

Ontario Respiratory Virus Bulletin | 2013-2014

SURVEILLANCE WEEKS 51 and 52 (December 15, 2013 – December 28, 2013)

This issue of the Ontario Respiratory Virus Bulletin provides information on the surveillance period from December 15, 2013 to December 28, 2013 (Weeks 51 and 52). Weekly production of this expanded version of the bulletin will resume on January 10, and continue throughout the influenza season until May 2014, and then an abbreviated version will be published on alternate weeks.

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 ^{1,2}	Higher	There were 329 influenza cases (323 influenza A, five influenza B, and one influenza A and B) reported ¹ in week 52 (Table 1), which was more than the number of influenza cases reported in week 51 (252 influenza A and four influenza B). Percent positivity ² of laboratory tests for all influenza types in Ontario was 24.9% for week 52 (Table 3), which was higher than percent positivity in week 51 (8.2%).
Influenza outbreaks ³	Lower	There was one new influenza outbreak reported in week 52 (influenza B) and three respiratory outbreaks for which no organism was reported (Table 4). There were two influenza A outbreaks reported in week 51.
Influenza activity levels reported by health units	Similar	Twenty-three health units reported 'sporadic' and four reported 'localized' levels of influenza activity in week 52 (Figure 6). This is similar to the influenza activity levels reported in week 51 (24 'sporadic' and four 'localized').
OVERALL ASSESSMENT	Higher	Overall, the indicators show that influenza activity for week 52 was higher than week 51.
Measures of severity for influenza		
Hospitalizations and deaths among lab confirmed cases of influenza ¹	Similar	There were 78 hospitalized cases reported in week 52, which was higher than the 70 hospitalized cases reported in week 51. There was one additional death reported in week 52, which was lower than the three deaths reported in week 51 (Table 2).

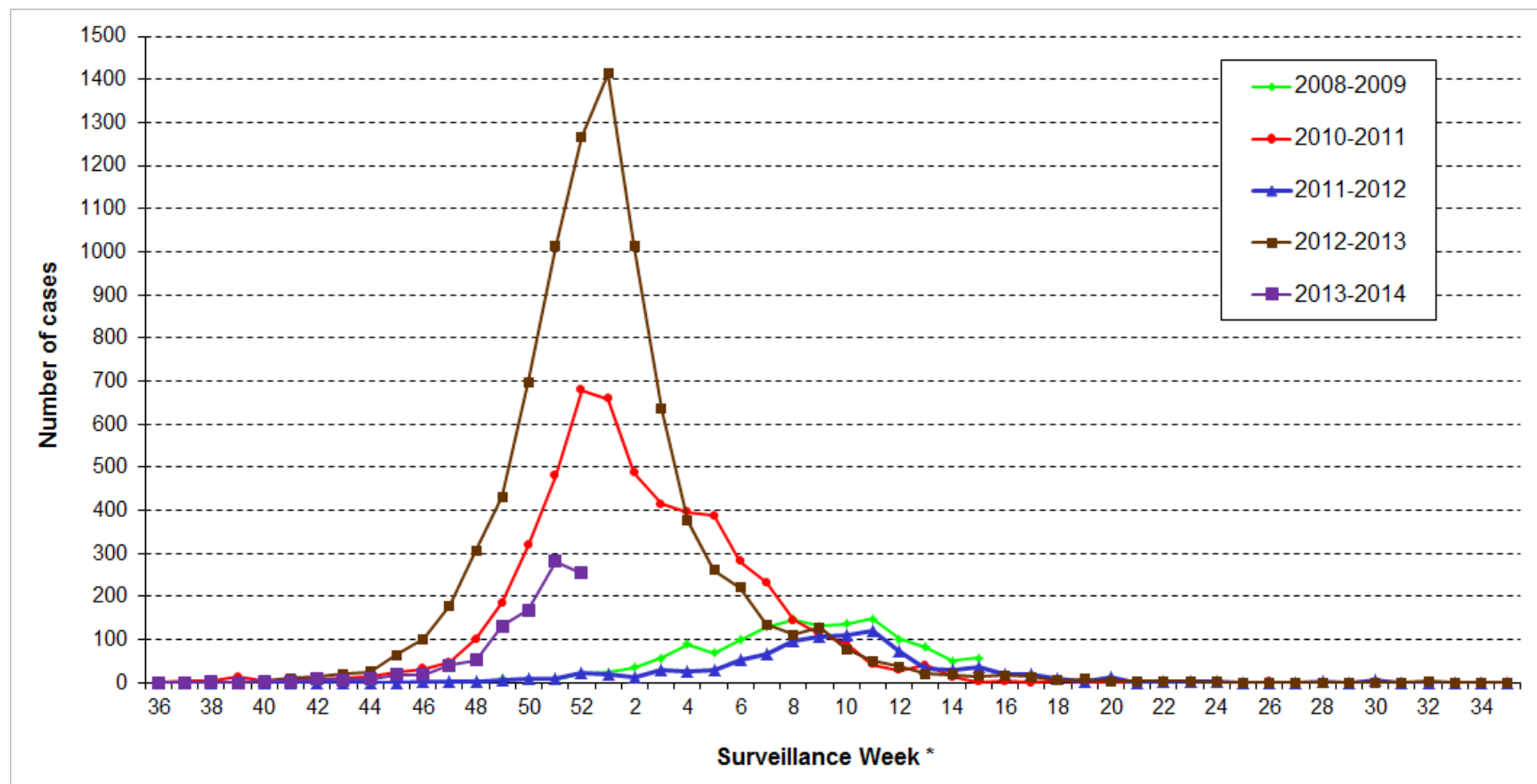
¹ The number of **reported** cases needs to be interpreted with caution because there is a lag between the onset of illness, hospital admission or death and when this information is reported to public health. ² Positivity among specimens submitted for testing to Ontario laboratories reporting to the Centre for Immunization and Respiratory Infectious Diseases (CIRID). Percent positivity should be interpreted with caution as only four Ontario laboratories submitted results to the CIRID for week 51, with 14 laboratories participating for week 52. 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. ⁴ Small numbers of sentinels reporting can make the ILI consultation rates unstable. Please interpret these data cautiously.

