

**Ontario Agency for Health Protection and Promotion Laboratory Pandemic H1N1 Surveillance Report
Information current as of: Monday November 30, 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 30, 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 Lababstract at www.oahpp.ca

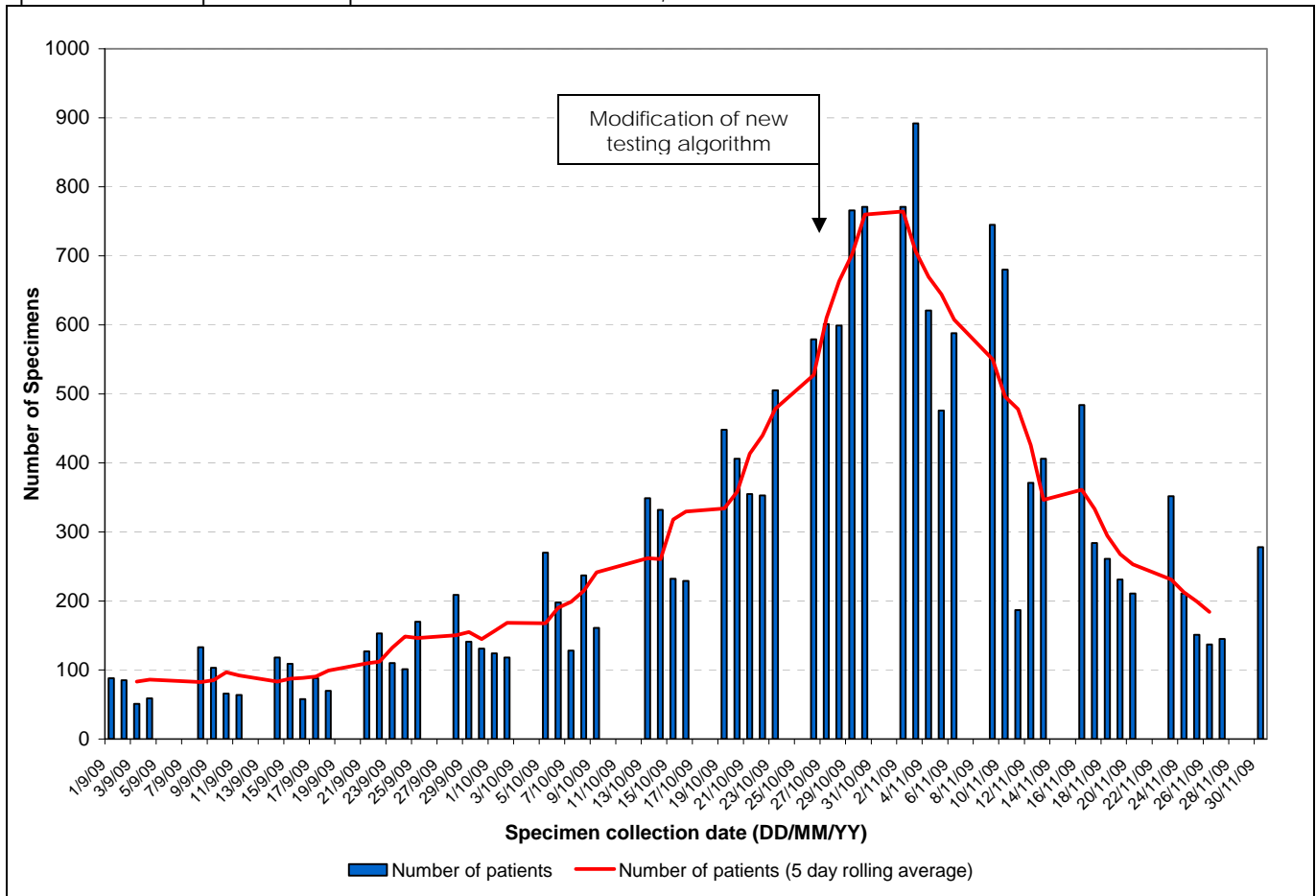
Week 47 Summary Snapshot

- 38 laboratory confirmed influenza A cases
- RT-PCT % positive (approximately) = 7.5%

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 30, 2009 is 18,680. 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 937 specimens received for pH1N1 testing during the 7 day period between November 24 - November 30, 2009; 5.0% of the total received since September 1. Within the past three weeks submissions have declined.

Figure 1. The number of specimens received (1/patient) at PHL/OAHPP for pH1N1 testing by date. Specimen receipt dates: September 1- November 30, 2009.



