

British Columbia Influenza Surveillance Bulletin

Influenza Season 2015-16, Number 11, Week 6

February 7 to 13, 2016

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Elevated Influenza Activity in BC, Mixed Circulation of Influenza A and B

In week 6 (February 7 to 13, 2016), influenza activity remained elevated in BC. While influenza B viruses have comprised the majority of influenza detections so far this season, an increasing number of influenza A viruses, predominately A(H1N1)pdm09 subtype viruses, were detected in week 6, consistent with influenza activity observed in other provinces.

At the BCCDC Public Health Laboratory, influenza positivity has remained elevated above 30% since week 2 but increased to over 40% in week 6. To date, the 2015-16 season has been characterized by mixed circulation of influenza A and B viruses, with A(H1N1)pdm09 predominating over A(H3N2) since week 2 among influenza A detections and B/Victoria predominating over B/Yamagata among influenza B detections.

Since our last bulletin one week ago, three new lab-confirmed influenza outbreaks were reported from long-term care facilities (LTCF): one influenza B outbreak in VCHA in week 5; one A(H3N2) outbreak in FHA in week 6; and one outbreak in VCHA in week 6 where both influenza A (subtype pending) and B were detected.

Other community-based surveillance indicators (sentinel ILI rates, MSP claims) remained elevated but within expected seasonal levels in week 6.

Prepared by BCCDC Influenza & Emerging Respiratory Pathogens Team

Contributors: Catharine Chambers, Lisan Kwindt, Danuta Skowronski

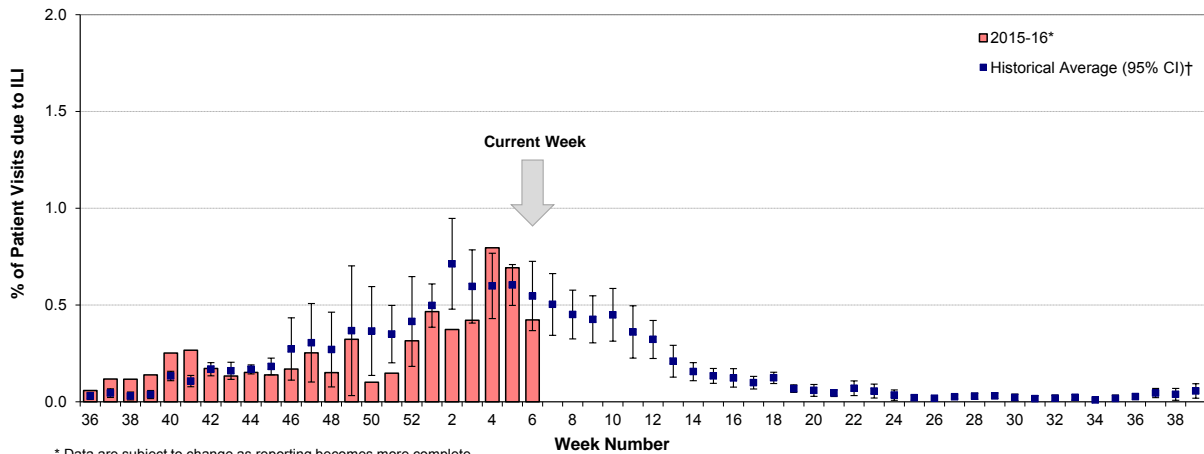
Report Disseminated: February 18, 2016

British Columbia

Sentinel Physicians

In week 6, the proportion of patients with influenza-like illness (ILI) among those presenting to sentinel sites fell to 0.42% but was within the 10-year historical average for this time of year. So far, 54% of sentinel sites have reported for week 6.

