

**Ontario Agency for Health Protection and Promotion Laboratory Pandemic H1N1 Surveillance Report
Information current as of: Monday November 23, 2009**

This report summarizes patient specimens (1 specimen/patient) collected and received at OAHPP Public Health Laboratories (PHL) in Ontario for pandemic H1N1 influenza virus (pH1N1) testing since September 1, 2009. This information is current as of Monday November 24, 2009 and is updated weekly.

Specimen collection date is used in this weekly report to classify the specimens submitted and tested by time. A daily summary is also prepared which uses the date the specimen was logged into the PHL electronic system. Because of these differences, numbers may not always match accordingly.

The PHL performs the majority of testing for pH1N1; however, several hospital laboratories also perform pH1N1 testing. The numbers reported here may not reconcile precisely with those reported through the integrated Public Health Information System (iPHIS) since results from hospital laboratories may be entered into iPHIS without being entered into the PHL database.

RECENT CHANGE IN LAB TESTING ALGORITHM:

Starting the week of Oct 25-31st, 2009, subtyping is only being performed on 20% of influenza A positive tests, in addition to all intensive care patients and outbreak samples. As the pre-test probability for an influenza A positive sample testing positive for pH1N1 is currently 99%, the percent positive for influenza A will be reported instead of the percent positive for pH1N1. Note that influenza A positivity rates are only reported for influenza A tests performed at the OAHPP laboratories.

Starting the week of November 9-12th, 2009, only 20% of ambulatory (community) viral culture requests are being processed.

For additional details on changes to the laboratory testing algorithm, please see the November Labstract at www.oahpp.ca.

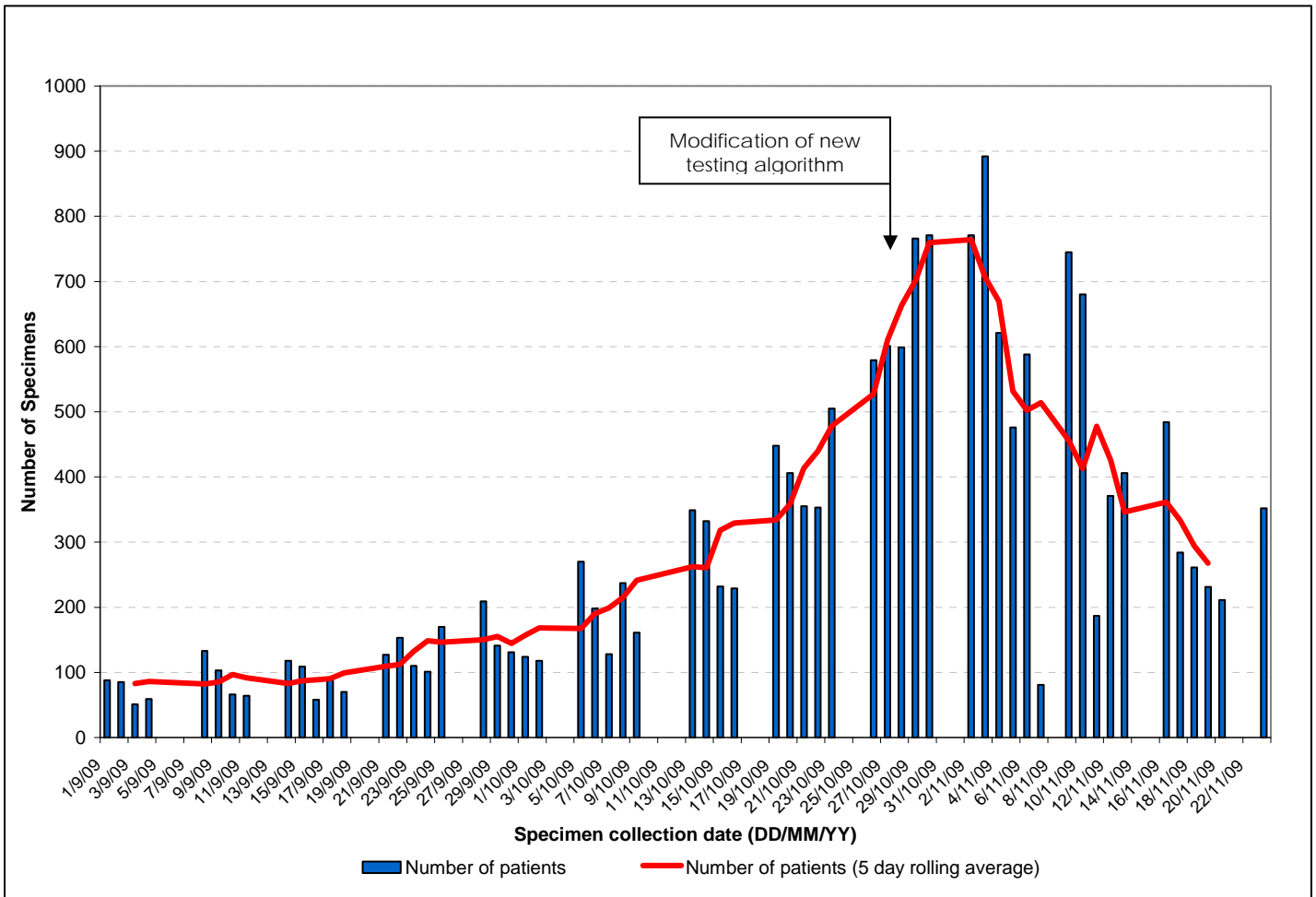
Week 46 Summary Snapshot

- 199 laboratory confirmed influenza A cases
- RT-PCT % positive (approximately) = 23%

Lab Submissions

Figure 1 displays the daily number of patient specimens (1 specimen/patient) received at PHL for pH1N1 testing since September 1, 2009, as well as a five-day rolling average. Rolling averages offer a method of smoothing time series data to reduce the effects of random variation and reveal underlying trends. The total number of patients with specimens received as of November 23, 2009 is 17,743. This number includes all specimens received, irrespective of testing status and also includes rejected specimens. The number of specimen submissions remained relatively constant in the first three weeks of September. However, the number of specimens received had been steadily increasing until the end of October. There were 1339 specimens received for pH1N1 testing during the 7 day period between November 17 - November 23, 2009; 7.5% of the total received since September 1. Within the past two weeks submissions have begun to decline.

Figure 1. The number of specimens received (1/patient) at PHL/OAHPP for pH1N1 testing by date. Specimen receipt dates: September 1- November 23, 2009.



Source: PHL, Ontario Agency for Health Protection and Promotion (OAHPP).

