

British Columbia Influenza Surveillance Bulletin

Influenza Season 2018-19, Number 4, Week 47 November 18 to November 24, 2018

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Influenza activity within expected levels; A(H1N1)pdm09 predominant

Influenza activity remains at expected levels for this stage of the season.

In recognition of expanded influenza testing by additional laboratories across British Columbia (BC), the proportion of specimens testing positive for influenza will now include respiratory specimens tested at sites beyond the BCCDC Public Health Laboratory (PHL). This represents a change from prior bulletins of this and previous seasons. Type and subtype distribution will continue to be derived from the BCCDC PHL.

In week 47, 13% of specimens tested by laboratories in BC were positive for influenza, a slight increase from the previous week. Among influenza viruses typed at the BCCDC PHL since week 40, virtually all have been influenza A and among those subtyped, about threequarters have been A(H1N1)pdm09.

There have been no further laboratory-confirmed influenza outbreaks in long term care facilities (LTCF) since the single report in week 42. In contrast, between weeks 40 and 47 of the 2016-17 and 2017-18 seasons, 10 and 3 confirmed LTCF outbreaks, respectively, had been reported.

Prepared by BCCDC Influenza & Emerging Respiratory Pathogens Team

Report Disseminated: November 29, 2018







British Columbia

Sentinel Physicians

In week 47, influenza-like illness (ILI) rates among patients presenting to sentinel sites have decreased and are generally consistent with the 10-year historical average, after being slightly elevated in week 46 (**Figure 1**). Rates are subject to change as reporting becomes more complete. Twelve (44%) of sentinel sites have reported data for week 47.

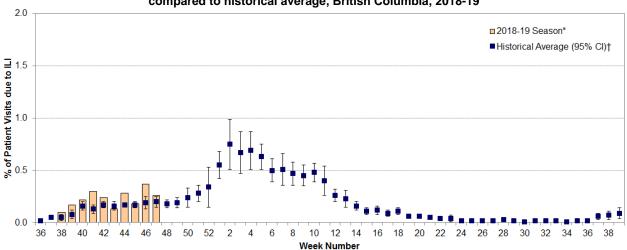


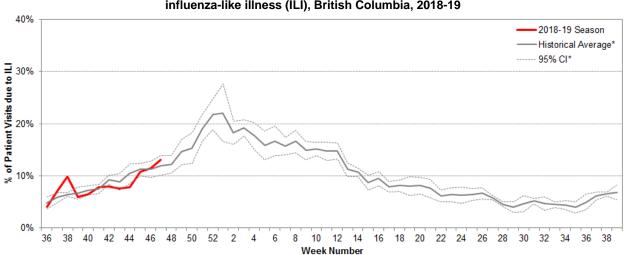
Figure 1: Percent of patient visits to sentinel physicians due to influenza-like illness (ILI) compared to historical average, British Columbia, 2018-19

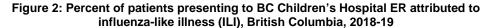
* Data are subject to change as reporting becomes more complete. † 10-year historical average for 2018-19 season based on 2005-06 to 2017-2018 seasons, excluding 2008-09 and 2009-10 due to atypical seasonality; CI=confidence interval.



BC Children's Hospital Emergency Room

In week 47, the proportion of visits to BC Children's Hospital Emergency Room (ER) attributed to ILI was slightly above the historical average for the past 5 seasons, but remained within the 95% confidence interval (**Figure 2**).





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 47, BC Medical Services Plan (MSP) general practitioner claims for influenza illness (II), as a proportion of all submitted MSP claims, remains stable and within expected levels overall for the province (**Figure 3**). Some regional variation has been observed (**Figure 4**), notably a recent spike in the Interior and Northern Health Authorities which will requiring further monitoring.

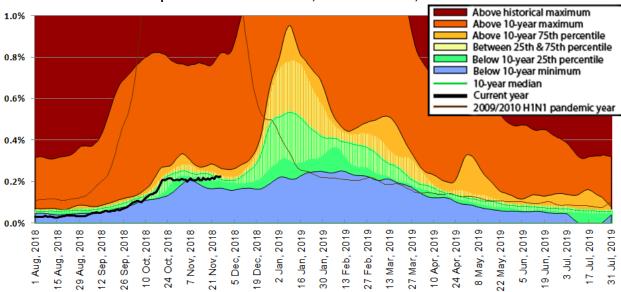


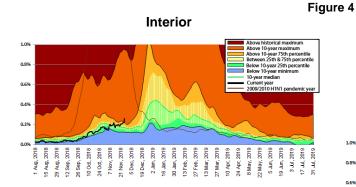
Figure 3: Service claims submitted to MSP for influenza illness (II)* as a proportion of all submitted general practitioner service claims, British Columbia, 2018-19

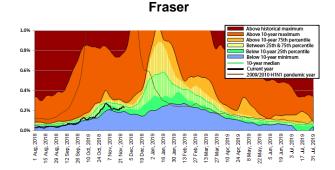
* Influenza illness is tracked as the percentage of all submitted MSP general practitioner claims with ICD-9 code 487 (influenza).

