

SURVEILLANCE WEEK 40 (October 4, 2009– October 10, 2009)

This issue of the Ontario Influenza Bulletin provides information on the surveillance period from October 4, 2009–October 10, 2009, (Week 40). **All data are for week 40 unless otherwise specified. Death and hospitalization information among pandemic (H1N1) 2009 (abbreviated as pH1N1) confirmed cases is current as of October 14, 2009.** Data extraction and analysis for this issue of the Bulletin occurred on October 14, 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	Higher	116 total influenza cases (84 pH1N1) in week 40 compared to 53 reported in week 39 (39 pH1N1)*. Due to technical issues with lab data extraction, an update on respiratory specimens tested is not available this week.
Influenza A Outbreaks	Similar	No new institutional influenza outbreaks were reported for the current reporting week. However, three pH1N1 outbreaks were declared in schools in week 40.
Influenza Activity Levels Reported by Health Units	Higher	One health unit reported 'widespread' influenza activity and three health units reported 'localized' activity for the current reporting week
ILI Consultation Rate reported by Sentinel Physicians	Slightly Higher	The overall ILI consultation rate increased slightly from 41.23/1,000 patient visits to 41.40/1,000 patient visits.
Hospitalizations Among Lab Confirmed Cases of pandemic (H1N1) 2009 virus	Higher	More hospitalized cases were reported from October 7 to October 14 as compared to September 30 to October 7 (20 compared to 8).
Deaths Among Lab Confirmed Cases of pandemic (H1N1) 2009 virus	Lower	No new deaths were reported from October 7 to October 14.
OVERALL ASSESSMENT	Influenza activity in Ontario is <i>higher</i> compared to the previous week.	Many of the measures indicate that influenza activity in week 40 has increased compared to activity in week 39.

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

Overall, influenza activity in Ontario during week 40, 2009, was **higher** compared to week 39, 2009. Ontario health units reported 116 new confirmed cases of influenza through the integrated Public Health Information System (iPHIS). This count includes 84 laboratory confirmed cases of pH1N1. During week 40, new laboratory confirmed cases of pH1N1 continued to be seen in the Eastern, Central East, Toronto, Southwest, and Central West regions. No new institutional influenza outbreaks were reported. For week 40, Hamilton reported widespread influenza activity and Halton, Eastern Ontario and Peterborough health units reported localized activity, and other health units reported either 'sporadic' level or no influenza activity. The rate of influenza-like illness (ILI) in patients seen by sentinel physicians was above the range that is expected for this time of the year based on the average ILI rate reported in week 40 from the past 3 years.

From October 1, 2009 to October 9, 2009 there were 72 VE study specimens tested by the Central Public Health Laboratory. A total of 23 isolates (31%), tested positive for pandemic H1N1 influenza A. All isolates tested negative for Flu B. **The isolates were from the following areas, including: Chatham-Kent, Middlesex-London, Haliburton-Kawartha-Pine Ridge, London, Niagara, Ottawa, Thunder Bay, Toronto, Lambton, Kingston-Frontenac-Lennox & Addington, Hastings Prince Edward and Waterloo areas.**

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 40, 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	23	14	14	8	25	84
Influenza A (Other Subtypes/Not Subtyped)	0	0	0	6	3	7	15	31
Influenza B	0	0	0	0	1	0	0	1
Influenza A & B	0	0	0	0	0	0	0	0
Total new cases	0	0	23	20	18	15	40	116
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

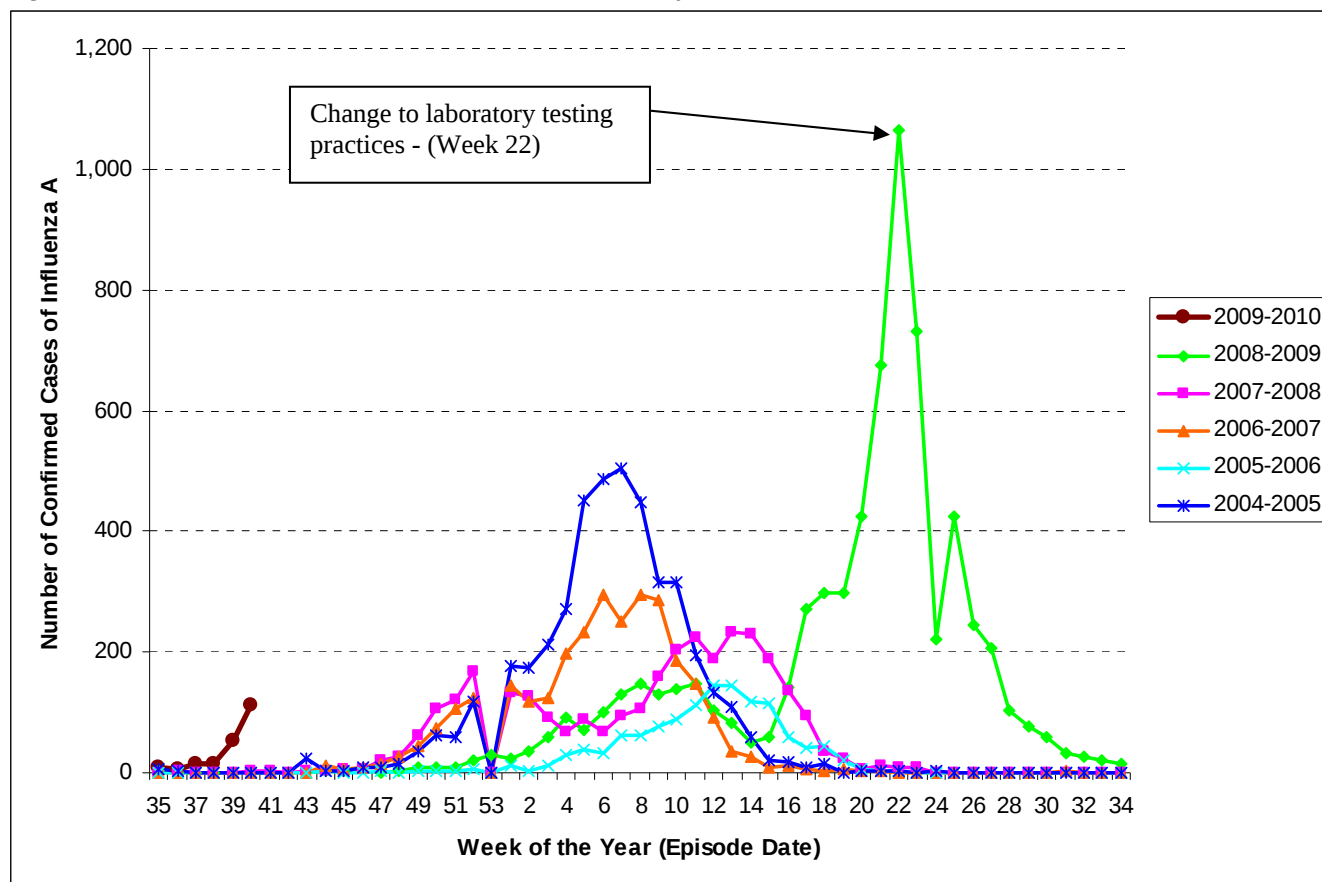
SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [14/10/2009].

* 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 [14/10/2009].

[†] 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 40[†], 2009-10 and cumulative* confirmed cases between April 1, 2009 – October 10, 2009

