

British Columbia Influenza Surveillance Bulletin

Influenza Season 2017-18, Number 3, Weeks 43-45

October 22 to November 11, 2017

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Low-level Influenza Activity, Mix of Types A and B

During weeks 43-45 (October 22 to November 11, 2017), influenza-like illness (ILI) activity was consistent with expected levels for this time of year. Influenza detection remains at low levels with a mix of influenza A and B but continued A(H3N2) predominance overall.

As in prior recent seasons since 2012-13, sporadic influenza detections continue to be detected at low levels at the BCCDC Public Health Laboratory. Influenza positivity ranged from 3% to 6% in weeks 43-45. Enteroviruses were the most frequently detected respiratory virus during this period.

Since our last bulletin, one new lab-confirmed outbreak, with both influenza A and B detected, was reported in a long-term care facility in FHA with onset in week 44; two school ILI outbreaks in IHA with onsets in weeks 43 and 45 were also reported.

The Association of Medical Microbiology and Infectious Disease Canada (AMMI Canada) have released updated guidance on the use of antiviral drugs given potential low vaccine effectiveness for the 2017-18 influenza season. These guidelines are available at: <https://www.ammi.ca/Update/79.ENG.pdf>.

Prepared by BCCDC Influenza & Emerging Respiratory Pathogens Team

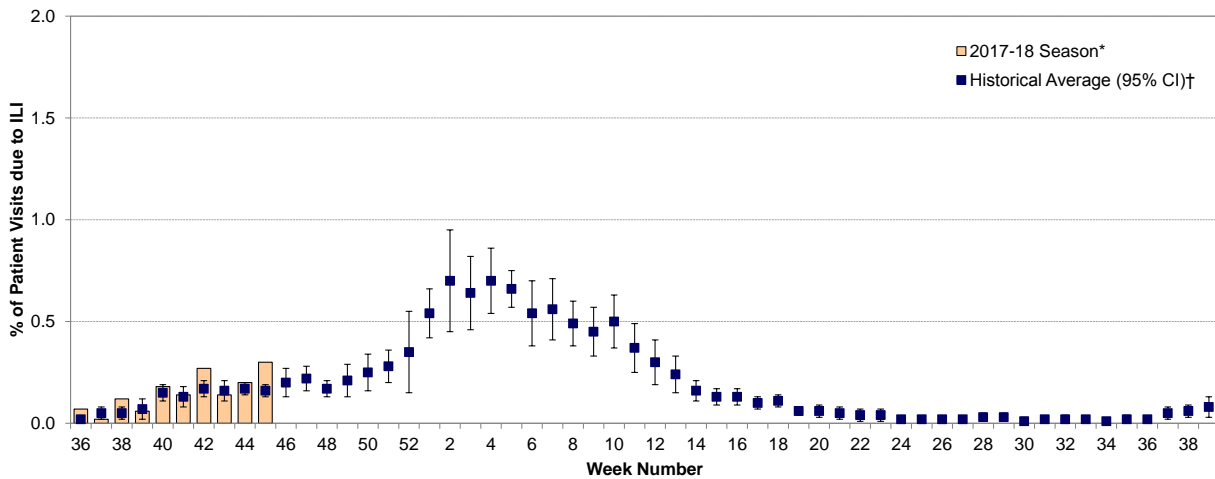
Report Disseminated: November 16, 2017

British Columbia

Sentinel Physicians

The proportion of patients with influenza-like illness (ILI) among those presenting to sentinel sites remained consistent with the 10-year historical average for this time of year in weeks 43-44; in week 45, the proportion increased, exceeding the 10-year historical average. Rates are subject to change as reporting becomes more complete.

Percent of patient visits to sentinel physicians due to influenza-like illness (ILI) compared to historical average, British Columbia, 2017-18



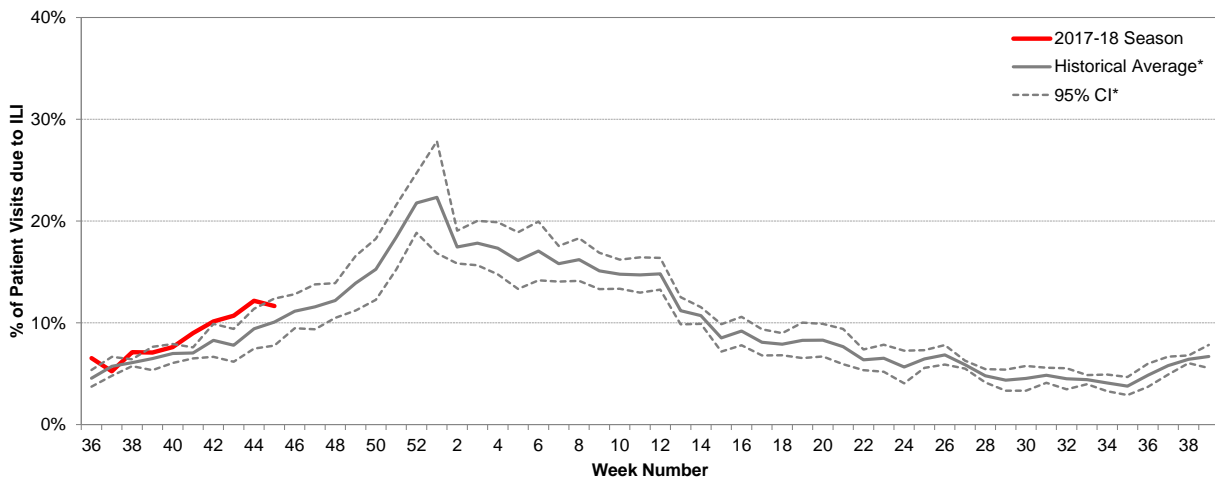
* Data are subject to change as reporting becomes more complete.

