

British Columbia Influenza Surveillance Bulletin

Influenza Season 2018-19, Number 2, Week 42

October 14 to October 20, 2018

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Low-level Influenza Activity in BC

In week 42 (October 14 to 20, 2018), influenza was detected at low levels in BC.

Cumulatively between weeks 35 and 42, influenza detections have been markedly lower in 2018 (n=29) compared to the same periods of 2017 (n=97), 2016 (n=135), 2015 (n=73) or 2014 (n=57), with notably fewer A(H3N2) detections.

At the BC provincial laboratory, 4.3% of patients tested positive for influenza in week 42. Although A(H1N1)pdm09 predominated among subtyped viruses earlier in the fall, A(H3N2) has contributed more in recent weeks, requiring ongoing monitoring of that proportionate mix.

The first confirmed influenza [A(H3N2)] outbreak of the season was reported from a long term care facility (LTCF) in week 42. By way of comparison, between weeks 35 and 42 of the prior 2017-18 and 2016-17 seasons, four and seven LTCF influenza outbreaks were reported, respectively.

The US CDC has recently reported an increase in cases of paediatric acute flaccid myelitis (AFM), *possibly* associated with enterovirus-D68 (EV-D68) infection. Low-level EV-D68 activity has been detected in BC, as elsewhere in Canada, and as may be expected at this time of year; however, we are not aware of any such detections associated with neurological manifestations this season.

Prepared by BCCDC Influenza & Emerging Respiratory Pathogens Team

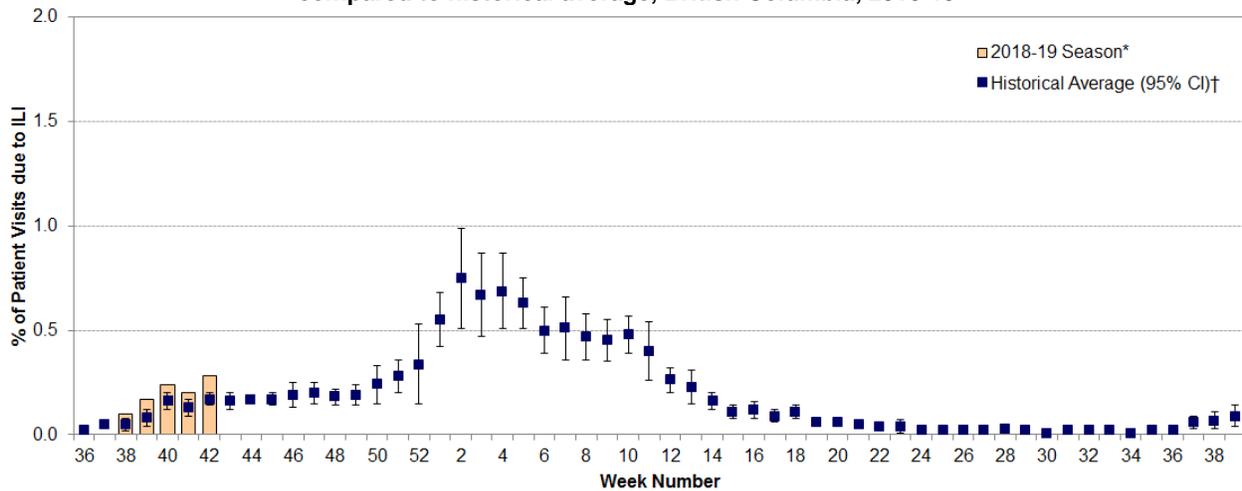
Report Disseminated: October 25, 2018

British Columbia

Sentinel Physicians

In recent weeks, including the most recent week 42, influenza-like illness (ILI) rates among patients presenting to sentinel sites have been slightly higher than the historical average but these should be interpreted cautiously (**Figure 1**). Rates may be unreliable and are subject to change as reporting becomes more complete. Twelve (44%) of sentinel sites have reported data for week 42.

Figure 1: Percent of patient visits to sentinel physicians due to influenza-like illness (ILI) compared to historical average, British Columbia, 2018-19



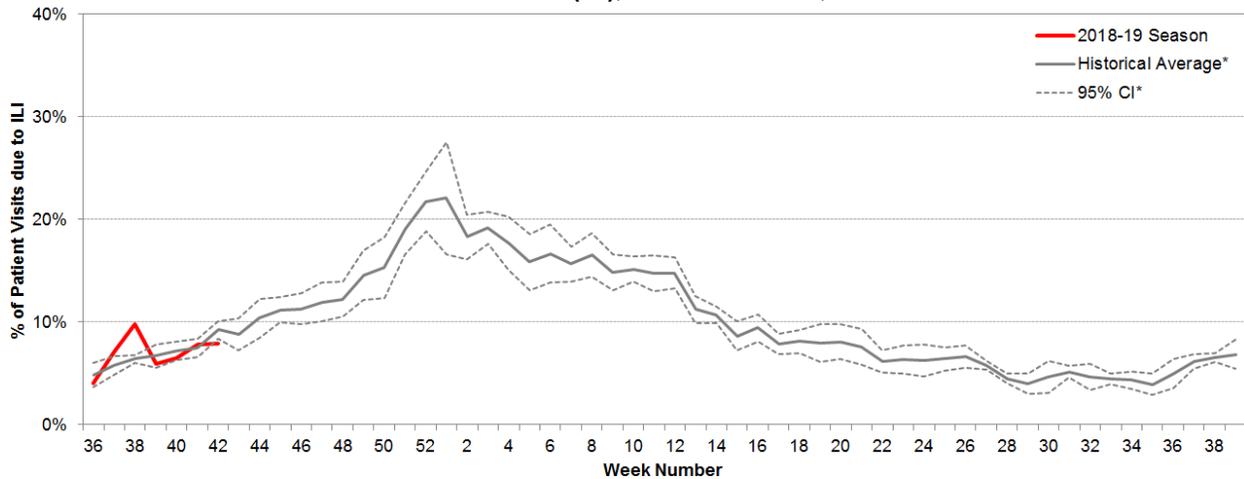
* Data are subject to change as reporting becomes more complete.

† 10-year historical average for 2018-19 season based on 2005-06 to 2017-2018 seasons, excluding 2008-09 and 2009-10 due to atypical seasonality; CI=confidence interval.

BC Children’s Hospital Emergency Room

In week 42, the proportion of visits to BC Children’s Hospital Emergency Room (ER) attributed to ILI remains generally consistent with the historical average of the past 5 seasons (**Figure 2**).

Figure 2: Percent of patients presenting to BC Children’s Hospital ER attributed to influenza-like illness (ILI), British Columbia, 2018-19

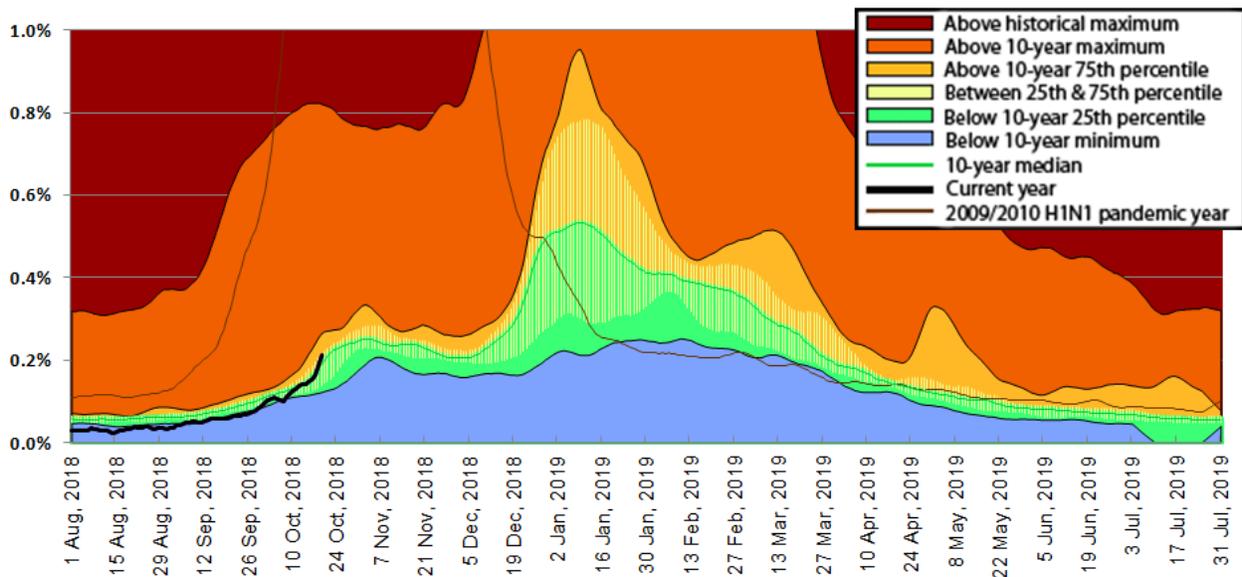


Source: BCCH Admitting, Discharge, Transfer database (ADT). Data includes records with a triage chief complaint of "flu" or "influenza" or "fever/cough."
* 5-year historical average for 2018-19 season based on 2012-13 to 2017-18 seasons; CI=confidence interval.

Medical Services Plan

In week 42, BC Medical Services Plan (MSP) claims for influenza illness (II), as a proportion of all submitted MSP claims by general practitioners, increased slightly but remains within expected levels overall for the province (**Figure 3**). Some regional variation has been observed (**Figure 4**), notably a recent spike in Vancouver Island which, absent other indicators of unusual influenza activity in that region, likely reflects a surveillance artefact requiring further monitoring.

Figure 3: Service claims submitted to MSP for influenza illness (II)* as a proportion of all submitted general practitioner service claims, British Columbia, 2018-19

