# Ontario Agency for Health Protection and Promotion: Laboratory Pandemic Influenza Surveillance Report

**Information current as of: Monday February 15, 2010**

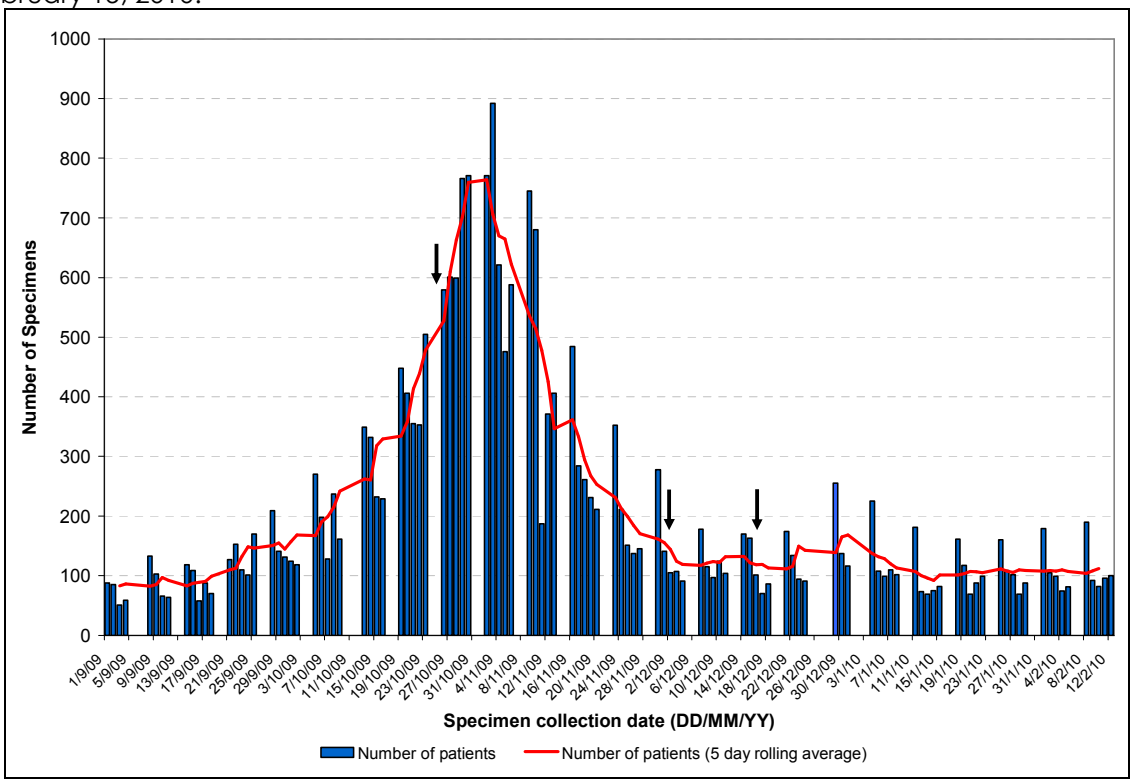
This report summarizes patient specimens (1 specimen/patient) collected and received at OAHPP Public Health Laboratories (PHL) in Ontario for influenza virus testing since September 1, 2009. This information is current as of Monday February 15, 2010 and is updated weekly. Note that influenza A positivity rates are only reported for influenza A tests performed at the OAHPP Public Health Laboratories.

Specimen collection date is used in this weekly report to classify the specimens submitted and tested by time. The PHL performs the majority of subtype testing; however, several hospital laboratories also perform subtyping. Therefore, 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.

**SUREVILLANCE SUMMARY**
Pandemic influenza (pH1N1) is virtually absent in Ontario with the last laboratory confirmed influenza A positive being identified on January 20, 2010. The predominant circulating respiratory virus is respiratory syncytial virus (RSV).

## Lab Submissions

**Figure 1.** The number of specimens received (1/patient) at PHL/OAHPP for pH1N1 testing by date, irrespective of testing status and includes rejected specimens. Specimen receipt dates: September 1, 2009- February 15, 2010.