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

Case Statistics

Between September 1 and November 30, 2009, a total of 15,392 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. 14,788 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, 14,481 specimens and isolates have been tested for influenza A at the PHL. Influenza A virus has been identified in 4,504 (31.1%) of the patients tested at PHL; an additional 607 patient specimens that tested positive for influenza A at hospital laboratories were forwarded to the PHL to be subtyped for pH1N1. There are 1,911 that have been confirmed positive for influenza A but have not been subtyped. Of all specimens and isolates subtyped for pH1N1, 3110 cases of pH1N1 have been detected. Two cases of seasonal influenza (H3) have been detected. One-hundred 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 28, 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	242	253	4.3	2.4	100.0
Week 36 (Sep. 6 – 12)	2	3	1	0	0	335	341	1.8	7.2	66.7
Week 37 (Sep. 13 – 19)	12	4	1	1	0	434	452	3.8	3.1	85.7
Week 38 (Sep. 20 – 26)	27	1	0	1	0	559	588	4.8	0.8	96.4
Week 39 (Sep. 27 – Oct. 3)	59	6	0	0	0	598	663	9.7	0.0	100.0
Week 40 (Oct. 4 – 10)	126	3	0	4	0	741	874	13.1	4.2	96.9
Week 41 (Oct. 11 – 17)	293	12	0	4	0	808	1117	22.0	15.5	98.7
Week 42 (Oct. 18 – 24)	916	54	0	15	0	1086	2071	41.1	33.8	98.4
Week 43 (Oct. 25 – 31)	884	556	0	35	0	1451	2926	48.3	49.6	96.2
Week 44 (Nov. 1 – 7)	388	747	0	25	0	1332	2492	45.3	60.9	93.9
Week 45 (Nov. 8 – 14)	257	346	0	7	0	1081	1691	33.2	31.2	97.3
Week 46 (Nov. 15 – 21)	121	146	0	8	0	842	1117	22.7	23.9	93.8
Week 47 *** (Nov. 22 – 28)	23	24	0	0	0	469	516	7.5	12.5	100.0
Total	3110	1911	2	100	0	9978	15101	31.1	31.2	96.8

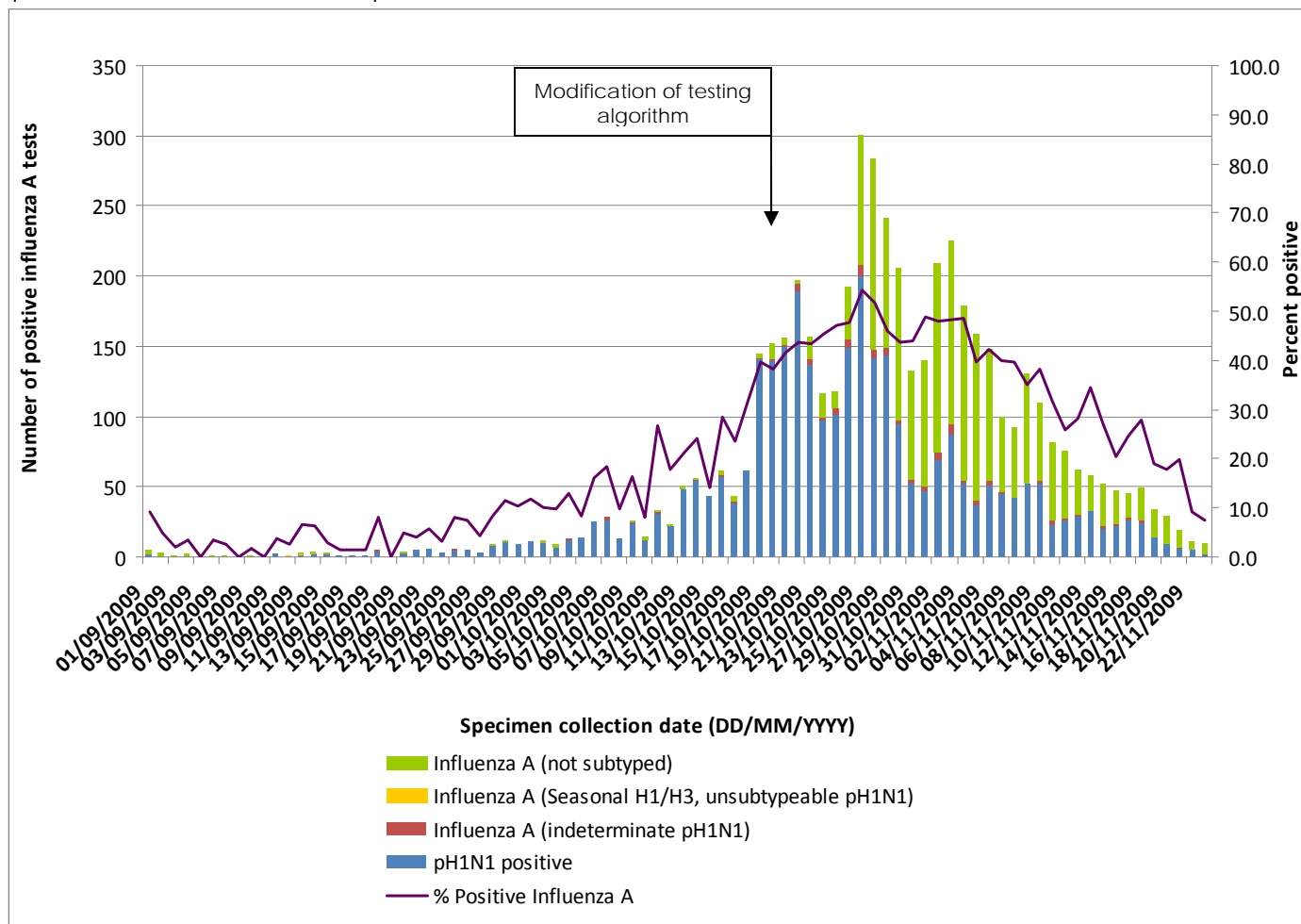
Source: PHL, Ontario Agency for Health Protection and Promotion (OAHPP).

