

Notes and Summary

Context: Data contained in this report is a compilation of both external and internal sources and includes the most updated versions available at the time of writing. Please contact the epidemiologist at 613.345.5685 (2270) or at epi@healthunit.org if you find any errors in this report or would like to see changes or additions to the report content or reporting theme.

Summary: The overall influenza activity for week 41 (October 11 – October 17, 2009) increased nationally and internationally when compared to the previous reporting week (week 40). The number of regions reporting both localized and widespread H1N1 activity has increased as well. Those admitted to hospital with H1N1 tend to be younger (median age = 23 years) with close to equal amount of males and females reporting.

Locally, we have been monitoring ongoing Respiratory and Fever/ILI syndromic surveillance alerts generated by some of our local hospitals.

School absenteeism has increased dramatically to a weekly rate of 109 absentees per 1000 students in both primary and secondary schools reporting in Leeds, Grenville & Lanark District Health Unit (LGLDHU) for the week of October 23, 2009 compared to 20.7 per 1000 students for the week of October 16, 2009.

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Websites of Interest:

(Hover pointer over link press
CNTRL + Click to hyperlink)

Local:

[LGLDHU](#)

Ontario:

[OAHPP](#)

[MOHLTC](#)

[Flu Bulletins](#)

Canada:

[PHAC](#)

[FluWatch](#)

[CCIAP](#)

International:

[WHO](#)

[CDC](#)

[HealthMap](#)

National/International Influenza Summary

National Summary – Week 41 (Oct 11 – Oct 17, 2009):

The overall influenza activity has increased for a fifth consecutive week. All indicators (proportion of positive influenza tests, national ILI consultation rate, number of regions reporting widespread and localized activity and number of influenza outbreaks) were higher this week compared to the previous weeks.

Four regions reported widespread activity in BC & NT and fourteen regions in BC, AB, SK, ON, NB & NL reported localized activity, while twenty-three regions reported sporadic activity in BC, SK, MB, ON, QC, NB, PEI, NS, NL, YK & NU and thirteen regions in NB, NS & NL reported no activity. The fifty-eight influenza outbreaks reported this week were all in schools except 1 in a long-term care facility (BC), 1 in an unspecified location (AB) and 1 in a workplace (NB). The schools outbreaks were in BC (38), AB (9), NT (5), SK (1), NS (1) and NL (1). Note that this is the first year that all the provinces and territories are reporting on influenza outbreak in schools (greater than 10% absenteeism on any day most likely due to ILI) which is increasing considerably the total number of outbreaks reported compared to the previous years.

The intensity of Pandemic (H1N1) 2009 in the population was moderate with sixty-four hospitalizations and three deaths reported this week. Hospitalized cases were reported from BC, AB, MB, ON and NT while the deaths were from BC and SK. As of October 17, 2009, a total of 1,604 hospitalized cases including 312 cases admitted to an intensive care unit (ICU) and 164 cases required ventilation as well as 83 deaths had been reported since the beginning of the pandemic.

This week, 99.9% of the positive influenza A sub-typed specimens were Pandemic (H1N1) 2009.

A total of 1,604 hospitalized cases, including 312 (19.5%) cases admitted to ICU and 164 (10.2%) cases required ventilation as well as 83 deaths of Pandemic (H1N1) 2009, were reported to PHAC as of October 17, 2009. The proportion of females affected, the median age and the proportion of cases with underlying medical conditions was still increasing with severity of illness this week. While women and men had similar hospitalization rates, more females were admitted to ICU, required ventilation and died compared to men (approximately 60% females vs. 40% for males for all these outcomes). As well, for those with severe outcomes, females had more underlying medical conditions than males; 74.2% vs. 68.4% of ICU admissions and 81.6% vs. 71.8% of deaths. In the Canadian population there are more females than males in older age groups which may partially explain the differences observed.

(Source: Flu Watch: Public Health Agency of Canada. Issued Oct 23, 2009)

International Summary – Week 41 (Oct 11 – Oct 17, 2009): Influenza activity continues to increase in the northern temperate zones across the world. In North America, the United States is now experiencing nationwide rates of Influenza-Like Illness (ILI) well above seasonal baseline rates, with high rates of pandemic H1N1 2009 virus detections in clinical laboratory specimens. Canada is reporting increases in ILI rates for the third straight week with some provinces now crossing the baseline. Mexico also reports high intensity and active transmission in some areas of the country. Western Europe and Northern Asia are experiencing increased rates of ILI, well above baseline in some countries but activity is generally not as widespread as in North America. Of note, nearly half of the influenza viruses detected in China are seasonal influenza A (H3N2) viruses, which appeared prior to and is co-circulating with pandemic H1N1 2009 virus. (Source: *International Influenza Report 2009: Public Health Surveillance Unit, Public Health Division. MOHLTC. Issued Oct 21, 2009*)

Please see tables and figures on next 3-pages for weekly cumulative counts of hospitalizations, ICU admissions and deaths attributable to pandemic H1N1 in Canada, as well as regional influenza reporting and sentinel physician reporting up to the end of Week 41 (Oct 11 – Oct 17, 2009).

Table 1: Weekly and cumulative counts of hospitalized cases, ICU admissions and deaths among Pandemic (H1N1) 2009 confirmed cases, Canada, for Week 41 (Oct 11 to 17, 2009).

Province/Territory	Week 41 (Oct 11 – Oct 17)			Cumulative		
	Hospitalized cases	ICU admissions	Deaths	Hospitalized cases	ICU-admitted cases	Deaths
BC	33	6	2	111	30	9
AB	6	1	0	139	32	8
SK	0	0	1	24	12	5
MB	1 ^a	0	0	227	43	7
ON	20	6	0	407	72	25
QC	0	0	0	585 ^b	105	27
NB	0	0	0	2	1	0
NS	0	0	0	17	8	1
PE	0	0	0	1	0	0
NL	0	0	0	3	1	0
YT	0	0	0	0	0	0
NT	4	0	0	22	2	0
NU	0	0	0	66	6	1
Canada	64	13	3	1604	312	83

Notes: ^a The new numbers reflect the situation since week 39.

^b Quebec confirmed that one previously reported hospitalized case was excluded which explains the lower cumulative hospitalization number for this week.