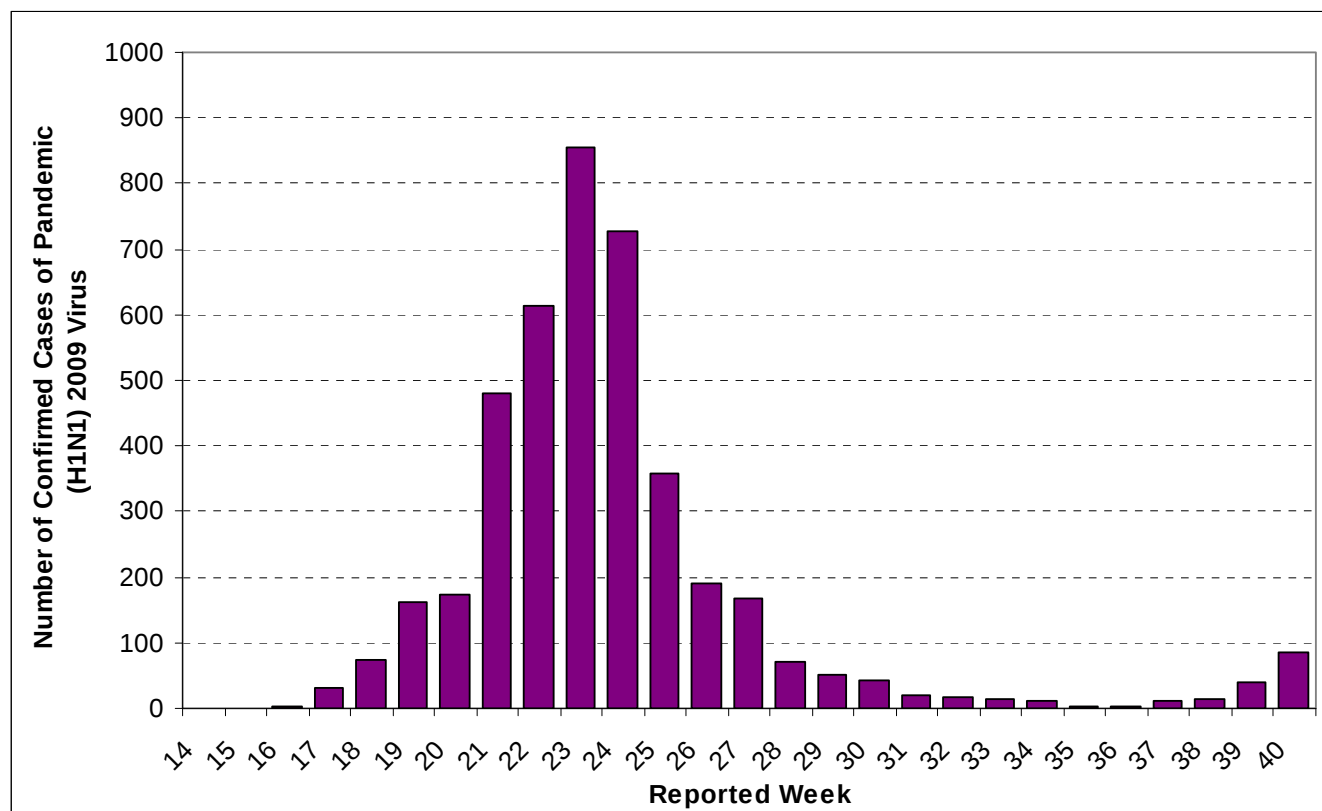
Region	Health Unit	Confirmed Influenza	
		Pandemic (H1N1) 2009 for WK 40	Pandemic (H1N1) 2009 (Total)
North West	Northwestern	0	74
	Thunder Bay District	0	11
	TOTAL NORTH WEST	0	85
North East	Algoma	0	7
	North Bay Parry Sound District	0	7
	Porcupine	0	4
	Sudbury & District	0	24
	Timiskaming	0	0
	TOTAL NORTH EAST	0	42
Eastern	City of Ottawa	7	379
	Eastern Ontario	4	28
	Hastings & Prince Edward Counties	0	4
	Kingston, Frontenac, Lennox & Addington	12	27
	Leeds, Grenville And Lanark District	0	10
	Renfrew County And District	0	12
	TOTAL EASTERN	23	460
Central East	Durham Region	3	123
	Haliburton, Kawartha, Pine Ridge	0	13
	Peel Region	4	704
	Peterborough County-City	3	7
	Simcoe Muskoka District	1	64
	York Region	3	499
	TOTAL CENTRAL EAST	14	1,410
Toronto	Toronto	14	1,609
	TOTAL TORONTO	14	1,609
South West	Chatham-Kent	2	9
	Elgin-St. Thomas	0	1
	Grey Bruce	0	9
	Huron County	0	2
	Lambton County	0	2
	Middlesex-London	4	33
	Oxford County	1	4
	Perth District	1	7
	Windsor-Essex County	0	50
	TOTAL SOUTHWEST	8	117
Central West	Brant County	0	8
	City Of Hamilton	7	146
	Haldimand-Norfolk	0	6
	Halton Region	4	226
	Niagara Region	9	33
	Waterloo Region	5	43
	Wellington-Dufferin-Guelph	0	30
	TOTAL CENTRAL WEST	25	492
	Out of Province	0	6
	TOTAL ONTARIO	84	4,221

SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [14/10/2009].

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

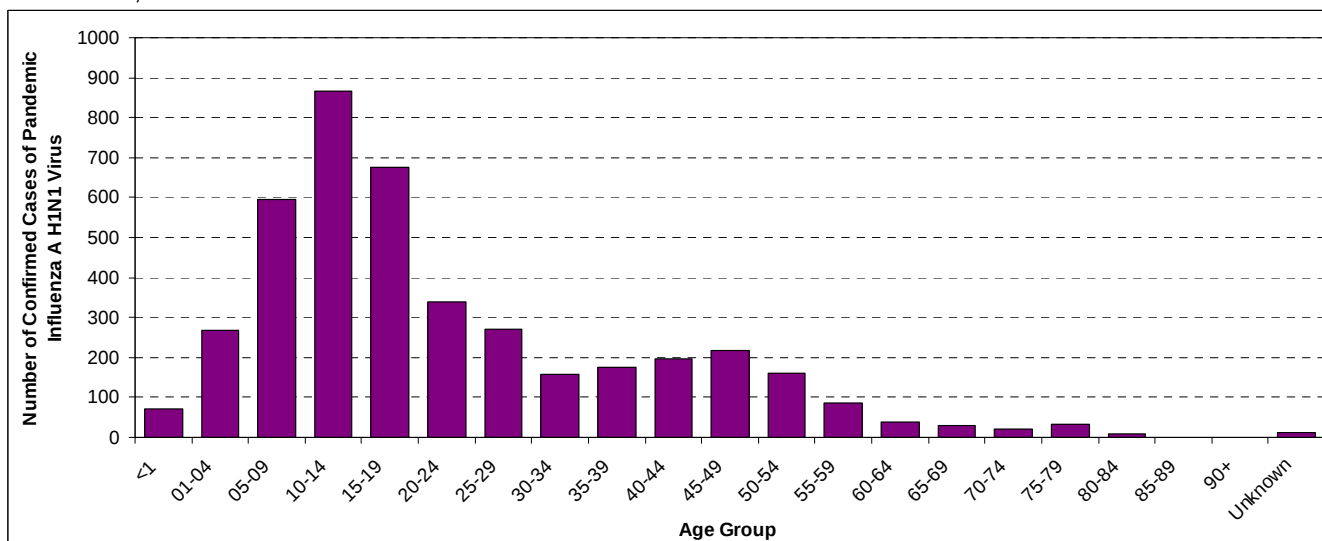
* Cumulative case counts include late reports and records that are otherwise reconciled. Therefore, cumulative counts may not equal new cases plus previous cumulative value.

Figure 2: Laboratory confirmed cases of pandemic (H1N1) 2009 in Ontario by week between April 13 and October 10, 2009



SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [14/10/2009].

Figure 3: Laboratory confirmed cases of pandemic (H1N1) 2009 in Ontario by age group between April 13 and October 10, 2009



SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [14/10/2009].

Table 3: Confirmed cases of influenza by health unit & health region, excluding laboratory confirmed pandemic (H1N1) 2009, with an episode date[†] during Week 40, 2009-10

Region	Health Unit	Confirmed Influenza			
		Influenza A (Other subtypes/Not yet Subtyped)	Influenza A & B	Influenza B	TOTAL
North West	Northwestern	0	0	0	0
	Thunder Bay District	0	0	0	0
	TOTAL NORTH WEST	0	0	0	0
North East	Algoma	0	0	0	0
	North Bay Parry Sound District	0	0	0	0
	Porcupine	0	0	0	0
	Sudbury & District	0	0	0	0
	Timiskaming	0	0	0	0
	TOTAL NORTH EAST	0	0	0	0
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	0	0	0	0
	Haliburton, Kawartha, Pine Ridge	2	0	0	2
	Peel Region	4	0	0	4
	Peterborough County-City	0	0	0	0
	Simcoe Muskoka District	0	0	0	0
	York Region	0	0	0	0
	TOTAL CENTRAL EAST	6	0	0	6
Toronto	Toronto	3	0	1	4
	TOTAL TORONTO	3	0	1	4
South West	Chatham-Kent	0	0	0	0
	Elgin-St. Thomas	0	0	0	0
	Grey Bruce	1	0	0	1
	Huron County	0	0	0	0
	Lambton County	0	0	0	0
	Middlesex-London	5	0	0	5
	Oxford County	0	0	0	0
	Perth District	1	0	0	1
	Windsor-Essex County	0	0	0	0
	TOTAL SOUTHWEST	7	0	0	7
Central West	Brant County	0	0	0	0
	City Of Hamilton	11	0	0	11
	Haldimand-Norfolk	1	0	0	1
	Halton Region	2	0	0	2
	Niagara Region	0	0	0	0
	Waterloo Region	0	0	0	0
	Wellington-Dufferin-Guelph	1	0	0	1
	TOTAL CENTRAL WEST	15	0	0	15
	TOTAL ONTARIO	31	0	1	32

SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [14/10/2009].

