

## British Columbia Influenza Surveillance Bulletin

Influenza Season 2015-16, Number 13, Week 8

February 21 to 27, 2016

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### **Influenza Activity Remains Elevated; Co-Circulation of A(H1N1)pdm09 and B**

In week 8 (February 21 to 27, 2016), influenza activity remained elevated in BC. Although some surveillance indicators suggest stable or declining activity, it is not yet clear whether the epidemic peak for this season has been reached. Influenza A(H1N1)pdm09 and B viruses continued to co-circulate.

At the BCCDC Public Health Laboratory, influenza positivity decreased from a peak of 45% in week 6 to 36% in week 8 but remained elevated. Influenza A, predominately A(H1N1)pdm09 among those with known subtype, and influenza B viruses were detected in approximately equal proportions.

Since our last bulletin one week ago, two new lab-confirmed influenza outbreaks were reported from long-term care facilities, both with onset in week 8: one with influenza A (subtype pending) detected in VCHA and one with influenza B detected in FHA.

Medical Services Plan (MSP) claims for influenza illness remained higher than expected for this time of year, although current activity levels are lower than earlier historical peak levels observed in previous seasons, suggesting a mild and later than usual season in 2015-16.

Prepared by BCCDC Influenza & Emerging Respiratory Pathogens Team

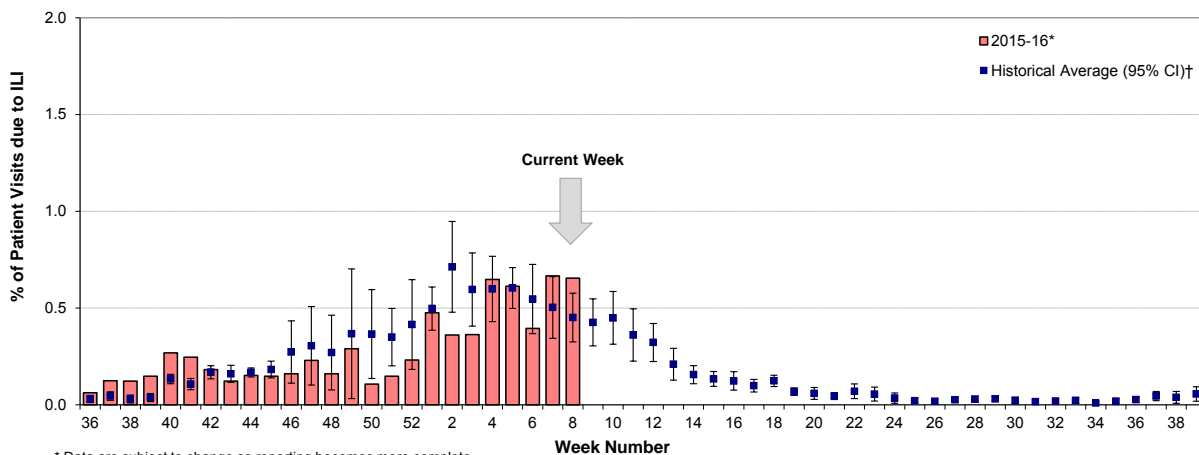
Report Disseminated: March 3, 2016

## British Columbia

### Sentinel Physicians

The proportion of patients with influenza-like illness (ILI) among those presenting to sentinel sites remained significantly above the 10-year historical average for the second consecutive week at 0.7% in week 8. One site located in a hospital ER reported ILI rates of 6% in week 8 and has been excluded from the graph; elevated ILI rates >5% were also reported by this site in week 7. So far, 49% of sentinel sites have reported for week 8.