(Source: Flu Watch: Public Health Agency of Canada. Issued Oct 23, 2009)

Table 2: Descriptive characteristics of laboratory-confirmed Canadian Pandemic (H1N1) 2009 hospitalized cases, cases admitted to ICU and deaths with core information available.

Description	As of week 41 (Oct 11 - Oct 17, 2009)		
	Hospitalized cases (n=1,541)	Cases admitted to ICU (n=299)	Deaths (n=80)
Females, %	51.4	56.4	61.0
Median age	23.0	37.0	49.5
Aboriginal status, %	17.7	15.1	12.0
Underlying medical conditions ¹ , %	61.9 (657/1,062)	71.7 (157/219)	77.4(48/62)
Pregnancy ² , %	27.8 (85/306)	19.3 (16/83)	23.5 (4/17)

Notes: 1 Proportion of cases with at least one underlying medical condition (excluding pregnancy) among those for whom the information was available. Note that P/T are now reporting on three additional underlying medical conditions : chronic liver disease, chronic neurological disease and anemia or hemoglobinopathy. 2 Percent of pregnant women among women 15 to 44 years of age. *(Source: Flu Watch: Public Health Agency of Canada. Issued Oct 23, 2009)*

Figure 1: The overall influenza activity has increased for a fifth consecutive week. The number of influenza surveillance regions reporting widespread or localized influenza activity in Canada increased in week 41.

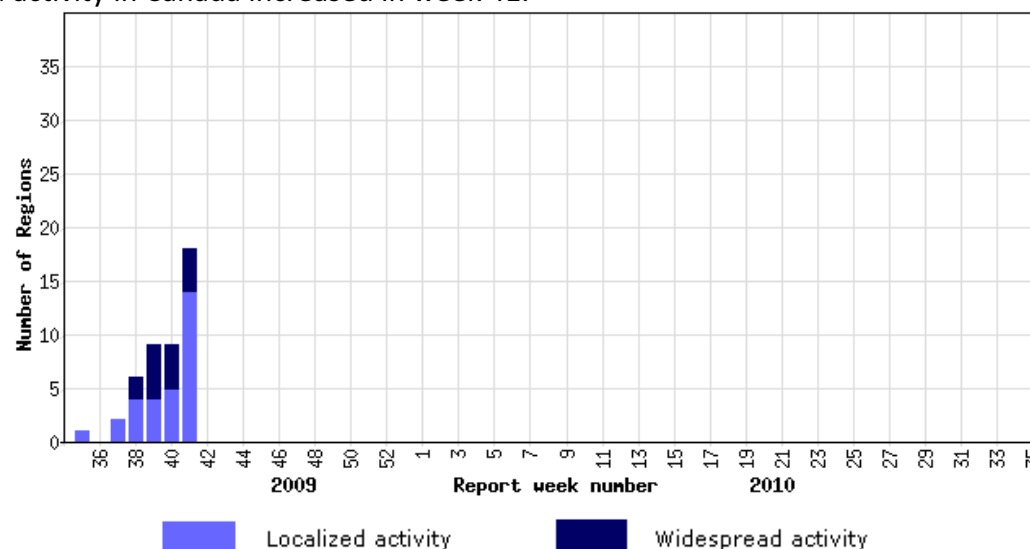
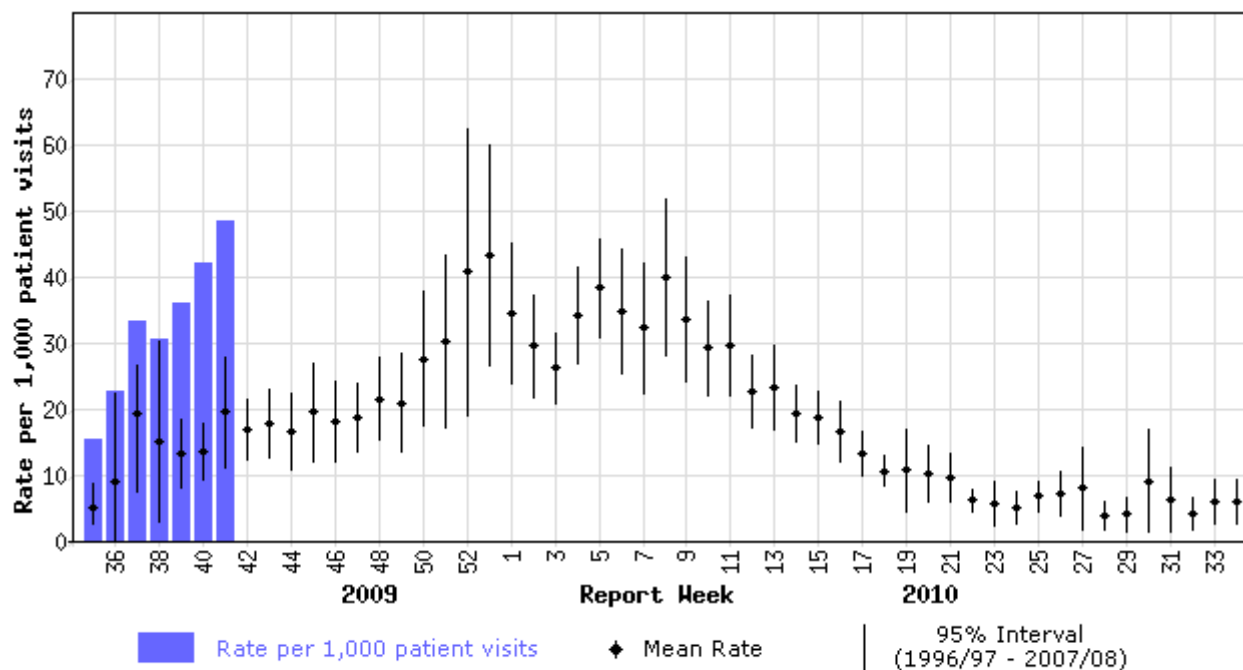


Figure 2: This week, the national ILI consultation rate was 48 consultations per 1,000 patient visits (see ILI graph) which is higher compared to the previous weeks and still above the expected range for this time of the year. Four provinces (AB, SK, ON and NT) had higher ILI consultation rates compared to their ILI rates in previous weeks. The ILI rates of these four provinces were also higher than the national level this week. People under 20 years of age had the highest consultations rates with 98.3 and 88.9 per 1,000 patient visits among children under 4 years of age and among those 5 and 19 years of age, respectively.