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

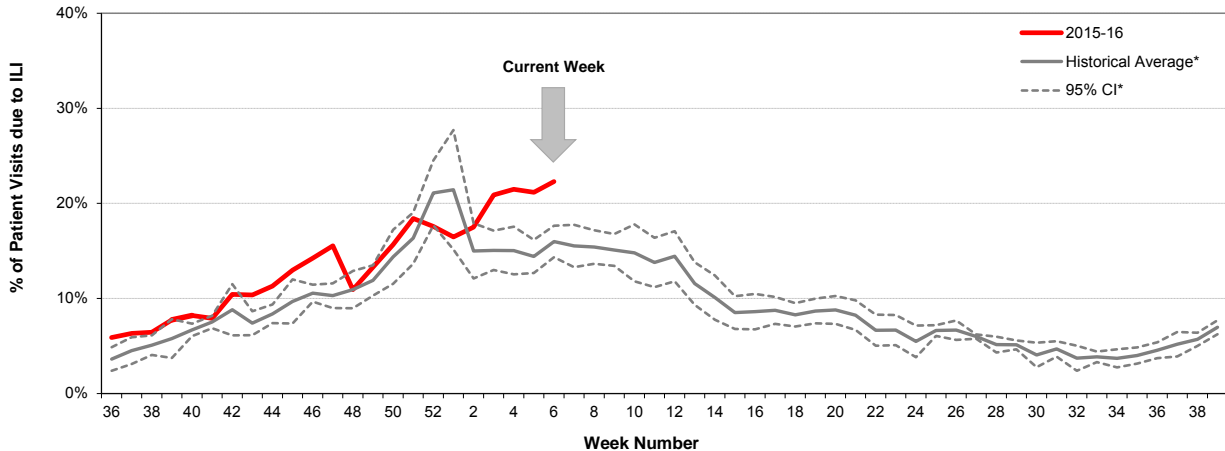


* Data are subject to change as reporting becomes more complete.
† 10-year historical average for 2015-16 season based on 2003-04 to 2014-15 seasons, excluding 2008-09 and 2009-10 due to atypical seasonality; CI=confidence interval.

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 this time of year for the fourth consecutive week in week 6 at 22%.

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

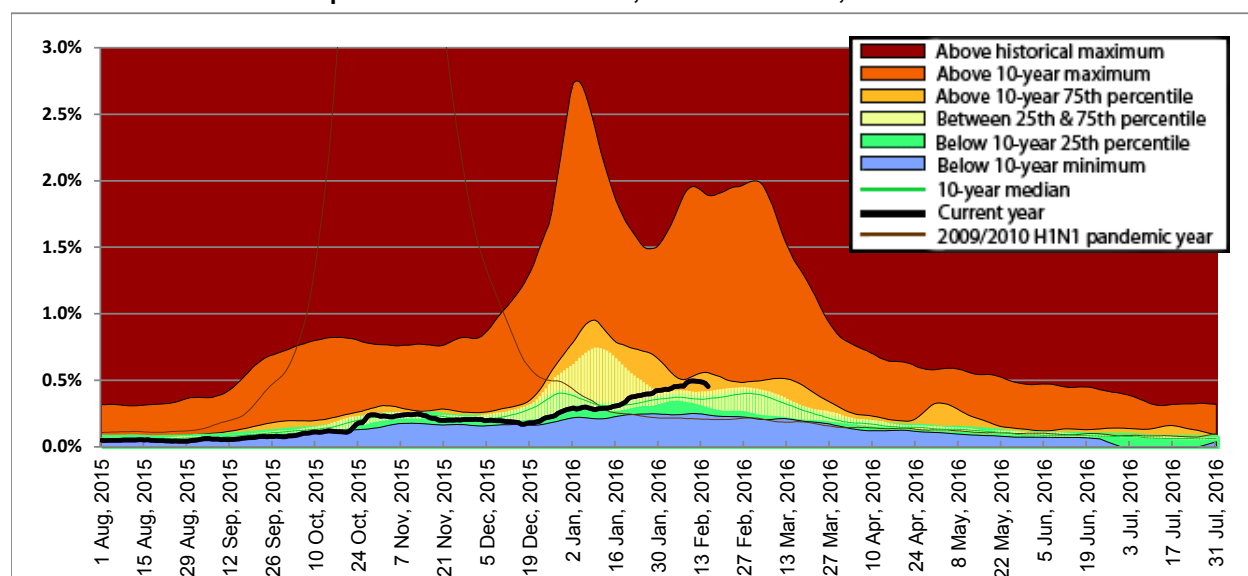


Source: BCCH Admitting, Discharge, Transfer database (ADT). Data includes records with a triage chief complaint of "flu" or "influenza" or "fever/cough."
* 5-year historical average for 2015-16 season based on 2010-11 to 2014-15 seasons; CI=confidence interval