Case Statistics

Between September 1 and November 24, 2009, a total of 14,652 patient specimens and isolates (1/patient) have been submitted for pH1N1 testing at the PHL and entered into the PHL electronic system. This number does not include rejected samples or samples for which testing has been cancelled. 14,060 of the samples were submitted to PHL directly for influenza A testing and subsequent pH1N1 subtyping. The additional samples, tested for influenza A at hospitals, were forwarded to the PHL to be subtyped for pH1N1. The majority of specimens received at PHL, which have been approved for testing, are first tested for influenza A by real-time reverse transcriptase (RT) polymerase chain reaction (PCR). A subset of samples is tested by viral culture. Subtyping of positive influenza A tests is done to determine if samples are pH1N1 or seasonal H1/H3. For Influenza A real-time RT-PCR negative samples, 20% are followed up with viral culture to look for other viral pathogens. Viral culture analyses take considerably longer to process (up to 10 days) than analyses by real-time RT-PCR. The number of patient specimens and isolates submitted for pH1N1 testing by test result (or status) by collection date is displayed in **Figure 2**. The percentage of all patient specimens tested by RT-PCR and viral culture that have detected influenza A (percent positive Influenza A for RT-PCR and viral culture) in addition to the percentage of all subtyped specimens that have detected pH1N1 (percent positive pH1N1 for subtyped cases) across specimen collection weeks are displayed in **Table 1**. The highest influenza A percent positive since September 1st, 2009 reached 54.4% on October 27, 2009. At the height of the Spring/Summer pH1N1 outbreak, percent positive pH1N1 reached approximately 54% (Source: OAHP Laboratory Pandemic H1N1 Surveillance Report: Tuesday September 22, 2009).

Figure 3 displays the number of influenza A cases detected, the total number of patients tested, as well as the 5 day rolling averages for total number of patients tested and the number of pH1N1 cases confirmed by laboratory results (average of the current date, 2 preceding and 2 following dates), by specimen collection date.

Since September 1, 2009, 13,634 patient specimens and isolates have been tested for influenza A at the PHL. Influenza A virus has been identified in 4,414 (32.4%) of the patients tested at PHL; an additional 592 patient specimens that tested positive for influenza A at hospital laboratories were forwarded to the PHL to be subtyped for pH1N1. There are 1,874 that have been confirmed positive for influenza A but have not been subtyped. Of all specimens and isolates subtyped for pH1N1, 3041 cases of pH1N1 have been detected. Two cases of seasonal influenza (H3) have been detected. Ninety-nine samples tested positive for influenza A but were indeterminate for pH1N1 (**Table 1**).

Interpretation of subtyping results:

An **indeterminate** result occurs in a RT-PCR test when a result is obtained that reflects a very low level of the target (e.g. influenza, or influenza subtype). Due to the level of target being near the threshold of detection of the RT-PCR test, it is not known if this is a true positive result, or nonspecific activity giving a false positive response. The clinical interpretation of an indeterminate result depends on the prevalence of the target of interest in the population being tested at that point in time. Currently an indeterminate pH1N1 result should be clinically interpreted as a pH1N1 case given that over 99% of influenza samples are of this subtype. An influenza isolate is considered **unsubtypeable** when influenza A is detected, but this sample does not match any of the subtypes that can be tested for (e.g. pH1N1, seasonal H3N2, H1N1). These samples are investigated further for the possibility of new strains or subtypes (due to genetic drift or shift). On occasion an influenza A positive sample that has very low amount of virus in it does not match any subtype. This occurs because the subtyping PCR tests are less sensitive than the influenza A RT-PCR tests available. When this occurs a result of "**unable to subtype**" is released.

Table 1. Patient test results for specimens collected between September 1 and November 21, 2009, tested at the PHL in Ontario.

Specimen collection date*	pH1N1 positive	Positive influenza A, not subtyped	Seasonal H1/H3 influenza	Positive influenza A – indeterminate pH1N1	Positive influenza A – unsubtypeable	Indeterminate & negative influenza A	Total cases tested**	Percent positive (%) influenza A RT-PCR	Percent Positive (%) influenza A Viral culture‡	Percent Positive (%) pH1N1 for influenza A subtyped cases
Sep. 1 – Sep. 5	2	9	0	0	0	243	254	4.0	2.4	100.0
Week 36 (Sep. 6 – 12)	2	3	1	0	0	335	341	1.6	7.2	66.7
Week 37 (Sep. 13 – 19)	12	4	1	1	0	434	452	5.2	3.1	85.7
Week 38 (Sep. 20 – 26)	27	1	0	1	0	559	588	5.8	0.8	96.4
Week 39 (Sep. 27 – Oct. 3)	59	6	0	0	0	598	663	11.4	0.0	100.0
Week 40 (Oct. 4 – 10)	126	3	0	4	0	741	874	13.9	4.2	96.9
Week 41 (Oct. 11 – 17)	293	12	0	4	0	808	1117	21.0	15.5	98.7
Week 42 (Oct. 18 – 24)	916	54	0	15	0	1085	2070	38.4	33.8	98.4
Week 43† (Oct. 25 – 31)	885	554	0	35	0	1450	2924	47.8	49.6	96.2
Week 44 (Nov. 1 – 7)	386	748	0	25	0	1330	2489	45.6	61.0	93.9
Week 45 (Nov. 8 – 14)	238	359	0	7	0	1001	1605	33.8	30.8	97.1
Week 46*** (Nov. 15 – 21)	95	121	0	7	0	634	857	22.8	25.6	93.1
Total	3041	1874	2	99	0	9218	14234	32.0	32.7	96.8

Source: PHL, Ontario Agency for Health Protection and Promotion (OAHPP).