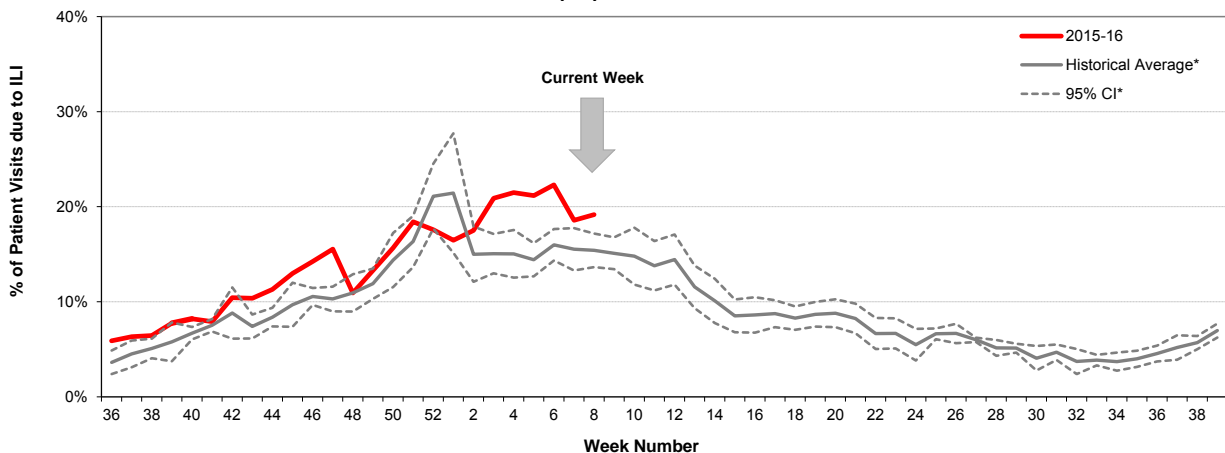
**Percent of patient visits to sentinel physicians due to influenza-like illness (ILI) compared to historical average, British Columbia, 2015-16**



### BC Children's Hospital Emergency Room

The proportion of visits to BC Children's Hospital Emergency Room (ER) attributed to ILI remained significantly above the 5-year historical average for the sixth consecutive week at 19% in week 8.

**Percent of patients presenting to BC Children's Hospital ER attributed to influenza-like illness (ILI), British Columbia, 2015-16**

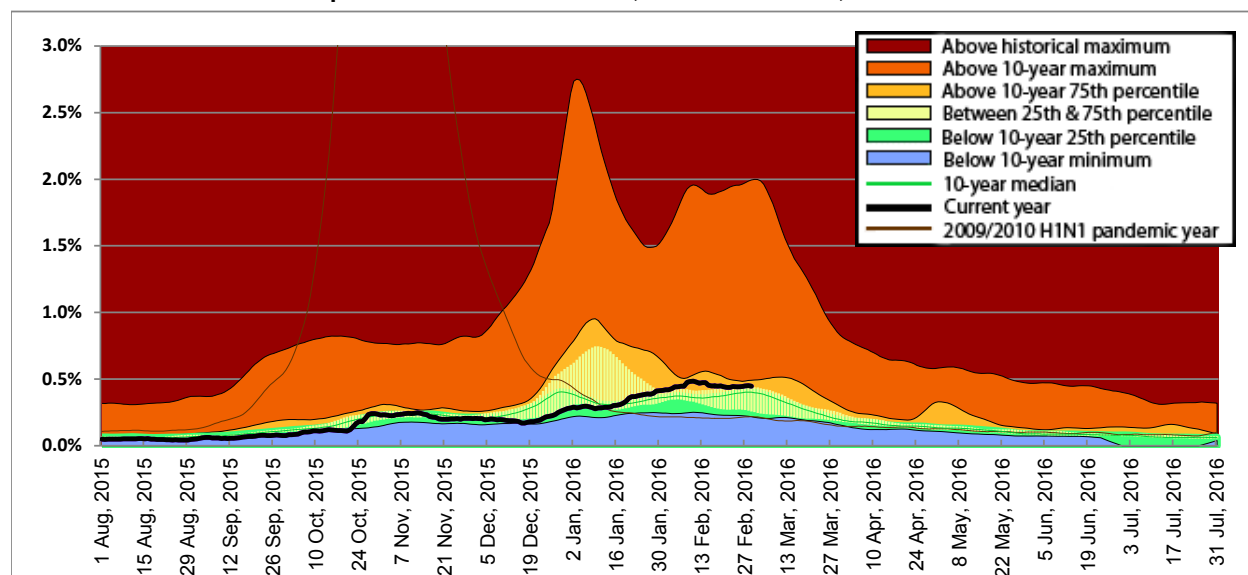


Source: BCCH Admitting, Discharge, Transfer database (ADT). Data includes records with a triage chief complaint of "flu" or "influenza" or "fever/cough."  
\* 5-year historical average for 2015-16 season based on 2010-11 to 2014-15 seasons; CI=confidence interval

### Medical Services Plan

In week 8, BC Medical Services Plan (MSP) general practitioner claims for influenza illness (II), as a proportion of all submitted MSP claims, remained stable across the province, higher than expected 10-year median levels for this time of year but lower than historical peak levels observed in previous seasons typically occurring in mid-January. Rates were above 10-year 75<sup>th</sup> percentiles in all regions of the province in week 8, except in FHA where rates were between 25<sup>th</sup> and 75<sup>th</sup> percentiles.

