Ontario

# Ontario Influenza Bulletin 2010-2011 Season

Ministry of Health & Long-Term Care
Public Health Division

## SURVEILLANCE WEEK 2 (January 9, 2011– January 15, 2011)

This issue of the Ontario Influenza Bulletin provides information on the surveillance period from January 9, 2010 to January 15, 2011 (Week 2). **All data are for week 2** and data extraction and analysis for this issue of the Bulletin occurred on January 19, 2011 unless otherwise specified.

In order to enable our readers to better assess influenza activity in Ontario, we have combined various sources of information in the following table.

### Assessment of Influenza Activity in Ontario

| Measure | Assessment of measure compared to previous week (Lower, Similar, Higher) | Reasoning behind assessment |
|---|---|---|
| Laboratory Confirmed Cases | Lower | Six hundred and sixty seven influenza cases were reported* in week 2, which is lower than week 1 (740 influenza cases). The percent positivity of laboratory tests for influenza A in Ontario was 28.0% for week 2. This is lower than week 1 (32.6%) (Figure 6). Other respiratory viruses continue to circulate in Ontario (Table 5). |
| Influenza Outbreaks | Lower | 8 new institutional influenza A outbreaks were reported for the current reporting weeks from Toronto (4), Central West (1), South West (2), and Central East (1) health regions. |
| Influenza Activity Levels Reported by Health Units | Slightly Higher | Toronto reported 'widespread' level influenza activity. Central East, Central West, Eastern, South West and North East regions reported 'localized' level influenza activity; the North West region reported sporadic activity for week 2.<br><br>By health unit, seven reported widespread activity, 16 reported localized activity and the remainder reported sporadic activity, no activity or did not report for week 2 (Figure 9). |
| ILI Consultation Rate reported by Sentinel Physicians | Lower | The overall ILI consultation rate has decreased from 51.68/1,000 patient visits in Week 1 to 43.89/1,000 patient visits in Week 2. The ILI rate is higher than the average rate for week 2 from previous years. |
| Hospitalizations Among Lab Confirmed Cases of Influenza | Higher | There were 302 hospitalized cases reported* from January 9 to January 15, which is higher than the 113 that were reported from January 2 to January 8. |
| Deaths Among Lab Confirmed Cases of Influenza | Higher | Twenty-three deaths were reported* from January 9 to January 15, which is more than the 12 that were reported from January 2 to January 8. |
| OVERALL ASSESSMENT | Influenza activity in Ontario was *lower* compared to the previous week. | Overall, the indicators show that influenza activity was *lower* during week 2 compared to week 1. |

*The number of **reported** cases needs to be interpreted with caution because there is a lag between the onset of illness, hospital admission or death and when this information is reported to public health.

Produced by: Surveillance Section, Public Health Protection and Prevention Branch

Overall, influenza activity in Ontario during week 2, 2010, was lower when compared to week 1, 2010. Ontario health units reported 667 new confirmed cases of influenza A for the current week through the integrated Public Health Information System (iPHIS). A total of 384 institutional respiratory infection outbreaks have been reported in the 2010/11 season up to Week 2, including 8 new influenza A outbreaks from Toronto (4), Central West (1), South West (2), and Central East (1) health regions. For week 2, Toronto reported widespread influenza activity; Central East, Central West, Eastern, South West and North East health regions reported 'localized' level influenza activity; and the North West health region reported sporadic activity. The ILI rate is higher than the average rate for week 2 from previous years.

For a definition of ILI activity levels and links to websites providing current influenza information from other sources, please refer to the attached Appendix- I. If you would like to provide feedback on the Bulletin, please contact Christine D'Souza (christine.dsouza1@ontario.ca, 416-212-5323) or Michael Whelan (michael.whelan@ontario.ca, 416-327-9174).

**Table 1:** Summary of confirmed influenza cases and institutional influenza outbreaks by health region (Week 2, 2010-2011)

| **Confirmed influenza cases*†** | **HEALTH REGION** | | | | | | | **TOTAL** |
|---|---|---|---|---|---|---|---|---|
| | North West | North East | Eastern | Central East | Toronto | South West | Central West | |
| Pandemic (H1N1) 2009 | 0 | 0 | 0 | 11 | 12 | 0 | 2 | **25** |
| Influenza A (Not Subtyped/No Subtype) | 2 | 5 | 9 | 77 | 94 | 45 | 104 | **336** |
| Influenza A (Seasonal H1) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| Influenza A (Seasonal H3) | 3 | 8 | 21 | 102 | 80 | 14 | 58 | **286** |
| Influenza A** (Other) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| Influenza B | 1 | 0 | 0 | 7 | 8 | 0 | 2 | **18** |
| Influenza A & B | 0 | 0 | 0 | 0 | 2 | 0 | 0 | **2** |
| ***Total new cases*** | **6** | **13** | **30** | **197** | **196** | **59** | **166** | **667** |
| **Institutional outbreaks of Influenza A‡** | **0** | **0** | **0** | **1** | **4** | **2** | **1** | **8** |
| **Institutional outbreaks of Influenza B‡** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |

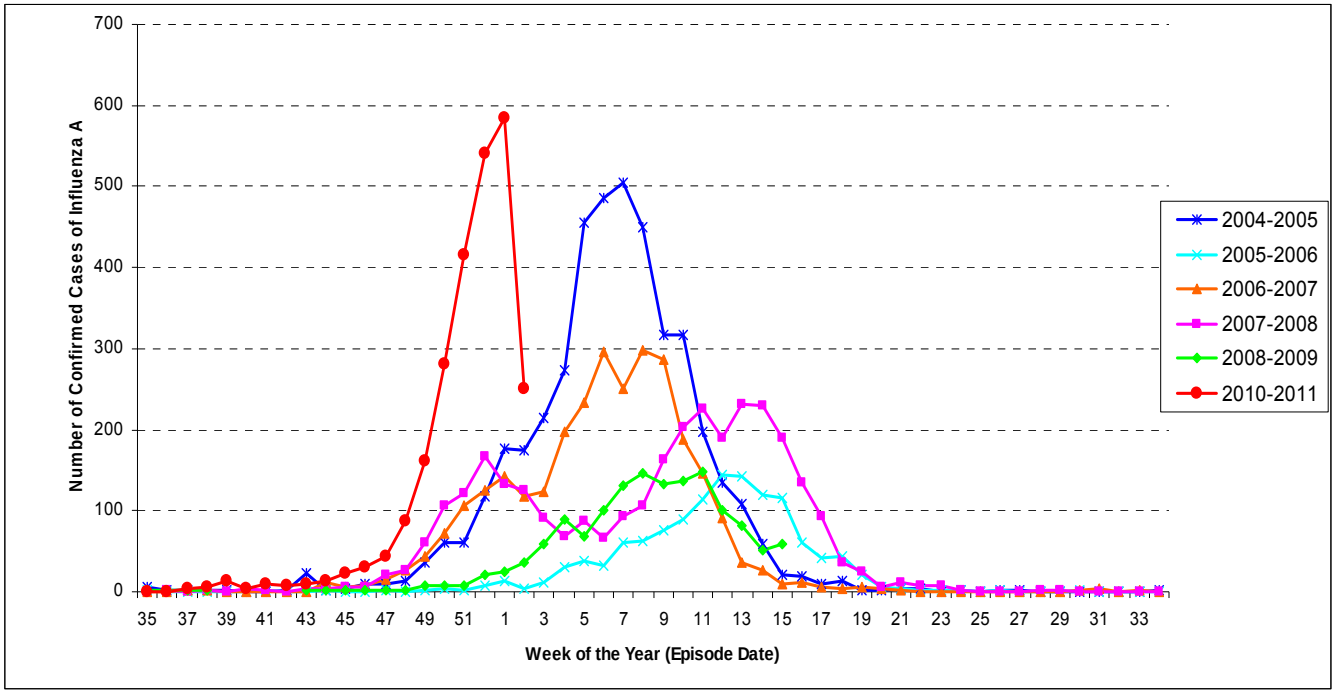
**SOURCE:** Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [20/01/2011].

* Includes reports of confirmed influenza through iPHIS, as well as cases in institutional outbreaks, with dates of onset for the first case in the surveillance period.

‡ Confirmed outbreaks in institutions with onset date of symptoms during the surveillance period.

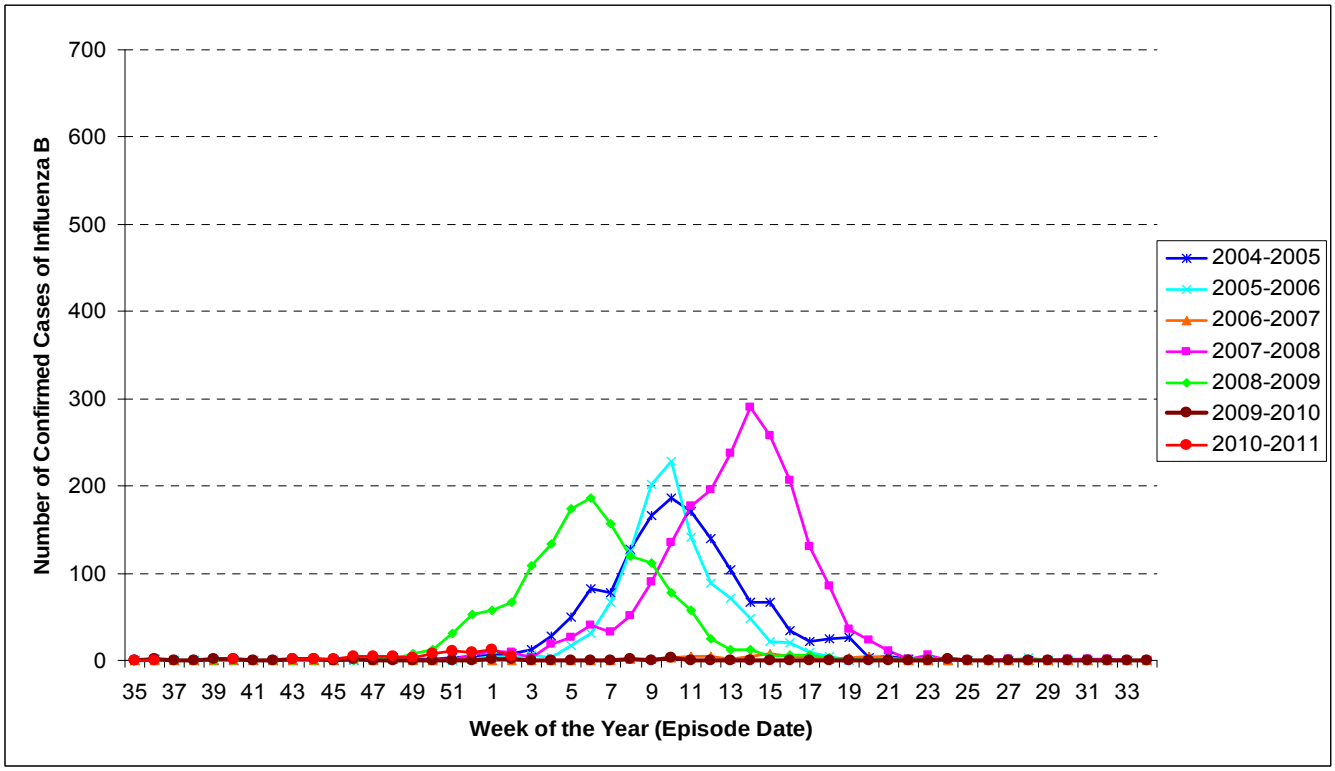
** Includes indeterminate, untypeable and other subtypes. Note: Several influenza A cases have been reported as seasonal H1N1; however, these cases have been classified as 'No subtype/not subtyped' in this table until the subtype has been verified.