† 10-year historical average for 2017-18 season based on 2005-06 to 2016-2017 seasons, excluding 2008-09 and 2009-10 due to atypical seasonality; CI=confidence interval.

BC Children's Hospital Emergency Room

In weeks 43-45, the proportion of visits to BC Children's Hospital Emergency Room (ER) attributed to ILI remained slightly higher than the historical average for the past 5 seasons.

Percent of patients presenting to BC Children's Hospital ER attributed to influenza-like illness (ILI), British Columbia, 2017-18



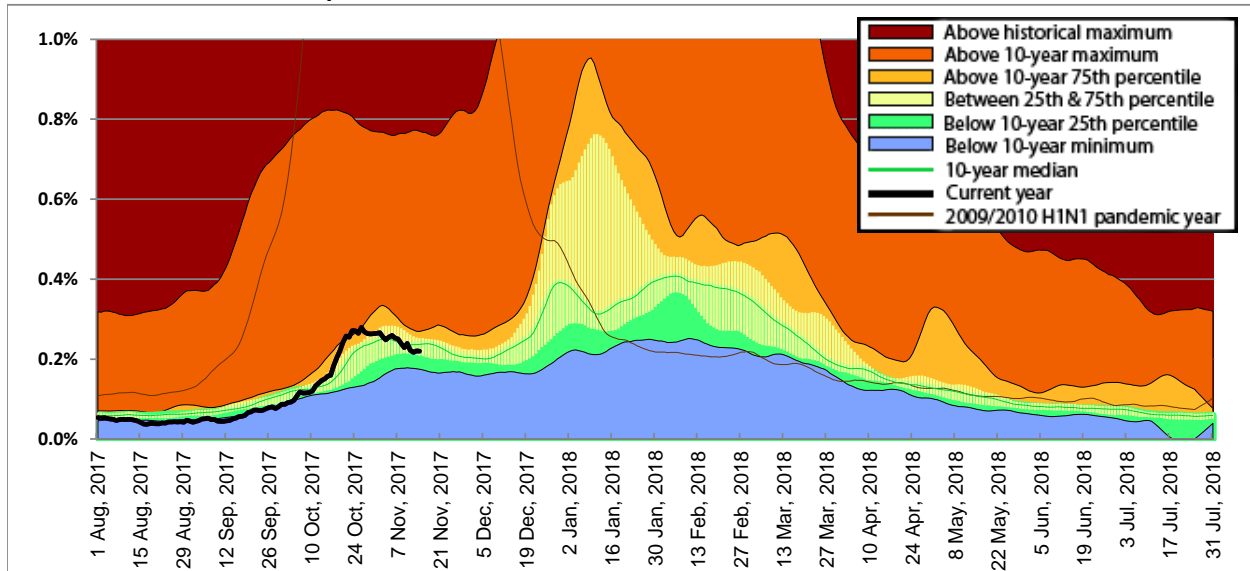
Source: BCCCH Admitting, Discharge, Transfer database (ADT). Data includes records with a triage chief complaint of "flu" or "influenza" or "fever/cough."

* 5-year historical average for 2017-18 season based on 2012-13 to 2016-17 seasons; CI=confidence interval.

Medical Services Plan

In weeks 43-45, BC Medical Services Plan (MSP) general practitioner claims for influenza illness (II), as a proportion of all submitted MSP claims, returned to expected levels for this time of year after an initial increase earlier this season.

Service claims submitted to MSP for influenza illness (II)* as a proportion of all submitted general practitioner service claims, British Columbia, 2017-18

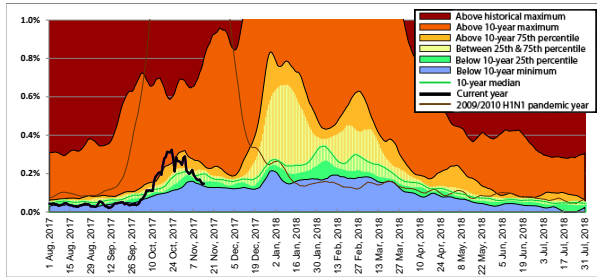


* Influenza illness is tracked as the percentage of all submitted MSP general practitioner claims with ICD-9 code 487 (influenza).