(Source for figures 1 & 2: Flu Watch: Public Health Agency of Canada. Issued Oct 23, 2009)

Summary of Influenza Indicators for Ontario**Table 3:** Assessment of influenza activity for Ontario. Coverage for period October 11 – October 17, 2009 (Week 41).

Measure	Assessment of Trends	Comments
<i>Compared to previous week</i>		
Laboratory confirmed cases	Higher	198 total influenza cases (144 pH1N1) in week 41 compared to 116 reported in week 40 (84 pH1N1). The percent positivity of laboratory tests for pH1N1 was 16%, which is lower than the peak in June (>40%).
Influenza A outbreaks	Similar	No new institutional influenza outbreaks were reported for the current reporting week. There were no new pH1N1 outbreaks declared in schools for Week 41.
Influenza activity reported by Health Units	Higher	One health unit reported 'widespread' influenza activity and seven health units reported 'localized' activity for the current reporting week
ILI consultation rates reported by sentinel physicians	Higher	The overall ILI consultation rate increased from 41.4/1,000 patient visits to 58.9/1,000 patient visits.
<i>Overall Assessment for this week</i> Influenza activity in Ontario is <i>higher</i> compared to the previous week.		

(Source: Ontario Influenza Bulletin: MOHLTC. Issued Oct 23, 2009)

Summary of Influenza Indicators for Leeds, Grenville & Lanark**Table 4:** Assessment of influenza activity for LGLDHU. Coverage for period varies by date due to different reporting sources.

Measure	Assessment of Trends	Comments
<i>Compared to previous week</i>		
Laboratory confirmed cases	Higher	LGLDHU had 26 lab-confirmed H1N1 cases and 5 Influenza A cases during week of Oct 24-30 compared with 14 H1N1 and 0 Influenza A cases Oct 17-23
Influenza A outbreaks	Same	No new institutional influenza outbreaks were reported for the current reporting week.
Influenza activity overall in LGLDHU	Higher	There was sporadic influenza activity within LGLDHU for week of Oct 24 - 30.
School absenteeism reporting by sentinel schools	Much Higher	The overall absenteeism rate per 1,000 students was 20.7/1000 from Oct 11 – 16 increasing to 109.3/1000 from Oct 17 - 23.
ILI consultation rates reported by sentinel physicians	Not reportable	ILI consultation data will be posted as soon as possible.
<i>Overall Assessment for this week</i>		
Influenza activity in LGLDHU was higher for the past 2-weeks compared to the previous report.		

Sources: 1) Ontario Influenza Bulletin: MOHLTC. (Issued Oct 23, 2009). 2) Weekly Provincial Influenza Activity Report Database (Appendix C), MOHLTC. 3) LGLDHU School Absenteeism Data. (Extracted Oct 28, 2009)

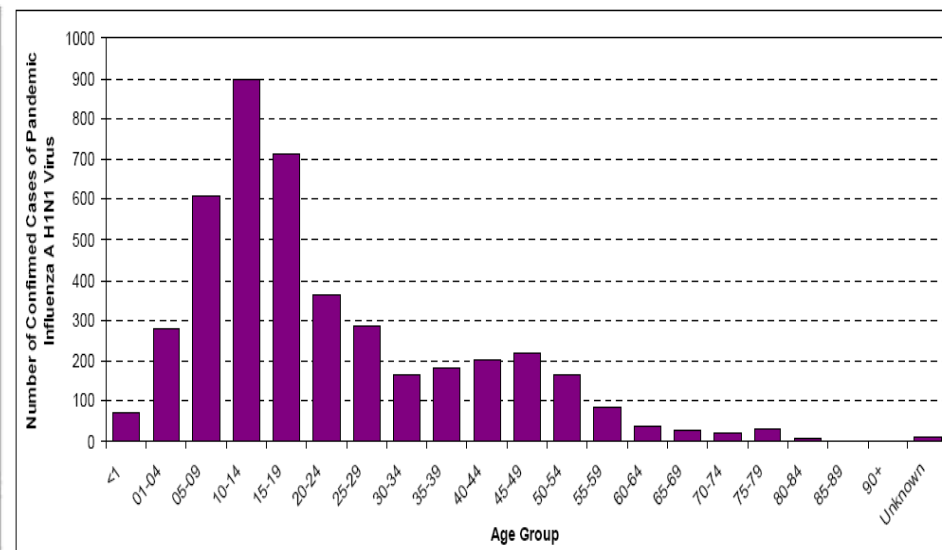
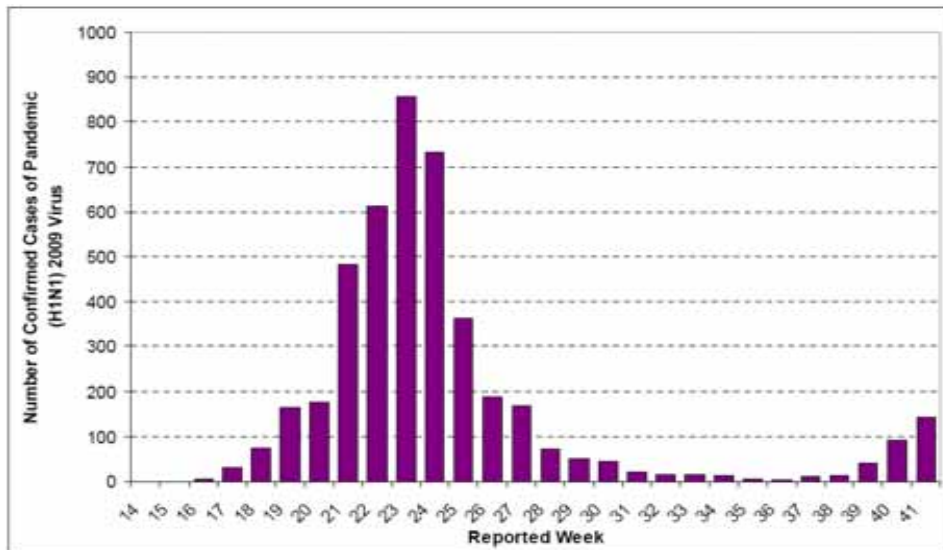
Virus Activity Summary (Ontario)

Table 5: Laboratory confirmed cases of pandemic (H1N1) 2009 virus by health unit & health region, reported during Week 41, and cumulative confirmed cases between April 1, 2009 – October 17, 2009.