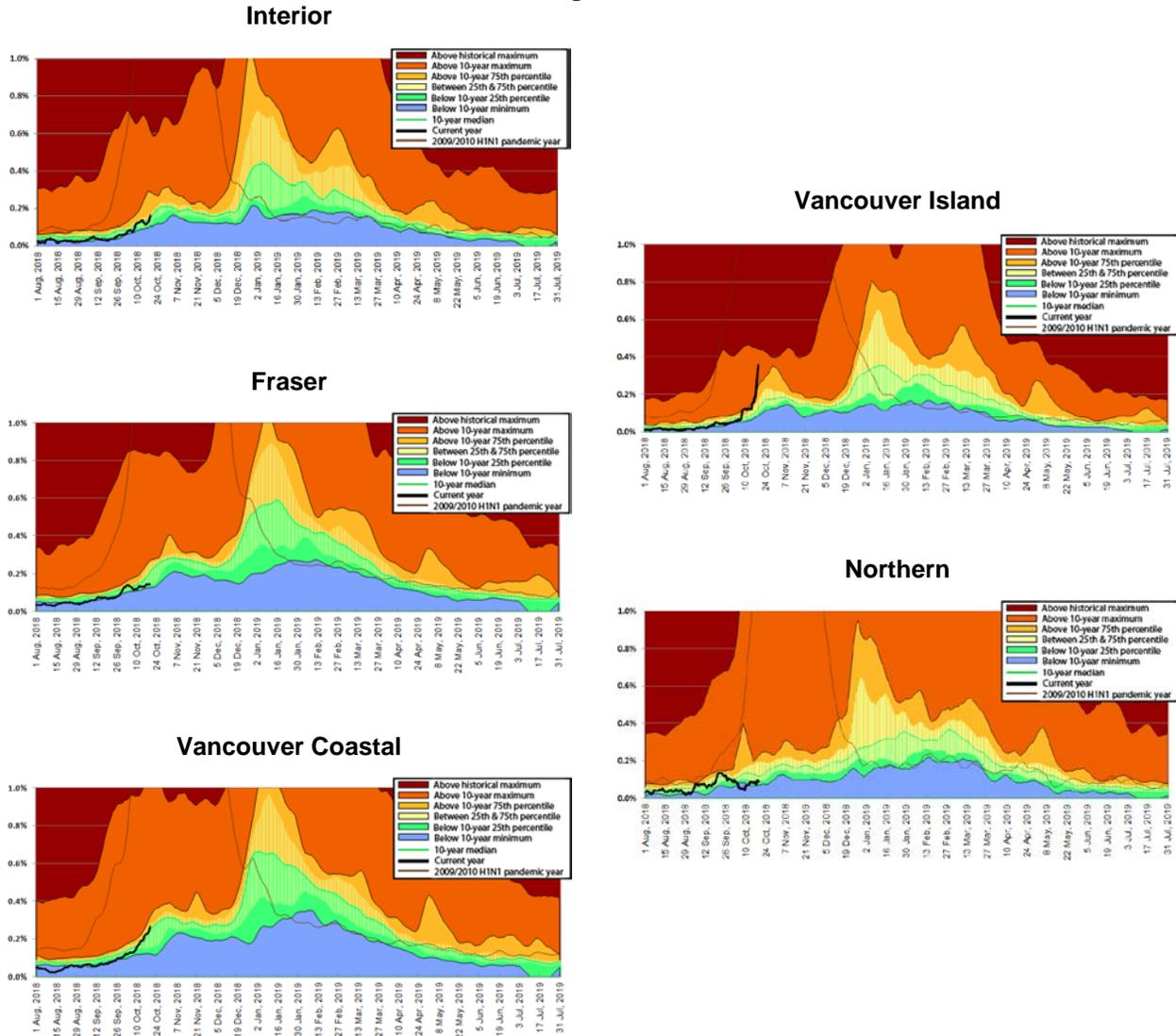


* Influenza illness is tracked as the percentage of all submitted MSP general practitioner claims with ICD-9 code 487 (influenza).

Data for the period August 1, 2009 to July 31, 2010 have been excluded from the 10-year median calculation due to atypical seasonality during the 2009/2010 H1N1 pandemic year. MSP data beginning August 1, 2018 corresponds to sentinel ILI week 31; data are current to October 19, 2018.

Data provided by Population Health Surveillance and Epidemiology, BC Ministry of Health Services.

Figure 4



Laboratory Reports

BCCDC Public Health Laboratory

Cumulatively, during the 2018-19 season (since week 40, starting October 1, 2018), 17/579 (2.9%) patients have tested positive for influenza at the BCCDC Public Health Laboratory (PHL), all of which were influenza A [10 A(H3N2), 7 A(H1N1)pdm09] with no influenza B detected (**Figure 5**).

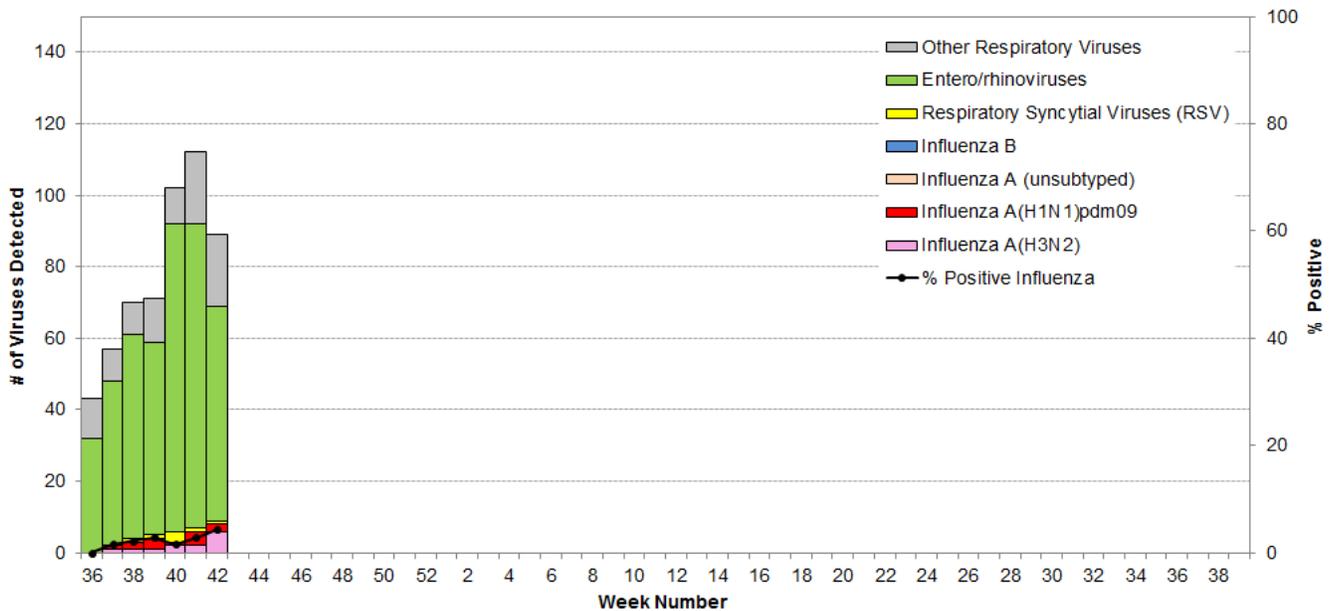
In week 42, 186 patients were tested for respiratory viruses at the BCCDC PHL. Of these, 8 (4.3%) tested positive for influenza, all of which were influenza A [6 A(H3N2), and 2 A(H1N1)pdm09]; none tested positive for influenza B (**Figure 5**). Of note, testing from a single long term care facility (LTCF) outbreak reported in week 42 contributed about half of the total provincial A(H3N2) detections that week.

The two A(H1N1)pdm09 detections in week 42 were among <1 and 50-64 years olds respectively, while the six A(H3N2) detections were among elderly adults aged 65+ (**Figures 6 and 7**).

Overall during this inter-seasonal period spanning from early September to mid-October (weeks 35-42), the total number of influenza detections (n=29) is substantially lower than for the same periods in 2017 (n=97), 2016 (n=135), 2015 (n=73) or 2014 (n=57), with notably fewer A(H3N2) detections than during the four prior seasons (**Figure 8**).