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

- Influenza activity in the 2013-2014 season to date is increasing; based on laboratory findings, influenza A is currently the predominant circulating influenza type with H1N1 the predominant circulating subtype.
 - ‘Sporadic’ influenza activity during week 52 has been reported from the majority of health units across the province and at least one health unit within each health unit region (Figure 6).
 - ‘Localized’ influenza activity during week 52 was reported in the City of Ottawa, Peel Region, Niagara Region, and Toronto health units (Figure 6).
 - In week 52, there were a total of four new institutional respiratory outbreaks, one of which was reported as influenza B (Table 4).
 - The percent positivity² for influenza A and influenza B in week 52 was 24.6% and 0.3%, respectively (Table 3, Appendix: Figure I).
 - A total of 908 influenza cases have been reported for the 2013-2014 surveillance season to date. Among these cases, the majority (96.6%, 877/908) were influenza A (Table 1).
 - In the season to date, 268 hospitalizations and eight deaths have been reported among laboratory-confirmed influenza cases (Table 2). The majority of hospitalizations have occurred among influenza A cases (96.3%, 258/268).
 - In week 52, the influenza-like illness (ILI) consultation rate was 63.1 per 1,000 patient visits (Figure 7).¹
- Among all other circulating respiratory viruses ^{2,3} in week 52 (Table 3):
 - Rhinovirus had the highest percent positivity (8.1%), which was higher compared to the previous week (2.5%).
 - Respiratory syncytial virus had the second highest percent positivity (7.8%), which was lower compared to the previous week (10.3%).

¹ Small numbers of sentinels reporting can make the ILI consultation rates unstable. Please interpret these data cautiously. ² Based on 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). ³ Percent positivity should be interpreted with caution as only four Ontario laboratories submitted results to the CIRID for week 51

Figure 1. Number of reported confirmed cases of **influenza A** by surveillance week: Ontario, September 1, 2008 to December 28, 2013



Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2013/12/31].

Notes:

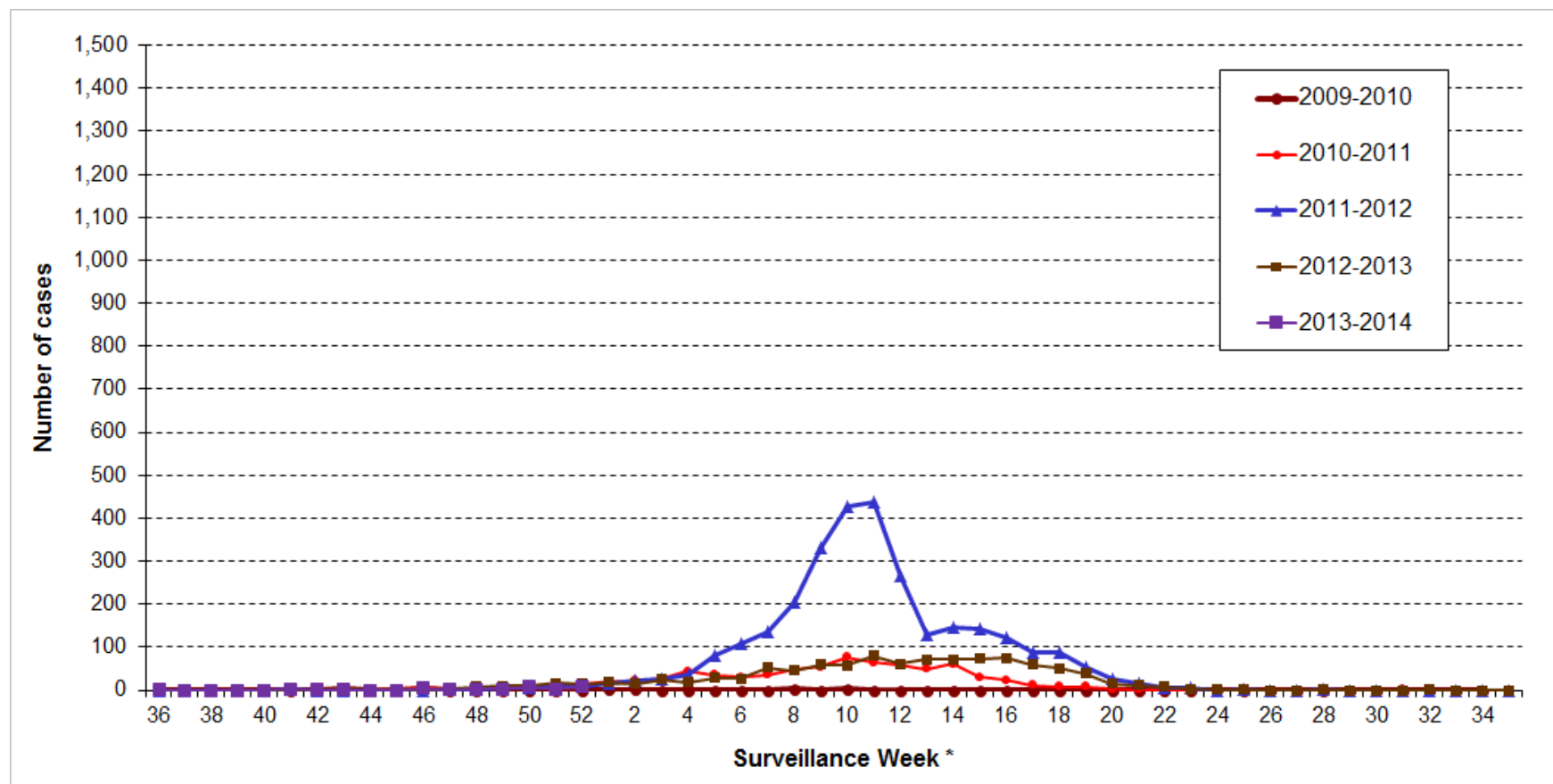
Interpret most recent case counts for the current season with caution due to reporting lags.

*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). Case counts based on episode dates may not be the same as case counts based on reported dates.