**Service claims submitted to MSP for influenza illness (II)\* as a proportion of all submitted general practitioner service claims, British Columbia, 2015-16**

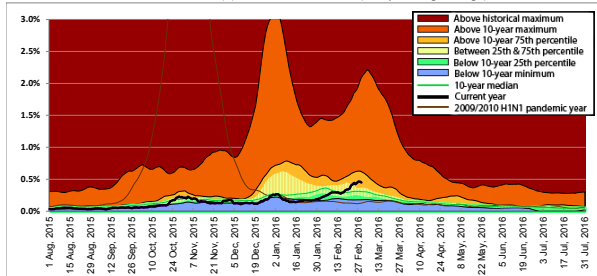


\* Influenza illness is tracked as the percentage of all submitted MSP general practitioner claims with ICD-9 code 487 (influenza).

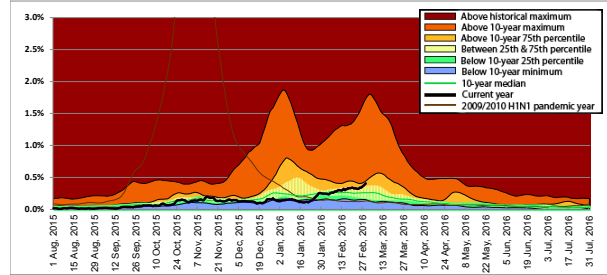
Data for the period August 1, 2009 to July 31, 2010 have been excluded from the 10-year median calculation due to atypical seasonality during the 2009/2010 H1N1 pandemic year. MSP week beginning August 1, 2015 corresponds to sentinel ILI week 30; data are current to March 1, 2016.

