

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) 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 40 (October 04 – October 10, 2009) increased nationally and internationally when compared to the previous reporting week (week 39). 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. Some laboratory testing indicates that the virus responsible for this increase in hospital Emergency Department attendance may be Rhinovirus.

School absenteeism has increased to an average of approximately 20 absenteeisms per 1000 students in both primary and secondary schools reporting in Leeds, Grenville & Lanark District Health Unit (LGLDHU) for the week of October 16, 2009.

Contents of this report:

	<u>Page</u>
1. National/International Influenza Summary	2
2. Summary of Influenza Indicators for Ontario	7
3. Summary of Influenza Indicators for Leeds, Grenville & Lanark Counties	8
4. Virus Activity Summary	9
5. Syndromic Surveillance Activity Summary	14
6. School/Staff Absenteeism/Telehealth & Health Unit Call Volumes	17
7. Influenza Subtypes and Viral Characteristics	18
8. Definitions/Appendices (as required)	19

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 39 (Oct 04 – Oct 10, 2009):

Overall influenza activity has increased for a fourth consecutive week. The national ILI consultation rate and the proportion of positive tests for influenza were higher compared to the previous week. The total number of influenza outbreaks was lower than last week but still high for this time of the year with 28 outbreaks reported.

BC had particularly high influenza activity this week with more than 30% positive influenza tests and 17 influenza outbreaks. NT was also affected with their two regions reporting widespread activity and 8 outbreaks.

This week, approximately 97% of the positive influenza A sub-typed specimens were Pandemic (H1N1) 2009, and the remainder were seasonal A (H1N1).

The intensity of Pandemic (H1N1) 2009 in the population was moderate with thirty-seven hospitalizations and two deaths reported this week. Hospitalized cases were reported from BC, AB, ON, QC and NT while the deaths were from BC and ON. As of October 10, 2009, a total of 1,541 hospitalized cases including 299 cases admitted to an intensive care unit (ICU) and 158 cases requiring ventilation and 80 deaths had been reported since the beginning of the pandemic.

A third case of Oseltamivir resistant Pandemic (H1N1) 2009 was reported this week from the province of Ontario.

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. Aboriginals were over-represented amongst those who were hospitalized or admitted to ICU. While they account for 3% of the national population, 18% of hospitalizations, 16% of cases admitted to ICU and 13% of deaths were reported in this group. Aboriginal communities have higher prevalence of underlying conditions than the general Canadian population which may partially explain the elevated rates in this population. Pregnant women also had a higher burden of morbidity and mortality. Assuming 1% of the population is pregnant in a given year, approximately 5% of hospitalized cases and 5% of deaths occurred in this group. The median difference between symptom onset date/specimen collection and date of hospitalization increased with severity of illness; 3.0 days for all hospitalized cases compared to 4.0 and 5.0 for ICU-admitted cases and deaths respectively. The national hospitalization rate was 4.6 per 100,000 population with the highest rates in children under 15 years of age (10.9 per 100,000). The national mortality rate was 0.24 per 100,000 population; those 45 years and older had the highest mortality rate (0.35 per 100,000). ICU admission rate and ventilation rate were also elevated in children under five years of age (1.6 and 1.1 per 100,000, respectively). (*Source: Flu Watch: Public Health Agency of Canada. Issued Oct 16, 2009*)

International Summary – Week 40 (Oct 04 – Oct 10, 2009): In the temperate regions of the Northern Hemisphere, transmission of influenza virus and rates of influenza-like-illness (ILI) continue to increase marking an unusually early start to fall and winter influenza season in many countries. Geographically widespread influenza is being reported throughout North America, with the United States reporting ILI levels elevated above the seasonal baseline for the past month and Mexico reporting a high intensity of respiratory diseases for the past three weeks. In Canada, although overall ILI activity remains low, focal increases have been reported in the western part of Canada. In Europe and Central and Western Asia, early transmission of influenza virus continues to increase in many countries, with more intense focal activity being reported. National or regional ILI levels remained elevated above the baseline in parts of the United Kingdom (Northern Ireland and Scotland), Ireland and Israel. In Ireland, a high intensity of respiratory diseases has been reported for the past two weeks, with the highest rates of ILI reported among children aged 5-14 years old. In addition to Ireland and Israel, widespread geographic spread of influenza virus is also now being reported in Belgium, the Netherlands, and Cyprus. At least 10 countries in the region are also reporting an increasing trend in respiratory diseases activity. In Japan, influenza activity continues to be elevated above the seasonal epidemic threshold since week 33, most recently in the large population centers. (*Source: International Influenza Report 2009: Public Health Surveillance Unit, Public Health Division. MOHLTC. Issued Oct 14, 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 40 (Oct 04 – Oct 10, 2009).