[†] 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 – October 10, 2009

Region	Health Unit	Confirmed Influenza			
		Influenza A (Other subtypes/Not yet Subtyped)	Influenza A & B	Influenza B	TOTAL
North West	Northwestern	0	0	0	0
	Thunder Bay District	0	0	0	0
	TOTAL NORTH WEST	0	0	0	0
North East	Algoma	0	0	0	0
	North Bay Parry Sound District	1	0	0	1
	Porcupine	0	0	0	0
	Sudbury & District	0	0	0	0
	Timiskaming	0	0	0	0
	TOTAL NORTH EAST	1	0	0	1
Eastern	City Of Ottawa	0	0	0	0
	Eastern Ontario	2	0	0	2
	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	2	0	0	2
Central East	Durham Region	0	0	0	0
	Haliburton, Kawartha, Pine Ridge	2	0	0	2
	Peel Region	8	0	0	8
	Peterborough County-City	0	0	0	0
	Simcoe Muskoka District	1	0	0	1
	York Region	1	0	0	1
	TOTAL CENTRAL EAST	12	0	0	12
Toronto	Toronto	8	1	1	10
	TOTAL TORONTO	8	1	1	10
South West	Chatham-Kent	0	0	0	0
	Elgin-St. Thomas	0	0	0	0
	Grey Bruce	1	0	0	1
	Huron County	0	0	0	0
	Lambton County	0	0	0	0
	Middlesex-London	11	0	0	11
	Oxford County	1	0	0	1
	Perth District	1	0	0	1
	Windsor-Essex County	0	0	0	0
	TOTAL SOUTHWEST	14	0	0	14
Central West	Brant County	0	0	0	0
	City Of Hamilton	12	0	1	13
	Haldimand-Norfolk	1	0	0	1
	Halton Region	3	0	0	3
	Niagara Region	0	0	0	0
	Waterloo Region	3	0	0	3
	Wellington-Dufferin-Guelph	2	0	1	3
	TOTAL CENTRAL WEST	21	0	2	23
	TOTAL ONTARIO	58	1	3	62

SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [14/10/2009].

* 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 October 14, 2009.

Deaths among pandemic (H1N1) 2009 virus cases, April 13 – October 14, 2009

Twenty-five deaths have been reported among confirmed cases. Almost all of these fatalities (22/25 or 88%) were hospitalized prior to death. Among the reported fatalities among cases, males (12) and females (13) accounted for a similar number of deaths, ranging in age from 6 to 81 years with a median age of 56 years and an average age of 54 years. Of the fatal cases, 80% (20/25) occurred in individuals over the age of 40 years. Among cases that have died, the most frequently reported symptoms are fever (23), cough (19), and shortness of breath (19); no symptoms were reported for one case. The symptom onset dates of the fatal cases range from May 6 to September 19, 2009.

Among the 25 confirmed cases that have died, 22 (88%) had underlying chronic medical conditions reported, compared to 68% (276/407) of all hospitalized cases.

Hospitalizations among pandemic (H1N1) 2009 virus cases, April 13 – October 14, 2009

Four hundred and seven confirmed cases of pandemic (H1N1) 2009 have been hospitalized to date. Of these, 388 cases have been discharged. The average and median length of hospital stay were 9 days and 4 days, respectively, with lengths of stay ranging from 1 to 95 days. Among cases that were discharged from hospital, 88% (342/388) had a length of stay of at least 2 days. There are currently 19 confirmed cases that are reported as still being hospitalized.

Among cases that are currently or have previously been hospitalized, a number of underlying medical conditions have been reported, including but not limited to diabetes, cardiovascular conditions, renal conditions and pulmonary conditions. Of the 19 cases still hospitalized, a total of 11 were placed on a ventilator and/or were admitted to ICU.

Table 5. Hospitalizations among confirmed cases of pandemic (H1N1) 2009 in Ontario, April 13 – October 14, 2009

Hospitalization Status	Ventilator and/or ICU	Not in ICU and not on ventilator	Number of cases hospitalized to date
Number Currently Hospitalized	11 (58%)	8 (42%)	19 (100%)
Number Hospitalized and Discharged	75 (19%)	313 (81%)	388 (100%)
Total Hospitalized to date	86 (21%)	321(79%)	407 (100%)

Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted at 8:30 am [14/10/2009]

Table 6 below shows the number of hospitalizations and deaths among confirmed pH1N1 cases by age group and corresponding population based incidence rates. The highest rate of hospitalization occurred in individuals under the age of 1. The highest mortality rates occurred in the 50-64 and 65+ age groups.

Table 6. Incidence of hospitalization and death due to pandemic H1N1 2009 in Ontario, April 13 –October 14, 2009

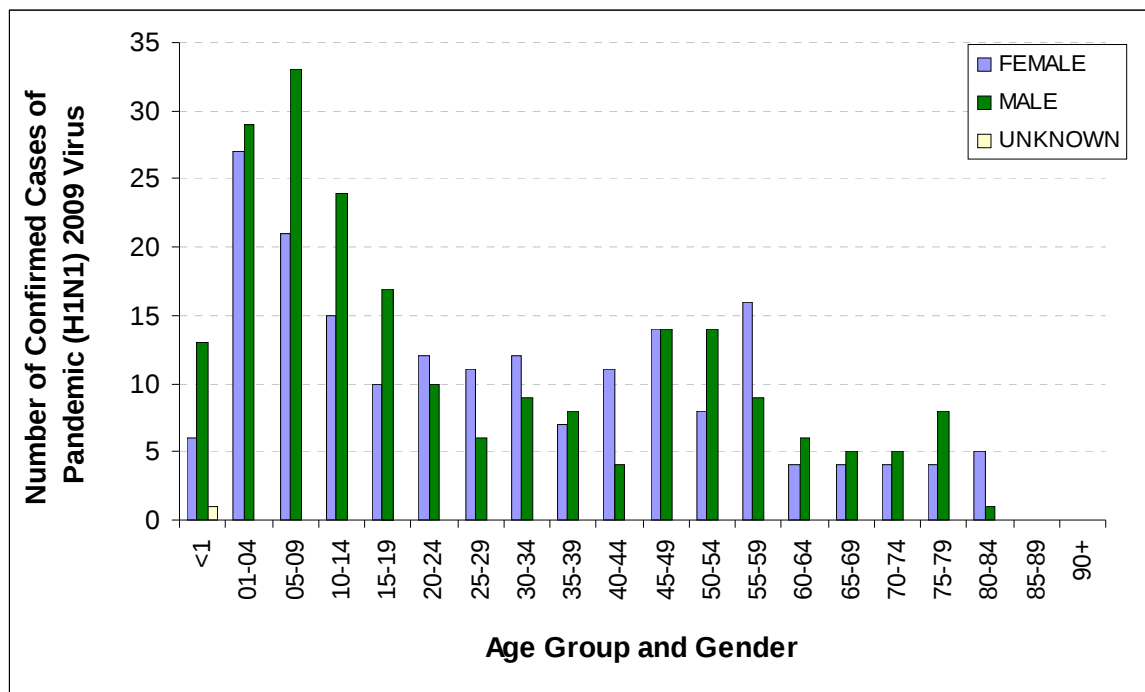
Age Group	Hospitalizations	Rate/100,000	Deaths	Rate/100,000
<1	20	14.93	0	0.00
1-4	56	10.25	0	0.00
5-19	120	4.97	3	0.12
20-49	118	2.07	4	0.07
50-64	57	2.37	11	0.46
65+	36	2.08	7	0.41
TOTAL	407	3.15	25	0.19

Source (incidence): Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted at 8:30 am [14/10/2009]

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 4 shows the age and sex distribution of the 407 cases that were hospitalized. Confirmed cases that have been hospitalized range in age from <1 to 84 years of age; the median age is 21 years and the average age is 28 years.

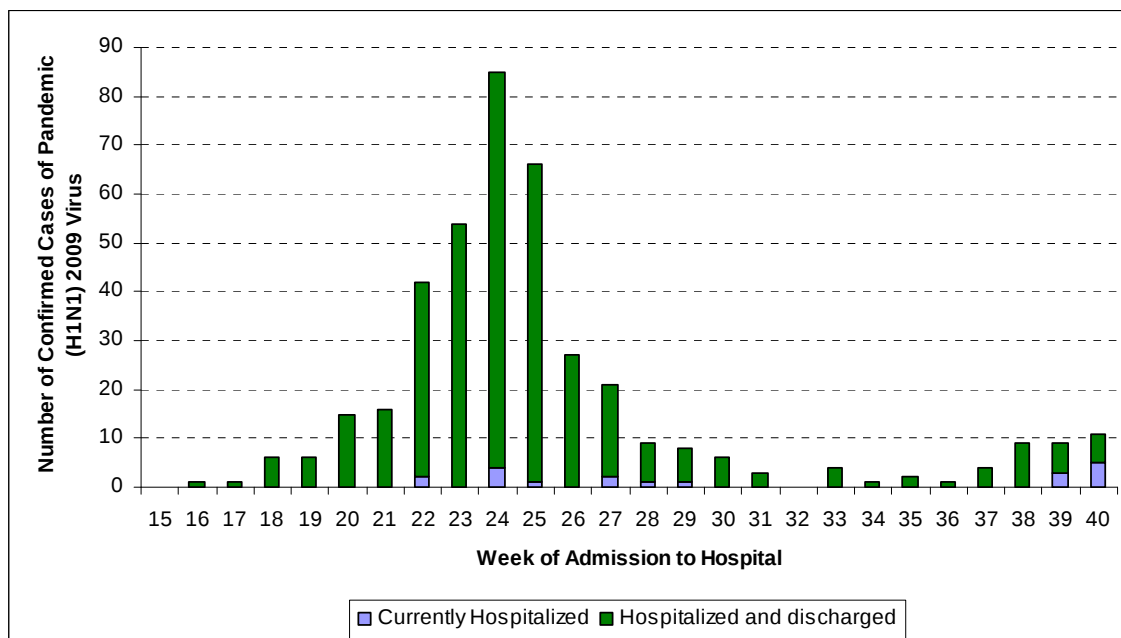
Figure 4: Hospitalized cases of pandemic (H1N1) 2009 in Ontario by age group and gender, April 13 to October 14, 2009



Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted at 8:30 am [14/10/2009] **Note:** Gender is unknown for 1 case.

