

## Ontario Respiratory Virus Bulletin | 2014-2015

### SURVEILLANCE SEASON (September 1, 2014 – August 31, 2015)

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This issue of the Ontario Respiratory Virus Bulletin provides information on the surveillance season from September 1, 2014 to August 31, 2015. Unless otherwise specified, **data presented in this issue of the bulletin are for the 2014-15 surveillance season** and data extraction occurred on Monday, October 5, 2015.

#### Season summary of respiratory virus activity in Ontario

*September 1, 2014 to August 31, 2015*

- Overall, the number of laboratory-confirmed cases of influenza reported in the 2014-15 surveillance season was higher than the 2013-14 season. Similar to 2013-14, there were two distinct periods of elevated influenza activity during the 2014-15 season: the earlier and larger peak was due to increased influenza A activity during December and January (Weeks 50–3), and the later and smaller peak in March and early April (Weeks 11–17) was a result of increased influenza B activity (Figures [1](#), [2](#), [5](#)).
  - A total of 13,404 laboratory-confirmed influenza cases were reported for the 2014-15 season. The majority of influenza cases in the 2014-15 season were influenza A, which accounted for 86.7% (11,625/13,404) of cases ([Table 1](#)).
  - The dominant circulating influenza A subtype was H3, representing 99.0% (4,193/4,235) of influenza A cases with a subtype reported in iPHIS ([Table 1](#)).
    - For the season as a whole, positivity for influenza A was 14.4% and influenza B positivity was 2.0% ([Table 2](#)).\* Peak percent positivity was 34.5% for influenza A and 12.8% for influenza B ([Figure 5](#)).
    - Among influenza A isolates from Ontario characterized by the National Microbiology Laboratory (NML), all of the 21 Ontario influenza A(H1N1) isolates strain-typed were antigenically similar to the H1N1 component of the 2014-15 seasonal influenza vaccine. Of the 221 Canadian influenza A(H3N2) viruses that were strain-typed, only 1 was antigenically similar to the H3N2 vaccine component. Through genetic characterization performed at NML, sequence analysis showed that all of the H3N2 viruses (380) tested from Ontario belonged to a genetic group that typically shows reduced titers to A/Texas/50/2012 due to amino acid mutations at antigenic sites.
    - Of influenza B isolates that were characterized by NML, 85.3% (353/414) were the B/Massachusetts/02/2012-like strain, the same influenza B component strain as the 2014-15 trivalent vaccine.
  - The timing of influenza A activity in the 2014-15 season was comparable to the timing of influenza activity in the 2013-14 season, with multiple indicators signifying peak activity in weeks 53 and 1 (Figures [1](#), [5](#), [7](#), [8](#), [11](#), [1](#)).
  - The highest reported incidence rates of influenza were observed in Timiskaming, City of Hamilton, and North Bay-Parry Sound public health units, with 196.6, 163.7, and 157.0 cases per 100,000 population, respectively (Figure 3). The largest proportion (23.9%, 3,210/13,404) of cases in the 2014-15 season were reported in Toronto, which among health units represents the largest proportion of Ontario's population (20.5%) ([Table 1](#)).

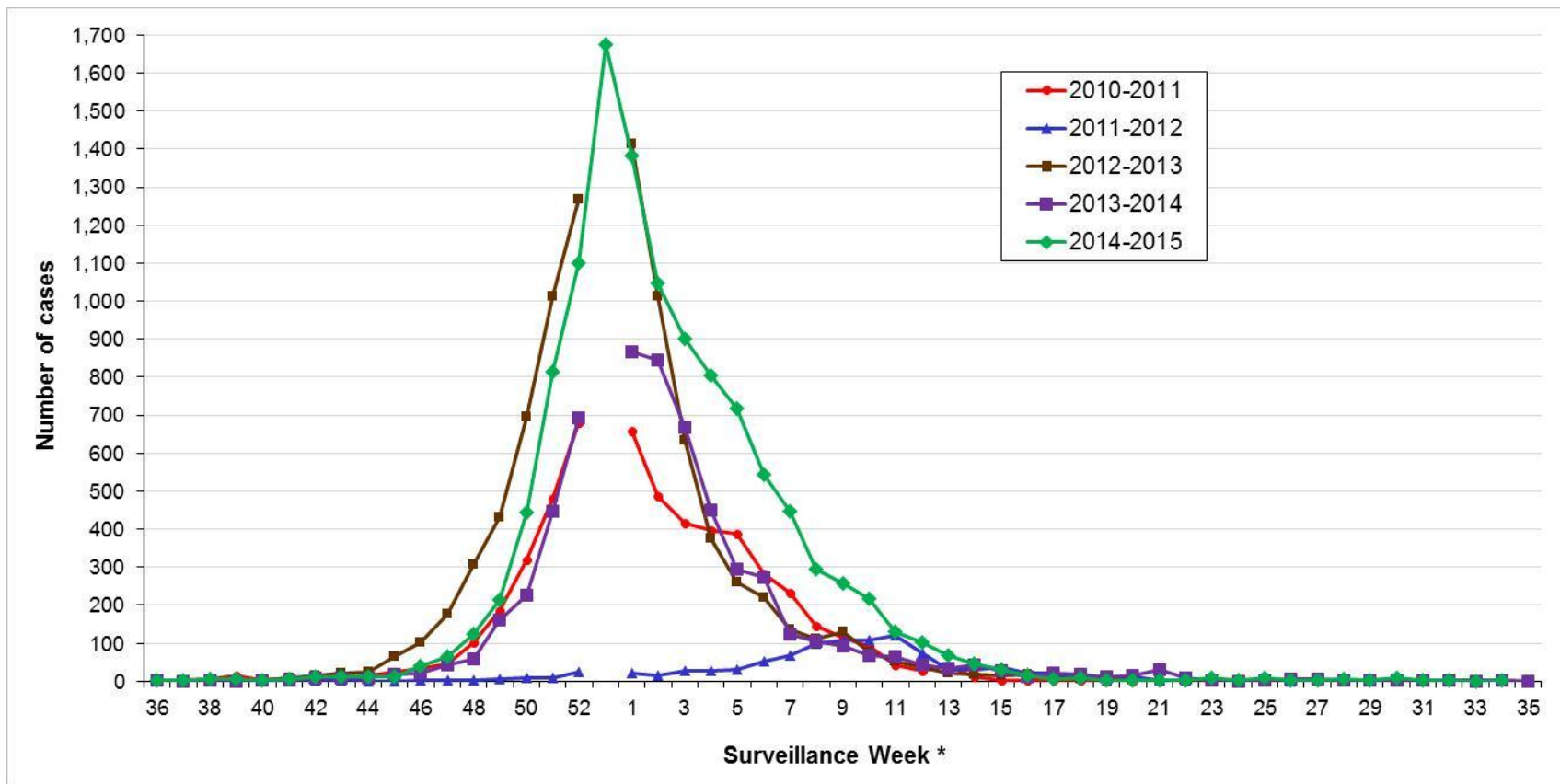
- The highest incidence rates of both influenza A and influenza B were reported among the elderly aged 90 and above ([Figure 4](#)). The rates increased with age and were over 250 cases per 100,000 population starting from the 75-79 year-old age group. Cases 75 years of age and older accounted for 50.2% (6,730/13,404) of laboratory-confirmed cases reported in the 2014-15 season. This reflects the dominance of the H3 subtype in the 2014-15 season. This subtype usually has a greater impact on the elderly over the age of 65 and children less than 5 years of age.
- A total of 4,514 hospitalizations and 359 deaths<sup>1</sup> were reported among laboratory-confirmed influenza cases in the 2014-15 season ([Table 3](#)). The highest hospitalization rate occurred among adults 65 years of age and older (161.8 hospitalizations per 100,000 population); similarly, the highest mortality rate also occurred among adults 65 years of age and older (16.2 deaths per 100,000 population).
  - The highest numbers of hospitalizations occurred in cases with episode dates in weeks 53 and 1, which were also the weeks with the most cases of influenza A reported (Figures [1](#) and [7](#)).
  - The greatest number of deaths, based on the date of death, occurred during week 2 ([Figure 8](#)), which reflects peak influenza A activity in the preceding weeks.
- There were 1,852 confirmed institutional respiratory infection outbreaks reported in the 2014-2015 season, which was the highest number of influenza outbreaks recorded since institutional respiratory infection outbreaks became reportable in 2001. This includes 1,038 (56.0%) outbreaks that were laboratory-confirmed as influenza A, 89 (4.8%) as influenza B, and 11 (0.6%) as influenza A and B combined ([Table 4](#)). No organism was identified in 8.0% (149/1,852) of outbreaks.
  - The majority of outbreaks were reported in long-term care homes (LTCHs), with 56.2% (1,041/1,852) reported in this setting, followed by 21.4% (397/1,852) in retirement homes, and 8.0% (148/1,852) in hospitals. The exposure setting was not reported for 13.5% (250/1,852) of respiratory infection outbreaks ([Figure 9](#)).
  - Influenza was the most commonly identified aetiologic agent in outbreaks reported by all types of institutions ([Figure 9](#)).
  - Of the 148 respiratory infection outbreaks reported in hospitals, 49.3% (73/148) were reported in acute care hospitals, 42.6% (63/148) were reported in chronic care hospitals, and 8.1% (12/148) were reported in psychiatric care hospitals ([Figure 10](#)).
- While influenza had the highest percent positivity<sup>2</sup> among all circulating respiratory viruses in the 2014-2015 season at 16.4% overall, other viruses were circulating at different points during the season. Rhinovirus (9.9%) and respiratory syncytial virus (RSV) (6.3%) had the second and third highest overall percent positivities ([Table 2](#); Figures [5](#) and [6](#)).
  - Rhinovirus had the highest percent positivity of all circulating respiratory viruses in the beginning (September to November 2014 – Weeks 36-48) and end of the season (late April to August 2015 – Weeks 17-34) ([Table 2](#); Figures [5](#) and [6](#)).