* For 763 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=607)

*** 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 23, 2009, 2009**.

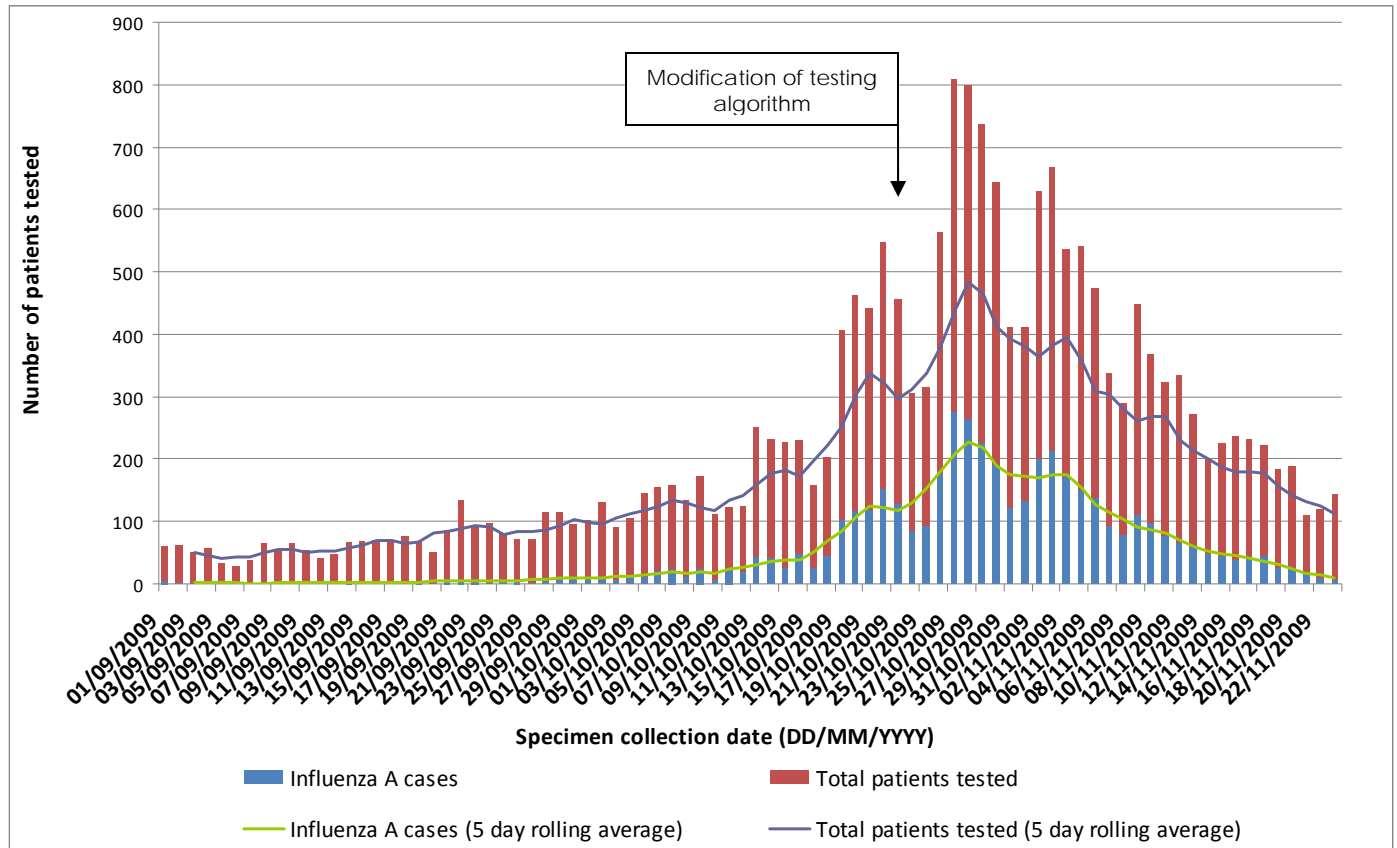


Source: PHL, Ontario Agency for Health Protection and Promotion (OAHPP).

* For 763 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 23rd, 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 23, 2009**.



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

* For 763 specimens, no specimen collection date was available; the date the specimen was received at the lab has been used as a proxy.