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 November 26, 2018.

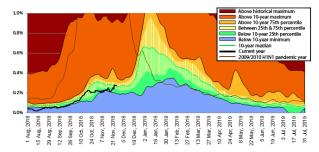
Data provided by Population Health Surveillance and Epidemiology, BC Ministry of Health Services.

BC Centre for Disease Control An agency of the Provincial Health Services Authority

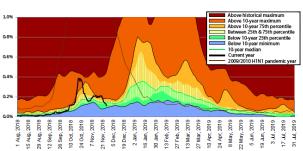




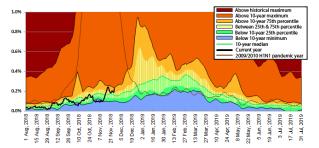




Vancouver Island



Northern



British Columbia Laboratory Reports

In recognition of expanded influenza testing by additional laboratories across British Columbia, this section of the bulletin will now include respiratory specimens tested at sites beyond the BCCDC Public Health Laboratory (PHL) in deriving the test-positivity indicator. This represents a change from prior bulletins of this and previous seasons. Type and subtype distribution will continue to be derived from the BCCDC PHL.

Cumulatively, during the 2018-19 season (since week 40, starting October 1, 2018), 145/2572 (5.6%) specimens tested positive for influenza at participating laboratories across British Colombia (BC) (as submitted to FluWatch). In week 47, 13.2% of specimens tested positive for influenza at these laboratories, representing a slight increase over previous weeks (**Figure 5**).

Cumulatively, during the 2018-19 season (since week 40, starting October 1, 2018), 122 patients tested positive for influenza at the BC Centre for Disease Control (BCCDC) Public Health Laboratory (PHL), of which 120 (98.4%) were typed as influenza A [29 (24.2%) A(H3N2), 85 (70.8%) A(H1N1)pdm09, 6 (5.0%) subtype unknown] and 2 (1.6%) as influenza B. Of 35 typed influenza viruses in week 47, all were influenza A. Among these influenza A viruses, 3 (8.6%) were identified as A(H3N2), 31 (88.6%) as A(H1N1)pdm09, and for 1 (2.9%) subtype was unknown, indicating A(H1N1)pdm09 predominance with lesser A(H3N2) contribution **(Figure 6)**.

Since week 40, 56% of A(H1N1)pdm09 detections were adults 20-64 years of age and 29% were children <9 years old with lesser involvement of those 10-19 years (2%) or elderly adults (13%). Conversely, 64% of A(H3N2) detections were elderly adults, and 25% were adults 50-64 years of age, with lesser involvement of adults 20-49 years (7%), or those 10-19 years (4%) and with none to date among children <9 years (**Figures 7** and 8).

Entero/rhinoviruses (n=37) were the most commonly detected respiratory virus at the BCCDC in week 47; these detections have decreased slightly compared to week 46 (**Figure 6**).

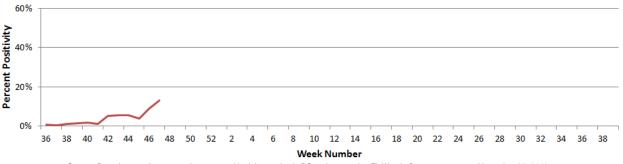


Figure 5: Flu positivity derived from influenza specimens submitted to participating laboratories across BC, 2018-19

Source: Based on respiratory specimens tested by laboratories in BC and reported to FluWatch; Data are current to November 28, 2018.