Table 1: Weekly and cumulative numbers of hospitalized cases, ICU admissions and deaths among Pandemic (H1N1) 2009 confirmed cases, Canada, to October 10, 2009

Province/Territory	This week			Cumulative		
	Hospitalized cases	ICU admissions	Deaths	Hospitalized cases	ICU-admitted cases	Deaths
BC	14	2	1	78	24	7
AB	2	0	0	133	31	8
SK	0	0	0	24	12	4
MB	0	0	0	226	43	7
ON	7	0	1	387	66	25
QC	6	1	0	586	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	8	1	0	18	2	0
NU	0	0	0	66	6	1
Canada	37	4	2	1541	299	80

(Source: Flu Watch: Public Health Agency of Canada. Issued Oct 16, 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 40 (Oct 03 - Oct 10, 2009)		
	Hospitalized cases (n=1,541)	Cases admitted to ICU (n=299)	Deaths (n=80)
Females, %	51.6	56.9	61.3
Median age	23	37	50
Aboriginal status, %	18.1	15.7	12.5
Underlying medical conditions ¹ , %	61.3 (621/1013)	71.6 (159/222)	80.3 (49/61)
Pregnancy ² , %	27.6 (81/293)	18.8 (15/80)	25.0 (4/16)

Notes: 1 Proportion of cases with at least one underlying medical condition (excluding pregnancy) among those for whom the information was available. 2 Percent of pregnant women among women 15 to 44 years of age. (Source: Flu Watch: Public Health Agency of Canada. Issued Oct 16, 2009)

Figure 1: The overall influenza activity has increased for a fourth consecutive week. The national ILI consultation rate and the proportion of positive tests for influenza were higher compared to the previous weeks. The total number of influenza outbreaks was lower than last week but still high for this time of the year with 28 influenza outbreaks.

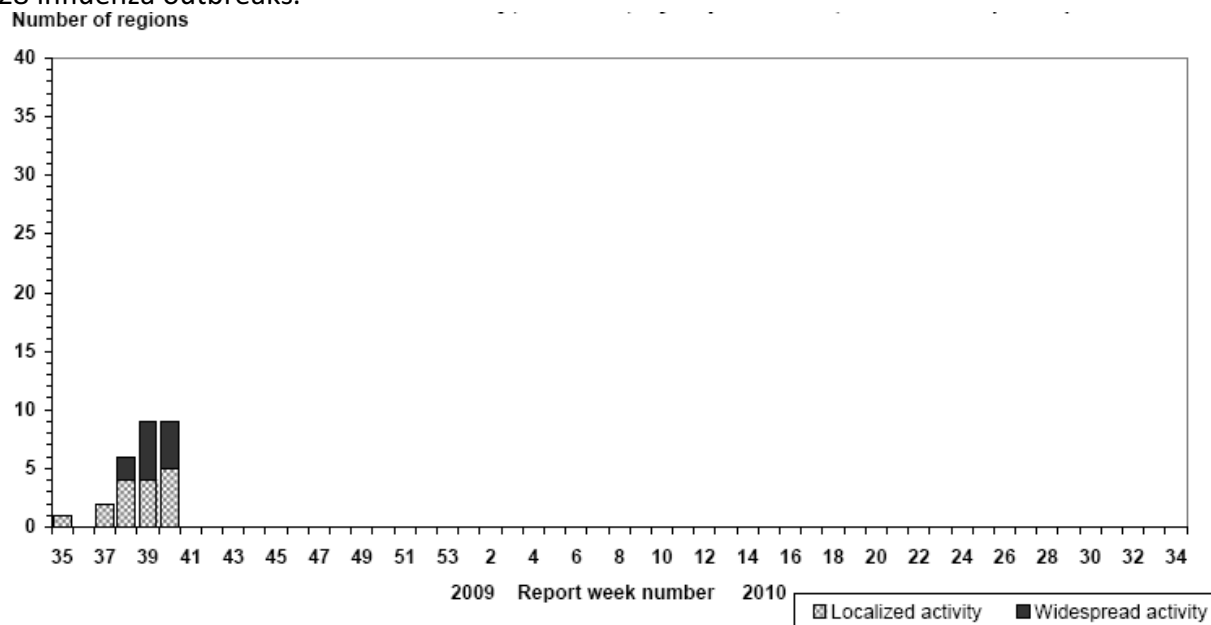
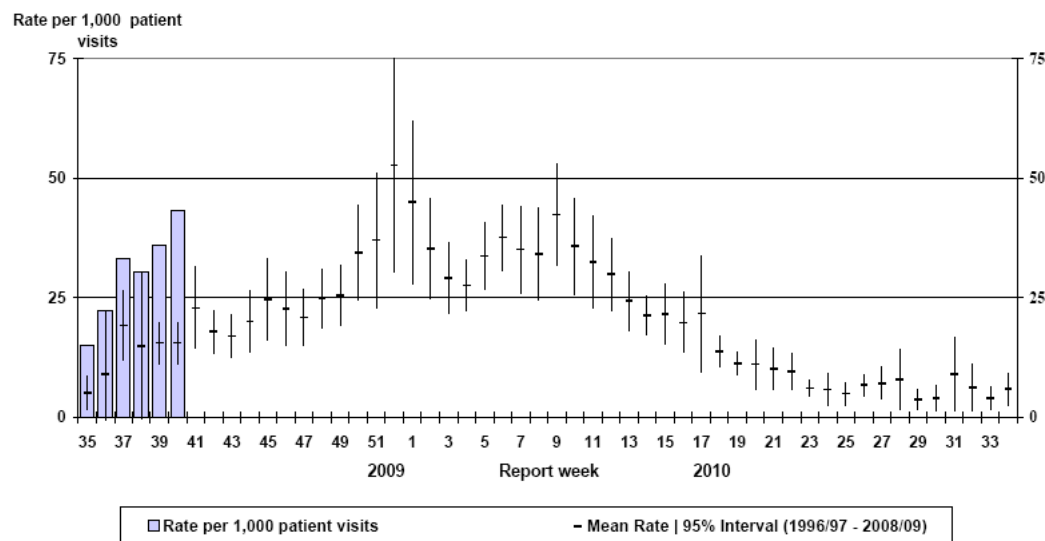


Figure 2: This week, the national ILI consultation rate was 43 consultations per 1,000 patient visits (see ILI graph below) which is higher compared to the previous weeks and still above the expected range for this time of the year. The sentinel response rate was 94.4%. Five provinces (MB, ON, NS, YK and NT) had higher ILI consultation rates compared to their ILI rates in previous weeks. Graph depicts influenza-like illness (ILI) consultation rates, Canada, by report week, 2009-2010 compared to 1996/97 through to 2007/08 seasons.



