Ontario Influenza Bulletin 2008-2009 Season

Ministry of Health & Long-Term Care
Public Health Division

SURVEILLANCE WEEK 25 (June 21, 2009– June 27, 2009)

This issue of the Ontario Influenza Bulletin provides information on the surveillance period from June 21, 2009- June 27, 2009, (Week 25). The analysis for this issue occurred on July 2, 2009, therefore all data is current to that date unless otherwise specified.

Overall, influenza activity in Ontario during week 25, 2009, was similar as compared to week 24, 2009. There were 372 new confirmed cases of influenza reported through integrated Public Health Information System (iPHIS) from health units; this count includes 339 laboratory confirmed cases of the novel H1N1 influenza A virus. During week 25, new laboratory confirmed cases of Novel H1N1 Influenza A continued to be seen across the province with the Greater Toronto Area and Ottawa still experiencing most of these cases. A large number of cases were also seen in Hamilton and Northwestern. There were no new reports of institutional novel H1N1 influenza A outbreaks. For week 25, Eastern health region reported 'localized' level activity while the remaining health regions reported 'sporadic' level activity. The rate of influenza-like illness (ILI) in patients seen by sentinel physicians is above what is expected for this time of the year, particularly for those less than 19 years of age.

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 25, 2009)

Confirmed influenza cases*†	**HEALTH REGION**							**TOTAL**
	North West	North East	Eastern	Central East	Toronto	South West	Central West	
Novel Influenza A H1N1	18	3	71	91	106	12	38	339
Influenza A (Other Subtypes/Not Subtyped)	0	1	0	8	4	0	20	33
Influenza B	0	0	0	0	0	0	0	0
Influenza A & B	0	0	0	0	0	0	0	0
Total new cases	18	4	71	99	110	12	58	372
Institutional outbreaks of novel Influenza A H1N1 ‡	**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 [02/07/2009].

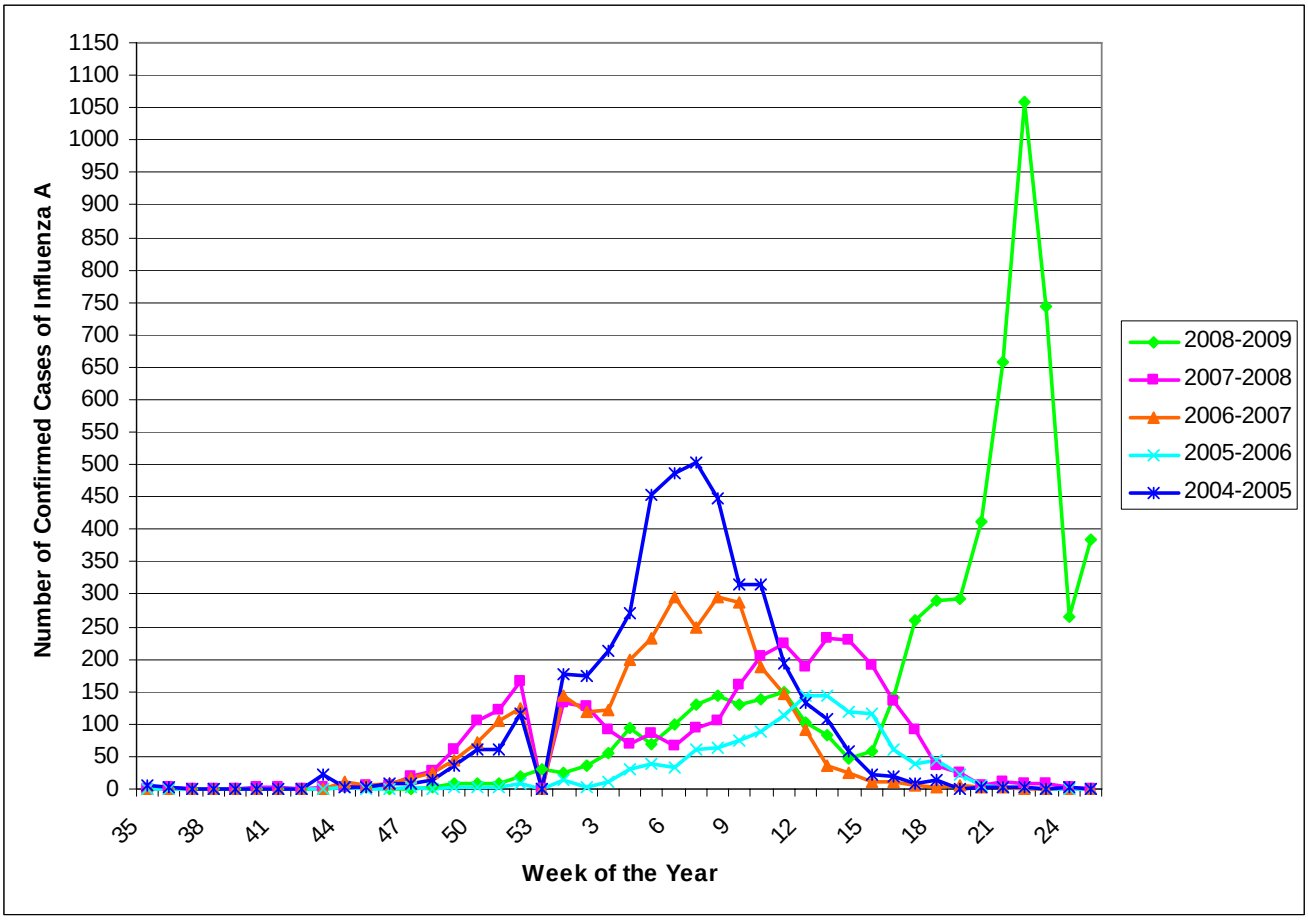
* Includes reports of confirmed influenza through iPHIS, as well as cases in institutional outbreaks, with dates of onset In the first case in the surveillance period.

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

† 'To date 5 cases of Novel Influenza A H1N1 cases have been reported in people who reside outside of Ontario.

As seen in Figure 1, the total number of Influenza A positive cases reported from weeks 17 to 22, for the current season, is higher than the seasonal peak that was seen in late-February to Mid-March (weeks 8 – 11). On June 4th (during week 22), an Important Health Notice was issued advising health care providers in ambulatory care settings and emergency departments to only submit laboratory specimens in cases where lab results are required for clinical management of hospitalized cases of influenza like illness or where patients are at high risk for complications from influenza. This change in testing pattern is reflected in week 23, as the population being testing is drastically reduced, thus showing a decline in the number of confirmed cases of influenza A. Beginning June 21, 2009 (week 25) health units began reporting weekly aggregate counts of Novel H1N1 Influenza A virus. Aggregate reports are based on the date the health unit was informed of the Novel H1N1 subtype rather than their onset date. The increase seen in week 25 might be due to the change in reporting dates, as it would be expected that some of the cases which were reported to the health unit in week 25 had their symptom onset date or specimen collected in week 24.

Figure 1: All confirmed cases of Influenza A in Ontario by week, between September 1 and June 27, 2004-2009†*



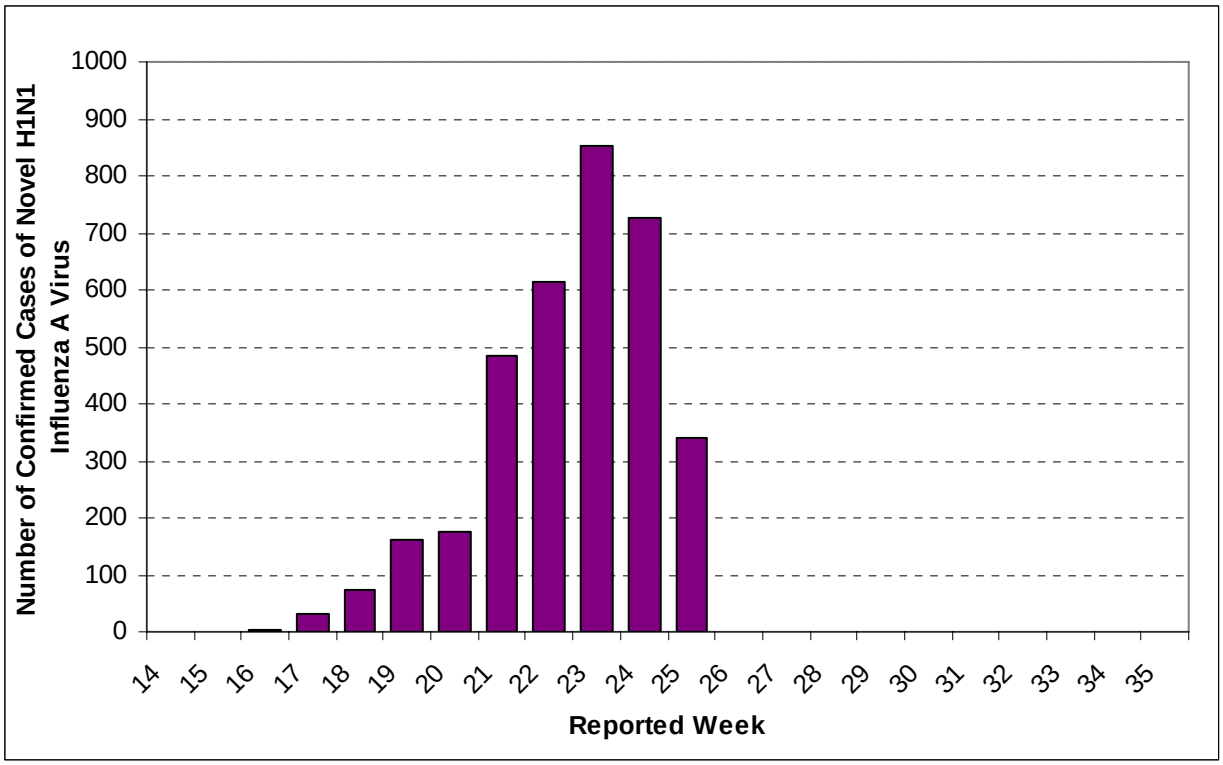
SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [02/07/2009].
† Episode Date for a case corresponds to the earliest date on record for the case according to the iPHIS hierarchy (Symptom Date > Clinical Diagnosis Date > Specimen Collection Date > Lab Test Date > Reported Date)