**Figure 1:** Incidence of confirmed cases of influenza A in Ontario reported from Sep. 1, 2004 to Jan. 15, 2010†



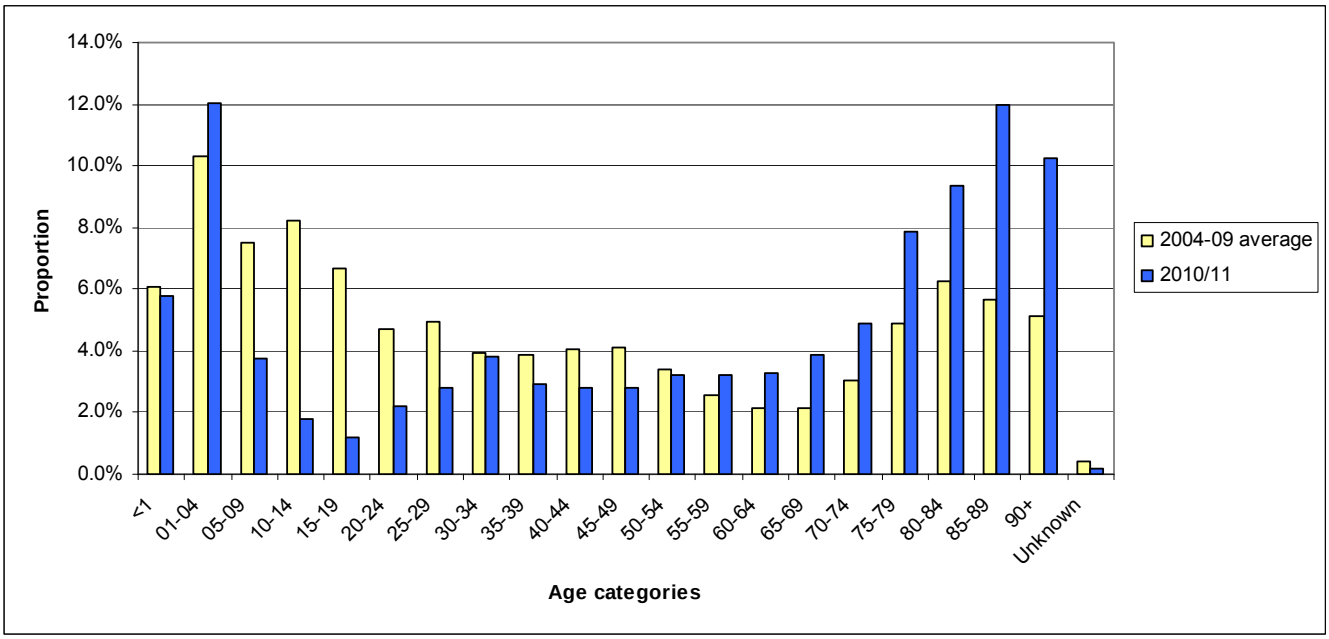

**SOURCE:** Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [20/01/2011].
† Episode Date for a case corresponds to the earliest date on record for the case according to the iPHIS hierarchy (Symptom Date > Clinical Diagnosis Date > Specimen Collection Date > Lab Test Date > Reported Date)
Note: Cases after week 14 in the 2008-09 season were excluded because seasonal influenza cases from this period may have been detected due to heightened surveillance for all influenza-like illness, therefore this period is not comparable to a regular flu season. Additionally, all cases from the 2009-10 influenza season were excluded from this graph due to its incomparability to a regular flu season as a result of the pH1N1 pandemic.
Note: Week 53 of the 2008-09 season has been removed for continuity in displaying trends.
Note: Interpret tail of 2010-2011 line with caution due to reporting lags.

**Figure 2:** Incidence of confirmed cases of influenza B in Ontario reported from Sep. 1, 2004 to Jan. 15, 2010†



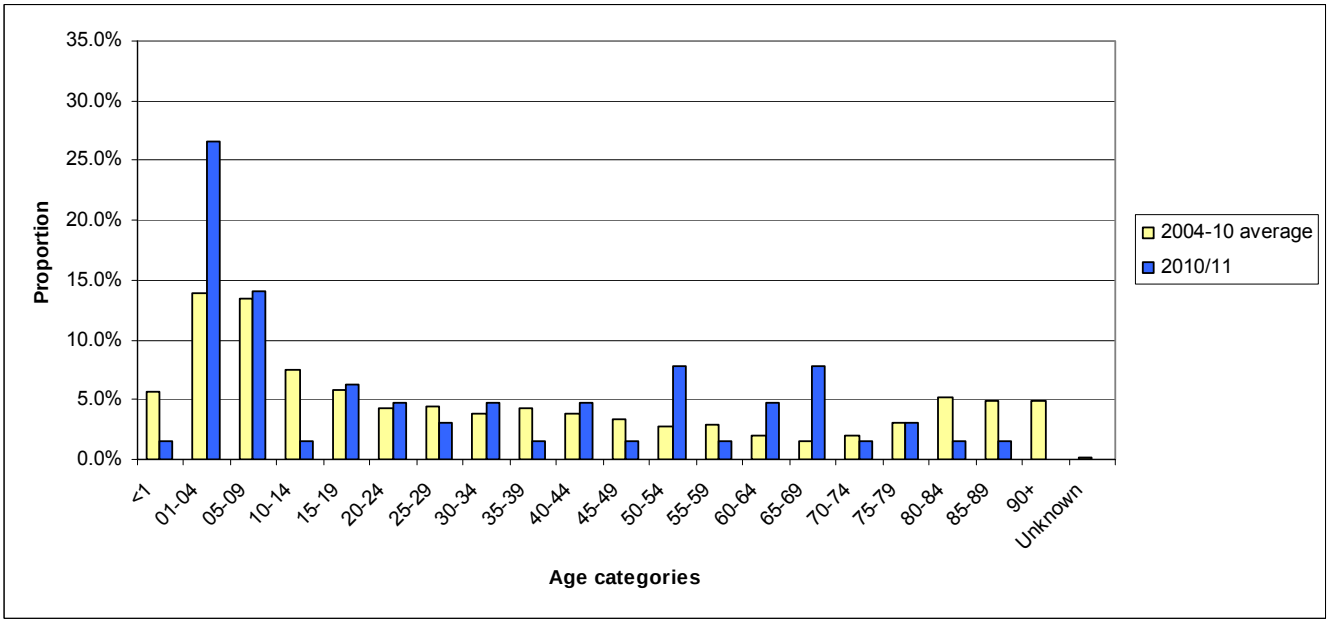

**SOURCE:** Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [20/01/2011].
† Episode Date for a case corresponds to the earliest date on record for the case according to the iPHIS hierarchy (Symptom Date > Clinical Diagnosis Date > Specimen Collection Date > Lab Test Date > Reported Date)
Note: Week 53 of the 2008-09 season has been removed for continuity in displaying trends.
Note: Interpret tail of 2010-2011 line with caution due to reporting lags.

**Figure 3.** Proportion of influenza A cases in Ontario by age group, Sep. 1, 2004 to Jan. 15, 2010




**SOURCE:** Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [20/01/2011].
Note: The 2009-10 influenza season has been excluded since the majority were pandemic H1N1 cases. These counts were excluded for comparability of seasonal influenza between the seasons.

**Figure 4.** Proportion of influenza B cases in Ontario by age group, Sep. 1, 2004 to Jan. 15, 2010




**SOURCE:** Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [20/01/2011].

**Table 2:** Confirmed cases of influenza by health unit & health region with a reported date during Week 2, 2010-2011

| Region | Health Unit | Influenza A | | | | | Influenza A & B | Influenza B | TOTAL |
|---|---|---|---|---|---|---|---|---|---|
| | | pH1N1 | No Subtype/ Not Subtyped | Other* | H1 | H3 | | | |
| North West | Northwestern | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 4 |
| | Thunder Bay District | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| | **TOTAL NORTH WEST** | **0** | **2** | **0** | **0** | **3** | **0** | **1** | **6** |
| North East | Algoma | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| | North Bay Parry Sound District | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 4 |
| | Porcupine | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 4 |
| | Sudbury & District | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 4 |
| | Timiskaming | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | **TOTAL NORTH EAST** | **0** | **5** | **0** | **0** | **8** | **0** | **0** | **13** |
| Eastern | City of Ottawa | 0 | 5 | 0 | 0 | 1 | 0 | 0 | 6 |
| | Eastern Ontario | 0 | 2 | 0 | 0 | 5 | 0 | 0 | 7 |
| | Hastings & Prince Edward Counties | 0 | 2 | 0 | 0 | 12 | 0 | 0 | 14 |
| | Kingston, Frontenac, Lennox & Addington | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 |
| | Leeds, Grenville And Lanark District | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| | Renfrew County And District | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | **TOTAL EASTERN** | **0** | **9** | **0** | **0** | **21** | **0** | **0** | **30** |
| Central East | Durham Region | 1 | 9 | 0 | 0 | 20 | 0 | 0 | 30 |
| | Haliburton, Kawartha, Pine Ridge | 0 | 3 | 0 | 0 | 10 | 0 | 0 | 13 |
| | Peel Region | 5 | 31 | 0 | 0 | 25 | 0 | 4 | 65 |
| | Peterborough County-City | 0 | 3 | 0 | 0 | 4 | 0 | 1 | 8 |
| | Simcoe Muskoka District | 3 | 14 | 0 | 0 | 19 | 0 | 1 | 37 |
| | York Region | 2 | 17 | 0 | 0 | 24 | 0 | 1 | 44 |
| | **TOTAL CENTRAL EAST** | **11** | **77** | **0** | **0** | **102** | **0** | **7** | **197** |
| Toronto | Toronto | 12 | 94 | 0 | 0 | 80 | 2 | 8 | 196 |
| | **TOTAL TORONTO** | **12** | **94** | **0** | **0** | **80** | **2** | **8** | **196** |
| South West | Chatham-Kent | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| | Elgin-St. Thomas | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 3 |
| | Grey Bruce | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 6 |
| | Huron County | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 5 |
| | Lambton County | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Middlesex-London | 0 | 23 | 0 | 0 | 1 | 0 | 0 | 24 |
| | Oxford County | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 5 |
| | Perth District | 0 | 2 | 0 | 0 | 7 | 0 | 0 | 9 |
| | Windsor-Essex County | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 5 |
| | **TOTAL SOUTHWEST** | **0** | **45** | **0** | **0** | **14** | **0** | **0** | **59** |
| Central West | Brant County | 0 | 2 | 0 | 0 | 8 | 0 | 0 | 10 |
| | City Of Hamilton | 0 | 45 | 0 | 0 | 7 | 0 | 2 | 54 |
| | Haldimand-Norfolk | 0 | 2 | 0 | 0 | 6 | 0 | 0 | 8 |
| | Halton Region | 2 | 8 | 0 | 0 | 15 | 0 | 0 | 25 |
| | Niagara Region | 0 | 6 | 0 | 0 | 1 | 0 | 0 | 7 |
| | Waterloo Region | 0 | 39 | 0 | 0 | 6 | 0 | 0 | 45 |
| | Wellington-Dufferin-Guelph | 0 | 2 | 0 | 0 | 15 | 0 | 0 | 17 |
| | **TOTAL CENTRAL WEST** | **2** | **104** | **0** | **0** | **58** | **0** | **2** | **166** |
| | ***TOTAL ONTARIO*** | **25** | **336** | **0** | **0** | **286** | **2** | **18** | **667** |