**Source**: PHL, Ontario Agency for Health Protection and Promotion (OAHPP). ↓ **Modification to testing algorithm**

## Case statistics:

Between September 1 and February 15, 2010, a total of 20,167 patient specimens and isolates (1/patient) have been submitted for influenza testing and subtyping at the PHL and entered into the PHL electronic system. Of those, 19,494 specimens and isolates have been tested for influenza A at the PHL, of which 4,633 (23.8%) were positive for Influenza A; an additional 628 patient specimens that tested positive for influenza A at hospital laboratories were forwarded to the PHL for subtyping.

Please refer to **Appendix 1** for further information on lab testing algorithms and interpreting subtyping results.

## Resistance testing

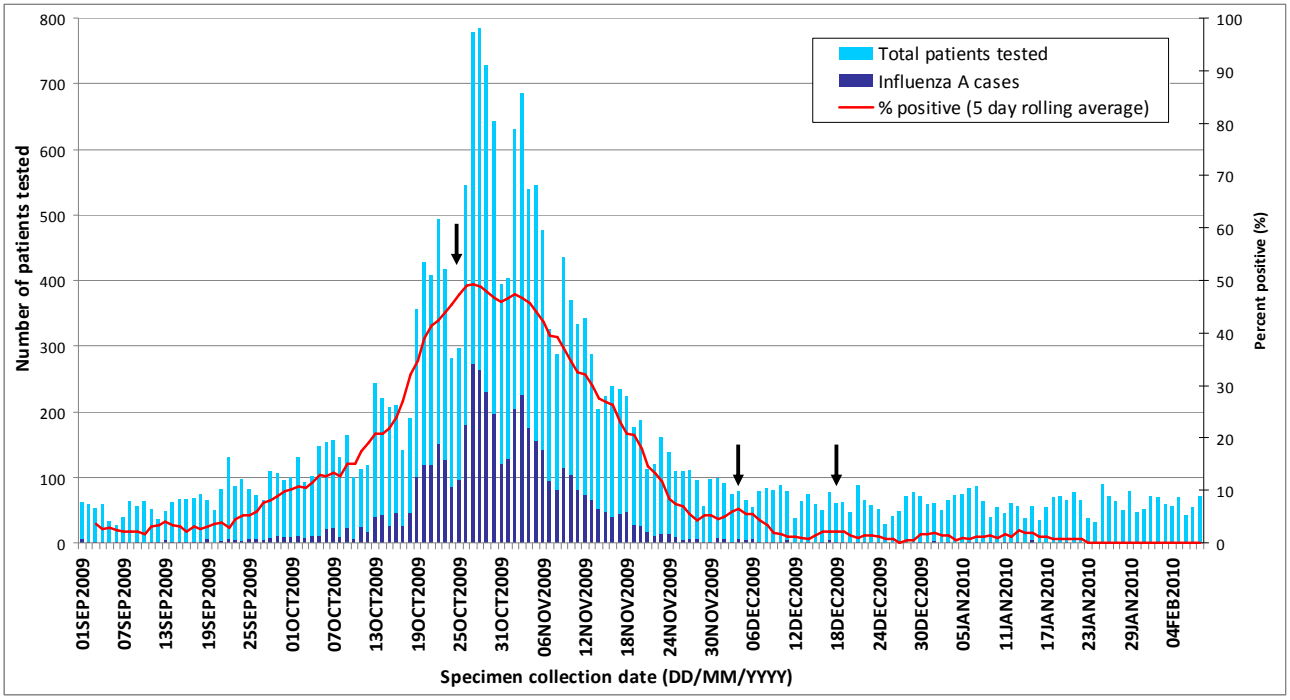
A proportion of isolates undergo oseltamivir susceptibility testing, specifically looking for a nucleotide mutation at position 275 for tyrosine (H275Y) in the neuraminidase gene, which confers resistance.