Table 2: Confirmed cases of Novel Influenza A H1N1 virus by health unit & health region, with a reported week† during Week 25, 2008-09 and cumulative* confirmed cases between September 1, 2008 – June 27, 2009

Region	Health Unit	Confirmed Influenza	
		Novel Influenza A H1N1 for WK 25	Novel Influenza A H1N1 (Total)
North West	Northwestern	15	49
	Thunder Bay District	3	4
	TOTAL NORTH WEST	**18**	**53**
North East	Algoma	1	1
	North Bay Parry Sound District	0	3
	Porcupine	0	0
	Sudbury & District	2	9
	Timiskaming	0	0
	TOTAL NORTH EAST	**3**	**13**
Eastern	City of Ottawa	70	328
	Eastern Ontario	0	10
	Hastings & Prince Edward Counties	0	3
	Kingston, Frontenac, Lennox & Addington	0	5
	Leeds, Grenville And Lanark District	1	5
	Renfrew County And District	0	1
	TOTAL EASTERN	**71**	**352**
Central East	Durham Region	6	106
	Haliburton, Kawartha, Pine Ridge	0	10
	Peel Region	72	645
	Peterborough County-City	0	0
	Simcoe Muskoka District	0	36
	York Region	13	458
	TOTAL CENTRAL EAST	**91**	**1255**
Toronto	Toronto	106	1438
	TOTAL TORONTO	**106**	**1438**
South West	Chatham-Kent	0	3
	Elgin-St. Thomas	0	0
	Grey Bruce	0	4
	Huron County	0	2
	Lambton County	0	0
	Middlesex-London	2	18
	Oxford County	1	3
	Perth District	0	0
	Windsor-Essex County	9	17
	TOTAL SOUTHWEST	**12**	**47**
Central West	Brant County	6	6
	City Of Hamilton	20	57
	Haldimand-Norfolk	2	4
	Halton Region	5	194
	Niagara Region	0	6
	Waterloo Region	2	16
	Wellington-Dufferin-Guelph	3	18
	TOTAL CENTRAL WEST	**38**	**301**
	Out of Province	**0**	5
	TOTAL ONTARIO	**339**	**3464**

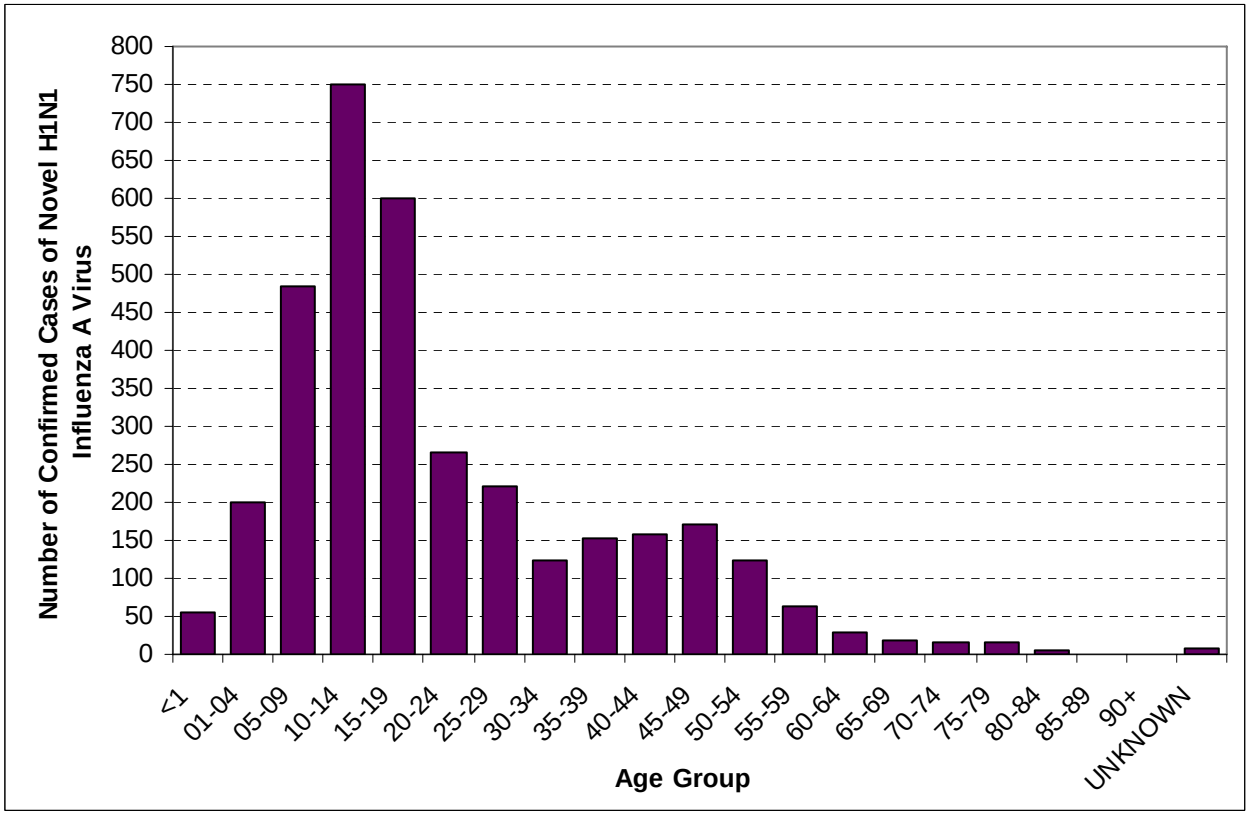
SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [02/07/2009].
† Reported date corresponds to the date Novel Influenza A H1N1 was reported to the health unit
* Cumulative case counts include late reports and records that are otherwise reconciled. Therefore, cumulative counts may not equal new cases plus previous cumulative value.

Figure 2: Laboratory **c**onfirmed Cases of novel H1N1 Influenza A in Ontario by week between April 13 and June 27, 2009†



SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [02/07/2009].

Figure 3: Laboratory **c**onfirmed Cases of novel H1N1 Influenza A in Ontario by age group between April 13 and June 27, 2009†



SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [02/07/2009].

Table 3: Confirmed cases of influenza by health unit & health region, excluding novel H1N1 Influenza A, with an episode date† during Week 25, 2008-09

Region	Health Unit	Confirmed Influenza			
		Influenza A (Other subtypes)	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	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	0	0	0	0
	Peel Region	3	0	0	3
	Peterborough County-City	1	0	0	1
	Simcoe Muskoka District	4	0	0	4
	York Region		0	0	0
	TOTAL CENTRAL EAST	**8**	**0**	**0**	**8**
Toronto	Toronto	4	0	0	4
	TOTAL TORONTO	**4**	**0**	**0**	**4**
South West	Chatham-Kent	0	0	0	0
	Elgin-St. Thomas	0	0	0	0
	Grey Bruce		0	0	0
	Huron County	0	0	0	0
	Lambton County		0	0	0
	Middlesex-London	0	0	0	0
	Oxford County	0	0	0	0
	Perth District	0	0	0	0
	Windsor-Essex County	0	0	0	0
	TOTAL SOUTHWEST	**0**	**0**	**0**	**0**
Central West	Brant County	0	0	0	0
	City Of Hamilton	15	0	0	15
	Haldimand-Norfolk	0	0	0	0
	Halton Region	3	0	0	3
	Niagara Region	2	0	0	2
	Waterloo Region	0	0	0	0
	Wellington-Dufferin-Guelph	0	0	0	0
	TOTAL CENTRAL WEST	**20**	**0**	**0**	**20**
	TOTAL ONTARIO	**33**	**0**	**0**	**33**

SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [02/07/2009].
† 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 novel H1N1 Influenza A, with an episode date† between September 1, 2008 – June 27, 2009

