

Ontario Respiratory Virus Bulletin | 2014-2015

SURVEILLANCE WEEK 45 (November 2, 2014 – November 8, 2014)

This issue of the Ontario Respiratory Virus Bulletin provides information on the surveillance period from November 2 to November 8, 2014 (Week 45). Unless otherwise specified, **data presented in this issue of the bulletin are for Week 45** and data extraction occurred on Wednesday, November 12, 2014.

Please note that Public Health Ontario (PHO) is now publishing expanded versions of the Ontario Respiratory Virus Bulletin each week. PHO will produce this expanded version throughout the influenza season, until the spring of 2015. A summary version of the Ontario Respiratory Virus Bulletin for the 2013-2014 surveillance season has now also been released and posted on the PHO website.

Assessment of Influenza Activity in Ontario

Measure of activity	Assessment of measure compared to the previous week (Lower, Similar, Higher)	Reasoning behind assessment
Laboratory-confirmed influenza cases ¹	Similar	There were 12 influenza cases (10 influenza A and 2 influenza B) reported ¹ in Week 45, which was similar to the 15 influenza cases reported in Week 44 (12 influenza A and 3 influenza B).
Respiratory sample percent positivity for influenza ²	Similar	Percent positivity ² of laboratory tests for all influenza types in Week 45 was 1.3%, which was similar to the percent positivity in Week 44 (1.0%).
Influenza outbreaks ³	Higher	There was one new influenza outbreak reported in Week 45 which was higher than Week 44.
Influenza activity levels reported by health units	Similar	In Week 45, one health unit reported 'localized' activity, three reported 'sporadic activity' and 31 reported 'no activity'. In Week 44, one health unit reported 'localized activity', four reported 'sporadic activity' and 26 reported 'no activity'.
OVERALL ASSESSMENT	Similar	Overall, the indicators show that influenza activity for Week 45 was similar to Week 44.
Measures of severity for influenza		
Hospitalizations among laboratory-confirmed cases of influenza ¹	Similar	There were three hospitalized cases reported in Week 45, which was similar to the seven hospitalized cases reported in Week 44.
Deaths among laboratory-confirmed cases of influenza ¹	Lower	There were no deaths reported in Week 45, which was lower than two deaths reported in Week 44.

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. ² Positivity among specimens submitted for testing to Ontario laboratories reporting to the Centre for Immunization and Respiratory Infectious Diseases (CIRID). ³ The number of new outbreaks reported for the current week is based on the onset date of illness for the first case in an outbreak meeting the provincial outbreak definition, as reported in iPHIS.

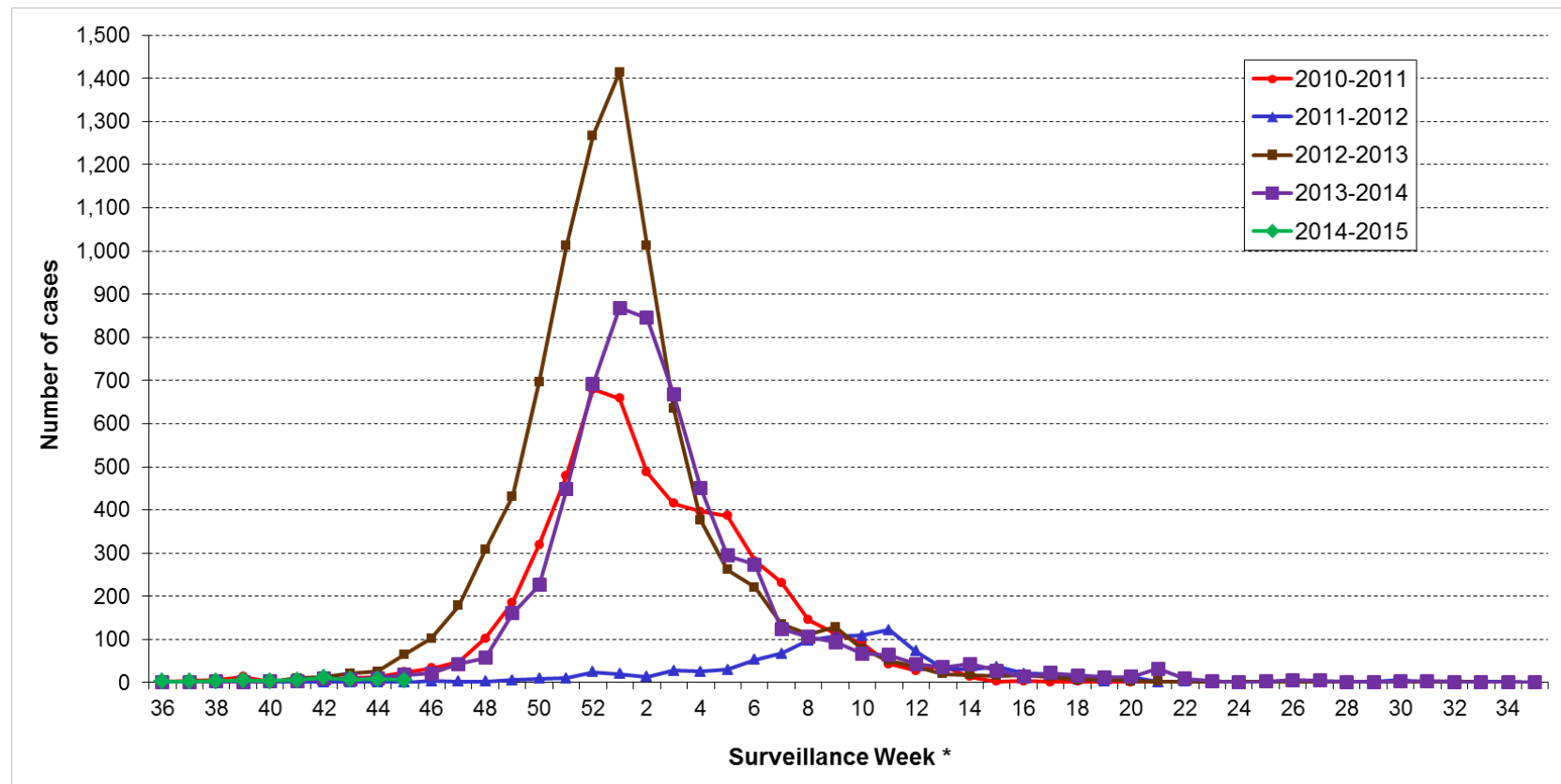
Summary of current and season-to-date respiratory virus activity in Ontario

Influenza activity in Ontario during week 45 was low and similar to the previous week.