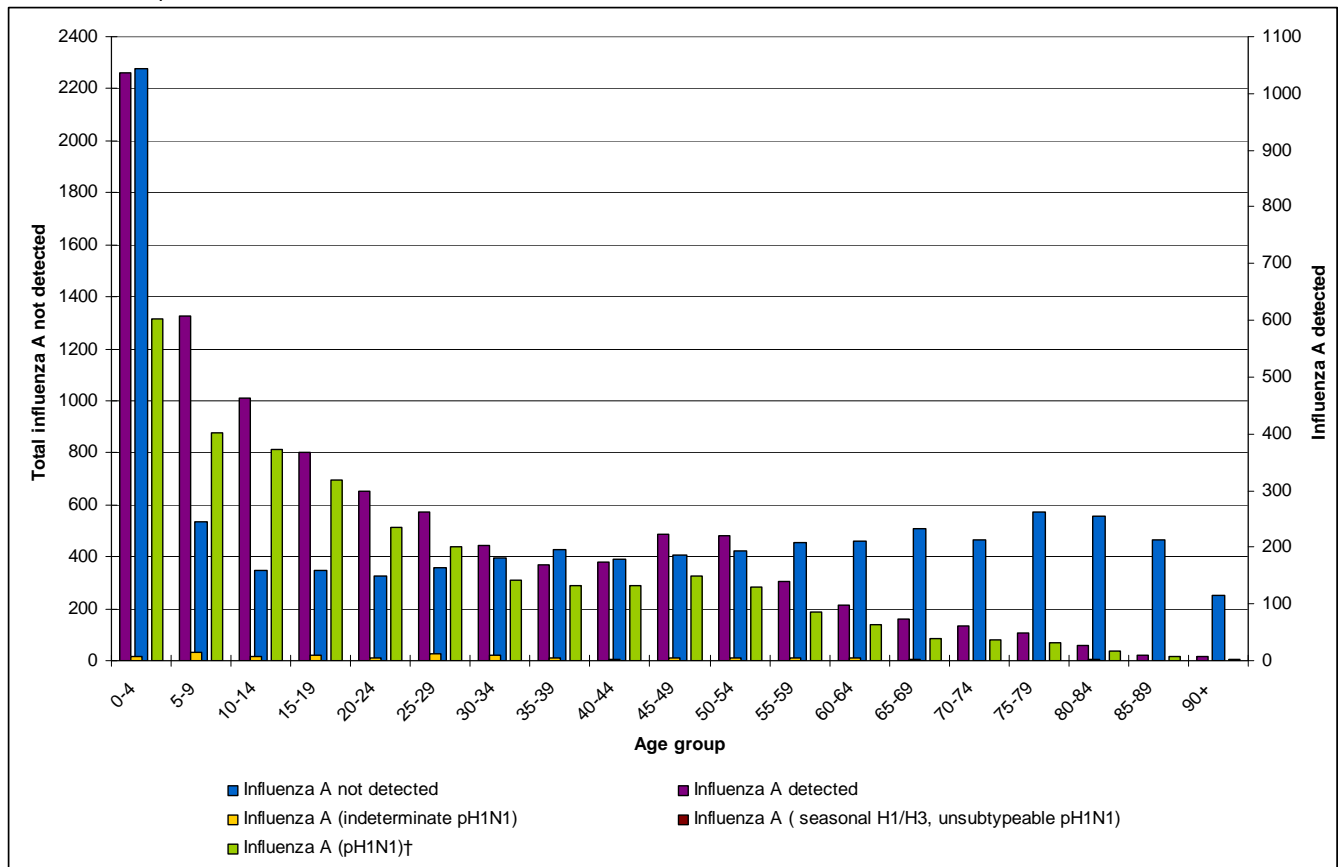
**Data collected since November 23rd, 2009 has been excluded from Figures 3. Since not all specimens collected on those dates have test results available, the data from those days may not reflect the current situation.

Sex and Age Distribution

Over half (52.4%; n=7,900) of all patient specimens submitted for testing for pH1N1 were from female patients. Males made up 47.6% (n=7,184) of patients and sex was not reported for 284 of patients. Females make up 51.6% (n=1,573) of all lab confirmed cases of pH1N1 detected. Males made up 48.4% (n=1,476) 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 603 cases (19.4%). Children aged 0-19 represent over half of the cases (54.6%; n=1,695). There were 434 cases of pH1N1 among adults aged 20-29 (14.0%). Adults aged 30-59 make up 24.9% of pH1N1 cases (n=772). 202 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 30, 2009*.



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

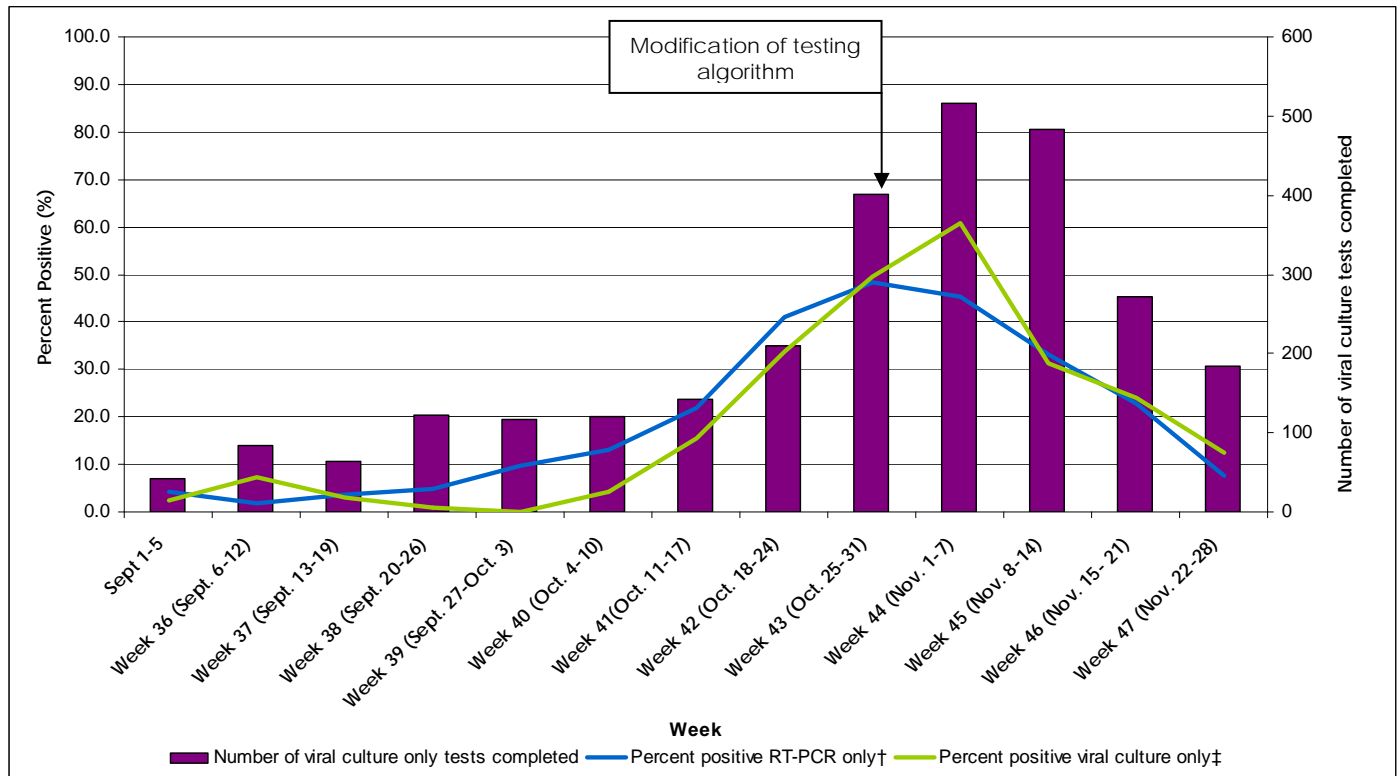
*Note: Age was not available for 37 patients.