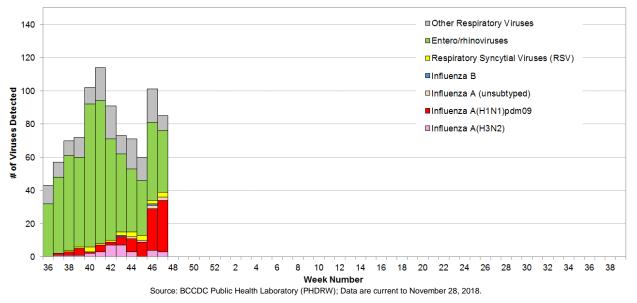
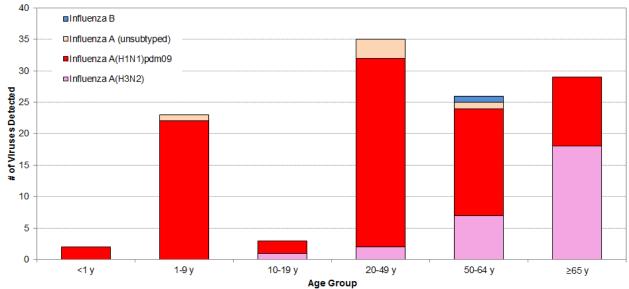
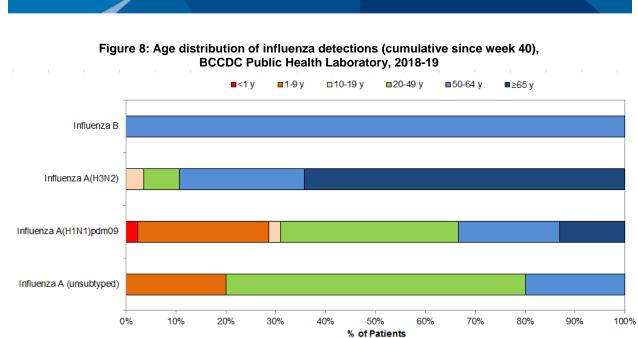


Figure 6: Influenza and other virus detections among respiratory specimens submitted to BCCDC Public Health Laboratory, 2018-19

Figure 7: 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 November 28, 2018; figure includes cumulative influenza detections for specimens collected since week 40.

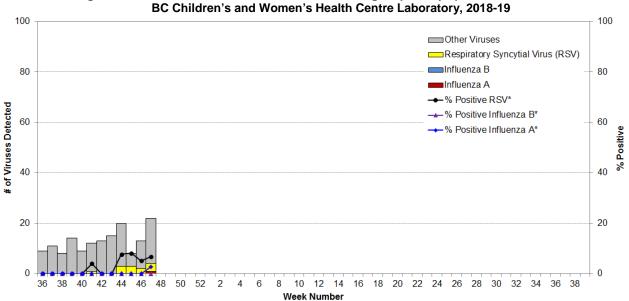


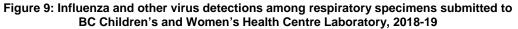
BC Centre for Disease Control An agency of the Provincial Health Services Authority

Source: BCCDC Public Health Laboratory (PHDRW); Data are current to November 28, 2018; figure includes cumulative influenza detections for specimens collected since week 40.

BC Children's and Women's Health Centre Laboratory

In week 47, 37 tests for influenza and 44 tests for respiratory syncytial virus (RSV) were conducted at the BC Children's and Women's Health Centre laboratory. Of these, one was positive for influenza A (not subtyped), and three were positive for RSV. In week 47, rhinoviruses were the most commonly detected respiratory viruses, as expected at this time of year (Figure 9).





* 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

No outbreaks were reported in week 47. The first laboratory-confirmed influenza outbreak of the 2018-19 season was reported in a long-term care facility (LTCF) in week 42, attributed to A(H3N2), and three school ILI outbreaks of unknown etiology were identified in week 45 (Figures 10 and 11).

By way of comparison, between weeks 40 and 47 of the 2016-17 and 2017-18 seasons, 10 and 3 confirmed LTCF outbreaks, respectively, had been reported.

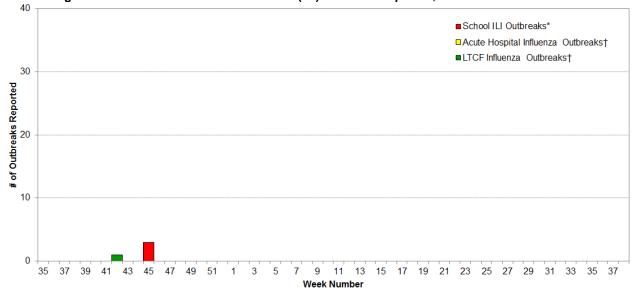


Figure 10: Number of influenza-like illness (ILI) outbreaks reported, British Columbia 2018-19

* 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.