**SOURCE:** Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [20/01/2011]
*includes indeterminate, untypeable and other subtypes
Note: Several influenza A cases have been reported as seasonal H1N1; however, these cases have been classified as 'No subtype/not subtyped' in this table until the subtype has been verified

**Table 3:** Cumulative† confirmed cases of influenza by health unit & health region with a reported date between September 1, 2010 – January 15, 2011

| Region | Health Unit | Influenza A | | | | | Influenza A & B | Influenza B | TOTAL Cumulative |
|---|---|---|---|---|---|---|---|---|---|
| | | pH1N1 | No Subtype/ Not Subtyped | Other* | H1 | H3 | | | |
| North West | Northwestern | 0 | 5 | 0 | 0 | 11 | 0 | 1 | 17 |
| | Thunder Bay District | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 3 |
| | **TOTAL NORTH WEST** | **0** | **7** | **0** | **0** | **11** | **0** | **2** | **20** |
| North East | Algoma | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 |
| | North Bay Parry Sound District | 0 | 13 | 0 | 0 | 7 | 0 | 0 | 20 |
| | Porcupine | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 6 |
| | Sudbury & District | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 4 |
| | Timiskaming | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| | **TOTAL NORTH EAST** | **0** | **16** | **0** | **0** | **17** | **0** | **0** | **33** |
| Eastern | City of Ottawa | 0 | 17 | 0 | 0 | 5 | 0 | 1 | 23 |
| | Eastern Ontario | 0 | 3 | 1 | 0 | 10 | 0 | 0 | 14 |
| | Hastings & Prince Edward Counties | 0 | 2 | 0 | 0 | 20 | 0 | 1 | 23 |
| | Kingston, Frontenac, Lennox & Addington | 0 | 1 | 0 | 0 | 10 | 0 | 0 | 11 |
| | Leeds, Grenville And Lanark District | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 2 |
| | Renfrew County And District | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 3 |
| | **TOTAL EASTERN** | **0** | **26** | **1** | **0** | **47** | **0** | **2** | **76** |
| Central East | Durham Region | 8 | 19 | 0 | 0 | 59 | 0 | 6 | 92 |
| | Haliburton, Kawartha, Pine Ridge | 2 | 7 | 0 | 0 | 32 | 0 | 0 | 41 |
| | Peel Region | 10 | 118 | 0 | 0 | 150 | 0 | 11 | 289 |
| | Peterborough County-City | 0 | 14 | 1 | 0 | 8 | 0 | 1 | 24 |
| | Simcoe Muskoka District | 13 | 23 | 0 | 0 | 71 | 0 | 1 | 108 |
| | York Region | 7 | 58 | 1 | 0 | 98 | 0 | 5 | 169 |
| | **TOTAL CENTRAL EAST** | **40** | **239** | **2** | **0** | **418** | **0** | **24** | **723** |
| Toronto | Toronto | 40 | 301 | 4 | 0 | 566 | 2 | 23 | 936 |
| | **TOTAL TORONTO** | **40** | **301** | **4** | **0** | **566** | **2** | **23** | **936** |
| South West | Chatham-Kent | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 3 |
| | Elgin-St. Thomas | 0 | 7 | 0 | 0 | 5 | 0 | 0 | 12 |
| | Grey Bruce | 0 | 5 | 0 | 0 | 6 | 0 | 0 | 11 |
| | Huron County | 0 | 8 | 0 | 0 | 15 | 0 | 0 | 23 |
| | Lambton County | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 2 |
| | Middlesex-London | 1 | 52 | 0 | 0 | 11 | 0 | 1 | 65 |
| | Oxford County | 0 | 10 | 0 | 0 | 16 | 0 | 0 | 26 |
| | Perth District | 0 | 8 | 0 | 0 | 31 | 0 | 0 | 39 |
| | Windsor-Essex County | 0 | 7 | 0 | 0 | 0 | 0 | 1 | 8 |
| | **TOTAL SOUTHWEST** | **1** | **101** | **0** | **0** | **85** | **0** | **2** | **189** |
| Central West | Brant County | 1 | 7 | 0 | 0 | 10 | 0 | 0 | 18 |
| | City Of Hamilton | 0 | 178 | 0 | 0 | 36 | 0 | 3 | 217 |
| | Haldimand-Norfolk | 0 | 5 | 1 | 0 | 8 | 0 | 0 | 14 |
| | Halton Region | 3 | 25 | 1 | 0 | 69 | 0 | 5 | 103 |
| | Niagara Region | 0 | 16 | 0 | 0 | 18 | 0 | 1 | 35 |
| | Waterloo Region | 0 | 94 | 4 | 0 | 35 | 0 | 2 | 135 |
| | Wellington-Dufferin-Guelph | 4 | 12 | 0 | 0 | 35 | 0 | 0 | 51 |
| | **TOTAL CENTRAL WEST** | **8** | **337** | **6** | **0** | **211** | **0** | **11** | **573** |
| | ***TOTAL ONTARIO*** | **89** | **1027** | **13** | **0** | **1355** | **2** | **64** | **2550** |

**SOURCE:** Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [20/01/2011].

†Cumulative case counts include late reports and records that are otherwise reconciled. Therefore, cumulative counts may not equal new cases plus previous cumulative value.

*includes indeterminate, untypeable and other subtypes

Note: Several influenza A cases have been reported as seasonal H1N1; however, these cases have been classified as 'No subtype/not subtyped' in this table until the subtype has been verified

## Hospitalizations and deaths among laboratory confirmed influenza cases, Sep. 1, 2010 – Jan. 15, 2011

As of January 15, 2011, 655 hospitalizations and 45 deaths have been reported among lab confirmed influenza cases reported in Ontario for the 2010-2011 season. Most of the hospitalizations and all of the deaths have occurred in influenza A cases. The highest rates of hospitalization have been observed in people under the age of five and 65 years of age and older.

**Table 4a.** Incidence of hospitalizations among lab confirmed influenza cases in Ontario, Sep. 1, 2010 – Jan. 15, 2011

| | Influenza A | | Influenza B | | Total Influenza | |
|---|---|---|---|---|---|---|
| **Age Group** | **Number*** | **Rate/100,000** | **Number** | **Rate/100,000** | **Number*** | **Rate/100,000** |
| <1 | 42 | 30.79 | 0 | 0.00 | 42 | 30.79 |
| 1-4 | 74 | 13.42 | 4 | 0.73 | 78 | 14.15 |
| 5-14 | 28 | 1.85 | 1 | 0.07 | 29 | 1.92 |
| 15-24 | 10 | 0.56 | 0 | 0.00 | 10 | 0.56 |
| 25-44 | 45 | 1.21 | 3 | 0.08 | 48 | 1.29 |
| 45-64 | 76 | 2.07 | 1 | 0.03 | 77 | 2.10 |
| 65+ | 366 | 20.18 | 3 | 0.17 | 369 | 20.34 |
| **TOTAL** | **641** | **4.86** | **12** | **0.09** | **653** | **4.95** |

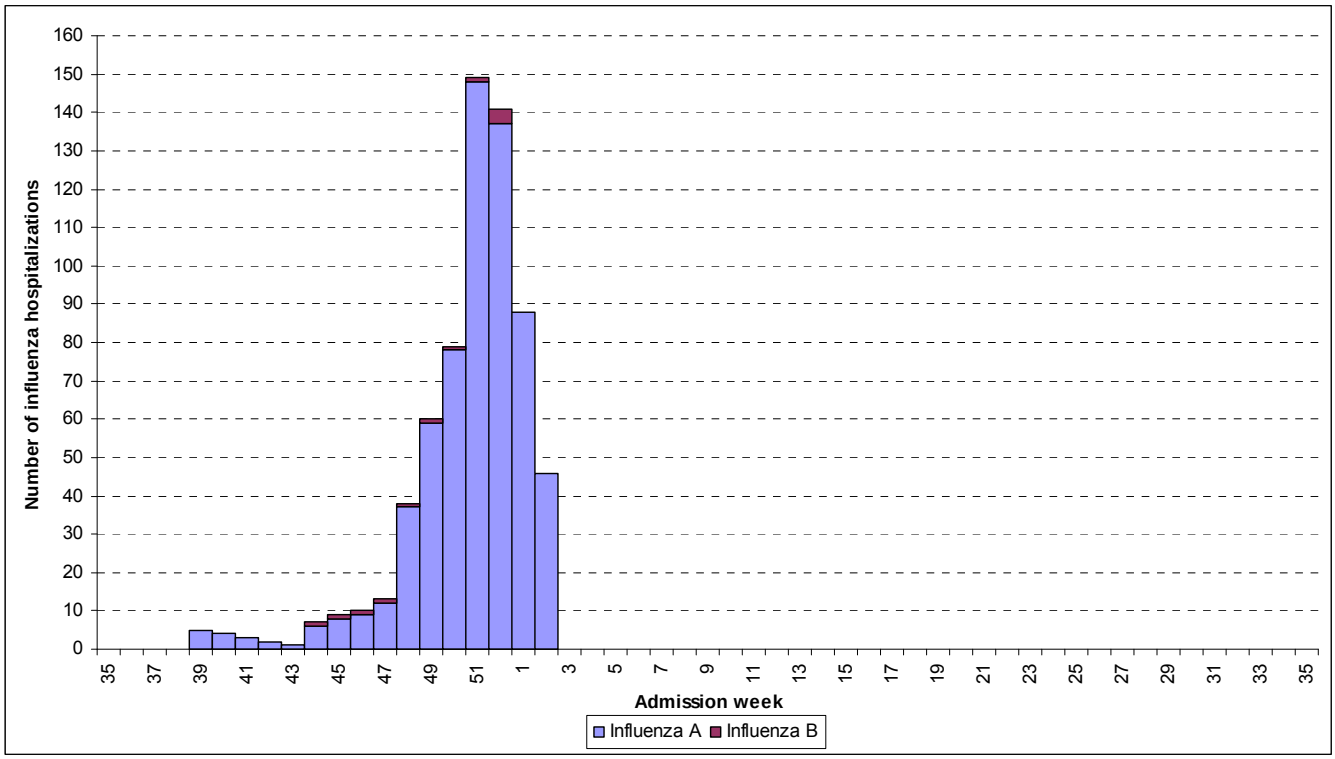
**Source (incidence):** Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted at 8:30 am [20/01/2011]
**Source (incidence):** Ontario population projections for 2010: Ontario Ministry of Health and Long-Term Care, Public Health Planning Database (PHPDB), extracted [30/11/2010]
***** Two hospitalizations with unknown age were excluded