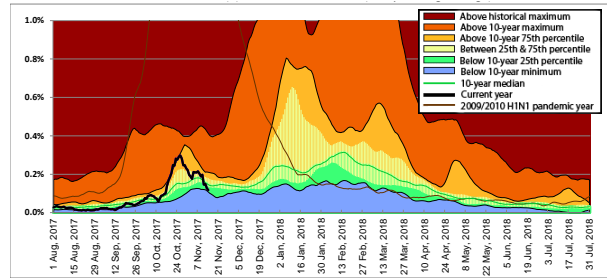
Data for the period August 1, 2009 to July 31, 2010 have been excluded from the 10-year median calculation due to atypical seasonality during the 2009/2010 H1N1 pandemic year. MSP data beginning August 1, 2017 corresponds to sentinel ILI week 31; data are current to November 14, 2017.

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

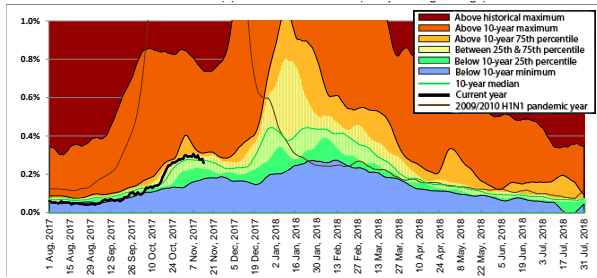
Interior



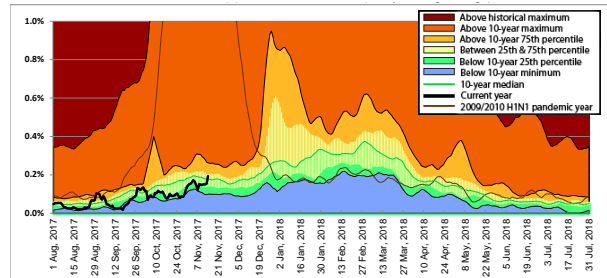
Vancouver Island



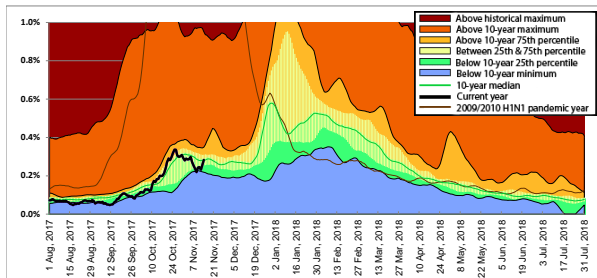
Fraser



Northern



Vancouver Coastal

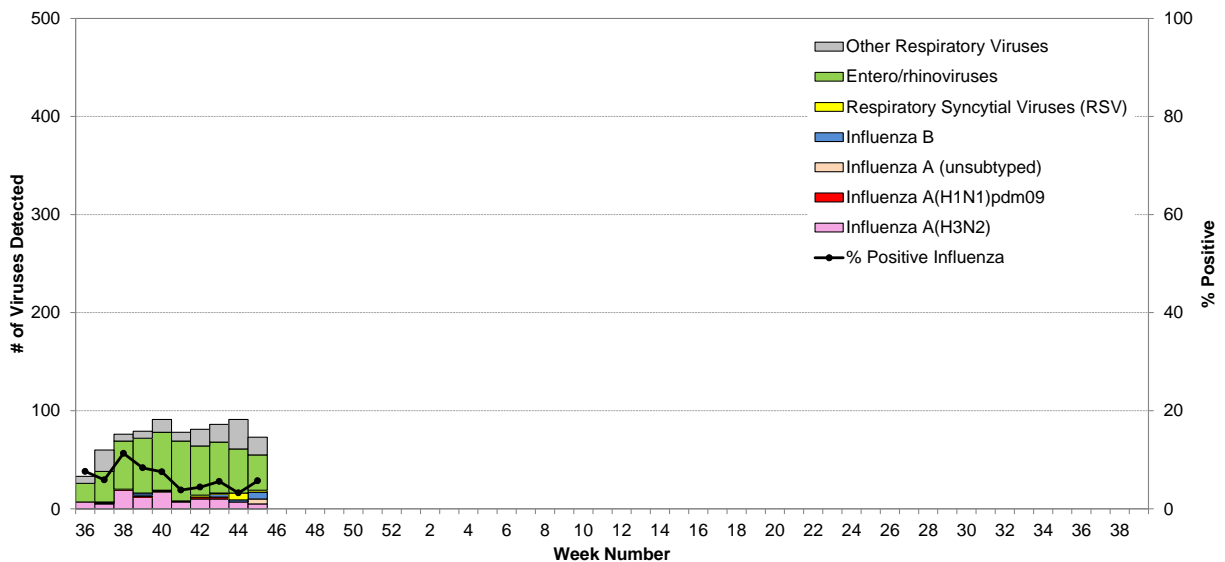


Laboratory Reports

BCCDC Public Health Laboratory

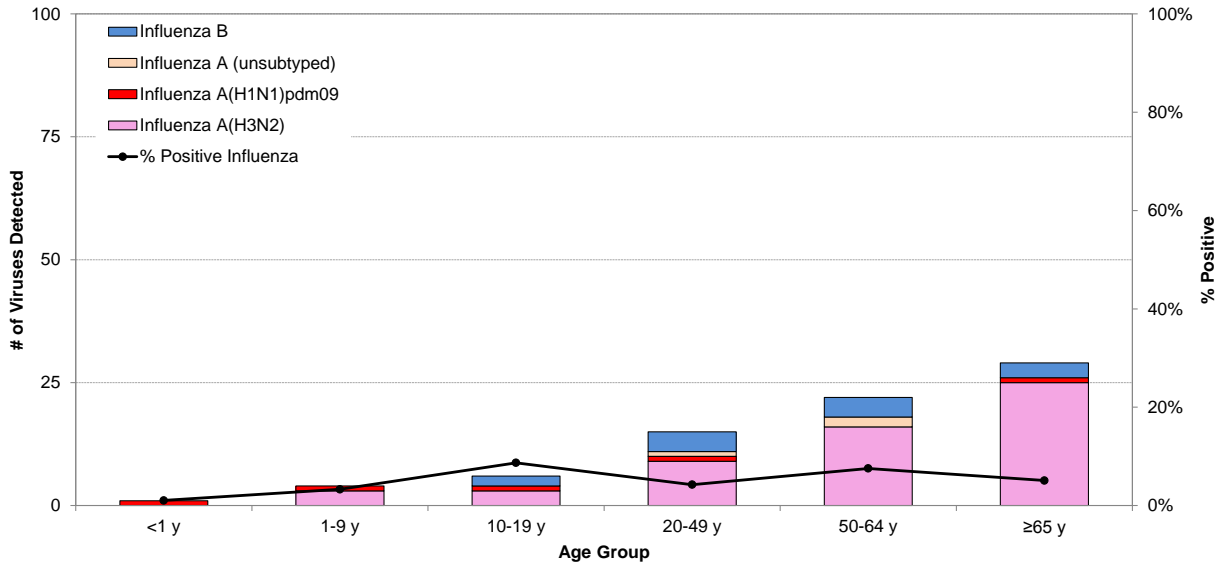
In weeks 43-45, 838 patients were tested for respiratory viruses at the BCCDC Public Health Laboratory (PHL). Of these, 41 (5%) tested positive for influenza; 29 (71%) viruses were typed as influenza A [22 A(H3N2), 2 A(H1N1)pdm09 and 5 subtype pending] and 