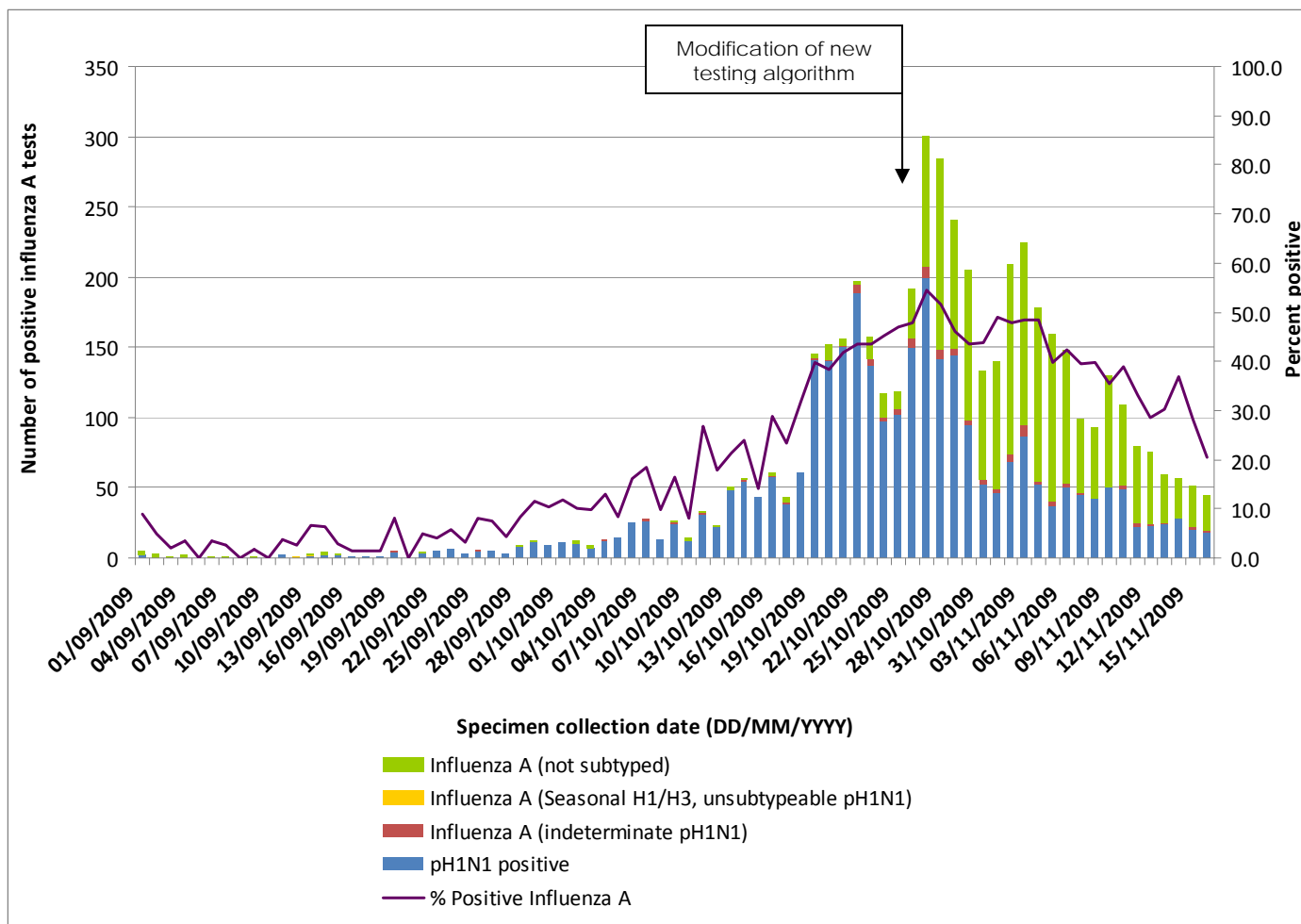
* For 753 specimens, no specimen collection date was available; the date the specimen was received at the lab has been used as a proxy.

** This number includes specimens for which the primary detection was not completed at the PHL (N=592)

*** Because of the lag in time from the date the specimen was collected to the date the final test result is confirmed, not all cases with specimens collected during the most recent week are included in this summary.

‡ Viral culture % positive is based on resulted tests from September 1st 2009 onwards.

Figure 2. The number of positive test results and the percent positive for influenza A, by subtype (pH1N1, seasonal H1/H3, unsubtypeable & indeterminate pH1N1 or pending subtype), for specimen collection dates* September 1 – November 16, 2009, 2009**.

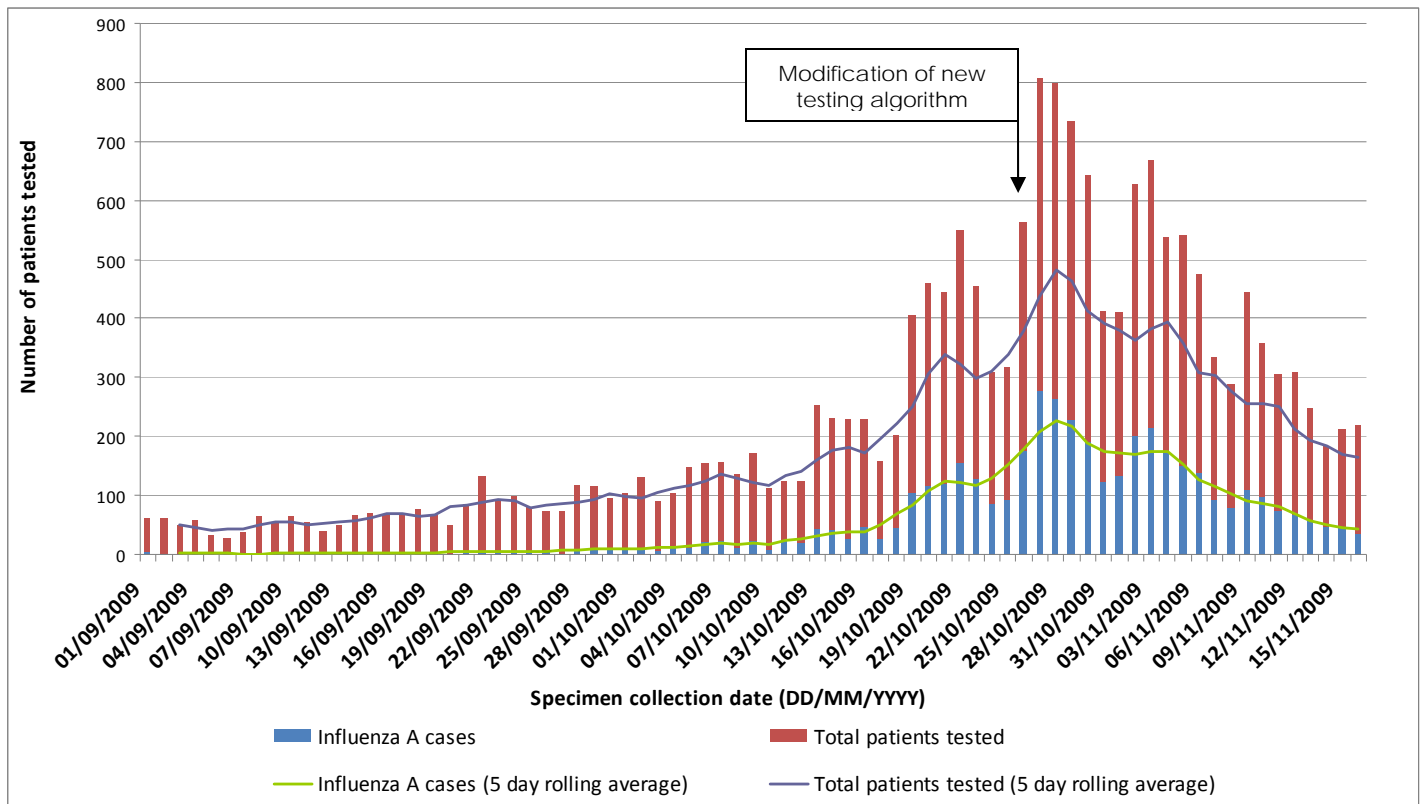


Source: PHL, Ontario Agency for Health Protection and Promotion (OAHPP).

* For 753 specimens, no specimen collection date was available; the date the specimen was received at the lab has been used as a proxy.

**Data collected since November 16th, 2009 has been excluded from Figures 3. Since not all specimens collected on those dates have test results available, the data from those days may not reflect the current situation.

Figure 3. Total counts and 5 Day rolling averages of the number of influenza A cases and number of patients tested, by specimen collection* dates September 1 – November 16, 2009**.



Source: PHL, Ontario Agency for Health Protection and Promotion (OAHPP).

* For 753 specimens, no specimen collection date was available; the date the specimen was received at the lab has been used as a proxy.