Medical Services Plan

In week 6, BC Medical Services Plan (MSP) general practitioner claims for influenza illness (II), as a proportion of all submitted MSP claims, remained elevated in all regions of the province. In FHA, VCHA, NHA, and for the province overall, rates were above 10-year 75th percentiles, while in IHA and VIHA, rates remained within 10-year median levels. Some variability at the tail end of the current year data is expected due to delays in claim submission; accordingly, the significance of the recent slight downturn in MSP rates requires further monitoring before it can be conclusively determined whether the peak in seasonal activity has passed.

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

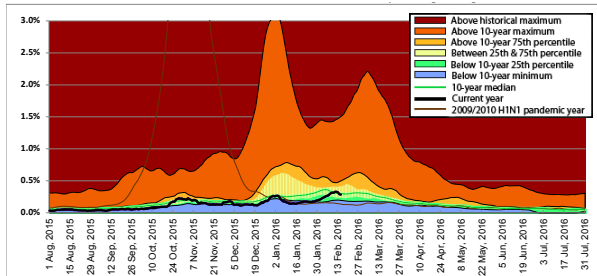


* Influenza illness is tracked as the percentage of all submitted MSP general practitioner claims with ICD-9 code 487 (influenza).

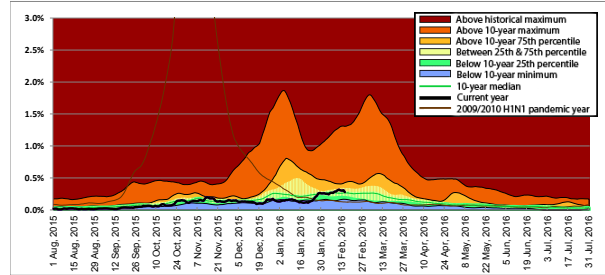
Data for the period August 1, 2009 to July 31, 2010 have been excluded from the 10-year median calculation due to atypical seasonality during the 2009/2010 H1N1 pandemic year. MSP week beginning August 1, 2015 corresponds to sentinel ILI week 30; data are current to February 15, 2016.