**Notes:**

<sup>1</sup> In the 2014-15 season, only a proportion of laboratory confirmed cases were followed up by public health units, therefore it is anticipated that the number of deaths is a greater under-estimation of the true number of deaths than reported in previous seasons.

<sup>2</sup> Positivity among specimens submitted for testing to laboratories reporting to the Centre for Immunization and Respiratory Infectious Diseases (CIRID).

**Figure 1.** Number of reported laboratory-confirmed cases of influenza A by surveillance week: Ontario, September 1, 2010 to August 29, 2015

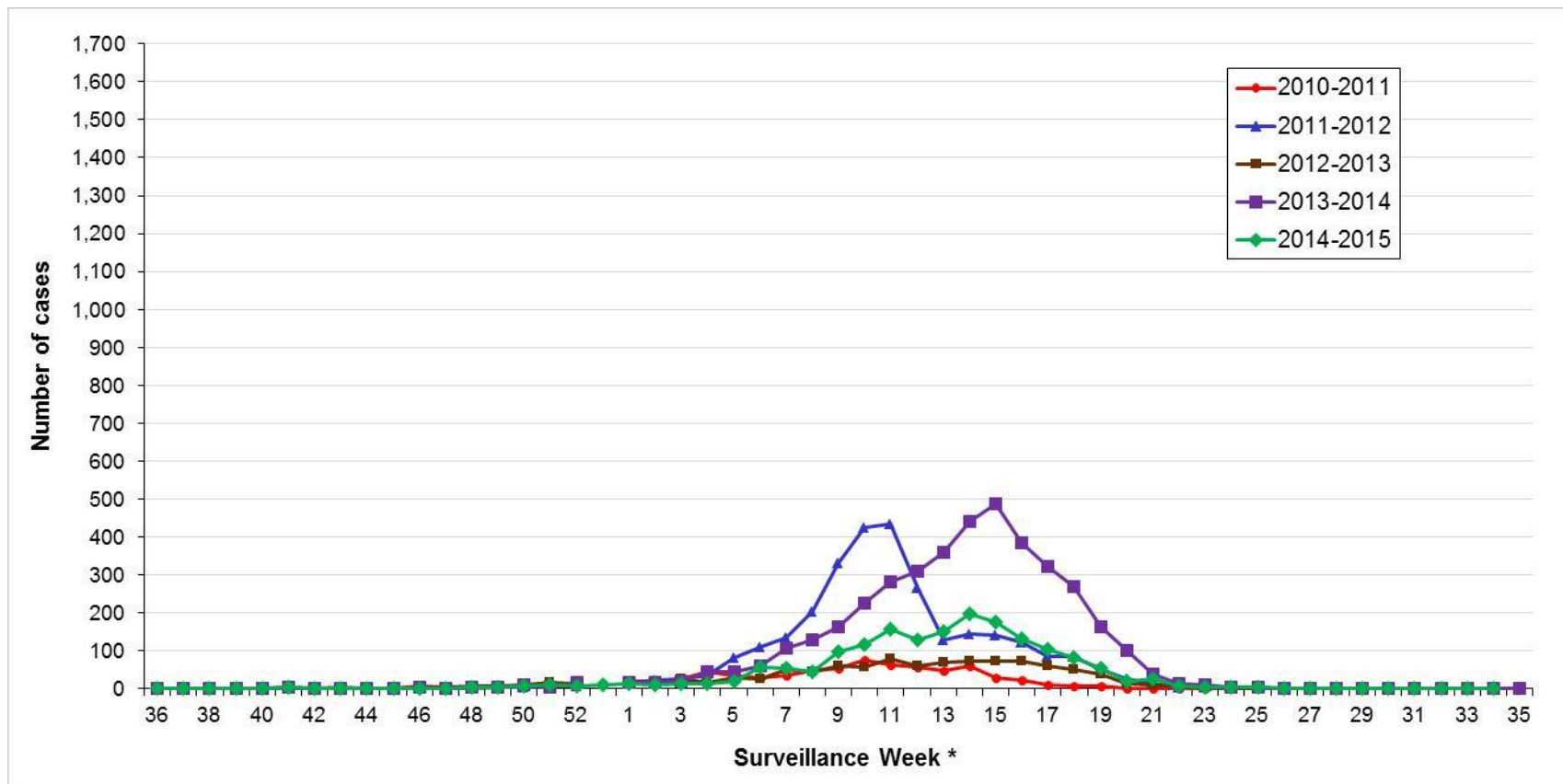


**Source:** Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2015/10/05].

**Notes:**

\*Unlike the other seasons presented, the 2014-2015 season includes a week 53; a week 53 occurs once every five to six years. Cases are assigned to a particular surveillance week based on the episode date entered in iPHIS for the case. 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).

**Figure 2.** Number of reported laboratory-confirmed cases of **influenza B** by surveillance week: Ontario, September 1, 2010 to August 29, 2015



**Source:** Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2015/10/05].

**Notes:**

\*Unlike the other seasons presented, the 2014-2015 season includes a week 53; a week 53 occurs once every five to six years. Cases are assigned to a particular surveillance week based on the episode date entered in iPHIS for the case. 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).

**Table 1.** Number of reported laboratory-confirmed influenza cases by health unit and health region: Ontario, September 1, 2014 to August 31, 2015