**Table 1:** Oseltamivir susceptibility testing results since September 1, 2009.

| Isolate tested | Total tested | Total Positive (%) | Total number of patients | Collection date of first resistant isolate |
|---|---|---|---|---|
| Influenza A | 760 | 15 (2.0) | 5 | 1 Week 30<br>1 Week 36<br>2 Week 45<br>1 Week 49 |

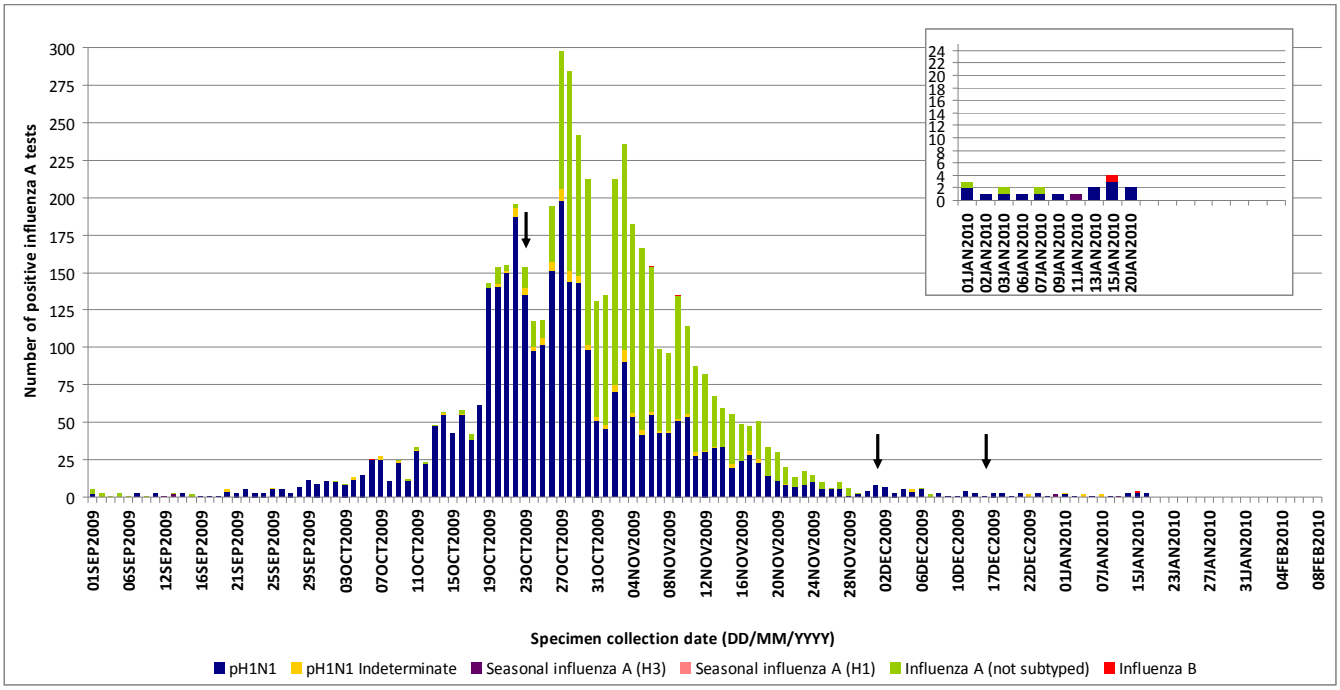
Source: PHL, Ontario Agency for Health Protection and Promotion (OAHPP)

**Figure 2.** Total number of influenza A tests conducted, the number of influenza A positive cases and the percent positive (5 day rolling average), by specimen collection date* September 1 – February 8, 2010**.




Source: PHL, Ontario Agency for Health Protection and Promotion (OAHPP).
***** For 958 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 Feb 8, 2010 ha s 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. ↓ **Modification to testing algorithm**

**Figure 3**. The number of positive influenza A test results by subtype (pH1N1, seasonal H1/H3, indeterminate pH1N1 Influenza A - not subtyped & influenza B), for specimen collection dates* September 1 – February 8, 2010**.




Source: PHL, Ontario Agency for Health Protection and Promotion (OAHPP).
* For 958 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 Feb 8, 2010 ha s 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. ↓ **Modification to testing algorithm**

**Table 1**: Respiratory viruses detected using RT-PCR and Multiplex methods among Vaccine Effectiveness (VE) Study specimens by geographic location, February 8 to February 12, 2010

| DETECTED VIRUSES | NUMBER OF SPECIMENS | PERCENTAGE OF SPECIMENS (%) | PATIENT PHU |
|---|---|---|---|
| FLU A | 0 | 0.0 | NA |
| FLU B | 0 | 0.0 | NA |
| RSV A | 2 | 28.6 | LONDON/LAMBTON |
| RSV B | 1 | 14.3 | OTTAWA |
| PARAINFLUENZA 1 | 1 | 14.3 | LONDON |
| **TOTAL POSITIVE SPECIMENS** | **4** | 57.1 | |
| **TOTAL SPECIMENS TESTED** | **7** | 100.0 | |

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

Additional information on the VE study can be found at http://www.oahpp.ca/vestudy/index.php

## Ontario Public Health Units

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.