Region	Health Unit	Confirmed Influenza			
		Influenza A (Other subtypes)	Influenza A & B	Influenza B	TOTAL
North West	Northwestern	3	0	7	10
	Thunder Bay District	4	0	7	11
	TOTAL NORTH WEST	**7**	**0**	**14**	**21**
North East	Algoma	5	0	10	15
	North Bay Parry Sound District	17	0	74	91
	Porcupine	18	0	30	48
	Sudbury & District	15	0	7	22
	Timiskaming	4	0	5	9
	TOTAL NORTH EAST	**59**	**0**	**126**	**185**
Eastern	City Of Ottawa	127	2	56	185
	Eastern Ontario	14	0	39	53
	Hastings & Prince Edward Counties	9	0	19	28
	Kingston, Frontenac, Lennox & Addington	32	0	32	64
	Leeds, Grenville And Lanark District	21	0	22	43
	Renfrew County And District	9	0	10	19
	TOTAL EASTERN	**212**	2	178	**392**
Central East	Durham Region	80	1	61	142
	Haliburton, Kawartha, Pine Ridge	73	0	49	122
	Peel Region	361	0	145	506
	Peterborough County-City	30	0	10	40
	Simcoe Muskoka District	68	0	77	145
	York Region	148	0	43	191
	TOTAL CENTRAL EAST	**760**	**1**	**385**	**1,146**
Toronto	Toronto	612	3	242	857
	TOTAL TORONTO	**612**	**3**	**242**	**857**
South West	Chatham-Kent	5	0	4	9
	Elgin-St. Thomas	2	0	1	3
	Grey Bruce	22	1	54	77
	Huron County	15	0	33	48
	Lambton County	5	0	6	11
	Middlesex-London	36	0	9	45
	Oxford County	15	0	10	25
	Perth District	26	0	12	38
	Windsor-Essex County	27	0	33	60
	TOTAL SOUTHWEST	**153**	**1**	**162**	**316**
Central West	Brant County	20	0	19	39
	City Of Hamilton	144	0	97	241
	Haldimand-Norfolk	9	0	11	20
	Halton Region	110	0	60	170
	Niagara Region	74	0	56	130
	Waterloo Region	119	0	85	204
	Wellington-Dufferin-Guelph	57	0	41	98
	TOTAL CENTRAL WEST	**533**	**0**	**369**	**902**
	TOTAL ONTARIO	**2,336**	**7**	**1,476**	**3,819**

SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [02/07/2009].

* 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)

Deaths among Novel H1N1 Influenza A Virus cases, April 13 – July 2, 2009

Ten deaths have been reported among confirmed cases; seven of these deaths (70%) were hospitalized prior to their death. Males account for 60% (n=6) of these deaths, compared to females at 40% (n=4). Fatal cases range in age from 6 to 79 years of age. Of the fatal cases 80% (8/10) occurred in individuals over the age of 40. Among cases that have died, the most frequently reported symptoms are fever (9), cough (8), chills (5) and shortness of breath (5); no symptoms were reported for 1 case. The symptom onset dates of the fatal cases range from May 6 to June 19, 2009.

Among confirmed cases that have died, all except one case had underlying medical conditions reported. These include cardiovascular disease, diabetes and other endocrine disorders and cancer.

Hospitalizations among Novel H1N1 Influenza A Virus cases, April 13 – July 2, 2009

One hundred and sixty-two of the confirmed cases have been hospitalized to date. Of these, 110 cases have been discharged. The average and median length of hospital stay were 4.7 days and 3 days, respectively, with lengths of stay ranging from under 24 hours to 38 days. Among cases that were discharged from hospital, 81% (89/110) had a length of stay of at least 2 days. There are currently 52 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 52 cases that are currently hospitalized, a total of 10 were placed on a ventilator and/or were admitted to ICU.

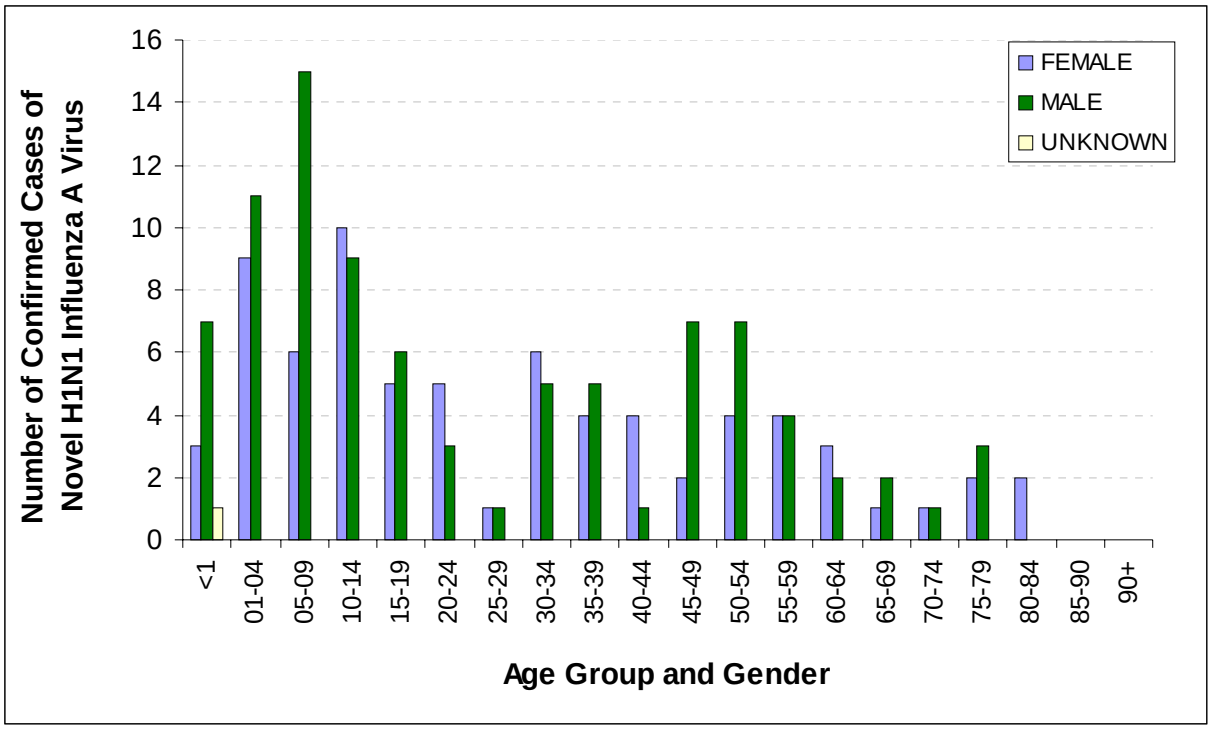
Table 5. Hospitalizations among confirmed cases of novel H1N1 Influenza A in Ontario, April 13 – June 25, 2009

Hospitalization Status	Ventilator and/or ICU	Not in ICU and not on ventilator	Total cases hospitalized to date
Number Currently Hospitalized	15	37	52
Number Hospitalized and Discharged	4	106	110

Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted at 8:30 am [02/07/2009]

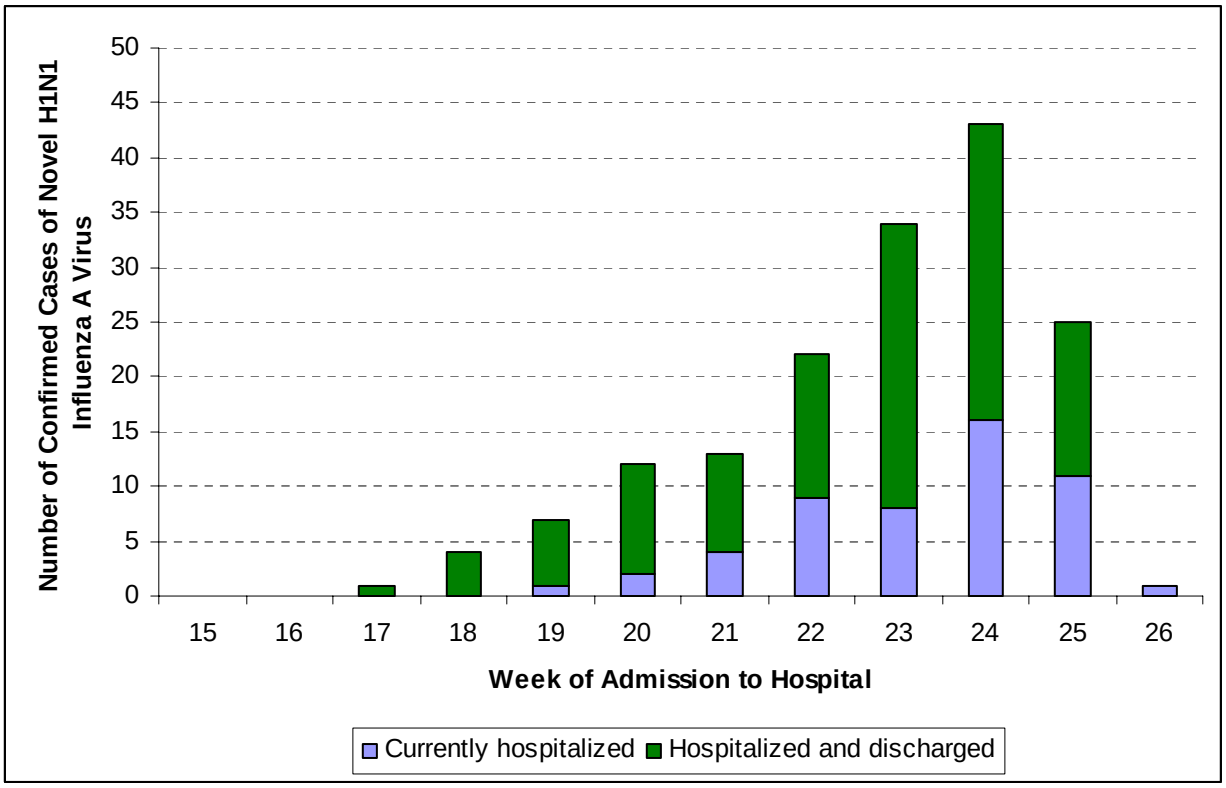
Figure 4 shows the age and sex distribution of the 162 cases that were hospitalized. Cases under the age of 20 years account for 51% of hospitalized cases however, cases under the age of 20 account for 60% of all reported confirmed cases of novel H1N1 influenza A virus. The largest number of hospitalized cases is among cases between the ages of 1 and 9. Confirmed cases that have been hospitalized range in age from <1 to 84 years of age; the median age is 19 years and the average age is 27 years.