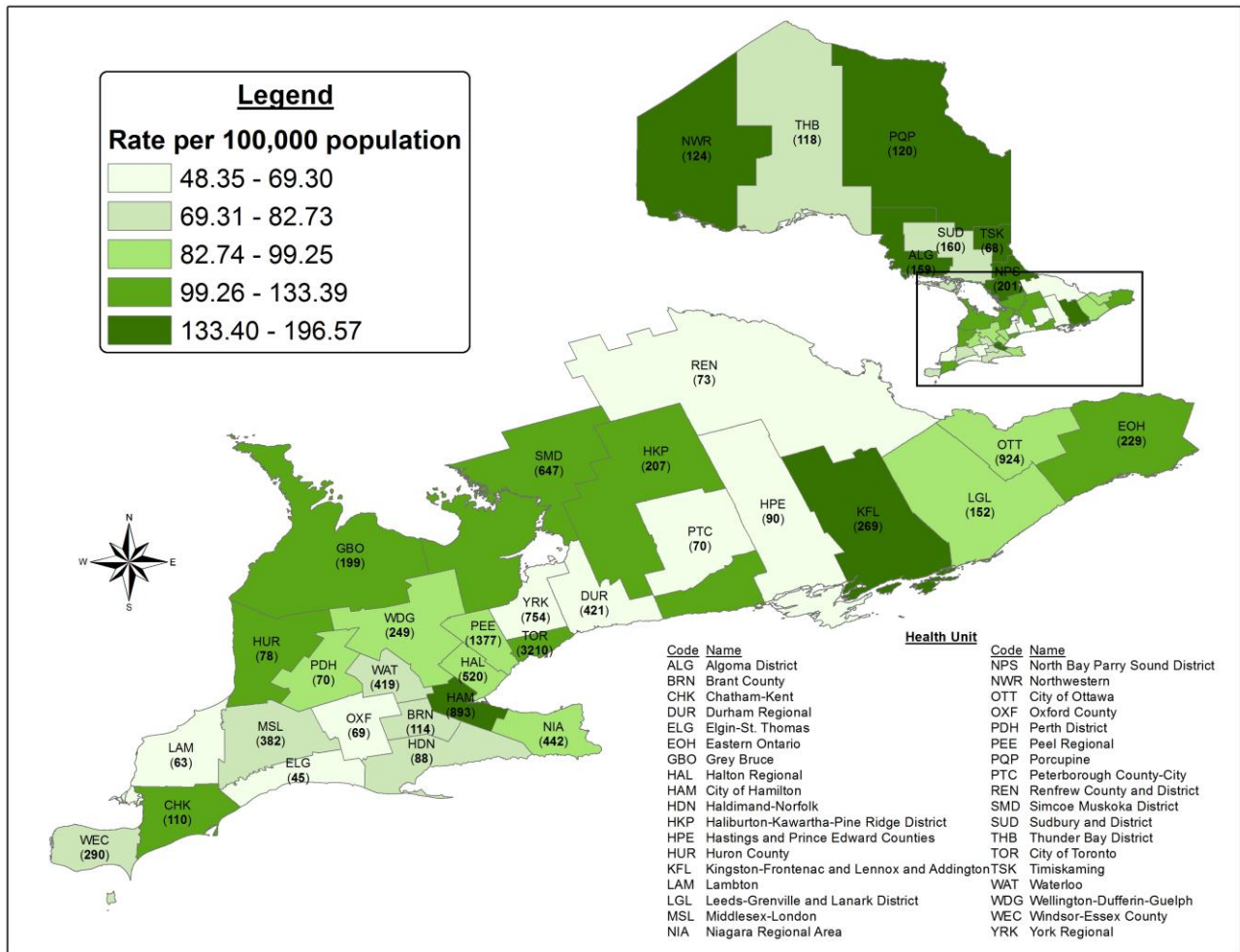
Health Unit and Region	Influenza A				Influenza A & B	Influenza B	TOTAL
	(H1N1) pdm09	H3	Other *	No subtype available			
Northwestern	0	20	0	89	0	15	124
Thunder Bay District	0	13	0	81	0	24	118
<b>TOTAL NORTH WEST</b>	<b>0</b>	<b>33</b>	<b>0</b>	<b>170</b>	<b>0</b>	<b>39</b>	<b>242</b>
Algoma	0	47	0	97	0	15	159
North Bay Parry Sound District	1	37	0	121	2	40	201
Porcupine	1	9	0	100	0	10	120
Sudbury & District	0	33	2	101	0	24	160
Timiskaming	0	19	0	45	0	4	68
<b>TOTAL NORTH EAST</b>	<b>2</b>	<b>145</b>	<b>2</b>	<b>464</b>	<b>2</b>	<b>93</b>	<b>708</b>
City of Ottawa	0	33	0	736	2	153	924
Eastern Ontario	0	51	0	130	0	48	229
Hastings & Prince Edward Counties	0	13	1	61	0	15	90
Kingston, Frontenac, Lennox & Addington	0	67	0	147	0	55	269
Leeds, Grenville And Lanark District	0	38	0	79	0	35	152
Renfrew County And District	0	18	0	34	0	21	73
<b>TOTAL EASTERN</b>	<b>0</b>	<b>220</b>	<b>1</b>	<b>1187</b>	<b>2</b>	<b>327</b>	<b>1737</b>
Durham Region	1	191	0	190	0	39	421
Haliburton, Kawartha, Pine Ridge	0	67	0	116	0	24	207
Peel Region	6	388	1	799	2	181	1377
Peterborough County-City	0	26	0	35	0	9	70
Simcoe Muskoka District	1	116	0	441	1	88	647
York Region	4	251	0	395	0	104	754
<b>TOTAL CENTRAL EAST</b>	<b>12</b>	<b>1039</b>	<b>1</b>	<b>1976</b>	<b>3</b>	<b>445</b>	<b>3476</b>
Toronto	26	2037	0	885	3	259	3210
<b>TOTAL TORONTO</b>	<b>26</b>	<b>2037</b>	<b>0</b>	<b>885</b>	<b>3</b>	<b>259</b>	<b>3210</b>
Chatham-Kent	0	22	0	65	0	23	110
Elgin-St. Thomas	0	18	0	21	0	6	45
Grey Bruce	0	56	0	118	1	24	199
Huron County	0	21	0	37	0	20	78
Lambton County	0	28	0	30	0	5	63
Middlesex-London	0	72	0	256	0	54	382
Oxford County	0	27	0	34	0	8	69
Perth District	0	19	0	39	0	12	70
Windsor-Essex County	1	68	0	148	0	73	290
<b>TOTAL SOUTH WEST</b>	<b>1</b>	<b>331</b>	<b>0</b>	<b>748</b>	<b>1</b>	<b>225</b>	<b>1306</b>
Brant County	0	22	0	72	0	20	114
City Of Hamilton	0	75	0	706	1	111	893
Haldimand-Norfolk	0	13	0	70	0	5	88
Halton Region	1	66	0	383	0	70	520
Niagara Region	0	93	0	285	0	64	442
Waterloo Region	0	59	0	286	0	74	419
Wellington-Dufferin-Guelph	0	60	0	154	0	35	249
<b>TOTAL CENTRAL WEST</b>	<b>1</b>	<b>388</b>	<b>0</b>	<b>1956</b>	<b>1</b>	<b>379</b>	<b>2725</b>
<b>TOTAL ONTARIO</b>	<b>42</b>	<b>4193</b>	<b>4</b>	<b>7386</b>	<b>12</b>	<b>1767</b>	<b>13404</b>

**Source:** Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2015/10/05].

**Notes:** The cumulative count includes laboratory-confirmed cases with an 'Episode Date' between September 1, 2014 and August 31, 2015. The 'Other' influenza A category results from the selection of the value Other (Specify).

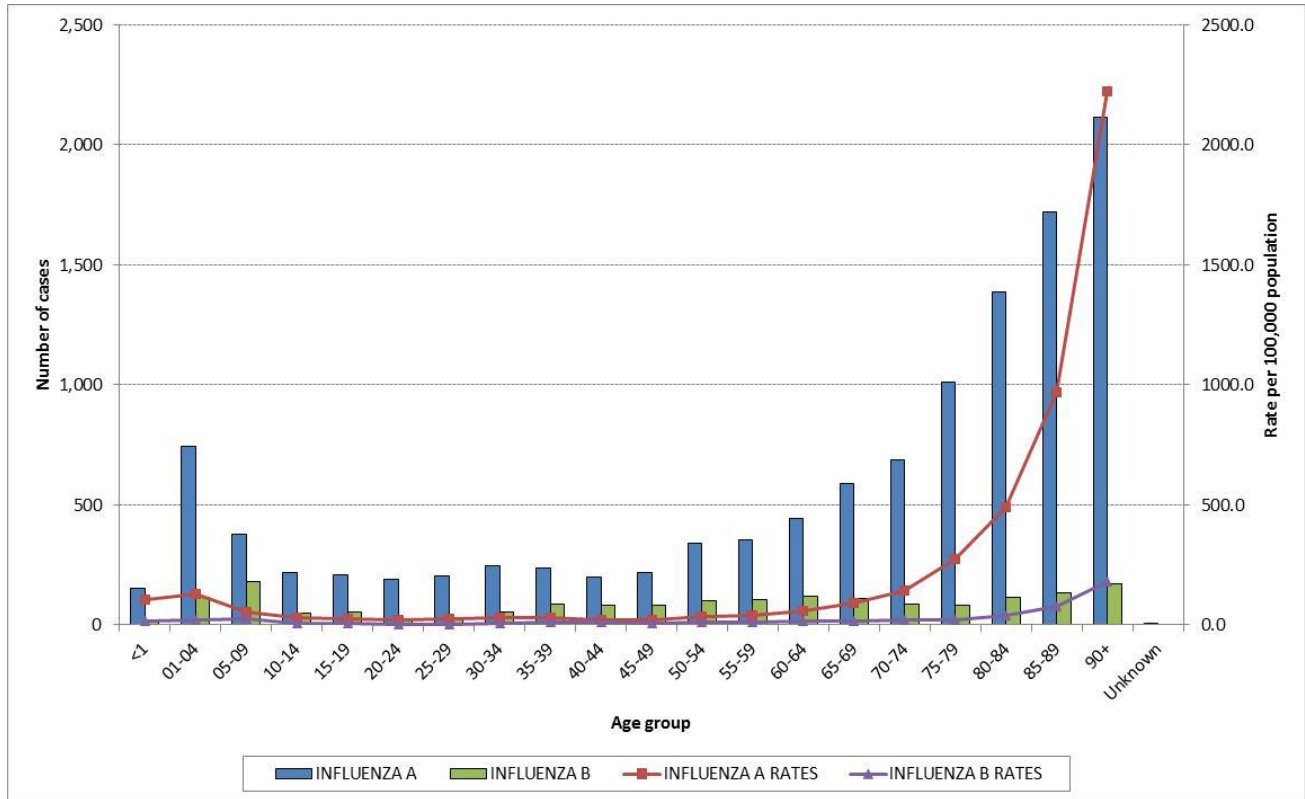
'No subtype available' includes influenza A isolates that were classified as not subtyped, untypeable, or indeterminate

**Figure 3.** Rate of influenza per 100,000 population (and counts, in brackets), by health unit: Ontario, September 1, 2014 to August 31, 2015