- Influenza B percent positivity was 0.1% in Week 45, which was similar to Week 44 (0.0%); influenza A percent positivity was 1.2% in Week 45, which was similar to Week 44 (1.0%).¹
 - For the 2014-2015 surveillance season to date, 71 laboratory-confirmed influenza cases have been reported. Among these cases, the majority (80.0%, 57/71) were influenza A (Table 1).
 - Of the 129 institutional respiratory infection outbreaks reported to date in the 2014-2015 season, five were due to influenza; four influenza A and one influenza B.
 - In the season to date, 27 hospitalizations and two deaths have been reported among laboratory-confirmed influenza cases. The majority of hospitalizations occurred in influenza A cases (96.2%, 26/27).
- Among other circulating non-influenza respiratory viruses identified through laboratory testing:
 - Rhinovirus was the dominant circulating virus in Week 45; the percent positivity for rhinovirus was 17.9% in Week 45 compared to 19.3% in Week 44. Of all institutional respiratory infection outbreaks reported to date, 63.6% (82/129) were due to enterovirus/rhinovirus.
 - Respiratory syncytial virus (RSV) was the second most common circulating virus in Week 45; the percent positivity for RSV was 3.6% in Week 45 compared to 3.3% in Week 44.

¹ Based on percent positivity among specimens submitted for testing to laboratories reporting to the Public Health Agency of Canada's Centre for Immunization and Respiratory Infectious Diseases (CIRID).

Figure 1. Number of reported confirmed cases of **influenza A** by surveillance week: Ontario, September 1, 2010 to November 8, 2014



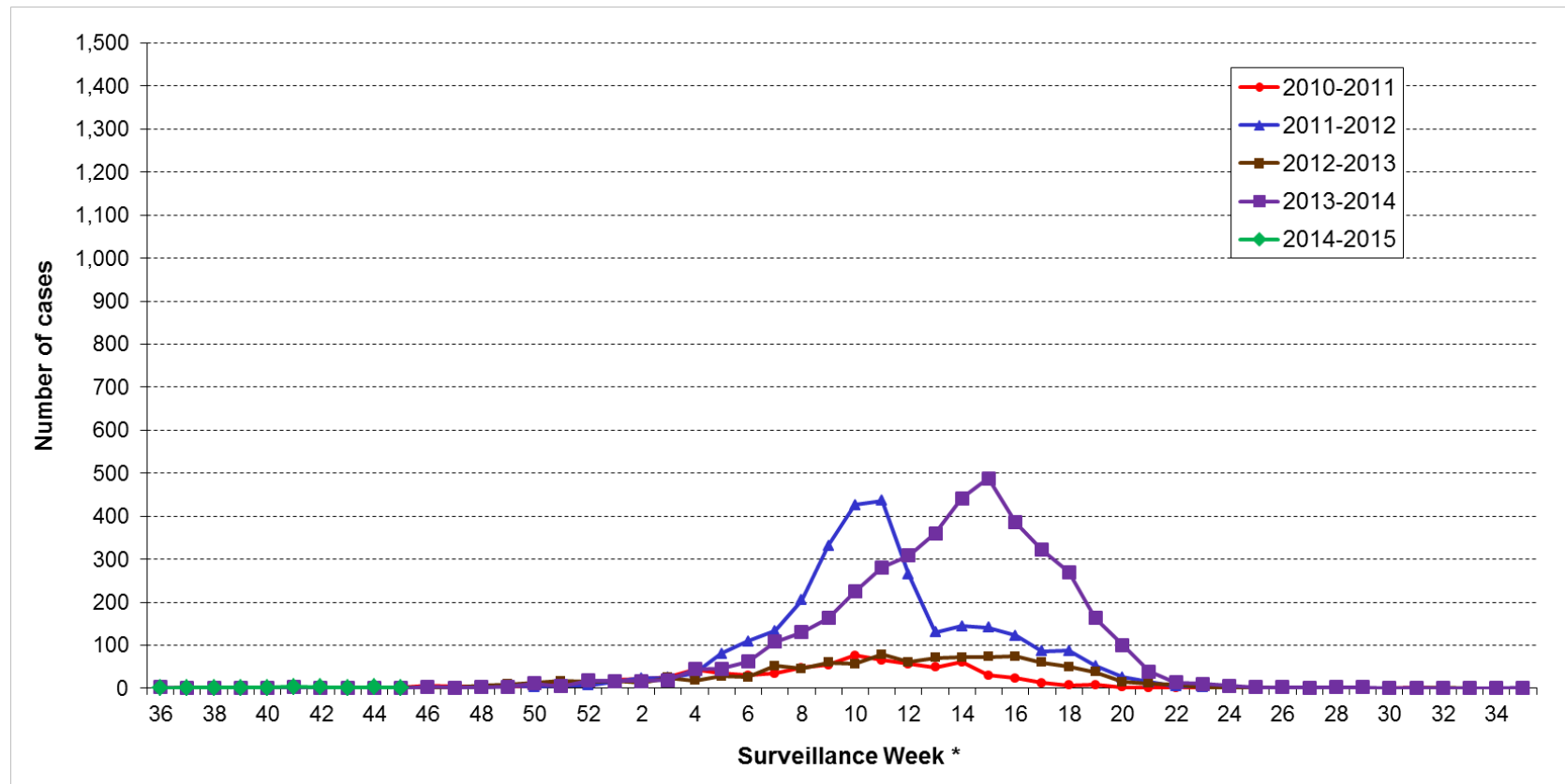
Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2014/11/12].