**Table 4b.** Incidence of deaths among lab confirmed influenza cases in Ontario, Sep. 1, 2010 – Jan. 15, 2011

| | Influenza A | | Influenza B | | Total Influenza | |
|---|---|---|---|---|---|---|
| **Age Group** | **Number** | **Rate/100,000** | **Number** | **Rate/100,000** | **Number** | **Rate/100,000** |
| <1 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| 1-4 | 1 | 0.18 | 0 | 0.00 | 1 | 0.18 |
| 5-14 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| 15-24 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| 25-44 | 2 | 0.05 | 0 | 0.00 | 2 | 0.05 |
| 45-64 | 9 | 0.25 | 0 | 0.00 | 9 | 0.25 |
| 65+ | 33 | 1.82 | 0 | 0.00 | 33 | 1.82 |
| **TOTAL** | 45 | 0.34 | 0 | 0.00 | 45 | 0.34 |

**Source (incidence):** Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted at 8:30 am [20/01/2011]
**Source (incidence):** Ontario population projections for 2010: Ontario Ministry of Health and Long-Term Care, Public Health Planning Database (PHPDB), extracted [30/11/2010]

**Figure 5:** Hospitalized influenza cases by type and admission week in Ontario, Sep. 1, 2010 – Jan 15, 2011




**Source:** Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted at 8:30 am [20/01/2011]
**Note: I**nterpret tail with caution due to reporting lags

**Influenza Subtype(s) *:**
During week 2, a total of 7134 results of isolate testing were received by the Public Health Agency of Canada, 1619 isolates tested positive for influenza A and 29 isolates tested positive for influenza B. Of the reported influenza A isolates, 849 isolates were from Ontario (52.4%), 644 isolates were from Quebec (39.8%), 57 isolates were from Alberta (3.5%), and 30 isolates were from Manitoba (1.9%). Fourteen of the reported influenza B isolates were from Ontario (48.3%), seven were from Quebec (24.1%), five were from British Columbia (17.2%) and two were from Alberta (6.9%).

**Antigenic Characterization (National)[†]:**
Since September 1, 2010, the National Microbiology Laboratory (NML) has antigenically characterized 136 influenza viruses (93 H3N2, 21 H1N1 and 22 B viruses) that were received from Canadian laboratories.

**Influenza A (H3N2):**
The 93 influenza A (H3N2) viruses characterized were related to A/Perth/16/2009-like, which is the influenza A/H3N2 component recommended for the 2010-11 influenza vaccine.

**Influenza A (H1N1):**
The 21 influenza A (H1N1) viruses characterized were antigenically related to the pandemic vaccine virus A/California/7/2009, which is the recommended H1N1 component for the 2010-11 influenza vaccine.

**Influenza B:**
A total of 21/22 influenza B viruses characterized were antigenically related to B/Brisbane/60/08 (Victoria lineage), which is the recommended influenza B component for the 2010-11 influenza vaccine. One influenza B virus was antigenically related to B/Florida/04/2006-like, which belongs to the B/Yamagata lineage and was the recommended influenza B component for the 2008/2009 influenza vaccine.

**Antigenic Characterization (Provincial)[†]:**
Since September 1, 2010, the National Microbiology Laboratory (NML) has antigenically characterized the following strains from Ontario: 45 influenza A /Perth/16/2009-like (H3N2), 13 influenza A/California/7/2009 and 14 influenza B/Brisbane/60/2008-like.

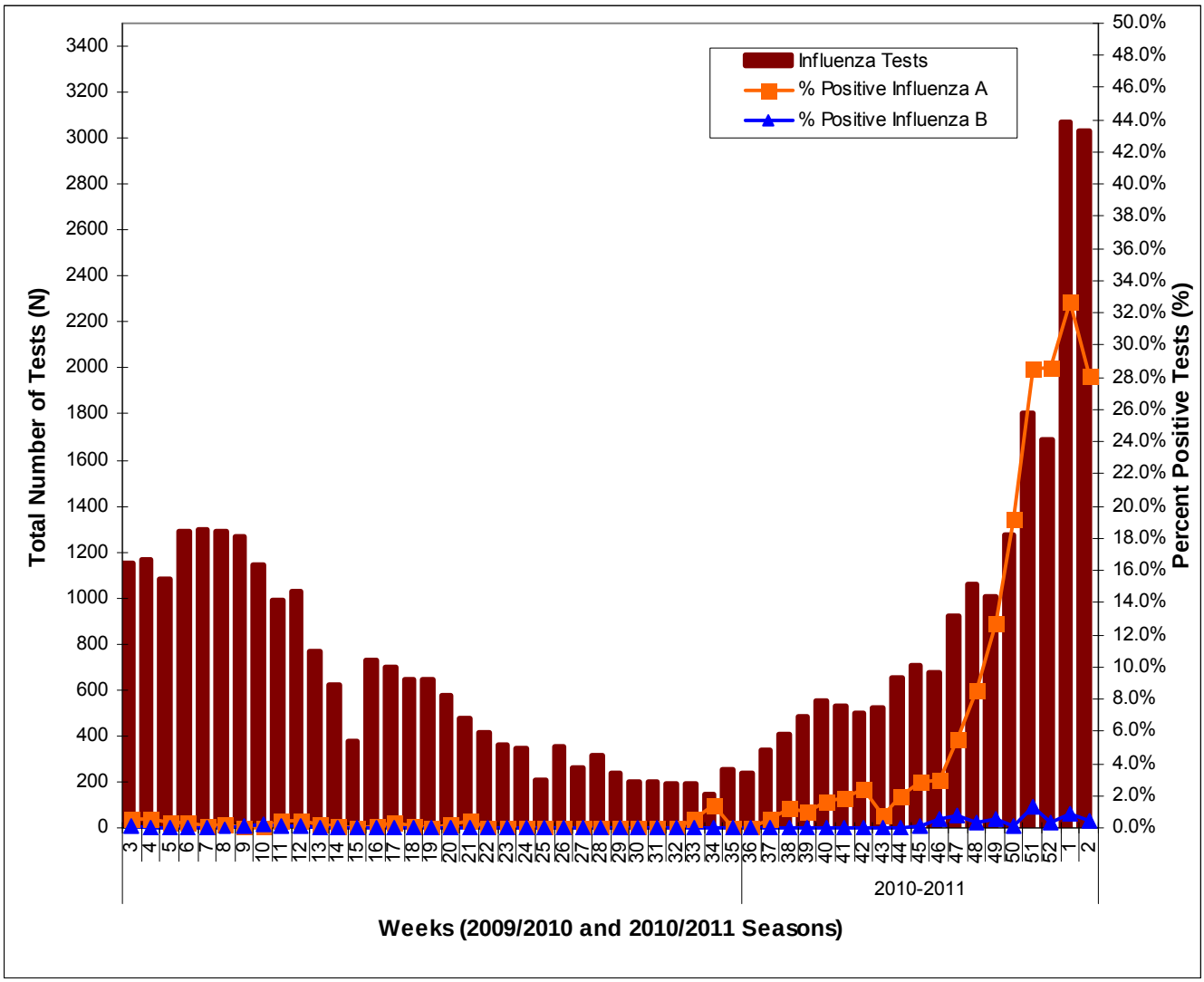
**Antiviral Resistance and Sensitivity (National)[†]:**
a) Amantadine:
A total of 124 H3N2 isolates and the 21 pandemic H1N1 isolates tested for resistance to amantadine were found to be resistant. One H3N2 isolate was sensitive to amantadine.
b) Oseltamivir:
A total of 123 influenza isolates (81 H3N2, 21 B and 21 pandemic H1N1) were tested for resistance to oseltamivir by phenotypic assay and/or sequencing. All 81 H3N2, 21 B and 21 pandemic H1N1 isolates were sensitive to oseltamivir.
c) Zanamivir:
A total of 123 influenza isolates (81 H3N2, 21 B and 21 pandemic H1N1) were tested for resistance to zanamivir by phenotypic assay. All 81 H3N2, 21 B and 21 pandemic H1N1 isolates were sensitive to zanamivir.

**Antiviral Resistance and Sensitivity (Provincial)[†]:**
a) Amantadine:
Of the 65 H3N2 and 13 pandemic H1N1 isolates tested, 64 influenza A (H3N2) isolates and all of the pandemic H1N1 isolates were resistant to amantadine. One H3N2 isolate was sensitive to amantadine.
b) Oseltamivir:
Of the 33 H3N2, 13 influenza B and 13 pandemic H1N1 isolates tested, all influenza A (H3N2), influenza B and pandemic H1N1 isolates were sensitive to oseltamivir.
c) Zanamivir:
Of the 33 H3N2, 13 influenza B and 13 pandemic H1N1 isolates tested, all influenza A (H3N2), influenza B and pandemic H1N1 isolates were sensitive to zanamivir.

[†]National Antigenic Characterization and Antiviral Resistance data are current as of January 19, 2011.

***** These data have been obtained from the Respiratory Virus Detection tables of Public Health Agency of Canada and do not include data from late reports to PHAC: Week 2, 2010. Please note that the last version received from PHAC as of 4:00PM on January 20, 2010 was used.

**Figure 6:** Total number of influenza tests performed and percent of positive tests in Ontario reported to the Centre for Immunization and Respiratory Infectious Diseases (CIRID), by report week*.




**Source:** Public Health Agency of Canada. These data have been obtained from the Respiratory Virus Detection tables of Public Health Agency of Canada from 17 labs in Ontario and do not include data from late reports to PHAC for the current season: Week 2, 2010. Please note that the last version received from PHAC as of 4:00PM on January 20, 2011 was used.

* Total numbers reported include late reports from pervious seasons; therefore totals may not be equal to the sum of the weekly numbers.
**Note**: Cumulative numbers for season to date are available through FluWatch: http://www.phac-aspc.gc.ca/fluwatch/

**Table 5:** Summary of other respiratory virus detections/isolations in Ontario in Week 2

| Organism Name | Number of Positive Tests | Number of Tests | % Positive |
|---|---|---|---|
| Respiratory Syncytial Virus | 93 | 1869 | 4.98 |
| Parainfluenza (all types) | 17 | 1709 | 0.99 |
| Adenovirus | 8 | 1709 | 0.47 |
| Human Metapneumovirus | 14 | 982 | 1.43 |
| Rhinovirus | 20 | 2219 | 0.90 |
| Coronavirus | 62 | 1737 | 3.57 |

**SOURCE:** These data have been obtained from the Respiratory Virus Detection tables of Public Health Agency of Canada from 17 labs in Ontario and do not include data from late reports to PHAC: Week 2, 2010. Please note that the last version received from PHAC as of 4:00PM on January 20, 2010 was used.