Cases with an episode date after week 15 in the 2008-2009 season, as well as all cases from the 2009-2010 influenza season, were excluded from this graph based on the assumption that the influenza burden during the pandemic period is not comparable to a regular influenza season.

Week 53 of the 2008-2009 season has been removed for continuity in displaying trends.

Figure 2. Number of reported confirmed cases of **influenza B** by surveillance week: Ontario, September 1, 2009 to December 28, 2013



Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2013/12/31].

Notes:

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

*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). Case counts based on episode dates may not be the same as case counts based on reported dates.

Table 1. Number of reported confirmed influenza cases by health unit and health region: Ontario, surveillance week 52 and cumulative total (in parentheses) for the 2013-2014 season

Health Unit and Region	Influenza A				Influenza A & B	Influenza B	TOTAL
	(H1N1) pdm09	No Subtype/ Not Subtyped	Other *	H3			
Northwestern	1 (2)	5 (10)	0 (0)	0 (0)	0 (0)	1 (1)	7 (13)
Thunder Bay District	1 (21)	8 (25)	0 (0)	0 (0)	1 (1)	0 (0)	10 (47)
TOTAL NORTH WEST	2 (23)	13 (35)	0 (0)	0 (0)	1 (1)	1 (1)	17 (60)
Algoma	2 (3)	3 (3)	0 (0)	0 (0)	0 (0)	0 (0)	5 (6)
North Bay Parry Sound District	3 (5)	13 (13)	0 (0)	0 (0)	0 (0)	1 (1)	17 (19)
Porcupine	2 (3)	0 (2)	0 (0)	0 (0)	0 (0)	0 (0)	2 (5)
Sudbury & District	1 (6)	10 (12)	0 (0)	0 (0)	0 (0)	0 (0)	11 (18)
Timiskaming	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
TOTAL NORTH EAST	8 (17)	26 (30)	0 (0)	0 (0)	0 (0)	1 (1)	35 (48)
City of Ottawa	0 (2)	26 (50)	0 (0)	0 (1)	0 (0)	0 (0)	26 (53)
Eastern Ontario	3 (13)	0 (5)	0 (0)	0 (0)	0 (0)	0 (0)	3 (18)
Hastings & Prince Edward Counties	0 (1)	1 (1)	0 (0)	0 (0)	0 (0)	0 (0)	1 (2)
Kingston, Frontenac, Lennox & Addington	1 (6)	2 (6)	0 (0)	0 (1)	0 (0)	1 (1)	4 (14)
Leeds, Grenville And Lanark District	0 (1)	2 (5)	0 (0)	0 (0)	0 (0)	0 (0)	2 (6)
Renfrew County And District	0 (0)	1 (1)	0 (0)	0 (0)	0 (0)	0 (0)	1 (1)
TOTAL EASTERN	4 (23)	32 (68)	0 (0)	0 (2)	0 (0)	1 (1)	37 (94)
Durham Region	5 (17)	0 (8)	0 (0)	1 (1)	0 (0)	0 (0)	6 (26)
Haliburton, Kawartha, Pine Ridge	0 (3)	0 (1)	0 (0)	0 (0)	0 (0)	0 (0)	0 (4)
Peel Region	1 (21)	27 (50)	0 (0)	0 (9)	0 (0)	0 (4)	28 (84)
Peterborough County-City	1 (2)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (2)
Simcoe Muskoka District	2 (25)	7 (10)	0 (0)	0 (0)	0 (0)	0 (1)	9 (36)
York Region	2 (9)	14 (20)	0 (0)	0 (2)	0 (0)	1 (2)	17 (33)
TOTAL CENTRAL EAST	11 (77)	48 (89)	0 (0)	1 (12)	0 (0)	1 (7)	61 (185)
Toronto	15 (77)	67 (96)	0 (0)	0 (26)	0 (0)	1 (11)	83 (210)
TOTAL TORONTO	15 (77)	67 (96)	0 (0)	0 (26)	0 (0)	1 (11)	83 (210)
Chatham-Kent	2 (8)	0 (0)	0 (0)	0 (0)	0 (0)	0 (1)	2 (9)
Elgin-St. Thomas	4 (5)	2 (2)	0 (0)	0 (0)	0 (0)	0 (0)	6 (7)
Grey Bruce	1 (6)	0 (1)	0 (0)	0 (0)	0 (0)	0 (0)	1 (7)
Huron County	0 (2)	0 (1)	0 (0)	0 (0)	0 (0)	0 (0)	0 (3)
Lambton County	2 (6)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	2 (6)
Middlesex-London	1 (13)	13 (27)	1 (1)	0 (0)	0 (0)	0 (0)	15 (41)
Oxford County	0 (0)	1 (1)	0 (0)	0 (0)	0 (0)	0 (0)	1 (1)
Perth District	1 (3)	0 (3)	0 (0)	0 (0)	0 (0)	0 (2)	1 (8)
Windsor-Essex County	9 (55)	12 (36)	0 (0)	0 (0)	0 (0)	0 (0)	21 (91)
TOTAL SOUTHWEST	20 (98)	28 (71)	1 (1)	0 (0)	0 (0)	0 (3)	49 (173)
Brant County	0 (1)	0 (1)	0 (0)	0 (0)	0 (0)	0 (0)	0 (2)
City Of Hamilton	0 (3)	18 (35)	0 (0)	0 (3)	0 (0)	0 (5)	18 (46)
Haldimand-Norfolk	0 (1)	1 (2)	0 (0)	0 (1)	0 (0)	0 (0)	1 (4)
Halton Region	1 (5)	13 (24)	0 (0)	0 (0)	0 (0)	0 (1)	14 (30)
Niagara Region	0 (7)	1 (7)	0 (0)	1 (1)	0 (0)	0 (0)	2 (15)
Waterloo Region	3 (12)	4 (9)	0 (0)	0 (2)	0 (0)	0 (0)	7 (23)
Wellington-Dufferin-Guelph	1 (10)	4 (8)	0 (0)	0 (0)	0 (0)	0 (0)	5 (18)
TOTAL CENTRAL WEST	5 (39)	41 (86)	0 (0)	1 (7)	0 (0)	0 (6)	47 (138)
TOTAL ONTARIO	65 (354)	255 (475)	1 (1)	2 (47)	1 (1)	5 (30)	329 (908)

Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2013/12/31].

