09	22-Dec-09
WK51	20-Dec-09	26-Dec-09	29-Dec-09
WK52	27-Dec-09	2-Jan-10	5-Jan-10
WK1	3-Jan-10	9-Jan-10	12-Jan-10
WK2	10-Jan-10	16-Jan-10	19-Jan-10
WK3	17-Jan-10	23-Jan-10	26-Jan-10
WK4	24-Jan-10	30-Jan-10	2-Feb-10
WK5	31-Jan-10	6-Feb-10	9-Feb-10
WK6	7-Feb-10	13-Feb-10	16-Feb-10
WK7	14-Feb-10	20-Feb-10	23-Feb-10
WK8	21-Feb-10	27-Feb-10	2-Mar-10
WK9	28-Feb-10	6-Mar-10	9-Mar-10
WK10	7-Mar-10	13-Mar-10	16-Mar-10
WK11	14-Mar-10	20-Mar-10	23-Mar-10
WK12	21-Mar-10	27-Mar-10	30-Mar-10
WK13	28-Mar-10	3-Apr-10	6-Apr-10
WK14	4-Apr-10	10-Apr-10	13-Apr-10
WK15	11-Apr-10	17-Apr-10	20-Apr-10
WK16	18-Apr-10	24-Apr-10	27-Apr-10
WK17	25-Apr-10	1-May-10	4-May-10
WK18	2-May-10	8-May-10	11-May-10
WK19	9-May-10	15-May-10	18-May-10
WK20	16-May-10	22-May-10	25-May-10
WK21	23-May-10	29-May-10	1-Jun-10
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

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WEEKS	START	END	Appendix C Submission to MOHLTC
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.**

Current Provincial Surveillance Case Definition for pH1N1 (as of May 5, 2009):

Confirmed

Person with or without Influenza-like illness¹ and

Laboratory confirmation of swine influenza A (H1N1) virus infection by one or more of the following tests:

- RT-PCR with genotyping of H1 and/or N1 swine influenza virus
- Viral culture with strain typing
- Four-fold rise in swine influenza A(H1N1) virus specific antibodies by serology testing

¹Influenza-like illness: Acute onset of respiratory illness with fever AND one or more of the following - cough, sore throat, arthralgia, myalgia, prostration, or malaise. In cases under 5 or 65 and older fever may not be prominent.