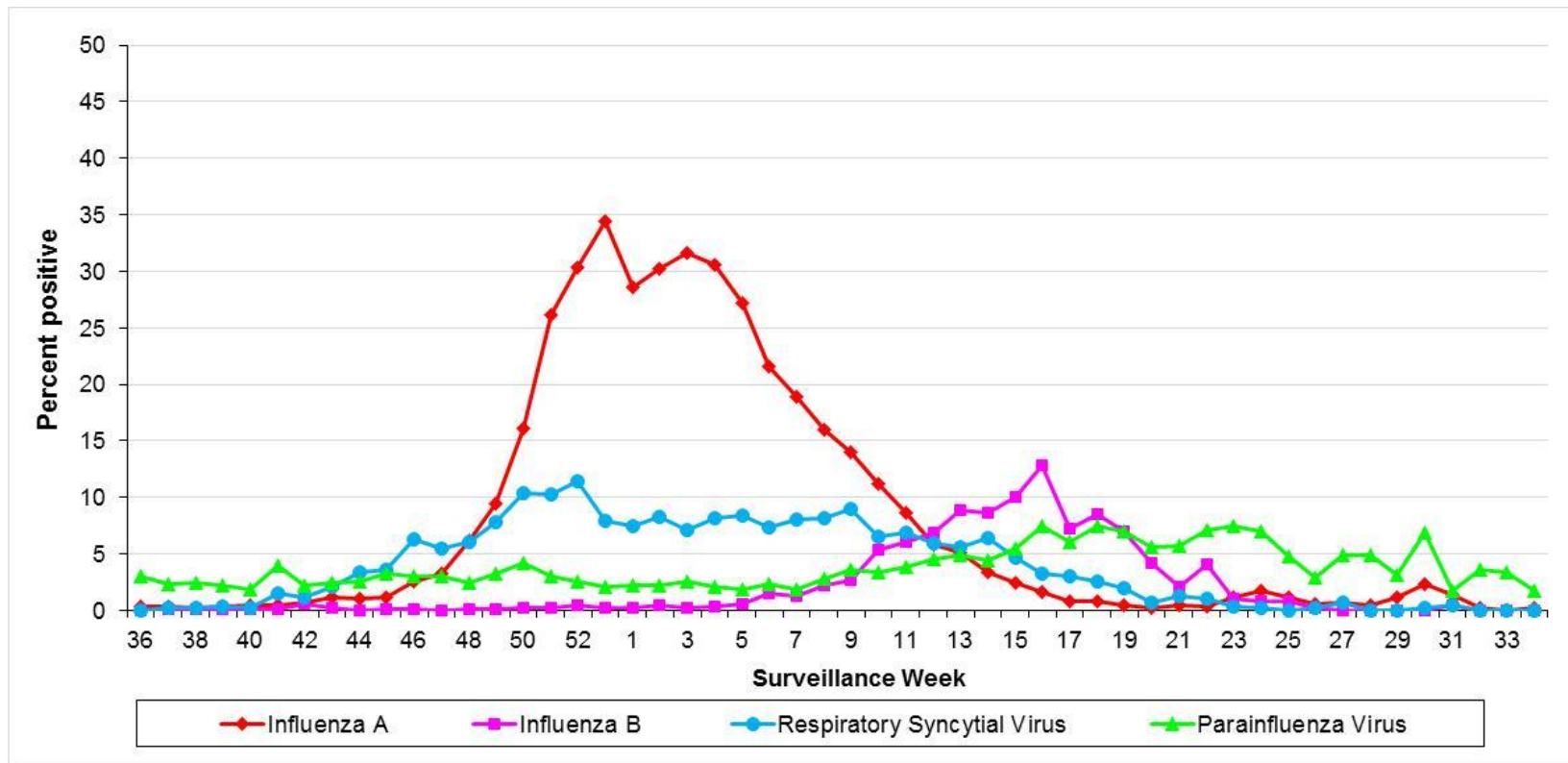
**Source:** Ontario Ministry of Health and Long-Term Care (MOHLTC), integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2015/10/05]. Population data obtained from IntelliHEALTH Ontario, retrieved by Public Health Ontario [2014/07/03].

**Figure 4.** Rate of laboratory-confirmed cases of influenza per 100,000 population, by age group and type: Ontario, September 1, 2014 to August 31, 2015



**Source:** Ontario Ministry of Health and Long-Term Care (MOHLTC), integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2015/10/05]. Population data obtained from IntelliHEALTH Ontario, retrieved by Public Health Ontario [2014/07/03].

**Figure 5.** Percentage of respiratory viral pathogens (influenza A, influenza B, respiratory syncytial virus, and parainfluenza virus) detected among specimens tested by all methods: Ontario, August 31, 2014 to August 29, 2015



**Source:** These data have been obtained from the Public Health Agency of Canada’s (PHAC) Centre for Immunization and Respiratory Infectious Diseases (CIRID) respiratory virus detection tables as of September 2, 2015; they are based on data submitted to PHAC from 16 laboratories in Ontario.

**Notes:**

The numbers reported in this figure represent results submitted to the CIRID by 16 participating laboratories in Ontario, including 11 Public Health Ontario Laboratories (PHOLs) and five hospital-based laboratories.

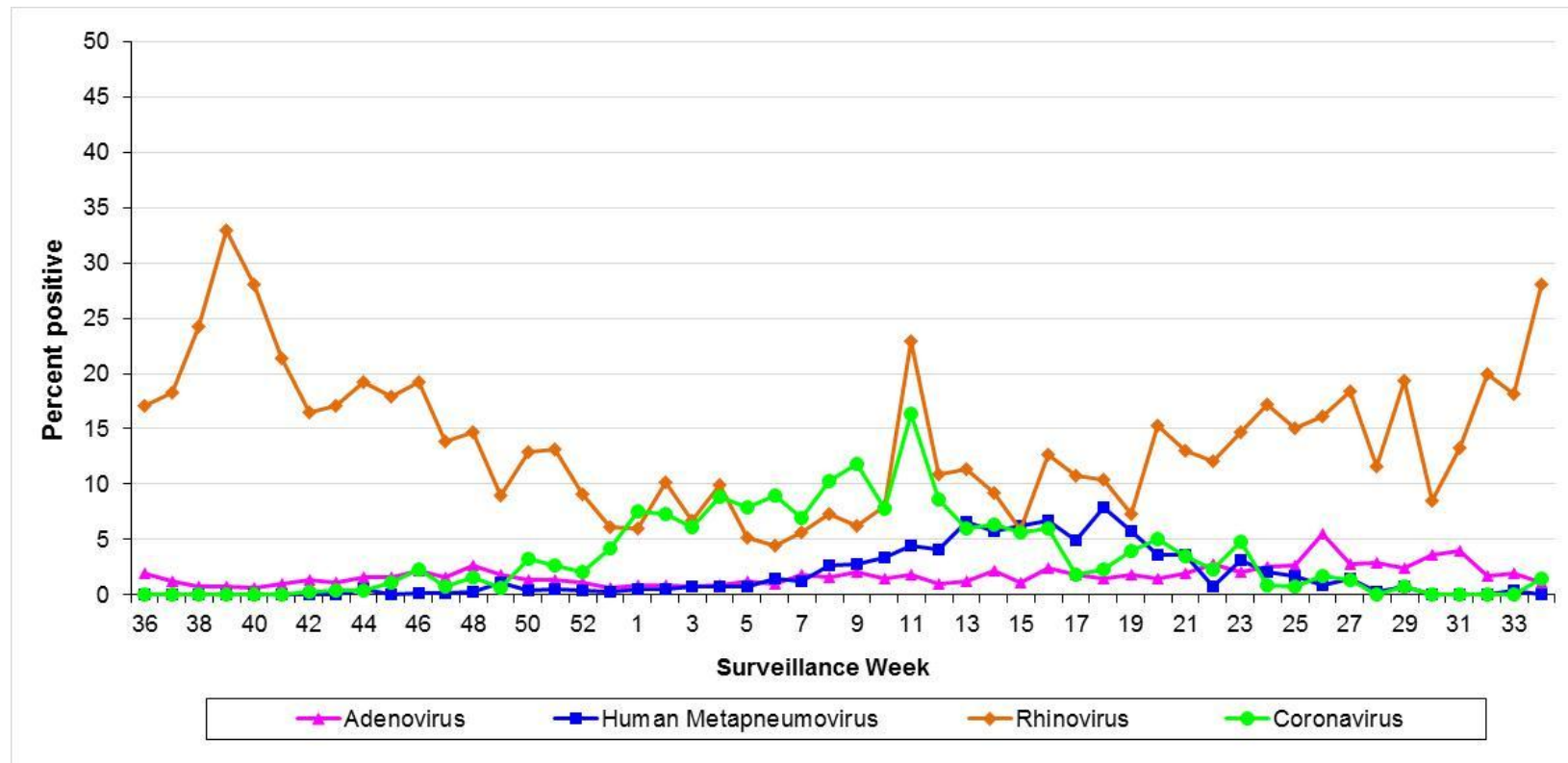
Interpret results for week 51 with caution as only four laboratories in Ontario, three of which were hospital-based laboratories, submitted results to the CIRID.

Results above are assigned to a particular surveillance week based on when test results are reported to PHAC; these data are not updated when results are submitted late for previous surveillance weeks. These data represent the number of specimens tested, which may not necessarily correspond with the number of patients as more than one specimen may have been submitted per patient.

Cumulative numbers for the season to date are also available through FluWatch: <http://www.phac-aspc.gc.ca/fluwatch/>



**Figure 6.** Percentage of respiratory viral pathogens (adenovirus, human metapneumovirus, rhinovirus and coronavirus) detected among specimens tested by all methods: Ontario, August 31, 2014 to August 29, 2015



**Source:** These data have been obtained from the Public Health Agency of Canada’s (PHAC) Centre for Immunization and Respiratory Infectious Diseases (CIRID) respiratory virus detection tables as of September 2, 2015; they are based on data submitted to PHAC from 16 laboratories in Ontario.