(Source for both figures: Flu Watch: Public Health Agency of Canada. Issued Oct 16, 2009)

Summary of Influenza Indicators for Ontario**Table 3:** Assessment of influenza activity for Ontario. Coverage for period October 04 – October 10, 2009 (Week 40).

Measure	Assessment of Trends	Comments
<i>Compared to previous week</i>		
Laboratory confirmed cases	Higher	116 total influenza cases (84 pH1N1) in week 40 compared to 53 reported in week 39 (39 pH1N1).
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 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 rates reported by sentinel physicians	Slightly Higher	The overall ILI consultation rate increased slightly from 41.23/1,000 patient visits in week 39 to 41.40/1,000 patient visits in week 40.
<i>Overall Assessment for this week</i>		
Influenza activity in Ontario was higher in week 40 compared to the previous week (week 39).		

(Source: Ontario Influenza Bulletin: MOHLTC. Issued Oct 14, 2009)

Summary of Influenza Indicators for Leeds, Grenville & Lanark**Table 4:** Assessment of influenza activity for LGLDHU. Coverage for period October 04 – October 10, 2009 (Week 40).

Measure	Assessment of Trends	Comments
<i>Compared to previous week</i>		
Laboratory confirmed cases	Same	No laboratory confirmed influenza cases (0 pH1N1) in week 40. Which is the same as week 39 (0 pH1N1).
Influenza A outbreaks	Same	No new institutional influenza outbreaks were reported for the current reporting week.
Influenza activity overall in LGLDHU	Same	There was no sporadic or localized influenza activity within LGLDHU for week 40.
School absenteeism reporting by sentinel schools	Slightly Higher	The overall absenteeism rate per 1,000 students was 18.0/1,000 students in week 39 and 20.7/1000 students in week 40.
ILI consultation rates reported by sentinel physicians	Not reportable	There was no ILI consultation data available for LGLDHU in both weeks 39 and 40.
<i>Overall Assessment for this week</i>		
Influenza activity in LGLDHU was no different in week 40 compared to the previous week (week 39).		

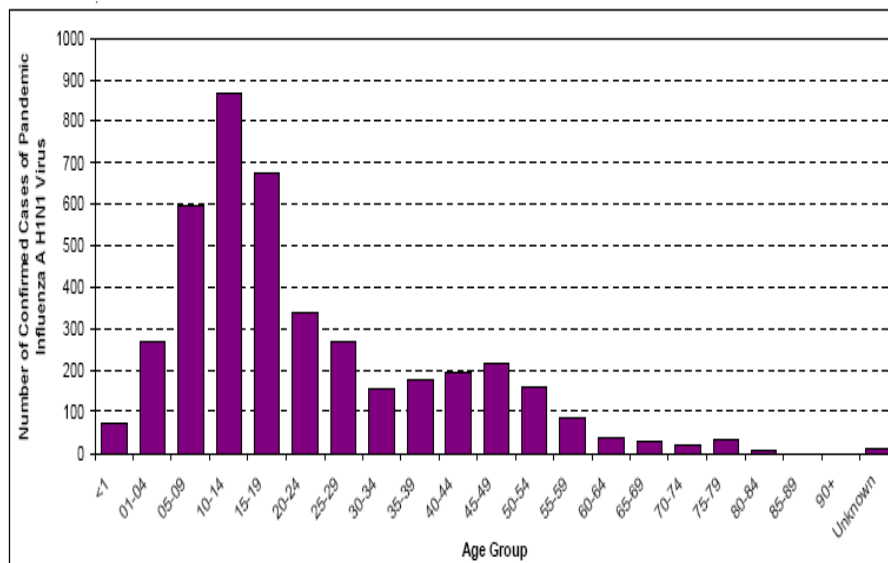
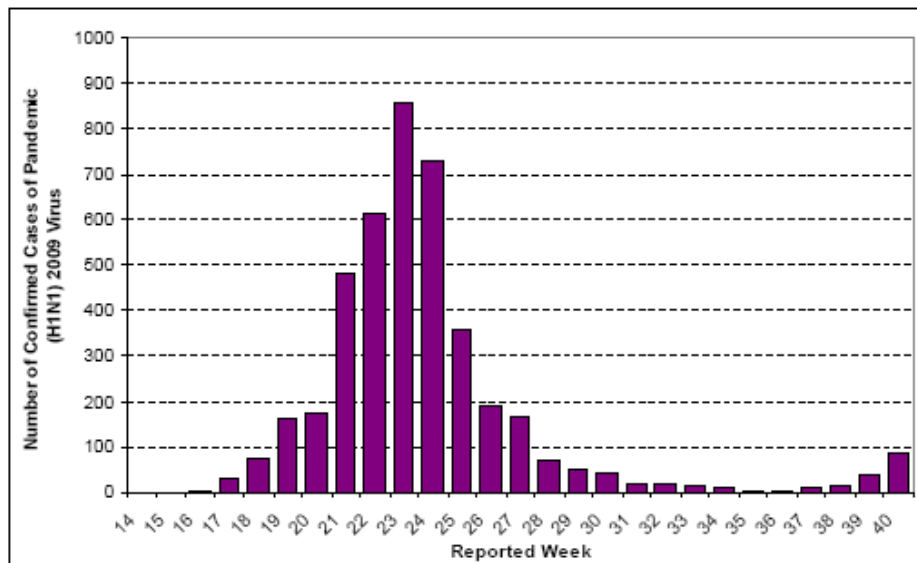
Sources: 1) Ontario Influenza Bulletin: MOHLTC. (Issued Oct 14, 2009). 2) Weekly Provincial Influenza Activity Report Database (Appendix C), MOHLTC. 3) LGLDHU School Absenteeism Data. (Extracted Oct 20, 2009)