**Table 6:** Institutional respiratory infection outbreaks in Ontario: new outbreaks* in Week 2 and total outbreaks for the season**

| Institutional Respiratory Infection Outbreaks | | |
|---|---|---|
| **New Outbreaks*** | **N** | **% (of outbreaks)** |
| Influenza A (All subtypes) | 8 | 80.0 |
| Influenza B | 0 | 0.0 |
| Influenza A and B | 0 | 0.0 |
| Parainfluenza (All types) | 0 | 0.0 |
| RSV | 1 | 10.0 |
| Other organisms [α] | 0 | 0.0 |
| Combined Outbreaks[†] | 0 | 0.0 |
| Entero/rhinovirus | 0 | 0.0 |
| No organism identified | 1 | 10.0 |
| ***TOTAL*** | ***10*** | ***100.0*** |
| **Total Respiratory Infection Outbreaks of the Season to date**** | **N** | **% (of outbreaks)** |
| Influenza A (All subtypes) | 163 | 42.4 |
| Influenza B | 0 | 0.0 |
| Influenza A and B | 0 | 0.0 |
| Parainfluenza (All types) | 3 | 0.8 |
| RSV | 4 | 1.0 |
| Combined Outbreaks[†] | 7 | 1.8 |
| Other organisms[α] | 13 | 3.4 |
| Entero/rhinovirus | 127 | 33.1 |
| No organism identified | 67 | 17.4 |
| ***TOTAL*** | ***384*** | ***100.0*** |
| **Types of Institutions – All Outbreaks **** | **N** | **% (of outbreaks)** |
| Long-Term Care Homes | 217 | 56.5 |
| Hospitals | 27 | 7.0 |
| Retirement Homes | 47 | 12.2 |
| Other | 0 | 0.0 |
| Unknown | 93 | 24.2 |
| ***TOTAL*** | ***384*** | ***100.0*** |

**SOURCE:** Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [19/01/2011]

* New outbreaks are those in which the date of onset of illness in the first case occurred and was recorded through iPHIS in the current surveillance period; i.e. January 9, 2010 – January 15, 2011

** Season to date includes all outbreaks in which the date of onset of illness in the first case occurred up to Week 2.

[†] Combined outbreaks include outbreaks in which more than one non-influenza organism has been identified (e.g. RSV, parainfluenza, rhinovirus, etc.)

[α] Other organisms include outbreaks involving other aetiological agents, such as human metapneumovirus, adenovirus and coronavirus.

**Table 7:** Outbreak related complications in institutional respiratory infection outbreaks in Ontario during the surveillance season*†

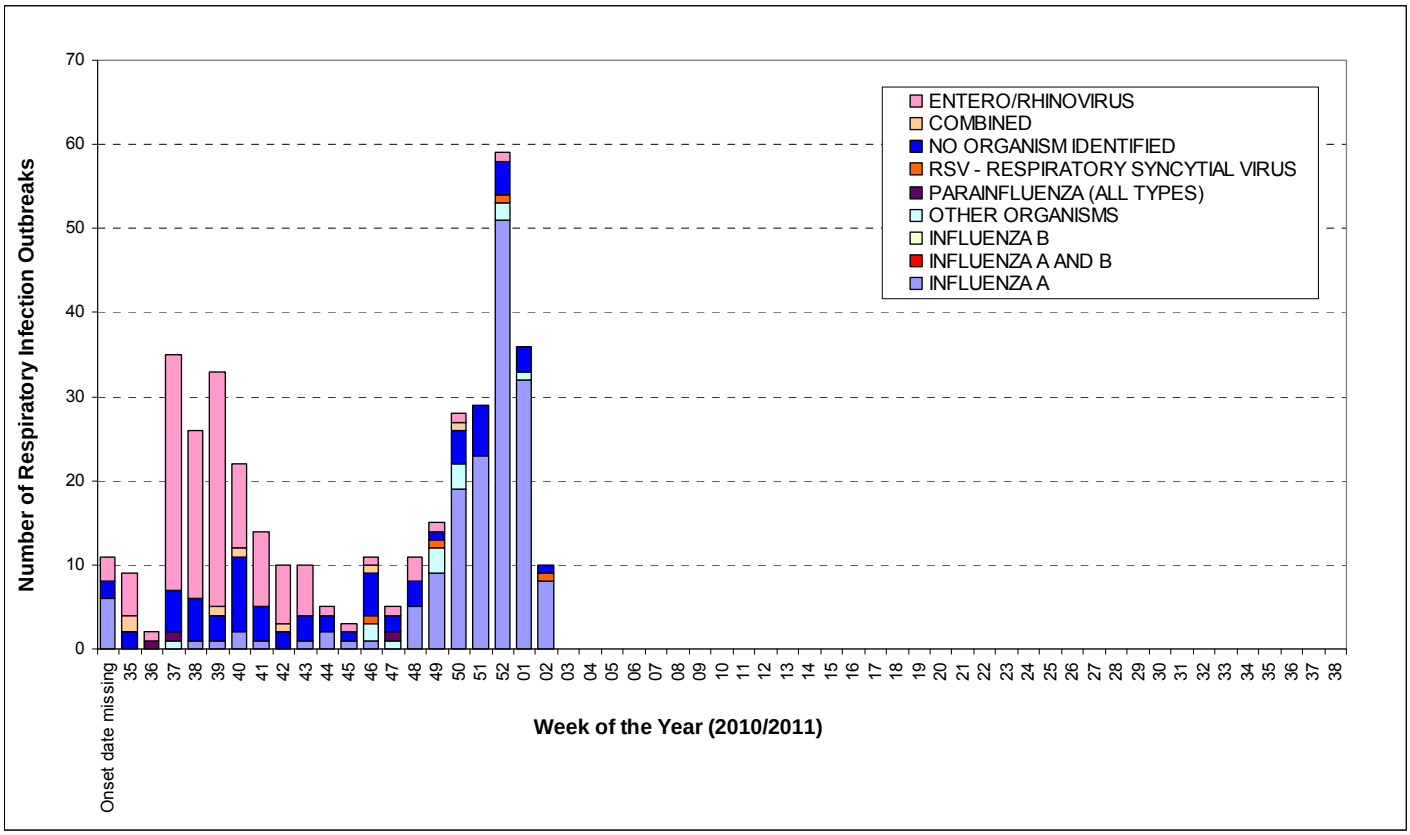
| **Outbreak Related Cases – All Outbreaks** | **N** | **% (of total cases)** |
|---|---|---|
| Residents | 4341 | 72.5 |
| Patients | 188 | 3.1 |
| Staff | 1456 | 24.3 |
| **Total Cases** | **5985** | **100.0** |
| ***Deaths*** | | **% (of cases per role)** |
| Residents | 110 | 2.5 |
| Patients | 4 | 2.1 |
| Staff | 0 | 0.0 |
| ***Pneumonia (Chest x-ray confirmed)*** | | **% (of cases per role)** |
| Residents | 127 | 2.9 |
| Patients | 6 | 3.2 |
| Staff | 1 | 0.1 |
| ***Hospitalizations*** | | **% (of cases per role)** |
| Residents | 233 | 5.4 |
| Staff | 2 | 0.1 |
| **Outbreak Related Cases – All Influenza Outbreaks** | **N** | **% (of total cases)** |
| Residents | 1766 | 75.0 |
| Patients | 75 | 3.2 |
| Staff | 515 | 21.9 |
| **Total Cases** | **2356** | **100.0** |
| ***Deaths*** | | **% (of cases per role)** |
| Residents | 62 | 3.5 |
| Patients | 3 | 4.0 |
| Staff | 0 | 0.0 |
| ***Pneumonia (Chest x-ray confirmed)*** | | **% (of cases per role)** |
| Residents | 61 | 3.5 |
| Patients | 6 | 8.0 |
| Staff | 0 | 0.0 |
| ***Hospitalizations*** | | **% (of cases per role)** |
| Residents | 142 | 8.0 |
| Staff | 0 | 0.0 |

**SOURCE:** Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [19/01/2011]

* Season to date includes all outbreaks in which the date of onset of illness in the first case occurred from September 1, 2010 – January 15, 2011

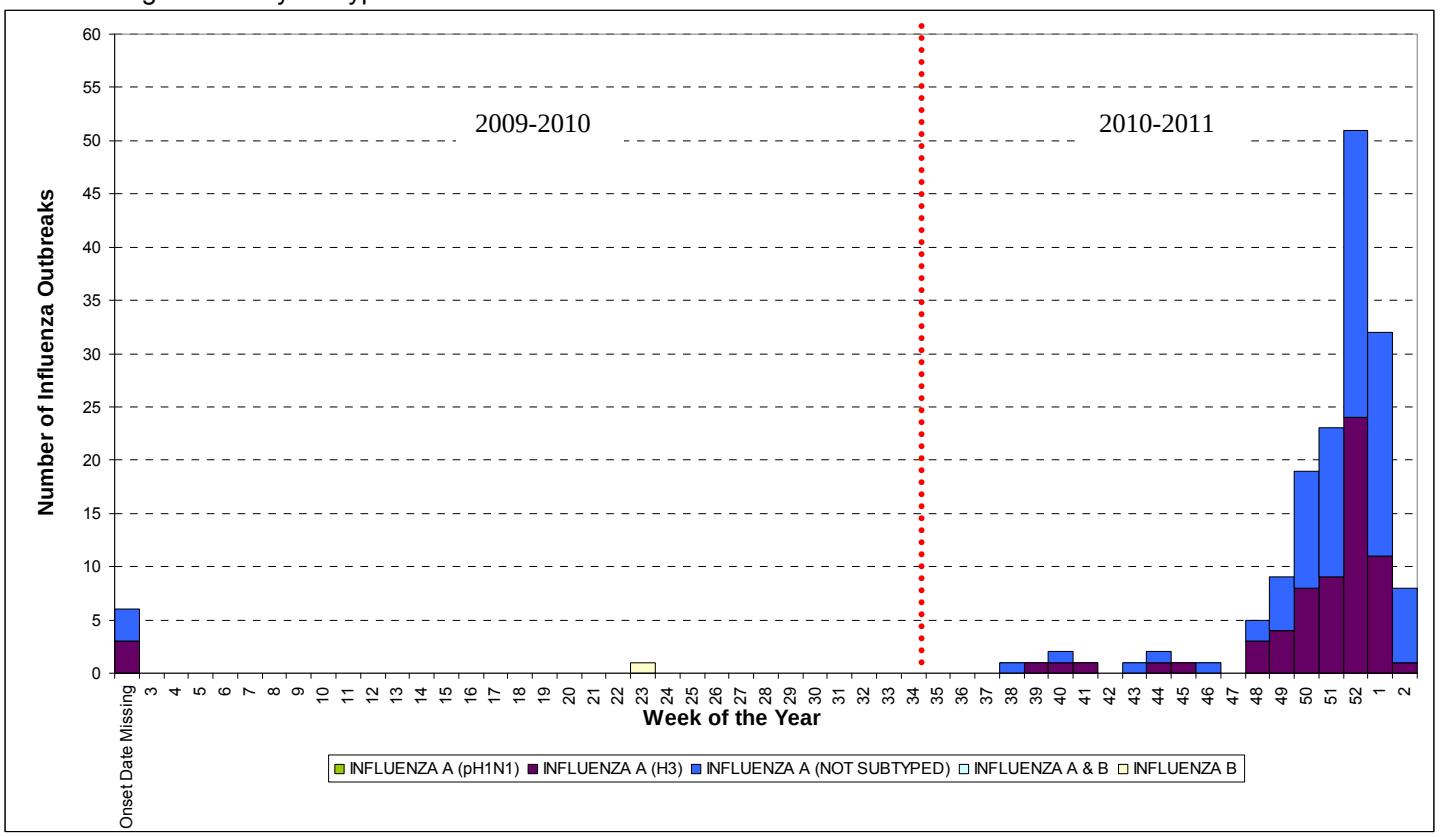
†Outbreak related case counts are based on aggregate case counts submitted for each outbreak and include laboratory and epidemiologically linked cases.

