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Ontario Respiratory Pathogen Bulletin | 2015-2016 SURVEILLANCE SEASON (September 1, 2015 – August 31, 2016)

This issue of the Ontario Respiratory Pathogen Bulletin provides information on the surveillance season from September 1, 2015 to August 31, 2016. Unless otherwise specified, **data presented in this issue of the bulletin are for the 2015-16 surveillance season** and data extraction occurred on Friday, October 19, 2016.

Summary of respiratory pathogen activity in Ontario, September 1, 2015 to August 31, 2016

- Overall, the number of laboratory-confirmed cases of influenza reported in the 2015-16 surveillance season was lower than the 2014-15 season. Unlike the 2014-15 season where there were two distinct periods of elevated influenza activity representing the circulation of influenza A and B, in the 2015-16 season elevated activity for influenza A and B more closely overlapped. In the 2015-16 season the highest levels of influenza activity occurred during February and March (Weeks 6–13) (Figures 1, 2, 5).
    - **Laboratory-confirmed influenza A cases:** A total of 12,137 laboratory-confirmed influenza cases were reported for the 2015-16 season. The majority of influenza cases in the 2015-16 season were influenza A, which accounted for 68.2% (8,272/12,137) of cases (Table 1).
    - **Circulating subtype:** The dominant circulating influenza A subtype was (H1N1)pdm09, representing 89.4% (2,076/2,321) of influenza A cases with a subtype reported in iPHIS (Table 1).
        - For the season as a whole, positivity for influenza A was 10.8% and influenza B positivity was 2.0% (Table 2). Peak percent positivity was 34.3% for influenza A and 11.1% for influenza B (Figure 5).
        - Among influenza A isolates from Ontario characterized by the National Microbiology Laboratory (NML), all of the 528 Ontario influenza A(H1N1) isolates were antigenically similar to the H1N1 strain component of the 2015-16 seasonal influenza vaccine. Of the 63 Ontario influenza A(H3N2) viruses that were strain-typed, all were antigenically similar to the the cell-passaged A/Switzerland/9715293/2013, the World Health Organization recommended influenza A(H3N2) component of the 2015-16 Northern Hemisphere vaccine.
        - Of influenza B viruses characterized by NML, 65.1% (222/341) were the B/Brisbane/60/2008-like strain, which was included as an influenza B component of the 2015-16 trivalent vaccine, but not the quadrivalent vaccine.
    - **Timing of influenza activity:** The timing of influenza activity is dependent on the circulating influenza strains. In the 2015-16 season multiple indicators showed peak influenza A activity occurring during weeks 6-13 (Figures 1, 5, 7, 8, 11, I).
    - **Geographic distribution:** The highest reported incidence rates of influenza were observed in North Bay- Parry Sound, Sudbury & District, and Northwestern public health units, with 155.9, 139.5,and 131.1 cases per 100,000 population, respectively (Figure 3). The largest proportion (22.2%, 2,698/12,137) of cases in the 2015-16 season were reported in Toronto, which among health units represents the largest proportion of Ontario's population (20.6%) (Table 1).

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- **Age distributions:** The highest incidence rates of influenza A were reported among children aged 1-4 (Figure 4). The highest incidence rates of influenza B were reported among the elderly aged 90 and above. Generally, the influenza A rates increased with age for those aged 15 and older rising to over 90 cases per 100,000 population starting from the 75-79 year-old age group. Cases 0-4 years of age and older accounted for 19.9% (1,644/8,272) of laboratory-confirmed influenza A cases reported in the 2015-16 season. This reflects the dominance of the H1N1 subtype in the 2015-16 season, as this subtype usually has a greater impact in children under 5 years old.

- **Hospitalizations and deaths:** A total of 2,658 hospitalizations and 127 deaths[1] were reported among laboratory-confirmed influenza cases in the 2015-16 season (Table 3). The highest hospitalization rate occurred among children under 1 years of age (107.9 hospitalizations per 100,000 population); the highest mortality rate occurred among adults 65 years of age and older (3.7 deaths per 100,000 population). This indicates that while individuals ages 65 and over are less likely to acquire influenza A(H1N1) then younger age groups, they are most likely to experience fatal outcomes.

    - The highest numbers of hospitalizations occurred in cases with episode dates in week 10, which was also the week with the most cases of influenza A reported (Figures 1 and 7).
    - The greatest number of deaths, based on date of death, occurred during week 12 (Figure 8), which reflects peak influenza A activity in the preceding weeks.

- **Respiratory infection outbreaks in institutions:** There were 1,123 confirmed institutional respiratory infection outbreaks reported in the 2015-16 season. This includes 145 (12.9%) outbreaks that were laboratory- confirmed as influenza A, 77 (6.9%) as influenza B, and 9 (0.8%) as influenza A and B combined (Table 4). No organism was reported in 15.4% (173/1,123) of outbreaks.

    - The majority of outbreaks were reported in long-term care homes (LTCHs), with 64.6% (726/1,123) reported in this setting, followed by 13.9% (156/1,123) in retirement homes, and 6.1% (69/1,123) in hospitals. The exposure setting was not reported for 14.3% (161/1,123) of respiratory infection outbreaks (Figure 9).
    - Respiratory viruses other than influenza were the most commonly identified aetiologic agent in outbreaks reported by all types of institutions, with the exception of hospitals where influenza was the most commonly identified aetiologic agent. (Figure 9).
    - Of the 69 respiratory infection outbreaks reported in hospitals, 46.4% (32/69) were reported in acute care hospitals, 43.5% (30/69) were reported in chronic care hospitals, and 10.1% (7/69) were reported in psychiatric care hospitals (Figure 10).

- **Other respiratory viruses:** While influenza had the highest percent positivity[2] among all circulating respiratory viruses in the 2015-16 season at 14.9% overall, other respiratory viruses circulated as well. Rhinovirus (13.6%) and respiratory syncytial virus (RSV) (5.6%) had the second and third highest overall percent positivities (Table 2; Figures 5 and 6).

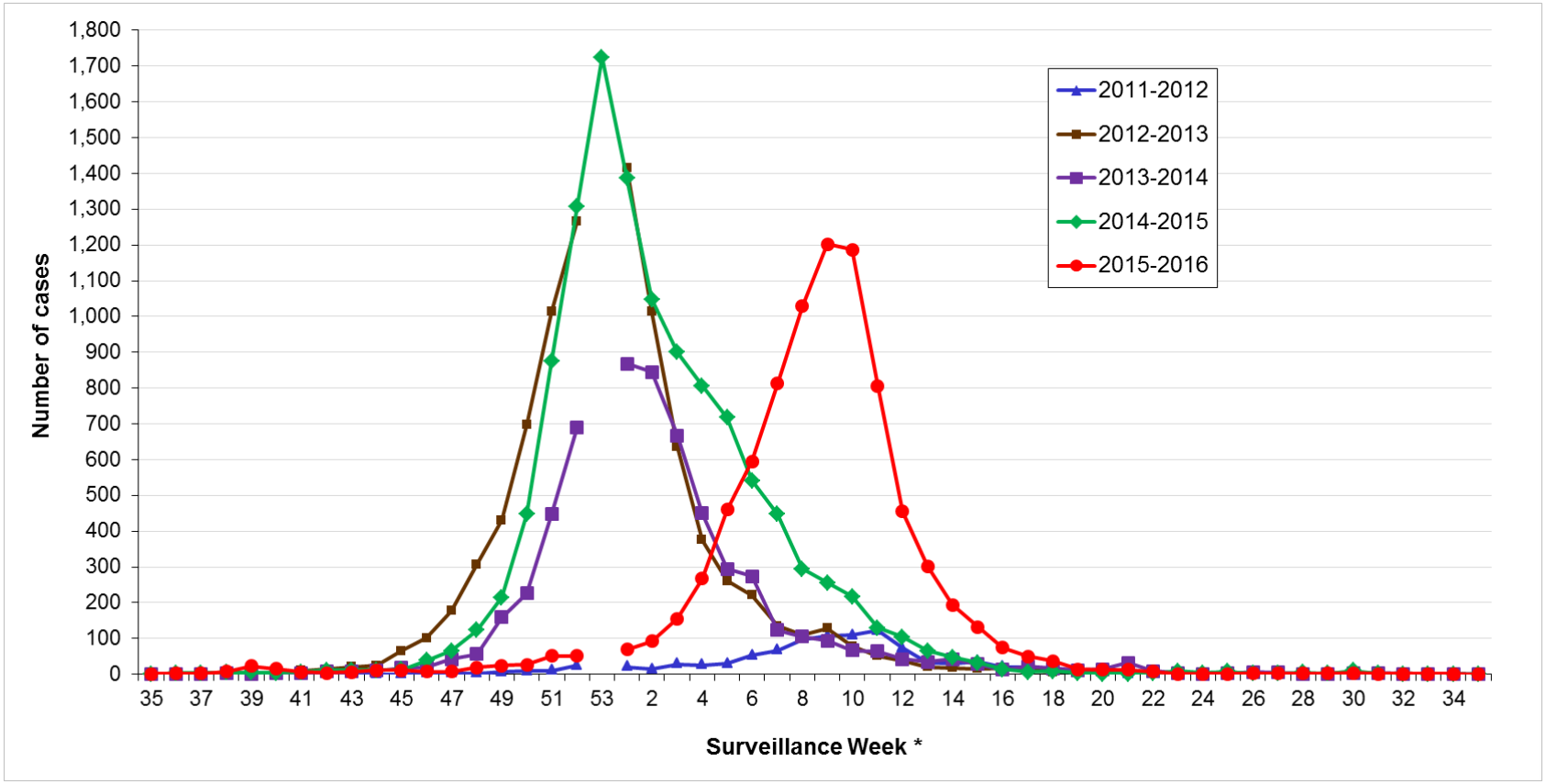
    - Rhinovirus had the highest percent positivity of all circulating respiratory viruses in the beginning (September 2015 to January 2016 – Weeks 35-2) and end of the season (mid April to August 2016 – Weeks 16-35) (Table 2; Figures 5 and 6).

Notes:

[1] In the 2014-15 and 2015-16 seasons, only a proportion of laboratory confirmed cases were followed up by public health units, therefore it is anticipated that the number of hospitalizations and deaths is a greater under-estimation of the true numbers compared to what was reported in previous seasons.

[2] 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, 2011 to August 31, 2016

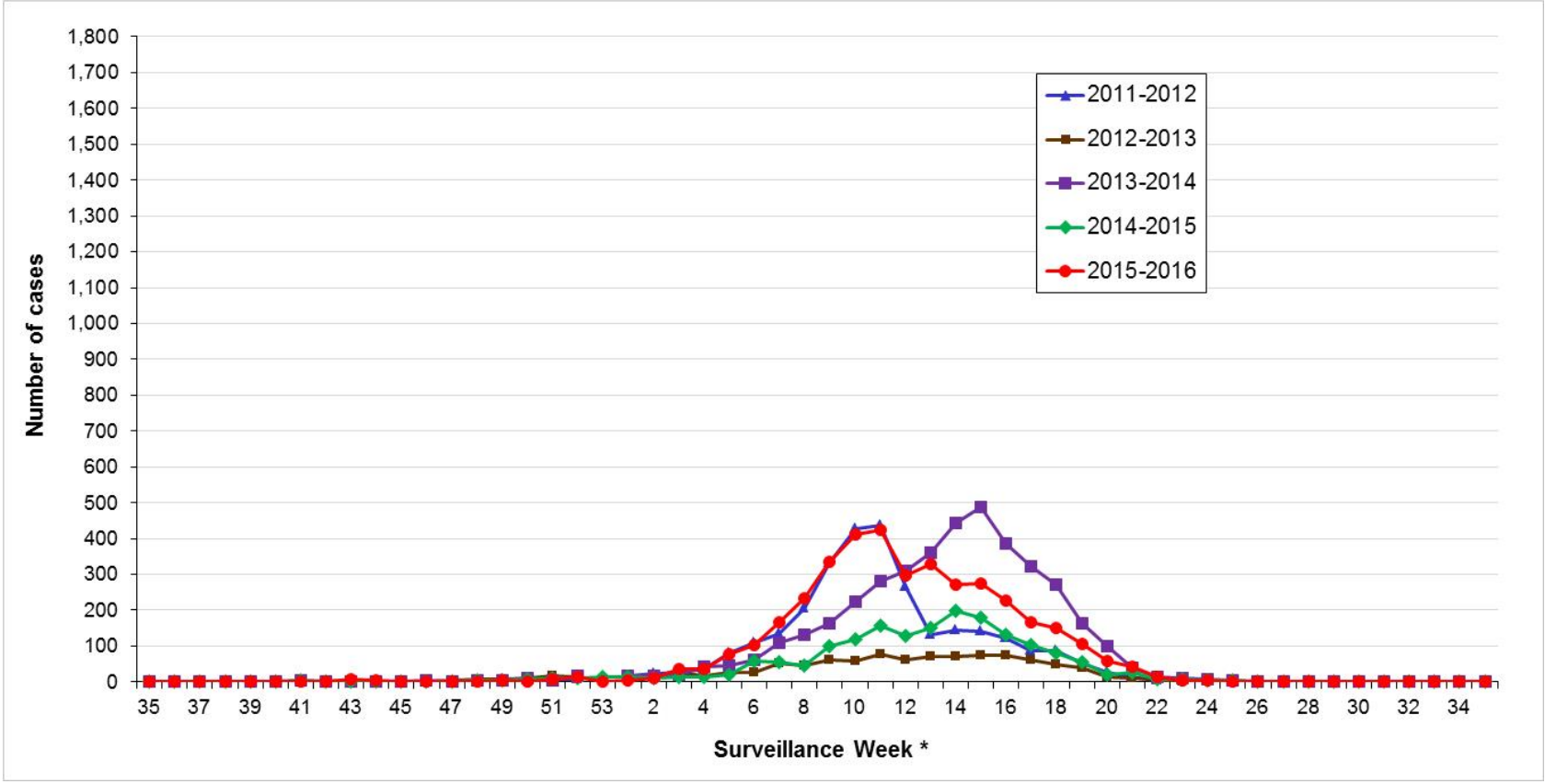


Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2016/10/19].

Notes:

*Unlike the other seasons presented, the 2014-15 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, 2011 to August 31, 2016



Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2016/10/19].

Notes:

*Unlike the other seasons presented, the 2014-15 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, 2015 to August 31, 2016

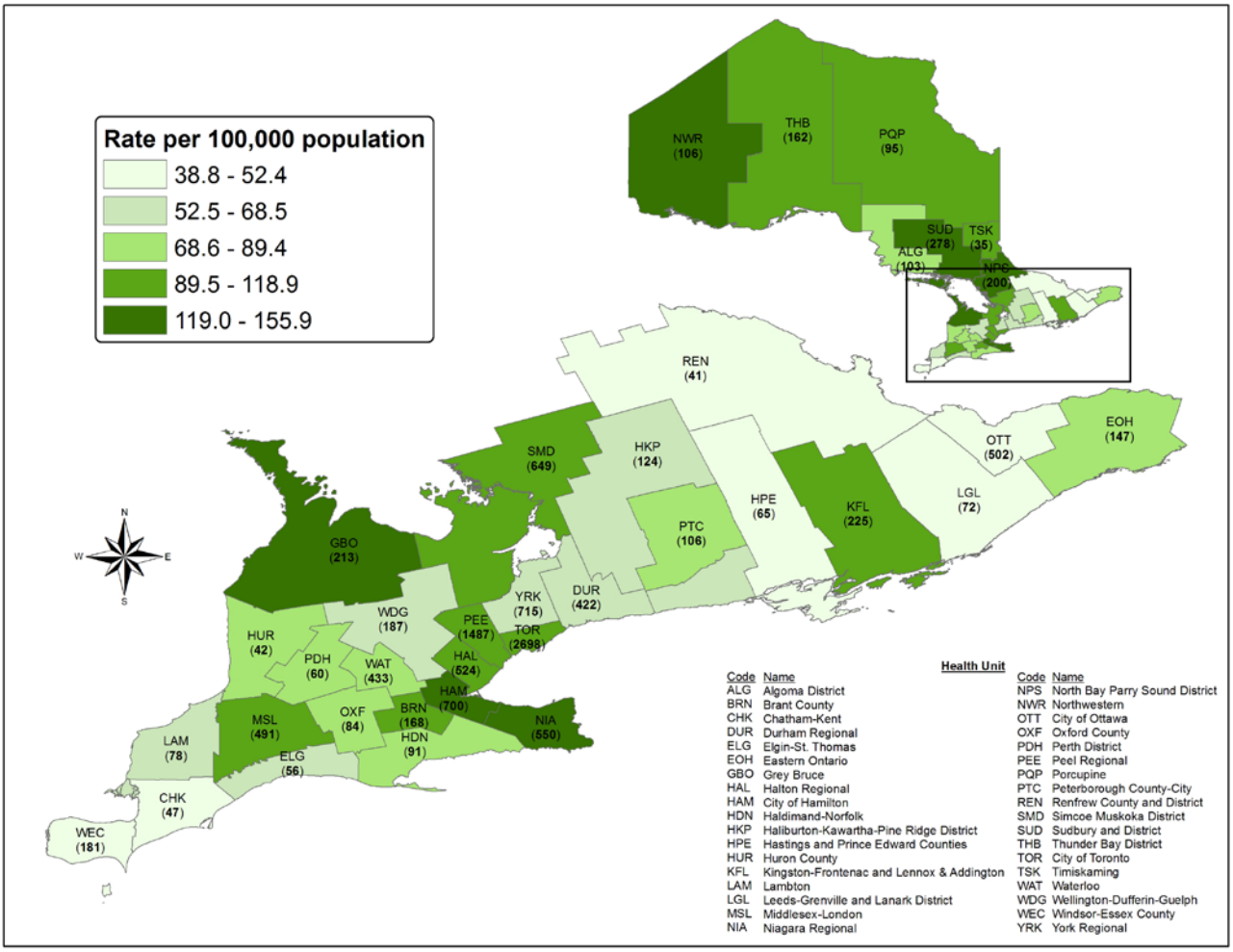
Health Unit and Region	Influenza A			Influenza A & B	Influenza B	TOTAL
	(H1N1) pdm09	H3	No subtype available			
Northwestern	20	1	64	0	21	106
Thunder Bay District	29	1	88	1	43	162
TOTAL NORTH WEST	**49**	**2**	**152**	**1**	**64**	**268**
Algoma	30	0	36	0	37	103
North Bay Parry Sound District	38	1	117	2	42	200
Porcupine	24	2	43	0	26	95
Sudbury & District	42	1	138	0	97	278
Timiskaming	5	1	19	0	10	35
TOTAL NORTH EAST	**139**	**5**	**353**	**2**	**212**	**711**
City of Ottawa	27	5	366	0	104	502
Eastern Ontario	21	2	103	0	21	147
Hastings & Prince Edward Counties	25	0	23	1	16	65
Kingston, Frontenac, Lennox & Addington	26	2	152	0	45	225
Leeds, Grenville And Lanark District	20	0	40	0	12	72
Renfrew County And District	4	2	25	0	10	41
TOTAL EASTERN	**123**	**11**	**709**	**1**	**208**	**1052**
Durham Region	111	11	145	0	155	422
Haliburton, Kawartha, Pine Ridge	36	6	50	0	32	124
Peel Region	196	30	695	2	564	1487
Peterborough County-City	19	2	51	0	34	106
Simcoe Muskoka District	163	27	282	2	175	649
York Region	210	31	222	1	251	715
TOTAL CENTRAL EAST	**735**	**107**	**1445**	**5**	**1211**	**3503**
Toronto	461	68	1309	2	858	2698
TOTAL TORONTO	**461**	**68**	**1309**	**2**	**858**	**2698**
Chatham-Kent	8	0	19	0	20	47
Elgin-St. Thomas	15	4	22	0	15	56
Grey Bruce	46	2	92	0	73	213
Huron County	8	0	21	0	13	42
Lambton County	20	0	33	0	25	78
Middlesex-London	77	5	246	1	162	491
Oxford County	18	0	36	0	30	84
Perth District	18	1	18	1	22	60
Windsor-Essex County	32	6	43	2	98	181
TOTAL SOUTH WEST	**242**	**18**	**530**	**4**	**458**	**1252**
Brant County	50	4	68	3	43	168
City Of Hamilton	21	1	427	3	248	700
Haldimand-Norfolk	21	0	40	0	30	91
Halton Region	54	9	285	0	176	524
Niagara Region	42	2	342	1	163	550
Waterloo Region	75	14	229	0	115	433
Wellington-Dufferin-Guelph	64	4	62	0	57	187
TOTAL CENTRAL WEST	**327**	**34**	**1453**	**7**	**832**	**2653**
TOTAL ONTARIO	**2076**	**245**	**5951**	**22**	**3843**	**12137**

Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2016/10/19].

Notes: The cumulative count includes laboratory-confirmed cases with an 'Episode Date' between September 1, 2015 and August 31, 2016..

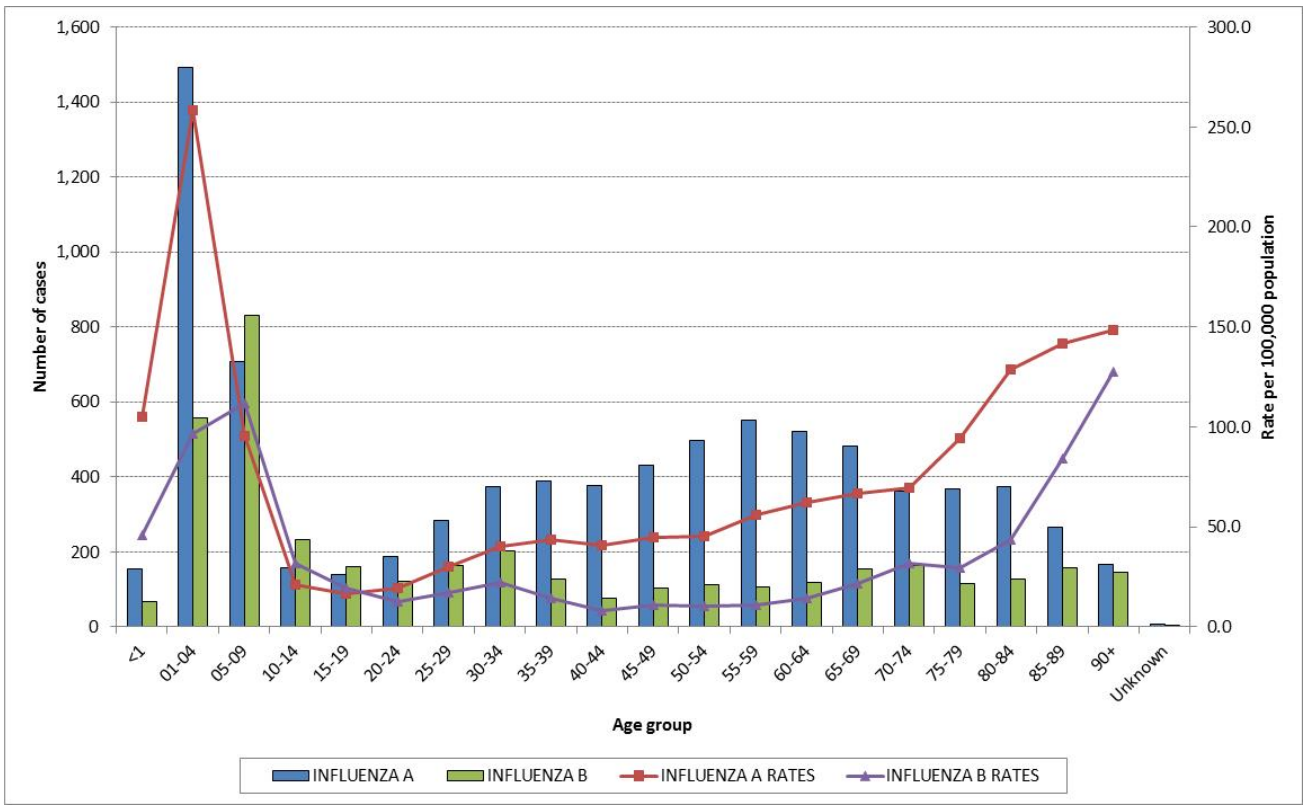
'No subtype available' includes influenza A isolates that were classified as not subtyped, untypeable, or indeterminate

Figure 3. Rate of influenza per 100,000 population (and counts, in brackets), by health unit: Ontario, September 1, 2015 to August 31, 2016



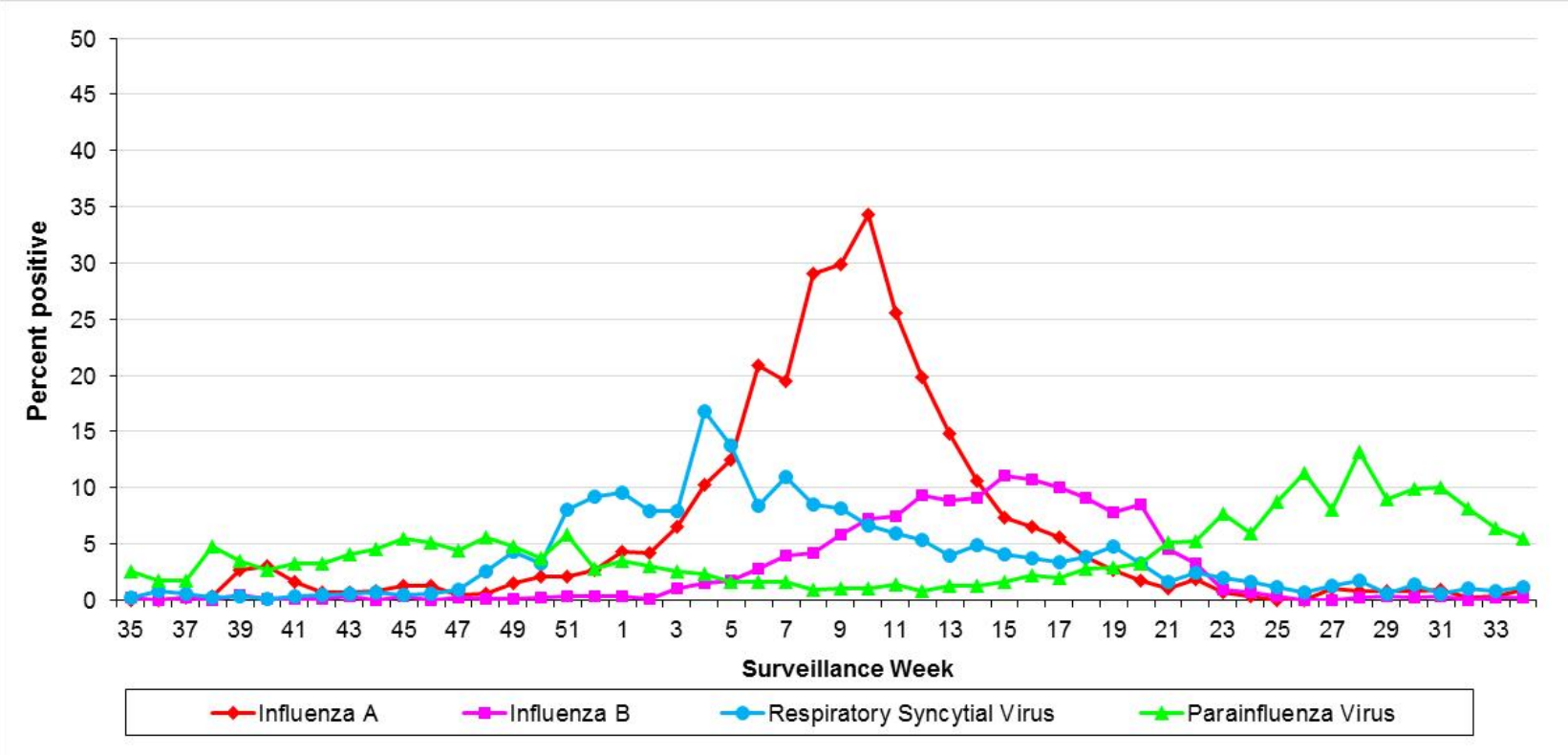
Source: Ontario Ministry of Health and Long-Term Care (MOHLTC), integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2016/10/19]. Population Projections [2015-16], Ontario Ministry of Health and Long-Term Care, Health Analytics Branch, Date Received: [2015/03/13].

Figure 4. Rate of laboratory-confirmed cases of influenza per 100,000 population, by age group and type: Ontario, September 1, 2015 to August 31, 2016



Source: Ontario Ministry of Health and Long-Term Care (MOHLTC), integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2016/10/19]. Population Projections [2015-16], Ontario Ministry of Health and Long-Term Care, Health Analytics Branch, Date Received: [2015/03/13].

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 30, 2015 to August 27, 2016



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 August 31, 2016; they are based on data submitted to PHAC from 16 laboratories in Ontario.

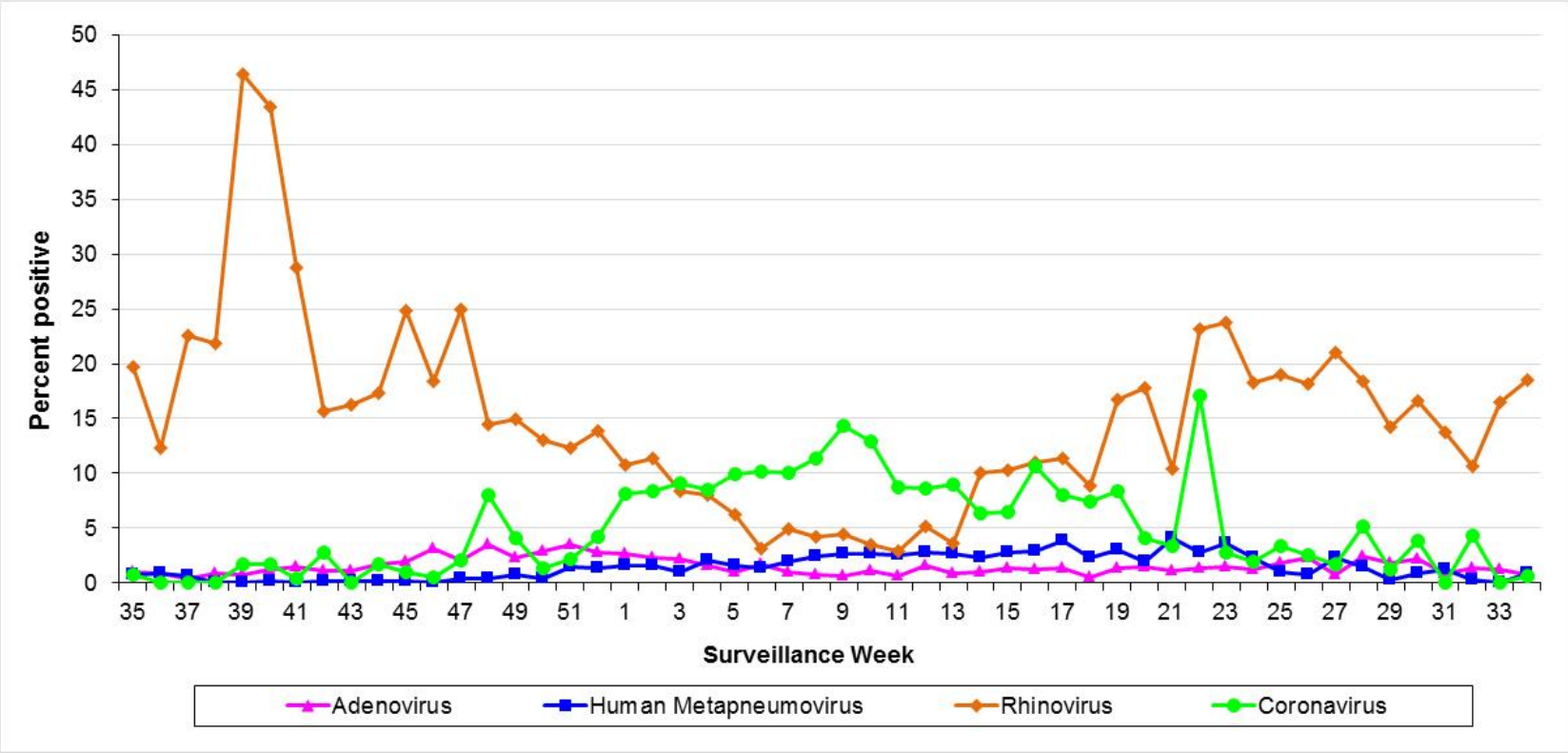
Notes:

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. Not all 16 Ontario laboratories report every week.

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 30, 2015 to August 27, 2016



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 August 31, 2016; they are based on data submitted to PHAC from 16 laboratories in Ontario.

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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. Not all 16 Ontario laboratories report every week.
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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 30, 2015 to August 27, 2016

Detected viruses	Cumulative for Season		
	Number positive	Number tested	Percent positive
Influenza (All)	10,580	71,128	14.9%
Influenza A	*7,711*	-	*10.8%*
Influenza B	*2,869*	-	*2.0%*
Parainfluenza virus	1,594	49,854	3.2%
Adenovirus	742	49,272	1.5%
Respiratory syncytial virus	3,610	64,594	5.6%
Rhinovirus	2,409	17,682	13.6%
Human metapneumovirus	871	49,301	1.8%
Coronavirus	748	14,148	5.3%

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 August 31, 2016; 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, 2015 to August 31, 2016

Age Group	HOSPITALIZATIONS		DEATHS	
	Count	Rate per 100,000	Count	Rate per 100,000
<1	157	107.9	1	0.7
1 – 4	404	70.0	0	0.0
5 – 14	261	17.6	2	0.1
15 – 24	58	3.2	6	0.3
25 – 44	244	6.6	2	0.1
45 – 64	596	15.3	34	0.9
65+	938	42.3	82	3.7
Total	**2,658**	**19.2**	**127**	**0.9**

Sources:

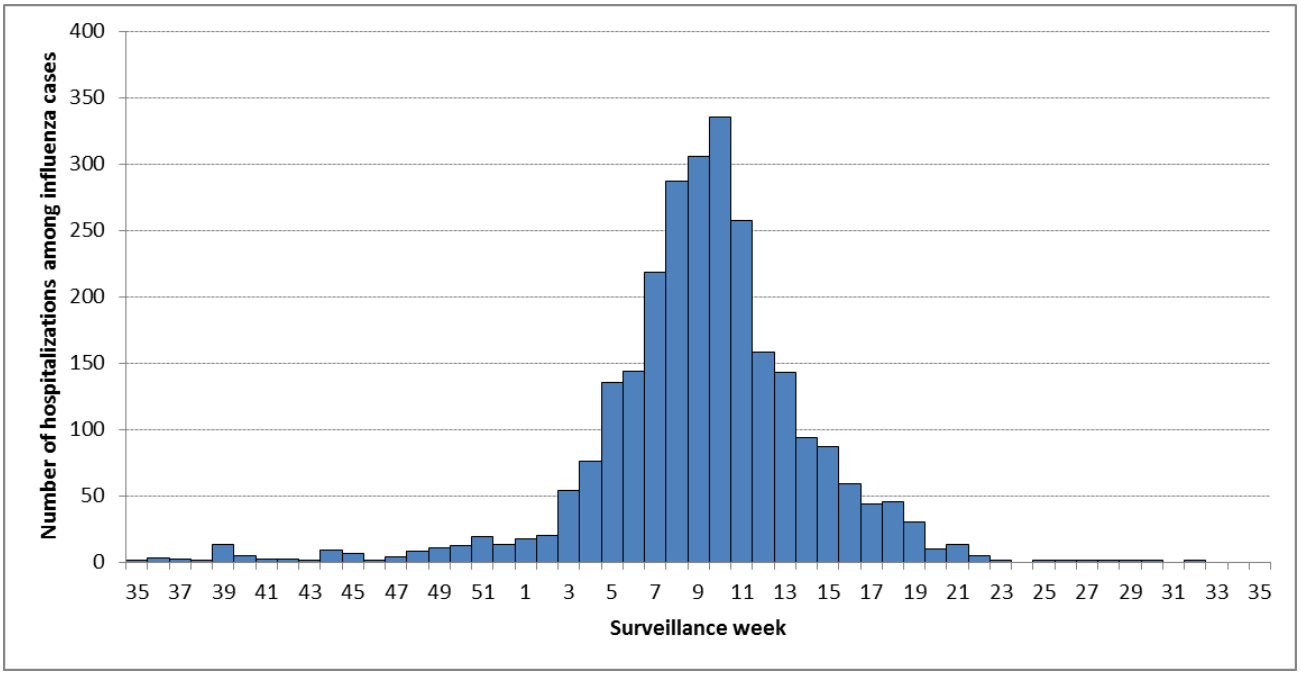
Case data: Ontario Ministry of Health and Long-Term Care (MOHLTC), integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2016/10/19].

Population data: Population Projections [2015-16], Ontario Ministry of Health and Long-Term Care, Health Analytics Branch, Date Received: [2015/03/13].

Notes:

In the 2014-15 and 2015-16 seasons, only a proportion of laboratory confirmed cases were followed up by public health units, therefore it is anticipated that the number of hospitalizations and deaths is a greater under-estimation of the true numbers as compared to what was reported in previous seasons.

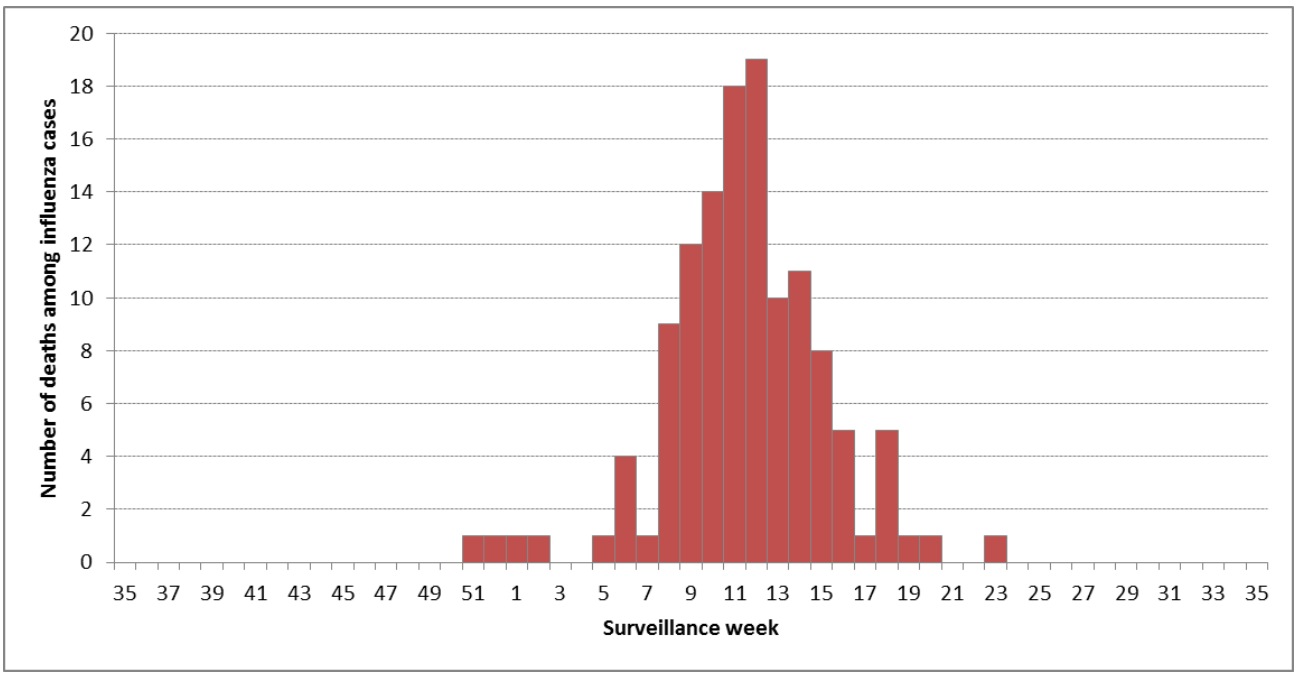
Figure 7. Number of hospitalizations among laboratory-confirmed cases of influenza, by episode date: Ontario, September 1, 2015 to August 31, 2016



Source: Ontario Ministry of Health and Long-Term Care (MOHLTC), integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2016/10/19].

In the 2015-16 season, only a proportion of laboratory- confirmed cases were followed up by public health units, therefore it is anticipated that the number of hospitalizations is a greater under-estimation of the true number as compared to what was reported in previous seasons.

Figure 8. Number of deaths among laboratory-confirmed cases of influenza, by date of death: Ontario, September 1, 2015 to August 31, 2016



Source: Ontario Ministry of Health and Long-Term Care (MOHLTC), integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2016/10/19].

Notes:

All cases with a 'fatal' outcome entered in iPHIS were included in this figure, regardless of death attribution. 2 cases with an unknown date of death were excluded from this figure.
In the 2015-16 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 as compared to what was reported in previous seasons.

Table 4a. Institutional respiratory infection outbreaks: Ontario, September 1, 2015 to August 31, 2016

Virus reported in outbreak	Number of outbreaks	Percentage of total
Influenza A[1]	145	12.9%
Influenza B[1]	77	6.9%
Both influenza A and B[1]	9	0.8%
Entero/rhinovirus	283	25.2%
Parainfluenza (All types)	78	6.9%
Respiratory Syncytial Virus (RSV)	78	6.9%
Human metapneumovirus, adenovirus, or coronavirus	179	15.9%
Two or more non-influenza viruses[1]	101	9.0%
No organism identified	173	15.4%
TOTAL	***1123***	***100.0%***

Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2016/10/19].

Notes:
[1] Any outbreak where influenza was identified is reported under the appropriate influenza category ("Influenza A", "Influenza B" or "Both influenza A and B") regardless of what other virus was also identified in the outbreak.

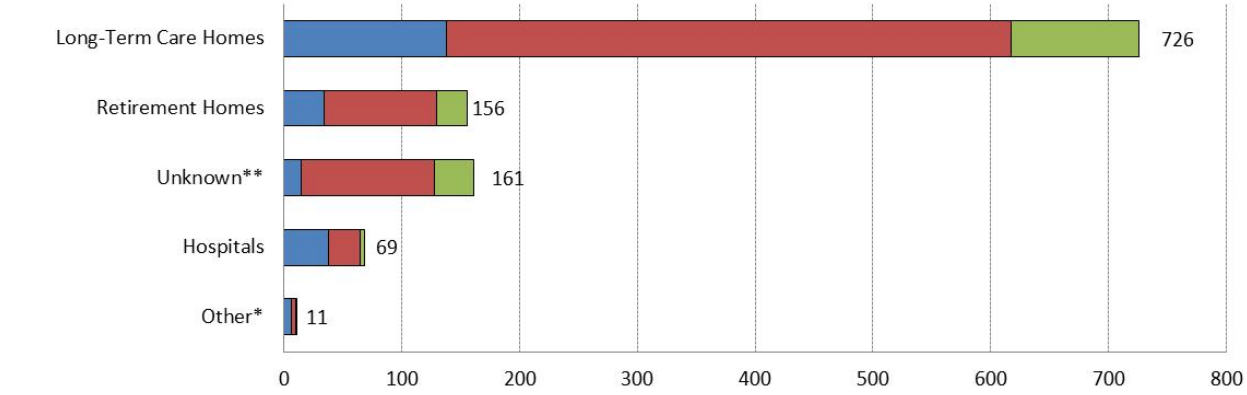
Table 4b. Institutional respiratory infection outbreaks by setting type: Ontario, September 1, 2015 to August 31, 2016

Setting type reported	Number of influenza outbreaks (% of total)	Number of other respiratory viruses (% of total)
Long-Term Care Home	138 (59.7%)	588 (65.9%)
Hospital	38 (16.5%)	31 (3.5%)
Retirement Home	34 (14.7%)	122 (13.7%)
Other[1]	6 (2.6%)	5 (0.6%)
Unknown	15 (6.5%)	146 (16.4%)
TOTAL	***231 (100%)***	***892 (100%)***

Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2016/10/19].

Notes:
[1] 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 9. Respiratory infection outbreaks by organism reported and institution type: Ontario, September 1, 2015 to August 31, 2016



	Other*	Hospitals	Unknown**	Retirement Homes	Long-Term Care Homes
Influenza	6	38	15	34	138
Other Respiratory Viruses	4	27	113	96	479
No Organism Identified	1	4	33	26	109

Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2016/10/19].

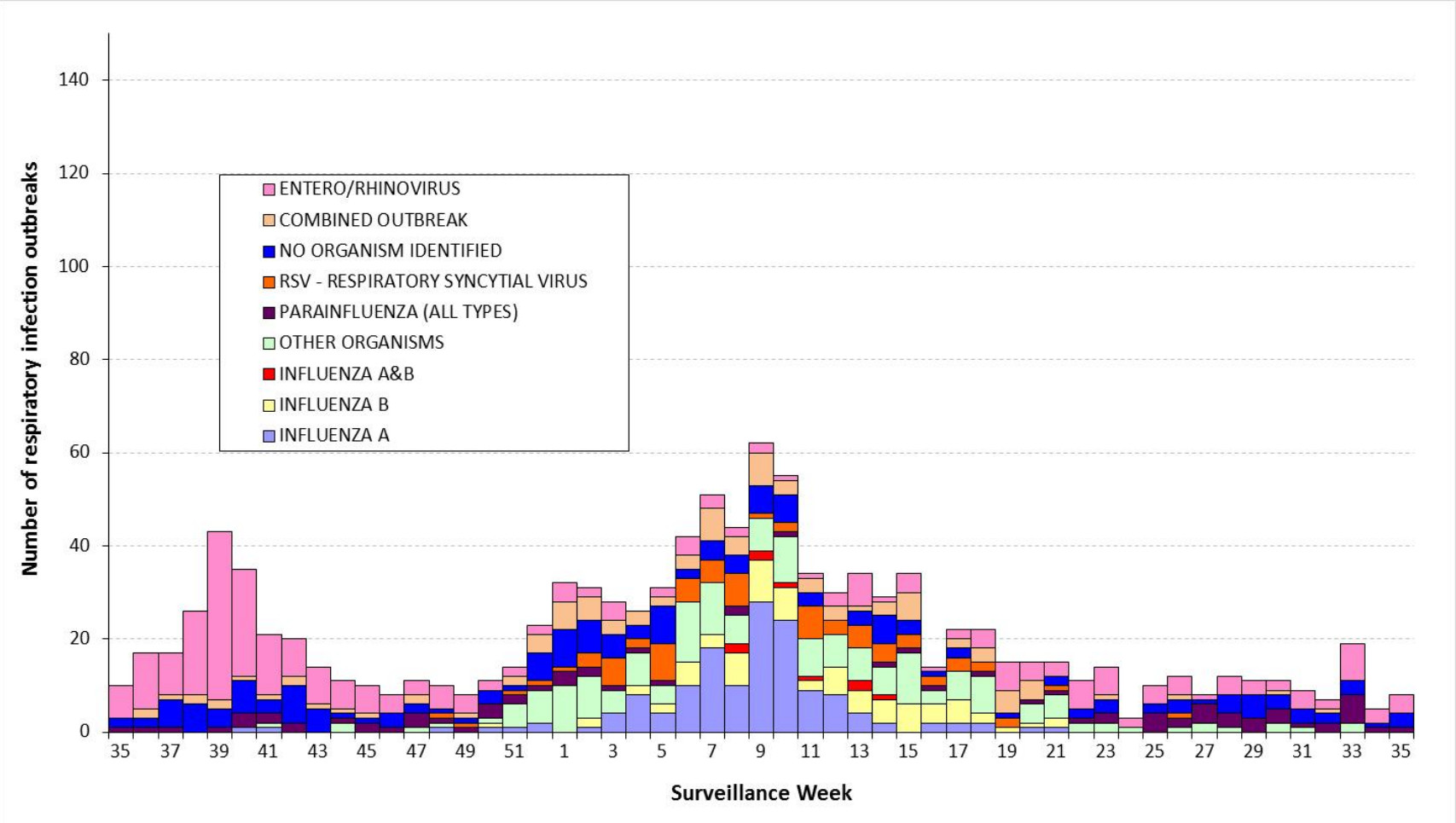
Notes:
*Includes those respiratory infection outbreaks for which 'Other' was reported in the Exposure Setting Type field in iPHIS.
** Unknown includes those respiratory infection outbreaks for which either no Exposure Setting Type was entered or was reported as 'Unknown' in iPHIS.

Figure 10. Respiratory infection outbreaks, by organism reported and type of hospital: Ontario, September 1, 2015 to August 31, 2016

	Psychiatric Hospital	Acute Care Hospital	Chronic Care Hospital
Influenza	3	23	12
Other Respiratory Viruses	2	9	16
No Organism Identified	2	0	2

Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2016/10/19].

Figure 11. Institutional respiratory infection outbreaks by week of illness onset in the first case: Ontario, September 1, 2015 to August 31, 2016

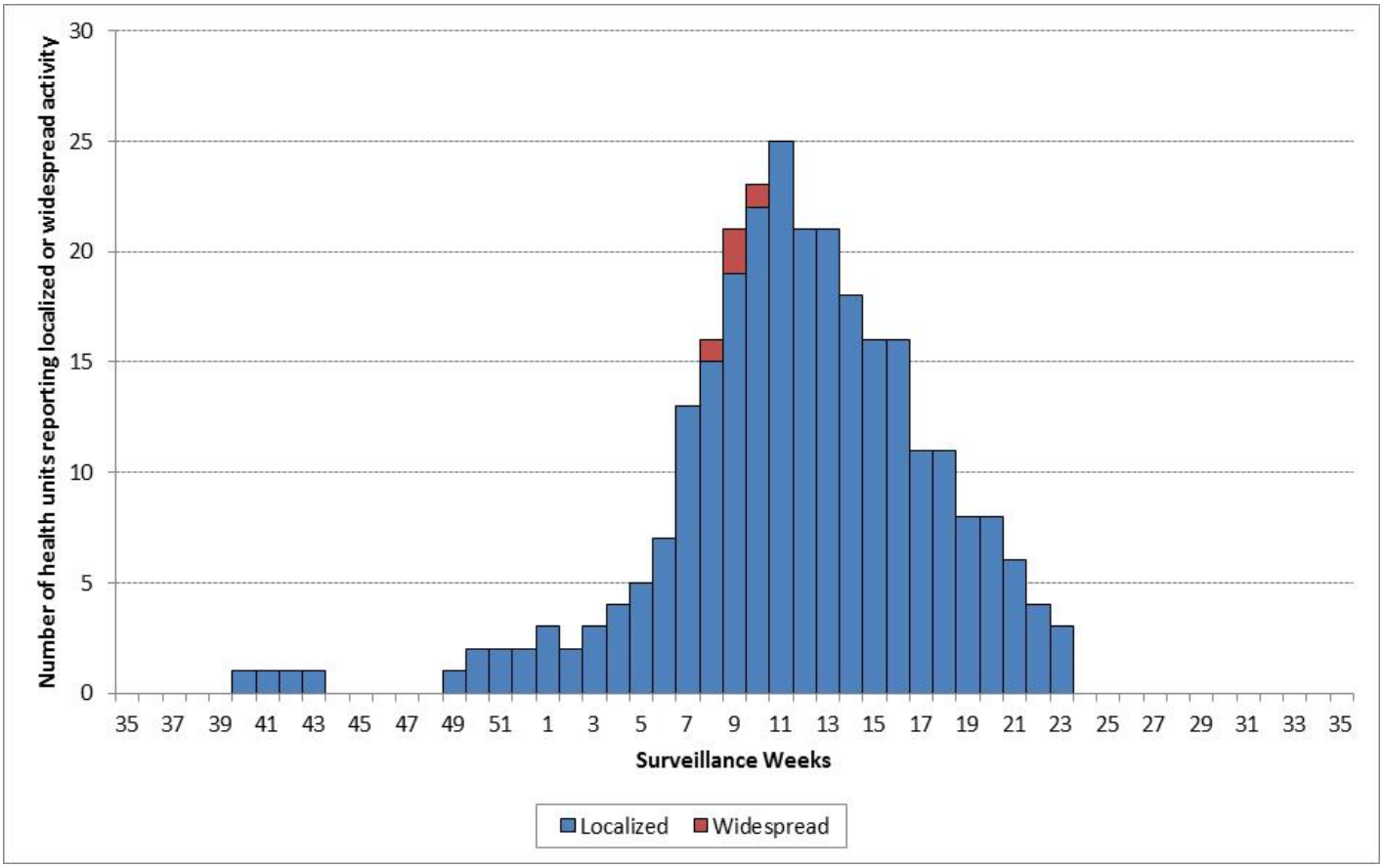


Source: Ontario Ministry of Health and Long-Term Care, integrated Public Health Information System (iPHIS) database, extracted by Public Health Ontario [2016/10/19].

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.
- Any outbreak where influenza was identified is reported under the appropriate influenza category (“Influenza A”, “Influenza B”, or “Both influenza A & B”) regardless of what other virus is also identified in the outbreak

Figure 12. 'Localized' and 'Widespread' influenza activity levels reported by public health units, by reporting week: Ontario, September 1, 2015 to August 31, 2016



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 2015-16 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 positive isolates at the National Microbiology Laboratory: Ontario and Canada, September 1, 2015 to August 31, 2016

Influenza strains	Ontario	Canada
Influenza A (H3N2) A/Switzerland/9715293/2013-like	63	91
Influenza A (H1N1) A/California/07/09-like	528	1,491
Influenza B B/Brisbane/60/2008-like B/Phuket/3073/13-like	 222 119	994 267

Source: Influenza and Respiratory Viruses Section, National Microbiology Laboratory (NML). Received: September 1, 2016

Notes:

Through genetic characterization performed at the National Microbiology Laboratory (NML), sequence analysis showed that the 1,491 influenza A(H1N1) viruses tested nationally were antigenically similar to A/California/7/2009, which is the influenza A/H1N1 component recommended by the World Health Organization for the 2015-16 Northern Hemisphere influenza vaccine.

Only 91 influenza A(H3N2) viruses from Canada grew to sufficient titre for antigenic characterization by haemagglutination inhibition assay and were characterized as antigenically similar to the cell-passaged A/Switzerland/9715293/2013, the World Health Organization recommended influenza A(H3N2) component of the 2015-16 Northern Hemisphere vaccine.

Of the 1261 influenza B viruses characterized in Canada, NML reported that 267 were antigenically similar to the recommended influenza B component for the Northern Hemisphere 2015-16 vaccine, B/Phuket/3073/2013. 994 influenza B viruses were characterized as B/Brisbane/60/2008-like, which is included as an influenza B component of the 2015-16 quadrivalent vaccine.