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

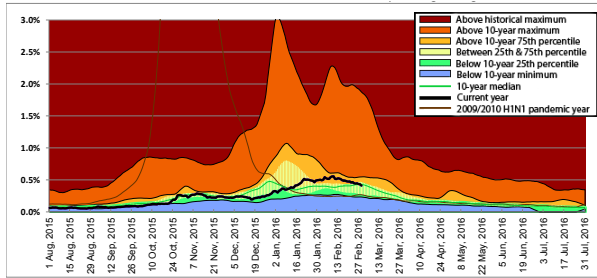
### Interior



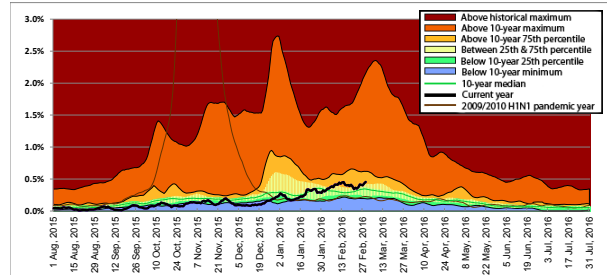
### Vancouver Island



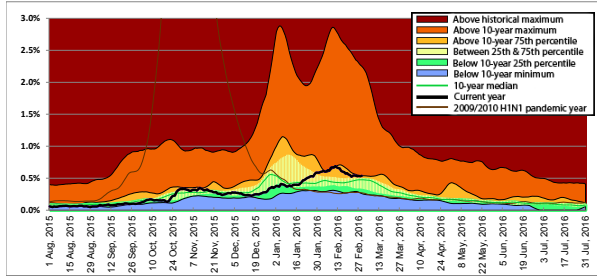
### Fraser



### Northern



### Vancouver Coastal



## Laboratory Reports

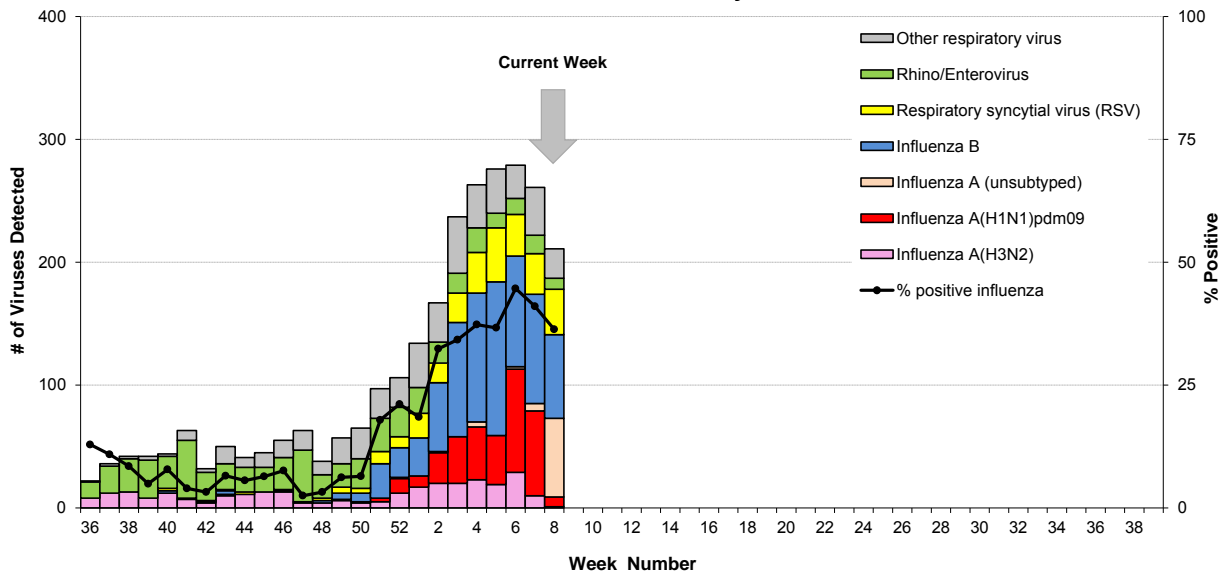
### BCCDC Public Health Laboratory

In week 8, 388 patients were tested for respiratory viruses at the BCCDC Public Health Laboratory (PHL). Of these, 141 (36%) tested positive for influenza, including 73 (52%) with influenza A [8 A(H1N1)pdm09, 1 A(H3N2), and 64 subtype pending] and 68 (48%) with influenza B. Influenza positivity decreased from a peak of 45% in week 6 but remained elevated above 35% in week 8. Influenza A viruses, predominately A(H1N1)pdm09 among those with known subtype, and influenza B viruses have continued to circulate in approximately equal proportions since week 6. Respiratory syncytial viruses (RSV) were also commonly detected during this period.

Cumulatively since week 40 (starting October 4, 2015), 1,363 (24%) patients have tested positive for influenza at the BCCDC PHL, including 639 (47%) with influenza A [331 A(H1N1)pdm09, 238 A(H3N2), and 70 subtype pending], 720 (53%) with influenza B, and four adult patients with influenza A and B co-infections. The 2015-16 season to date has been characterized by mixed circulation of influenza A and B viruses, with A(H1N1)pdm09 subtype viruses predominating over A(H3N2) subtype viruses since week 2 among influenza A detections and B/Victoria lineage viruses predominating over B/Yamagata lineage viruses among influenza B detections.