Figure 4: Hospitalized cases of novel H1N1 Influenza A in Ontario by age group and gender, April 13 to July 2, 2009



Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted at 8:30 am [02/07/2009] **Note:** Gender is unknown for 1 case.

Figure 5: Hospitalized cases of novel H1N1 Influenza A by hospital admission date in Ontario, April 13 – July 2, 2009



Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted at 8:30 am [02/07/2009] *For Week 25 and 26, decreased counts may be attributed in part to reporting delays

Influenza Subtype(s):

During week 25, a total of 7084 isolates were received by the Public Health Agency of Canada, with 1470 testing positive for influenza A and 6 positive for influenza B. Four hundred of the reported influenza A isolates were from Alberta (27.2%), 338 were from Ontario (23.0%), 236 were from Manitoba (16.1%), 201 were from Quebec (13.7%) and 184 (12.5%) were from Saskatchewan. Three of the influenza B isolates were from Ontario (50.0%) and two were from Quebec (33.3%).*

(Antigenic Characterization and Antiviral Resistance data are Current as of June 25, 2009)

Antigenic Characterization (National) – Seasonal Influenza:

Since September 1, 2008, National Microbiology Laboratory (NML) has antigenically characterized 976 seasonal human influenza viruses (168 influenza A/H3N2, 242 influenza A/H1N1 and 566 B viruses) that were received from Canadian provincial and hospital laboratories and 92 novel influenza A(H1N1) viruses. All 168 influenza A/H3N2 isolates characterized were antigenically similar to A/Brisbane/10/07, which is the influenza A (H3N2) component recommended for the 2008-09 influenza vaccine. All 242 influenza A/H1N1 isolates characterized were antigenically similar to A/Brisbane/59/2007, which is the influenza A (H1N1) component recommended for the 2008-09 influenza vaccine.

Influenza B viruses currently circulating can be divided into two antigenically distinct lineages represented by B/Yamagata/16/88 and B/Victoria/2/87 viruses. Of the 566 influenza B isolates characterized, 11 were antigenically similar to B/Florida/4/2006, which is the B component recommended for the 2008-09 influenza vaccine and belongs to B/Yamagata lineage. 379 B isolates were characterized as B/Malaysia/2506/04-like and 176 were characterized as B/Brisbane/60/08-like, which belong to the Victoria lineage.B/Brisbane/60/08 is the recommended B component for the 2009-2010 influenza vaccine.

Antigenic Characterization - Novel Influenza A (H1N1) swl (Human Swine Influenza):

NML has antigenically characterized 99 novel influenza A (H1N1) isolates by HI assay. The results reveal that these viruses are antigenically related to A/California/7/2009 (H1N1), which is the variant reference virus selected by WHO as a potential candidate for novel influenza A(H1N1) vaccine. Antigenic characterization also indicates that these viruses are antigenically and genetically unrelated to seasonal influenza A (H1N1) viruses, which suggests that there is little or no protection to be expected from vaccination with seasonal influenza vaccine.
The National Microbiology Laboratory (NML) has antigenically characterized the following strains from Ontario: 6 influenza A/California/07/2009-like.

Antigenic Characterization (Provincial) – Seasonal Influenza:

The National Microbiology Laboratory (NML) has antigenically characterized the following strains from Ontario: 79 influenza A/Brisbane/59/2007(H1N1)-like, 21 influenza A (H3N2)A/Brisbane/10/2007-like, 40 B/Brisbane/60/2008-like, 6 influenza B/Florida/4/2006-like, and 177 B/Malaysia/2506/2004-like.†

Antiviral Resistance (National) – Seasonal Influenza:

Since the start of the season, the NML has tested 562 influenza A isolates (257 H1N1 and 305 H3N2) for amantadine resistance. All of the H1N1 isolates were sensitive; however all of the H3N2 isolates were resistant to amantadine. The NML has also tested 1042 influenza isolates (291 A/H1N1, 183 A/H3N2 & 569 B) for oseltamivir (Tamiflu) resistance. All of the A/H3N2 and B isolates were sensitive; however 290 of the A/H1N1 isolates were resistant to oseltamivir due to the H274Y mutation (resistance = 100% or 290/290). One H1N1 isolate was sensitive to oseltamivir.
All 994 influenza isolates (240 A/H1N1, 180 A/H3N2 & 574 B) tested for zanamivir resistance to date were sensitive to zanamivir.†
The WHO recommends that the vaccines to be used in the 2009-2010 season (northern hemisphere) contain the following: an A/Brisbane/59/2007 (H1N1)-like virus; an A/Brisbane/10/2007 (H3N2)-like virus; and a B/Brisbane/60/2008-like virus. <http://www.who.int/csr/disease/influenza/recommendations2009_10north/en/index.html>

Antiviral Resistance - Novel Influenza A (H1N1) swl (Human Swine Influenza):

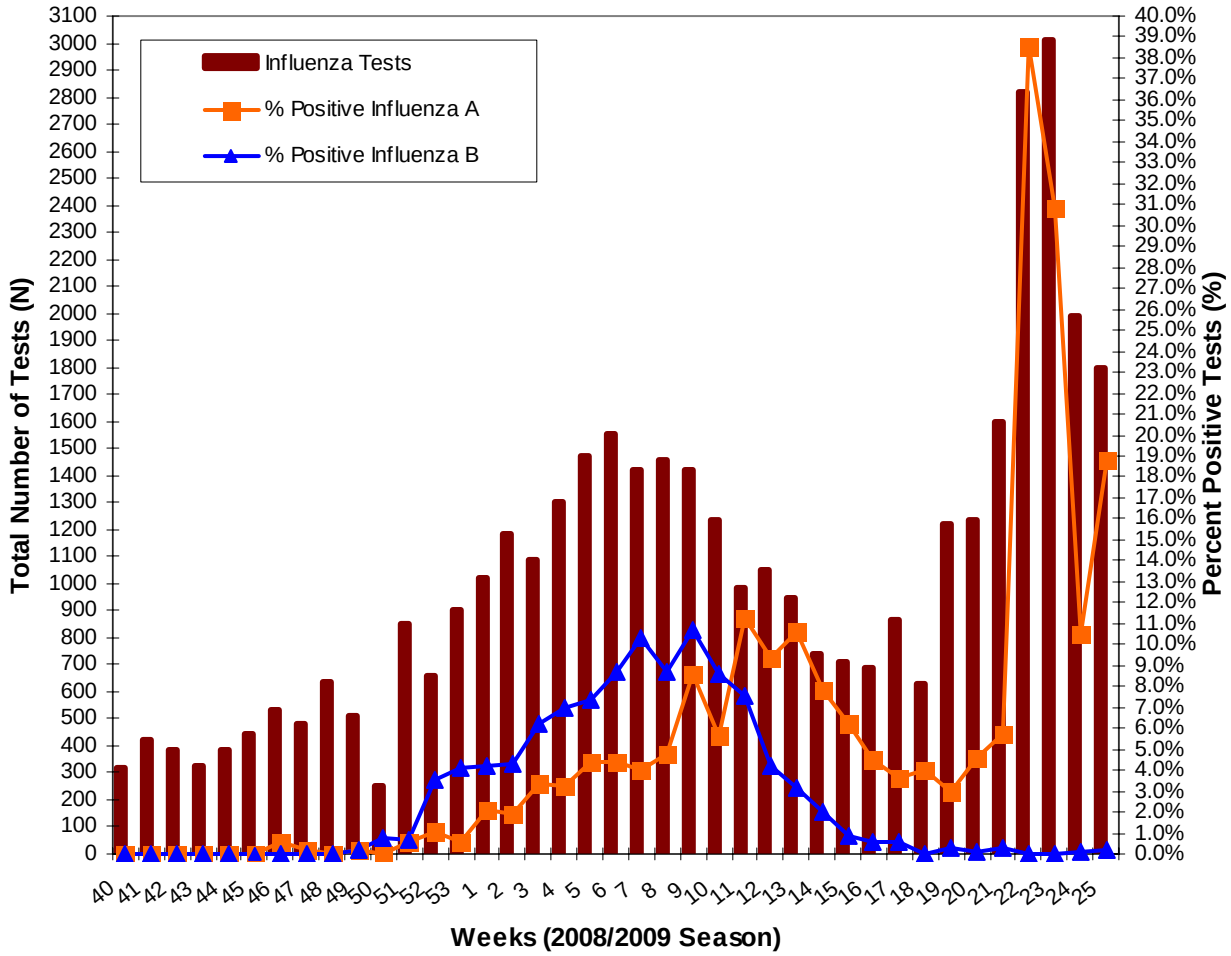
201 novel influenza A (H1N1) swl have been tested for resistance to amantadine by sequencing. The testing results showed that all 201 isolates were to resistant amantadine. 100 novel influenza A (H1N1) swl have been tested for resistance to oseltamivir by sequencing; all were sensitive. 52 of the novel H1N1 were tested for zanamivir resistance. The testing results showed that all 52 isolates were sensitive to zanamivir.

Antiviral Resistance (Provincial) – Seasonal Influenza:

All 83 A/H3N2 isolates tested were resistant to amantadine in Ontario. All of the 100 H1N1 isolates tested were sensitive to amantadine. Ninety-nine of the 100 tested A/H1N1 isolates were resistant to oseltamivir due to the H274Y mutation, one H1N1 isolate was sensitive.†

***** 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 25, 2009
† These data have been obtained from the National Microbiology Laboratory of the Public Health Agency of Canada for Week 24, 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

* Total numbers reported include late reports; therefore totals may not be equal to the sum of the weekly numbers.

Note: Cumulative numbers for season to date are available through FluWatch: http://www.phac-aspc.gc.ca/fluwatch/

Table 6a: Institutional respiratory infection outbreaks in Ontario: New Outbreaks* in Week 25 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	4	100.0
TOTAL	***4***	***100.0***
Total Respiratory Infection Outbreaks of the Season to date**	**N**	**% (of outbreaks)**
Influenza A	73	11.3
Influenza B	18	2.8
Influenza A and B	1	0.2
Parainfluenza (All types)	39	6.0
RSV	54	8.4
Combined Outbreaks†	0	0.0
Other organisms	46	7.1
No organism identified	415	64.2
TOTAL	***646***	***100.0***
Types of Institutions (All Outbreaks) **	**N**	**% (of outbreaks)**
Long-Term Care Homes	418	64.7
Hospitals	25	3.9
Retirement Homes	54	8.4
Other	2	0.3
Unknown	147	22.8
TOTAL	***646***	***100.0***
	N	**% (of outbreaks)**
New Outbreaks (Influenza A H1N1)*	0	0.0
Total Influenza A H1N1 Infection Outbreaks of the Season to date**	***3***	***100.0***
Types of Institutions (Influenza A H1N1 Outbreaks) **	**N**	**% (of outbreaks)**
Long-Term Care Homes	2	66.7
Hospitals	1	33.3
Retirement Homes	0	0.0
Other	0	0.0
Unknown	0	0.0
TOTAL	***3***	***100.0***

SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [02/07/2009]

* 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. June 21, 2009 – June 27, 2009

** Season to date includes all outbreaks in which the date of onset of illness in the first case occurred from September 1, 2008 – June 27, 2009

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

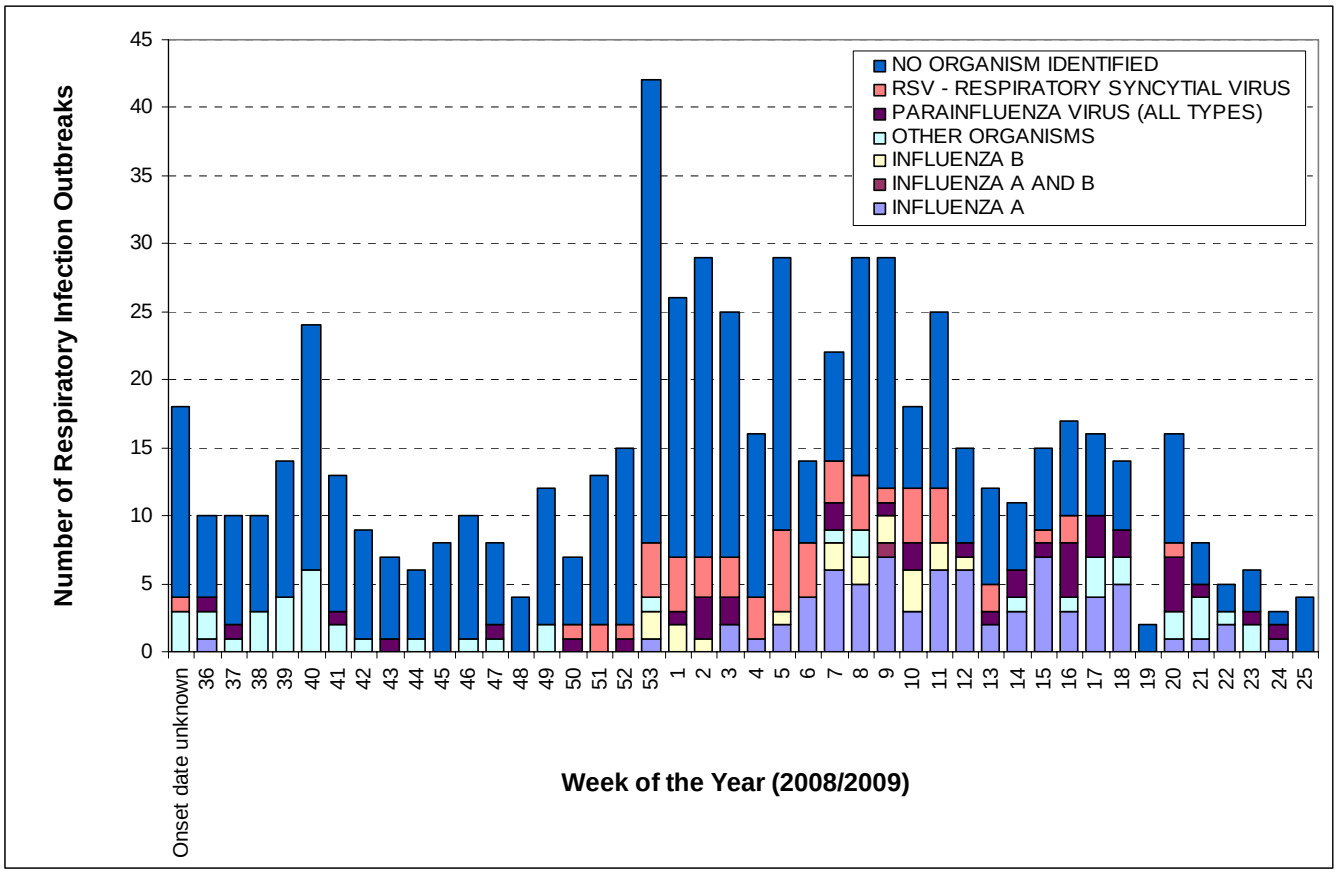
Table 6b: Outbreak Related Complications in institutional respiratory infection outbreaks in Ontario during the Surveillance Season*

Outbreak Related Cases (All Outbreaks)	**N**	**% (of total cases)**
Residents	8009	74.5
Patients	373	3.5
Staff	2372	22.1
Total Cases	**10754**	**100.0**
Deaths		**% (of cases per role)**
Residents	178	2.2
Patients	9	2.4
Staff	0	0.0
Pneumonia (Chest x-ray confirmed)		**% (of cases per role)**
Residents	282	3.5
Patients	28	7.5
Staff	10	0.4
Hospitalizations		**% (of cases per role)**
Residents	341	4.3
Staff	6	0.3
Outbreak Related Cases (All Influenza Outbreaks)	**N**	**% (of total cases)**
Residents	1102	71.7
Patients	47	3.1
Staff	389	25.3
Total Cases	**1538**	**100.0**
Deaths		**% (of cases per role)**
Residents	44	4.0
Patients	0	0.0
Staff	0	0.0
Pneumonia (Chest x-ray confirmed)		**% (of cases per role)**
Residents	65	5.9
Patients	3	0.3
Staff	5	1.3
Hospitalizations		**% (of cases per role)**
Residents	84	7.6
Staff	0	0.0
Outbreak Related Cases (Influenza A H1N1 Outbreaks)	**N**	**% (of total cases)**
Residents	1	20.0
Patients	3	60.0
Staff	1	20.0
Total Cases	**5**	**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	1	100.0
Staff	0	0.0

SOURCE: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [02/07/2009]

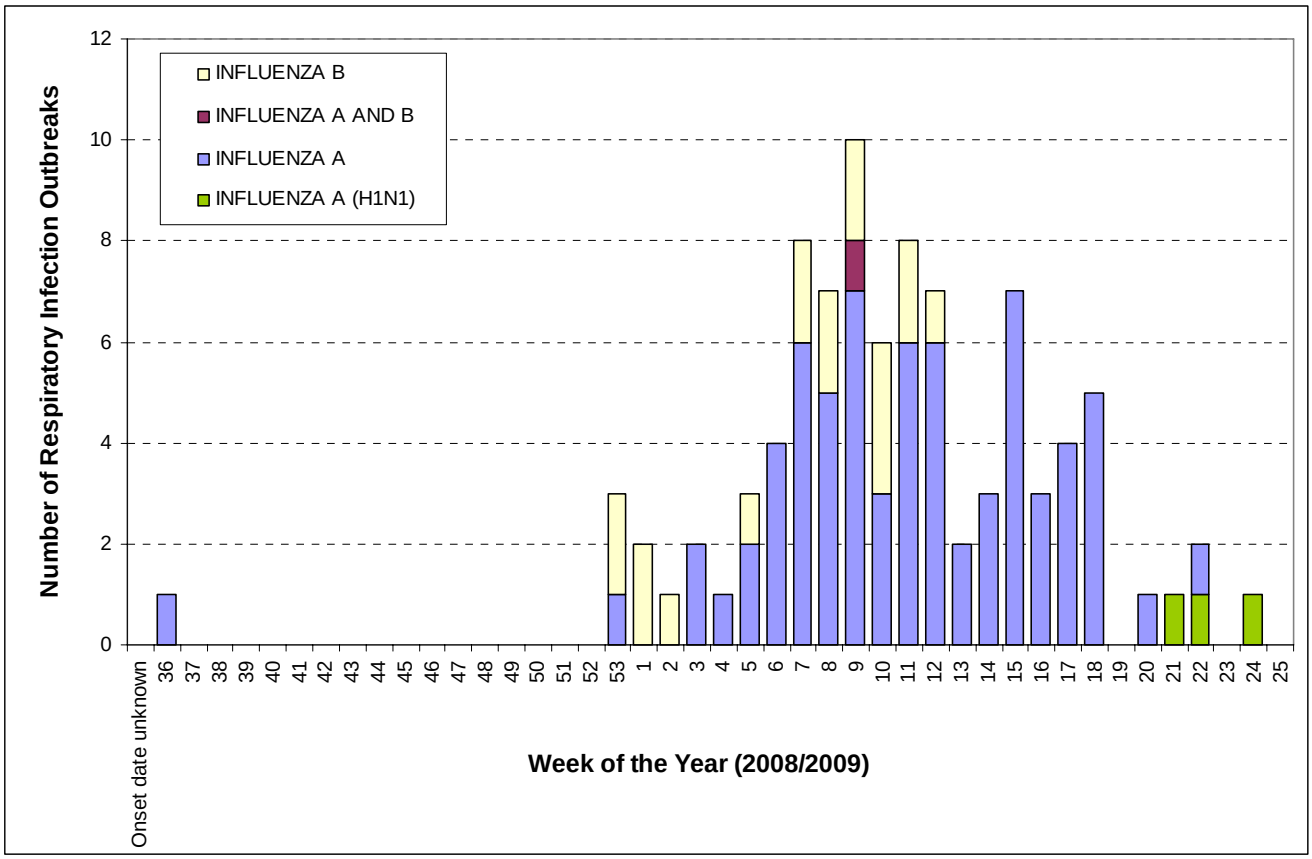
* Season to date includes all outbreaks in which the date of onset of illness in the first case occurred from September 1, 2008 – June 27, 2009

Figure 7: Institutional respiratory infection outbreaks in Ontario by onset of illness in the first case: Total Outbreaks from September 1, 2008 – June 27, 2009 by causative organism



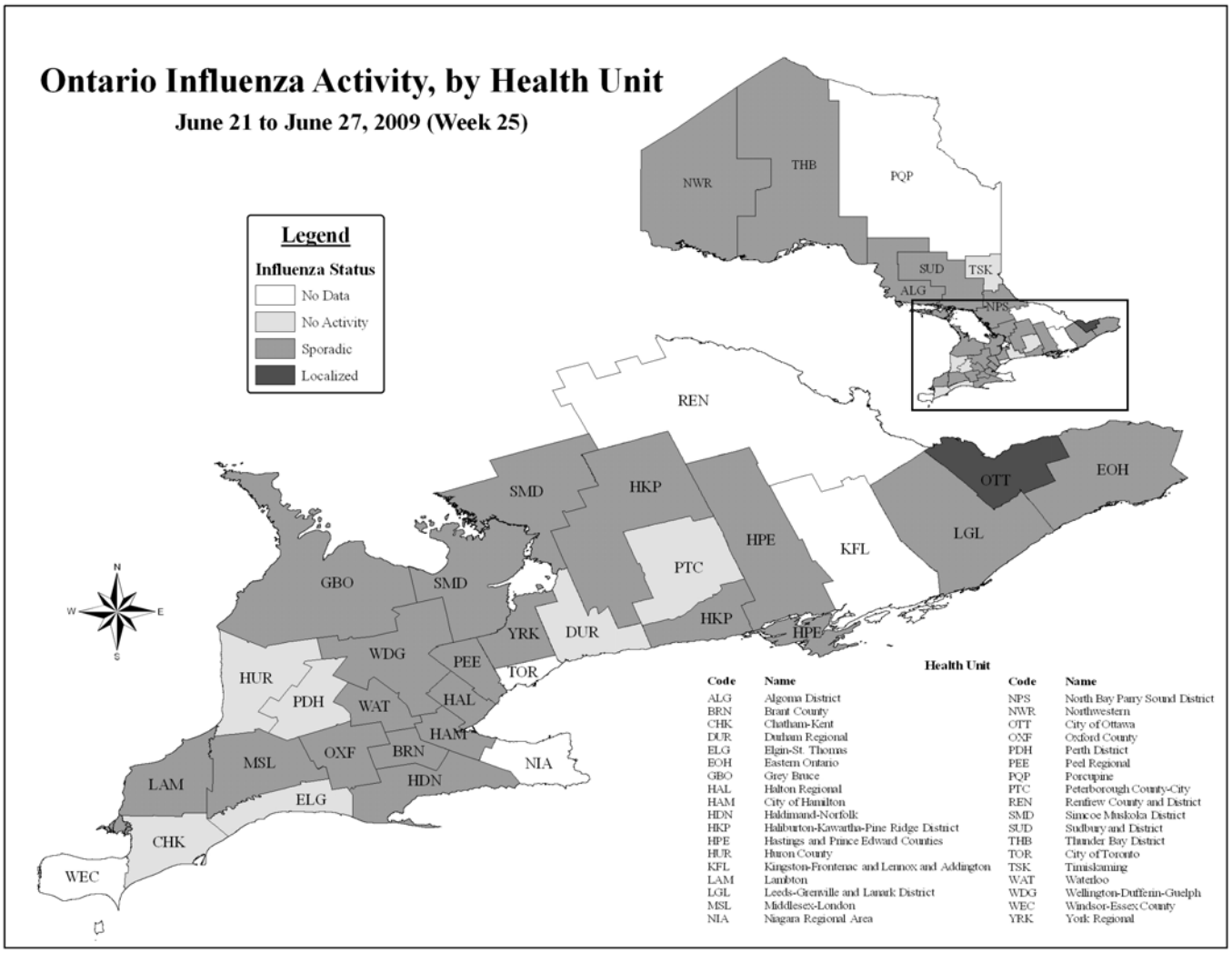
Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [02/07/2009]

Figure 8: Institutional influenza outbreaks in Ontario by onset of illness in the first case: Total Outbreaks from September 1, 2008 – June 27, 2009 by subtype



Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [02/07/2009]

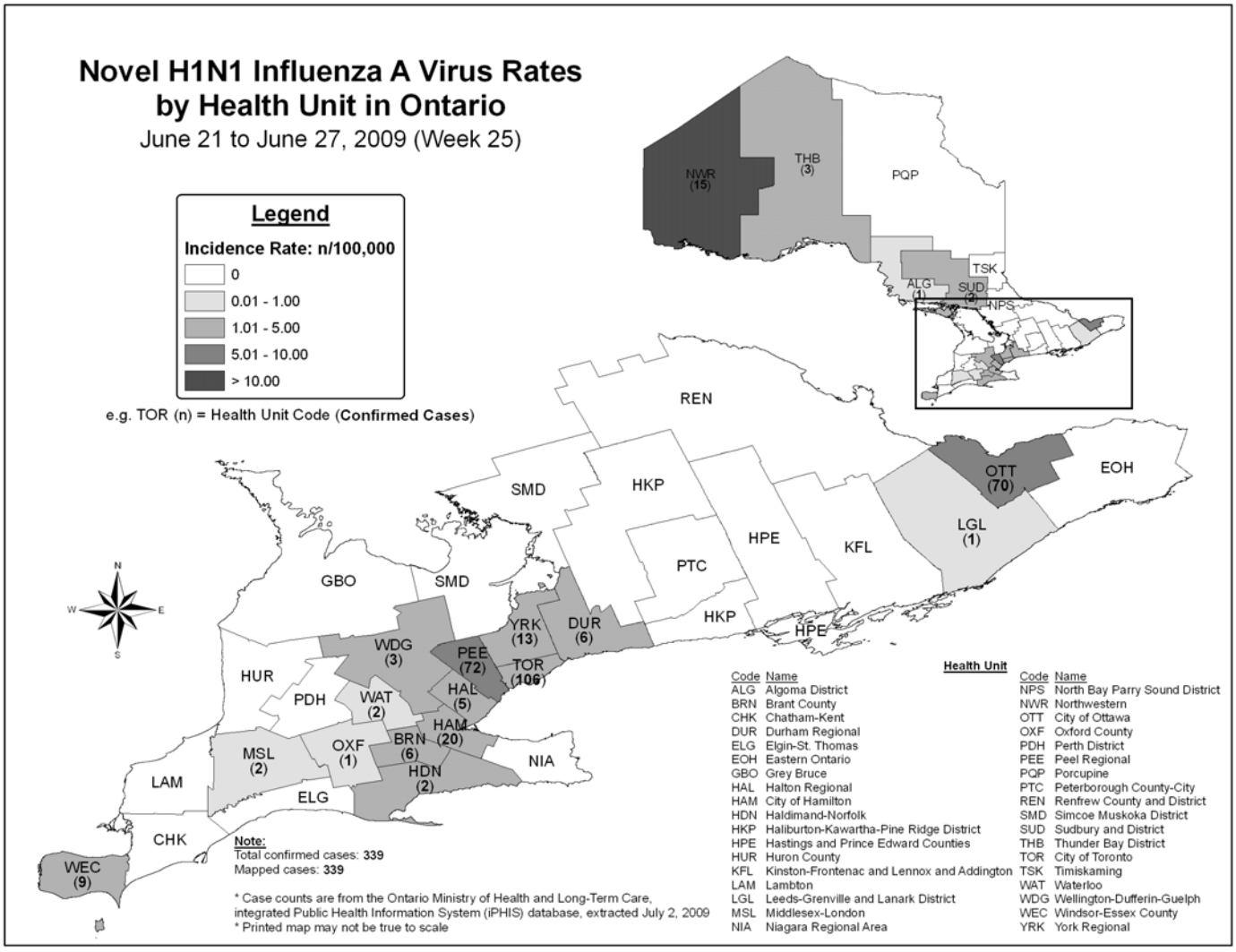
Figure 9: Influenza Activity* levels in Ontario by health unit for Week 25, 2009