12 (29%) viruses were typed as influenza B. Consistent with prior recent seasons since 2012-13, sporadic influenza detections have continued to be detected at low levels during this early fall period. Influenza positivity ranged from 3% to 6% in weeks 43-45, with influenza A viruses comprising about 80% of all influenza detections in weeks 43 and 44, decreasing to about 60% in week 45. Among influenza A detections, A(H3N2) remained the dominant subtype during this period. Almost half (45%) of A(H3N2) cases so far during the 2017-18 season have been detected among elderly adults ≥ 65 years old, with almost three-quarters (73%) being detected among adults ≥ 50 years old. Enteroviruses were the most commonly detected respiratory virus during this period.

Influenza and other virus detections among respiratory specimens submitted to BCCDC Public Health Laboratory, 2017-18



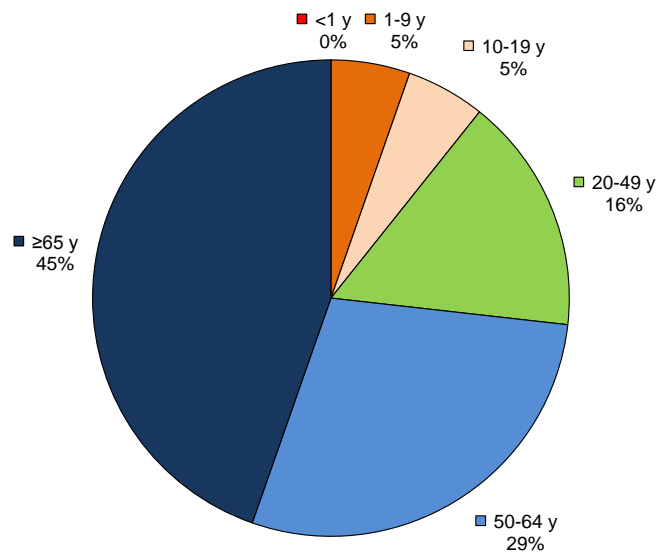
Data are current to November 14, 2017.