**Notes:**

The numbers reported in this figure represent results submitted to the CIRID by 16 participating laboratories in Ontario, including 11 Public Health Ontario Laboratories and five hospital-based laboratories.

Interpret results for week 51 with caution as only four laboratories in Ontario, three of which were hospital-based laboratories, submitted results to the CIRID.

Results above are assigned to a particular surveillance week based on when test results are reported to PHAC; these data are not updated when results are submitted late for previous surveillance weeks. These data represent the number of specimens tested, which may not necessarily correspond with the number of patients as more than one specimen may have been submitted per patient.

Cumulative numbers for the season to date are also available through FluWatch: <http://www.phac-aspc.gc.ca/fluwatch/>

**Table 2.** Number and percent positivity of respiratory specimens tested by all methods for influenza and other respiratory viruses: Ontario, August 24, 2014 to August 29, 2015

Detected viruses	Cumulative for Season		
	Number positive	Number tested	Percent positive
Influenza (All)	12,775	77,723	16.4%
<i>Influenza A</i>	11,220	-	14.4%
<i>Influenza B</i>	1,555	-	2.0%
Parainfluenza virus	1,848	59,929	3.1%
Adenovirus	823	59,654	1.4%
Respiratory syncytial virus	4,410	70,337	6.3%
Rhinovirus	2,521	25,516	9.9%
Human metapneumovirus	1,079	56,654	1.9%
Coronavirus	866	15,361	5.6%

**Source:** These data have been obtained from the Public Health Agency of Canada's (PHAC) Centre for Immunization and Respiratory Infectious Diseases (CIRID) respiratory virus detection tables as of September 2, 2015; they are based on data submitted to PHAC from 16 participating laboratories in Ontario and contain data representing cumulative counts, including updates to previously reported weekly data, for the time period noted.

**Notes:**

The data in this table are based on the date on which test results are reported.

These data represent the number of specimens tested, which may not necessarily correspond with the number of patients as more than one specimen may have been submitted per patient.

Cumulative numbers for the season to date are also available through FluWatch: <http://www.phac-aspc.gc.ca/fluwatch/>

**Table 3.** Hospitalizations and deaths among laboratory-confirmed influenza cases by age group: Ontario, September 1, 2014 to August 31, 2015

Age Group	HOSPITALIZATIONS		DEATHS	
	Count	Rate per 100,000	Count	Rate per 100,000
<1	136	95.8	0	0
1 – 4	196	34.2	1	0.2
5 – 14	157	10.6	2	0.1
15 – 24	53	2.9	1	0.1
25 – 44	163	4.5	4	0.1
45 – 64	479	12.5	18	0.5
65+	3,330	161.8	333	16.2
<b>Total</b>	<b>4,514</b>	<b>33.3</b>	<b>359</b>	<b>2.7</b>

**Sources:**

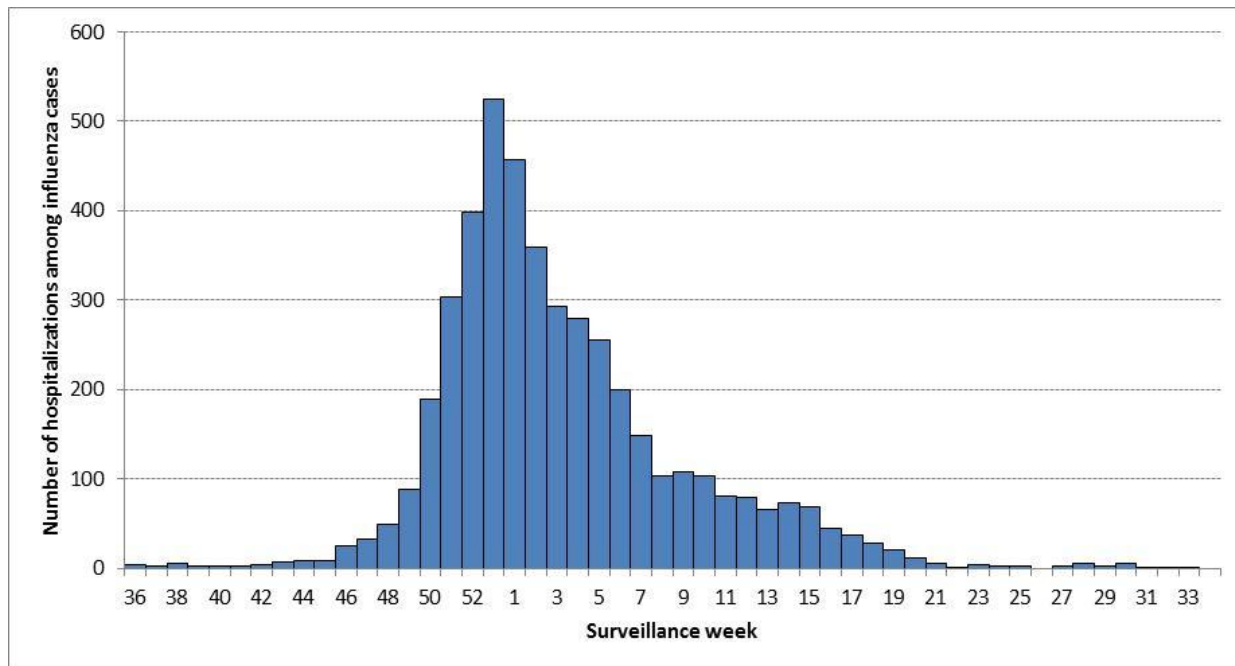
**Case data:** Ontario Ministry of Health and Long-Term Care (MOHLTC), integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2015/10/05].

**Population data:** Population Estimates, 2005-2013, Ontario Ministry of Health and Long-Term Care, IntelliHEALTH ONTARIO, extracted by Public Health Ontario [2014/07/03].

**Notes:**

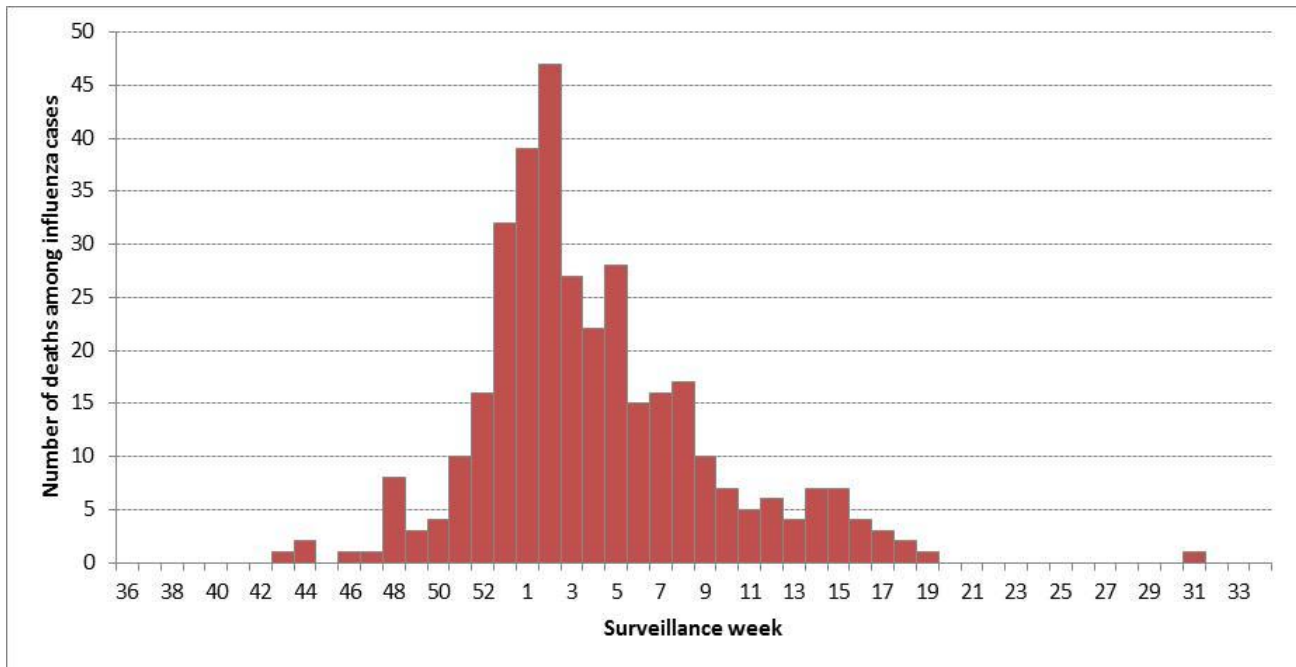
In the 2014-2015 season, only a proportion of laboratory confirmed cases were followed up by public health units, therefore it is anticipated that the number of deaths is a greater under-estimation of the true number of deaths than reported in previous seasons.

**Figure 7.** Number of hospitalizations among laboratory-confirmed cases of influenza, by episode date: Ontario, August 31, 2014 to August 29, 2015



**Source:** Ontario Ministry of Health and Long-Term Care (MOHLTC), integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2015/10/05].

**Figure 8.** Number of deaths among laboratory-confirmed cases of influenza, by date of death: Ontario, August 31, 2014 to August 29, 2015



**Source:** Ontario Ministry of Health and Long-Term Care (MOHLTC), integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2015/10/05].