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

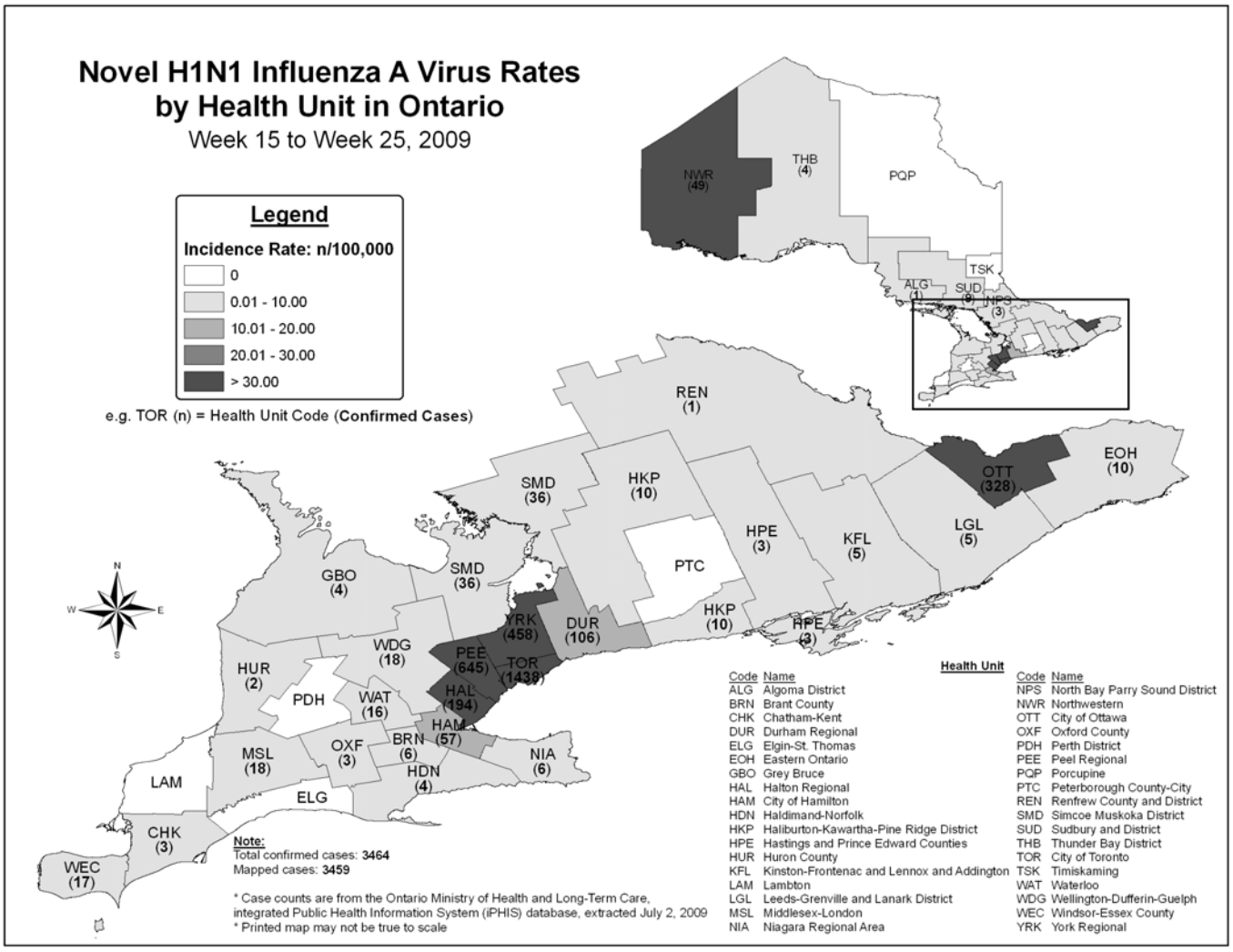
* Influenza activity levels are assigned by local public health units and reported to the MOHLTC by the Tuesday following the end of the surveillance week at 4 pm. Activity levels are assigned based on laboratory confirmations, ILI reports from various sources, and laboratory confirmed institutional outbreaks. Please refer to detailed definitions for the 2008-2009 season included in the Appendix-1]

Figure 10: Novel H1N1 Influenza A Virus incidence rates and counts in Ontario by health unit for Week 25, 2009



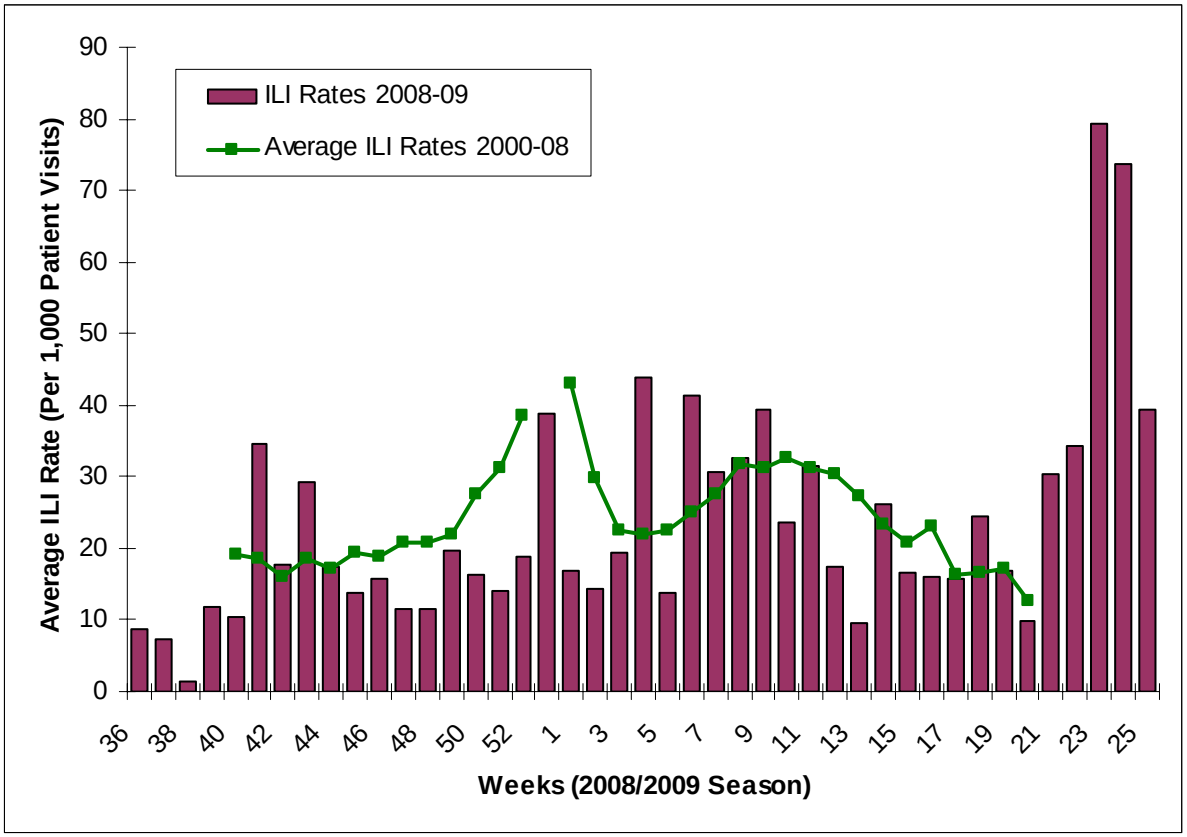
Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [02/07/2009]

Figure 11: Novel H1N1 Influenza A Virus cumulative incidence rates and counts in Ontario by health unit, Week 15 – 25, 2009



Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [02/07/2009]

Figure 12: Average influenza-like illness (ILI) consultation rate (per 1,000 patient visits) reported by sentinel physicians* in Ontario in 2008- 2009 season, by report week, compared to Ontario average† (1999/2000 to 2007/08 seasons).