**Figure 7:** Institutional respiratory infection outbreaks in Ontario by onset of illness in the first case: Total outbreaks up to and including Week 2 by causative organism



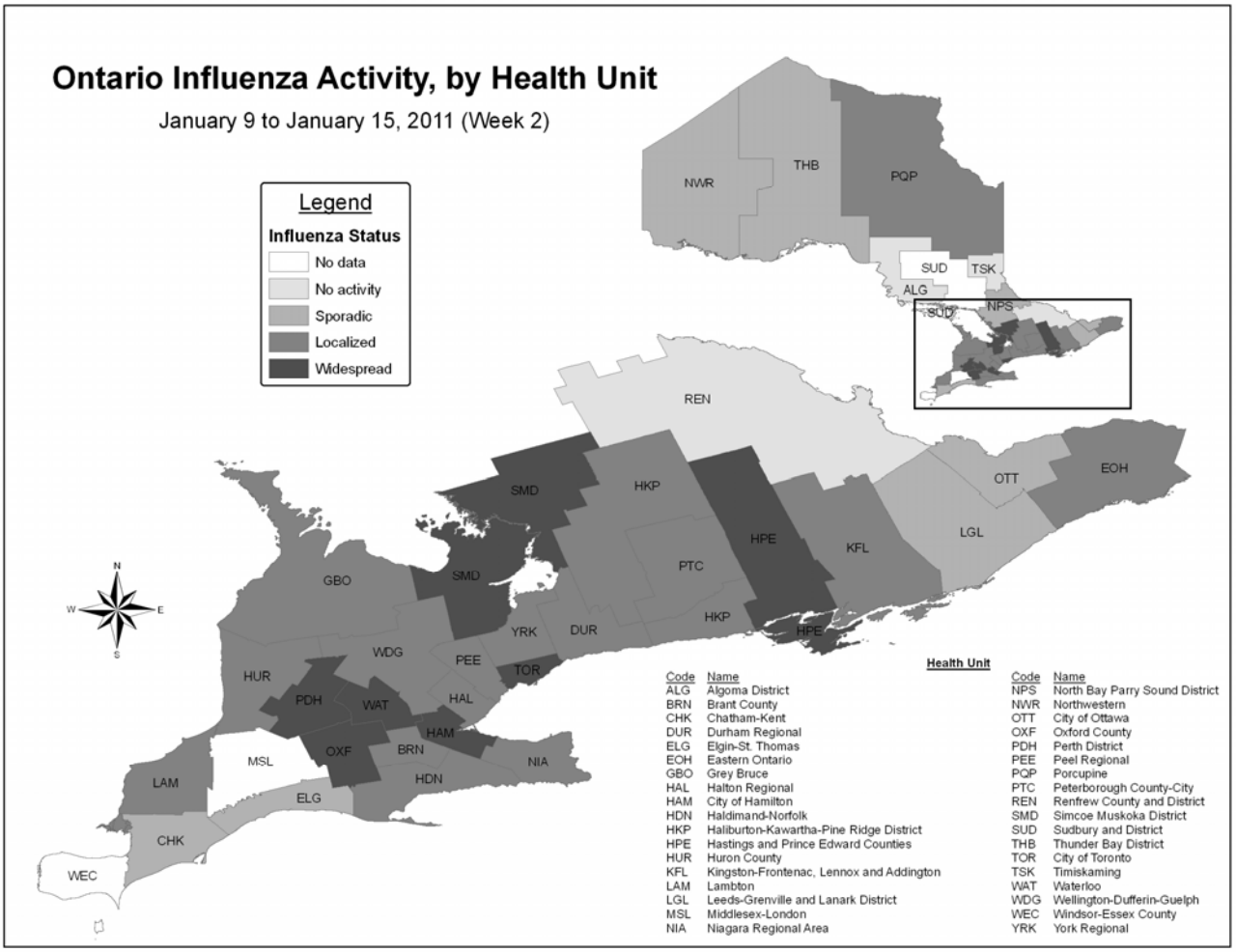

**Source**: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [19/01/2011]

**Figure 8:** Institutional influenza outbreaks in Ontario by onset of illness in the first case: Total outbreaks up to and including Week 2 by subtype*




**Source:** Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [19/01/2011]
*School outbreaks are not included in this chart.

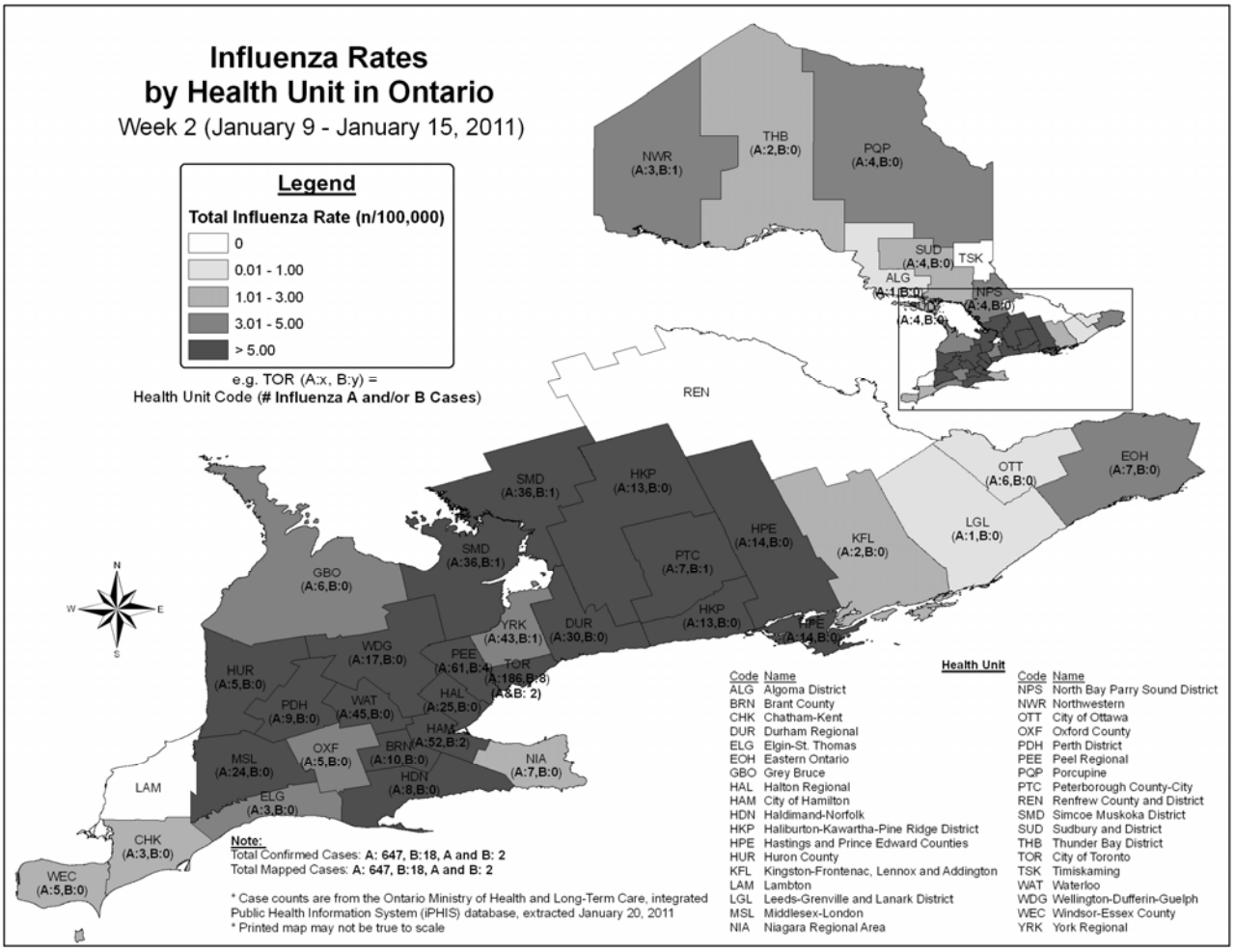
**Figure 9:** Influenza activity* levels in Ontario by health unit for Week 2, 2011