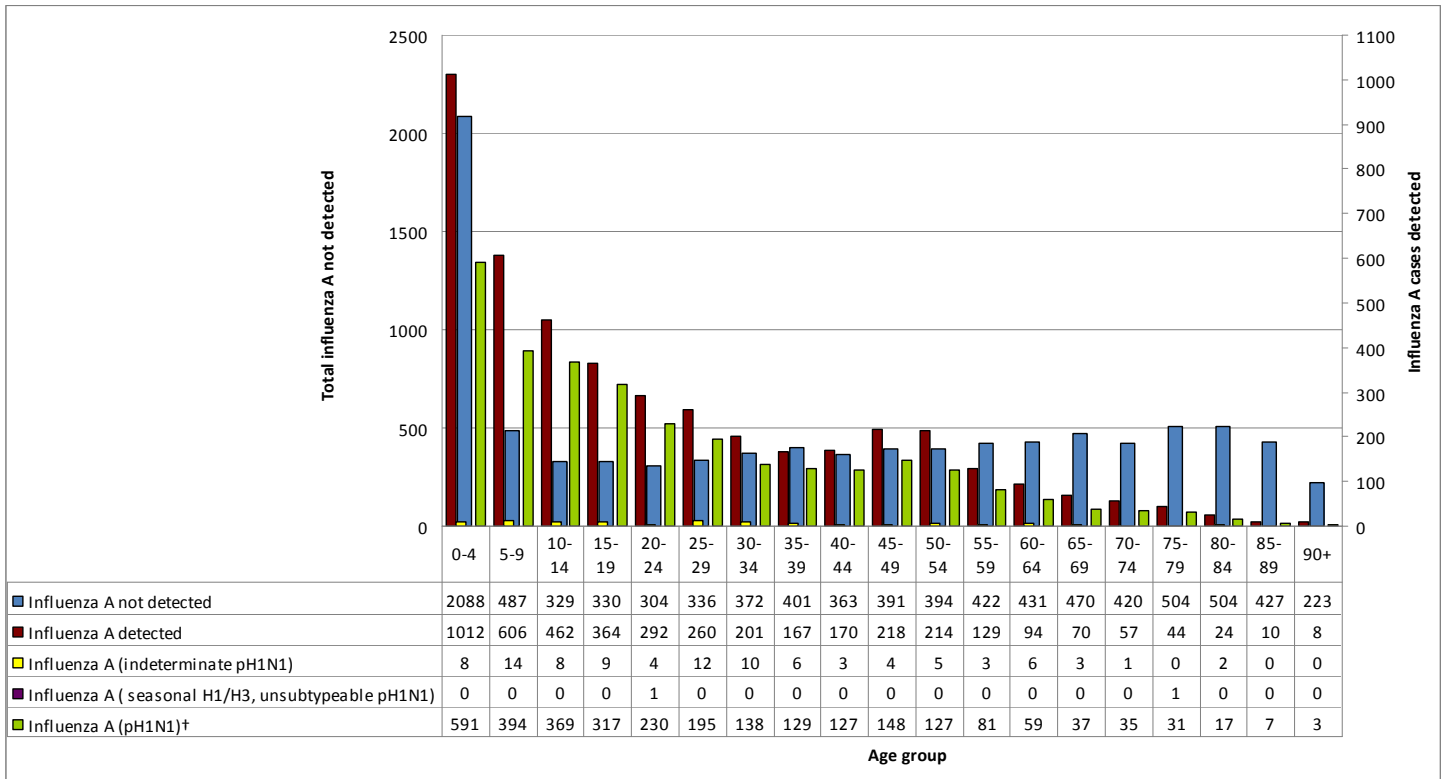
**Data collected since November 16th, 2009 has been excluded from Figures 3. Since not all specimens collected on those dates have test results available, the data from those days may not reflect the current situation.

Sex and Age Distribution

Over half (52.4%; n=7,534) of all patient specimens submitted for testing for pH1N1 were from female patients. Males made up 47.6% (n=6,840) of patients and sex was not reported for 278 of patients. Females make up 51.7% (n=1,541) of all lab confirmed cases of pH1N1 detected. Males made up 48.3% (n=1,440) of confirmed pH1N1 cases. Sex was not reported for 61 cases.

The age distribution of patients by pH1N1 test result since September 1, 2009 is shown in **Figure 4**. The largest amount of pH1N1 cases occurred in children under the age of five, with 591 cases (19.4%). Children aged 0-19 represent over half of the cases (54.9%; n=1,671). There were 425 cases of pH1N1 among adults aged 20-29 (14.0%). Adults aged 30-59 make up 24.7% of pH1N1 cases (n=750). 189 pH1N1 cases occurred among adults 60 years of age and older.

Figure 4. Age distribution of patients tested at PHL for influenza A by test result, for specimens collected between September 1- November 23, 2009*.



Source: PHL, Ontario Agency for Health Protection and Promotion (OAHP).

*Note: Age was not available for 36 patients.