Notes:

Interpret most recent case counts for the current season with caution due to reporting lags.

*Case counts above are based on 'Reported Date', which was the date the health unit was notified of the case; however, 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). Cases are excluded from these counts if the episode date is based on reported date, and the reported date occurs after the latest surveillance week.

Figure 2. Number of reported confirmed cases of **influenza B** by surveillance week: Ontario, September 1, 2010 to November 8, 2014



Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2014/11/12].

Notes:

Interpret most recent case counts for the current season with caution due to reporting lags.

*Case counts above are based on 'Reported Date', which was the date the health unit was notified of the case; however, cases are assigned to a particular reporting 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). Cases are excluded from these counts if the episode date is based on reported date, and the reported date occurs after the latest surveillance week.

Table 1. Number of reported confirmed influenza cases by health unit and health region: Ontario, Week 45 and cumulative total (in parentheses) for the 2014-2015 season

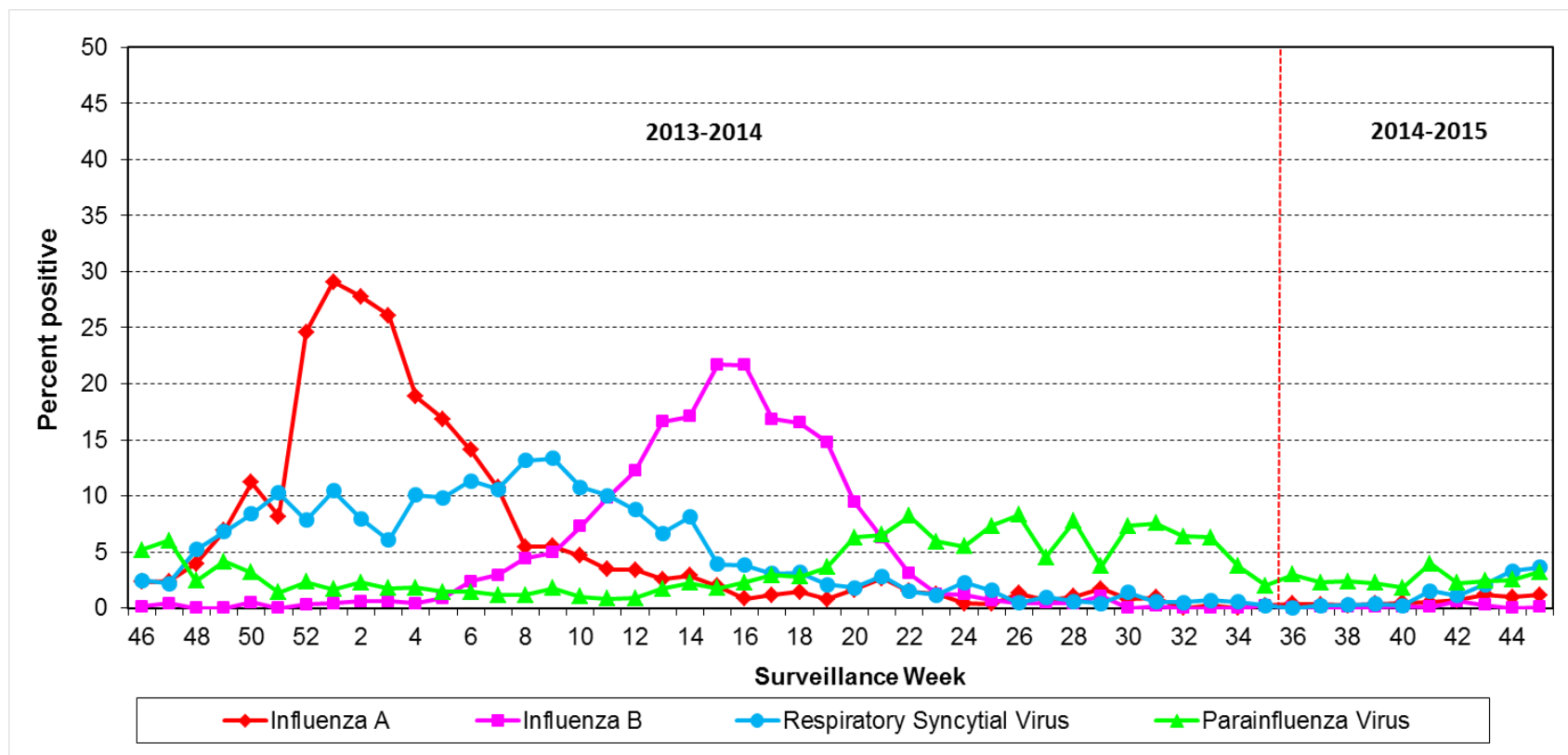
Health Unit and Region	Influenza A				Influenza A & B	Influenza B	TOTAL
	(H1N1) pdm09	H3	Other [*]	No subtype available			
Northwestern	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Thunder Bay District	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
TOTAL NORTH WEST	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Algoma	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
North Bay Parry Sound District	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Porcupine	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Sudbury & District	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Timiskaming	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
TOTAL NORTH EAST	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
City of Ottawa	0 (0)	0 (0)	0 (0)	0 (1)	0 (0)	0 (0)	0 (1)
Eastern Ontario	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Hastings & Prince Edward Counties	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Kingston, Frontenac, Lennox & Addington	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Leeds, Grenville And Lanark District	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Renfrew County And District	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
TOTAL EASTERN	0 (0)	0 (0)	0 (0)	0 (1)	0 (0)	0 (0)	0 (1)
Durham Region	0 (0)	0 (0)	0 (0)	0 (1)	0 (0)	0 (0)	0 (1)
Haliburton, Kawartha, Pine Ridge	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Peel Region	0 (0)	1 (5)	0 (0)	2 (4)	0 (0)	0 (0)	3 (9)
Peterborough County-City	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Simcoe Muskoka District	0 (0)	0 (0)	0 (0)	0 (3)	0 (0)	1 (2)	1 (5)
York Region	0 (0)	0 (1)	0 (0)	0 (1)	0 (0)	0 (1)	0 (3)
TOTAL CENTRAL EAST	0 (0)	1 (6)	0 (0)	2 (9)	0 (0)	1 (3)	4 (18)
Toronto	0 (1)	2 (18)	0 (0)	3 (11)	0 (0)	1 (7)	6 (37)
TOTAL TORONTO	0 (1)	2 (18)	0 (0)	3 (11)	0 (0)	1 (7)	6 (37)
Chatham-Kent	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Elgin-St. Thomas	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Grey Bruce	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (1)	0 (1)
Huron County	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Lambton County	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Middlesex-London	0 (0)	0 (1)	0 (0)	0 (2)	0 (0)	0 (0)	0 (3)
Oxford County	0 (0)	0 (1)	0 (0)	0 (0)	0 (0)	0 (0)	0 (1)
Perth District	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Windsor-Essex County	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
TOTAL SOUTH WEST	0 (0)	0 (2)	0 (0)	0 (2)	0 (0)	0 (1)	0 (5)
Brant County	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
City Of Hamilton	0 (0)	0 (0)	0 (0)	2 (4)	0 (0)	0 (0)	2 (4)
Haldimand-Norfolk	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Halton Region	0 (0)	0 (1)	0 (0)	0 (0)	0 (0)	0 (1)	0 (2)
Niagara Region	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Waterloo Region	0 (0)	0 (0)	0 (0)	0 (1)	0 (0)	0 (2)	0 (3)
Wellington-Dufferin-Guelph	0 (0)	0 (1)	0 (0)	0 (0)	0 (0)	0 (0)	0 (1)
TOTAL CENTRAL WEST	0 (0)	0 (2)	0 (0)	2 (5)	0 (0)	0 (3)	2 (10)
TOTAL ONTARIO	0 (1)	3 (28)	0 (0)	7 (28)	0 (0)	2 (14)	12 (71)

Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2014/11/12].

Notes: Case counts above are based on 'Reported Date', which was the date the health unit was notified of the case. The cumulative count (in parentheses) includes laboratory-confirmed cases with a 'Reported Date' between September 1, 2014 and the last day of the current surveillance week.

^{*} The 'Other' influenza A category includes any other influenza A subtypes identified; 'No subtype available' includes influenza A isolates that were classified as not subtyped, untypeable, or indeterminate.

Figure 3. Percentage of respiratory viral pathogens (influenza A, influenza B, respiratory syncytial virus, and parainfluenza virus) detected among specimens tested by all methods: Ontario, November 10, 2013 to November 8, 2014



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 November 12, 2014; they are based on data submitted to PHAC from 16 laboratories in Ontario.

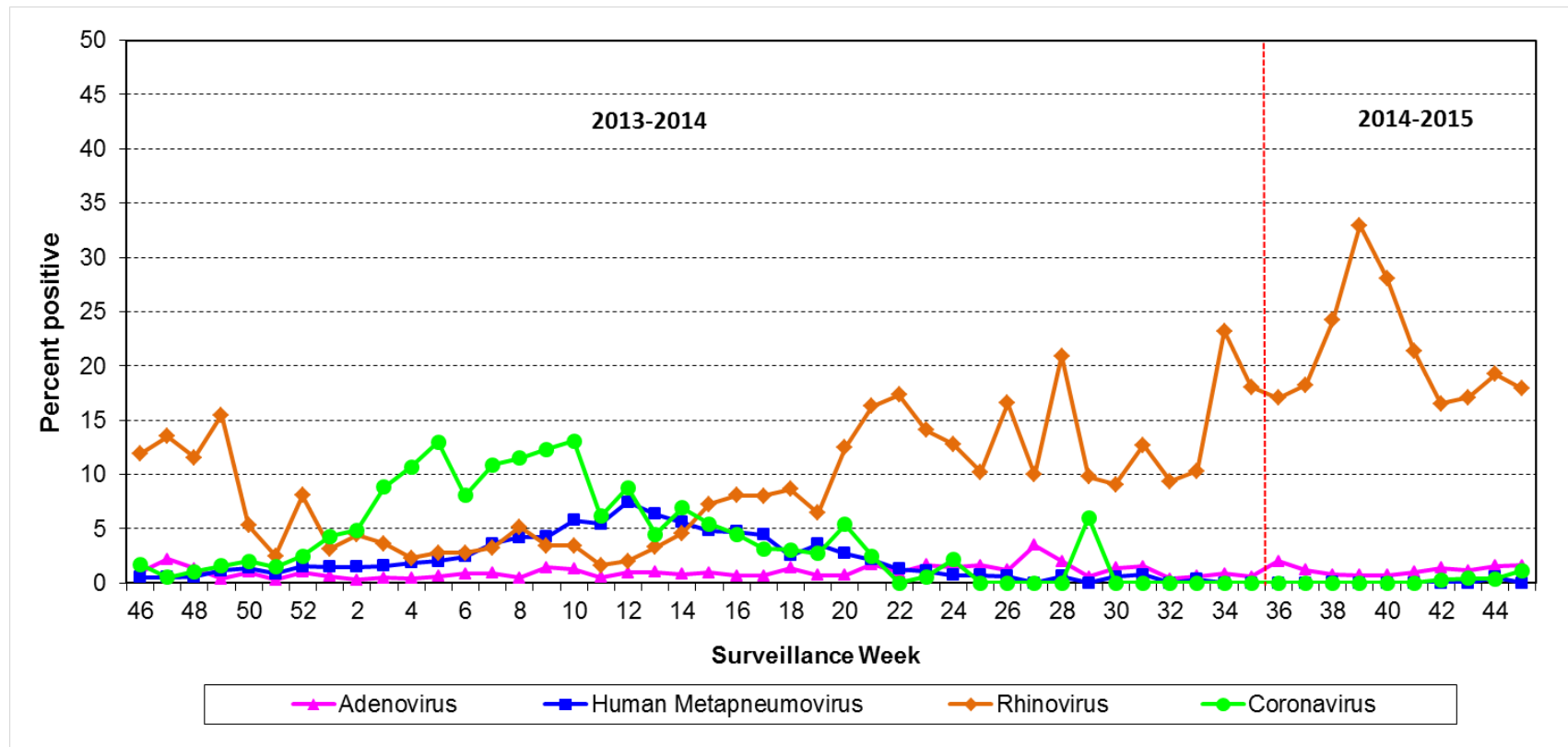
Notes:

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 4. Percentage of respiratory viral pathogens (adenovirus, human metapneumovirus, rhinovirus and coronavirus) detected among specimens tested by all methods: Ontario, November 10, 2013 to November 8, 2014



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 November 12, 2014; 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, Week 45 and cumulative for the 2014-2015 season

Detected viruses	Current Surveillance Week			Cumulative for Season*		
	Number positive	Number tested	Percent positive	Number positive	Number tested	Percent positive
Influenza (All)	13	1,027	1.3%	75	10,134	0.7%
<i>Influenza A</i>	12	1,027	1.2%	61	10,134	0.6%
<i>Influenza B</i>	1	1,027	0.1%	14	10,134	0.1%
Parainfluenza virus	28	871	3.2%	215	8,637	2.5%
Adenovirus	14	871	1.6%	90	8,635	1.0%
Respiratory syncytial virus	37	1,023	3.6%	157	9,968	1.6%
Rhinovirus	43	240	17.9%	807	3,896	20.7%
Human metapneumovirus	0	839	0.0%	7	8,151	0.1%
Coronavirus	2	175	1.1%	5	2,581	0.2%

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 November 12, 2014; they are based on data submitted to PHAC from 16 participating laboratories in Ontario.

Notes:

*Cumulative numbers include counts from August 24, 2014 (surveillance week 35) because PHAC's CIRID data include Week 35 as part of the 2014-2015 season.

The data in this table are based on the date on which test results are reported. Cumulative counts reported include late reports from previous weeks; however, the current week will not include data from laboratories that submit late reports. Therefore, weekly counts from previous weeks may not equal the cumulative count.

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. Institutional respiratory infection outbreaks: Ontario, Week 45 and total for the 2014-2015 season to date¹

Institutional Respiratory Infection Outbreaks		
New outbreaks (Week 44) ²	Number of outbreaks	Percentage (%) of total
Influenza A	1	25.0
Influenza B	0	0.0
Influenza A and B	0	0.0
Enterovirus/rhinovirus	1	25.0
Parainfluenza (all types)	0	0.0
Respiratory Syncytial Virus (RSV)	0	0.0
Combined outbreaks ³	0	0.0
Other organisms ⁴	0	0.0
No organism identified	2	50.0
TOTAL	4	100.0
Cumulative outbreaks (season to date) ¹	N	
Influenza A	4	3.1
Influenza B	1	0.8
Influenza A and B	0	0.0
Enterovirus/rhinovirus	82	63.6
Parainfluenza (All types)	5	3.9
Respiratory Syncytial Virus (RSV)	0	0.0
Combined outbreaks ³	2	1.6
Other organisms ⁴	1	0.8
No organism identified	34	26.4
TOTAL	129	100.0
Types of institutions for cumulative outbreaks		
Long-Term Care Homes	93	72.1
Hospitals	5	3.9
Retirement Homes	10	7.8
Other ⁵	0	0.0
Unknown	21	16.3
TOTAL	129	100.0

Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2014/11/12].

Notes:

¹ Season to date includes all outbreaks in which the date of onset of illness for the first case associated with the outbreak occurred between September 1, 2014 (Week 36) and the current reporting week, as well as outbreaks in which the date of onset of illness for the first case is missing.