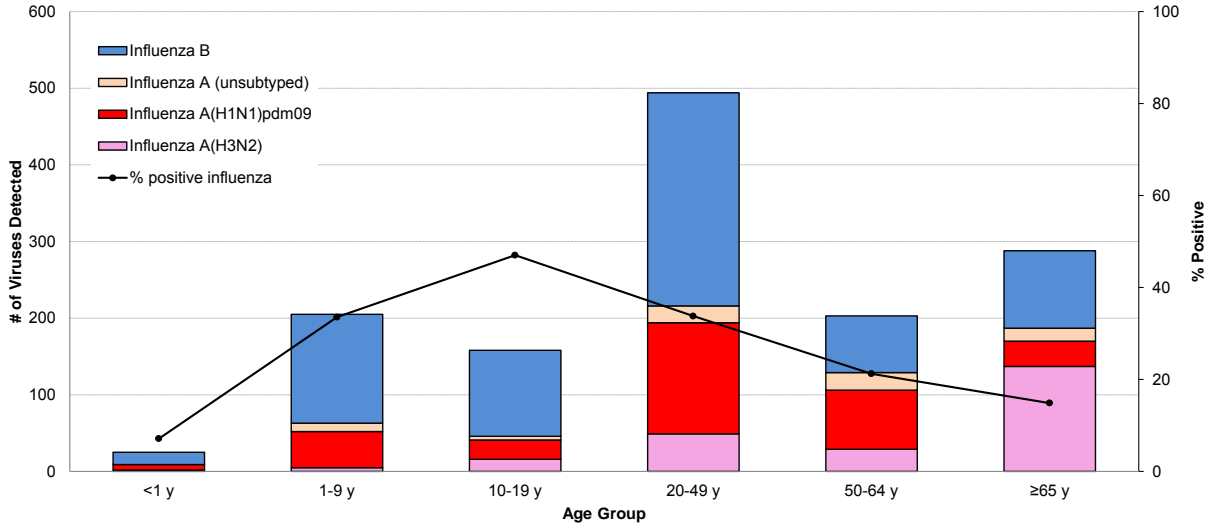
So far this season (cumulatively since week 40), just over one-half (51%) of influenza detections have been in non-elderly, working-aged adults 20-64 years, with a smaller proportion of detections in children <20 years (29%) and elderly adults ≥65 years (21%). However, this age distribution differs by influenza type/subtype: adults 20-64 years, and to a lesser extent children <20 years, comprise a larger proportion of A(H1N1)pdm09 and influenza B cases, while elderly adults ≥65 years comprise a larger proportion of A(H3N2) cases.

**Influenza and other virus detections among respiratory specimens submitted to BCCDC Public Health Laboratory, 2015-16**



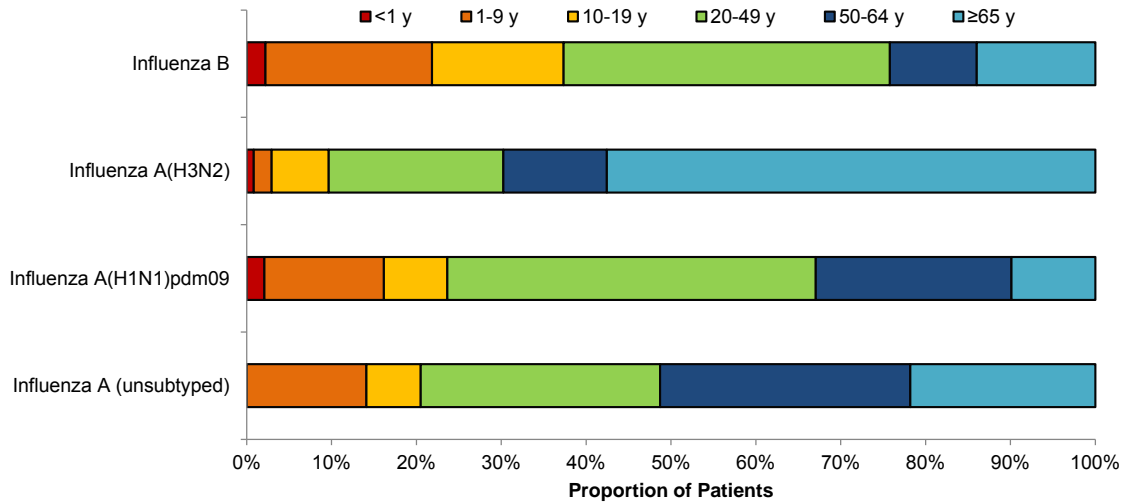
Data are current to March 1, 2016.

**Cumulative number (since week 40) of influenza detections by type/subtype and age group, BCCDC Public Health Laboratory, 2015-16**



Data are current to March 1, 2016; figure includes cumulative influenza detections for specimens collected from weeks 40-8.

**Age distribution of influenza detections (cumulative since week 40) by type/subtype, BCCDC Public Health Laboratory, 2015-16**

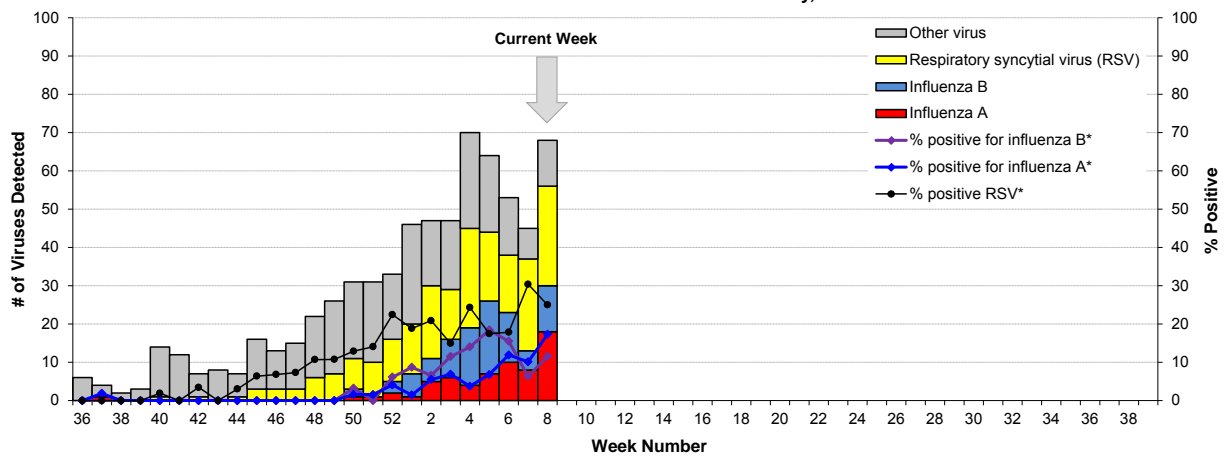


Data are current to March 1, 2016; figure includes cumulative influenza detections for specimens collected from weeks 40-8.

**BC Children's and Women's Health Centre Laboratory**

In week 8, the BC Children's and Women's Health Centre Laboratory conducted 104 tests for influenza; 18 (17%) were positive for influenza A, and 12 (12%) were positive for influenza B. The proportion of tests positive for influenza increased from week 7 to week 8, from 10% to 17% for influenza A and from 6% to 12% for influenza B. Respiratory syncytial virus (RSV) was the predominant respiratory virus detected in week 8 (25% of tests for RSV were positive).

**Influenza and other virus detections among respiratory specimens submitted to BC Children's and Women's Health Centre Laboratory, 2015-16**



\* 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

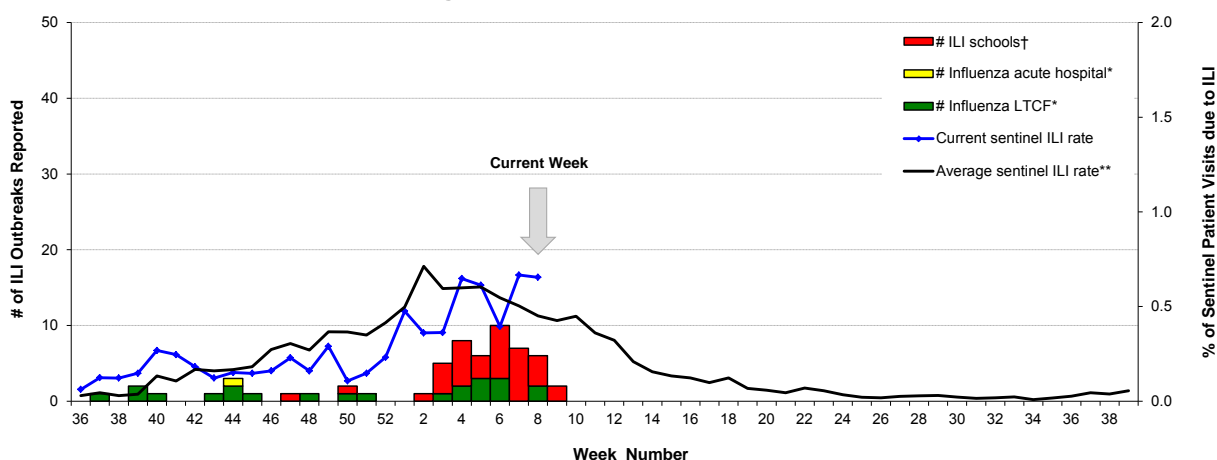
Since our last bulletin one week ago, two new lab-confirmed influenza outbreaks were reported from long-term care facilities (LTCF), both with onset in week 8: one with influenza A (subtype pending) detected in VCHA and one with influenza B detected in FHA. Three new ILI outbreaks were reported from schools in IHA, one in week 8 and two in week 9.

In total since mid-August (since week 32, starting August 9, 2015), 25 influenza outbreaks have been reported from facilities, including 23 from LTCFs, one from an acute care facility, and one from a rehabilitation facility:

- 12 with A(H3N2) detected;
- 2 with both A(H3N2) and A(H1N1)pdm09 detected;
- 2 with both influenza A and B detected (for the influenza A detections, one was A(H3N2) and one subtype unknown);
- 2 with influenza A detected (subtype unknown/pending); and
- 7 with influenza B detected.

Thirty-six school ILI outbreaks have been reported so far this season.

Number of influenza-like illness (ILI) outbreaks reported, compared to current sentinel ILI rate and historical average sentinel ILI rate, British Columbia 2015-16



\* Facility-based influenza outbreaks defined as 2 or more ILI cases within 7-day period, with at least one laboratory-confirmed case of influenza.  
† School-based ILI outbreak defined as >10% absenteeism on any day, most likely due to ILI.  
\*\* 10-year historical average for 2015-16 season based on 2003-04 to 2014-15 seasons, excluding 2008-09 and 2009-10 due to atypical seasonality.

## Updated AMMI Guidelines: LTCF Outbreak Control

In December 2015, the Association of Medical Microbiology and Infectious Disease (AMMI) Canada posted updated recommendations for influenza antiviral drug treatment and prophylaxis for the 2015-16 season, notably in relation to control of influenza outbreaks in long-term care facilities, available from [www.ammi.ca/guidelines](http://www.ammi.ca/guidelines).



## National

### **FluWatch (week 7, February 14-20, 2016)**

Overall in week 7, influenza activity in Canada continued to increase slightly with greater geographic spread. The percentage of tests positive for influenza increased from 25% in week 6 to 29% in week 7, above the five-year expected levels for this time of year (range: 13-20%). However, with the late start to the 2015-16 influenza season, these above normal levels are not unexpected and are typical of peak season levels. Influenza A(H1N1)pdm09 was the most common influenza subtype detected. Young/middle-aged adults accounted for an increasing proportion of hospitalizations as reported by participating provinces and territories. Paediatric hospitalizations reported by the IMPACT network continued to substantially increase, reaching 94 hospitalizations in week 7. An increase in the number of outbreaks was reported in week 7 with the majority of outbreaks reported in long-term care facilities. 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, 2015 to March 3, 2016, the National Microbiology Laboratory (NML) received 588 influenza viruses [129 A(H3N2), 307 A(H1N1)pdm09 and 152 B] from Canadian laboratories for antigenic characterization.

**Influenza A(H3N2):** Of the 129 influenza A(H3N2) viruses, only 28 (22%) had sufficient haemagglutination titre for antigenic characterization by haemagglutination inhibition (HI) assay. Of the 28 viruses characterized by HI assay, all were considered antigenically similar to a cell-passaged A/Switzerland/9715293/2013-like virus, the WHO-recommended A(H3N2) component for the 2015-16 northern hemisphere influenza vaccine. Genetic characterization was performed to infer antigenic properties on the remaining 101 viruses that did not grow to sufficient haemagglutination titre for HI assay. Of the 101 A(H3N2) viruses genetically characterized, all were reported to belong to a genetic group in which most viruses were antigenically related to A/Switzerland/9715293/2013.

**Influenza A(H1N1)pdm09:** The 307 A(H1N1)pdm09 viruses characterized were antigenically similar to an A/California/7/2009-like virus, the WHO-recommended A(H1N1) component for the 2015-16 northern hemisphere influenza vaccine.

**Influenza B:** Of the 152 influenza B viruses characterized, 53 (35%) were antigenically similar to a B/Phuket/3073/2013-like (Yamagata lineage) virus, the recommended influenza B component for the 2015-16 northern hemisphere influenza vaccine, while 99 (65%) were characterized as a B/Brisbane/60/2008-like (Victoria lineage) virus, the recommended influenza B component for the 2015-16 northern hemisphere quadrivalent influenza vaccine containing two influenza B components.