Region	Health Unit	Confirmed Influenza	
		Pandemic (H1N1) 2009 for WK 41	Pandemic (H1N1) 2009 (Total)
North West	Northwestern	0	74
	Thunder Bay District	4	15
	TOTAL NORTH WEST	4	89
North East	Algoma	3	10
	North Bay Parry Sound District	1	8
	Porcupine	7	11
	Sudbury & District	1	25
	Timiskaming	1	1
TOTAL NORTH EAST	13	55	
Eastern	City of Ottawa	13	394
	Eastern Ontario	13	41
	Hastings & Prince Edward Counties	0	4
	Kingston, Frontenac, Lennox & Addington	3	30
	Leeds, Grenville And Lanark District	0	10
	Renfrew County And District	1	13
TOTAL EASTERN	30	492	
Central East	Durham Region	12	135
	Haliburton, Kawartha, Pine Ridge	3	16
	Peel Region	2	707
	Peterborough County-City	0	7
	Simcoe Muskoka District	2	66
	York Region	4	504
TOTAL CENTRAL EAST	23	1,435	
Toronto	Toronto	14	1,628
	TOTAL TORONTO	14	1,628
South West	Chatham-Kent	0	9
	Elgin-St. Thomas	0	1
	Grey Bruce	1	14
	Huron County	0	2
	Lambton County	5	8
	Middlesex-London	7	40
	Oxford County	2	6
	Perth District	2	9
	Windsor-Essex County	1	52
	TOTAL SOUTHWEST	18	141
Central West	Brant County	0	9
	City Of Hamilton	12	158
	Haldimand-Norfolk	0	6
	Halton Region	5	232
	Niagara Region	15	48
	Waterloo Region	7	52
	Wellington-Dufferin-Guelph	3	37
TOTAL CENTRAL WEST	42	542	
	<i>Out of Province</i>	0	6
	TOTAL ONTARIO	144	4,388

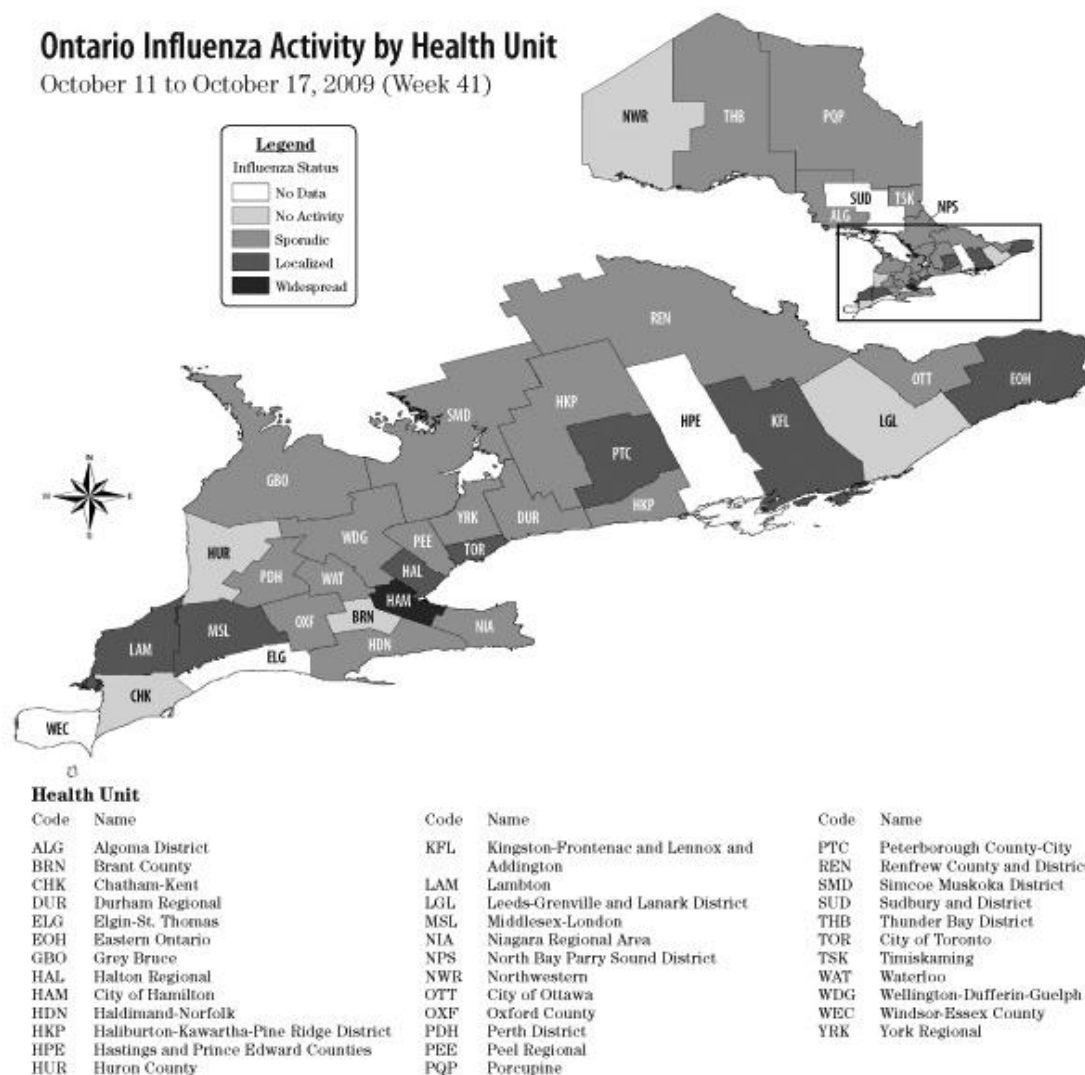
(Source: Ontario Influenza Bulletin: MOHLTC. Issued Oct 23, 2009)

Figure 3 & 4: Laboratory confirmed cases of Pandemic (H1N1) 2009 in Ontario by week and age group between April 13 and October 17, 2009. There has been an increasing trend in the number of confirmed H1N1 cases since week 38 (Sept 13-Sept 19, 2009). As well, there is a right-hand positive skew to the age distribution in confirmed cases. This suggests that the majority of confirmed cases of H1N1 have been in younger age cohorts (median age = 23 years).