**Table 2.** Number of influenza specimens submitted for testing, pH1N1 and influenza A cases, percent positive and submission rate and cumulative influenza A cases (/100,000) by PHU. Cumulative numbers from Sept. 1, 2009- Feb. 15, 2010 (Specimens collected: Feb 7 – 13, 2010 (**Week 6*****) are in displayed in brackets)

| 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 | Number of laboratory Influenza A tests completed | Percent positive (%) influenza A** | Cumulative influenza A cases rate (/100,000) |
|---|---|---|---|---|---|---|---|
| Algoma District | 375 (5) | 322.6 (4.3) | 50(0) | 98(0) | 375 (5) | 26.1 (0) | 322.6 |
| Brant County | 249 (11) | 199.0 (8.8) | 28 0) | 50(0) | 244 (7) | 20.5 (0) | 195.0 |
| Chatham-Kent | 171 (4) | 157.5 (3.7) | 33(0) | 51(0) | 167 (4) | 30.5 (0) | 153.8 |
| City of Hamilton | 486 (2) | 96.3 (0.4) | 265(0) | 121(0) | 313 (2) | 38.7 (0) | 62.0 |
| City of Ottawa | 95 (0) | 11.7 (0) | 18(0) | 27(0) | 95 (0) | 28.4 (N/A) | 11.7 |
| City of Toronto | 3,790 (42) | 151.4 (1.7) | 368(0) | 652(0) | 3,750 (40) | 17.4 (0) | 149.8 |
| Durham Regional | 606 (7) | 108.0 (1.2) | 122(0) | 154(0) | 572 (7) | 26.9 90) | 101.9 |
| Eastern Ontario | 362 (5) | 189.9 (2.6) | 99 0) | 118(0) | 355 (3) | 33.2 (0) | 186.3 |
| Elgin-St. Thomas | 133 (4) | 155.8(4.7) | 19(0) | 40(0) | 131(3) | 30.5 (0) | 153.5 |
| Grey Bruce | 452 (14) | 286.5 (8.9) | 35(0) | 112(0) | 448 (11) | 25.0 (0) | 284.0 |
| Haldimand-Norfolk | 149 (2) | 138.3 (1.9) | 36(0) | 50(0) | 142 (1) | 35.2 (0) | 131.8 |
| Haliburton-Kawartha-Pine Ridge District | 278 (5) | 161.9 (2.9) | 43(0) | 54(0) | 268 (5) | 20.1 (0) | 156.1 |
| Halton Regional | 703 (2) | 160.0 (0.5) | 138(0) | 146(0) | 654 (1) | 22.3 (0) | 148.9 |
| Hastings & Prince Edward Counties | 385 (3) | 246.8 (1.9) | 91(0) | 78(0) | 352(3) | 22.2(0) | 225.7 |
| Huron County | 144(3) | 242.7 (5.1) | 24(0) | 48(0) | 142 (2) | 33.8 (0) | 239.4 |
| Kingston-Frontenac and Lennox & Addington | 488 (6) | 264.6 (3.3) | 132(0) | 128(0) | 467(5) | 27.4 (0) | 253.2 |
| Lambton | 213 (15) | 166.1 (11.7) | 35(0) | 53(0) | 210(12) | 25.2 | 163.8 |
| Leeds-Grenville and Lanark District | 204 (1) | 125.2(0.6) | 49(0) | 63(0) | 199(1) | 31.7(0) | 122.1 |
| Middlesex-London | 289(1) | 68.4(0.2) | 145(0) | 103(0) | 229(0) | 45.0(N/A) | 54.2 |
| Niagara Regional Area | 706(6) | 165.2 (1.4) | 128(0) | 199(0) | 687(6) | 29.0 (0) | 160.7 |
| North Bay Parry Sound District | 306(5) | 249.1(4.1) | 46 (0) | 77 (0) | 302(4) | 25.5 (0) | 245.8 |
| Northwestern | 350(1) | 434.6(1.2) | 70(0) | 126(0) | 348(0) | 36.2(N/A) | 432.1 |
| Oxford County | 153(1) | 148.9(1.0) | 29(0) | 48(0) | 153(1) | 31.4(0) | 148.9 |
| Peel Regional | 2,791(47) | 240.7(4.1) | 251(0) | 428(0) | 2,754(47) | 15.5(0) | 237.5 |
| Perth District | 221(15) | 297.3(20.2) | 30(0) | 43(0) | 212(7) | 20.3(0) | 285.2 |
| Peterborough County-City | 249(4) | 187.1(3.0) | 45(0) | 73(0) | 246(4) | 29.7(0) | 184.9 |
| Porcupine | 547(6) | 650.0(7.1) | 179(0) | 234(0) | 547(6) | 42.8(0) | 650.0 |