Notes:

Case counts above are based on 'Reported Date', which is the date they were entered in iPHIS. As a result, weekly case counts above will not necessarily correspond to case counts for influenza in Figure 1 above.

The cumulative count (in parentheses) includes laboratory-confirmed cases with a 'Reported Date' between September 1, 2013 and the last day of the current surveillance week.

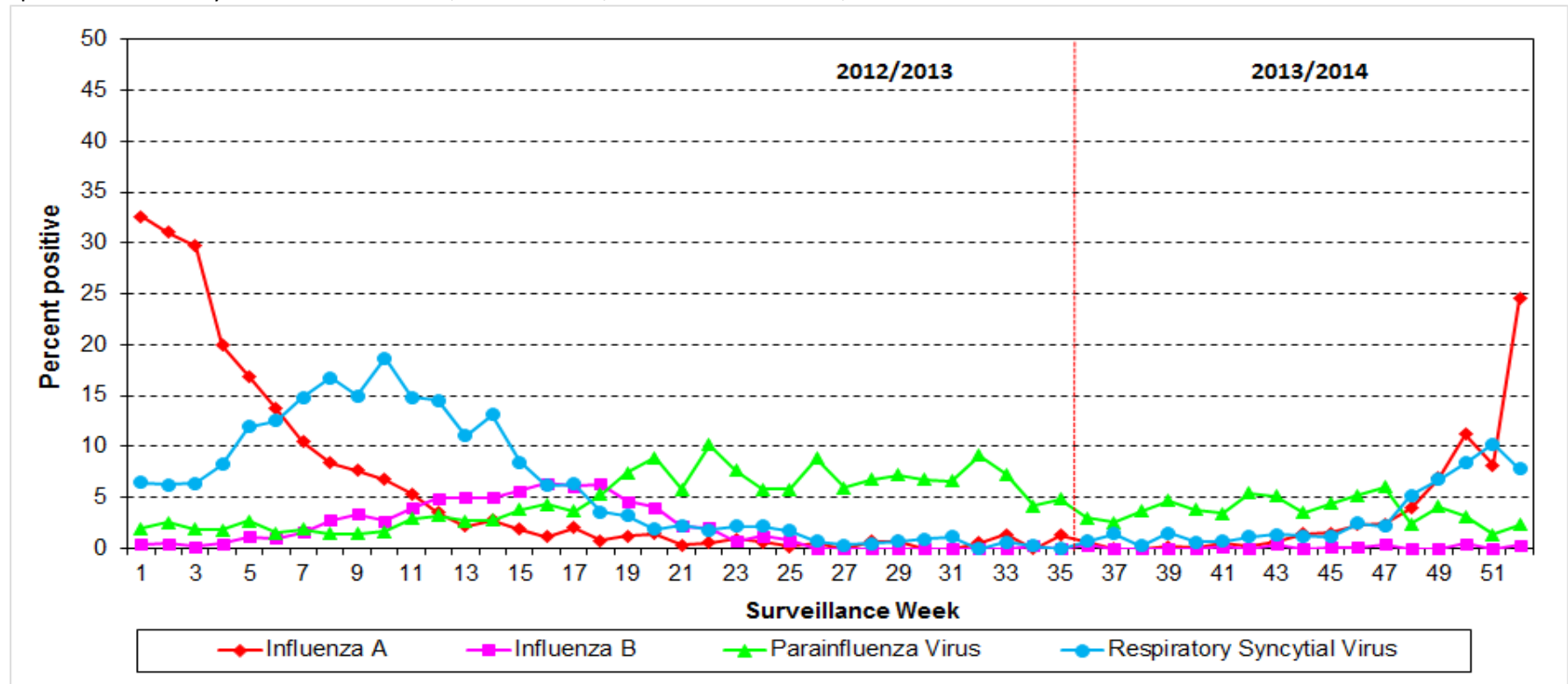
*The 'Other' influenza A category includes indeterminate, untypeable and other subtypes.

Table 2. Hospitalizations and deaths among confirmed influenza cases by age group: Ontario, week 52 and cumulative (rates and numbers in brackets) for the 2013-2014 season

Age Group	Number of Hospitalizations	Cumulative Rate per 100,000	Number of Deaths	Cumulative Rate per 100,000
<1	4 (29)	19.85	0 (0)	0.00
1 – 4	15 (37)	6.32	0 (0)	0.00
5 – 14	5 (14)	0.94	0 (0)	0.00
15 – 24	5 (11)	0.60	0 (0)	0.00
25 – 44	18 (40)	1.07	0 (1)	0.03
45 – 64	20 (74)	1.95	0 (4)	0.11
65+	11 (63)	3.19	1 (3)	0.15
Unknown	0 (0)	-	0 (0)	-
Total	78 (268)	1.98	1 (8)	0.06

Source: Ontario Ministry of Health and Long-Term Care (MOHLTC), integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2014/01/01]. Population data obtained from IntelliHEALTH Ontario, retrieved by Public Health Ontario [2012/01/13].

Figure 3. Percentage of respiratory viral pathogens (influenza A, influenza B, parainfluenza virus, and respiratory syncytial virus) detected among specimens tested by all methods: Ontario, December 30, 2012 to December 28, 2013



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 January 2, 2014; they are based on data submitted to PHAC from 16 laboratories in Ontario.