Virus Activity Summary (Ontario)**Table 5:** Laboratory confirmed cases of pandemic (H1N1) 2009 virus by health unit & health region, reported during Week 40, 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

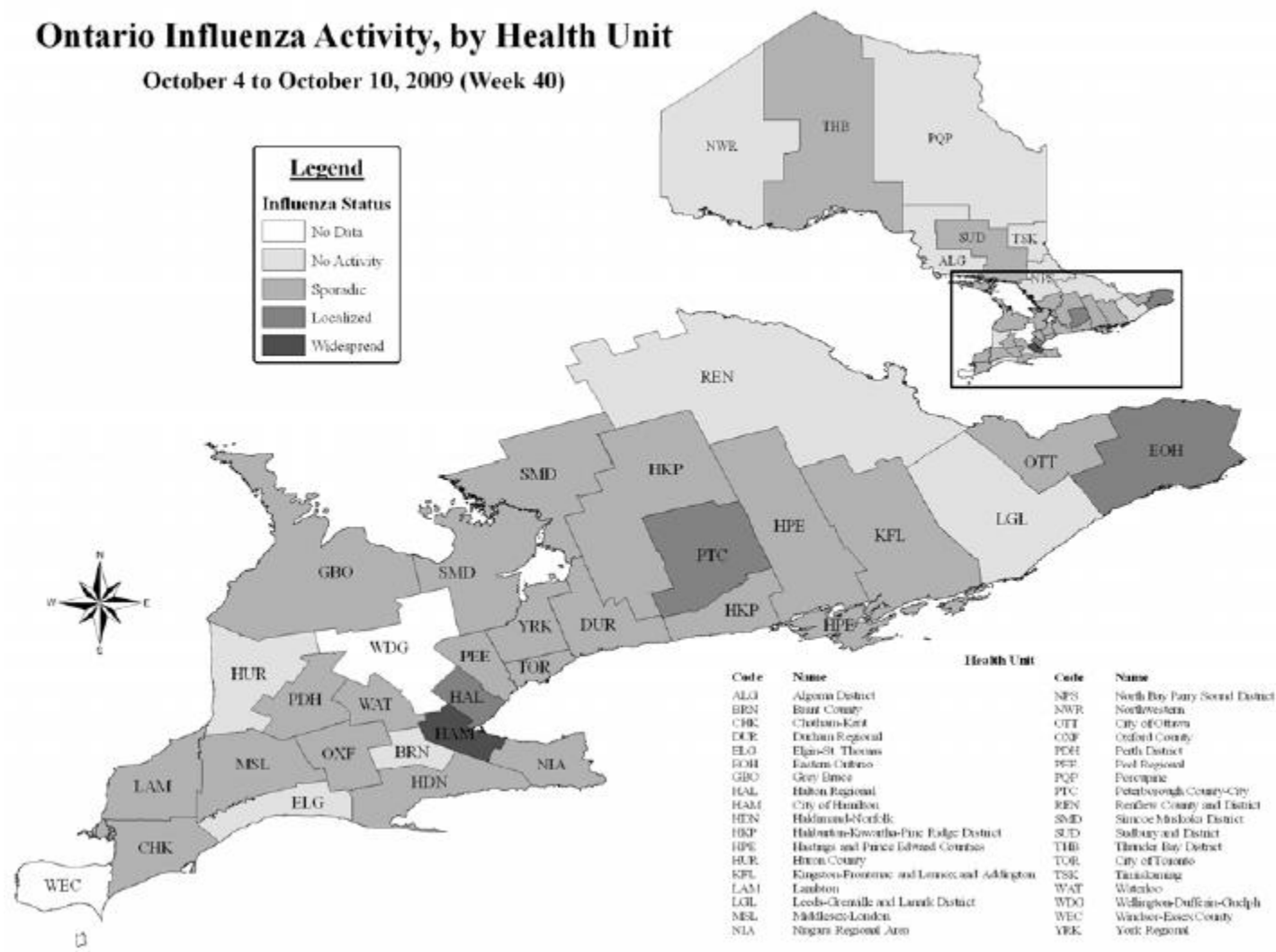
(Source: Ontario Influenza Bulletin: MOHLTC. Issued Oct 14, 2009)

Figure 3 & 4: Laboratory confirmed cases of Pandemic (H1N1) 2009 in Ontario by week and age group between April 13 and October 10, 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).