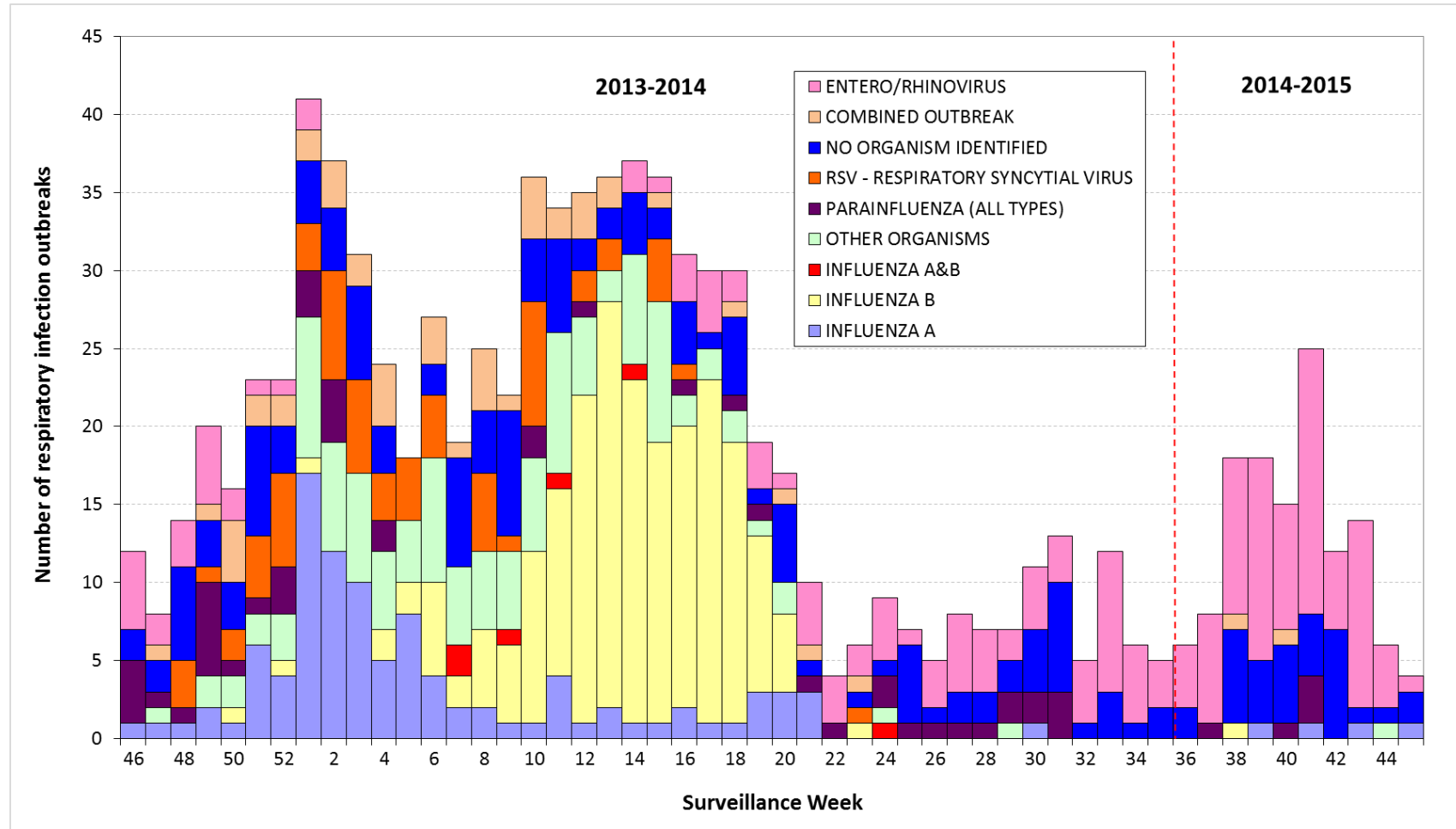
² New outbreaks are those in which the date of onset of illness in the first case occurred and was recorded in iPHIS in the current surveillance period; i.e. November 2 - November 8, 2014 (Week 45).

³ Combined outbreaks include outbreaks in which more than one non-influenza organism has been identified (e.g. RSV, parainfluenza, rhinovirus, etc.).

⁴ Other organisms include outbreaks involving other aetiological agents, such as human metapneumovirus, adenovirus, and coronavirus.

⁵ Other types of institutions include: correctional facilities, group homes, shelters, and facilities operating under the *Developmental Services Act*. Note that school-based and child care centre respiratory outbreaks are not captured in this table.

Figure 5. Institutional respiratory infection outbreaks by week of illness onset in the first case: Ontario, November 10, 2013 to November 8, 2014

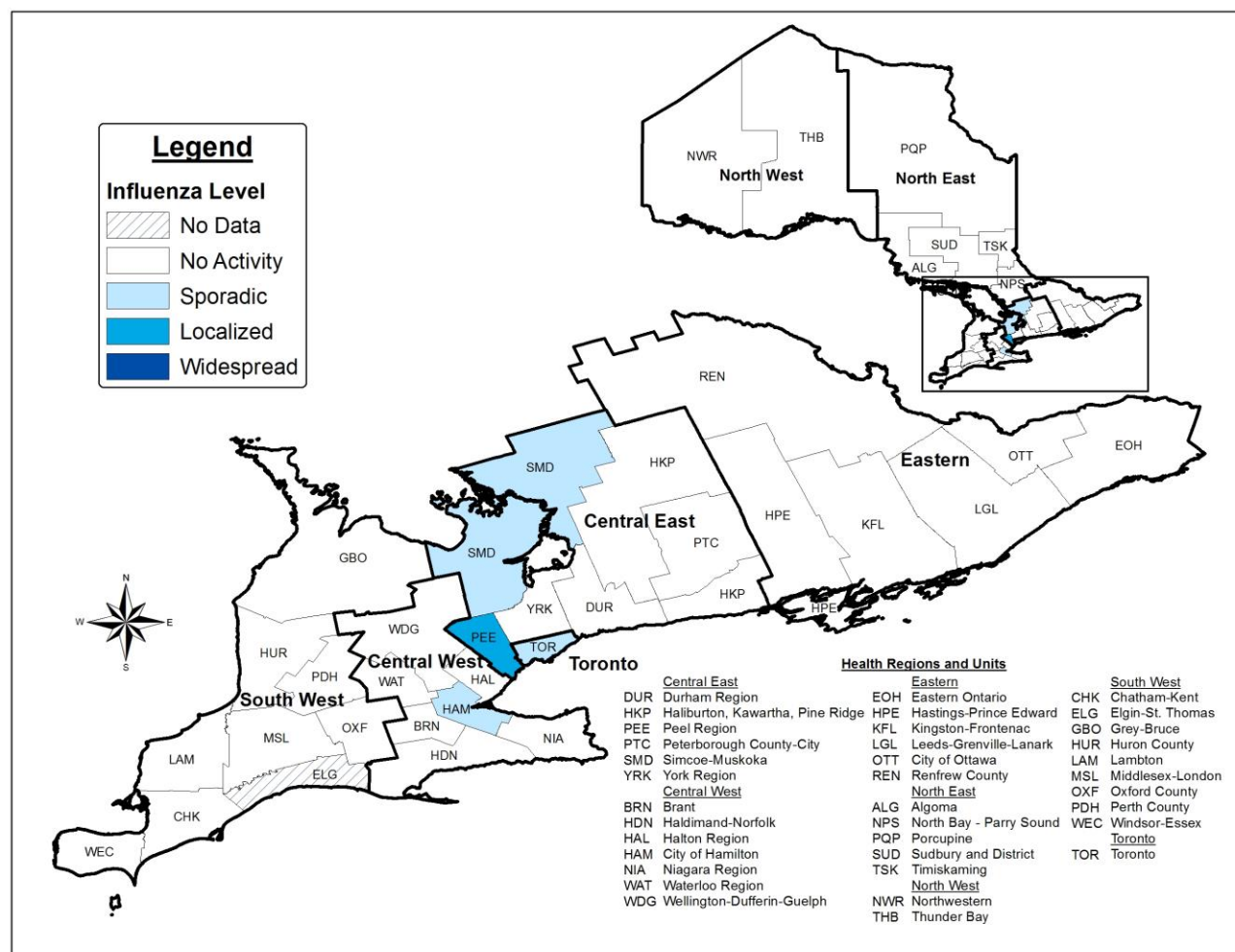


Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2014/11/12].

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 3.

Figure 6. Influenza activity levels reported by public health units: Ontario, November 2, 2014 to November 8, 2014 (Week 45)



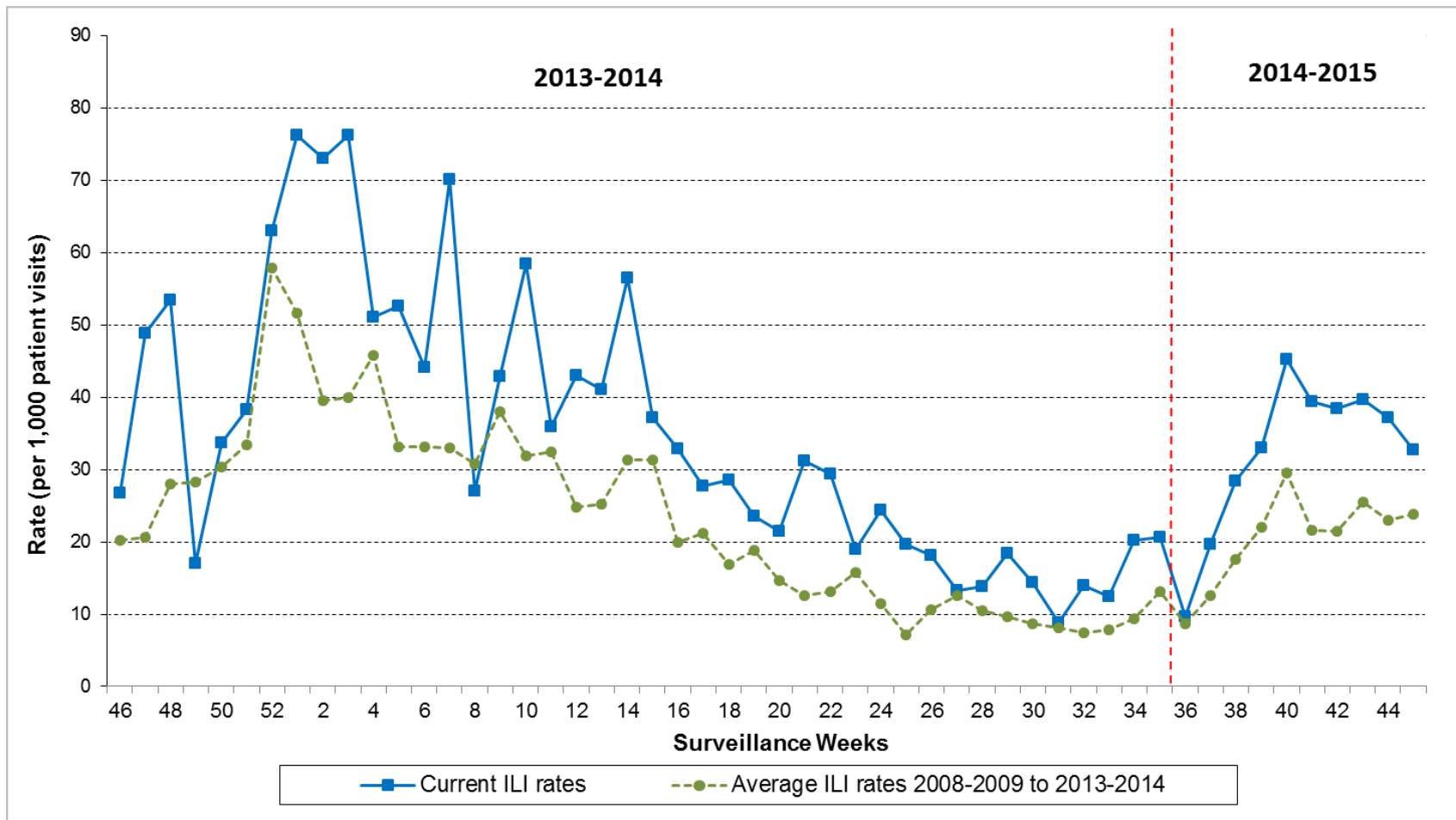
Source: Public Health Ontario [Provincial Influenza Activity Report (Appendix C) Database]

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 refer to the [detailed definitions for the 2014-2015 season for more information](#).

Activity levels reported for a particular surveillance week may not necessarily correspond to the number of new outbreaks reported in the same week in Table 3 because ongoing outbreaks from previous weeks, as well as laboratory confirmed outbreaks in schools, may be included in the assessment of the activity level.

Figure 7. Overall influenza-like-illness (ILI) consultation rate (per 1,000 patient visits) reported by sentinel sites, by surveillance week: Ontario, November 10, 2013 to November 8, 2014



Source: Public Health Agency of Canada (PHAC), FluWatch ILI sentinel surveillance reporting

Notes:

ILI consultations and total clinic visits are reported to PHAC each week by participating sentinel sites; 38 sentinel sites reported in Week 45. Due to the small number of sentinel sites reporting each week, readers are advised to consider overall trends and place less emphasis on week-to-week fluctuations.

Ontario average ILI rates include data from the 2008-2009 to the 2013-2014 seasons, excluding ILI rates during the time period of the influenza pandemic in Ontario (April 2009 to January 2010) due to the incomparability of those rates to a regular influenza season.

APPENDIX**Table I.** Strain characterization completed on influenza isolates at the National Microbiology Laboratory: Ontario and Canada, September 1, 2014 to November 13, 2014

Influenza strains	Ontario	Canada
Influenza A (H3N2) A/Texas/50/2012-like and reduced titres to A/Texas/50/2012	0	4*
Influenza A (H1N1)pdm09 A/California/07/2009-like	0	0
Influenza B B/Brisbane/60/2008-like	0	0
Influenza B B/Massachusetts/02/2012-like and reduced titres to B/Massachusetts/02/2012	2	5**

Source: Influenza and Respiratory Viruses Section, National Microbiology Laboratory (NML).

Notes:

*Of the four influenza A (H3N2) viruses characterized, one was antigenically similar to A/Texas/50/2012, which is the influenza A/H3N2 component recommended for the 2014-15 influenza vaccine. Three viruses showed reduced titres with antiserum produced against A/Texas/50/2012.

**Of the five influenza B viruses characterized, four viruses were antigenically similar to the vaccine strain B/Massachusetts/2/2012. One virus showed reduced titre with antiserum produced against B/Massachusetts/2/2012.

Notes:

The WHO recommended influenza strains for the [2014-2015](#) trivalent influenza vaccine for the northern hemisphere are: 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 recommends that quadrivalent vaccines containing two influenza B viruses include a B/Brisbane/60/2008-like virus.

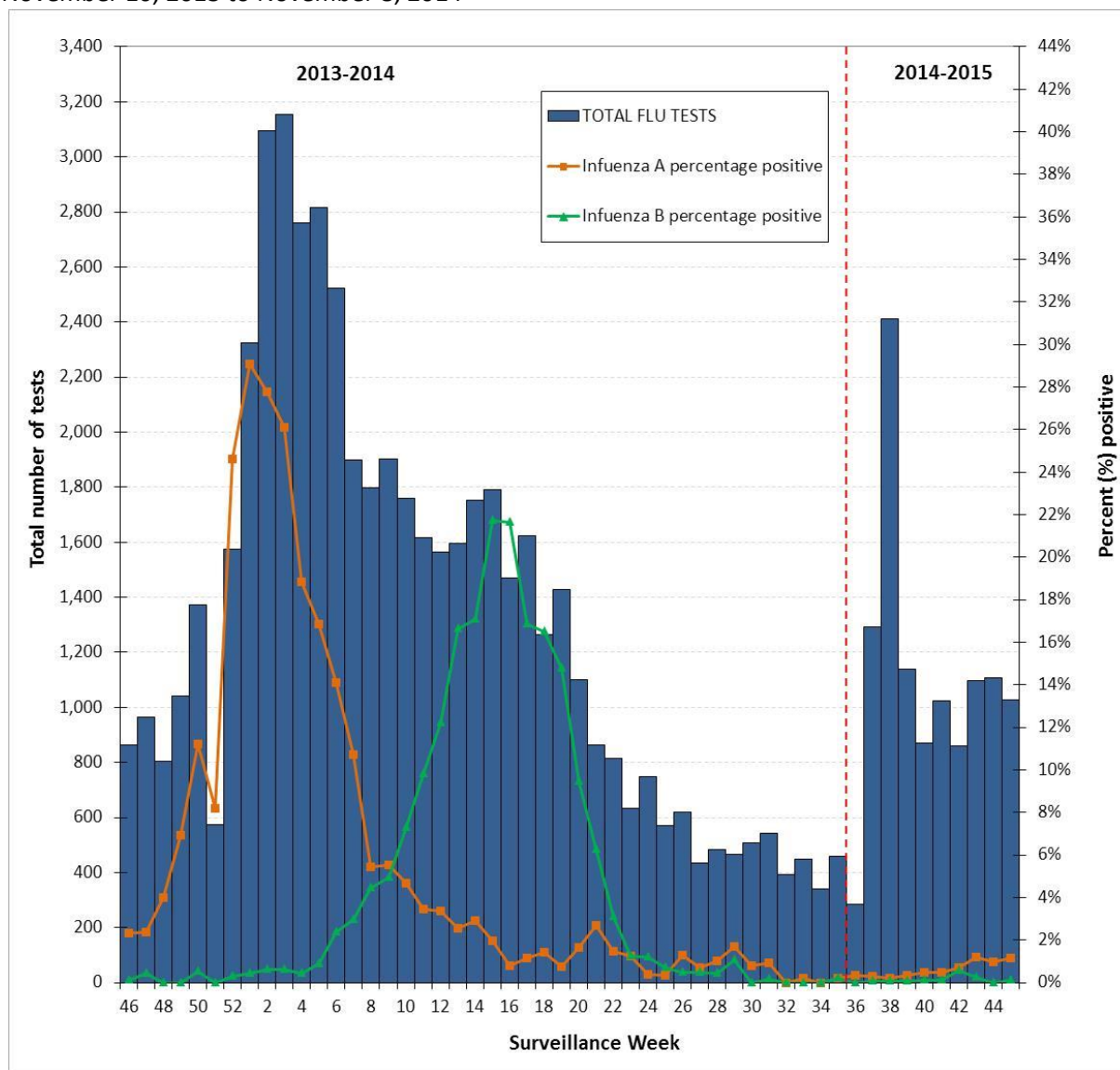
Table II. Amantadine, oseltamivir and zanamivir susceptibility assays completed on influenza isolates at the National Microbiology Laboratory: Ontario and Canada, September 1, 2014 to November 13, 2014

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)	2	0	17	0	0	1	0	8	0	1	0	8
Influenza A (H1N1)pdm09	0	0	0	0	0	0	0	0	0	0	0	0
Influenza B	NA	NA	NA	NA	0	2	0	8	0	2	0	8

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

Source: Influenza and Respiratory Viruses Section, National Microbiology Laboratory (NML).

Figure I. Total number of influenza tests performed and percent of positive tests by report week: Ontario, November 10, 2013 to November 8, 2014



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 November 12, 2014; 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/>