Notes:

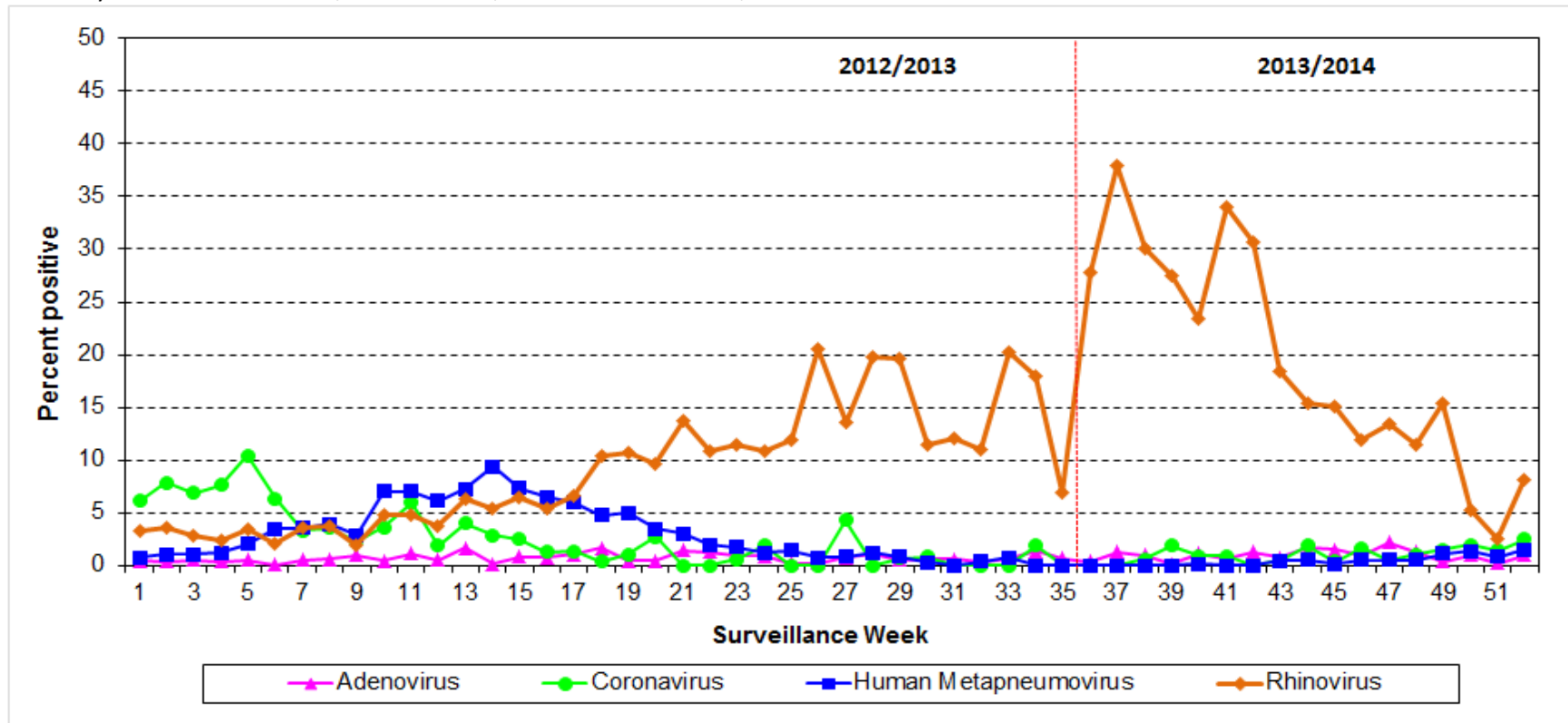
The numbers reported in this figure represent results submitted to the CIRID by 16 laboratories in Ontario, including 11 Public Health Ontario Laboratories (PHOLs) and five hospital-based laboratories.

The numbers reported in week 51 represent results submitted to the CIRID by four laboratories in Ontario, three of which were hospital-based laboratories; please interpret results with caution. In Week 52, 14 of Ontario's 16 participating laboratories submitted results.

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, coronavirus, human metapneumovirus, and rhinovirus) detected among specimens tested by all methods: Ontario, December 30, 2012 to December 28, 2013



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 January 2, 2014; they are based on data submitted to PHAC from 16 laboratories in Ontario.

Notes:

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

Table 3. Number and percent positivity (in brackets) of respiratory specimens tested by all methods for influenza and other respiratory viruses: Ontario, week 52 and cumulative for the 2013-2014 season

Detected viruses	Current Surveillance Week			Cumulative for Season*		
	Number positive	Number tested	Percent positive	Number positive	Number tested	Percent positive
Influenza (All)	392	1,573	24.9%	1,033	15,724	6.6%
Influenza A	387	1,573	24.6%	1,006	15,724	6.4%
Influenza B	5	1,573	0.3%	27	15,724	0.2%
Parainfluenza virus	28	1,198	2.3%	490	13,350	3.7%
Adenovirus	12	1,198	1.0%	140	13,350	1.0%
Respiratory syncytial virus	109	1,392	7.8%	596	14,994	4.0%
Rhinovirus	22	272	8.1%	828	5,378	15.4%
Human metapneumovirus	18	1,184	1.5%	83	12,770	0.6%
Coronavirus	6	241	2.5%	43	3,736	1.2%

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 January 2, 2014; they are based on data submitted to PHAC from 16 laboratories in Ontario.

Notes:

*Cumulative numbers include counts from August 25, 2013 (surveillance week 35) because the PHAC includes week 35 as part of the 2013-2014 season.

The numbers reported in week 51 represent results submitted to the CIRID by four laboratories in Ontario, three of which were hospital-based laboratories; please interpret results with caution. In Week 52, 14 of Ontario's 16 participating laboratories submitted results.

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 4. Institutional respiratory infection outbreaks: Ontario, week 52 and total for the 2013-2014 season to date¹

Institutional Respiratory Infection Outbreaks		
New outbreaks (Week 52) ²	Number of outbreaks	Percentage (%) of total
Influenza A	0	0.0
Influenza B	1	25.0
Influenza A and B	0	0.0
Enterovirus/rhinovirus	0	0.0
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	3	75.0
TOTAL	4	100.0
Cumulative outbreaks (season to date) ¹	N	
Influenza A	8	3.8
Influenza B	2	1.0
Influenza A and B	0	0.0
Enterovirus/rhinovirus	104	49.5
Parainfluenza (All types)	19	9.0
Respiratory Syncytial Virus (RSV)	7	3.3
Combined outbreaks ³	7	3.3
Other organisms ⁴	5	2.4
No organism identified	58	27.6
TOTAL	210	100.0
Types of institutions for cumulative outbreaks		
Long-Term Care Homes	148	70.5
Hospitals	11	5.2
Retirement Homes	24	11.4
Other ⁵	0	0.0
Unknown	27	12.9
TOTAL	210	100.0

Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2013/12/31].