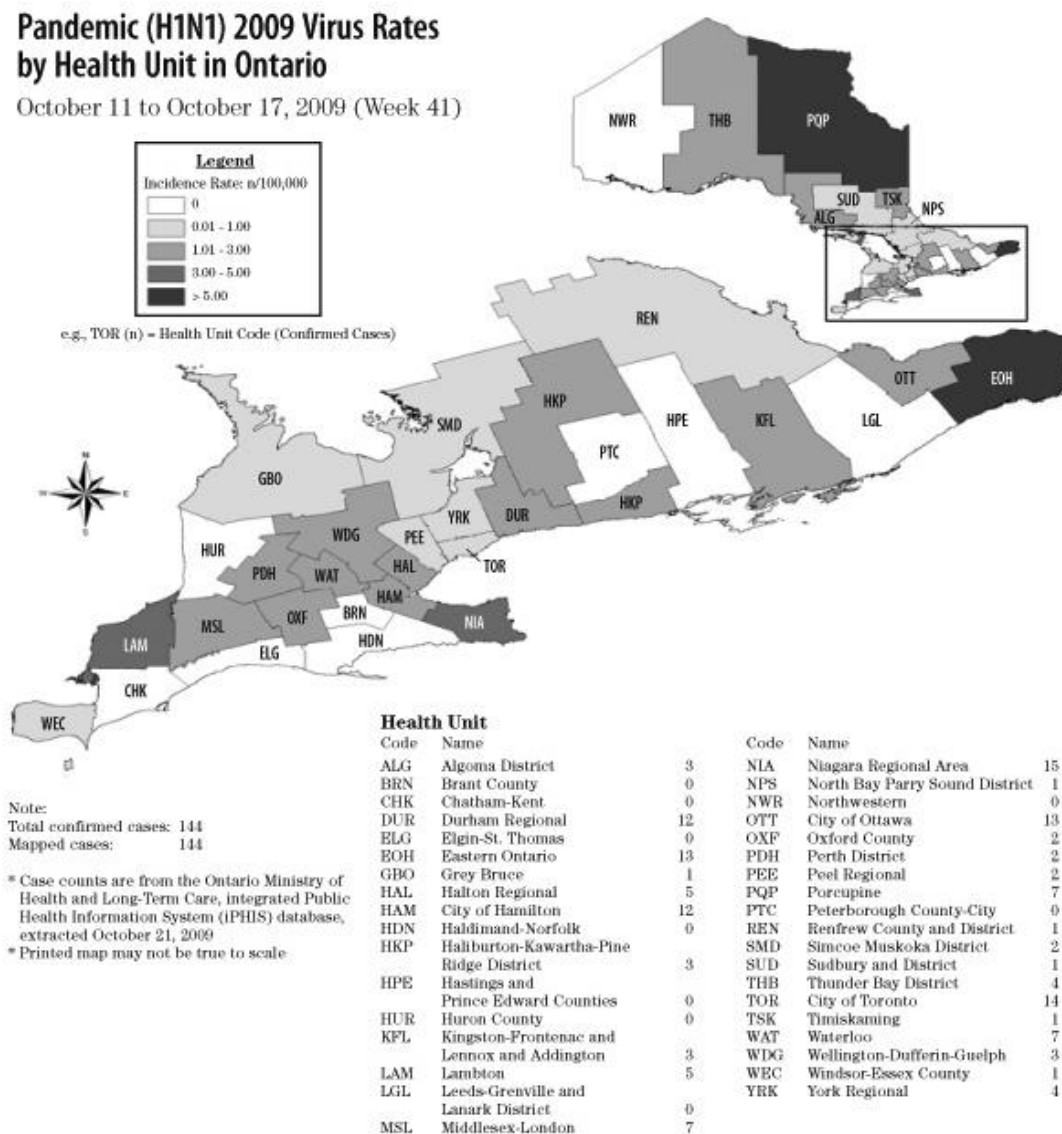
(Source: Ontario Influenza Bulletin: MOHLTC. Issued Oct 23, 2009)

Figure 5: Geographic distribution of Influenza activity within Ontario for week 41 (Oct 11 – Oct 17, 2009).



(Source: Weekly Provincial Influenza Activity Report Database (Appendix C): MOHLTC.)

Figure 6: Pandemic H1N1 2009 Virus incidence rates in Ontario by health unit for Week 41, 2009 (Oct 11 – Oct 17, 2009).