**Notes:**

All cases with a ‘fatal’ outcome entered in iPHIS were included in this figure, regardless of death attribution. 13 cases with an unknown date of death were excluded from this figure.

In the 2014-2015 season, only a proportion of laboratory confirmed cases were followed up by public health units, therefore it is anticipated that the number of deaths is a greater under-estimation of the true number of deaths than reported in previous seasons.

**Table 4.** Institutional respiratory infection outbreaks: Ontario, September 1, 2014 to August 31, 2015

<b>Institutional Respiratory Infection Outbreaks</b>		
<b>Cumulative outbreaks for season</b>	<b>Number of outbreaks</b>	<b>Percentage (%) of total</b>
<i>Influenza A</i>	1038	56.0
<i>Influenza B</i>	89	4.8
<i>Influenza A and B</i>	11	0.6
<b>Influenza total</b>	<b>1138</b>	<b>61.4</b>
<i>Enterovirus/rhinovirus</i>	226	12.2
<i>Parainfluenza (All types)</i>	68	3.7
<i>Respiratory Syncytial Virus (RSV)</i>	70	3.8
<i>Combined outbreaks</i> <sup>1</sup>	96	5.2
<i>Other organisms</i> <sup>2</sup>	105	5.7
<b>Other respiratory viruses total</b>	<b>565</b>	<b>30.5</b>
<b>No organism identified</b>	<b>149</b>	<b>8.0</b>
<b>TOTAL</b>	<b>1852</b>	<b>100.0</b>
<b>Types of institutions for outbreaks</b>		
Long-Term Care Homes	1041	56.2
Hospitals	148	8.0
Retirement Homes	397	21.4
Other <sup>3</sup>	16	0.9
Unknown	250	13.5
<b>TOTAL</b>	<b>1852</b>	<b>100.0</b>

**Source:** Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2015/10/05].

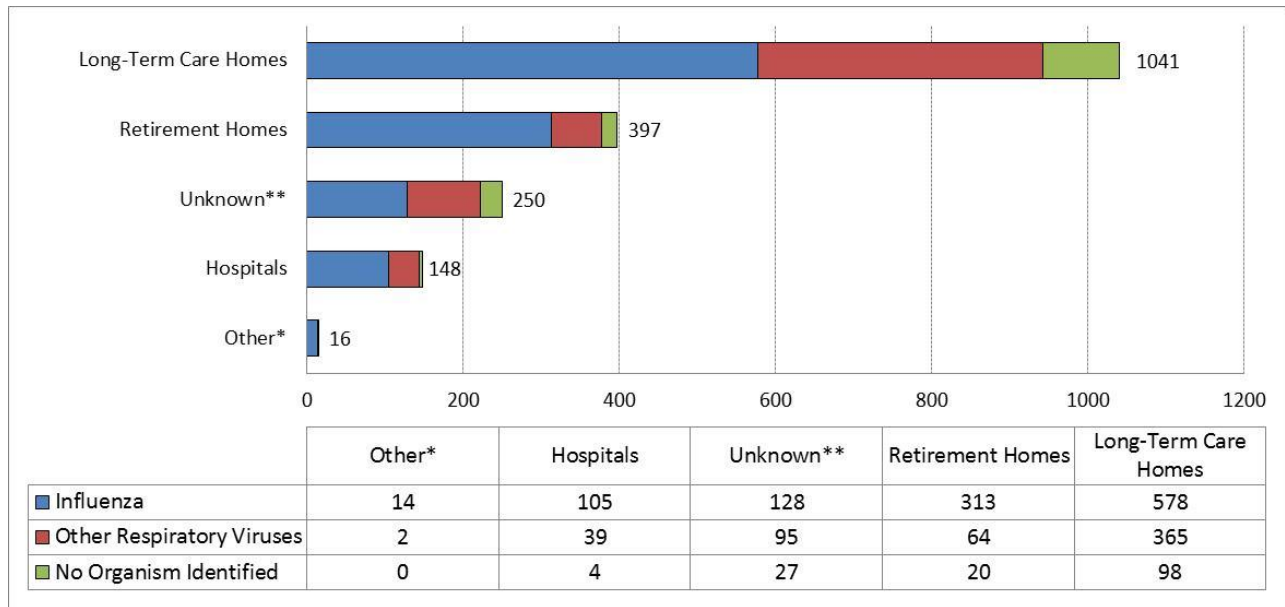
**Notes:**

<sup>1</sup> Combined outbreaks include outbreaks in which more than one non-influenza organism has been identified (e.g. RSV, parainfluenza, rhinovirus, etc.).

<sup>2</sup> Other organisms include outbreaks involving other aetiological agents, such as human metapneumovirus, adenovirus, and coronavirus.

<sup>3</sup> Other types of institutions include: correctional facilities, group homes, shelters, and facilities operating under the *Developmental Services Act*. Note that school-based respiratory outbreaks are not captured in this table.

**Figure 9.** Respiratory infection outbreaks by organism reported and institution type: Ontario, September 1, 2014 to August 31, 2015



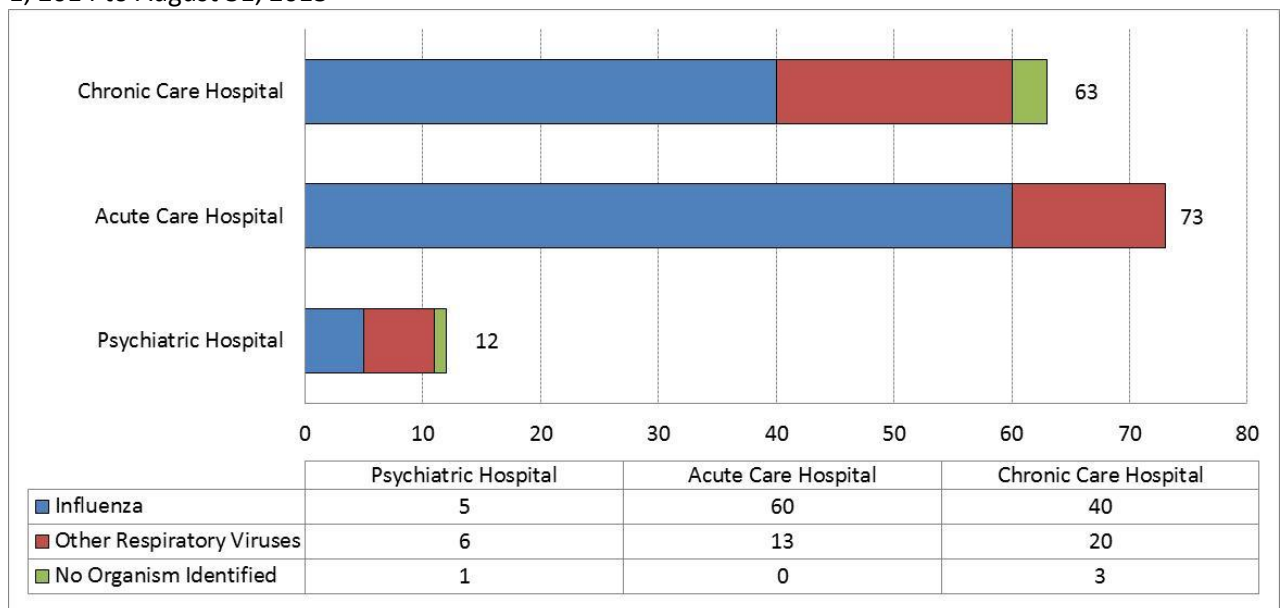
**Source:** Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2015/10/05].

**Notes:**

\*Includes those respiratory infection outbreaks for which 'Other' was reported in the Exposure Setting Type field in iPHIS.