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, 2013 (Week 36) and the current reporting week.

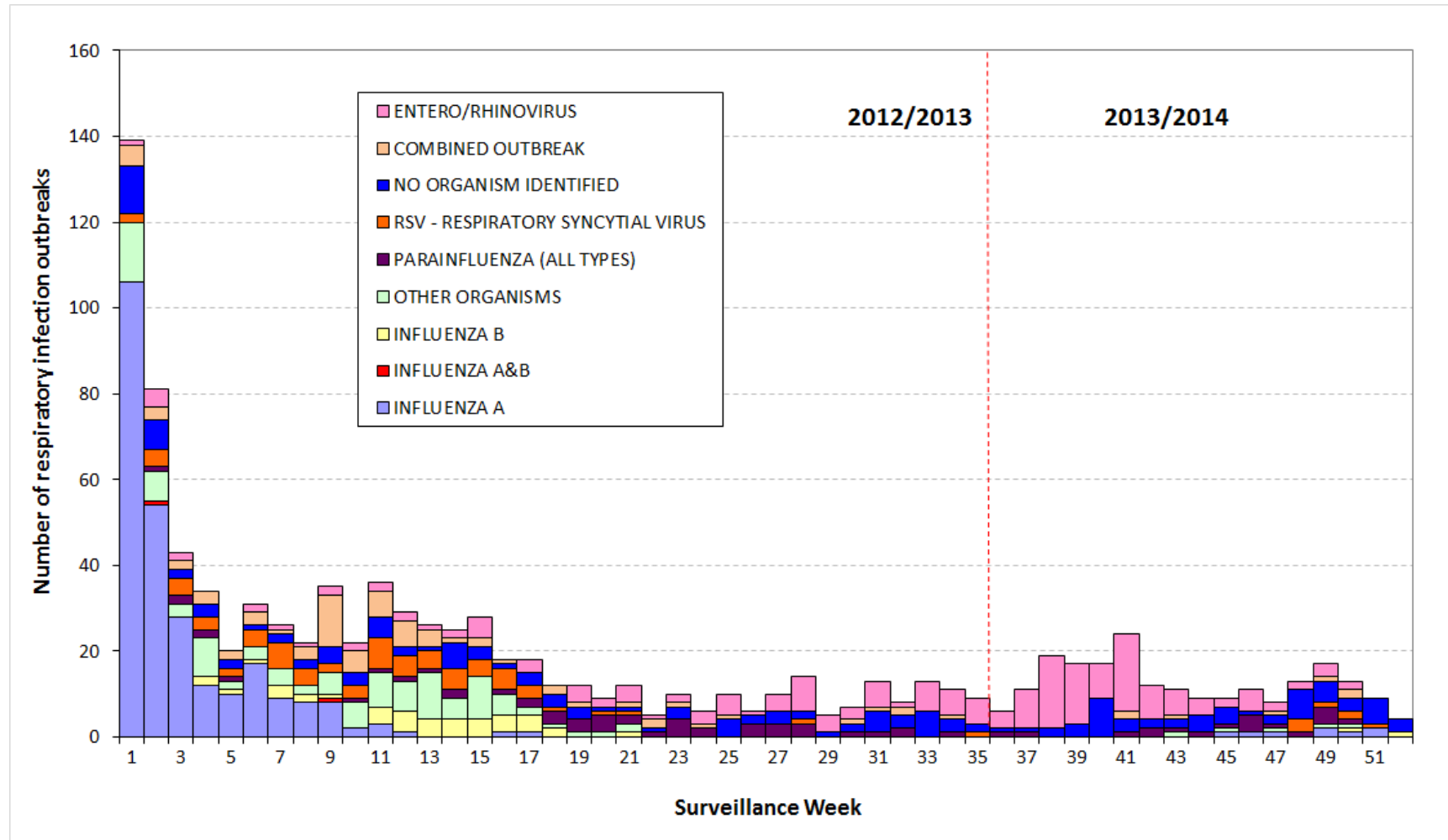
² New outbreaks are those in which the date of onset of illness in the first case occurred and was recorded through iPHIS in the current surveillance period; i.e. December 22, 2013–December 28, 2013 (Week 52).