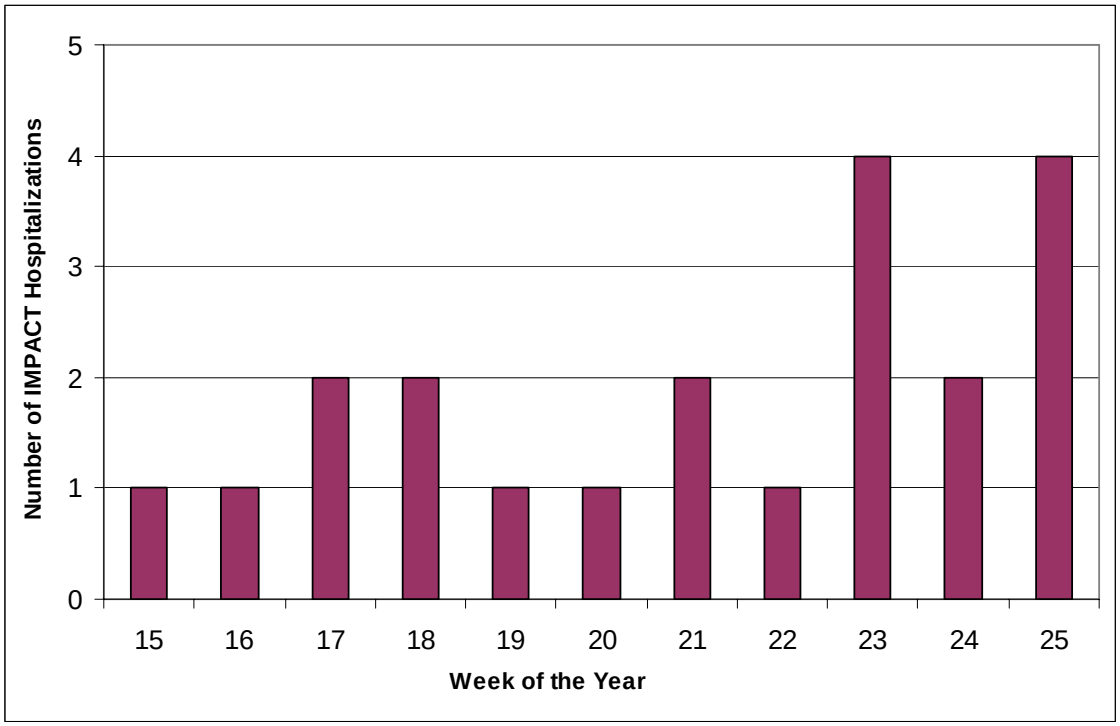


Source: Public Health Agency of Canada
* Sentinel physician information is reported to Public Health Agency of Canada.
†No data available for mean rate in previous years for weeks 21 to 39 (1999-2000 through 20048-20059 seasons). During weeks 20-39, 2002-2003/2004-2005 seasons, ILI is reported once every two weeks, on even weeks only.
Note: For Week 41, the number of sentinel physicians reporting is lower than previous years, which may affect the average ILI rate for this period. Also, since Week 23, 2009, the number of sentinel physicians has increased, which might affect ILI rate starting from week 23.

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)

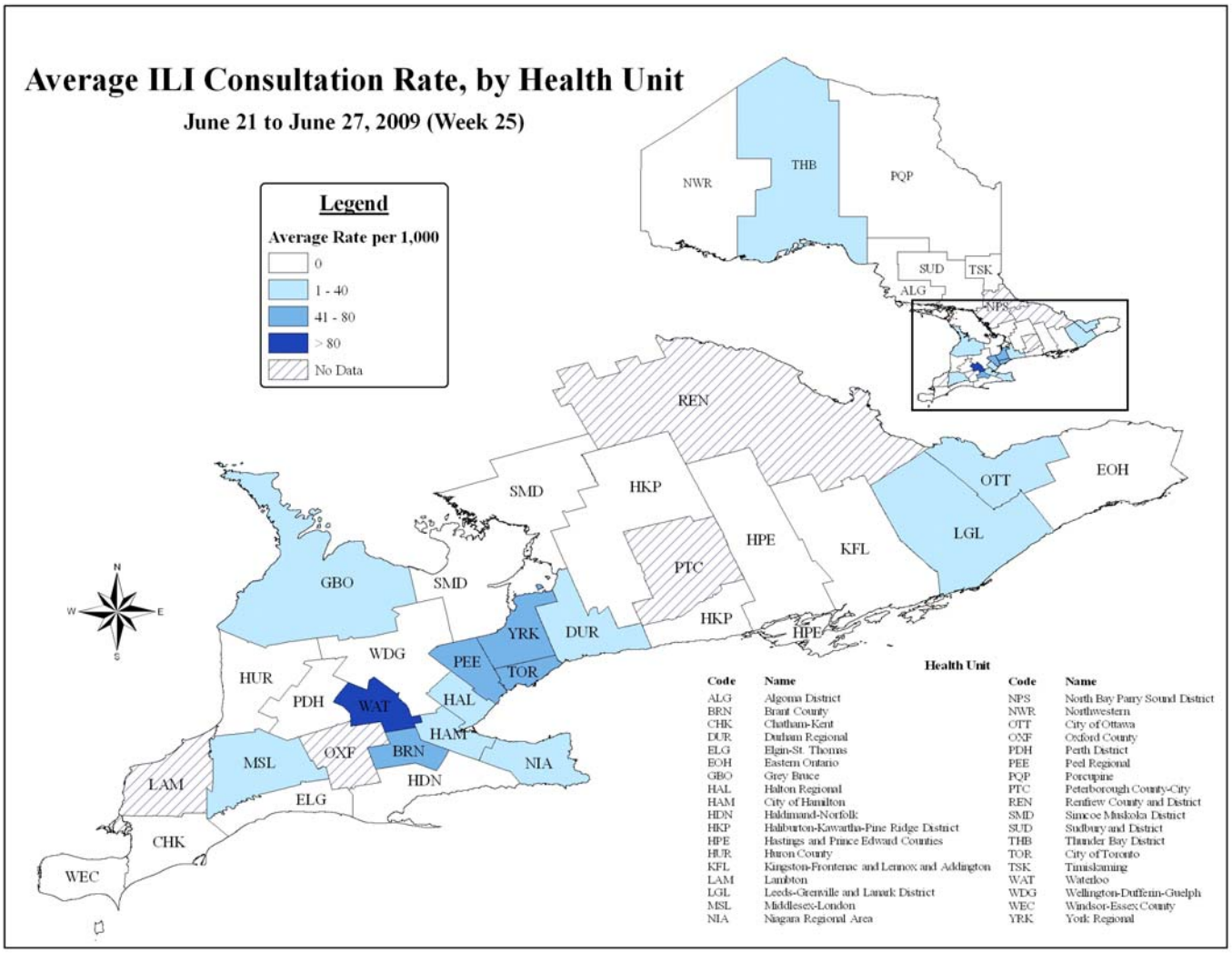
Reports of adverse events following immunization are reported to the Vaccine Safety Unit at the Immunization Division of the Public Health Agency of Canada.

Figure 13: Number of IMPACT Hospitalizations in Ontario in the 2008- 2009 season, by report week.



Source: Public Health Agency of Canada

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 25.



Source: Public Health Agency of Canada

* Sentinel physicians report ILI and patient data to the Public Health Agency of Canada

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

FURTHER INFORMATION

1. Ontario Ministry of Health and Long-Term Care
   Previous issues of the *Ontario Influenza Bulletin* can be accessed at:
   http://www.health.gov.on.ca/english/providers/program/pubhealth/flu/flu_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

APPENDIX - I

Definitions for influenza activity levels:

No Data: No activity report corresponding to the surveillance week was received at the Ministry of Health and Long-Term Care Call Centre by the Tuesday (at 4 p.m.) following the end of the surveillance period.

No Activity: **No laboratory-confirmed* influenza and NO outbreaks detected** within the health unit/ influenza surveillance area, within the prior week, although sporadically occurring ILI may or may not be present.†

Sporadic: Sporadically (infrequently) occurring **ILI and at least one lab-confirmed influenza* case with NO outbreaks** detected within the health unit area.†

Localized: sporadically occurring **ILI and lab-confirmed influenza* together with outbreaks of ILI** in schools and work sites, or laboratory-confirmed influenza in residential institutions occurring in < 50% of the health unit . Outbreaks affect a single and/or adjacent geographic area within the health unit jurisdiction, e.g. outbreaks in a nursing home and a school in close proximity to each other.†

Widespread: sporadically occurring **ILI and lab-confirmed influenza* together with outbreaks of ILI** in schools and work sites, or laboratory-confirmed influenza in residential institutions occurring in > 50% of the health unit. Outbreaks affect multiple and non-adjacent geographic areas within the health unit jurisdiction, such as two or more regions of the health unit, two or more municipalities, two or more electoral wards, etc.†

* Confirmation of influenza within the surveillance region at any time within the prior week
† Sub-regions within the province or territory as defined by the provincial/territorial epidemiologist

Influenza-Like Illness (ILI) Definitions:

A) ILI in the general population:

Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which could be due to influenza virus. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

B) ILI/Influenza outbreaks:

Schools and work sites: greater than 10% absenteeism on any day, most likely due to ILI.

Residential institutions: two or more cases of ILI within a seven-day period, **including at least one laboratory confirmed case**.

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

Confirmed
Person with or without Influenza-like illness[1] 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

[1]Influenza-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.

Influenza Surveillance Weeks 2008-2009 and date of submission of Appendix C

WEEKS	START	END	Appendix C Submission to MOHLTC
WK26	28-Jun-09	4-Jul-09	7-Jul-09
WK27	5-Jul-09	11-Jul-09	14-Jul-09
WK28	12-Jul-09	18-Jul-09	21-Jul-09
WK29	19-Jul-09	25-Jul-09	28-Jul-09
WK30	26-Jul-09	1-Aug-09	4-Aug-09
WK31	2-Aug-09	8-Aug-09	11-Aug-09
WK32	9-Aug-09	15-Aug-09	18-Aug-09
WK33	16-Aug-09	22-Aug-09	25-Aug-09
WK34	23-Aug-09	29-Aug-09	1-Sep-09
WK35	30-Aug-09	5-Sep-09	8-Sep-09