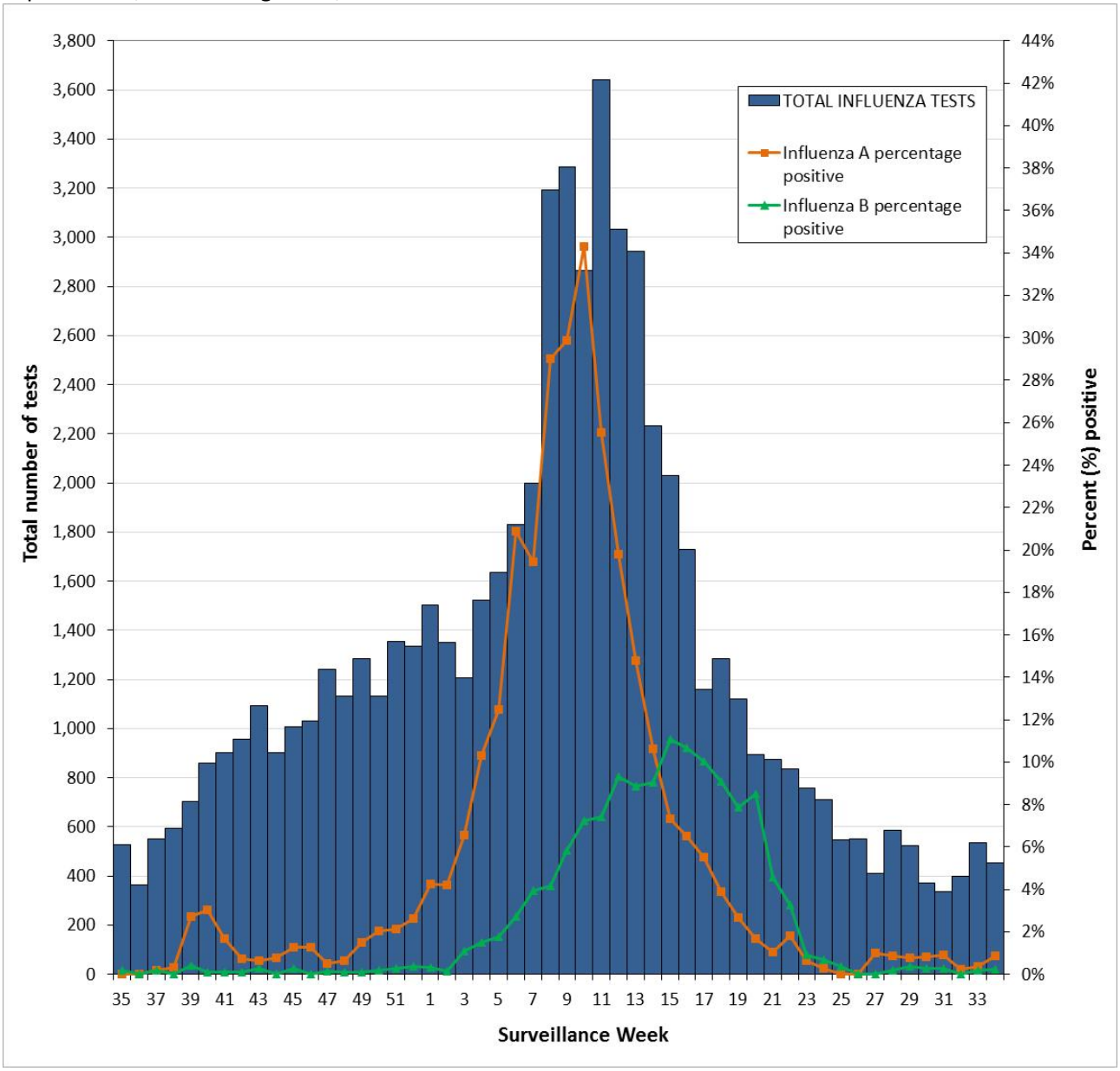
Table II. Amantadine, oseltamivir and zanamivir susceptibility assays completed on influenza isolates at the National Microbiology Laboratory: Ontario and Canada, September 1, 2015 to August 31, 2016

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)	150	0	292	1	0	121	0	218	0	122	0	219
Influenza A (H1N1)pdm09	543	0	1,511	1	4	440	10	1,157	0	444	0	1,167
Influenza B	NA	NA	NA	NA	0	258	0	871	0	258	0	871

(R = Resistant, S = Susceptible, NA = Not Applicable)
Source: Influenza and Respiratory Viruses Section, National Microbiology Laboratory (NML). Received: September 1, 2016

Notes:
All influenza viruses in Canada tested by the National Microbiology Laboratory (NML) for antiviral resistance in the 2015-16 season were sensitive to zanamivir. Ten influenza A (H1N1)pdm09 viruses tested nationally were resistant to oseltamivir; four of these were from Ontario. Nationally, two influenza A viruses tested were sensitive to amantadine, the rest were resistant. All influenza B viruses in Canada were sensitive to both oseltamivir and zanamivir.

Figure I. Total number of influenza tests performed and percent of positive tests by report week: Ontario, September 1, 2015 to August 27, 2016



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 August 31, 2016; 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. Not all 16 Ontario laboratories report every week.

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 2015-16 Surveillance Season

WEEKS	START	END
WK35	30-Aug-15	05-Sep-15
WK36	06-Sep-15	12-Sep-15
WK37	13-Sep-15	19-Sep-15
WK38	20-Sep-15	26-Sep-15
WK39	27-Sep-15	03-Oct-15
WK40	04-Oct-15	10-Oct-15
WK41	11-Oct-15	17-Oct-15
WK42	18-Oct-15	24-Oct-15
WK43	25-Oct-15	31-Oct-15
WK44	01-Nov-15	07-Nov-15
WK45	08-Nov-15	14-Nov-15
WK46	15-Nov-15	21-Nov-15
WK47	22-Nov-15	28-Nov-15
WK48	29-Nov-15	05-Dec-15
WK49	06-Dec-15	12-Dec-15
WK50	13-Dec-15	19-Dec-15
WK51	20-Dec-15	26-Dec-15
WK52	27-Dec-15	02-Jan-16
WK1	03-Jan-16	09-Jan-16
WK2	10-Jan-16	16-Jan-16
WK3	17-Jan-16	23-Jan-16
WK4	24-Jan-16	30-Jan-16
WK5	31-Jan-16	06-Feb-16
WK6	07-Feb-16	13-Feb-16
WK7	14-Feb-16	20-Feb-16
WK8	21-Feb-16	27-Feb-16
WK9	28-Feb-16	05-Mar-16
WK10	06-Mar-16	12-Mar-16
WK11	13-Mar-16	19-Mar-16
WK12	20-Mar-16	26-Mar-16
WK13	27-Mar-16	02-Apr-16
WK14	03-Apr-16	09-Apr-16
WK15	10-Apr-16	16-Apr-16
WK16	17-Apr-16	23-Apr-16
WK17	24-Apr-16	30-Apr-16
WK18	01-May-16	07-May-16
WK19	08-May-16	14-May-16
WK20	15-May-16	21-May-16
WK21	22-May-16	28-May-16
WK22	29-May-16	04-Jun-16
WK23	05-Jun-16	11-Jun-16
WK24	12-Jun-16	18-Jun-16
WK25	19-Jun-16	25-Jun-16
WK26	26-Jun-16	02-Jul-16
WK27	03-Jul-16	09-Jul-16
WK28	10-Jul-16	16-Jul-16
WK29	17-Jul-16	23-Jul-16
WK30	24-Jul-16	30-Jul-16
WK31	31-Jul-16	06-Aug-16
WK32	07-Aug-16	13-Aug-16
WK33	14-Aug-16	20-Aug-16
WK34	21-Aug-16	27-Aug-16
WK35	28-Aug-16	03-Sep-16