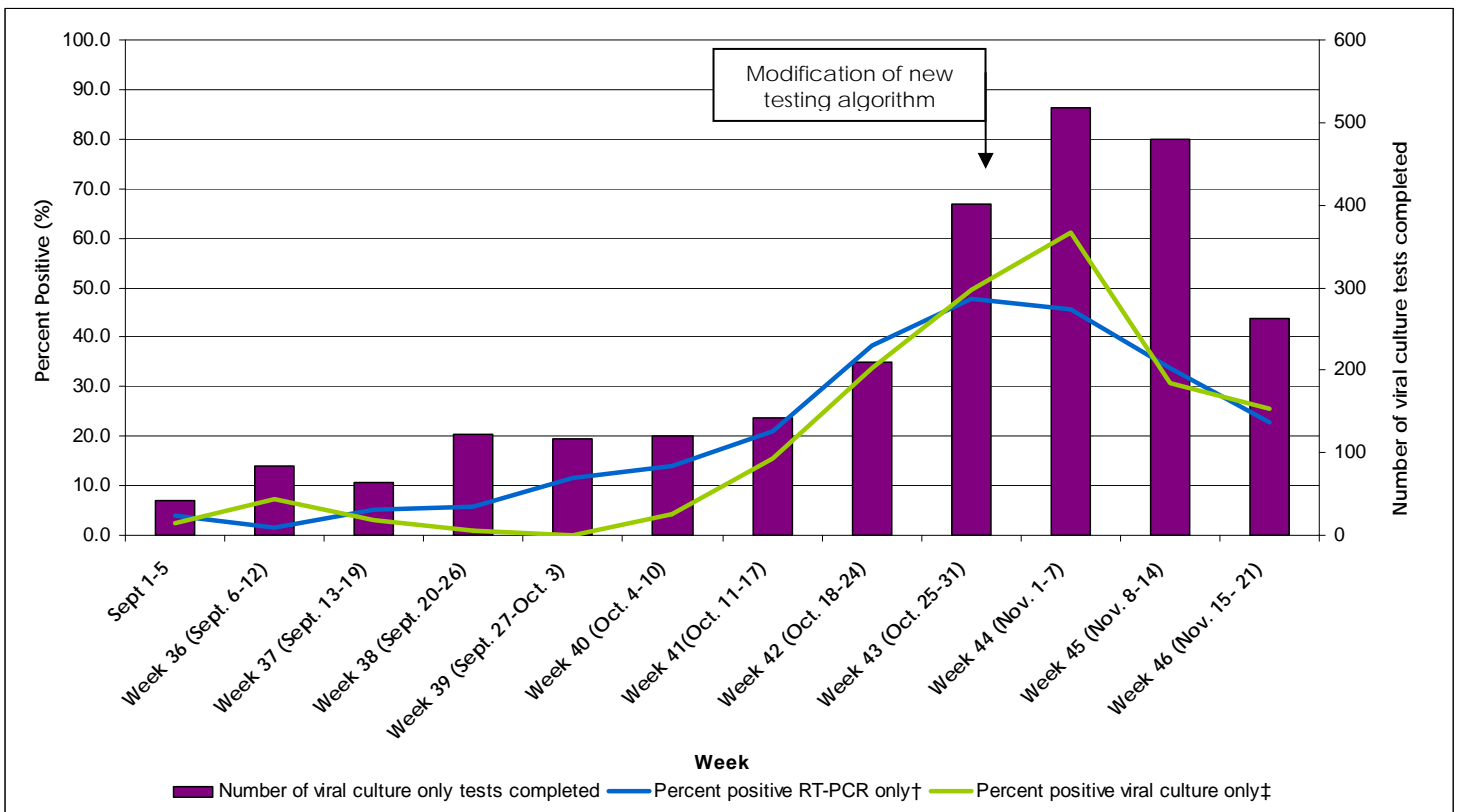
Second wave peak

It is hard to know with any certainty when a peak in activity has been reached. However, this is easiest to identify in retrospect. To date various indicators (specimen submission, percent positive, activity at local health unit level) reveal that Ontario may have passed the peak activity in terms of infections. Note that the peak in hospitalizations and/or deaths would be anticipated to follow the peak in infections because of the lag between the onset of infection and hospitalization or death.

The percent positive for influenza A separated by testing method (PCR† and viral culture‡) is shown in **Figure 5**. The percentage of specimens positive for influenza by RT-PCR has declined in the past two most recent weeks. For viral culture approximately 27% of these specimens tested positive in the most recent reporting week. Percent positivity by RT-PCR provides a better indicator of the overall trend given that this test is performed on the majority of patient specimens and provides a more timely result compared to viral culture due to the inherent lag time of growing cultures. Since ambulatory samples are primarily tested with only viral culture, the percent positive of viral culture tests provides an indicator for ambulatory activity.

Figure 5: Percent positive of influenza A tests conducted by RT-PCR and viral culture at the public health labs from September 1st, 2009 to November 21st, 2009

Note:



†RT-PCR percent positive is calculated based on date of specimen collection.

‡Viral culture percent positive is calculated based on date of entry of results.

Public Health Unit

The cumulative number of specimens submitted for pH1N1 testing, submission rates, number of lab-confirmed cases and percent positives by PHU, since September 1, 2009, are displayed in **Table 2**. The number of pH1N1 cases detected in Weeks 45 and 46, as well as the total number of specimens submitted, by public health unit (PHU), is displayed in **Tables 3 and 4**. Rates of the submission of specimens for pH1N1 testing and percent positive by PHU are also displayed. A map of pH1N1 cases by PHU and specimen collection week is displayed in **Figure 6**. Each ring on the map represents one week, with the most recent full week (Week 46 – November 15 – November 21) as the outermost ring. The rings are divided into sections representing each PHU in Ontario. The map of Ontario includes the cumulative number of influenza A cases by PHU since September 1, 2009. At the PHL, a patient is sorted into a PHU based on their place of residence. If this information is not available, the address of the physician who submitted the sample is used to classify patients into PHUs. As a result, influenza A cases may not necessarily be residents of the PHU in which they have been classified.

Cumulative: September 1 – November 23

Since, September 1, the highest submission rates for specimens being tested for pH1N1 observed were from the Porcupine (560.8 submissions/100,000 persons) and Northwestern (370.0 submissions/100,000 persons) PHUs. The Toronto area had the highest number of influenza A cases in the province (n=601) during this time period, followed by Peel Regional (n=387) and York Regional (n=249) (**Table 2**). Percent positive for influenza A was greatest in Middlesex-London, with 51.2% of samples tested yielding positive results.

Week 45: November 8 – November 14

In the recent full week, Northerwestern (42.2 submissions/100,000 persons) and Porcupine (30.9 submissions/100,000 persons) PHUs had the highest submission rates for specimens to be tested for pH1N1. In Week 45, 531 new influenza A cases have been identified (238 confirmed new cases of pH1N1) to date. The greatest number of influenza A cases was identified in Toronto (n=102). This was followed by Peel (n=55) and Simcoe Muskoka District (n=38)(**Table 3**).

Most recent full week: November 15 – November 23 (Week 46)

In the most recent full week, Northerwestern (26.1 submissions/100,000 persons) and Peel Regional (17.4 submissions/100,000 persons) PHUs had the highest submission rates for specimens to be tested for pH1N1. In Week 46, 199 new influenza A cases have been identified (95 confirmed new cases of pH1N1) to date. The greatest number of cases was identified in Toronto (n=44) followed by Peel Region (n=27), and York Regional (n=17) (**Table 4**).

Table 2. Number of pH1N1 specimens submitted for testing, pH1N1 cases, percent positive and submission rate (/100,000) by PHU. Specimen collection dates: September 1- November 23, 2009.

Public Health Unit	Total number of specimens submitted	Submission rate (/100,000)	Number of lab confirmed cases of pH1N1	Number of lab confirmed Influenza A cases	Percent positive (%) influenza A**
Algoma District	316	271.8	50	98	32.0
Brant County	159	127.1	27	48	32.2
Chatham-Kent	131	120.6	32	50	40.0
City of Hamilton	417	82.6	259	116	47.0
City of Ottawa	87	10.7	17	26	29.9
City of Toronto	2756	110.1	328	601	23.0
Durham Regional	468	83.4	117	145	33.9
Eastern Ontario	272	142.7	98	117	43.8
Elgin-St. Thomas	100	117.2	19	40	42.6
Grey Bruce	324	205.4	34	108	34.4
Haldimand-Norfolk	107	99.3	33	45	46.4
Haliburton-Kawartha-Pine Ridge District	197	114.8	43	53	28.6
Halton Regional	520	118.4	131	138	29.9
Hastings & Prince Edward Counties	280	179.5	90	77	31.8
Huron County	119	200.6	23	49	41.5
Kingston-Frontenac and Lennox & Addington	385	208.8	129	128	35.9
Lambton	143	111.5	34	53	37.3
Leeds-Grenville and Lanark District	167	102.5	46	59	37.6
Middlesex-London	268	63.5	140	103	51.2
Niagara Regional Area	505	118.2	121	194	40.3
North Bay Parry Sound District	228	185.6	42	73	32.7
Northwestern	298	370.0	68	119	41.2
Oxford County	122	118.7	27	46	38.7
Peel Regional	1716	148.0	222	387	23.9
Perth District	149	200.4	30	43	29.7
Peterborough County-City	172	129.2	42	71	41.8
Porcupine	472	560.8	178	230	49.1
Renfrew County & District	68	68.4	15	26	39.4
Simcoe Muskoka District	985	205.3	133	233	26.6
Sudbury & District	310	161.1	55	119	39.5
Thunder Bay District	375	243.4	82	148	40.0
Timiskaming	88	257.2	32	41	47.1
Waterloo	306	64.0	72	120	41.8
Wellington-Dufferin-Guelph	295	115.7	36	78	27.4
Windsor-Essex County	408	103.7	106	162	45.0
York Regional	883	98.9	116	249	29.5
Out of Province/Not Available	56	N/A	15	21	38.2
Grand Total	14652	120.5	3042	4414	32.4

Source: PHL, Ontario Agency for Health Protection and Promotion (OAHPP).