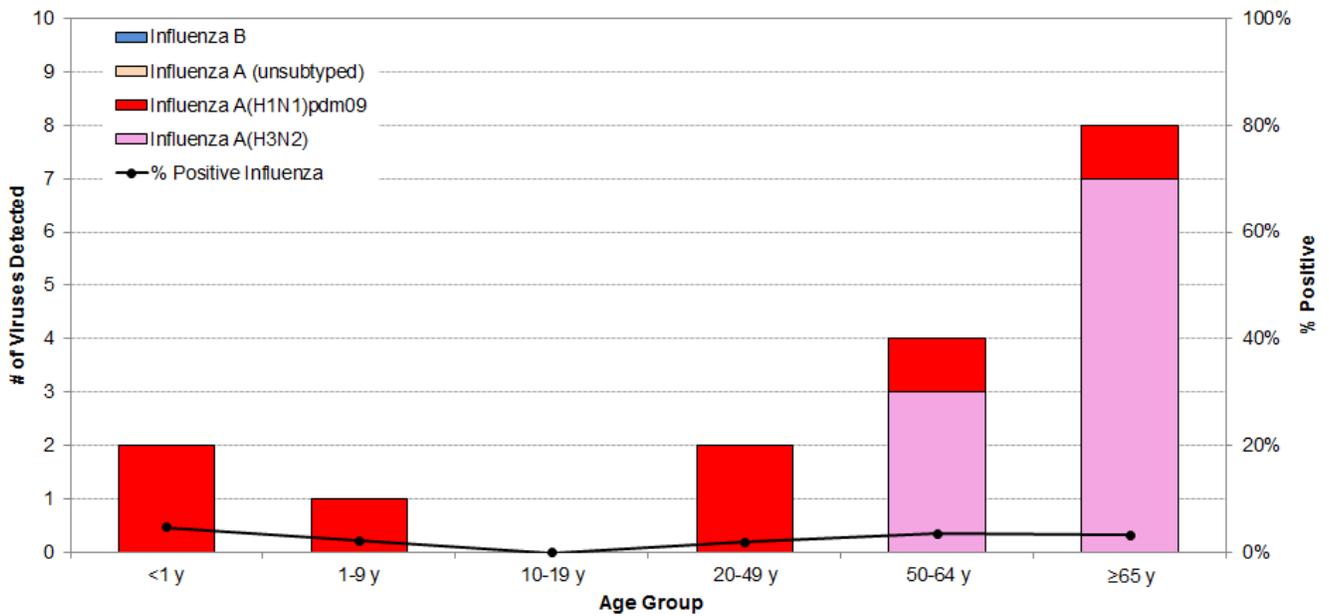
Enteroviruses (n=60) were the most commonly detected respiratory virus in week 42; these detections have decreased slightly compared to recent weeks (**Figure 5**).

Figure 5: Influenza and other virus detections among respiratory specimens submitted to BCCDC Public Health Laboratory, 2018-19



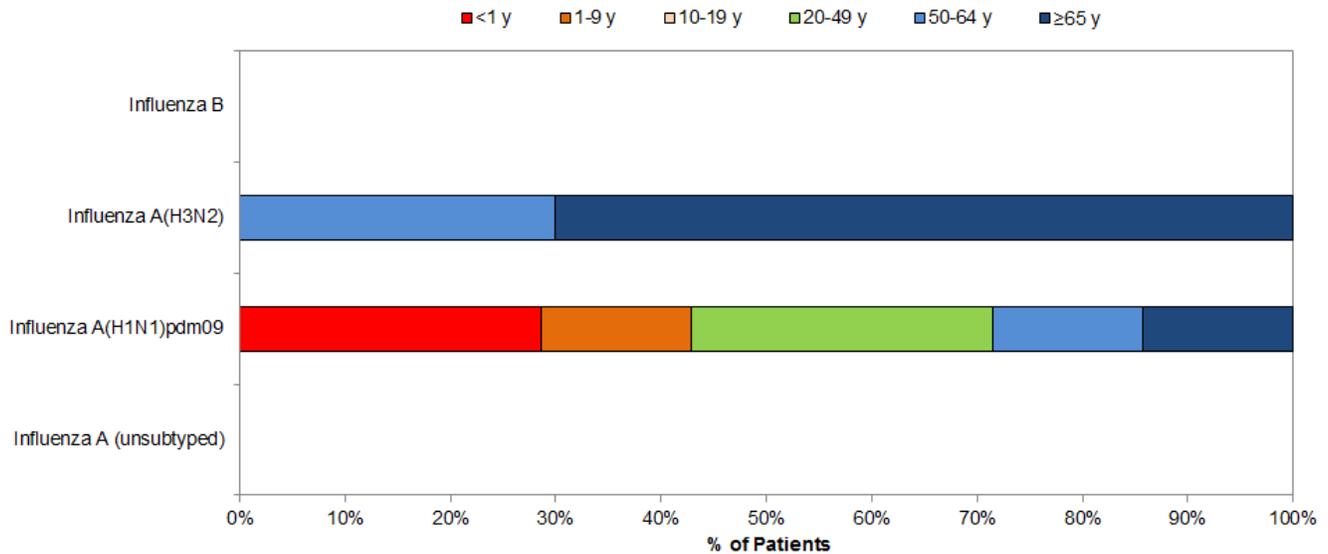
Source: BCCDC Public Health Laboratory (PHDRW); Data are current to October 25, 2018.

Figure 6: Cumulative number (since week 40) of influenza detections by type, subtype, and age group, BCCDC Public Health Laboratory, 2018-19