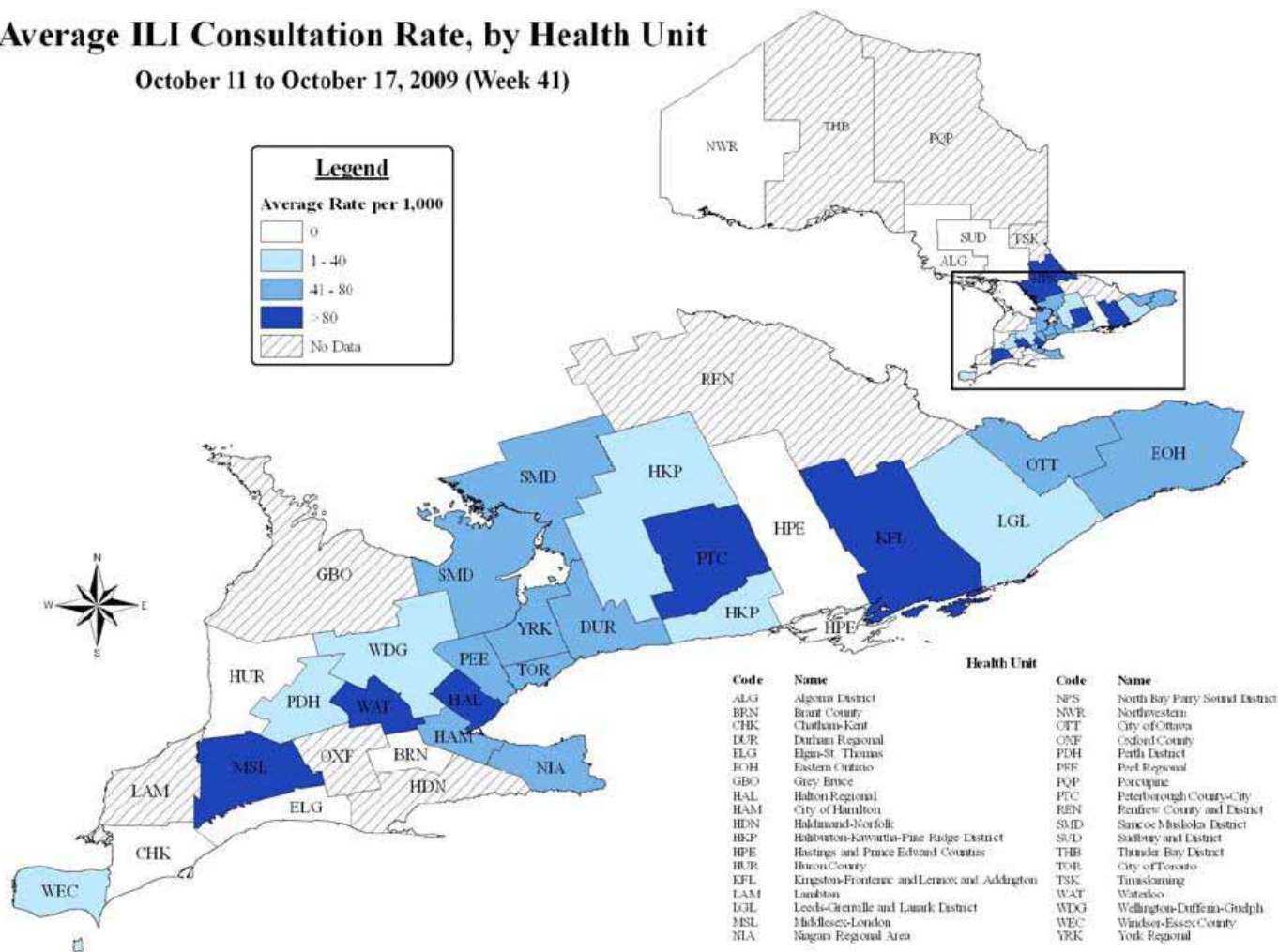


(Source: Integrated Public Health Information System (iPHIS): MOHLTC. Extracted Oct 21, 2009)

Figure 7: Sentinel physicians report ILI and patient data to the Public Health Agency of Canada each week. For week 41, sentinels reported from all Public Health Units in Ontario reported an average consultation rate of 58.9 consultations per 1000 patient visits. Note that the small numbers of sentinel physicians reporting at the local level can make the ILI rates unstable. Please interpret this data with caution.

Average ILI Consultation Rate, by Health Unit

October 11 to October 17, 2009 (Week 41)



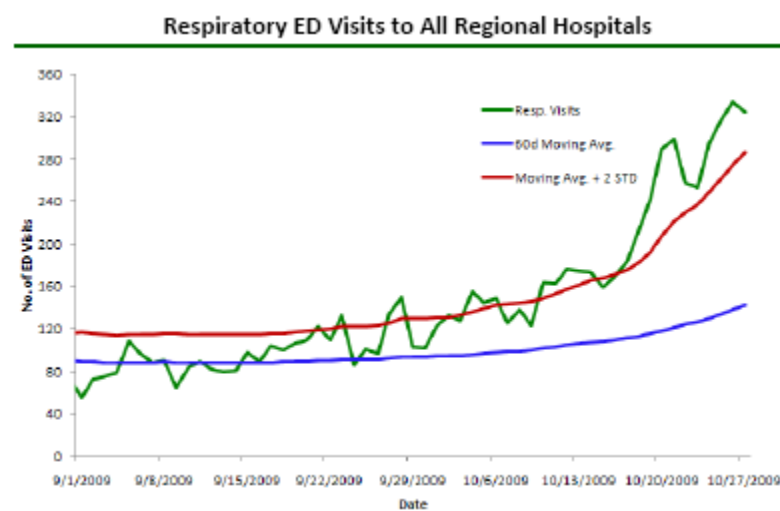
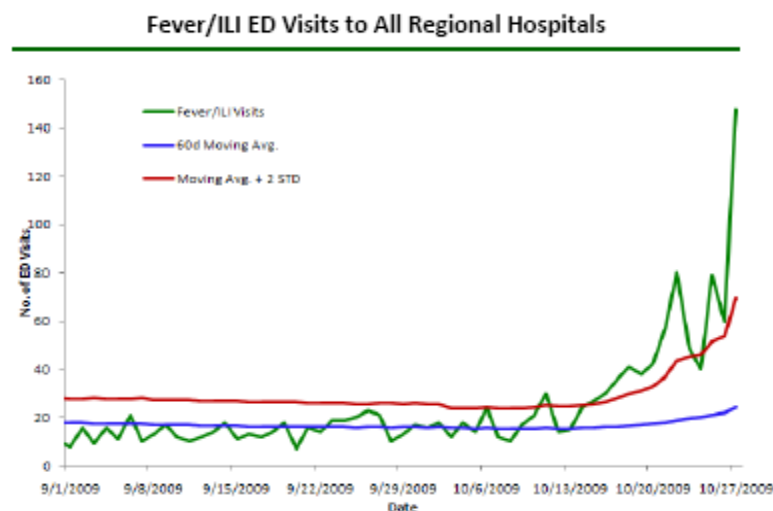
(Source: Sentinel Physician Report Data: Public Health Agency of Canada. Extracted Oct 23, 2009)

Syndromic Surveillance Activity Summary (LGLDHU and other EDSS reporting Health Units)

LGLDHU has been monitoring our Emergency Department Syndromic Surveillance System (EDSS) for Respiratory and ILI alerts for the past 5-months. Daily monitoring and weekly summary reports are issued to the Health Unit Incident Management Group and Communicable Disease Team. Currently LGLDHU, Kingston, Frontenac, Lennox and Addington, Hastings Prince Edward, and Peterborough County-City Health Units are participating members in the EDSS system.