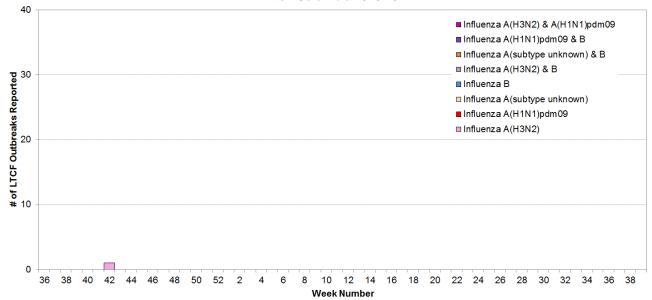


Figure 11: Number of influenza outbreaks by type/subtype in long-term care facilities (LTCF), British Columbia 2018-19[†]

+ 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) cases – possibly associated with enterovirus D68 (EV-D68) - continue to rise in the US

Since September, the US CDC has reported an increase in paediatric cases of acute flaccid myelitis (AFM), a subset of acute flaccid paralysis (AFP) (often referred to as "polio-like illness" in the media). As of November 23rd 2018, the CDC has confirmed 116 cases of AFM across 31 states – predominantly affecting children under 5 years of age. Patients have presented with neurological features, specifically single or multi-limb weakness, with most requiring hospitalization. More than 90% of AFM cases reported a mild respiratory illness or fever - consistent with a viral infection - in the weeks preceding symptom onset. AFM has a variety of possible causes, including non-polio enterovirus infection. Among 71 confirmed cases tested, just over half (54%) tested positive for enterovirus or rhinovirus at the time of AFM diagnosis (37% for enterovirus D68 (EV-D68), 29% for enterovirus A71 (EV-A71)); however, a clear and consistent etiology has not yet been identified.

These reports indicate 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); however, neurological complications were also identified. Accordingly, the US CDC has escalated its response by establishing an AFM task force to aid investigation efforts.

To date, no AFM cases have been reported to the BCCDC. Whilst low-level EV-D68 activity has been detected in BC this autumn, as may be expected at this time of the year, we are not aware of any cases presenting with neurological manifestations. Elsewhere in Canada, a possible uptick in reports of AFP has been noted; however, thus far, the number of confirmed cases falls within the annual expected range. 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:

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: <u>https://www.canada.ca/en/public-health/services/diseases/acute-flaccid-myelitis.html</u>

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

<u>National</u>

FluWatch (week 46, November 11 to 17, 2018)

At the national level, influenza activity continued to increase in week 46. Influenza A is the most common influenza virus circulating, and the majority of detections continue to be A(H1N1)pdm09. The percentage of laboratory tests positive for influenza increased, from 9.6% in week 45, to 13.8% in week 46. FluWatch indicates that the proportion of tests positive for influenza A is higher this year compared to the same period during the previous eight seasons Details are available at: <u>https://www.canada.ca/en/public-health/services/diseases/flu-influenza/influenza-surveillance/weekly-influenza-reports.html</u>.

National Microbiology Laboratory (NML): Strain Characterization

From September 1, 2018 to November 29, 2018, the National Microbiology Laboratory (NML) has antigenically characterized 91 influenza viruses [1 A(H3N2), 80 A(H1N1)pdm09 and 10 B] received from Canadian laboratories.

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

<u>Influenza A(H1N1)pdm09</u>: All of the 80 A(H1N1)pdm09 viruses characterized were antigenically similar to the A/Michigan/45/2015 virus: the WHO-recommended influenza A(H1N1) component of the 2018-19 northern hemisphere influenza vaccine.

<u>Influenza B:</u> The 10 influenza B viruses characterized were antigenically similar to the B/Phuket/3073/2013 virus, which belongs to the B Yamagata lineage: the WHO-recommended influenza B component of the 2018-19 northern hemisphere *quadrivalent* influenza vaccine. Of note, the WHO-recommended influenza B component of the *trivalent* vaccine is a B/Colorado/06/2017-like virus of the B Victoria lineage.

National Microbiology Laboratory (NML): Antiviral Resistance

From September 1, 2018 to November 29, 2018, the NML received influenza viruses from Canadian laboratories for drug susceptibility testing.

<u>Amantadine</u>: Of the 18 influenza A(H3N2) and 77 A(H1N1)pdm09 viruses tested against amantadine, all were resistant.

Oseltamivir: Of the 102 influenza viruses [16 A(H3N2), 76 A(H1N1)pdm09, and 10 B] tested against oseltamivir, all were sensitive.

Zanamivir: Of the 102 influenza viruses [16 A(H3N2), 76 A(H1N1)pdm09, and 10 B] tested against zanamivir, all were sensitive.