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 12.5% 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 28th, 2009



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

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 46 and 47, 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 influenza A 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 47 – November 22 – November 28) 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 30

Since, September 1, the highest submission rates for specimens being tested for pH1N1 observed were from the Porcupine (576.3 submissions/100,000 persons) and Northwestern (376.2 submissions/100,000 persons) PHUs. The Toronto area had the highest number of influenza A cases in the province (n=622) during this time period, followed by Peel Regional (n=401) and York Regional (n=255) (**Table 2**). Percent positive for influenza A was greatest in Middlesex-London, with 49.3% of samples tested yielding positive results.

Week 46: November 15 – November 21

In the recent full week, Northwestern (29.8 submissions/100,000 persons) and Simcoe Muskoka District (18.8 submissions/100,000 persons) PHUs had the highest submission rates for specimens to be tested for pH1N1. In Week 46, 244 new influenza A cases have been identified (121 confirmed new cases of pH1N1) to date. The greatest number of influenza A cases was identified in Toronto (n=52). This was followed by Peel (n=33) and York Regional (n=21) (**Table 3**).

Most recent full week: November 22 – November 28 (Week 47)

In the most recent full week, Porcupine (13.1 submissions/100,000 persons) and Peel Regional (12.7 submissions/100,000 persons) PHUs had the highest submission rates for specimens to be tested for pH1N1. In Week 47, 38 new influenza A cases have been identified (23 confirmed new cases of pH1N1) to date. The greatest number of cases was identified in Toronto (n=8) followed by Peel Region (n=7), and Halton, York Regional and Windsor-Essex County with 3 cases (**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 30, 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	327	281.3	51	99	30.7
Brant County	165	131.9	28	49	30.8
Chatham-Kent	137	126.2	32	50	37.6
City of Hamilton	422	83.6	259	117	46.8
City of Ottawa	91	11.2	18	27	30.3
City of Toronto	2910	116.2	342	622	22.2
Durham Regional	480	85.5	117	148	33.4
Eastern Ontario	284	149.0	98	117	42.2
Elgin-St. Thomas	106	124.2	19	40	38.8
Grey Bruce	340	215.5	34	110	33.2
Haldimand-Norfolk	116	107.6	34	48	44.4
Haliburton-Kawartha-Pine Ridge District	212	123.5	43	54	27.0
Halton Regional	543	123.6	132	141	29.0
Hastings & Prince Edward Counties	288	184.7	90	77	30.4
Huron County	121	204.0	23	49	41.2
Kingston-Frontenac and Lennox & Addington	401	217.5	131	129	34.4
Lambton	151	117.8	35	53	35.8
Leeds-Grenville and Lanark District	177	108.6	48	60	35.9
Middlesex-London	276	65.4	143	104	49.3
Niagara Regional Area	533	124.7	123	194	38.1
North Bay Parry Sound District	240	195.4	42	73	30.9
Northwestern	303	376.2	69	123	40.9
Oxford County	128	124.6	29	47	37.6
Peel Regional	1843	159.0	229	401	22.8
Perth District	151	203.1	30	43	29.1
Peterborough County-City	182	136.8	42	71	39.4
Porcupine	485	576.3	179	233	48.0
Renfrew County & District	72	72.5	15	26	38.2
Simcoe Muskoka District	1048	218.4	141	240	25.3
Sudbury & District	325	168.9	56	122	38.2
Thunder Bay District	392	254.4	83	149	38.3
Timiskaming	91	265.9	32	41	45.6
Waterloo	322	67.3	73	121	39.8
Wellington-Dufferin-Guelph	308	120.9	41	82	27.3
Windsor-Essex County	427	108.5	111	166	43.1
York Regional	933	104.5	121	255	28.3
Out of Province/Not Available	62	N/A	17	23	37.7
Grand Total	15392	126.6	3110	4504	31.1