The hospital admission dates ranged from April 20 to October 10, 2009 (Figure 5). Case counts for weeks 38 onwards should be interpreted with caution due to lags and changes in laboratory testing, case identification and data entry.

Figure 5: Hospitalized cases of pandemic (H1N1) 2009 by hospital admission date in Ontario, April 13 – October 14, 2009*



Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted at 8:30 am [14/10/2009] *For Week 33-34, decreased counts may be attributed in part to reporting delays.

Influenza Subtype(s):

During week 40, a total of 6777 isolates were received by the Public Health Agency of Canada, with 593 testing positive for influenza A and one positive for influenza B. 346 of the reported influenza A isolates were from British Columbia (58.4%), 135 were from Alberta (22.8%), 75 were from Ontario (12.7%), and 21 were from Quebec (3.5%).*

(Antigenic Characterization and Antiviral Resistance data are current as of October 15, 2009)

Antigenic Characterization (National):

Since September 1, 2009, National Microbiology Laboratory (NML) has antigenically characterized nine influenza viruses nationally: influenza A (H1N1). The influenza A (H1N1) characterized was 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.

Antigenic Characterization (Provincial):

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

Antiviral Resistance (National):

The nine pandemic influenza A (H1N1) viruses were tested for resistance to neuraminidase inhibitors (oseltamivir and zanamivir) by phenotypic assay and/or sequencing. The testing results showed that the viruses were sensitive to oseltamivir and zanamivir. Two seasonal influenza A (H3N2) viruses and nine pandemic H1N1 viruses were also tested for resistance to amantadine and found that all were resistant to amantadine.

For your information, WHO recommended composition of influenza virus vaccines for use in the 2010 southern hemisphere influenza season is as follows: an A/California/7/2009 (H1N1)-like virus; an A/Perth/16/2009 (H3N2)-like virus; and a B/Brisbane/60/2008 -like virus.

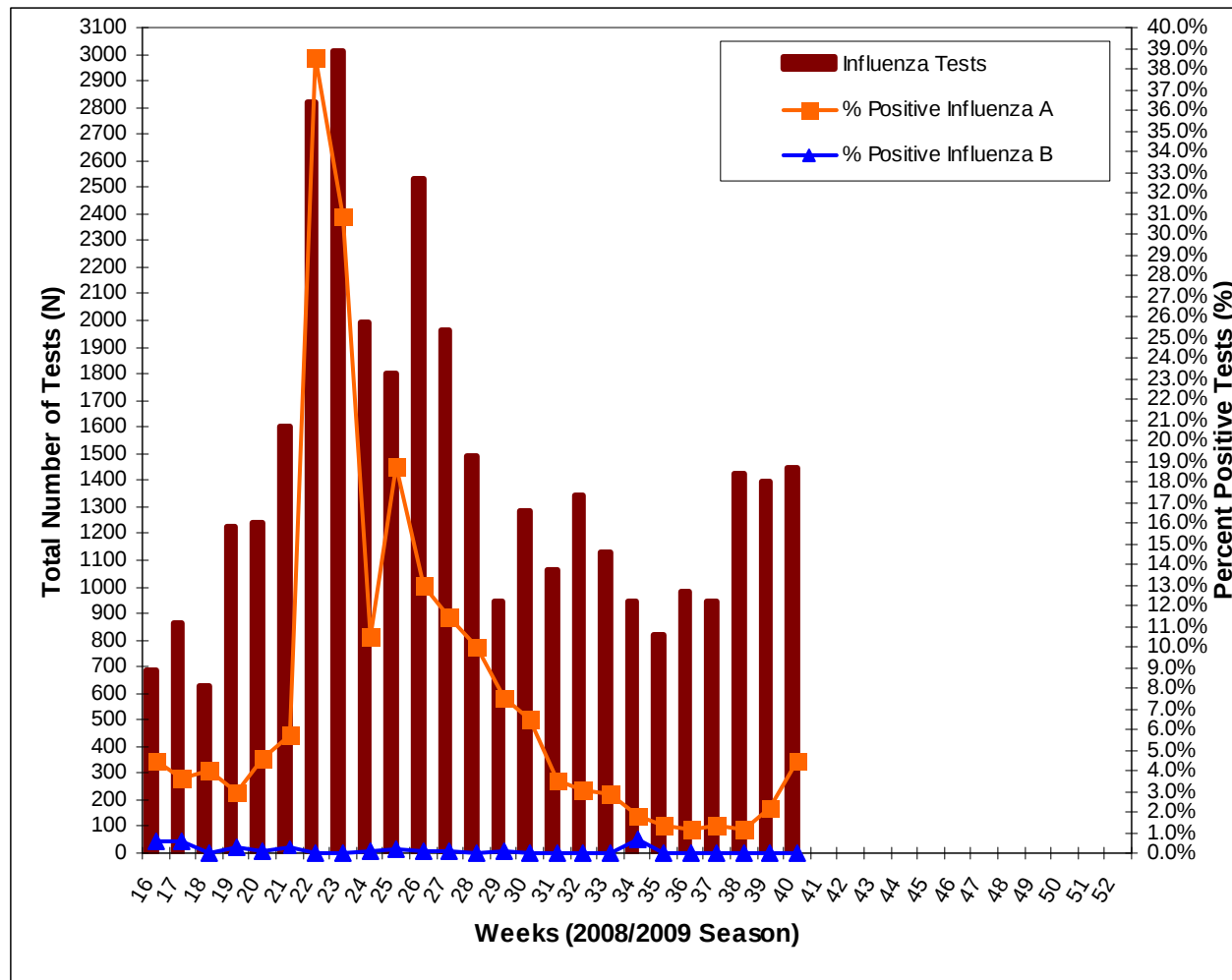
Antiviral Resistance (Provincial):

The influenza A (H1N1) isolate was sensitive to oseltamivir, zanamivir, and resistant to amantadine. 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 40, 2009. Please note that the last version received from PHAC as of 4:00PM on October 15, 2009 was used.

[†] These data have been obtained from the National Microbiology Laboratory of the Public Health Agency of Canada for Week 40, 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*.

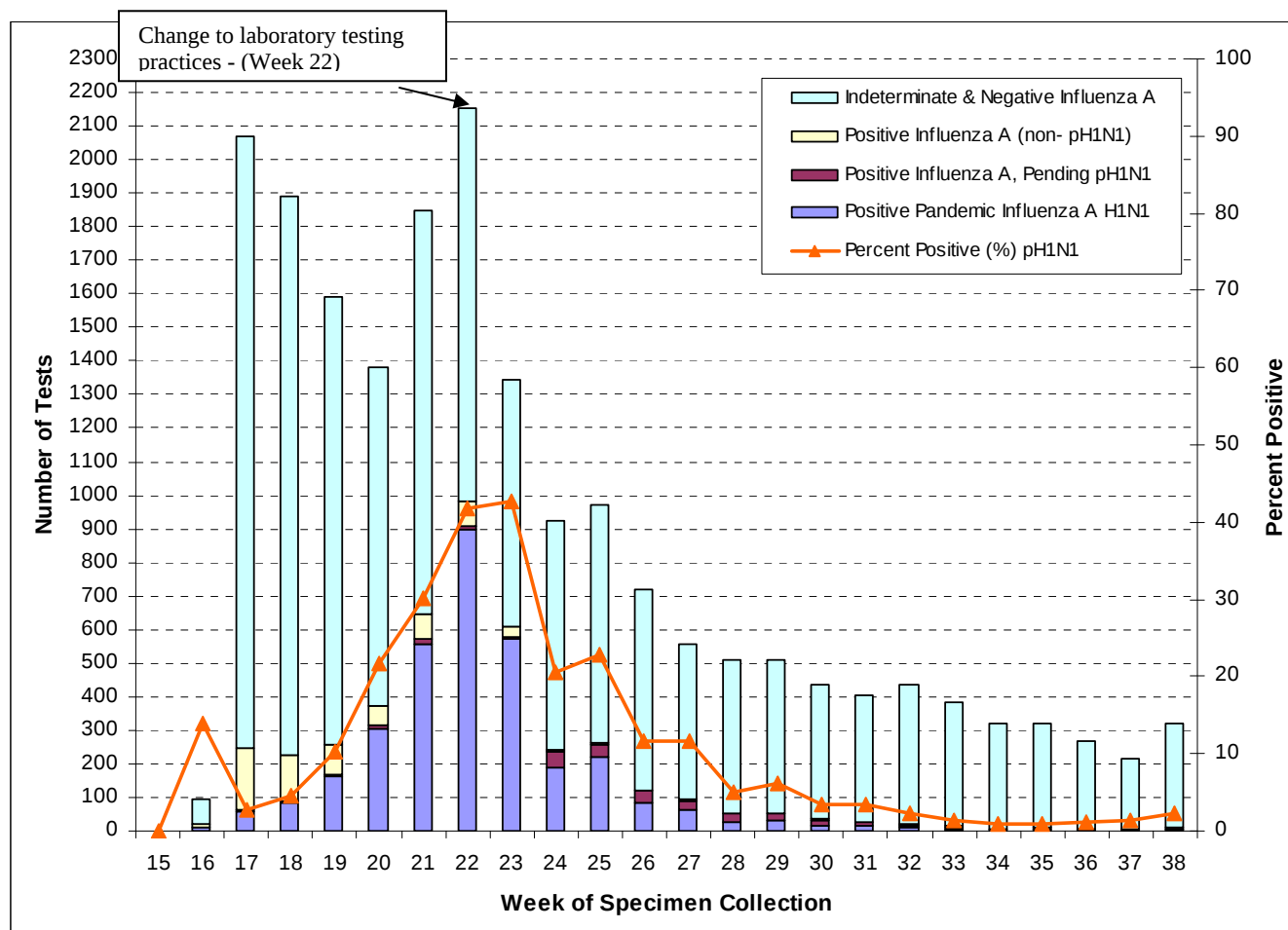


Source: Public Health Agency of Canada. These data have been obtained from the Respiratory Virus Detection tables of Public Health Agency of Canada from 17 labs in Ontario and do not include data from late reports to PHAC for the current season: Week 40, 2009. Please note that the last version received from PHAC as of 4:00PM on October 15, 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 – September 26, 2009