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

From September 1, 2015 to March 3, 2016, the NML received influenza viruses from Canadian laboratories for drug susceptibility testing. Of the 418 influenza A viruses [131 A(H3N2) and 287 A(H1N1)pdm09] tested against amantadine, all were resistant with the exception of one A(H3N2) virus which was sensitive to amantadine. Of the 500 influenza viruses [120 A(H3N2), 254 A(H1N1)pdm09 and 126 B] tested against oseltamivir, all were sensitive except for one A(H1N1)pdm09 virus with a H275Y mutation which was resistant to oseltamivir. Of the 547 influenza viruses [123 A(H3N2), 283 A(H1N1)pdm09 and 141 B] tested against zanamivir, all were sensitive.

## **International**

### **USA (week 7, February 14-20, 2016)**

During week 7, influenza activity increased in the United States. The most frequently identified influenza virus type reported by public health laboratories during week 7 was influenza A, with influenza A(H1N1)pdm09 viruses predominating. The percentage of respiratory specimens testing positive for influenza in clinical laboratories increased. The proportion of deaths attributed to pneumonia and influenza (P&I) was below the system-specific epidemic thresholds. One influenza-associated paediatric death was reported. A cumulative rate for the season of 5.8 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 2.1%. The geographic spread of influenza in 21 states was reported as widespread; 18 states reported regional activity; the District of Columbia and 10 states reported local activity; and one state reported sporadic 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/).

On February 8, 2016, the WHO published a Risk Assessment on Seasonal Influenza A(H1N1)pdm09, available from: [www.who.int/influenza/publications/riskassessment\\_AH1N1pdm09\\_201602/en/](http://www.who.int/influenza/publications/riskassessment_AH1N1pdm09_201602/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-like (Victoria-lineage) 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-like (Yamagata-lineage) 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 2015-16 Northern Hemisphere Influenza Vaccine**

On February 26, 2015, the WHO announced the recommended strain components for the 2015-16 Northern Hemisphere trivalent influenza vaccine (TIV):\*

- an A/California/7/2009(H1N1)pdm09-like virus;†
- an A/Switzerland/9715293/2013(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-like (Victoria-lineage) virus.

\* These recommended strains are the same as those used for the 2015 Southern Hemisphere vaccine.

† 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.

‡ A/South Australia/55/2014, A/Norway/466/2014, and A/Stockholm/6/2014 are A/Switzerland/9715293/2013-like viruses. Recommended strain is considered antigenically distinct from the A/Texas/50/2012-like virus recommended for the 2014-15 Northern Hemisphere vaccine and clusters within the emerging phylogenetic clade 3C.3a.

§ Recommended strain is the same influenza B-Yamagata lineage as the B/Massachusetts/2/2012-like virus recommended for the 2014-15 Northern Hemisphere vaccine but represents a phylogenetic clade-level change from clade 2 to clade 3.

For further details: [www.who.int/influenza/vaccines/virus/recommendations/2015\\_16\\_north/en/](http://www.who.int/influenza/vaccines/virus/recommendations/2015_16_north/en/).

## Additional Information

### **Explanatory Note:**

The surveillance period for the 2015-16 influenza season is defined starting in week 40. Weeks 36-39 of the 2014-15 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/guidelines](http://www.ammi.ca/guidelines)

### **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 – Flu Watch: [www.phac-aspc.gc.ca/fluwatch/](http://www.phac-aspc.gc.ca/fluwatch/)

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/)

European Influenza Surveillance Scheme:

[ecdc.europa.eu/EN/HEALTHTOPICS/SEASONAL\\_INFLUENZA/EPIDEMOLOGICAL\\_DATA/Pages/Weekly\\_Influenza\\_Surveillance\\_Overview.aspx](http://ecdc.europa.eu/EN/HEALTHTOPICS/SEASONAL_INFLUENZA/EPIDEMOLOGICAL_DATA/Pages/Weekly_Influenza_Surveillance_Overview.aspx)

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>	Health unit/medical health officer notified? <input type="checkbox"/> Yes <input type="checkbox"/> No
	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 (if ward or wing, please specify name/number: _____)
	<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>

Numbers to date	Residents/Students	Staff
<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>

Numbers to date	Residents/Students	Staff
<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