**SOURCE:** MOHLTC [Provincial Influenza Activity Report (Appendix C) Database]

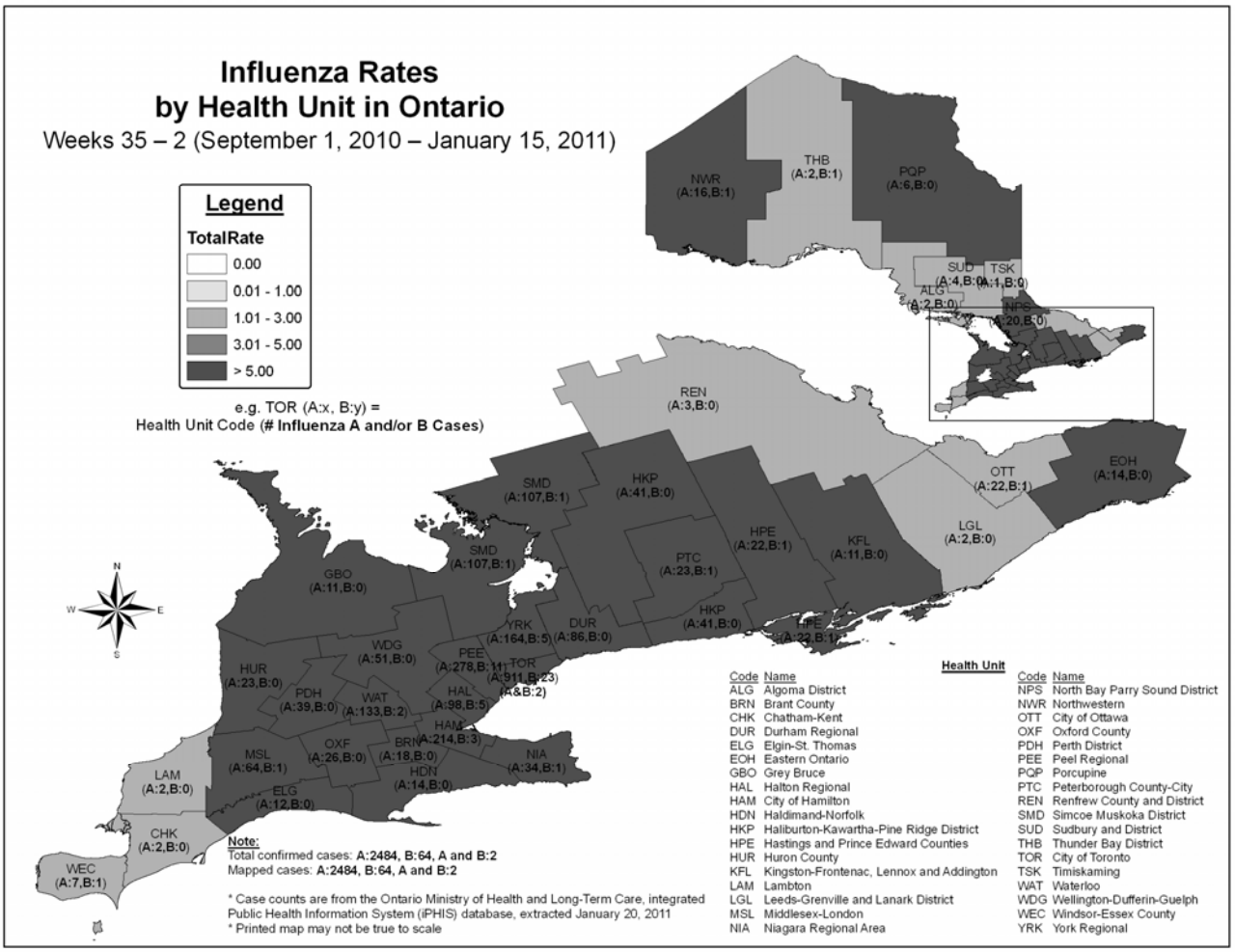
* Influenza activity levels are assigned by local public health units and reported to the MOHLTC by the Tuesday following the end of the surveillance week at 4 pm. Activity levels are assigned based on laboratory confirmations, ILI reports from various sources, and laboratory confirmed institutional outbreaks. Please refer to detailed definitions for the 2010-2011 season included in the Appendix-1]

**Figure 10:** Influenza incidence rates and counts in Ontario by health unit for Week 2, 2011



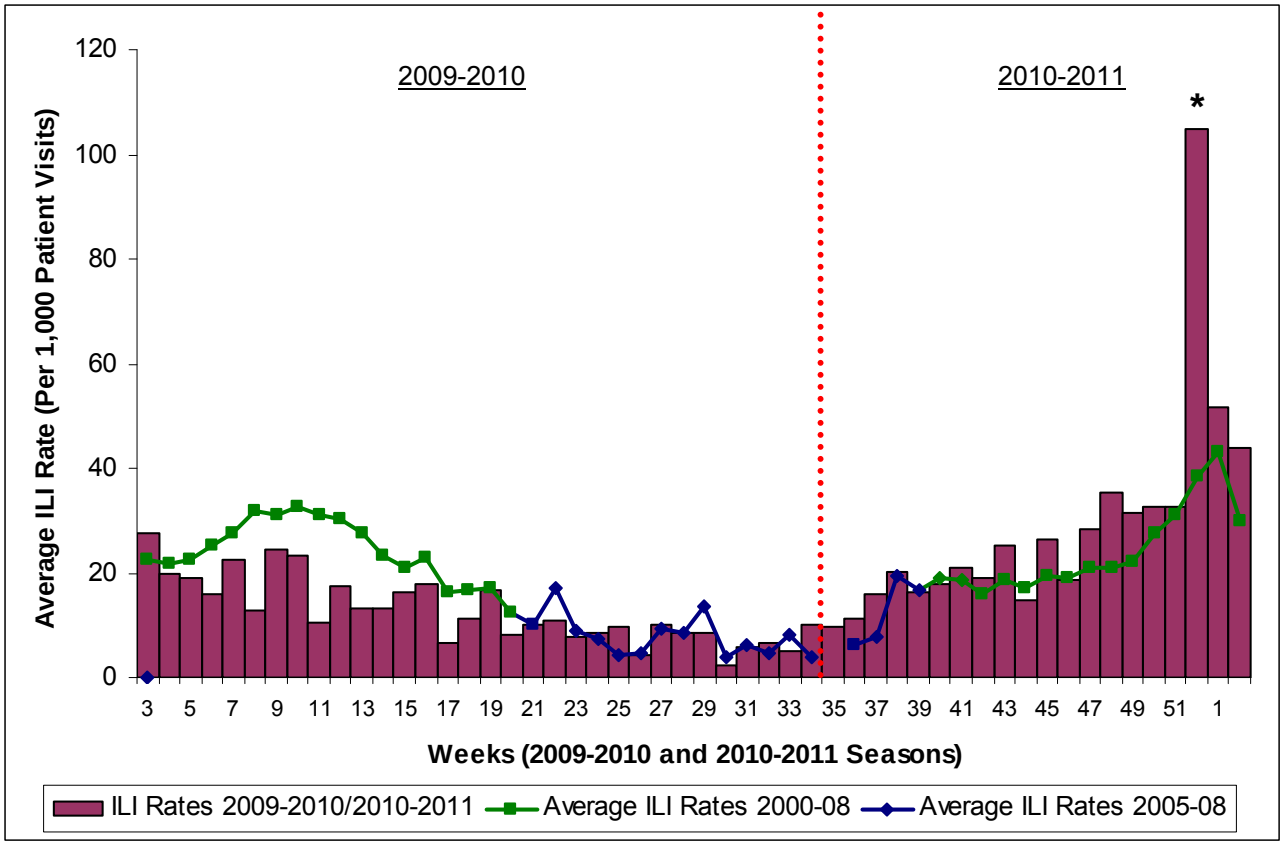

**Source:** Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [20/01/2011]

**Figure 11:** Influenza cumulative incidence rates and counts in Ontario by health unit, Weeks 35 - 2 (September 1, 2010 – January 15, 2011)




**Source:** Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted [20/01/2011]

**Figure 12:** Average influenza-like illness (ILI) consultation rate (per 1,000 patient visits) reported by sentinel physicians* in Ontario up to the 2010-11 surveillance season, by report week, compared to Ontario average† (1999/2000 to 2007/08 seasons).

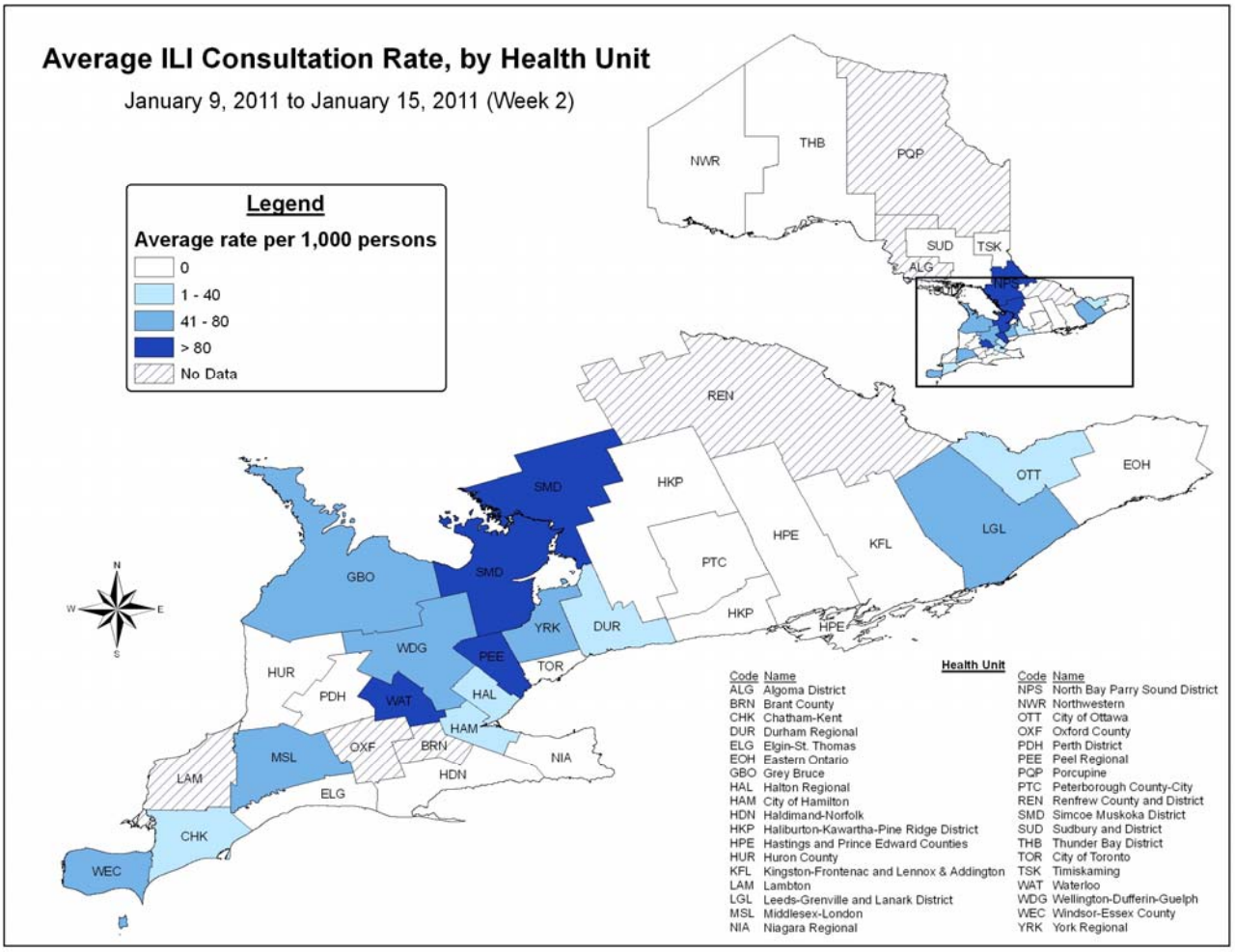



**Source:** Public Health Agency of Canada

* Sentinel physician information is reported to Public Health Agency of Canada, 102 sentinels reported in Week 2. The large increase in week 52 may be due to a combination of factors including: a true increase in influenza activity, reduced physician hours, fewer routine visits, and significantly fewer sentinel physicians reporting compared to normal (only 49 physicians reported in the last week of December, compared to at least 80 physicians normally reporting during any given week in the influenza season).

†No data available for mean rate in previous years for weeks 21 to 39 (1999-2000 through 2004-2005 seasons). During weeks 20-39, 2002-2003/2004-2005 seasons, ILI was reported once every two weeks, on even weeks only.