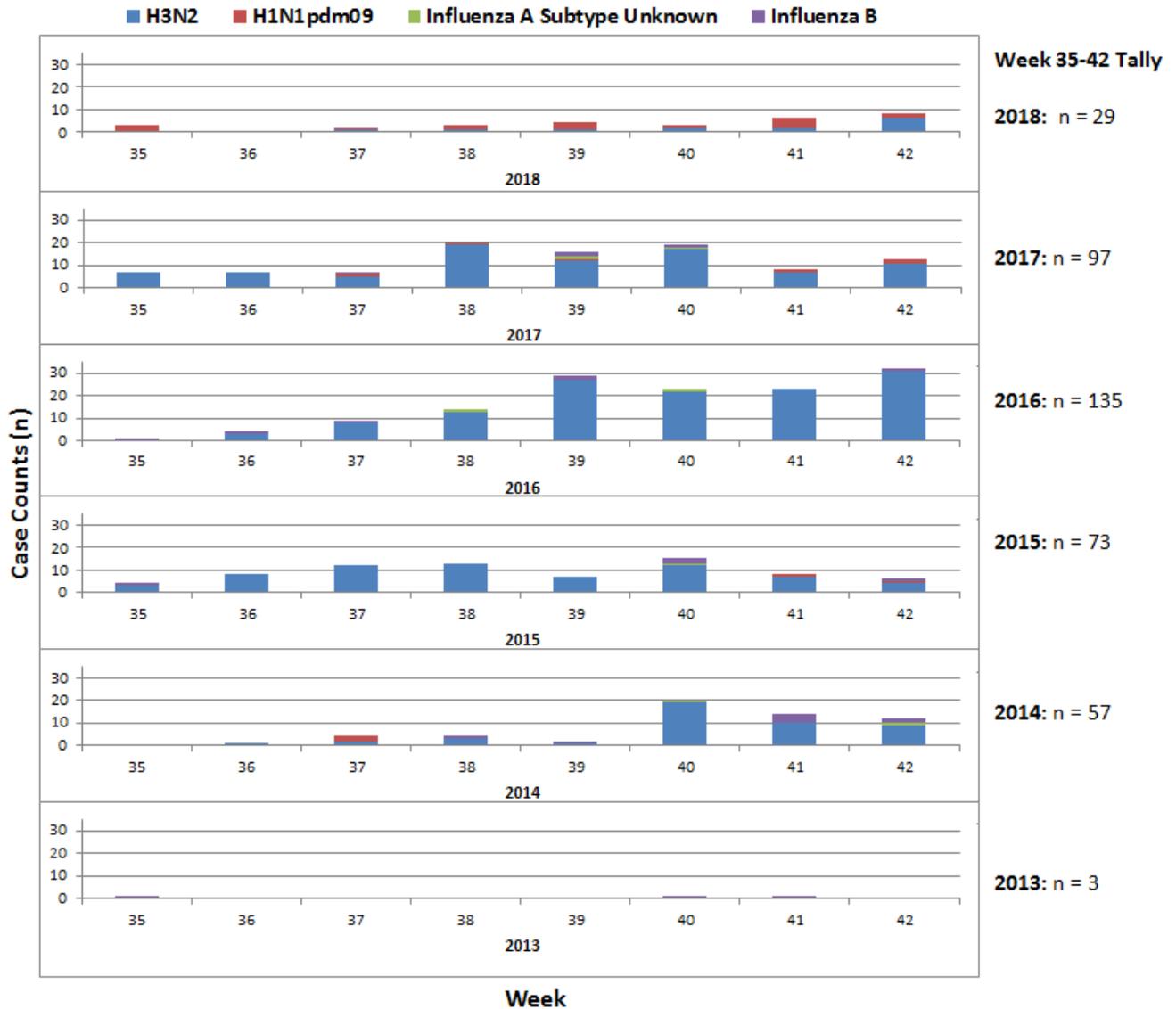
Source: BCCDC Public Health Laboratory (PHDRW); Data are current to October 25, 2018; figure includes cumulative influenza detections for specimens collected since week 40.

Figure 7: Age distribution of influenza detections (cumulative since week 40), BCCDC Public Health Laboratory, 2018-19



Source: BCCDC Public Health Laboratory (PHDRW); Data are current to October 25, 2018; figure includes cumulative influenza detections for specimens collected since week 40.

Figure 8: Influenza detections by week, virus subtype, and season, BCCDC Public Health Laboratory, weeks 35 to 42 (early-September to mid-October), 2013 to 2018

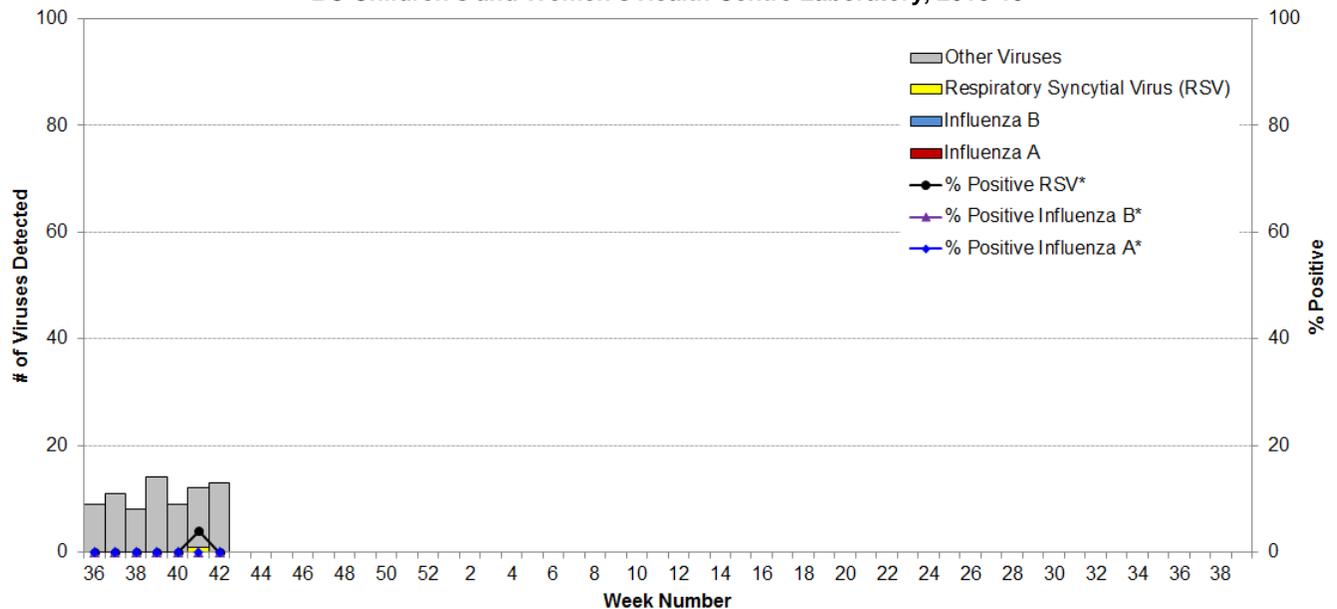


Source: BCCDC Public Health Laboratory (PHDRW); Data are current to October 25, 2018.

BC Children’s and Women’s Health Centre Laboratory

In week 42, 24 tests for respiratory viruses were conducted at the BC Children’s and Women’s Health Centre laboratory. Of these, none were positive for influenza A or influenza B. In week 42, Rhinovirus and Enterovirus detections were more numerous, as expected for this time of year (**Figure 9**).