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

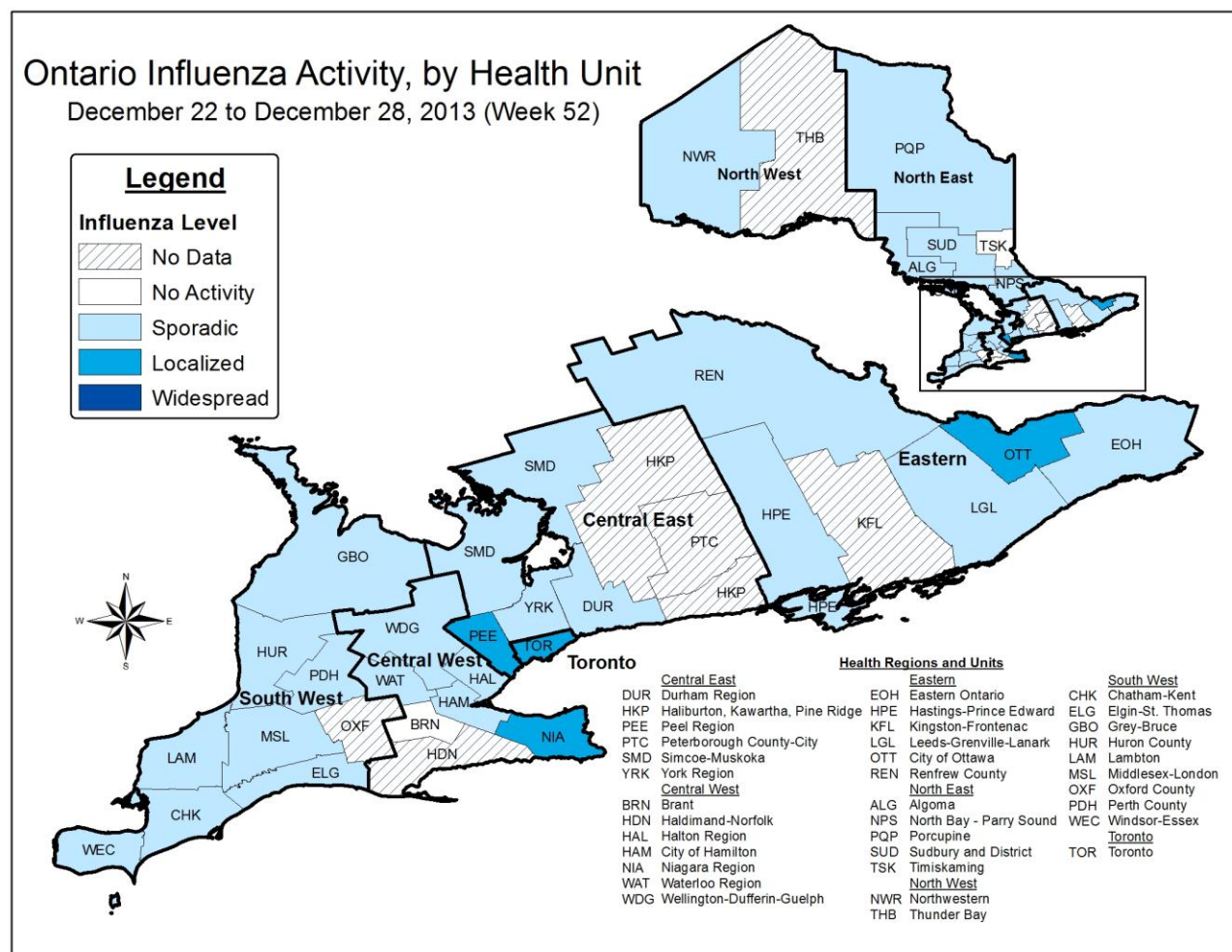
⁴ Other organisms include outbreaks involving other aetiological agents, such as human metapneumovirus, adenovirus, and coronavirus.

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

Figure 5. Institutional respiratory infection outbreaks by week of illness onset in the first case: Ontario, December 30, 2012 to December 28, 2013



Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2013/12/31].

Figure 6. Influenza activity levels by health unit: Ontario, week 52, 2013

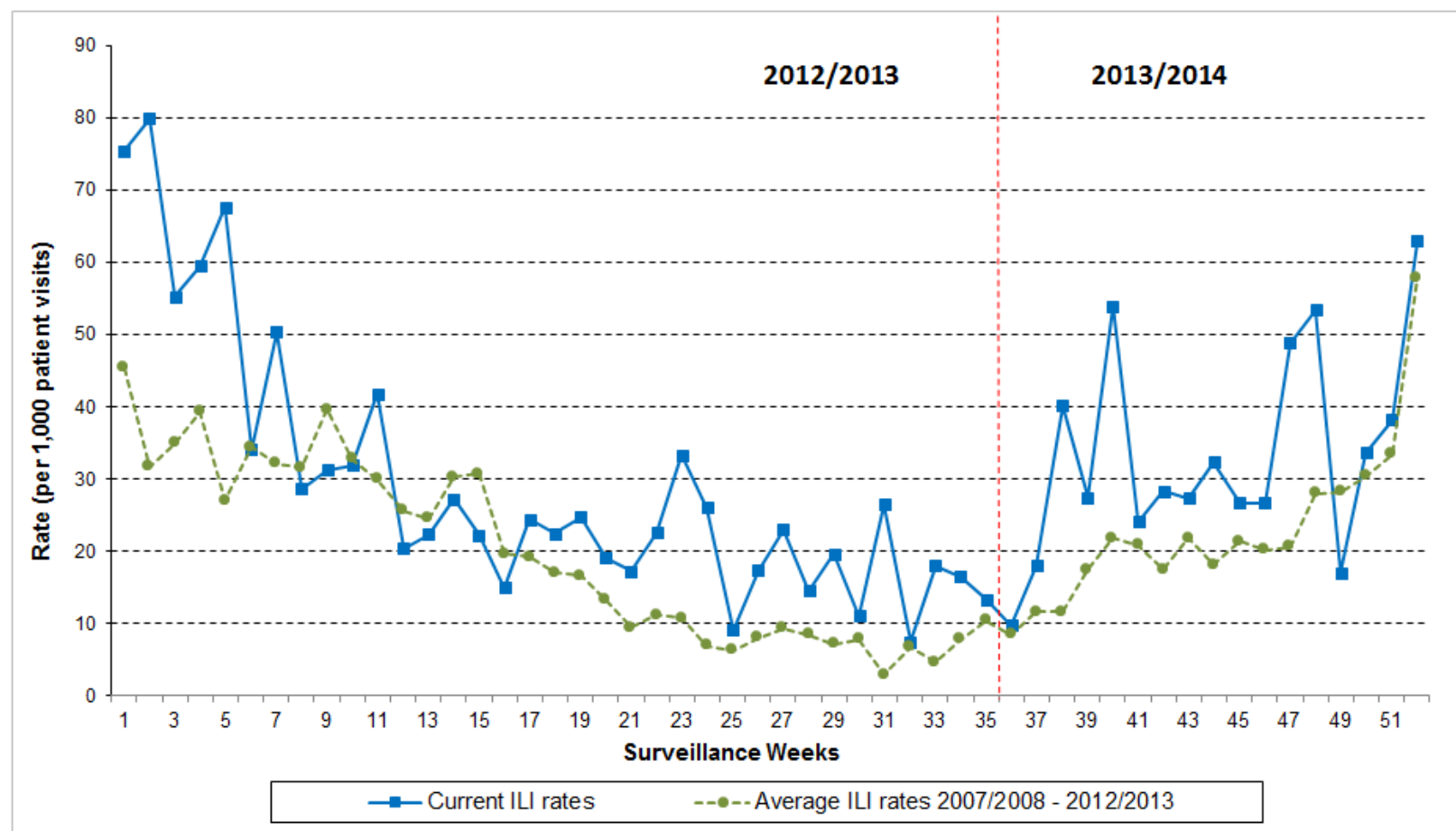
Source: Public Health Ontario [Provincial Influenza Activity Report (Appendix C) Database]

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 2013-2014 season](#).