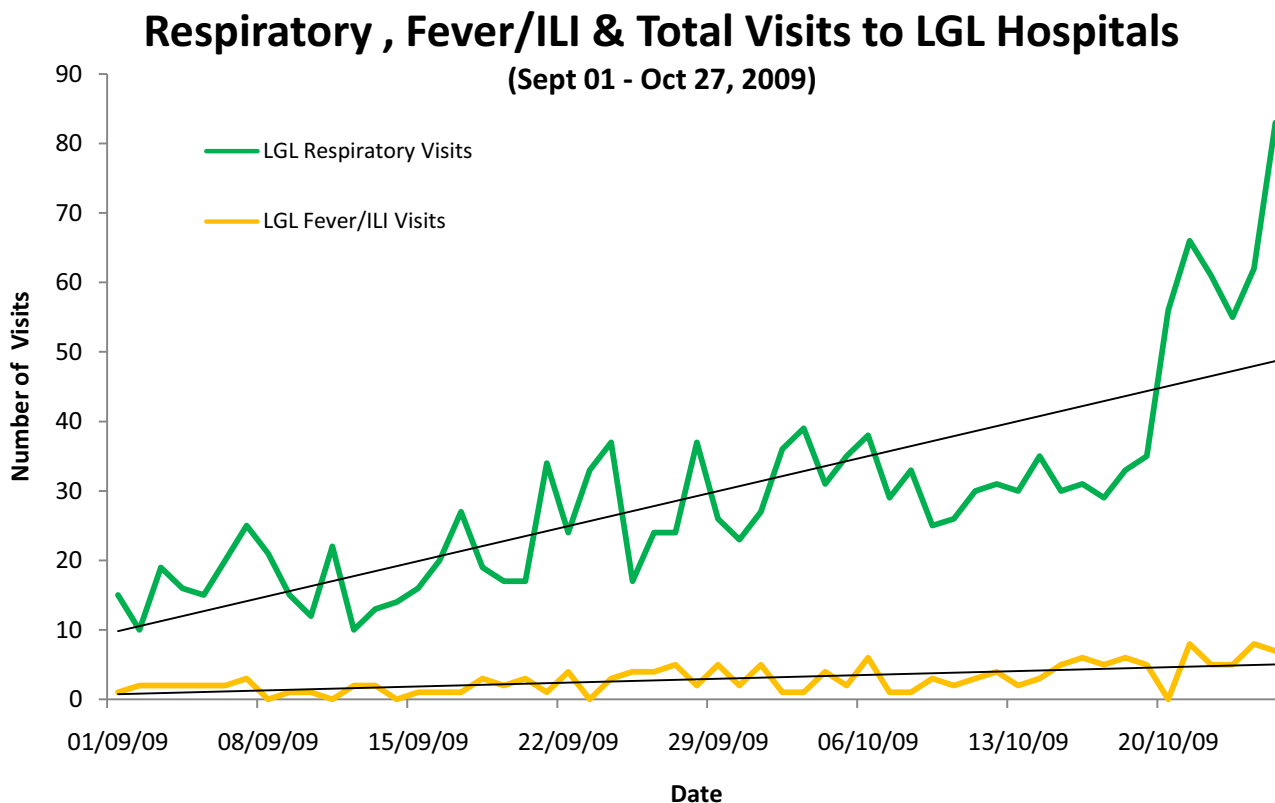
Summary: LGLDHU has been monitoring and investigating ongoing respiratory EDSS alerts for the past 5-weeks. Observed case counts reporting to hospital Emergency Departments have been significantly exceeding what is expected on a daily basis for this time of year. As well, the sporadic Fever/ILI alerts over the past 3-weeks have become steady and ongoing.

Trend Analysis (overall): In terms of all regional hospitals reporting into the EDSS system, the trend for both Fever/ILI and Respiratory complaints is upward with the number of ED visits well above the 60-day moving average since the beginning of the second week in October. The daily ED visit counts have risen well above the 60-day moving average exhibiting both higher highs and higher lows resulting in a significant breach of the 60-day moving average plus 2-standard deviations.



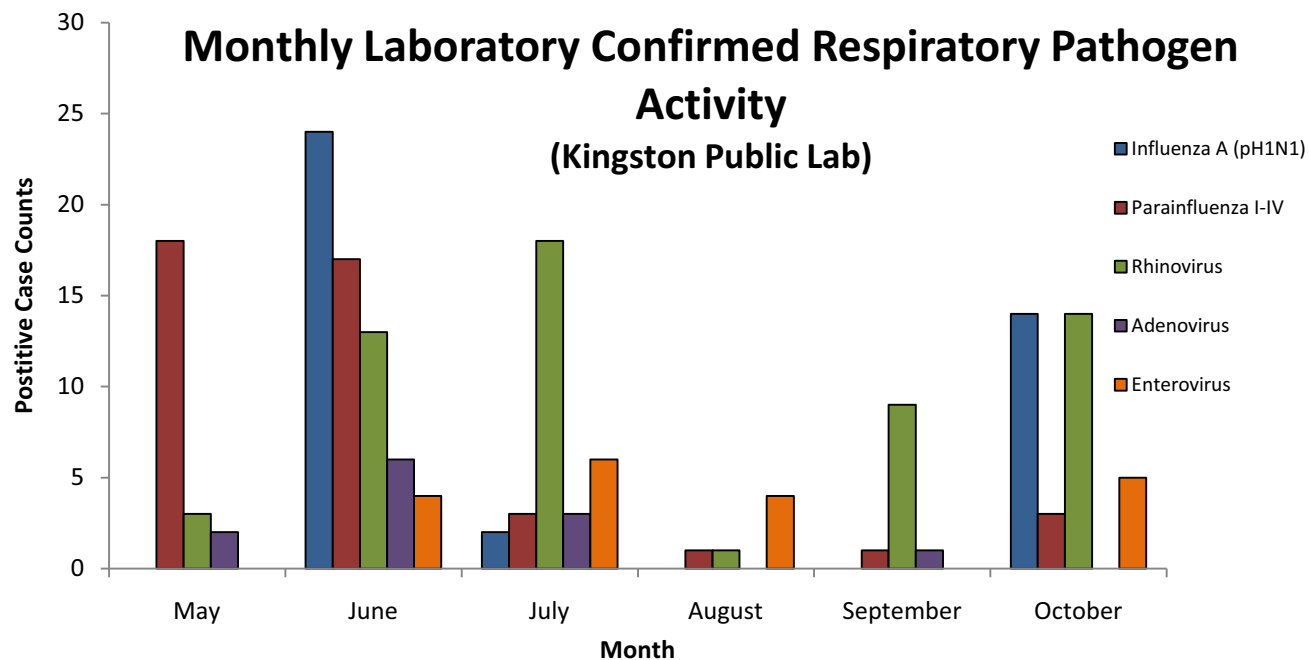
(Source: Emergency Department Syndromic Surveillance System Data. (Extracted Oct 27, 2009))

Trend Analysis (LGLDHU): In terms of all reporting hospitals in LGLDHU (Brockville General, Smith’s Falls, Great War Memorial hospitals), the overall trend for respiratory complaints has been upward since the beginning of September 2009. Fever/ILI complaints have been slowly increasing, representing approximately 3% of complaints. The ongoing daily Emergency Department visit alerts for the respiratory prodrome continue, representing approximately 30% of all cases presenting to the ED’s. These alerts are well distributed geographically in terms of complainant place of residence.