**Percent positive influenza A is calculated based on the number of specimens where testing has been completed. This may not equal the number of specimens submitted for testing.

Table 3. Number of pH1N1 specimens submitted for testing, pH1N1 cases, percent positive and submission rate (/100,000) by PHU. Specimen collection dates: Nov. 8–Nov.14, 2009(**Week 45**).

Public Health Unit	Total number of specimens submitted	Submission rate (/100,000)	Number of lab confirmed cases of pH1N1	Number of lab confirmed Influenza A cases	Percent positive (%) influenza A**
Algoma District	27	23.2	2	8	29.6
Brant County	17	13.6	3	5	33.3
Chatham-Kent	18	16.6	2	7	41.2
City of Hamilton	21	4.2	9	2	15.4
City of Ottawa	11	1.4	1	2	18.2
City of Toronto	351	14.0	35	102	32.5
Durham Regional	39	6.9	7	13	36.1
Eastern Ontario	26	13.6	6	11	42.3
Elgin-St. Thomas	10	11.7	2	2	20.0
Grey Bruce	47	29.8	2	16	37.2
Haldimand-Norfolk	20	18.6	4	6	30.0
Haliburton-Kawartha-Pine Ridge District	25	14.6	4	10	41.7
Halton Regional	62	14.1	8	12	20.7
Hastings & Prince Edward Counties	30	19.2	2	1	4.0
Huron County	11	18.5	0	4	40.0
Kingston-Frontenac and Lennox & Addington	36	19.5	8	7	29.2
Lambton	10	7.8	0	3	30.0
Leeds-Grenville and Lanark District	18	11.0	6	2	15.4
Middlesex-London	23	5.4	5	5	33.3
Niagara Regional Area	71	16.6	15	25	35.7
North Bay Parry Sound District	30	24.4	5	10	34.5
Northwestern	34	42.2	7	23	71.9
Oxford County	11	10.7	0	1	11.1
Peel Regional	201	17.3	31	55	29.4
Perth District	8	10.8	1	1	12.5
Peterborough County-City	26	19.5	3	10	38.5
Porcupine	26	30.9	9	11	44.0
Renfrew County & District	16	16.1	4	9	60.0
Simcoe Muskoka District	135	28.1	24	38	37.6
Sudbury & District	51	26.5	5	20	39.2
Thunder Bay District	40	26.0	3	12	32.4
Timiskaming	4	11.7	1	1	25.0
Waterloo	29	6.1	3	13	50.0
Wellington-Dufferin-Guelph	31	12.2	2	10	32.3
Windsor-Essex County	61	15.5	13	32	57.1
York Regional	111	12.4	4	37	35.6
Out of Province/Not Available	10	N/A	2	5	50.0
Grand Total	1697	14.0	238	531	34.7

Source: PHL, Ontario Agency for Health Protection and Promotion (OAHPP).

**Percent positive influenza A is calculated based on the number of specimens where testing has been completed. This may not equal the number of specimens submitted for testing

Table 4. Number of pH1N1 specimens submitted for testing, pH1N1 cases, percent positive and submission rate (/100,000) by PHU. Specimen collection dates: Nov. 15– Nov. 21, 2009 (Week 46***).