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. 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	3	21.4
Brant County	12	9.6	1	1	9.1
Chatham-Kent	14	12.9	2	2	14.3
City of Hamilton	16	3.2	0	2	12.5
City of Ottawa	8	1.0	1	2	25.0
City of Toronto	262	10.5	22	52	21.0
Durham Regional	22	3.9	2	5	23.8
Eastern Ontario	19	10.0	1	2	10.5
Elgin-St. Thomas	11	12.9	0	1	9.1
Grey Bruce	17	10.8	0	6	37.5
Haldimand-Norfolk	6	5.6	1	3	50.0
Haliburton-Kawartha-Pine Ridge District	21	12.2	2	2	10.0
Halton Regional	31	7.1	3	4	13.8
Hastings & Prince Edward Counties	21	13.5	3	3	15.0
Huron County	3	5.1	0	0	0.0
Kingston-Frontenac and Lennox & Addington	10	5.4	2	3	30.0
Lambton	9	7.0	3	3	33.3
Leeds-Grenville and Lanark District	13	8.0	2	3	27.3
Middlesex-London	14	3.3	5	3	30.0
Niagara Regional Area	50	11.7	5	10	20.0
North Bay Parry Sound District	11	9.0	0	2	18.2
Northwestern	24	29.8	4	12	50.0
Oxford County	9	8.8	1	2	22.2
Peel Regional	204	17.6	28	33	18.1
Perth District	5	6.7	0	0	0.0
Peterborough County-City	15	11.3	1	4	26.7
Porcupine	14	16.6	0	2	14.3
Renfrew County & District	6	6.0	1	1	16.7
Simcoe Muskoka District	90	18.8	9	20	27.4
Sudbury & District	27	14.0	2	12	44.4
Thunder Bay District	24	15.6	1	6	25.0
Timiskaming	2	5.8	1	2	100.0
Waterloo	9	1.9	0	0	0.0
Wellington-Dufferin-Guelph	22	8.6	4	5	22.7
Windsor-Essex County	39	9.9	6	10	28.6
York Regional	78	8.7	6	21	29.6
Out of Province/Not Available	3	N/A	1	2	66.7
Grand Total	1156	9.5	121	244	22.7

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. 22– Nov. 28, 2009 (Week 47***).

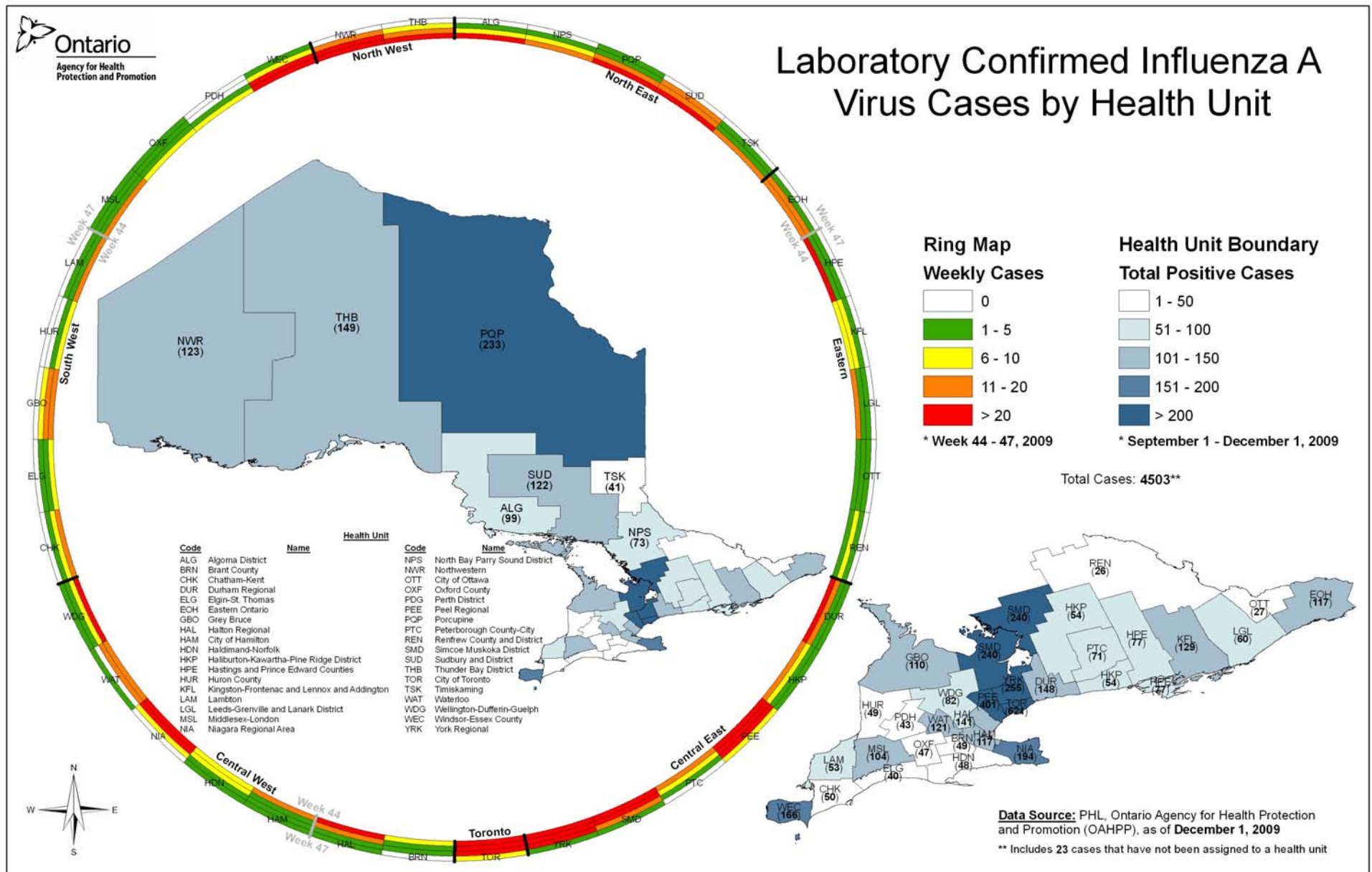
Public Health Unit	Total number of specimens submitted	Submission rate (/100,000)	Number of lab confirmed cases of pH1N1	Number of lab confirmed Influenza A cases	Percent positive (%) influenza A**
Algoma District	13	11.2	0	0	0.0
Brant County	7	5.6	0	0	0.0
Chatham-Kent	4	3.7	0	0	0.0
City of Hamilton	5	1.0	0	2	40.0
City of Ottawa	3	0.4	0	0	0.0
City of Toronto	158	6.3	4	8	7.5
Durham Regional	11	2.0	0	1	10.0
Eastern Ontario	7	3.7	0	0	0.0
Elgin-St. Thomas	8	9.4	0	0	0.0
Grey Bruce	12	7.6	0	0	0.0
Haldimand-Norfolk	10	9.3	0	1	12.5
Haliburton-Kawartha-Pine Ridge District	11	6.4	1	1	9.1
Halton Regional	25	5.7	1	3	16.7
Hastings & Prince Edward Counties	8	5.1	0	0	0.0
Huron County	1	1.7	0	0	0.0
Kingston-Frontenac and Lennox & Addington	15	8.1	0	0	0.0
Lambton	8	6.2	0	0	0.0
Leeds-Grenville and Lanark District	7	4.3	1	0	0.0
Middlesex-London	8	1.9	0	1	50.0
Niagara Regional Area	23	5.4	0	0	0.0
North Bay Parry Sound District	8	6.5	0	0	0.0
Northwestern	2	2.5	0	0	0.0
Oxford County	4	3.9	1	1	33.3
Peel Regional	147	12.7	7	7	6.5
Perth District	2	2.7	0	0	0.0
Peterborough County-City	9	6.8	0	0	0.0
Porcupine	11	13.1	1	2	18.2
Renfrew County & District	3	3.0	0	0	0.0
Simcoe Muskoka District	47	9.8	2	2	6.9
Sudbury & District	16	8.3	0	0	0.0
Thunder Bay District	12	7.8	0	0	0.0
Timiskaming	3	8.8	0	0	0.0
Waterloo	17	3.6	0	1	10.0
Wellington-Dufferin-Guelph	8	3.1	0	1	14.3
Windsor-Essex County	22	5.6	1	3	16.7
York Regional	45	5.0	3	3	8.8
Out of Province/Not Available	5	N/A	1	1	25.0
Grand Total	705	5.8	23	38	7.5

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 23 influenza A cases).



Ontario Influenza Vaccine Effectiveness Program: Weekly Report.

Information current as of: November 27, 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 represents the total number of VE specimens submitted to be tested for Influenza from November 23 to November 27 (wk 46) was 33. This is slightly higher than the number of specimens received during the previous week (30). Of the total number of specimens received, 6 specimens (18.2 %) were Flu A positive, which represents a 2.2 times lower positivity rate compared to the previous week. The strain of all Influenza positive specimens was Influenza A/ (pH1N1).

Figure 1. Weekly epidemic curve of influenza for VE specimens, September 1- November 27, 2009

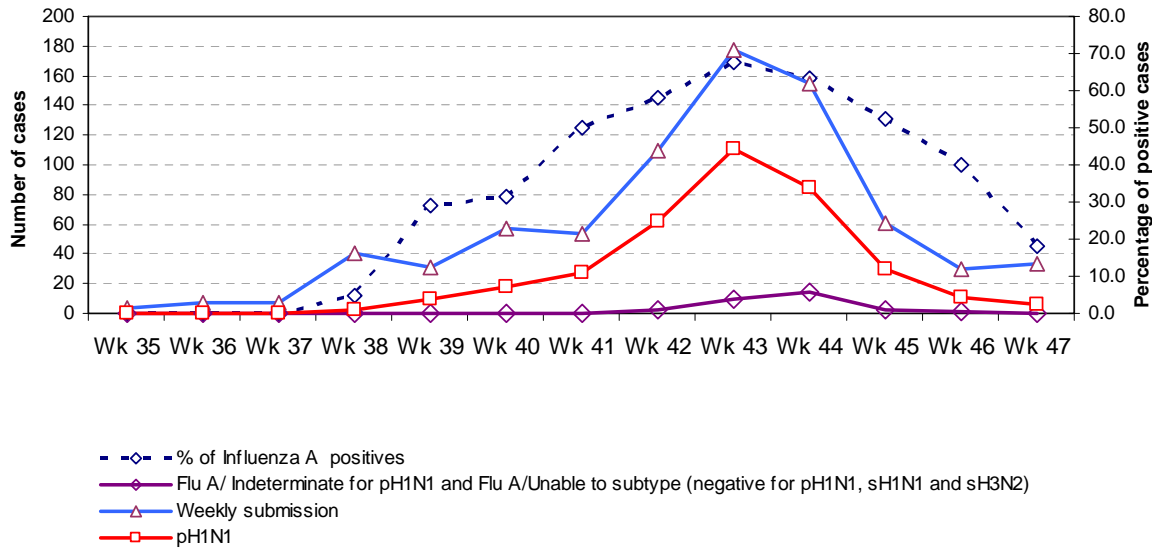


Figure 2 shows the distribution of age of influenza A positive patients (cases) and influenza A negative patients (controls). Influenza A remains more commonly detected in younger age groups, with the most cases detected in the interval age of 10-14 years. Seventy per cent of cumulative cases were between the ages 0-24 which is the same as the previous week. Influenza remains less commonly detected in older age groups. In samples tested from individuals 60 and over, the cumulative percentage of positive for Influenza A was 8/50 the same as during the previous week and all of them were positive for pH1N1.

Figure 2. Age distribution of VE patients tested for influenza by influenza subtype, September 1 - November 27, 2009.

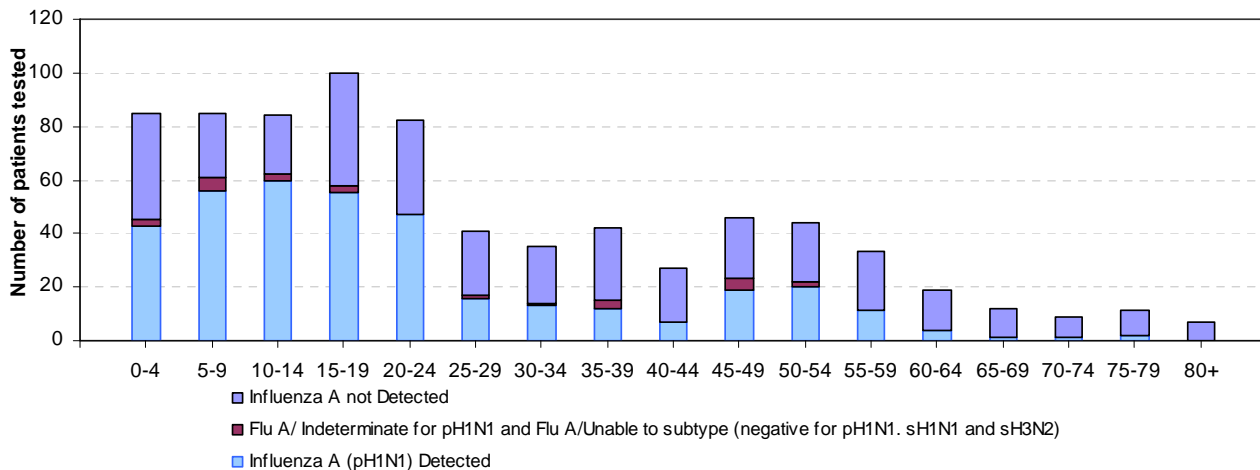


Table 1 shows the distribution of all detected circulating respiratory viruses in VE specimens during the week 47, using RT_PCR and Multiplex as testing methods. At least one respiratory virus was detected in 36.4 % of specimens tested (12/33). All Influenza A positive cases (6) resulted coinfecting with Respiratory Syncytial Virus type B (RSV B). RSV B alone was detected in 1 specimen (3%). Rhinovirus was detected in 6.1% of specimens and Parainfluenza 1 was detected in another 6.1% of specimens. Human Adenovirus was detected in one of the VE specimens during this week.

THE DETECTED VIRUSES	NUMBER OF SPECIMENS	PERCENTAGE OF SPECIMENS
FLU A/pH1N1-RSV B	6	18.2
FLU B	0	0.0
RSV B	1	3.0
RHINOVIRUS	2	6.1
HUMAN ADENOVIRUS	1	3.0
PARAINFLUENZA 1	2	6.1
TOTAL POSITIVE SPECIMENS	12	36.4
TOTAL SPECIMENS TESTED	33	100.0

Table 2 shows the geographical and age distribution of patients tested positive by RT_PCR and Multiplex methods during the week 47. Due to small sample size it is hard to observe any age or geographical trend. However, coinfections of Flu A by RSV B were more likely detected in Niagara Health Unit (4/6 cases) while two other coinfection cases were detected in London and Ottawa Health Units. RSV B virus alone was also detected in Niagara. Human Adenovirus was detected in Simcoe Muskoka Health Unit. The age distribution of positive patients for Parainfluenza 1 was in the age interval of 0-9 years. RSV B was broadly distributed in the age interval of 5-54 years. The case of Human adenovirus was detected in the age interval of 0-4 years.

Table 2 Geographical and age distribution of positive tested patients by RT_PCR and Multiplex methods, November 23 - November 27, 2009.

THE DETECTED VIRUSES	PATIENT_PHU	AGE CATEGORY
PARAINFLUENZA 1	KINGSTON FRONTENAC	5-9
FLU A/RSV B	LONDON	25-29
FLU A/RSV B		20-24
FLU A/RSV B		25-29
FLU A/RSV B		35-39
RSV B		45-49
FLU A/RSV B	NIAGARA	5-9
RHINOVIRUS		15-19
FLU A/RSV B	OTTAWA	50-54
PARAINFLUENZA 1	OXFORD	0-4
HUMAN ADENOVIRUS	SIMCOE MUSKOKA	0-4
RHINOVIRUS	WINDSOR	30-34