Cumulative number (since week 40) of influenza detections by type subtype and age group, BCCDC Public Health Laboratory, 2017-18



Data are current to November 14, 2016; figure includes cumulative influenza detections for specimens collected from weeks 40-45.

Age distribution of influenza A(H3N2) detections (cumulative since week 40), BCCDC Public Health Laboratory, 2017-18

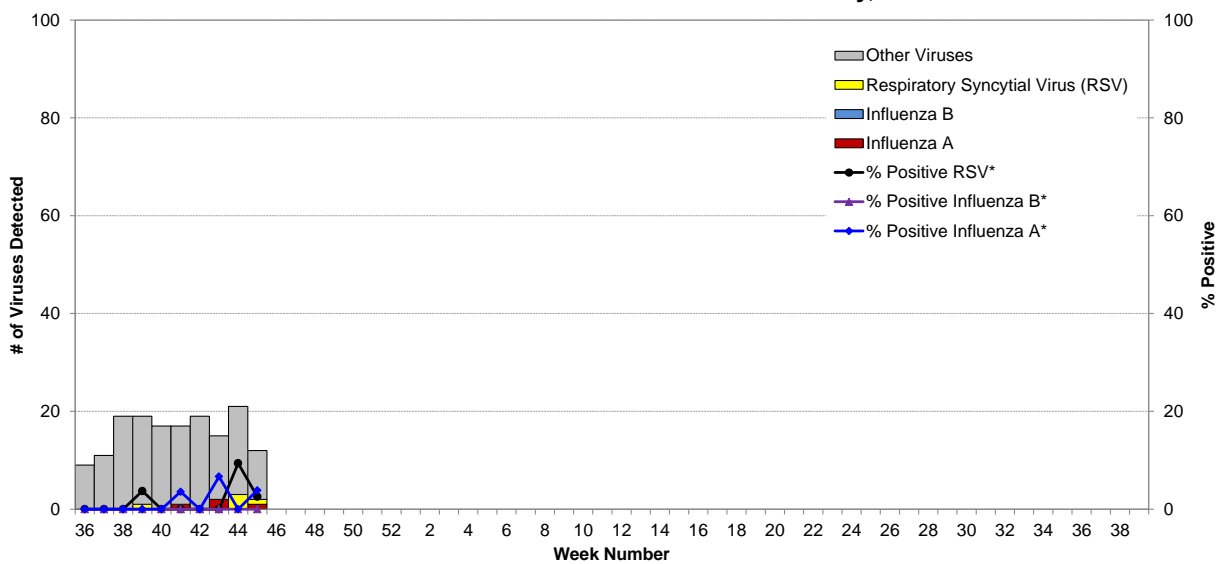


Data are current to November 14, 2016; figure includes cumulative influenza detections for specimens collected from weeks 40-45.

BC Children's and Women's Health Centre Laboratory

In weeks 43-45, 82 tests for respiratory viruses were conducted at the BC Children's and Women's Health Centre laboratory. Of these, three (4%) were positive for influenza A; two in week 43 and one in week 45. Additionally, four (5%) were positive for respiratory syncytial virus (RSV); three in week 44 and one in week 45. No tests were positive for influenza B. Rhinoviruses were the most commonly detected respiratory viruses during this period.

Influenza and other virus detections among respiratory specimens submitted to BC Children's and Women's Health Centre Laboratory, 2017-18