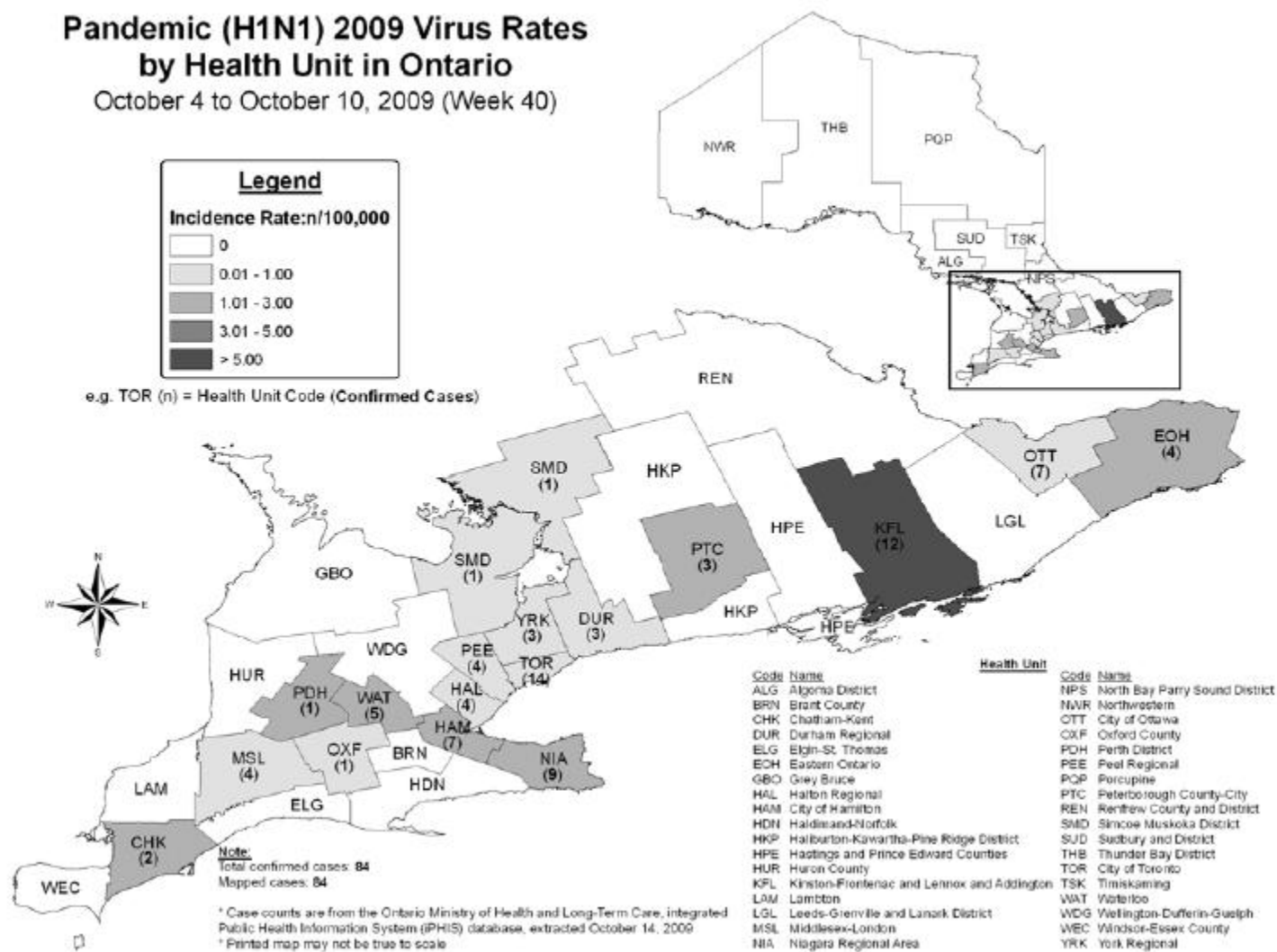
(Source: Ontario Influenza Bulletin: MOHLTC. Issued Oct 14, 2009)

Figure 5: Geographic distribution of Influenza activity within Ontario for week 40 (Oct 04 – Oct 10, 2009).



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

Figure 6: Pandemic H1N1 2009 Virus incidence rates and counts in Ontario by health unit for Week 40, 2009 (Oct 04 – Oct 10, 2009).

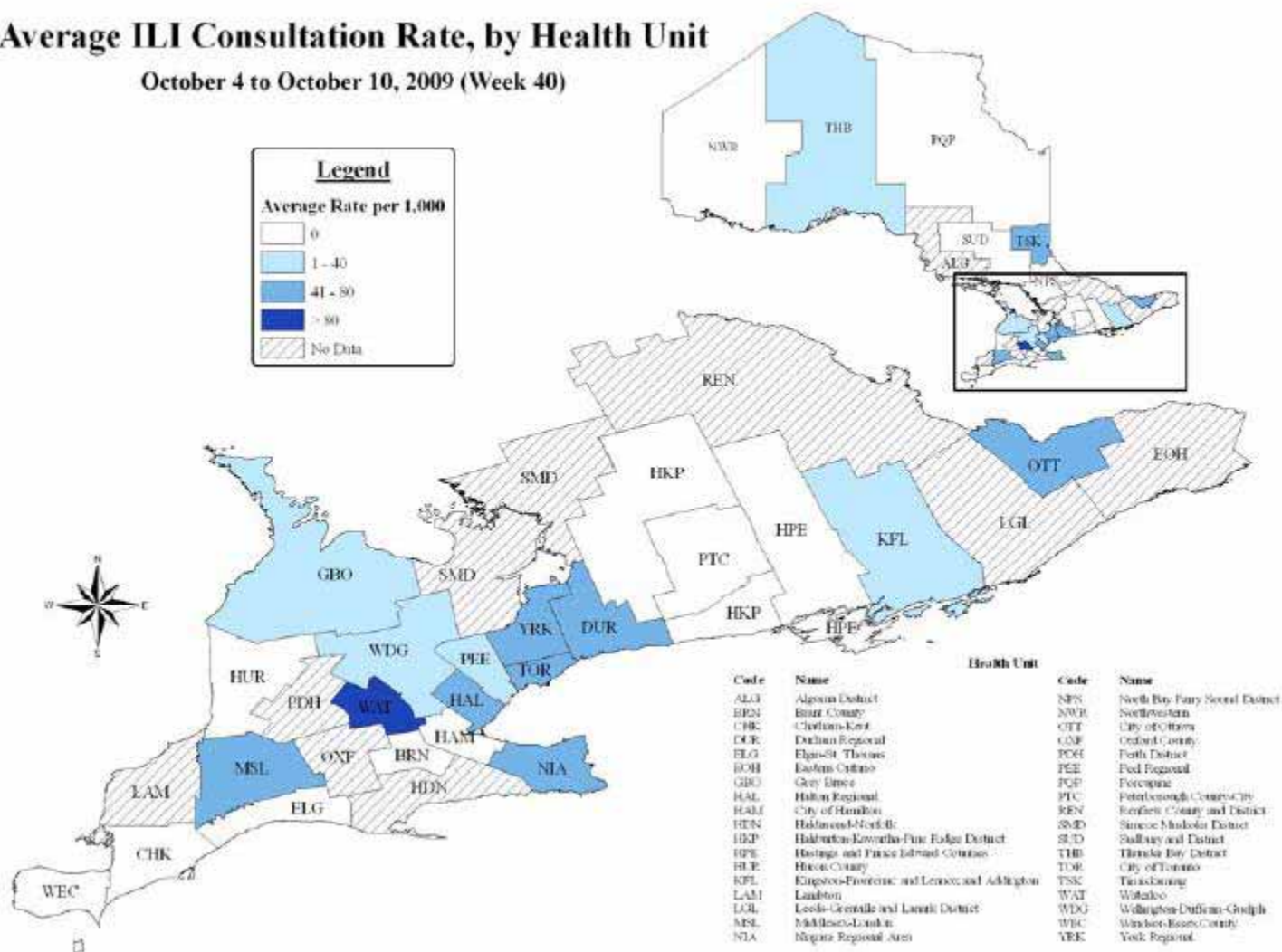


(Source: Integrated Public Health Information System (iPHIS): MOHLTC. Extracted Oct 14, 2009)

Figure 7: Sentinel physicians report ILI and patient data to the Public Health Agency of Canada each week. For week 40, 93 sentinels reported from all Public Health Units in Ontario. 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 4 to October 10, 2009 (Week 40)



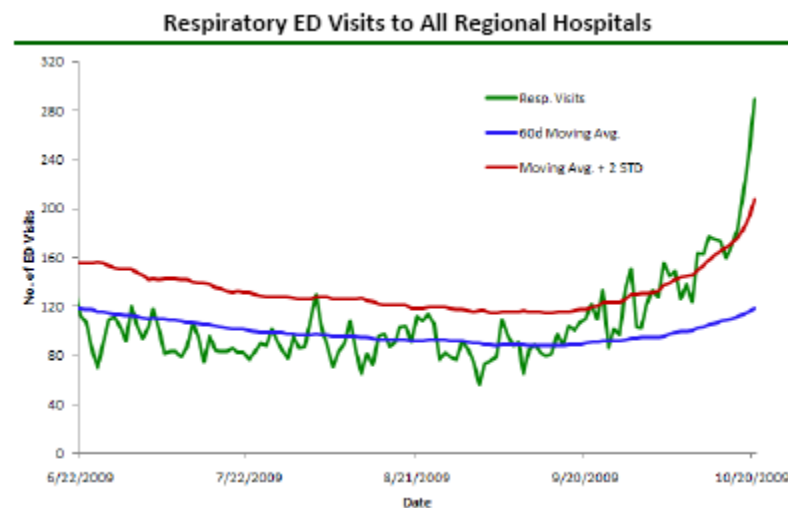
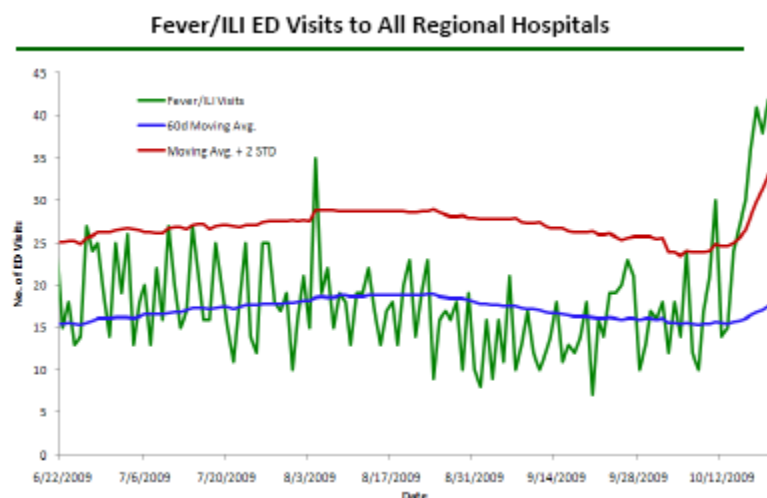
(Source: Sentinel Physician Report Data: Public Health Agency of Canada. Extracted Oct 14, 2009)

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.

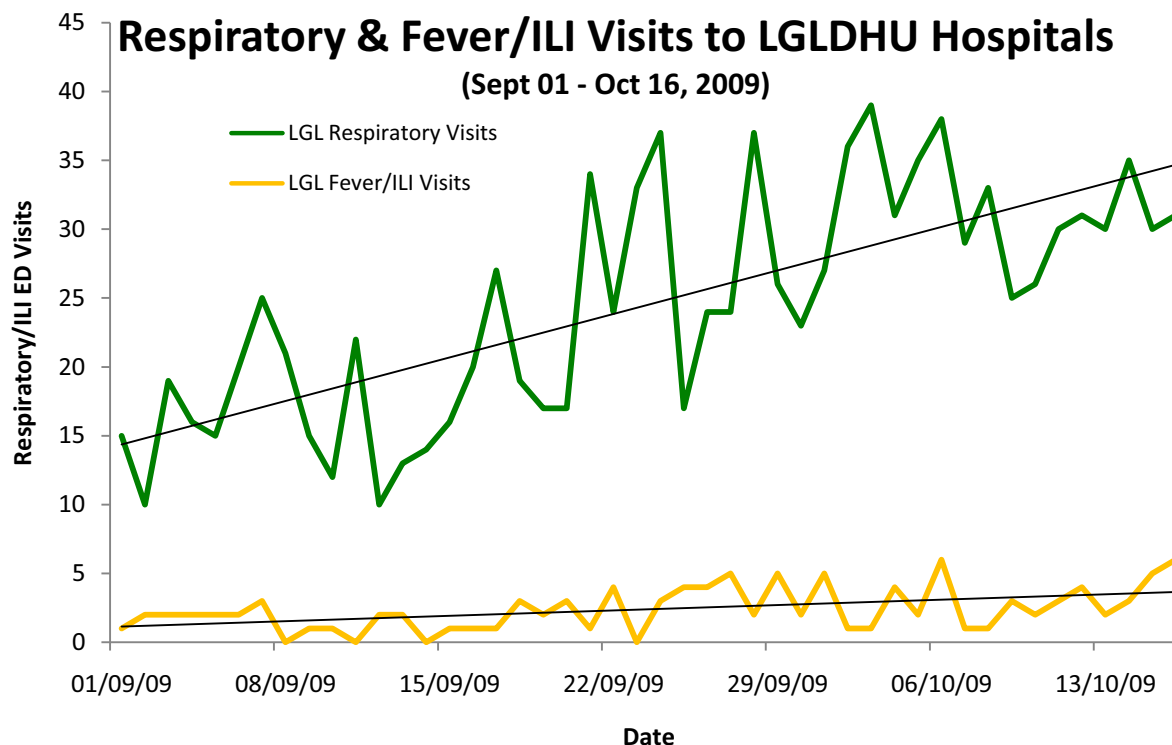
Summary: LGLDHU has been monitoring and investigating ongoing respiratory EDSS alerts for the past 4-weeks. Observed case counts reporting to hospital Emergency Departments have been significantly exceeding what is expected on a daily basis for this time of year. Laboratory testing of some patients indicate that the virus responsible for this outbreak may be Rhinovirus. As well, sporadic Fever/ILI alerts have become more frequent in the past 14-days.

Trend Analysis (overall): In terms of all regional hospitals reporting into the EDSS system the trends 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.



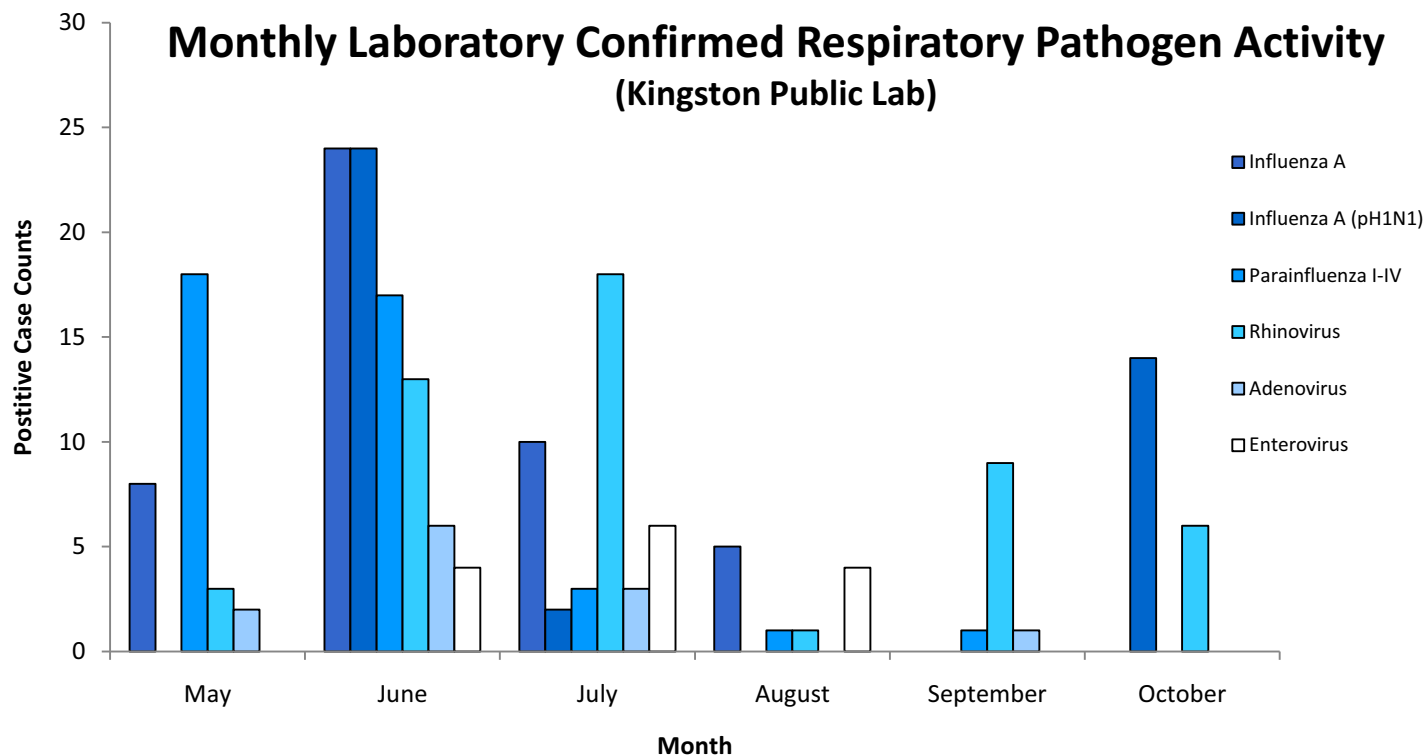
(Source: Emergency Department Syndromic Surveillance System Data. (Extracted Oct 20, 2009))

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 fairly steady and low, only representing approximately 2% of complaints. The ongoing daily Emergency Department visit alerts for the respiratory prodrome continue, with additional alerts now being generated for Fever/ILI prodromes as well. These alerts are well distributed geographically in terms of complainant place of residence.



(Source: Emergency Department Syndromic Surveillance System Data. (Extracted Oct 20, 2009))

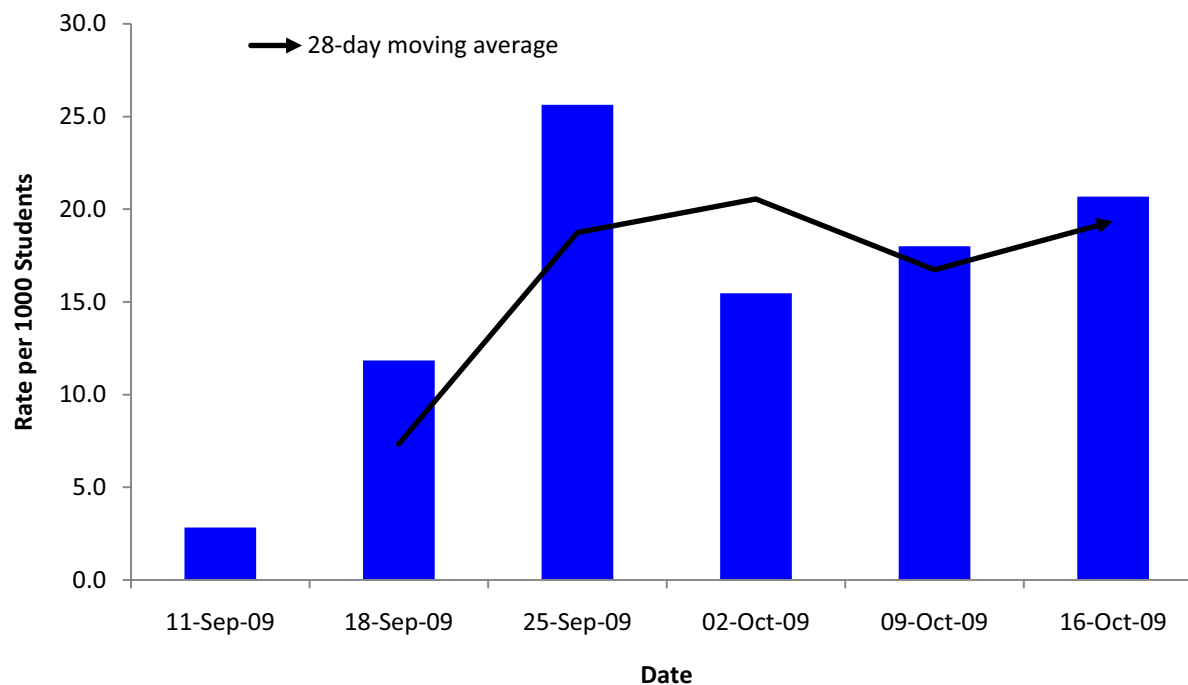
Monthly Laboratory Analysis: The Kingston Public Health Laboratory does respiratory pathogen analysis for a catchment area that spans from Peterborough in the west to Cornwall in the east. The month of September saw an increase in positive laboratory confirmed case counts for both Rhinovirus and Adenovirus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



(Source: Emergency Department Syndromic Surveillance System Data. (Extracted Oct 20, 2009))

School/Staff Absenteeism/Telehealth & Health Unit Call Volumes

This section of the report is not fully available as of this issue. 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 28-day moving average, which is an intermediate-term trend indicator, is increasing. Absenteeism rates for the past 2-weeks have been above the 28-day moving average indicating a strongly increasing trend.



(Source: LGLDHU School Absenteeism Data. (Extracted Oct 20, 2009))

Influenza Subtypes and Viral Characteristics

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 (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.

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.

(Source: Ontario Influenza Bulletin: MOHLTC. Issued Oct 14, 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 14, 2009)