International

USA (week 46, November 11 to 17, 2018)

During week 46, influenza activity increased slightly but remained at low levels in the United States. Since week 40, the most frequently identified influenza subtype reported by public health laboratories has been influenza A(H1N1)pdm09. The proportion of deaths attributed to pneumonia and influenza was below the system-specific epidemic threshold. One influenza-associated pediatric death was reported during week 46, attributed to influenza A(H1N1)pdm09. The proportion of outpatient visits for ILI remained at 1.9%; below the national baseline of 2.2%. The US CDC has posted a summary of influenza activity in the US and elsewhere for week 46, available at: https://www.cdc.gov/flu/weekly/index.htm

WHO (November 26, 2018, based on data up to November 11, 2018)

In the temperate zone of the northern hemisphere, influenza detections began to increase, but still remained low overall. Some countries in Central America and South-East Asia reported increased influenza activity. Influenza activity in the temperate zones of the southern hemisphere has returned to inter-seasonal levels. Worldwide, influenza A(H1N1)pdm09 viruses have predominated.

From October 29 to November 11, 2018, the WHO GISRS laboratories tested more than 116,728 specimens. Of these, 5,534 were positive for influenza viruses, of which 4,894 (88.4%) were typed as influenza A and 640 (11.6%) as influenza B. Of the subtyped influenza A viruses, 2,695 (85%) were A(H1N1)pdm09 and 475 (15%) were A(H3N2). Of the characterized influenza B viruses, 53 (43.1%) belonged to the B(Yamagata) lineage and 70 (56.9%) to the B(Victoria) lineage.

The full report is 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-like virus (B/Yamagata/16/88 lineage).

* 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: <u>http://www.who.int/influenza/vaccines/virus/recommendations/2018_19_north/en/</u>

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): <u>https://www.canada.ca/en/public-health/services/diseases/flu-influenza-surveillance.html</u>

Washington State Flu Updates: <u>http://www.doh.wa.gov/portals/1/documents/5100/420-100-fluupdate.pdf</u> USA Weekly Surveillance Reports: <u>www.cdc.gov/flu/weekly/</u>

Joint ECDC – WHO/Europe weekly influenza update (Flu News Europe): <u>flunewseurope.org</u> WHO – Weekly Epidemiological Record: <u>www.who.int/wer/en/</u>

WHO Collaborating Centre for Reference and Research on Influenza (Australia): <u>www.influenzacentre.org/</u> Australian Influenza Report:

www.health.gov.au/internet/main/publishing.nsf/content/cda-surveil-ozflu-flucurr.htm New Zealand Influenza Surveillance Reports: <u>www.surv.esr.cri.nz/virology/influenza_weekly_update.php</u>

Avian Influenza Web Sites

WHO – Influenza at the Human-Animal Interface: <u>www.who.int/csr/disease/avian_influenza/en/</u> World Organization for Animal Health: <u>www.oie.int/eng/en_index.htm</u>

Contact Us:

Tel: (604) 707-2510 Fax: (604) 707-2516 Email: <u>InfluenzaFieldEpi@bccdc.ca</u>

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: <u>http://www.bccdc.ca/resource-</u> gallery/Documents/Guidelines%20and%20Forms/Forms/Epid/Influenza%20and%20Respiratory/OutbreakRepor tForm_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. **Reporting Information** Person Reporting: Title: Contact Phone: Email: Health Authority: HSDA: Full Facility Name: Is this report: First Notification (complete section **B** below; section **D** if available) Outbreak Over (complete section **C** and section **D** below) Report Date (dd/mm/yyyy): **First Notification** Β Long Term Care Facilities, Nursing Homes Acute Care Facility Type of facility*: Other Setting: If ward or wing, please specify name/number: Date of onset of first case of ILI (dd/mm/yyyy): Date outbreak declared (dd/mm/yyyy): *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, laundy and housekeeping or other residential care and services and the services of the second services and the services are services and the services a (e.g. retirement homes, assisted living or hospice settings, private hospitals/clinics, correctional facilities, colleges/universities, adult education centres, shelters, group homes, and workplaces). **Outbreak Declared Over** Date of onset for last case of ILI (dd/mm/yyyy): Date outbreak declared over (dd/mm/yyyy): Residents Numbers to date Total With ILI Hospitalized* Died* suspected to be linked to case of ILI **Laboratory Information** Specimen(s) submitted? Yes (location: No Don't know) Don't know No If yes, organism identified? Yes Please specify organism/subtype:) Influenza B Influenza A (subtype: Parainfluenza Entero/rhinovirus RSV Coronavirus HMPV Adenovirus Other: