

# British Columbia Influenza Surveillance Bulletin

## Influenza Season 2016-17, Number 10, Week 2

### January 8 to 14, 2017

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#### **Influenza A(H3N2) Activity Still High in BC**

During week 2 (January 8 to 14, 2017), influenza activity remained high in BC, suggesting that the epidemic peak has not yet been reached this season. A(H3N2) remains the dominant subtype so far this season.

At the BCCDC Public Health Laboratory (PHL), influenza positivity remained elevated above 40% in week 2. Influenza A(H3N2) was the most frequently detected respiratory virus at the BCCDC PHL during this period, but respiratory syncytial virus (RSV) activity also remained elevated.

Since our last bulletin one week ago, 30 new influenza outbreaks were reported, including 28 in long-term care facilities and two in acute care hospitals, with onset spanning week 51 to week 3. Cumulatively, 113 facility influenza outbreaks have been reported to date this season. Of the influenza A outbreaks with subtype information available, all had A(H3N2) detected.

Medical Services Plan (MSP) claims for influenza illness remained high or continued to increase in most regions of the province, while sentinel ILI rates were significantly above 10-year historical averages for the fifth consecutive week.

Prepared by BCCDC Influenza & Emerging Respiratory Pathogens Team

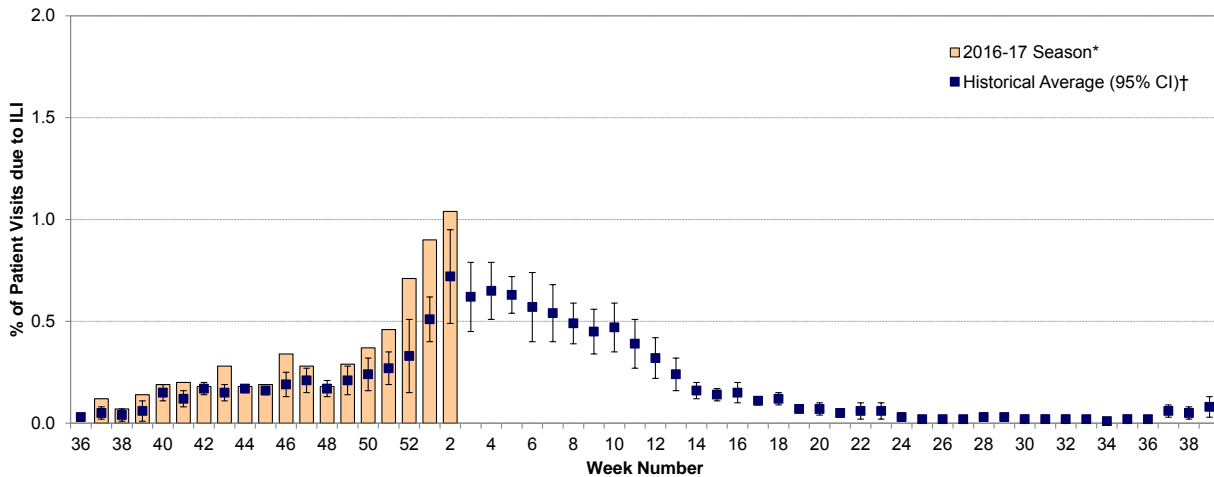
Report Disseminated: January 19, 2017

## British Columbia

### Sentinel Physicians

In week 2, the proportion of patients with influenza-like illness (ILI) among those presenting to sentinel sites increased above 1% and remained significantly higher than the 10-year historical average for the fifth consecutive week. So far, 60% of sites have reported data for this period.

**Percent of patient visits to sentinel physicians due to influenza-like illness (ILI) compared to historical average, British Columbia, 2016-17**



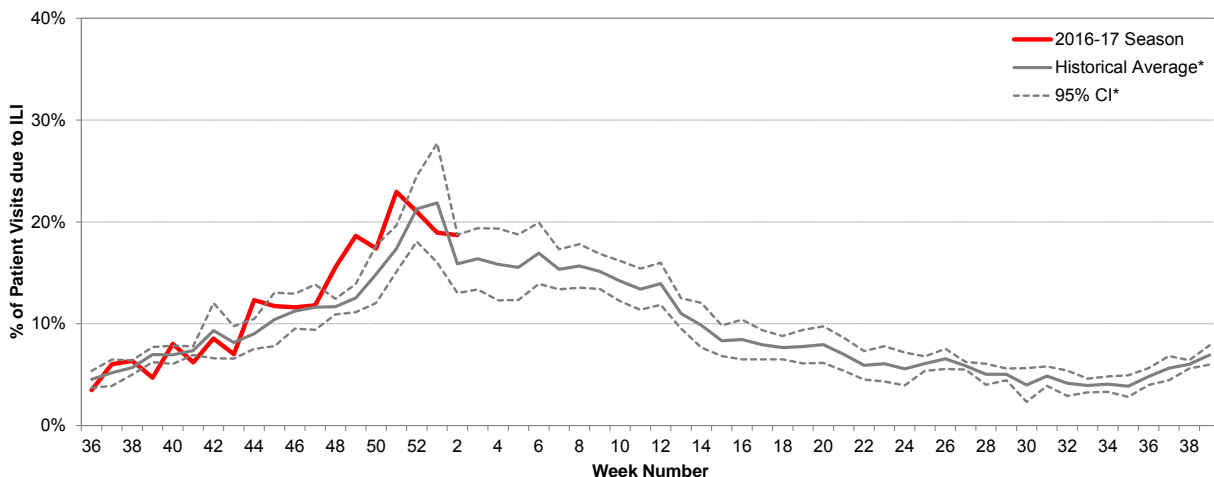
\* Data are subject to change as reporting becomes more complete.

† 10-year historical average for 2016-17 season based on 2004-05 to 2015-2016 seasons, excluding 2008-09 and 2009-10 due to atypical seasonality; CI=confidence interval.

### BC Children's Hospital Emergency Room

In week 2, the proportion of visits to BC Children's Hospital Emergency Room (ER) attributed to ILI was 19%, slightly higher than the 5-year historical average but within expected ranges for this time of year.

**Percent of patients presenting to BC Children's Hospital ER attributed to influenza-like illness (ILI), British Columbia, 2016-17**



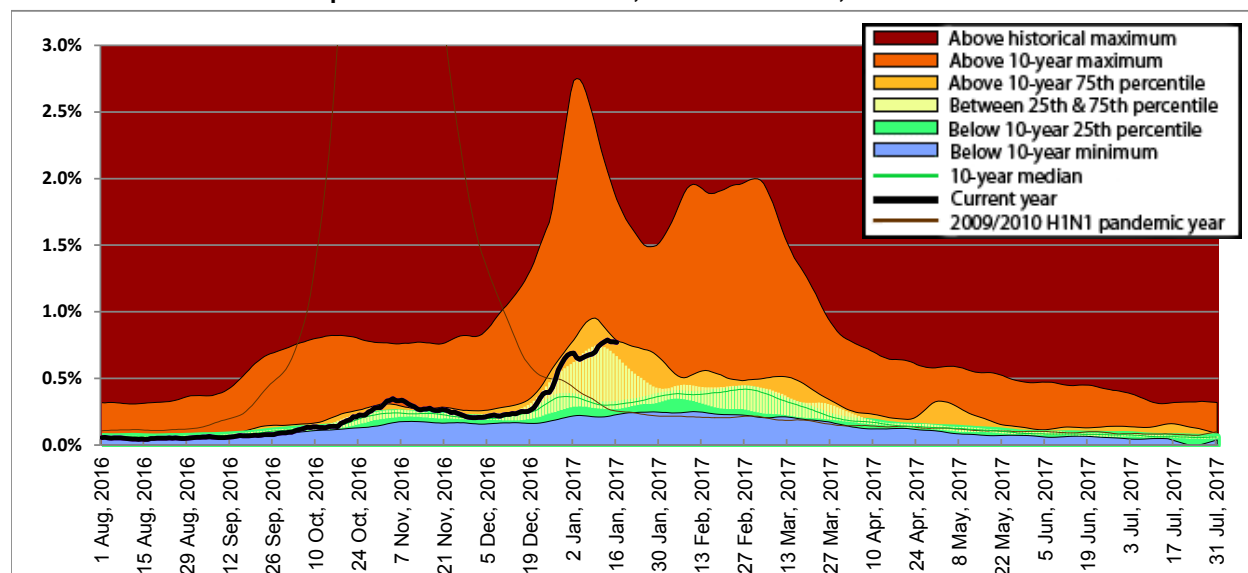
Source: BCCCH Admitting, Discharge, Transfer database (ADT). Data includes records with a triage chief complaint of "flu" or "influenza" or "fever/cough."

\* 5-year historical average for 2016-17 season based on 2011-12 to 2015-16 seasons; CI=confidence interval.

### Medical Services Plan

In week 2, BC Medical Services Plan (MSP) general practitioner claims for influenza illness (II), as a proportion of all submitted MSP claims, remained high or continued to increase in most regions of the province. In VCHA and VIHA, rates were above the 10-year maximum, while in IHA, FHA, and for the province overall, rates were above the 10-year 75<sup>th</sup> percentile. In NHA, rates began to increase slightly but remained at median levels.

**Service claims submitted to MSP for influenza illness (II)\* as a proportion of all submitted general practitioner service claims, British Columbia, 2016-17**

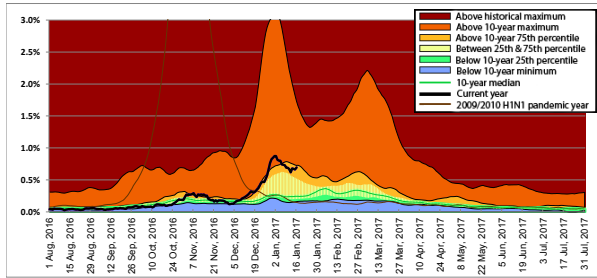


\* Influenza illness is tracked as the percentage of all submitted MSP general practitioner claims with ICD-9 code 487 (influenza).

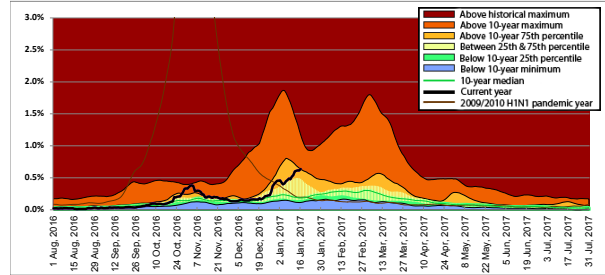
Data for the period August 1, 2009 to July 31, 2010 have been excluded from the 10-year median calculation due to atypical seasonality during the 2009/2010 H1N1 pandemic year. MSP week beginning August 1, 2016 corresponds to sentinel ILI week 31; data are current to January 16, 2017.

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

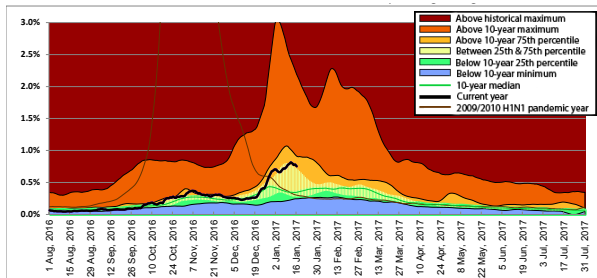
**Interior**



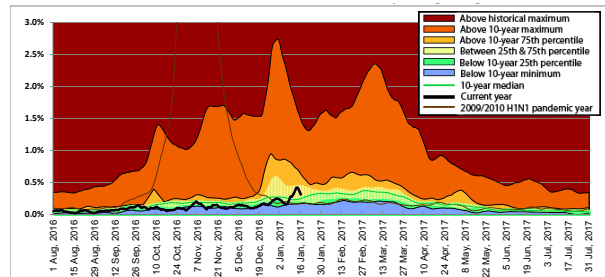
**Vancouver Island**



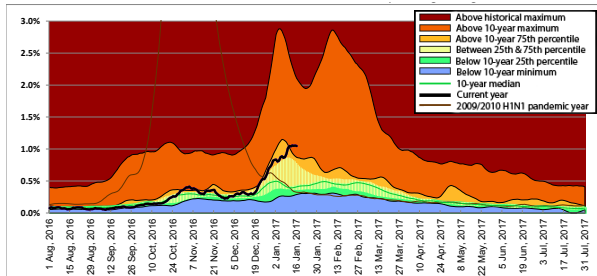
**Fraser**



**Northern**



**Vancouver Coastal**



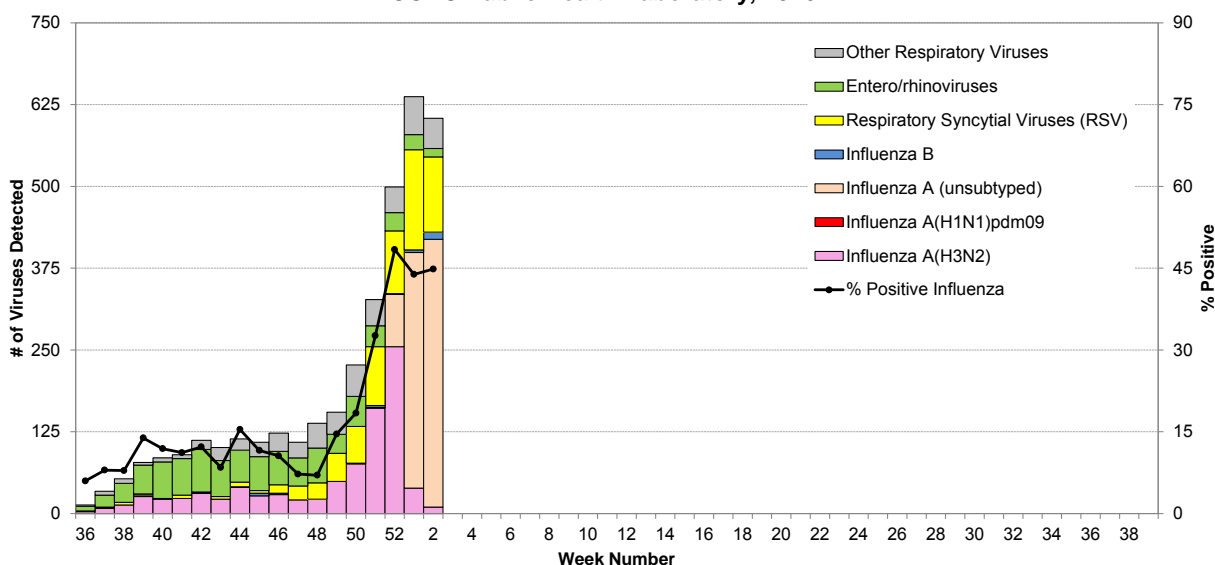
## Laboratory Reports

### BCCDC Public Health Laboratory

In week 2, 959 patients were tested for respiratory viruses at the BCCDC Public Health Laboratory (PHL). Of these, 430 (45%) tested positive for influenza, including 419 (97%) with influenza A [10 A(H3N2) and 409 with subtype pending] and 11 (3%) with influenza B. Overall influenza positivity remained elevated above 40%. The large number of influenza A specimens with pending subtype information reflects delays in laboratory testing, due to the high volume of specimens submitted during this peak period. Respiratory syncytial virus (RSV) activity also remained high during this period, with 12% of patients testing positive in week 2.

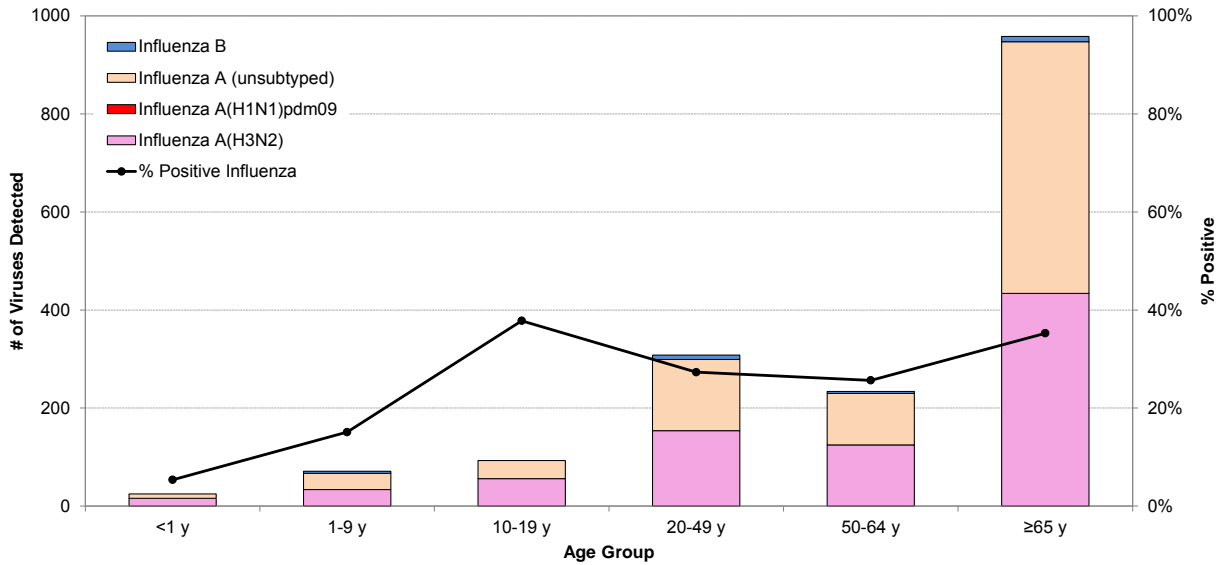
Cumulatively since week 40 (starting October 2, 2016), 1687 (28%) patients tested positive for influenza at the BCCDC PHL, including 1659 (98%) with influenza A [819 A(H3N2) and 840 subtype pending] and 28 (2%) with influenza B. So far during the 2016-17 season, influenza A(H3N2) has been the dominant subtype among influenza detections. Elderly adults  $\geq 65$  years old are disproportionately represented among influenza detections, although younger age groups are also affected.

**Influenza and other virus detections among respiratory specimens submitted to BCCDC Public Health Laboratory, 2016-17**



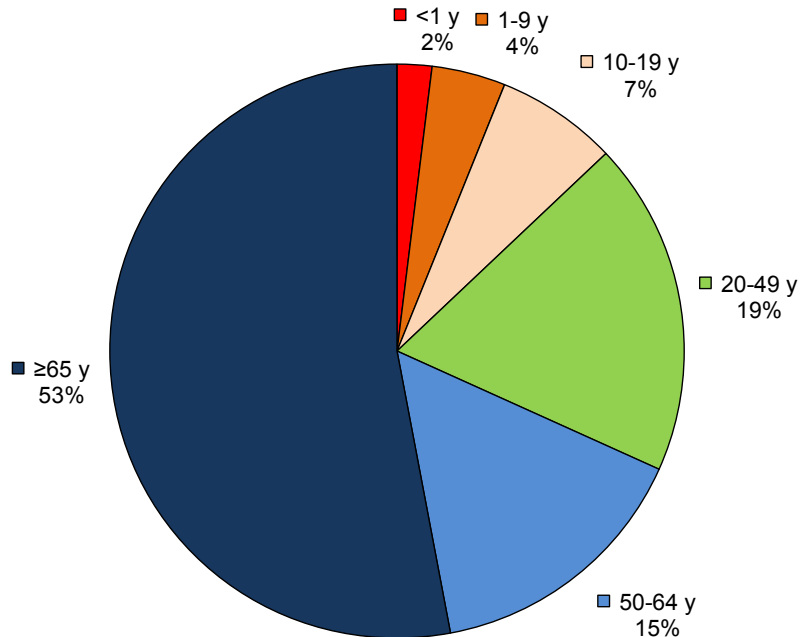
Data are current to January 18, 2017.

**Cumulative number (since week 40) of influenza detections by type/subtype and age group, BCCDC Public Health Laboratory, 2016-17**



Data are current to January 18, 2017; figure includes cumulative influenza detections for specimens collected from weeks 40-2.

**Age distribution of influenza A(H3N2) detections (cumulative since week 40), BCCDC Public Health Laboratory, 2016-17**

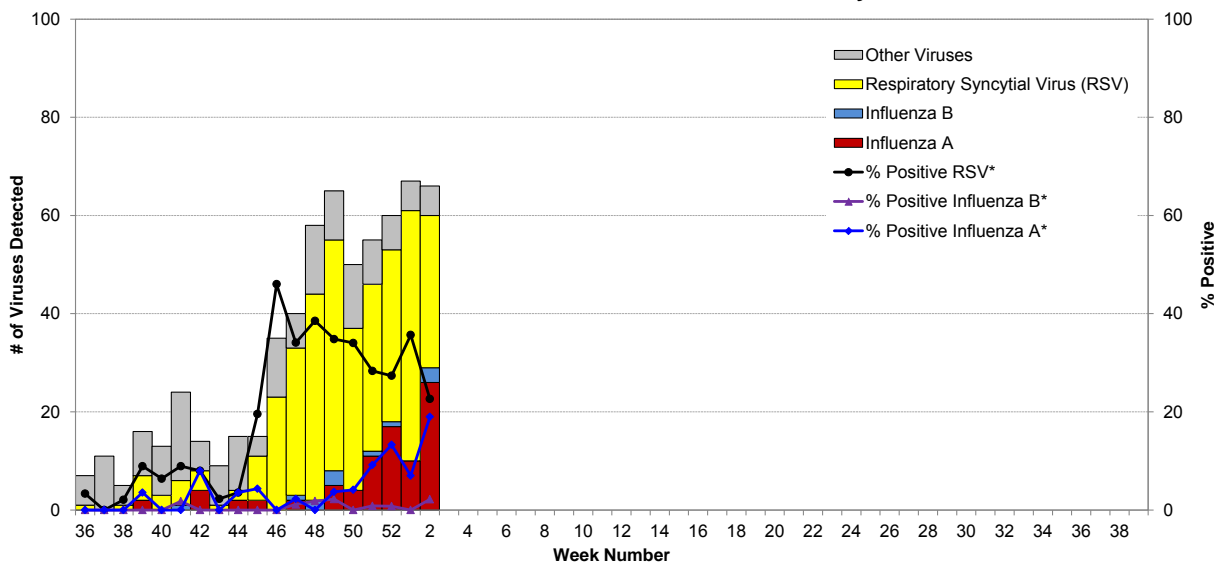


Data are current to January 18, 2017; figure includes cumulative influenza detections for specimens collected from weeks 40-2.

BC Children’s and Women’s Health Centre Laboratory

In week 2, the proportion of tests positive for influenza A increased at the BC Children’s and Women’s Health Centre Laboratory, while the proportion of tests positive for RSV decreased. The positivity rate for both viruses remained elevated around 20%. Of the 137 tests conducted in week 2, 26 (19%) were positive for influenza A and 31 (23%) were positive for RSV; three (2%) were positive for influenza B.

**Influenza and other virus detections among respiratory specimens submitted to BC Children’s and Women’s Health Centre Laboratory, 2016-17**



\* 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.

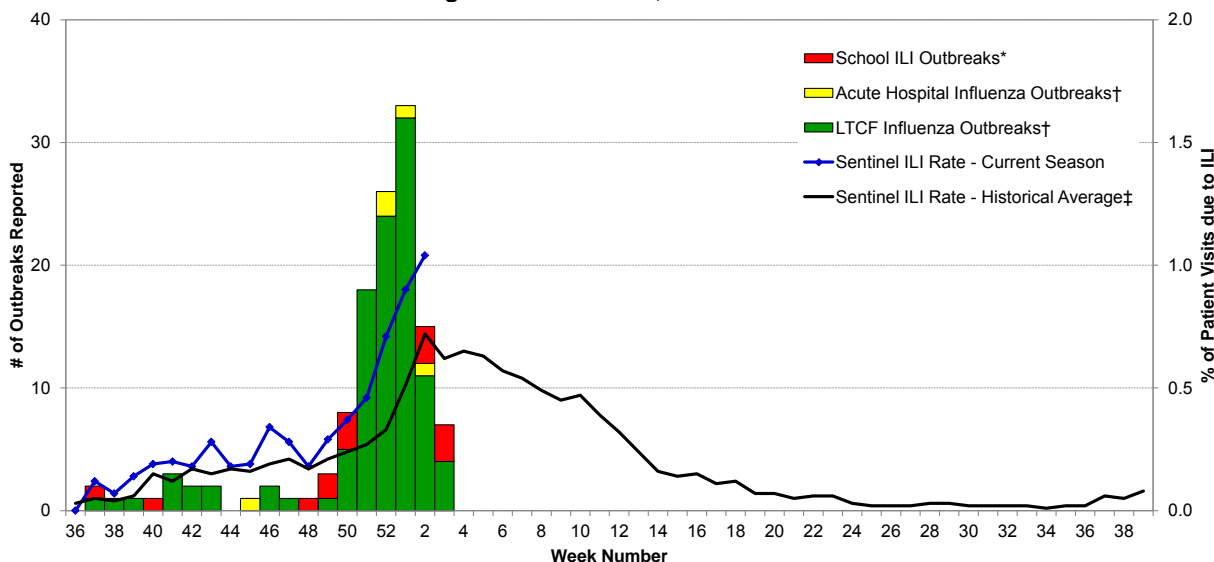
### Influenza-like Illness (ILI) Outbreaks

Since our last bulletin one week ago, 30 new influenza outbreaks were reported, including 28 from long-term care facilities (LTCFs) and two in acute care hospitals. Of the 30 newly reported outbreaks, 12 were reported from FHA, 10 from VIHA, 5 from IHA, and 3 from VCHA; none were reported from NHA. Onset dates ranged from week 51 to week 3. Of the 30 outbreaks, all had influenza A detected, with subtype pending. Five school ILI outbreaks were reported from IHA during this period: two in week 2 and three in week 3.

Cumulatively during the 2016-17 season (since week 37, starting September 11, 2016), a total of 113 influenza outbreaks have been reported as of January 19, 2017, including 107 in LTCFs, 5 in acute care settings, and one in a rehabilitation centre. All of the influenza A outbreaks with subtype information available had influenza A(H3N2) detected; one outbreak with influenza B detected and one outbreak with both influenza A and B detected were additionally reported. The cumulative tally of facility outbreaks to date this season (n=113) is comparable to that of the same approximate period in 2014-15 (n=126 to January 22, 2015).

A total of 14 school ILI outbreaks have also been reported so far during the 2016-17 season but without etiologic agent identified.

**Number of influenza-like illness (ILI) outbreaks reported, compared to current sentinel ILI rate and historical average sentinel ILI rate, British Columbia 2016-17**



\* 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.

‡ 10-year historical average for 2016-17 season based on 2004-05 to 2015-16 seasons, excluding 2008-09 and 2009-10 due to atypical seasonality.



## National

### **FluWatch (week 1, January 1 to 7, 2017)**

Overall, greater numbers of laboratory detections, outbreaks and hospitalizations were reported in week 1 compared to previous weeks suggesting that Canada is nearing peak influenza activity. Influenza A(H3N2) continues to be the most common subtype detected. The percentage of tests positive for influenza was 24% in week 1. One hundred and six confirmed influenza outbreaks were reported in week 1, with the majority occurring in long-term care facilities and due to influenza A(H3N2). The number of hospitalizations, ICU admissions and deaths reported by participating provinces and territories sharply increased from week 52 to week 1; the majority of hospitalizations and all deaths reported in week 1 were in adults. Details are available at: [healthycanadians.gc.ca/diseases-conditions-maladies-affections/disease-maladie/flu-grippe/surveillance/fluwatch-reports-rapports-surveillance-influenza-eng.php](http://healthycanadians.gc.ca/diseases-conditions-maladies-affections/disease-maladie/flu-grippe/surveillance/fluwatch-reports-rapports-surveillance-influenza-eng.php).

### **National Microbiology Laboratory (NML): Strain Characterization**

From September 1 to January 18, 2017, the National Microbiology Laboratory (NML) received 348 influenza viruses [313 A(H3N2), 10 A(H1N1)pdm09 and 25 B] from Canadian laboratories for antigenic characterization.

**Influenza A(H3N2):** Of the 313 influenza A(H3N2) viruses, only 102 (33%) had sufficient haemagglutination titre for antigenic characterization by haemagglutination inhibition (HI) assay. Of the 102 viruses characterized by HI assay, all were considered antigenically similar to A/Hong Kong/4801/2014, the WHO-recommended A(H3N2) component for the 2016-17 northern hemisphere influenza vaccine. Of the 102 viruses antigenically characterized with available sequencing information, 81 (79%) belonged to genetic group 3C.2a and 21 (21%) belonged to genetic group 3C.3a. Genetic characterization was performed to infer antigenic properties on the remaining 211 viruses that did not grow to sufficient haemagglutination titre for HI assay. Of the 211 viruses genetically characterized, all were reported to belong to genetic group 3C.2a, which includes the A/Hong Kong/4801/2014 vaccine strain.

**Influenza A(H1N1)pdm09:** The 10 A(H1N1)pdm09 viruses characterized were antigenically similar to A/California/7/2009, the WHO-recommended A(H1N1) component for the 2016-17 northern hemisphere influenza vaccine.

**Influenza B:** Of the 25 influenza B viruses characterized, 12 (48%) were antigenically similar to a B/Brisbane/60/2008(Victoria lineage)-like virus, the WHO-recommended influenza B component for the 2016-17 northern hemisphere trivalent influenza vaccine. The remaining 13 (52%) viruses were characterized as a B/Phuket/3073/2013(Yamagata lineage)-like virus, the WHO-recommended influenza B component for the 2016-17 northern hemisphere quadrivalent influenza vaccine containing two influenza B components.

### **National Microbiology Laboratory (NML): Antiviral Resistance**

From September 1 to January 18, 2017, the NML received influenza viruses from Canadian laboratories for drug susceptibility testing.

**Amantadine:** Of the 119 influenza A viruses [111 A(H3N2) and 8 A(H1N1)pdm09] tested against amantadine, all were resistant.

**Oseltamivir:** Of the 263 influenza viruses [235 A(H3N2), 9 A(H1N1)pdm09 and 19 B] tested against oseltamivir, all were sensitive.

**Zanamivir:** Of the 263 influenza viruses [235 A(H3N2), 9 A(H1N1)pdm09 and 19 B] tested against zanamivir, all were sensitive.

## **International**

### **USA (week 1, January 1 to 7, 2017)**

During week 1, influenza activity increased in the United States. The most frequently identified influenza virus subtype reported by public health laboratories during week 1 was influenza A(H3N2). The percentage of respiratory specimens testing positive for influenza in clinical laboratories increased. Of the 299 A(H3N2) viruses genetically characterized by the US CDC during the 2016-17 season, 96% belonged to genetic group 3C.2a, including the newly emerging subgroup 3C.2a1, and 4% to group 3C.3a based on analysis of HA gene segments. The proportion of deaths attributed to pneumonia and influenza (P&I) was below the system-specific epidemic threshold. Three influenza-associated pediatric deaths were reported. A cumulative rate for the season of 7.1 laboratory-confirmed influenza-associated hospitalizations per 100,000 population was reported. The proportion of outpatient visits for ILI was 3.2%, which is above the national baseline of 2.2%. The geographic spread of influenza in Puerto Rico and 21 states was reported as widespread; Guam and 21 states reported regional activity; the District of Columbia and eight states reported local activity; and the U.S. Virgin Islands reported no activity. Details are available at: [www.cdc.gov/flu/weekly/](http://www.cdc.gov/flu/weekly/).

### **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/](http://www.who.int/influenza/surveillance_monitoring/updates/en/).

## **WHO Recommendations for Influenza Vaccines**

### **WHO Recommendations for 2016-17 Northern Hemisphere Influenza Vaccine**

On February 25, 2016, the WHO announced recommended strain components for the 2016-17 northern hemisphere trivalent influenza vaccine (TIV):\*

- an A/California/7/2009 (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 components are the same as those recommended for the 2016 Southern Hemisphere vaccine.

\* Recommended strains represent a change for two of the three components used for the 2015-16 northern hemisphere vaccines.

† Recommended strain has been retained as the A(H1N1) component since the 2009 pandemic and has been included in the northern hemisphere vaccine since 2010-11.

‡ Recommended strain for the A(H3N2) component represents a phylogenetic clade-level change from a clade 3C.3a virus to a clade 3C.2a virus.

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

For further details: [http://www.who.int/influenza/vaccines/virus/recommendations/2016\\_17\\_north/en/](http://www.who.int/influenza/vaccines/virus/recommendations/2016_17_north/en/).

### **WHO Recommendations for 2017 Southern Hemisphere Influenza Vaccine**

On September 29, 2016, the WHO announced the recommended strain components for the 2017 southern 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 represent a change for one of the three components used for the 2016 southern hemisphere TIV and 2016-17 northern 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\\_south/en/](http://www.who.int/influenza/vaccines/virus/recommendations/2017_south/en/).

## **Additional Information**

### **Explanatory Note:**

The surveillance period for the 2016-17 influenza season is defined starting in week 40. Weeks 36-39 of the 2015-16 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](http://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](http://www.bccdc.ca/health-professionals/data-reports/emerging-respiratory-virus-updates)

### **Influenza Web Sites**

Canada – Influenza surveillance (FluWatch): [healthycanadians.gc.ca/diseases-conditions-maladies-affections/disease-maladie/flu-grippe/surveillance/index-eng.php](http://healthycanadians.gc.ca/diseases-conditions-maladies-affections/disease-maladie/flu-grippe/surveillance/index-eng.php)

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/](http://www.cdc.gov/flu/weekly/)

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

WHO – Weekly Epidemiological Record: [www.who.int/wer/en/](http://www.who.int/wer/en/)

WHO Collaborating Centre for Reference and Research on Influenza (Australia):

[www.influenzacentre.org/](http://www.influenzacentre.org/)

Australian Influenza Report:

[www.health.gov.au/internet/main/publishing.nsf/content/cda-surveil-ozflu-flucurr.htm](http://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](http://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/](http://www.who.int/csr/disease/avian_influenza/en/)

World Organization for Animal Health: [www.oie.int/eng/en\\_index.htm](http://www.oie.int/eng/en_index.htm)

### **Contact Us:**

Tel: (604) 707-2510

Fax: (604) 707-2516

Email: [InfluenzaFieldEpi@bccdc.ca](mailto:InfluenzaFieldEpi@bccdc.ca)

Communicable Disease Prevention and Control Services (CDPACS)

BC Centre for Disease Control

655 West 12<sup>th</sup> Ave, Vancouver BC V5Z 4R4

Online: [www.bccdc.ca/health-professionals/data-reports/influenza-surveillance-reports](http://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](mailto: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	<b><u>Reporting Information</u></b> <span style="float: right;">Health unit/medical health officer notified? <input type="checkbox"/> Yes <input type="checkbox"/> No</span>
	Person Reporting: _____ Title: _____
	Contact Phone: _____ Email: _____
	Health Authority: _____ HSDA: _____
	Full Facility Name: _____
	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> )

B	<b><u>First Notification</u></b>														
	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> <input type="checkbox"/> Workplace <input type="checkbox"/> School (grades: _____) <input type="checkbox"/> Other (_____ )														
	Date of onset of first case of ILI (dd/mm/yyyy): <u>DD / MMM / YYYY</u>														
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">Numbers to date</th> <th style="width: 50%;">Residents/Students</th> <th style="width: 25%;">Staff</th> </tr> </thead> <tbody> <tr> <td><b>Total</b></td> <td></td> <td></td> </tr> <tr> <td><b>With ILI</b></td> <td></td> <td></td> </tr> <tr> <td><b>Hospitalized</b></td> <td></td> <td></td> </tr> <tr> <td><b>Died</b></td> <td></td> <td></td> </tr> </tbody> </table>	Numbers to date	Residents/Students	Staff	<b>Total</b>			<b>With ILI</b>			<b>Hospitalized</b>			<b>Died</b>	
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<b>Total</b>															
<b>With ILI</b>															
<b>Hospitalized</b>															
<b>Died</b>															

C	<b><u>Update AND Outbreak Declared Over</u></b>														
	Date of onset for most recent case of ILI (dd/mm/yyyy): <u>DD / MMM / YYYY</u>														
	If over, date outbreak declared over (dd/mm/yyyy): <u>DD / MMM / YYYY</u>														
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<b>Total</b>															
<b>With ILI</b>															
<b>Hospitalized</b>															
<b>Died</b>															

D	<b><u>Laboratory Information</u></b>
	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