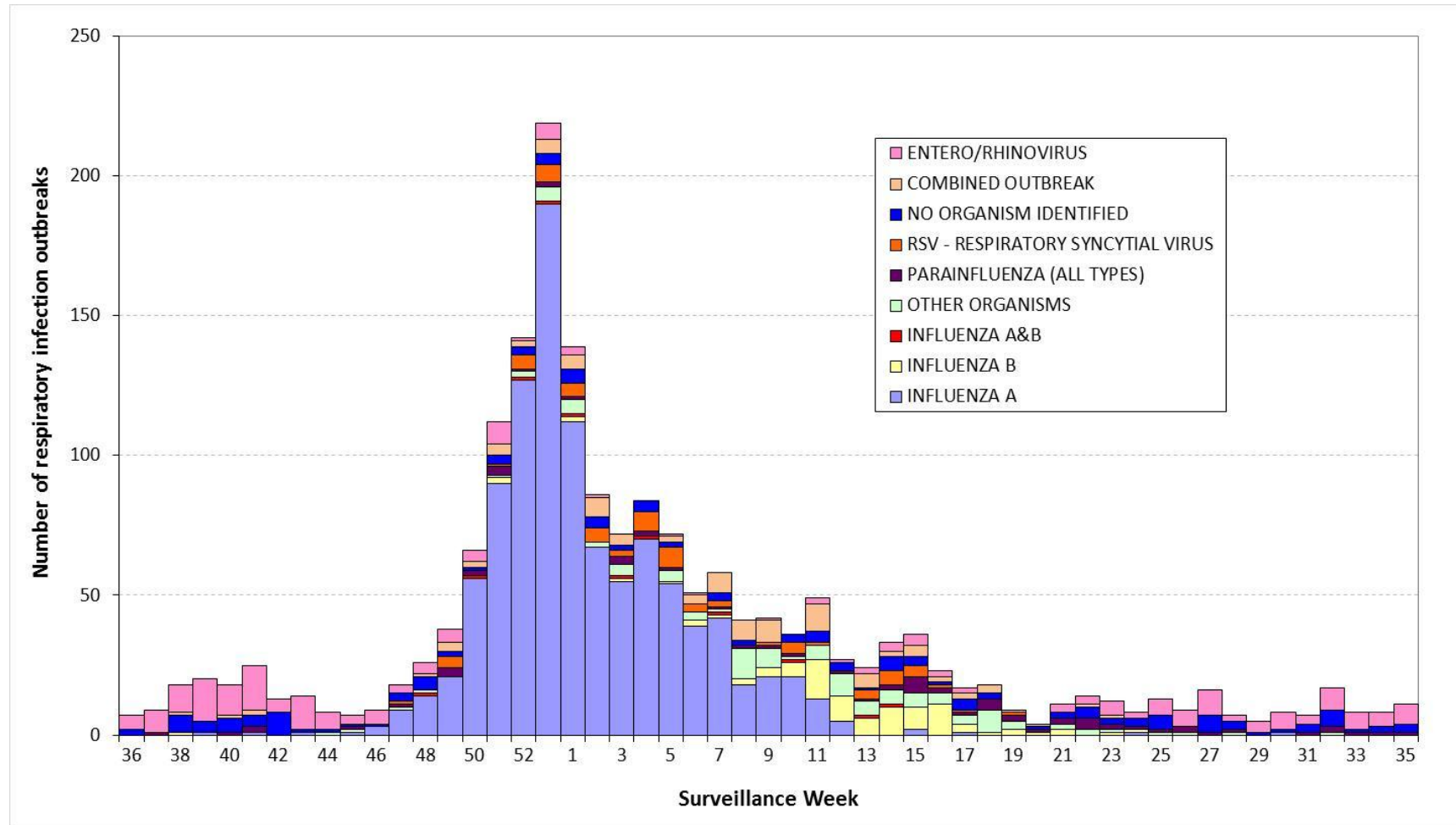
\*\* Unknown includes those respiratory infection outbreaks for which either no Exposure Setting Type was entered or was reported as 'Unknown' in iPHIS.

**Figure 10.** Respiratory infection outbreaks, by organism reported and type of hospital: Ontario, September 1, 2014 to August 31, 2015



**Source:** Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2015/10/05].

**Figure 11.** Institutional respiratory infection outbreaks by week of illness onset in the first case: Ontario, September 1, 2014 to August 31, 2015



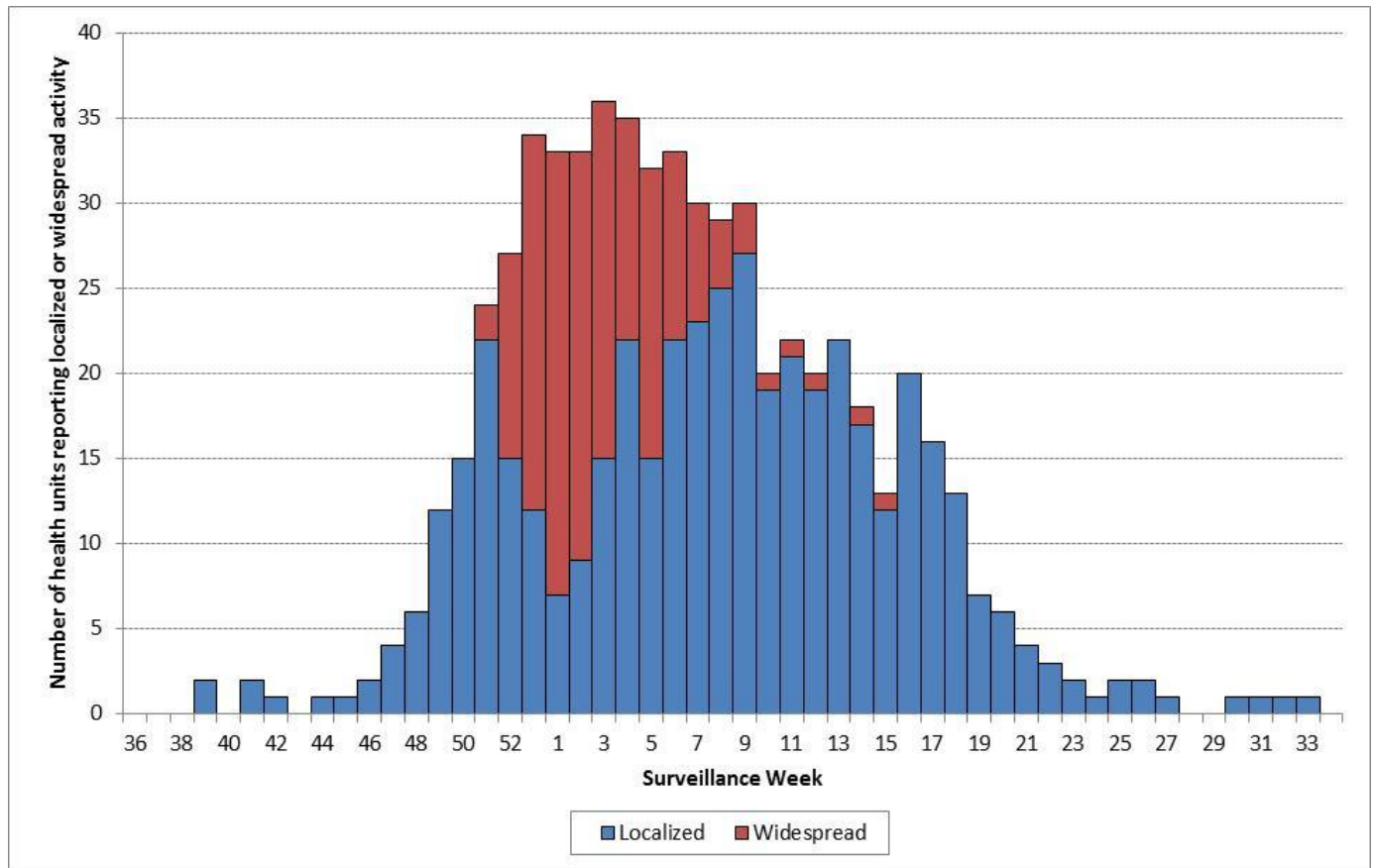
**Source:** Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2015/10/05].

**Notes:**

Institutional respiratory infection outbreaks for which the date of onset of illness for the first case is missing are excluded in this figure. However, these outbreaks are counted in the cumulative outbreaks section of Table 4.

Week 36 excludes outbreaks with an onset date prior to September 1, 2014, while week 35 excludes outbreaks with an onset date after August 31, 2015.

**Figure 12.** ‘Localized’ and ‘Widespread’ influenza activity levels reported by public health units, by reporting week: Ontario, August 31, 2014 (Week 36) to August 29, 2015 (Week 34)



**Source:** Public Health Ontario [Provincial Influenza Activity Report (Appendix C) Database]

**Notes:**

Influenza activity levels are assigned by local public health units and reported to Public Health Ontario by the Tuesday following the end of each surveillance week at 4:00 p.m. Activity levels are assigned based on laboratory confirmations, ILI reports from various sources, and laboratory-confirmed institutional respiratory infection outbreaks. Please click here for [detailed definitions for the 2014-15 season](#).

Activity levels reported for a particular surveillance week may not necessarily correspond to the number of new outbreaks reported in the same week because ongoing outbreaks from previous weeks, as well as laboratory-confirmed outbreaks in schools, may be included in the assessment of the activity level.



**APPENDIX I****Table I.** Strain characterization completed on influenza isolates at the National Microbiology Laboratory: Ontario and Canada, September 1, 2014 to August 27, 2015

Influenza strains	Ontario	Canada
<b>Influenza A (H3N2)</b>		
A/Switzerland/9715293/2013-like	82	215
A/Texas/50/2012-like	1	6*
<b>Influenza A (H1N1)pdm09</b>		
A/California/07/2009-like	21	24
<b>Influenza B**</b>		
B/Brisbane/60/2008-like	61	108
B/Massachusetts/02/2012-like	353	818

**Source:** Influenza and Respiratory Viruses Section, National Microbiology Laboratory (NML). Received: August 27, 2015

**Notes:**

\*Of the six influenza A (H3N2) viruses characterized as A/Texas/50/2012, five viruses showed reduced titres to A/Texas/50/2012, one was antigenically similar to A/Texas/50/2012.

\*\*Of the 926 influenza B viruses characterized, NML reported that 815 viruses were antigenically similar to the vaccine strain B/Massachusetts/2/2012. Three viruses showed reduced titres with antiserum produced against B/Massachusetts/2/2012. 108 viruses were characterized as B/Brisbane/60/2008-like.