Figure 9: Influenza and other virus detections among respiratory specimens submitted to BC Children’s and Women’s Health Centre Laboratory, 2018-19

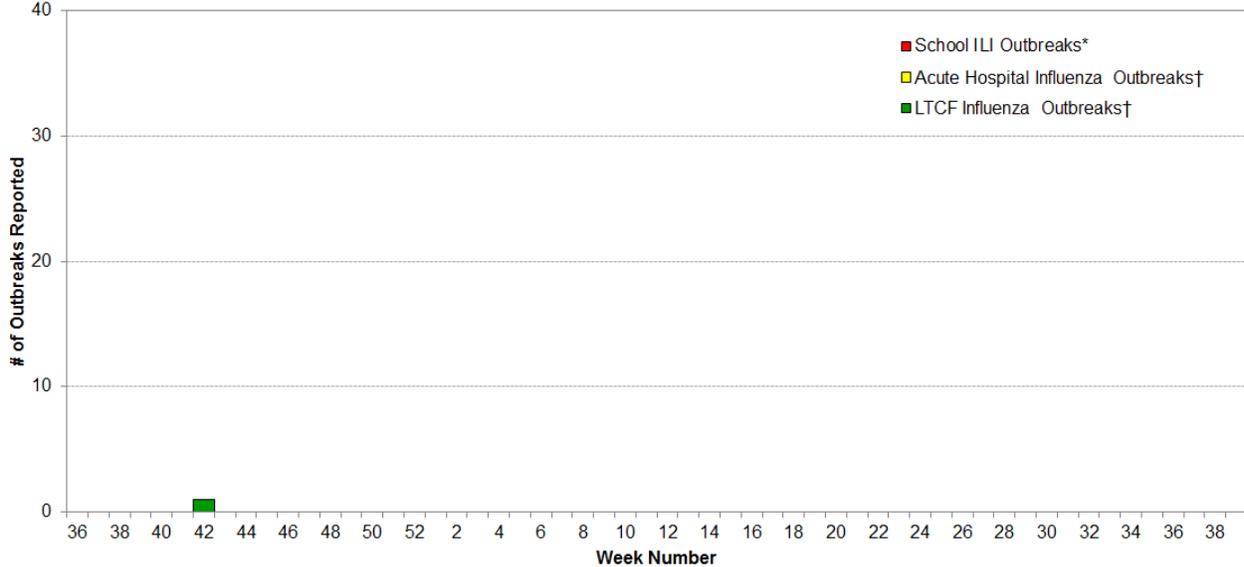


* Positive rates were calculated using aggregate data. The denominators for each rate represent the total number of tests; multiple tests may be performed for a single specimen and/or patient.

Influenza-like Illness (ILI) Outbreaks

The first laboratory-confirmed influenza outbreak of the 2018-19 season (and since week 20) has been reported in week 42, identified as A(H3N2) (Figures 10 and 11). By way of comparison, between weeks 35 and 42 of the 2017-18 and 2016-17 seasons, 4 and 7 influenza outbreaks had been reported from LTCFs, respectively.

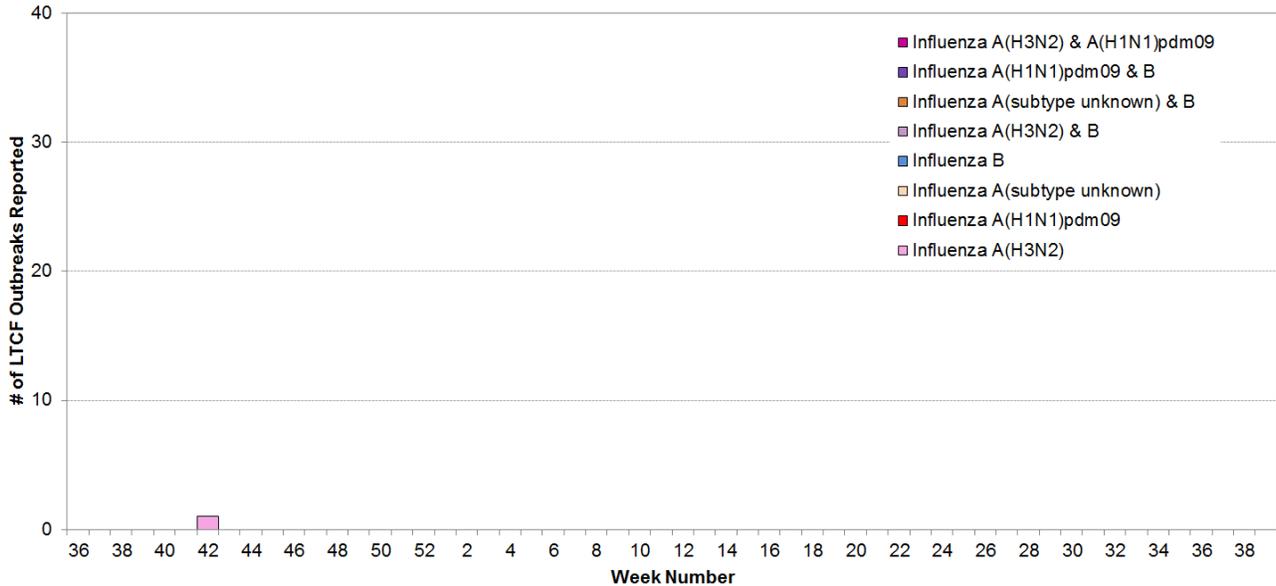
Figure 10: Number of influenza-like illness (ILI) outbreaks reported, British Columbia 2018-19



* School-based ILI outbreak defined as >10% absenteeism on any day, most likely due to ILI. Onset

† Facility-based influenza outbreaks defined as 2 or more ILI cases within 7-day period, with at least one laboratory-confirmed case of influenza.

Figure 11: Number of influenza-like illness (ILI) outbreaks by Influenza Type/Subtype in long-term care facilities (LTCF), British Columbia 2018-19†



† Facility-based influenza outbreaks defined as 2 or more ILI cases within 7-day period, with at least one laboratory-confirmed case of influenza.

Emerging Respiratory Viruses

Acute flaccid myelitis (AFM) in the US and its possible association with enterovirus D68 (EV-D68)

Since September, the US CDC has reported an increase in paediatric cases of acute flaccid myelitis (AFM) (often referred to as “polio-like illness” in the media). As of October 22nd 2018, the CDC has confirmed 62 cases of AFM across 22 states – predominantly affecting children under 18 years of age. Patients have presented with neurological features, specifically single or multi-limb weakness, with most requiring hospitalization. AFM has a variety of possible causes, including non-polio enterovirus infection. Among early reports, enterovirus A-71 (EV-A71) was more often implicated, but enterovirus D-68 (EV-D68) was also detected; however, a clear and consistent etiology has not yet been identified.