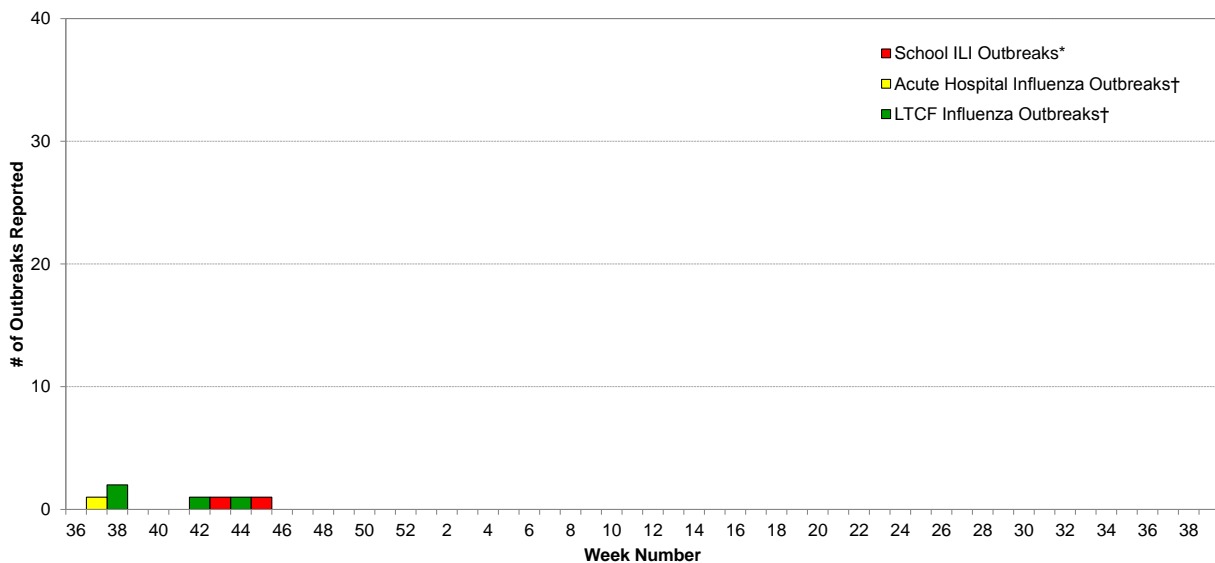
* Positive rates were calculated using aggregate data. The denominators for each rate represent the total number of tests; multiple tests may be performed for a single specimen and/or patient.

Influenza-like Illness (ILI) Outbreaks

Since our previous bulletin three weeks ago, one new lab-confirmed influenza outbreak was reported in a long-term care facility (LTCF) in FHA with onset in week 44; both influenza A(H3N2) and B were detected in separate wings of the facility. Additionally, two school ILI outbreaks were reported in IHA in weeks 43 and 45 with unknown etiology.

Cumulatively during the 2017-18 season (since week 37, starting September 10, 2017), 5 lab-confirmed influenza outbreaks have been reported, including 2 with influenza A detected [1 A(H3N2) and 1 subtype unknown], 2 with influenza B, and 1 with influenza A (H3N2) and influenza B; of these, 4 were reported in LTCFs and one was reported from an acute care facility. Similarly, two school ILI outbreaks have occurred. Since the 2014-15 season, sporadic facility influenza outbreaks have previously been reported as early as week 37; current sporadic outbreak reports are, in that regard, not exceptional.

Number of influenza-like illness (ILI) outbreaks reported, British Columbia 2017-18



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

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

Updated Antiviral Guidelines

The Association of Medical Microbiology and Infectious Disease Canada (AMMI Canada) have released updated guidance on the use of antiviral drugs given potential low vaccine effectiveness for the 2017-18 influenza season. These guidelines are available at: <https://www.ammi.ca/Update/79.ENG.pdf>.

National

FluWatch (week 44, October 29 to November 4, 2017)

Influenza activity continues to increase, but remained below the seasonal threshold in week 44. The percentage of laboratory tests positive for both influenza A and B is higher for this time of year compared to previous seasons. The majority of influenza detections continue to be A(H3N2). The number of influenza-related hospitalizations and regions reporting sporadic activity are above the expected levels for this time of year. Details are available at: 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, 2017 to November 16, 2017, the National Microbiology Laboratory (NML) received 29 influenza viruses [52 A(H3N2), 6 A(H1N1)pdm09 and 11 B] from Canadian laboratories for antigenic characterization.

Influenza A(H3N2): Of the 52 influenza A(H3N2) viruses, only 8 (15%) had sufficient haemagglutination titre for antigenic characterization by haemagglutination inhibition (HI) assay. Of the 8 viruses characterized by HI assay, all were considered antigenically similar to a cell culture-propagated A/Hong Kong/4801/2014-like virus, the WHO-recommended A(H3N2) component for the 2017-18 northern hemisphere influenza vaccine. Of the 8 viruses that were antigenically characterized with available sequencing information, 6 belonged to genetic group 3C.2a and 2 belonged to subclade 3C.2a1. Genetic characterization was performed to infer antigenic properties on the remaining 44 viruses that did not grow to sufficient haemagglutination titre for HI assay. Of the 44 viruses genetically characterized, 32 were reported to belong to genetic group 3C.2a, which includes the A/Hong Kong/4801/2014 vaccine strain, while 12 belonged to subclade 3C.2a1.

Influenza A(H1N1)pdm09: All of the 6 A(H1N1)pdm09 viruses characterized were antigenically similar to an A/Michigan/45/2015-like virus, the WHO-recommended influenza A(H1N1) component for the 2017-18 northern hemisphere influenza vaccine.