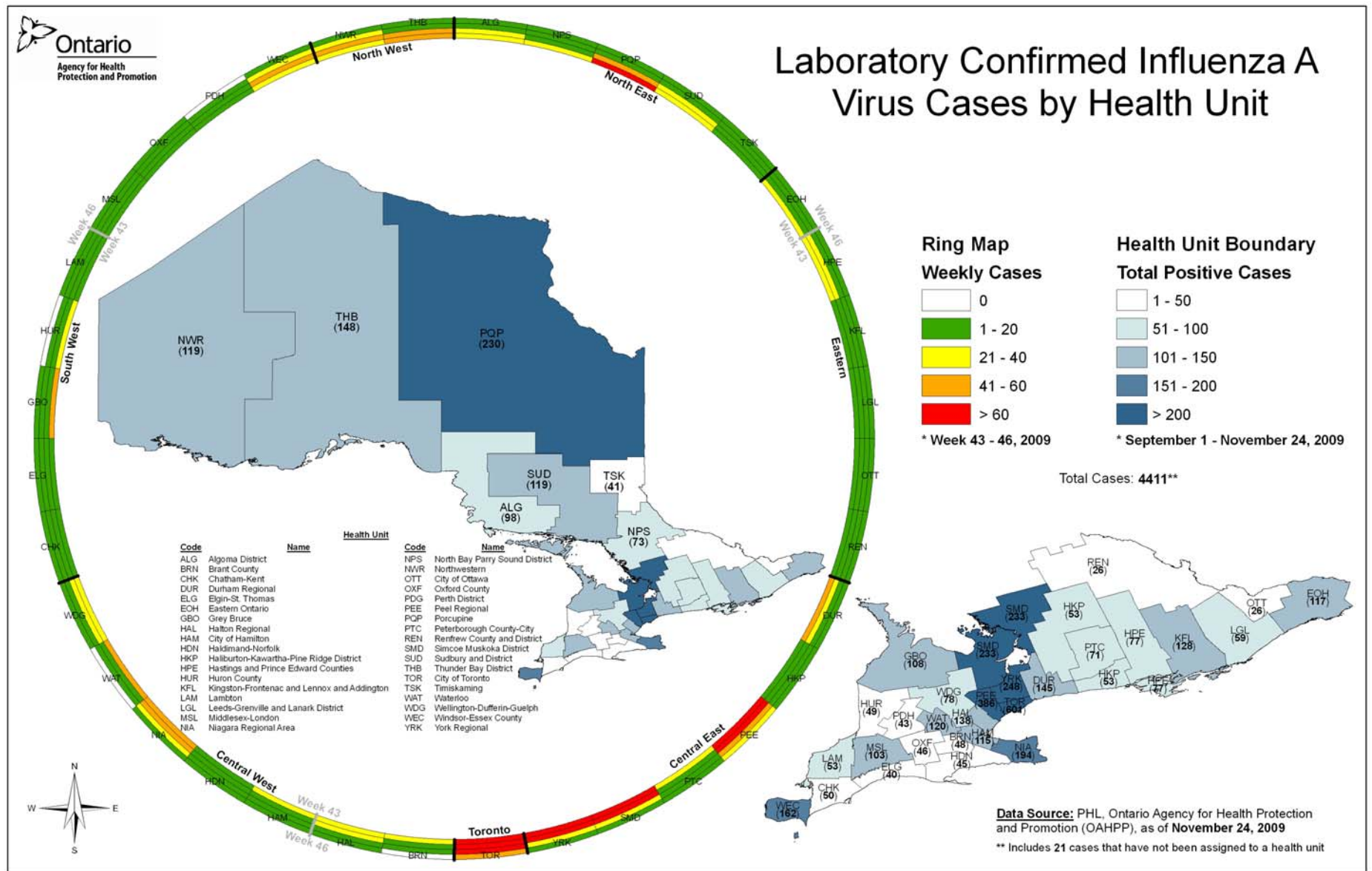
Public Health Unit	Total number of specimens submitted	Submission rate (/100,000)	Number of lab confirmed cases of pH1N1	Number of lab confirmed Influenza A cases	Percent positive (%) influenza A**
Algoma District	15	12.9	1	2	25.0
Brant County	11	8.8	0	0	0.0
Chatham-Kent	12	11.1	2	2	20.0
City of Hamilton	17	3.4	1	3	17.6
City of Ottawa	8	1.0	1	2	25.0
City of Toronto	255	10.2	19	44	22.8
Durham Regional	20	3.6	2	3	17.6
Eastern Ontario	14	7.3	1	2	14.3
Elgin-St. Thomas	11	12.9	0	1	12.5
Grey Bruce	15	9.5	0	4	44.4
Haldimand-Norfolk	5	4.6	0	1	33.3
Haliburton-Kawartha-Pine Ridge District	17	9.9	2	2	11.8
Halton Regional	31	7.1	3	4	18.2
Hastings & Prince Edward Counties	19	12.2	3	3	17.6
Huron County	3	5.1	0	0	0.0
Kingston-Frontenac and Lennox & Addington	9	4.9	1	3	50.0
Lambton	9	7.0	2	3	37.5
Leeds-Grenville and Lanark District	10	6.1	1	2	28.6
Middlesex-London	14	3.3	3	2	33.3
Niagara Regional Area	47	11.0	4	10	24.4
North Bay Parry Sound District	7	5.7	0	2	33.3
Northwestern	21	26.1	3	8	50.0
Oxford County	9	8.8	0	2	25.0
Peel Regional	202	17.4	27	27	18.1
Perth District	5	6.7	0	0	0.0
Peterborough County-City	14	10.5	1	4	28.6
Porcupine	12	14.3	0	1	10.0
Renfrew County & District	5	5.0	1	1	20.0
Simcoe Muskoka District	77	16.0	6	15	30.6
Sudbury & District	27	14.0	1	9	45.0
Thunder Bay District	19	12.3	1	5	27.8
Timiskaming	2	5.8	1	2	100.0
Waterloo	9	1.9	0	0	0.0
Wellington-Dufferin-Guelph	20	7.8	0	2	14.3
Windsor-Essex County	38	9.7	2	9	32.1
York Regional	76	8.5	5	17	31.5
Out of Province/Not Available	2	N/A	1	2	100.0
Grand Total	1087	8.9	95	199	24.2

Source: PHL, Ontario Agency for Health Protection and Promotion (OAHPP).

**Percent positive influenza A is calculated based on the number of specimens where testing has been completed. This may not equal the number of specimens submitted for testing

*** Because of the lag in time from the date the specimen was collected to the date the final test result is confirmed, not all cases with specimens collected during the most recent week are included in this summary.

Figure 6. Map of the laboratory confirmed influenza A cases by PHU. Weekly cases are represented in the ring map, and the total number of positive influenza A cases is represented in brackets in the map of Ontario (PHU was not available for 21 influenza A cases).



Ontario Influenza Vaccine Effectiveness Program: Weekly Report.

Information current as of: November 20, 2009

Background: The Ontario Influenza Vaccine Effectiveness (VE) Program is part of a national surveillance system that monitors circulating influenza viruses. Through a case-control design, laboratory testing results are linked with patient's epidemiological information to measure the effectiveness of yearly influenza vaccine. Ontario joined the VE study in the 2006/07 influenza season along with British Columbia, Alberta and Quebec. The Ontario VE program represent a collaboration between OAHPP Public Health Laboratories and Surveillance and Epidemiology teams, the Ontario Ministry of Health and Long Term Care (MOHLTC), the Ontario College of Family Physicians and a network of 115 sentinel physicians across the province. Sentinel physicians who volunteer to join the VE study submit respiratory specimens (nasal or nasopharyngeal) for influenza testing along with vaccine history and other epidemiologic information collected from eligible consenting participants from community presenting within 7 days of onset of influenza like illness (ILI). ILI is defined as acute onset of respiratory illness with fever and cough and with one or more of the following: sore throat, arthralgia, myalgia or prostration. Sentinel physicians are exempted from any restrictions placed on other clinicians who submit respiratory specimens. They are permitted to collect specimens without restrictions as they contribute to national and provincial influenza surveillance systems.

At the Toronto Public Health Laboratory (TPHL) specimens are tested for influenza A/B and subtypes (seasonal H1N1 and H3N2, and pH1N1). They are also screened for a panel of common respiratory viruses and cultured for antigenic strain characterization (performed at the National Microbiology Laboratory (NML)). Lab results are merged with epidemiological data to calculate VE from cases and controls with adjustments for covariates such as age and chronic conditions. Data in this report represents VE specimens (1specimen/1patient) tested at TPHL since the beginning of September up to November 6, 2009. Rejected specimens are not included in the analyses.

Figure 1. The total number of VE specimens submitted to be tested for Influenza from November 16 to November 20 (wk 46) was 30 . This consists of less than half of specimens received during the previous week (61). Twelve specimens (40%) were Flu A positive, which represents a 12.5% lower positivity rate compared to the previous week. The predominant virus strain remains pandemic H1N1 Influenza A/ (pH1N1) at the rate of 11/12. Only one case was Flu A/Indeterminate for pH1N1.

Figure 1. Weekly epidemic curve of influenza for VE specimens, September 1- November 20, 2009

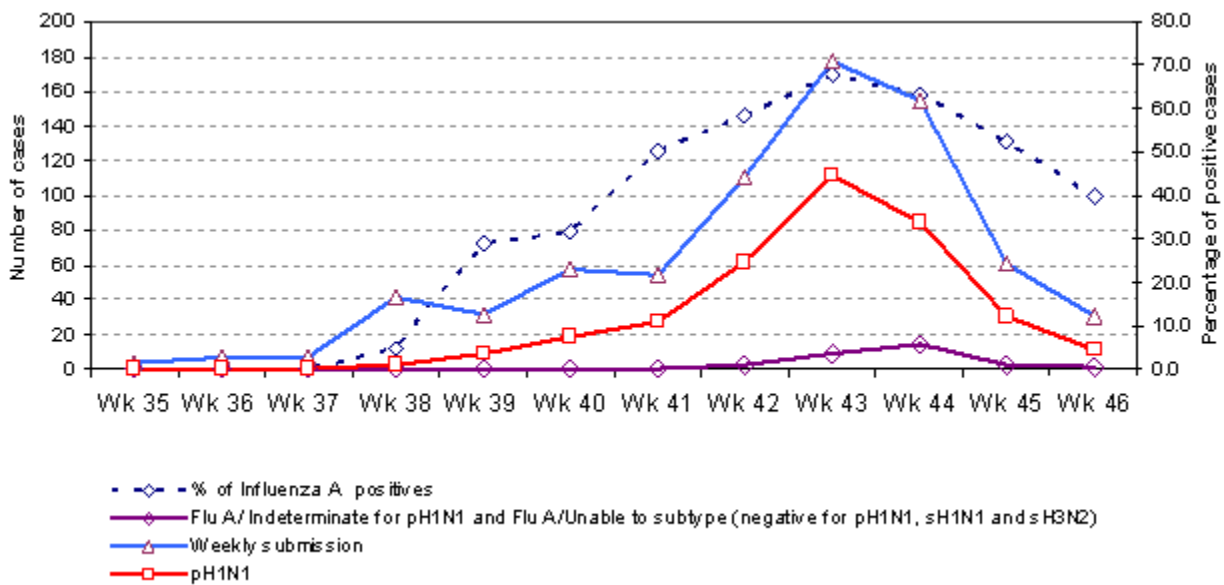


Figure 2 shows the distribution of age of influenza A positive patients (cases) and influenza A negative patients (controls). Influenza A remains more commonly detected in younger age groups, with the most cases detected in the interval age of 10-14 years. Seventy per cent of cumulative cases were between the ages 0-24 which is slightly lower than the previous week (72%). Influenza was less commonly detected in older age groups. In samples tested from individuals 60 and over, the cumulative percentage of positive for Influenza A was slightly increased from 5/50 in the previous week to 8/54 in this week and all of them were positive for pH1N1. One case of Influenza A/ Indeterminate for pH1N1 was detected in the age interval of 45-49 years.

Figure 2. Age distribution of VE patients tested for influenza by influenza subtype, September 1 – November 20, 2009.

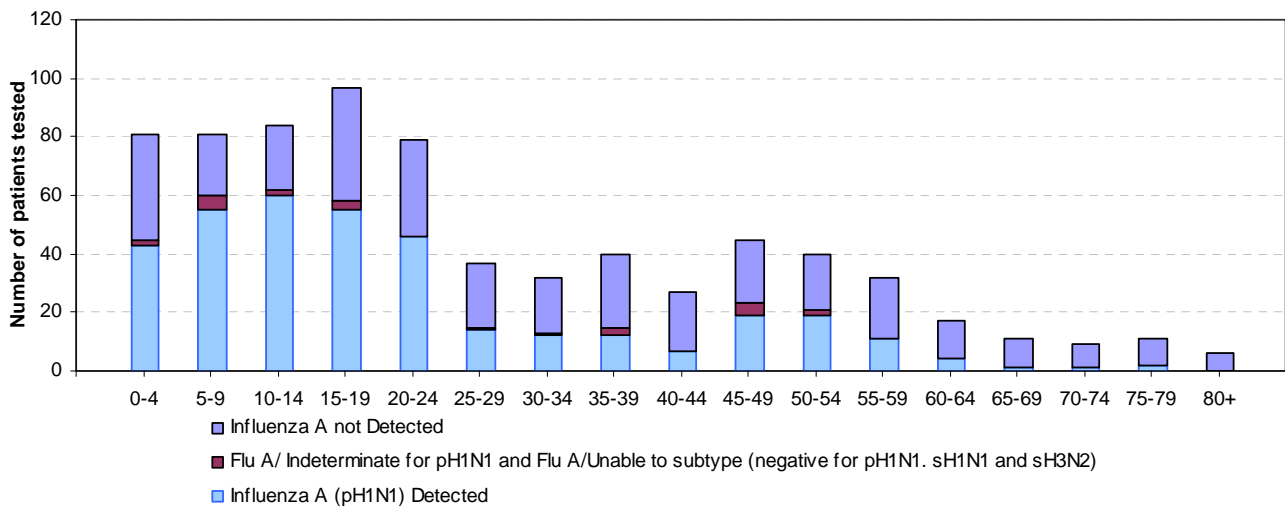


Table 1 shows the distribution of circulating respiratory viruses among VE specimens during the week 46, using RT_PCR and Multiplex as testing methods. At least one respiratory virus was detected in 50 % of specimens tested (15/30). Flu A alone was detected in 20% of specimens. Coinfection of Flu A by Rhinovirus was detected in another 20% of specimens. Rhinovirus, Parainfluenza 1 and Parainfluenza 2 were also detected in three separate specimens.

Table 1 Circulating respiratory viruses detected by RT_PCR and Multiplex, November 16 to November 20, 2009

THE DETECTED VIRUSES	NUMBER OF SPECIMENS	PERCENTAGE OF SPECIMENS
FLU A/pH1N1	5	16.7
FLU A/INDETERMINATE FOR pH1N1	1	3.3
FLU A/pH1N1-RHINOVIRUS	6	20.0
RHINOVIRUS	1	3.3
PARAINFLUENZA 1	1	3.3
PARAINFLUENZA 2	1	3.3
TOTAL POSITIVE SPECIMENS	15	50.0
TOTAL SPECIMENS TESTED	30	100.0

Table 2 shows the geographical and age distribution of patients tested positive by RT_PCR and Multiplex during the week 46. Due to small sample size it is hard to observe any age or geographical trend. However, coinfections of Flu A by Rhinovirus were more likely detected in Ottawa Health Unit (4/6 cases). Two other coinfection cases of Flu A by Rhinovirus were detected in Middlesex London and Peel Health Units. Rhinovirus , Parainfluenza 1 and Parainfluenza 2 alone were detected in Peel Health Unit. The age distribution of positive patients for Flu A, coinfections of Flu A by Rhinovirus and other respiratory viruses varies greatly without defining any specific trend.

Table 2 Geographical and age distribution of positive tested patients by RT_PCR and Multiplex methods, November 16 - November 20, 2009.

THE DETECTED VIRUESES	PATIENT_PHU	AGE CATEGORY
FLU A	LEEDS	70-74
FLU A		30-34
FLU A/RHINOVIRUS	MIDDLESEX LONDON	65-69
FLU A	NIAGARA	15-19
FLU A/RHINOVIRUS		5-9
FLU A/RHINOVIRUS		10-14
FLU A/ RHINOVIRUS		60-64
FLU A/RHINOVIRUS	OTTAWA	25-29
FLU A		0-4
PARAINFLUENZA 2		0-4
RHINOVIRUS		5-9
FLU A/RHINOVIRUS		55-59
PARAINFLUENZA1	PEEL	65-69
FLU A/INDETERMINATE FOR pH1N1	SIMCOE MUSKOKA	45-49
FLU A	WATERLOO	55-59