Through genetic characterization performed at NML, sequence analysis showed that all of the H3N2 viruses (380) tested from Ontario belonged to a genetic group that typically shows reduced titers to A/Texas/50/2012 due to amino acid mutations at antigenic sites.

The WHO recommended influenza strains for the [2014-15](#) trivalent influenza vaccine for the northern hemisphere were: an A/California/7/2009 (H1N1)pdm09-like virus, an A/Texas/50/2012 (H3N2)-like virus, and a B/Massachusetts/2/2012-like virus. WHO also recommended that quadrivalent vaccines containing two influenza B viruses include a B/Brisbane/60/2008-like virus. A preliminary estimate of influenza vaccine effectiveness in Canada for the 2014-15 season is [available](#). WHO has released their recommendation for strain components for the 2015-16 Northern Hemisphere [vaccine](#).

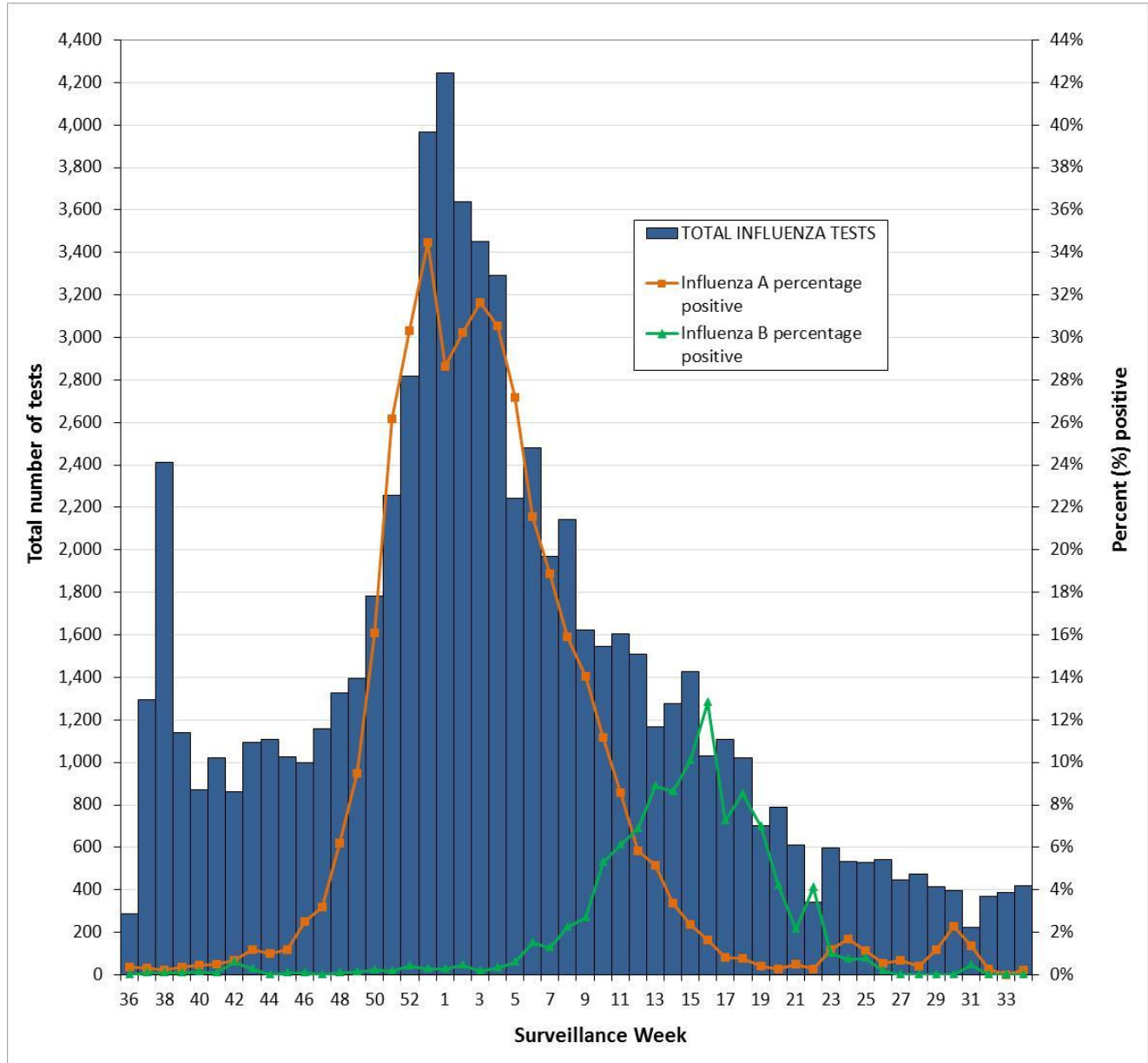
**Table II.** Amantadine, oseltamivir and zanamivir susceptibility assays completed on influenza isolates at the National Microbiology Laboratory: Ontario and Canada, September 1, 2014 to August 27, 2015

Influenza strains	Amantadine				Oseltamivir				Zanamivir			
	ONTARIO		CANADA		ONTARIO		CANADA		ONTARIO		CANADA	
	R	S	R	S	R	S	R	S	R	S	R	S
Influenza A (H3N2)	482	1	1476	1	0	290	1	985	0	290	0	984
Influenza A (H1N1)pdm09	23	0	26	0	0	21	0	25	0	21	0	25
Influenza B	NA	NA	NA	NA	0	415	0	926	0	415	0	926

(R = Resistant, S = Susceptible, NA = Not Applicable)

**Source:** Influenza and Respiratory Viruses Section, National Microbiology Laboratory (NML). Received: August 27, 2015

**Figure I.** Total number of influenza tests performed and percent of positive tests by report week: Ontario, August 31, 2014 to August 29, 2015



**Source:** These data have been obtained from the Public Health Agency of Canada’s (PHAC) Centre for Immunization and Respiratory Infectious Diseases (CIRID) respiratory virus detection tables as of September 2, 2015; they are based on data submitted to PHAC from 16 laboratories in Ontario.

**Notes:**

The numbers reported in this figure represent results submitted to the CIRID by 16 participating laboratories in Ontario, including 11 Public Health Ontario Laboratories and five hospital-based laboratories. Results above are assigned to a particular surveillance week based on when test results are reported to PHAC; these data are not updated when results are submitted late for previous surveillance weeks. These data represent the number of specimens tested, which may not necessarily correspond with the number of patients as more than one specimen may have been submitted per patient. Cumulative numbers for the season to date are also available through FluWatch: <http://www.phac-aspc.gc.ca/fluwatch/>

**APPENDIX II – Reporting Weeks for the 2014-15 Surveillance Season**

WEEKS	START	END
WK36	31-Aug-14	6-Sep-14
WK37	7-Sep-14	13-Sep-14
WK38	14-Sep-14	20-Sep-14
WK39	21-Sep-14	27-Sep-14
WK40	28-Sep-14	4-Oct-14
WK41	5-Oct-14	11-Oct-14
WK42	12-Oct-14	18-Oct-14
WK43	19-Oct-14	25-Oct-14
WK44	26-Oct-14	1-Nov-14
WK45	2-Nov-14	8-Nov-14
WK46	9-Nov-14	15-Nov-14
WK47	16-Nov-14	22-Nov-14
WK48	23-Nov-14	29-Nov-14
WK49	30-Nov-14	6-Dec-14
WK50	7-Dec-14	13-Dec-14
WK51	14-Dec-14	20-Dec-14
WK52	21-Dec-14	27-Dec-14
WK53	28-Dec-14	3-Jan-15
WK1	4-Jan-15	10-Jan-15
WK2	11-Jan-15	17-Jan-15
WK3	18-Jan-15	24-Jan-15
WK4	25-Jan-15	31-Jan-15
WK5	1-Feb-15	7-Feb-15
WK6	8-Feb-15	14-Feb-15
WK7	15-Feb-15	21-Feb-15
WK8	22-Feb-15	28-Feb-15
WK9	1-Mar-15	7-Mar-15
WK10	8-Mar-15	14-Mar-15
WK11	15-Mar-15	21-Mar-15
WK12	22-Mar-15	28-Mar-15
WK13	29-Mar-15	4-Apr-15
WK14	5-Apr-15	11-Apr-15
WK15	12-Apr-15	18-Apr-15
WK16	19-Apr-15	25-Apr-15
WK17	26-Apr-15	2-May-15
WK18	3-May-15	9-May-15
WK19	10-May-15	16-May-15
WK20	17-May-15	23-May-15
WK21	24-May-15	30-May-15
WK22	31-May-15	6-Jun-15
WK23	7-Jun-15	13-Jun-15
WK24	14-Jun-15	20-Jun-15
WK25	21-Jun-15	27-Jun-15
WK26	28-Jun-15	4-Jul-15
WK27	5-Jul-15	11-Jul-15
WK28	12-Jul-15	18-Jul-15
WK29	19-Jul-15	25-Jul-15
WK30	26-Jul-15	1-Aug-15
WK31	2-Aug-15	8-Aug-15
WK32	9-Aug-15	15-Aug-15
WK33	16-Aug-15	22-Aug-15
WK34	23-Aug-15	29-Aug-15