Influenza B: Of the 11 influenza B viruses characterized, two (18%) were characterized as antigenically similar to a B/Brisbane/60/2008(Victoria)-like virus, the WHO-recommended influenza B component for the 2017-18 northern hemisphere trivalent influenza vaccine, while 9 (82%) were antigenically similar to a B/Phuket/3073/2013(Yamagata lineage)-like virus, the WHO-recommended influenza B component for the 2017-18 northern hemisphere quadrivalent influenza vaccine containing two influenza B strains.

National Microbiology Laboratory (NML): Antiviral Resistance

From September 1, 2017 to November 16, 2017, the NML received influenza viruses from Canadian laboratories for drug susceptibility testing.

Amantadine: Of the 16 influenza A viruses [11 A(H3N2) and 5 A(H1N1)pdm09] tested against amantadine, all were resistant.

Oseltamivir: Of the 83 influenza viruses [66 A(H3N2), 6 A(H1N1)pdm09, and 11 B] tested against oseltamivir, all were sensitive.

Zanamivir: Of the 83 influenza viruses [66 A(H3N2), 6 A(H1N1)pdm09, and 11 B] tested against zanamivir, all were sensitive.

International

USA (week 44, October 29 to November 4, 2017)

During week 44, influenza activity remained low in the United States, but is increasing. The most frequently identified influenza virus subtype reported by public health laboratories during week 44 was influenza A(H3N2). The percentage of respiratory specimens testing positive for influenza in clinical laboratories is low. The proportion of deaths attributed to pneumonia and influenza (P&I) was below the system-specific epidemic threshold. No influenza-associated pediatric deaths were reported. The proportion of outpatient visits for ILI was 1.8%, which is below the national baseline of 2.2%. The geographic spread of influenza in Guam and six states was reported as regional; 13 states reported local activity; the District of Columbia and 31 states reported sporadic activity; and Puerto Rico and the U.S. Virgin Islands did not report. Details are available at: www.cdc.gov/flu/weekly/.

WHO (November 13, 2017)

Influenza activity remained at low levels in the temperate zone of the northern hemisphere. Declining levels of influenza activity were reported in the temperate zone of the southern hemisphere and in some countries of South and South East Asia. In Central America and the Caribbean, low influenza activity was reported in a few countries. Worldwide, influenza A(H3N2) and B viruses accounted for the majority of influenza detections.

From October 16 to 29, 2017, the WHO GISRS laboratories tested more than 92,033 specimens, of which 4,088 were positive for influenza viruses: 2,954 (72%) were typed as influenza A and 1,134 (28%) as influenza B. Of the subtyped influenza A viruses, 318 (14%) were influenza A(H1N1)pdm09 and 1,985 (86%) were influenza A(H3N2). Of the characterized B viruses, 485 (81%) belonged to the B(Yamagata) lineage and 113 (19%) to the B(Victoria) lineage.

- In North America, overall influenza activity increased slightly but remained low, with detections of predominantly influenza A(H3N2) and B viruses in the past weeks.
- In Europe, influenza activity remained low, with detections of predominantly influenza A(H3N2) and B viruses.
- In Western Asia, influenza activity was low in general. In Qatar, influenza activity remained high with all seasonal subtypes co-circulating.
- In Central Asia, ILI and severe acute respiratory infection (SARI) indicators appeared to increase in Kazakhstan, Tajikistan and Uzbekistan.
- In East Asia, influenza activity remained low in general. In Northern China, influenza A(H3N2) detections increased slightly in recent weeks.
- In South East Asia, influenza activity continued to decrease, with influenza A(H3N2) and B viruses most frequently detected.
- In Southern Asia, influenza activity remained low in general. In India, influenza A(H1N1)pdm09 and A(H3N2) detections decreased in recent weeks.
- In Northern Africa, there were no reports during the reporting period.
- In Western and Middle Africa, influenza detections continued to be reported, with all seasonal influenza subtypes present in the region. In Eastern Africa, little to no influenza activity was reported.
- In the Caribbean and Central American countries, respiratory illness indicators and influenza activity remained low in general but respiratory syncytial virus (RSV) activity remained high in several countries.
- In the tropical countries of South America, influenza and RSV activity remained at low levels.
- In the temperate zone of the Southern Hemisphere, influenza activity appeared to have decreased overall.

Details are available at: www.who.int/influenza/surveillance_monitoring/updates/en/.

WHO Recommendations for Influenza Vaccines

WHO Recommendations for 2017-18 Northern Hemisphere Influenza Vaccine

On March 2, 2017, the WHO announced the recommended strain components for the 2017-18 northern hemisphere trivalent influenza vaccine (TIV):*

- an A/Michigan/45/2015 (H1N1)pdm09-like virus;†
- an A/Hong Kong/4801/2014 (H3N2)-like virus;
- a B/Brisbane/60/2008 (Victoria-lineage)-like virus.

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.

* These recommended strains are the same as those recommended for the 2017 southern hemisphere TIV and represent a change for one of the three components used for the 2016-17 northern hemisphere TIV and 2016 southern hemisphere TIV.