| 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 | Number of laboratory Influenza A tests completed | Percent positive (%) influenza A** | Cumulative influenza A cases rate (/100,000) |
|---|---|---|---|---|---|---|---|
| Renfrew County & District | 84(1) | 84.5(1.0) | 15(0) | 26(0) | 82(1) | 31.7(0) | 82.5 |
| Simcoe Muskoka District | 1,445(23) | 301.2(4.8) | 147(0) | 240(0) | 1,378(22) | 17.4(0) | 287.2 |
| Sudbury & District | 381(5) | 198.0(2.6) | 56(0) | 124(0) | 380(4) | 32.6(0) | 197.5 |
| Thunder Bay District | 486(7) | 315.4(4.5) | 86(0) | 153(0) | 483(5) | 31.7(0) | 313.5 |
| Timiskaming | 106(1) | 309.8(2.9) | 34(0) | 43(0) | 105(1) | 41.0(0) | 306.9 |
| Waterloo | 483(10) | 101.0(2.1) | 77(0) | 126(0) | 475(10) | 26.5(0) | 99.3 |
| Wellington-Dufferin-Guelph | 440(13) | 172.6(5.1) | 43(0) | 84(0) | 435(12) | 19.3(0) | 170.7 |
| Windsor-Essex County | 510(4) | 129.6(1.0) | 116(0) | 172(0) | 472(4) | 36.4(0) | 120.0 |
| York Regional | 1,259(28) | 141.0(3.1) | 133(0) | 267(0) | 1,244(26) | 21.5(0) | 139.4 |
| Out of Province/Not Available | 78 (0) | N/A | 17(0) | 24(0) | 78(0) | 30.8(N/A) | N/A |
| Grand Total | 20,167(309) | 165.8 (2.5) | 3,232(0) | 4,633(0) | 19,494(272) | 23.8(0) | 160.3 |

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

*** 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.

**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.

## Appendix 1

**Changes to Testing Algorithm:**

| Date | Change |
|---|---|
| December 17, 2009 | Viral culture testing was increased to all ambulatory samples and a minimum of 20% of influenza A negative RT-PCR tests. Viral culture testing increases as resources allowed. |
| December 2, 2009 | Subtyping was increased as resources allow. |
| November 9-12, 2009 | Only 20% of ambulatory (community) viral culture requests were being processed. |
| October 25-31, 2009 | Subtyping was performed on all intensive care samples, outbreak samples and on 20% of all additional influenza A positive tests. |

For additional details on modifications to the testing algorithm, please view the November Labstract at www.oahpp.ca/resources/labstracts.html

**Interpretation of subtyping results:**

- **Indeterminate:** a RT-PCR test 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 it is not known if this is a true positive result, or nonspecific activity giving a false positive response.
- **Untypeable**: occurs when an influenza A is detected, but the sample does not match any of the subtypes that can be tested for (e.g. pH1N1, seasonal H3N2, H1N1).
- **Unable to subtype**: occurs when an influenza A positive sample has a very low amount of virus and the subtype cannot be detected.

This report and past versions are available on our website and can be viewed at anytime at http://oahpp.ca/h1n1