Source: Adapted from Table 1 in the "OAHPP Laboratory Pandemic H1N1 Surveillance Report"; Tuesday September 29, 2009

Note: This table had not been updated this week due to technical issues with lab data extraction.

Table 7: Summary of Other Respiratory Virus Detections/Isolations in Ontario in Week 40

Organism Name	Number of Positive Tests	Number of Tests	% Positive
Respiratory Syncytial Virus	2	1123	0.18
Parainfluenza (all types)	20	1130	1.77
Adenovirus	5	1133	0.44
Human Metapneumovirus	0	385	0.00

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 40, 2009. Please note that the last version received from PHAC as of 4:00PM on October 15, 2009 was used.

Table 8a: Institutional respiratory infection outbreaks in Ontario: new outbreaks* in Week 40 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	10	100.0
TOTAL	10	100.0
Total Respiratory Infection Outbreaks of the Season to date**	N	% (of outbreaks)
Influenza A	1	1.7
Influenza B	0	0.0
Influenza A and B	0	0.0
Parainfluenza (All types)	2	3.3
RSV	1	1.7
Combined Outbreaks [†]	0	0.0
Other organisms	9	15.0
No organism identified	47	78.3
TOTAL	60	100.0
Types of Institutions – All Outbreaks **	N	% (of outbreaks)
Long-Term Care Homes	40	66.7
Hospitals	2	3.3
Retirement Homes	2	3.3
Other	0	0.0
Unknown	16	26.7
TOTAL	60	100.0
	N	% (of outbreaks)
New Outbreaks – Pandemic (H1N1) 2009*	0	0.0
Total pH1N1 2009 Infection Outbreaks of the Season to date**	1	100.0
	N	% (of outbreaks)
Types of Institutions (pH1N1 Outbreaks)		
Long-Term Care Homes	1	100.0
Hospitals	0	0.0
Retirement Homes	0	0.0
Other	0	0.0
Unknown	0	0.0
TOTAL	1	100.0

SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [14/10/2009]

* 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. October 4, 2009 – October 10, 2009

** Season to date includes all outbreaks in which the date of onset of illness in the first case occurred up to Week 39. 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.)

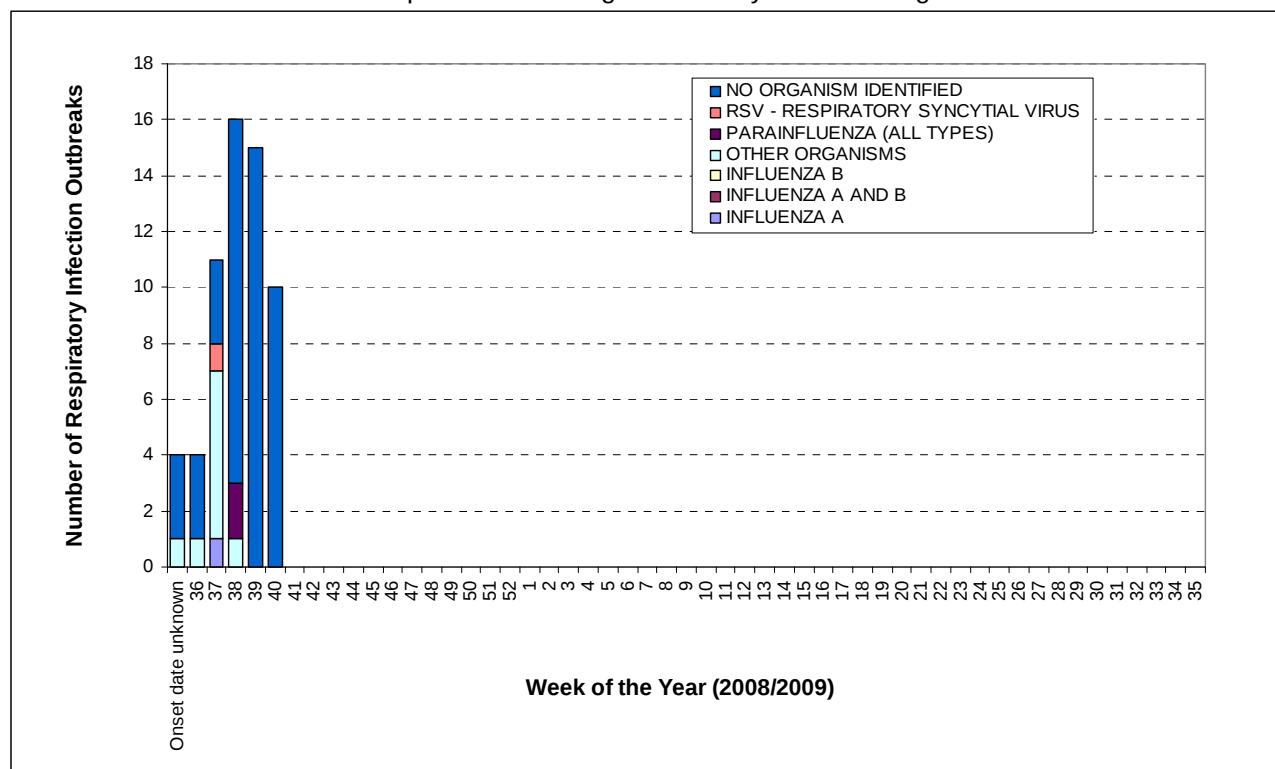
Table 8b: Outbreak Related Complications in institutional respiratory infection outbreaks in Ontario during the Surveillance Season*

Outbreak Related Cases – All Outbreaks	N	% (of total cases)
Residents	446	64.7
Patients	77	11.2
Staff	166	24.1
Total Cases	689	100.0
Deaths		% (of cases per role)
Residents	6	1.4
Patients	0	0.0
Staff	0	0.0
Pneumonia (Chest x-ray confirmed)		% (of cases per role)
Residents	7	1.6
Patients	4	5.2
Staff	0	0.0
Hospitalizations		% (of cases per role)
Residents	13	2.9
Staff	0	0.0
Outbreak Related Cases – All Influenza Outbreaks	N	% (of total cases)
Residents	0	0.0
Patients	0	0.0
Staff	14	100.0
Total Cases	14	100.0
Deaths		% (of cases per role)
Residents	0	0.0
Patients	0	0.0
Staff	0	0.0
Pneumonia (Chest x-ray confirmed)		% (of cases per role)
Residents	0	0.0
Patients	0	0.0
Staff	0	0.0
Hospitalizations		% (of cases per role)
Residents	0	0.0
Staff	0	0.0
Outbreak Related Cases – Pandemic (H1N1) 2009 Outbreaks	N	% (of total cases)
Residents	0	0.0
Patients	0	0.0
Staff	14	100.0
Total Cases	14	100.0
Deaths		% (of cases per role)
Residents	0	0.0
Patients	0	0.0
Staff	0	0.0
Pneumonia (Chest x-ray confirmed)		% (of cases per role)
Residents	0	0.0
Patients	0	0.0
Staff	0	0.0
Hospitalizations		% (of cases per role)
Residents	0	0.0
Staff	0	0.0

SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [15/10/2009]

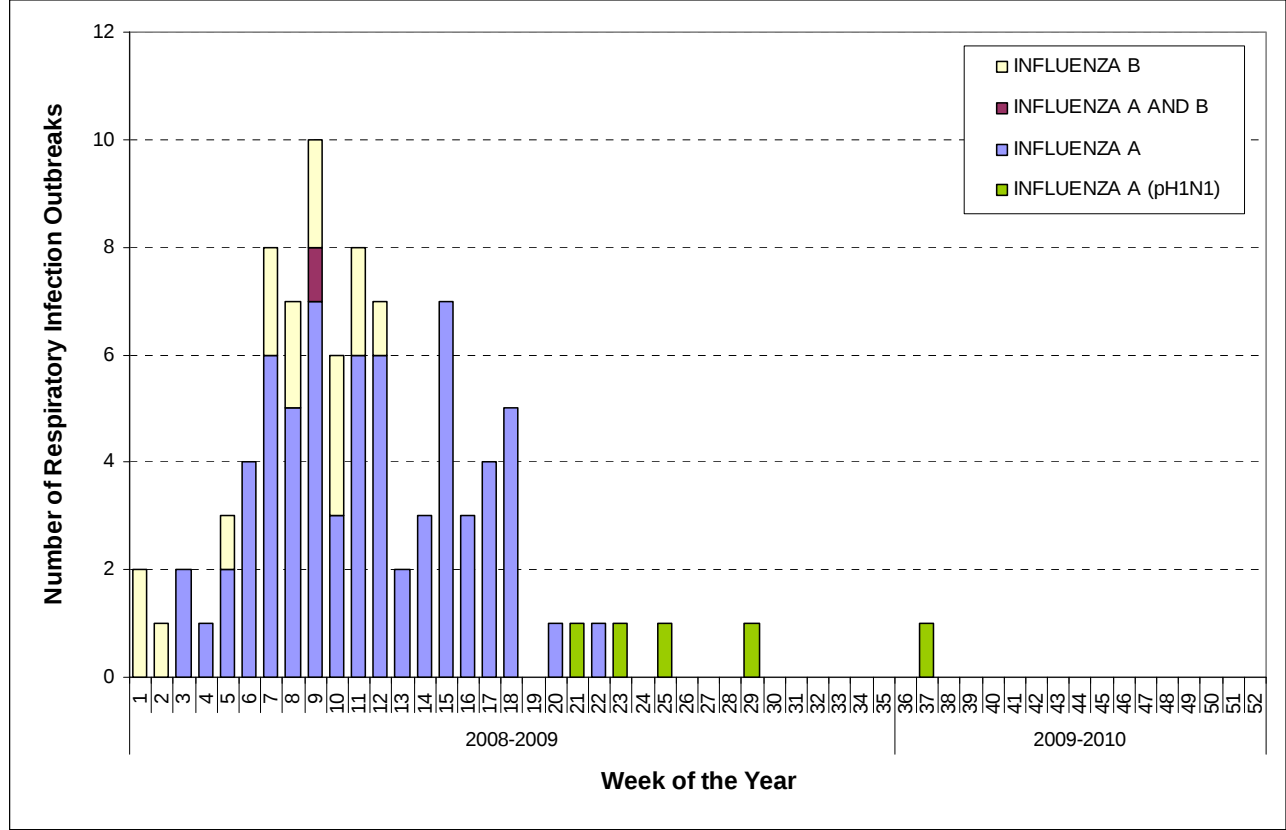
* Season to date includes all outbreaks in which the date of onset of illness in the first case occurred up to and including Week 40

Figure 8: Institutional respiratory infection outbreaks in Ontario by onset of illness in the first case: Total Outbreaks up to and including Week 40 by causative organism



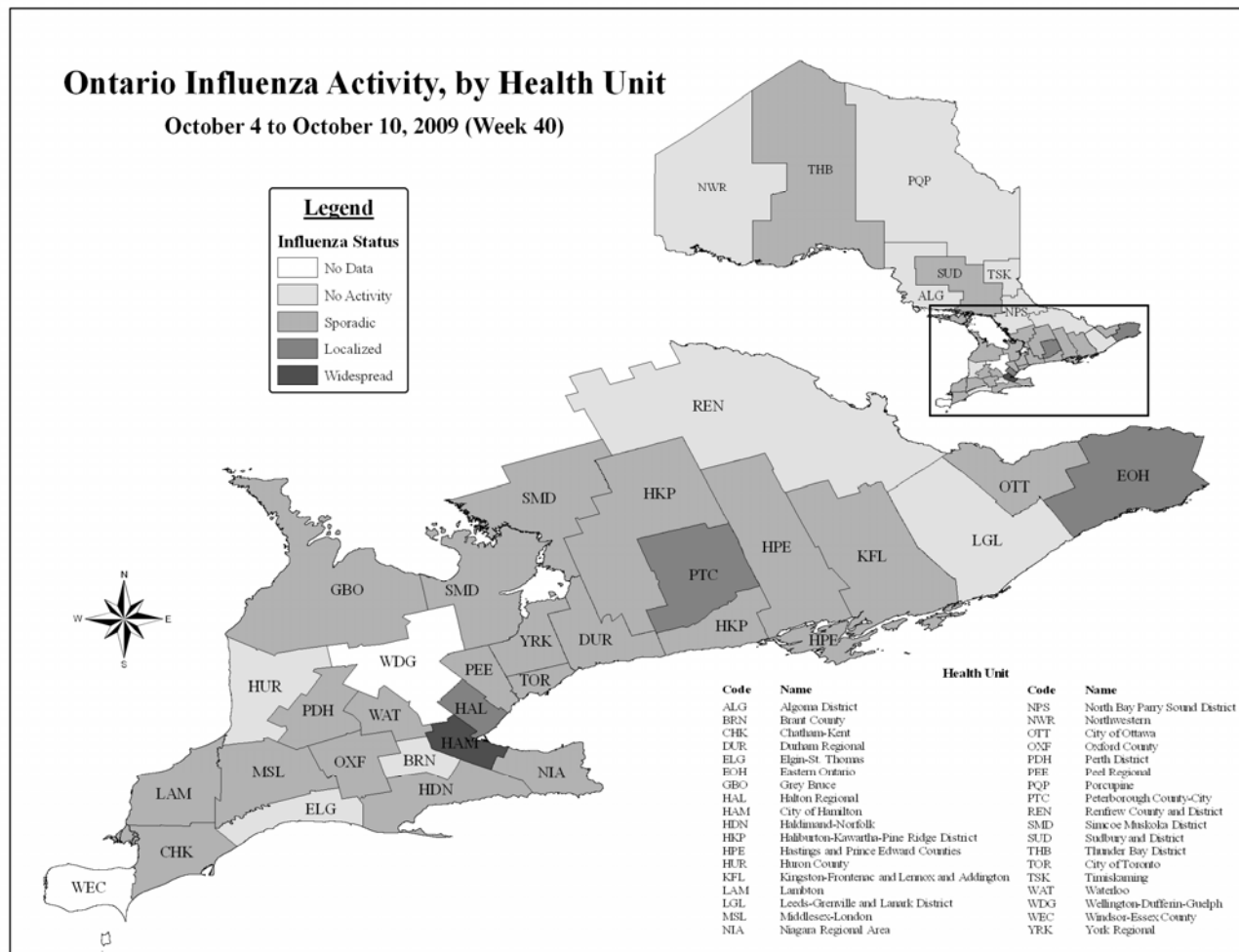
Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [14/10/2009]

Figure 9: Institutional influenza outbreaks in Ontario by onset of illness in the first case: Total Outbreaks up to and including Week 40 by subtype



Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [14/10/2009]

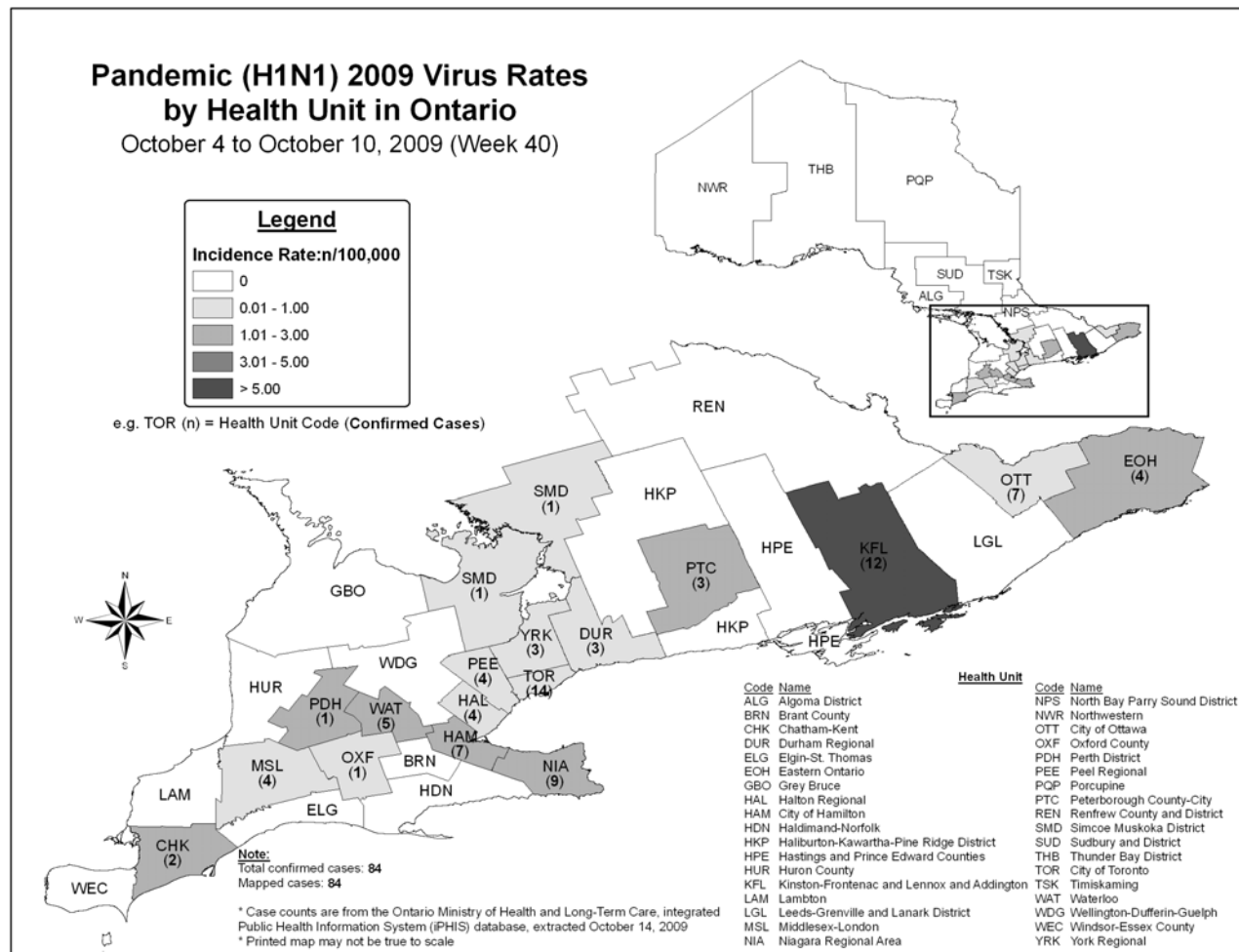
Figure 10: Influenza Activity* levels in Ontario by health unit for Week 40, 2009



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

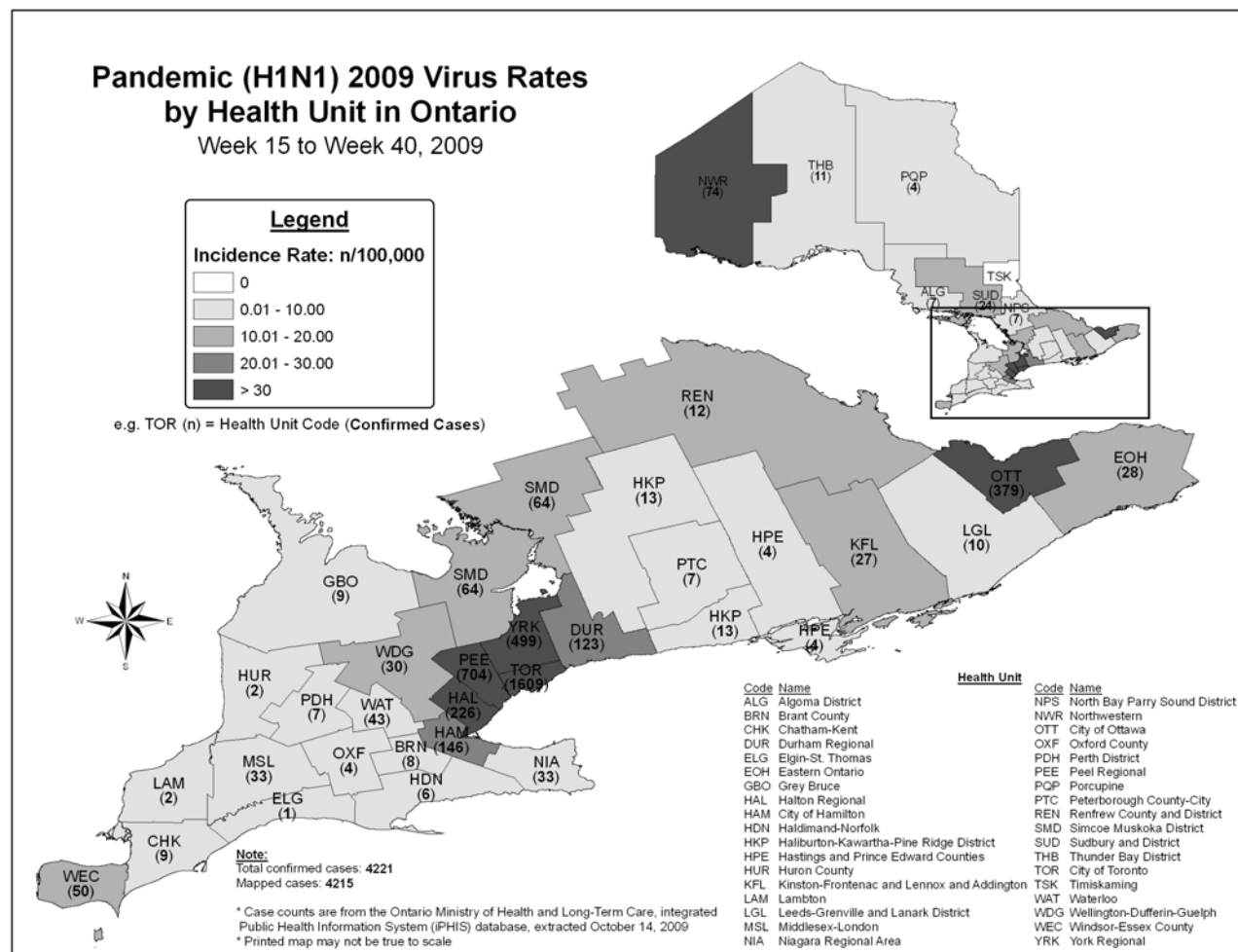
* Influenza activity levels are assigned by local public health units and reported to the MOHLTC by the Tuesday following the end of the surveillance week at 4 pm. Activity levels are assigned based on laboratory confirmations, ILI reports from various sources, and laboratory confirmed institutional 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 40, 2009



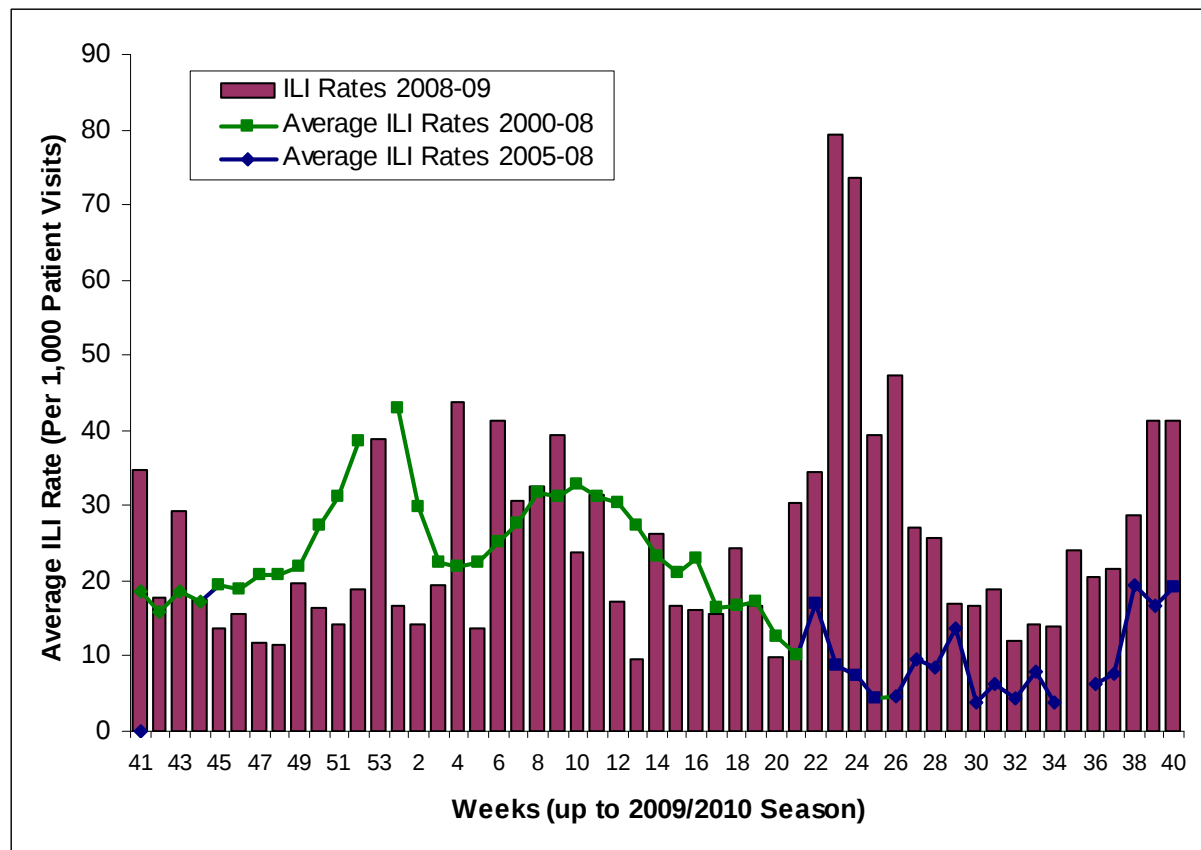
Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [14/10/2009]

Figure 12: Pandemic (H1N1) 2009 Virus cumulative incidence rates and counts in Ontario by health unit, Week 15 – 40 (April 12 – October 10, 2009)



Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [14/10/2009]

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).



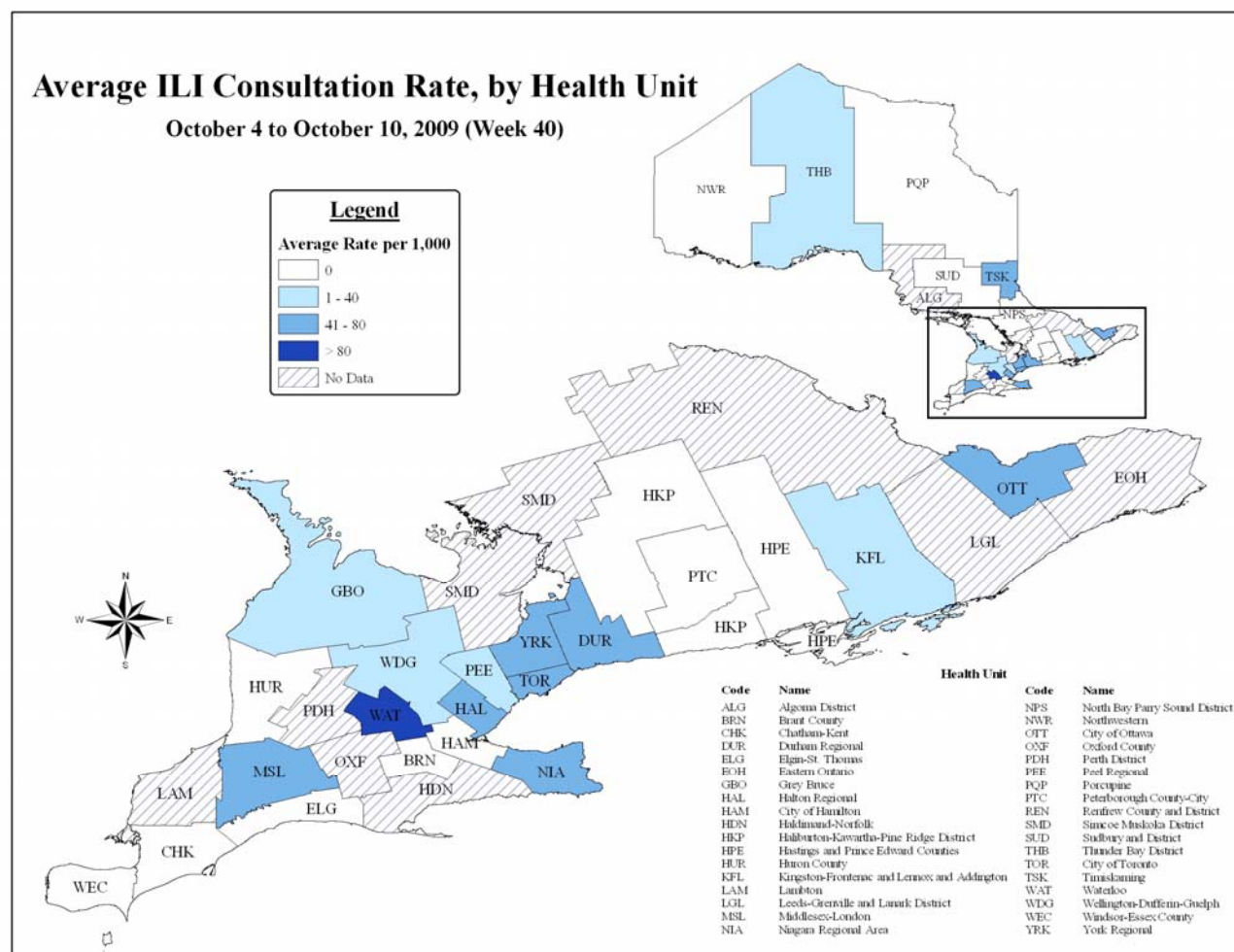
Source: Public Health Agency of Canada

* Sentinel physician information is reported to Public Health Agency of Canada, 97 sentinels reported this week.

[†]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 14: Average influenza-like illness consultation rate (per 1,000 patient visits) by health unit as reported by sentinel physicians* in Ontario, for Week 40.



Source: Public Health Agency of Canada

* Sentinel physicians report ILI and patient data to the Public Health Agency of Canada; 93 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 40.

Age Category	0 – 4	5 – 19	20 – 64	65 +	Unknown	TOTAL
ILI Sum	15	27	51	11	0	104
ILI Consultation Rate (per 1,000 patient visits)	88.24	97.47	33.80	19.78	0.00	41.40

Source: Public Health Agency of Canada

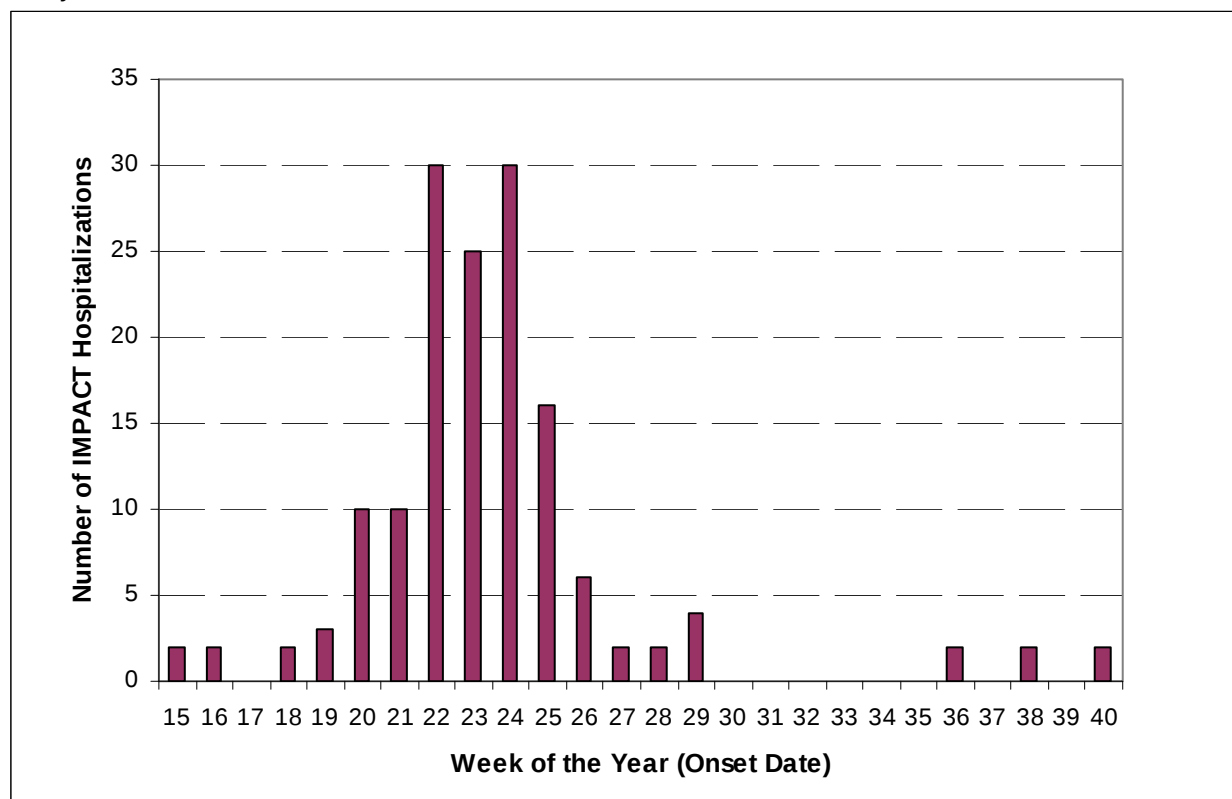
* Sentinel physician information is reported to the Public Health Agency of Canada; 93 sentinels reported this week.

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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 40, 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 Luminex test results by health unit and agent in Ontario conducted by the Ontario Agency for Health Protection and Promotion Laboratory, for the period October 1, 2009 to October 9, 2009

Health Unit	Luminex Results	Total
Chatham-Kent	Influenza A	1
Hamilton	Influenza A	1
Hastings Prince Edward	Influenza A	1
HKPR	Enterovirus/Rhinovirus	1
KFLA	Enterovirus/Rhinovirus	1
Lambton	Enterovirus/Rhinovirus	2
	Influenza A	3
Middlesex-London	Enterovirus/Rhinovirus	3
	Influenza A	3
Niagara	Enterovirus/Rhinovirus	9
	Influenza A	9
	Influenza A/Enterovirus/Rhinovirus	3
	Influenza A/Parainfluenza Virus, Type1/Enterovirus/Rhinovirus	1
	Parainfluenza Virus, Type 4	1
Ottawa	Enterovirus/Rhinovirus	3
	Influenza A/Enterovirus/Rhinovirus	1
	Parainfluenza Virus, Type 1	2
Thunder Bay	Enterovirus/Rhinovirus	1
Toronto	Enterovirus/Rhinovirus	1
Waterloo	Enterovirus/Rhinovirus	1
Total		48

Source: Ontario Agency for Health Protection and Promotion, October 16, 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
WK41	11-Oct-09	17-Oct-09	20-Oct-09
WK42	18-Oct-09	24-Oct-09	27-Oct-09
WK43	25-Oct-09	31-Oct-09	3-Nov-09
WK44	1-Nov-09	7-Nov-09	10-Nov-09
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.