† Recommended strain represents a change from an A/California/7/2009-like virus, which had been retained as the A(H1N1)pdm09 component since the 2009 pandemic, to an A/Michigan/45/2015-like virus belonging to the emerging phylogenetic subclade 6B.1.

For further details: www.who.int/influenza/vaccines/virus/recommendations/2017_18_north/en/.

WHO Recommendations for the 2018 Southern Hemisphere Influenza Vaccine

On September 28, 2017, the WHO announced recommended strain components for the 2018 southern 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/Phuket/3073/2013-like (Yamagata-lineage) virus.§

It is recommended that quadrivalent influenza vaccines (QIV) containing two influenza B viruses contain the above three viruses and a B/Brisbane/60/2008 (Victoria-lineage)-like virus.

* Recommended strains represent a change for two of the three components used for the 2017 southern hemisphere vaccines.

† Recommended strain is the same as recommended for the 2017 southern hemisphere and 2017-18 northern hemisphere vaccines. The A/Michigan/45/2015-like virus belongs to the emerging phylogenetic subclade 6B.1; it replaces the A/California/7/2009-like virus that had been retained as the previous A(H1N1) component since the 2009 pandemic.

‡ Recommended strain for the A(H3N2) component represents a phylogenetic clade-level change from a clade 3C.2a virus to a clade 3C.2a1 virus containing the amino acid substitution N121K in the HA which is found in the majority of recent A(H3N2) viruses.

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

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

The European Centre for Disease Prevention and Control has also posted a useful summary of WHO recommendations for the 2018 southern hemisphere influenza season, including rationale, available at: <https://ecdc.europa.eu/en/news-events/who-recommendations-influenza-virus-vaccine-composition-2018-southern-hemisphere>

Additional Information

Explanatory Note:

The surveillance period for the 2017-18 influenza season is defined starting in week 40. Weeks 36-39 of the 2016-17 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/Update/79.ENG.pdf

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

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	<p><u>Reporting Information</u> Health unit/medical health officer notified? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Person Reporting: _____ Title: _____</p> <p>Contact Phone: _____ Email: _____</p> <p>Health Authority: _____ HSDA: _____</p> <p>Full Facility Name: _____</p> <p>Is this report: <input type="checkbox"/> First Notification (<i>complete section B below; Section D if available</i>) <input type="checkbox"/> Update (<i>complete section C below; Section D if available</i>) <input type="checkbox"/> Outbreak Over (<i>complete section C below; Section D if available</i>)</p>															
B	<p><u>First Notification</u></p> <p>Type of facility: <input type="checkbox"/> LTCF <input type="checkbox"/> Acute Care Hospital <input type="checkbox"/> Senior's Residence <i>(if ward or wing, please specify name/number: _____)</i></p> <p><input type="checkbox"/> Workplace <input type="checkbox"/> School (grades: _____) <input type="checkbox"/> Other (_____)</p> <p>Date of onset of first case of ILI (dd/mm/yyyy): <u>DD / MMM / YYYY</u></p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width: 25%;">Numbers to date</th> <th style="width: 45%;">Residents/Students</th> <th style="width: 30%;">Staff</th> </tr> </thead> <tbody> <tr> <td>Total</td> <td></td> <td></td> </tr> <tr> <td>With ILI</td> <td></td> <td></td> </tr> <tr> <td>Hospitalized</td> <td></td> <td></td> </tr> <tr> <td>Died</td> <td></td> <td></td> </tr> </tbody> </table>	Numbers to date	Residents/Students	Staff	Total			With ILI			Hospitalized			Died		
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C	<p><u>Update AND Outbreak Declared Over</u></p> <p>Date of onset for most recent case of ILI (dd/mm/yyyy): <u>DD / MMM / YYYY</u></p> <p>If over, date outbreak declared over (dd/mm/yyyy): <u>DD / MMM / YYYY</u></p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width: 25%;">Numbers to date</th> <th style="width: 45%;">Residents/Students</th> <th style="width: 30%;">Staff</th> </tr> </thead> <tbody> <tr> <td>Total</td> <td></td> <td></td> </tr> <tr> <td>With ILI</td> <td></td> <td></td> </tr> <tr> <td>Hospitalized</td> <td></td> <td></td> </tr> <tr> <td>Died</td> <td></td> <td></td> </tr> </tbody> </table>	Numbers to date	Residents/Students	Staff	Total			With ILI			Hospitalized			Died		
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D	<p><u>Laboratory Information</u></p> <p>Specimen(s) submitted? <input type="checkbox"/> Yes (location: _____) <input type="checkbox"/> No <input type="checkbox"/> Don't know If yes, organism identified? <input type="checkbox"/> Yes (specify: _____) <input type="checkbox"/> No <input type="checkbox"/> Don't know</p>															