Recent reports have raised concern that 2018 may represent another biennial peak, similar to that observed during EV-D68 epidemics in 2014 and 2016. The latter EV-D68 epidemics were noteworthy for including cases with severe respiratory manifestations (less prominently noted in 2018), but neurological complications were also identified.

Low-level EV-D68 activity has been detected in BC this autumn, as may be expected at this time of the year; however, we are not aware of any cases presenting thus far with neurological manifestations. No AFM cases have otherwise been reported to the BCCDC thus far. Elsewhere in Canada, a possible uptick in reports of acute flaccid paralysis has been noted but such cases are still under investigation. The number of cases of sudden onset muscle weakness in children reported to the Public Health Agency of Canada in 2018 can be found at the link below.

Additional information is available from the following sources:

A summary of the 2014 experience in BC was published in *Euro Surveillance*, available from: <https://www.eurosurveillance.org/content/10.2807/1560-7917.ES.2015.20.43.30047>

US CDC AFM webpage: <https://www.cdc.gov/acute-flaccid-myelitis/index.html>

US CDC factsheet on EV-D68: <https://www.cdc.gov/non-polio-enterovirus/about/ev-d68.html>

PHAC information sheet on AFM in Canada: <https://www.canada.ca/en/public-health/services/diseases/acute-flaccid-myelitis.html>

National

FluWatch (week 41, October 7 to October 13, 2018)

Influenza activity remains at inter-seasonal levels across the country with very few reports of influenza activity for week 41. The majority of influenza detections continued to be A(H1N1)pdm09. The percentage of laboratory tests positive for influenza increased slightly, from 1.58% in week 40, to 1.65% in week 41. Details are available at: <https://www.canada.ca/en/public-health/services/diseases/flu-influenza/influenza-surveillance/weekly-influenza-reports.html>.

National Microbiology Laboratory (NML): Strain Characterization

From September 1, 2018 to October 25, 2018, the National Microbiology Laboratory (NML) received ten influenza viruses [1 A(H3N2), 9 A(H1N1)pdm09 and 0 B] from Canadian laboratories for antigenic characterization.

Influenza A(H3N2): The one influenza A(H3N2) virus was considered antigenically similar to A/Singapore/INFIMH-16-0019/2016, a clade 3C.2a1 virus and the WHO-recommended A(H3N2) component for the 2018-19 northern hemisphere influenza vaccine. The characterized virus also belonged to genetic group 3C.2a1.

Influenza A(H1N1)pdm09: All of the 9 A(H1N1)pdm09 viruses characterized were antigenically similar to A/Michigan/45/2015: the WHO-recommended influenza A(H1N1) component for the 2018-19 northern hemisphere influenza vaccine.

Influenza B: No influenza B viruses have been detected in weeks 39-40.

National Microbiology Laboratory (NML): Antiviral Resistance

From September 1, 2018 to October 25, 2018, the NML received influenza viruses from Canadian laboratories for drug susceptibility testing.

Amantadine: Of the 2 influenza A(H3N2) and 9 A(H1N1)pdm09 viruses tested against amantadine, all were resistant.

Oseltamivir: Of the 11 influenza viruses [2 A(H3N2) and 9 A(H1N1)pdm09] tested against oseltamivir, all were sensitive.

Zanamivir: Of the 11 influenza viruses [2 A(H3N2) and 9 A(H1N1)pdm09] tested against zanamivir, all were sensitive.

International

USA (week 41, October 7 to October 13, 2018)

During week 41, influenza activity remained at inter-seasonal levels in the United States. From weeks 39-41, the most frequently identified influenza subtype reported by public health laboratories was influenza A(H1N1)pdm09. The proportion of deaths attributed to pneumonia and influenza (P&I) was below the system-specific epidemic threshold. One influenza-associated pediatric death occurred during week 41; the death was attributed to influenza A with no subtype information. The proportion of outpatient visits for ILI remained low at 1.4%, which is below the national baseline of 2.2%. The US CDC has posted a summary of influenza activity in the US and elsewhere for the period May 20 to October 13, 2018, available at: <https://www.cdc.gov/flu/weekly/index.htm>

WHO

There have been no new WHO influenza updates since our last bulletin. Previous updates are available at: www.who.int/influenza/surveillance_monitoring/updates/en/.

WHO Recommendations for Influenza Vaccines

WHO Recommendations for 2018-19 Northern Hemisphere Influenza Vaccine

On February 22, 2018, the WHO announced the recommended strain components for the 2018-19 northern hemisphere trivalent influenza vaccine (TIV)*:

- an A/Michigan/45/2015 (H1N1)pdm09-like virus;
- an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus; †
- a B/Colorado/06/2017-like virus (B/Victoria/2/87 lineage) ‡.

It is recommended that quadrivalent influenza vaccines (QIV) containing two influenza B viruses contain the above three viruses and a B/Phuket/3073/2013 (Yamagata-lineage)-like virus.

* Recommended strains represent a change for two of the three components used for the 2017-18 northern hemisphere TIV

† Recommended strain represents a change from the 2017-18 season vaccine which contained an A/Hong Kong/4801/2014 (H3N2)-like virus

‡ Recommended strain represents a change from the 2017-18 season vaccine which contained a B/Brisbane/60/2008-like virus.

For further details: http://www.who.int/influenza/vaccines/virus/recommendations/2018_19_north/en/

WHO Recommendations for the 2019 Southern Hemisphere Influenza Vaccine

On September 27, 2018, the WHO announced recommended strain components for the 2019 southern hemisphere trivalent influenza vaccine (TIV):*

- an A/Michigan/45/2015 (H1N1)pdm09-like virus;
- an A/Switzerland/8060/2017 (H3N2)-like virus; ‡
- a B/Colorado/06/2017-like virus (B/Victoria/2/87 lineage).§

It is recommended that quadrivalent influenza vaccines (QIV) containing two influenza B viruses contain the above three viruses and a B/Phuket/3073/2013-like virus (B/Yamagata/16/88 lineage).

* Recommended strains represent a change for two of the three components used for the 2018 southern hemisphere TIV.

‡ Recommended strain represents a change from the 2018 season vaccine which contained an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus

§ Recommended strain for the influenza B component represents a lineage-level change from a B(Yamagata)-lineage virus in the 2018 vaccine to a B(Victoria)-lineage virus in the 2019 vaccine.

For further details: http://www.who.int/influenza/vaccines/virus/recommendations/2019_south/en/

Additional Information

Explanatory Note:

The surveillance period for the 2018-19 influenza season is defined starting in week 40. Weeks 36-39 of the 2017-18 season are shown on graphs for comparison purposes.

List of Acronyms:

ACF: Acute Care Facility

AI: Avian influenza

FHA: Fraser Health Authority

HBoV: Human bocavirus

HMPV: Human metapneumovirus

HSDA: Health Service Delivery Area

IHA: Interior Health Authority

ILI: Influenza-Like Illness

LTCF: Long-Term Care Facility

MSP: BC Medical Services Plan

NHA: Northern Health Authority

NML: National Microbiological Laboratory

A(H1N1)pdm09: Pandemic H1N1 influenza (2009)

RSV: Respiratory syncytial virus

VCHA: Vancouver Coastal Health Authority

VIHA: Vancouver Island Health Authority

WHO: World Health Organization

Current AMMI Canada Guidelines on the Use of Antiviral Drugs for

Influenza: www.ammi.ca/?ID=122&Language=ENG

Web Sites:

BCCDC Emerging Respiratory Pathogen Updates:

www.bccdc.ca/health-professionals/data-reports/emerging-respiratory-virus-updates

Influenza Web Sites

Canada – Influenza surveillance (FluWatch): <https://www.canada.ca/en/public-health/services/diseases/flu-influenza/influenza-surveillance.html>

Washington State Flu Updates: <http://www.doh.wa.gov/portals/1/documents/5100/420-100-fluupdate.pdf>

USA Weekly Surveillance Reports: www.cdc.gov/flu/weekly/

Joint ECDC – WHO/Europe weekly influenza update (Flu News Europe): flunewseurope.org

WHO – Weekly Epidemiological Record: www.who.int/wer/en/

WHO Collaborating Centre for Reference and Research on Influenza (Australia): www.influenzacentre.org/

Australian Influenza Report:

www.health.gov.au/internet/main/publishing.nsf/content/cda-surveil-ozflu-flucurr.htm

New Zealand Influenza Surveillance Reports: www.surv.esr.cri.nz/virology/influenza_weekly_update.php

Avian Influenza Web Sites

WHO – Influenza at the Human-Animal Interface: www.who.int/csr/disease/avian_influenza/en/

World Organization for Animal Health: www.oie.int/eng/en_index.htm

Contact Us:

Tel: (604) 707-2510

Fax: (604) 707-2516

Email: InfluenzaFieldEpi@bccdc.ca

Communicable Disease Prevention and Control Services (CDPACS)

BC Centre for Disease Control

655 West 12th Ave, Vancouver BC V5Z 4R4

Online: www.bccdc.ca/health-professionals/data-reports/influenza-surveillance-reports

Link to fillable Facility Outbreak Report Form: http://www.bccdc.ca/resource-gallery/Documents/Guidelines%20and%20Forms/Forms/Epid/Influenza%20and%20Respiratory/OutbreakReportForm_2018.pdf

Influenza-Like Illness (ILI) Outbreak Summary Report Form

Please complete and email to ilioutbreak@bccdc.ca

**Note: This form is for provincial surveillance purposes.
 Please notify your local health unit per local guidelines/requirements.**

ILI: Acute onset of respiratory illness with fever and cough and with one or more of the following: sore throat, arthralgia, myalgia, or prostration which *could* be due to influenza virus. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.
Schools and work site outbreak: greater than 10% absenteeism on any day, most likely due to ILI.
Residential institutions (facilities) outbreak: two or more cases of ILI within a seven-day period.

A	<u>Reporting Information</u>	
	Person Reporting:	Title:
	Contact Phone:	Email:
	Health Authority:	HSDA:
	Full Facility Name:	
	Is this report:	First Notification (<i>complete section B below; section D if available</i>) Outbreak Over (<i>complete section C and section D below</i>)
	Report Date (dd/mm/yyyy):	

B	<u>First Notification</u>	
	Type of facility*:	Long Term Care Facilities, Nursing Homes Acute Care Facility Other Setting:
	<i>If ward or wing, please specify name/number:</i>	
	Date of onset of first case of ILI (dd/mm/yyyy):	
	Date outbreak declared (dd/mm/yyyy):	
	<small>*Long Term Care Facilities, Nursing Homes: Facilities that provide living accommodation for people who require on-site delivery of 24 hour, 7 days a week supervised care, including professional health services, personal care and services such as meals, laundry and housekeeping or other residential care facilities where provincial/territorial public health is responsible for outbreak management under provincial legislation; Acute Care Facility: Publicly funded facilities providing medical and/or surgical treatment and acute nursing care for sick or injured people, through inpatient services. (i.e. hospitals including inpatient rehabilitation and mental facilities); Other Setting: Any locations not otherwise specified here in which outbreaks of influenza or ILI may occur (e.g. retirement homes, assisted living or hospice settings, private hospitals/clinics, correctional facilities, colleges/universities, adult education centres, shelters, group homes, and workplaces).</small>	

C	<u>Outbreak Declared Over</u>										
	Date of onset for last case of ILI (dd/mm/yyyy):										
	Date outbreak declared over (dd/mm/yyyy):										
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Numbers to date</th> <th style="width: 50%;">Residents</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Total</td> <td></td> </tr> <tr> <td style="text-align: center;">With ILI</td> <td></td> </tr> <tr> <td style="text-align: center;">Hospitalized*</td> <td></td> </tr> <tr> <td style="text-align: center;">Died*</td> <td></td> </tr> </tbody> </table>		Numbers to date	Residents	Total		With ILI		Hospitalized*		Died*
Numbers to date	Residents										
Total											
With ILI											
Hospitalized*											
Died*											
<small>*suspected to be linked to case of ILI</small>											

D	<u>Laboratory Information</u>			
	Specimen(s) submitted?	<input type="checkbox"/> Yes (location: _____)	No	<input type="checkbox"/> Don't know
	If yes, organism identified?	Yes	No	Don't know
	Please specify organism/subtype:	Influenza A (subtype: _____)	Influenza B	
		Parainfluenza Enterovirus Coronavirus RSV HMPV Adenovirus Other:		