**Figure 13:** Average influenza-like illness consultation rate (per 1,000 patient visits) by health unit as reported by sentinel physicians* in Ontario, for Week 2.




**Source:** Public Health Agency of Canada

* Sentinel physicians report ILI and patient data to the Public Health Agency of Canada; 102 sentinels reported in week 2 of which all were matched to a health unit and represented in the above map.

**Note:** The small numbers of sentinel physicians reporting at the local level can make the ILI rates unstable. Please interpret these data correspondingly.

**Table 8: Average influenza-like illness consultation rate (per 1,000 patient visits) by age group as reported by sentinel physicians* in Ontario, for Week 2.**

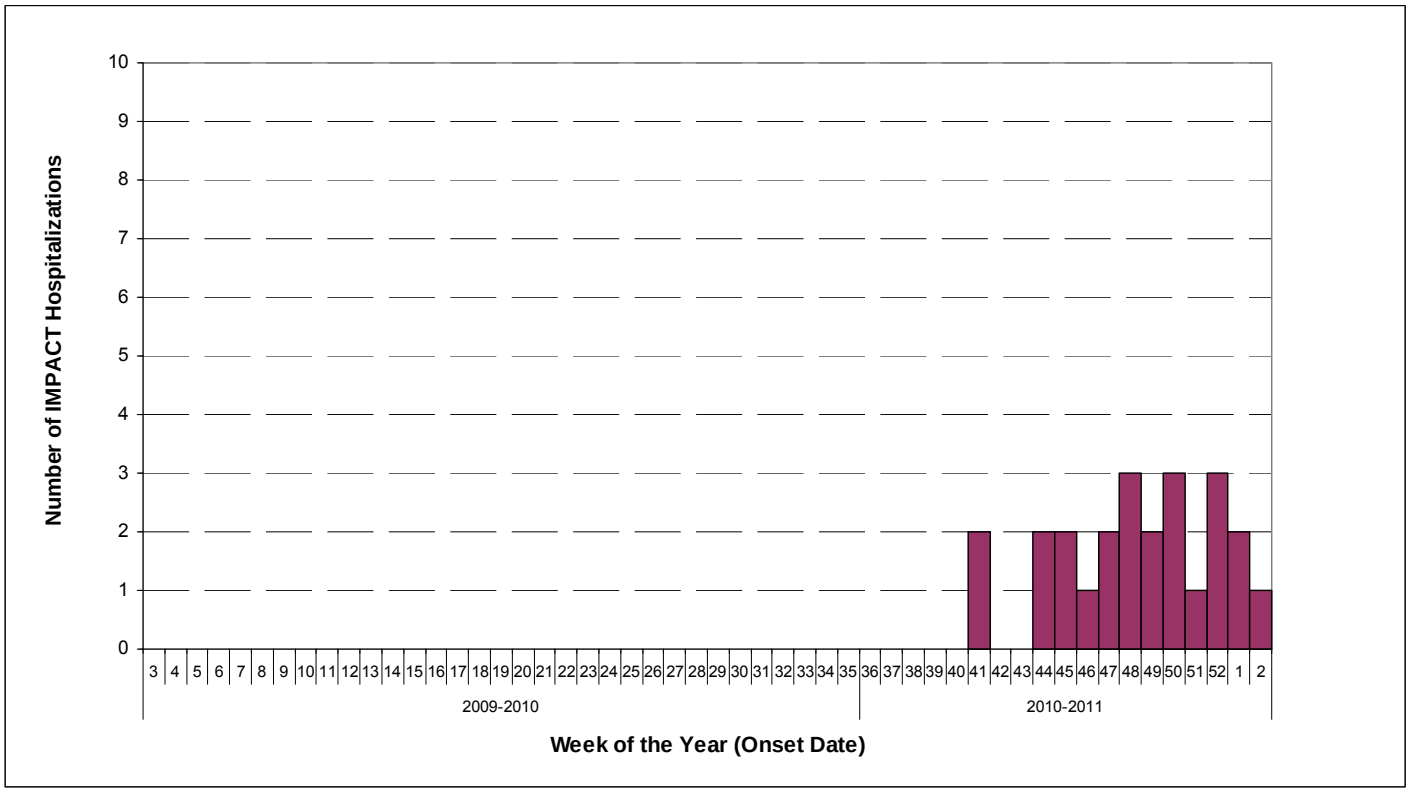
| Age Category | 0 – 4 | 5 – 19 | 20 – 64 | 65 + | Unknown | TOTAL |
|---|---|---|---|---|---|---|
| **ILI Sum** | 17 | 25 | 68 | 14 | 0 | 124 |
| ***ILI Consultation Rate (per 1,000 patient visits)*** | 72.03 | 85.32 | 39.53 | 24.31 | 0.00 | 43.89 |

**Source:** Public Health Agency of Canada
Sentinel physician information is reported to the Public Health Agency of Canada; 102 sentinels reported in week 2.

Immunization Monitoring Program ACTive (IMPACT) is a pediatric hospital-based national active surveillance network for adverse events following immunization and selected infectious diseases in children, including influenza-associated pediatric hospitalizations and complements the Canadian Adverse Event Following Immunization Surveillance System (CAEFISS). It involves 12 Canadian centres, two of which are in Ontario (Children's Hospital of Eastern Ontario in Ottawa and the Hospital for Sick Children, Toronto).

Reports of adverse events following immunization are reported to the Vaccine Safety Unit at the Immunization Division of the Public Health Agency of Canada. Note that the number of IMPACT hospitalizations presented in this week's bulletin has been updated with the latest data received from PHAC.

**Figure 14:** Number of influenza A related hospitalizations in Ontario reported through IMPACT up to Week 2, by onset date.




**Source:** Public Health Agency of Canada
***Note:** The numbers of IMPACT hospitalizations presented reflect the latest data received at the time of publication, thus lower numbers of cases reported in recent weeks may be attributed in part to reporting delays.

## FURTHER INFORMATION

1. Ontario Ministry of Health and Long-Term Care
   Previous issues of the *Ontario Influenza Bulletin* can be accessed at:
   http://www.health.gov.on.ca/en/pro/programs/publichealth/flu/bulletins/2010/default.aspx

   When referencing material from the Ontario Influenza Bulletin please use the following format:
   Ontario Ministry of Health and Long-Term Care, Ontario Influenza Bulletin 2010-2011 Season, Surveillance Week ##. <URL>

2. Ontario Agency for Health Protection and Promotion
   OAHPP Weekly Laboratory Surveillance Update
   http://www.oahpp.ca/SRI%20Bulletin.php

3. Public Health Agency of Canada
   Issues of FluWatch can be accessed at:
   www.phac-aspc.gc.ca/fluwatch/

4. United States Centers for Disease Control and Prevention
   http://www.cdc.gov/flu/weekly/fluactivity.htm

5. European Influenza Surveillance Scheme
   http://www.ecdc.europa.eu/en/activities/surveillance/EISN/Pages/home.aspx

## INFORMATION ABOUT H1N1 INFLUENZA (HUMAN SWINE INFLUENZA)

1. CDC (Human swine flu investigation)
   http://www.cdc.gov/swineflu/investigation.htm

2. PHAC (Human swine flu investigation)
   http://www.phac-aspc.gc.ca/alert-alerte/swine_200904-eng.php

3. WHO Swine Flu general info
   http://www.who.int/csr/disease/swineflu/en/index.html

4. Ontario Ministry of Health (Important Health Notices)
   http://www.health.gov.on.ca/english/providers/program/emu/ihn.html

## INFORMATION ABOUT AVIAN INFLUENZA

For latest information on the status of avian influenza worldwide please use the following link:
**Public Health Agency of Canada**
http://www.phac-aspc.gc.ca/h5n1/index.html

## Influenza Surveillance Weeks 2010-2011 and date of submission of Appendix C

| WEEKS | START | END | Appendix C Submission to MOHLTC |
|---|---|---|---|
| WK3 | 16-Jan-11 | 22-Jan-11 | 25-Jan-11 |
| WK4 | 23-Jan-11 | 29-Jan-11 | 1-Feb-11 |
| WK5 | 30-Jan-11 | 5-Feb-11 | 8-Feb-11 |
| WK6 | 6-Feb-11 | 12-Feb-11 | 15-Feb-11 |
| WK7 | 13-Feb-11 | 19-Feb-11 | 22-Feb-11 |
| WK8 | 20-Feb-11 | 26-Feb-11 | 1-Mar-11 |
| WK9 | 27-Feb-11 | 5-Mar-11 | 8-Mar-11 |
| WK10 | 6-Mar-11 | 12-Mar-11 | 15-Mar-11 |
| WK11 | 13-Mar-11 | 19-Mar-11 | 22-Mar-11 |
| WK12 | 20-Mar-11 | 26-Mar-11 | 29-Mar-11 |
| WK13 | 27-Mar-11 | 2-Apr-11 | 5-Apr-11 |
| WK14 | 3-Apr-11 | 9-Apr-11 | 12-Apr-11 |
| WK15 | 10-Apr-11 | 16-Apr-11 | 19-Apr-11 |
| WK16 | 17-Apr-11 | 23-Apr-11 | 26-Apr-11 |
| WK17 | 24-Apr-11 | 30-Apr-11 | 3-May-11 |
| WK18 | 1-May-11 | 7-May-11 | 10-May-11 |
| WK19 | 8-May-11 | 14-May-11 | 17-May-11 |
| WK20 | 15-May-11 | 21-May-11 | 24-May-11 |
| WK21 | 22-May-11 | 28-May-11 | 31-May-11 |
| WK22 | 29-May-11 | 4-Jun-11 | 7-Jun-11 |
| WK23 | 5-Jun-11 | 11-Jun-11 | 14-Jun-11 |
| WK24 | 12-Jun-11 | 18-Jun-11 | 21-Jun-11 |
| WK25 | 19-Jun-11 | 25-Jun-11 | 28-Jun-11 |
| WK26 | 26-Jun-11 | 2-Jul-11 | 5-Jul-11 |
| WK27 | 3-Jul-11 | 9-Jul-11 | 12-Jul-11 |
| WK28 | 10-Jul-11 | 16-Jul-11 | 19-Jul-11 |
| WK29 | 17-Jul-11 | 23-Jul-11 | 26-Jul-11 |

| WEEKS | START | END | Appendix C Submission to MOHLTC |
|---|---|---|---|
| WK30 | 24-Jul-11 | 30-Jul-11 | 2-Aug-11 |
| WK31 | 31-Jul-11 | 6-Aug-11 | 9-Aug-11 |
| WK32 | 7-Aug-11 | 13-Aug-11 | 16-Aug-11 |
| WK33 | 14-Aug-11 | 20-Aug-11 | 23-Aug-11 |
| WK34 | 21-Aug-11 | 27-Aug-11 | 30-Aug-11 |
| WK35 | 28-Aug-11 | 3-Sep-11 | 6-Sep-11 |

## APPENDIX - I

### 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**.