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. Influenza-like-illness (ILI) consultation rate (per 1,000 patient visits) reported by sentinels by surveillance week compared to historical average (2007/2008 - 2012/2013 seasons): Ontario, December 30, 2012 to December 28, 2013



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

Notes:

ILI consultations from sentinels are reported to Public Health Agency of Canada. Forty sentinel sites reported for week 51, and 39 sentinel sites reported for week 52. Due to small numbers of sentinel sites reporting, readers are advised to review overall trends and place less emphasis on week-to-week fluctuations. Ontario average ILI rates include data from the 2007-2008 to the 2012-2013 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, 2013 to December 24, 2013

Influenza strains	Ontario	Canada
Influenza A (H3N2) A/Texas/50/2012-like	15	17
Influenza A (H1N1)pdm09 A/California/07/2009-like	81	112
Influenza B B/Brisbane/60/2008-like	1	5
Influenza B B/Massachusetts/02/2012-like	12	21

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

Notes:

The influenza strains recommended by the World Health Organization (WHO) for the Northern Hemisphere vaccine for the [2013-2014 season](#) are: A/California/7/2009-like (A H1N1pdm09-like virus); A/Texas/50/2012-like virus; and B/Massachusetts/02/2012-like virus (Yamagata lineage).

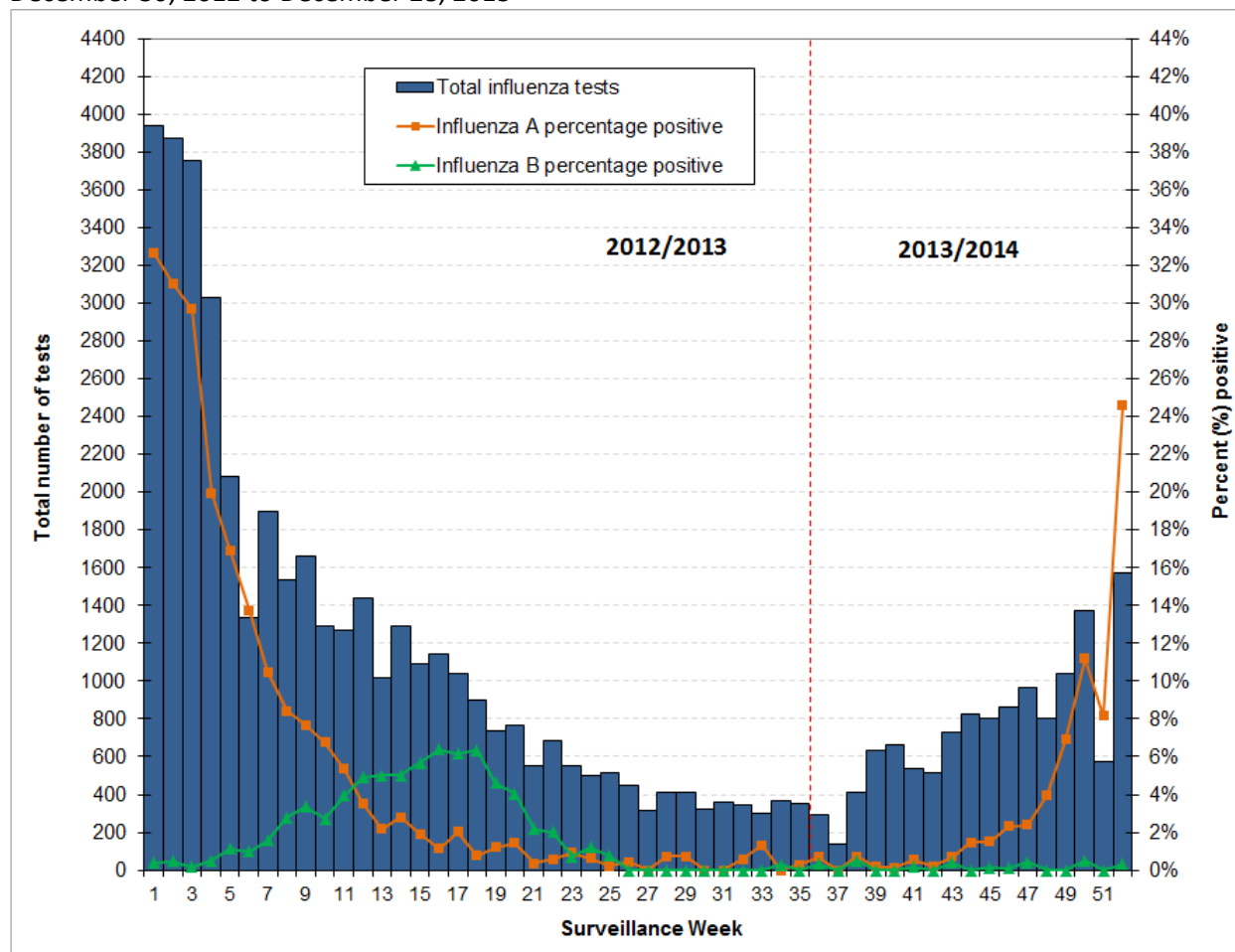
Table II. Amantadine, oseltamivir and zanamivir susceptibility assays completed on influenza isolates at the National Microbiology Laboratory: Ontario and Canada, September 1, 2013 to December 24, 2013

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)	12	0	14	0	0	14	0	15	0	14	0	15
Influenza A (H1N1)pdm09	42	0	55	0	0	70	0	95	0	70	0	95
Influenza B	NA	NA	NA	NA	0	12	0	25	0	12	0	25

(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, December 30, 2012 to December 28, 2013



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 January 2, 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 laboratories in Ontario, including 11 Public Health Ontario Laboratories and five hospital-based laboratories.

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