(Source: Emergency Department Syndromic Surveillance System Data. (Extracted Oct 28, 2009)

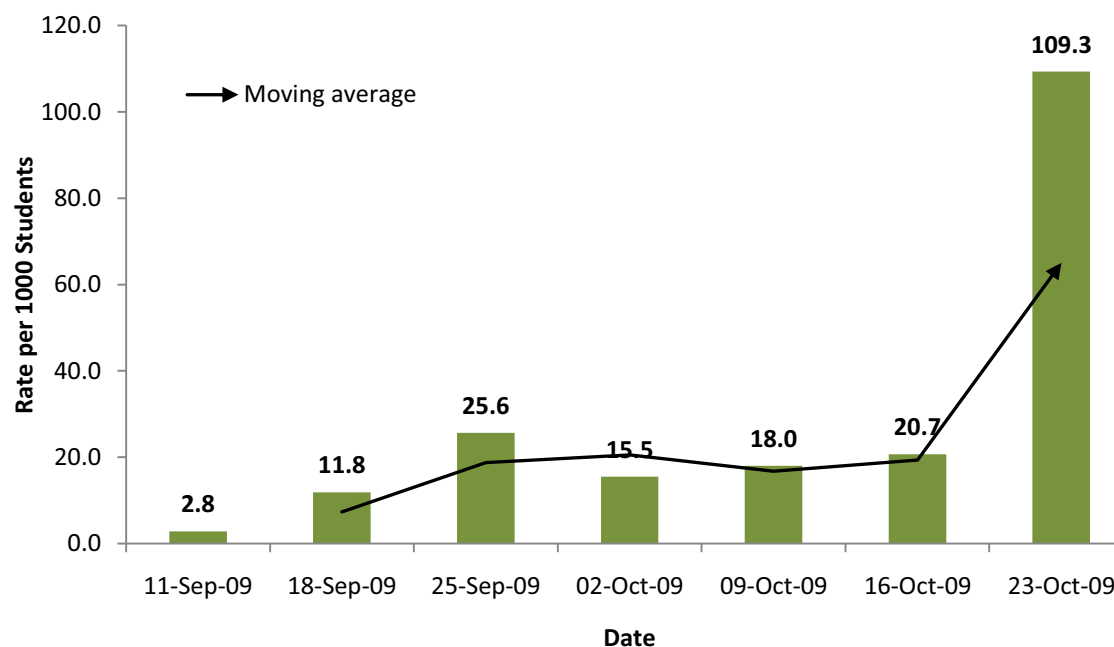
Monthly Laboratory Analysis: The Kingston Public Health Laboratory does respiratory pathogen analysis for a catchment area that spans from Peterborough in the west to Cornwall in the east. The month of September saw an increase in positive laboratory confirmed case counts for both Rhinovirus and Adenovirus. So far October has seen a dramatic increase in the number of positive laboratory confirmed pH1N1 cases (see figure below).



(Source: Emergency Department Syndromic Surveillance System Data. (Extracted Oct 27, 2009))

School/Staff Absenteeism/Telehealth & Health Unit Call Volumes

LGLDHU is reporting school absenteeism weekly as per Appendix C issued by the MOHLTC. Rates of absenteeism have demonstrated an increasing trend since the week of September 11, 2009. The moving average is increasing at an increasing rate. Absenteeism rates for the past 3-weeks have been above the moving average indicating a strongly increasing trend.



(Source: LGLDHU School Absenteeism Data. (Extracted Oct 28, 2009))

Influenza Subtypes and Viral Characteristics

Influenza Subtype(s):

During week 41, a total of 7868 isolates were received by the Public Health Agency of Canada, with 1328 testing positive for influenza A and one positive for influenza B. 668 of the reported influenza A isolates were from British Columbia (50.3%), 318 were from Alberta (24.0%), 175 were from Ontario (13.2%), and 84 were from Quebec (6.3%).*

Antigenic Characterization (National):

Since September 1, 2009, National Microbiology Laboratory (NML) has antigenically characterized 40 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 40 pandemic influenza A (H1N1) viruses characterized were antigenically related to A/California/7/2009, which is the pandemic reference virus selected by WHO as a potential candidate for 2009 influenza A (H1N1) vaccine.

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 recommended 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 recommended 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: 18 influenza A/California/07/2009-like and 1 influenza B/Brisbane/60/2008-like.

Antiviral Resistance (National):

Three seasonal influenza A viruses (one H1N1 and two H3N2) and 10 pandemic H1N1 viruses were tested for resistance to amantadine and found that all were resistant. Two seasonal influenza viruses (one H1N1 and one B) and 21 pandemic H1N1 viruses were tested for resistance to oseltamivir and found that one seasonal H1N1 and one pH1N1 were resistant to oseltamivir. The pH1N1 isolate was resistant to oseltamivir with the H275Y mutation. The resistance was associated with oseltamivir treatment. The B virus was sensitive to oseltamivir. Two seasonal influenza viruses (one H1N1 and one B) and 21 pandemic H1N1 viruses were tested for resistance to zanamivir and all were sensitive.

Antiviral Resistance (Provincial):

9/10 influenza pH1N1 isolates were sensitive to oseltamivir, 10 of 10 tested were sensitive to zanamivir, and 2 of 2 tested were resistant to amantadine. The influenza B isolate was sensitive to oseltamivir and zanamivir. The one H3N2 isolate was also resistant to amantadine.†

Notes: * 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 41, 2009. Please note that the last version received from PHAC as of 4:00PM on October 22, 2009 was used.

† These data have been obtained from the National Microbiology Laboratory of the Public Health Agency of Canada for Week 41, 2009.

(Source: Ontario Influenza Bulletin: MOHLTC. Issued Oct 23, 2009)

Definitions/Appendices (as required)

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.

(Source: Ontario Influenza Bulletin: MOHLTC. Issued Oct 23, 2009)