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

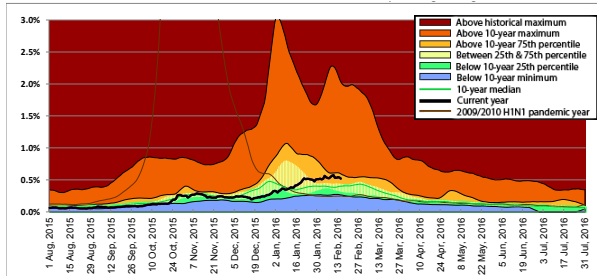
Interior



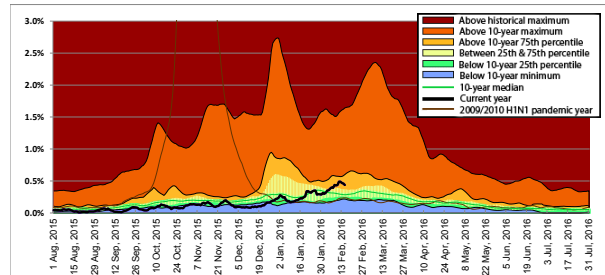
Vancouver Island



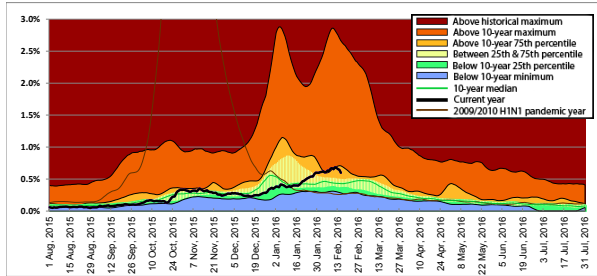
Fraser



Northern



Vancouver Coastal



Laboratory Reports

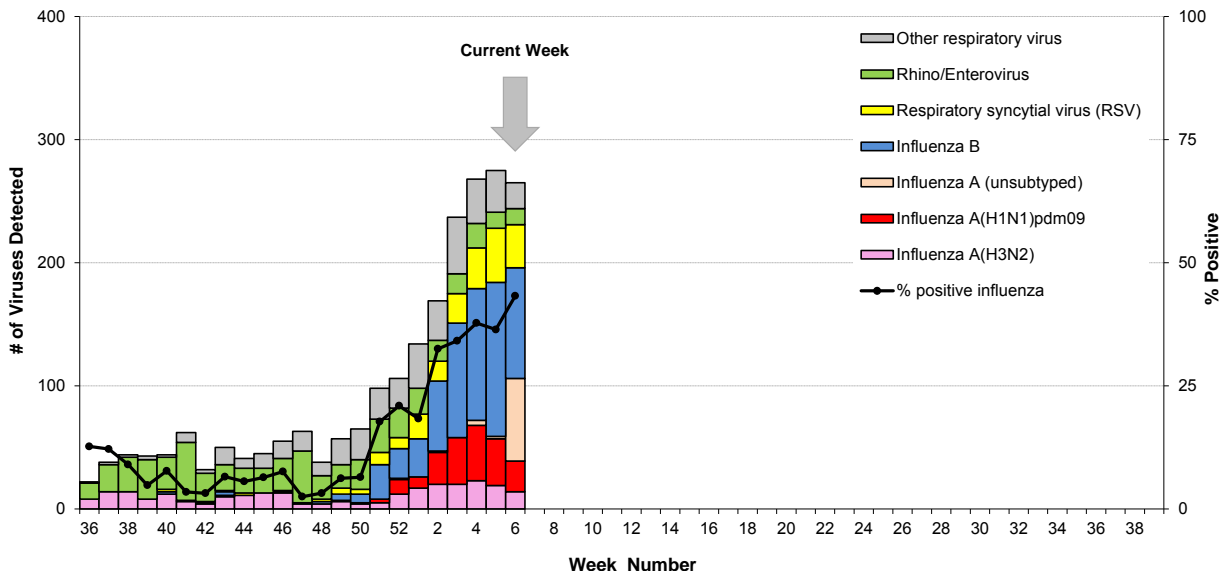
BCCDC Public Health Laboratory

In week 6, 453 patients were tested for respiratory viruses at the BCCDC Public Health Laboratory (PHL). Of these, 196 (43%) tested positive for influenza, including 106 (54%) with influenza A [14 A(H3N2), 25 A(H1N1)pdm09, and 67 subtype pending] and 90 (46%) with influenza B. Influenza positivity has remained elevated above 30% since week 2 at the BCCDC PHL and increased to over 40% in week 6. While influenza B viruses comprised the majority of influenza detections from week 50 to week 5, influenza A viruses, predominately A(H1N1)pdm09 among those with known subtype, comprised slightly more than half (54%) of all influenza detections in week 6. This trend is consistent with influenza activity observed in other provinces, where influenza A(H1N1)pdm09 viruses have predominated so far this season. Respiratory syncytial viruses (RSV) were also commonly detected during this period.

Cumulatively since week 40 (starting October 4, 2015), 1,050 (22%) patients have tested positive for influenza at the BCCDC PHL, including 479 (46%) with influenza A [212 A(H3N2), 199 A(H1N1)pdm09 and 68 subtype pending], 569 (54%) with influenza B, and two adult patients with influenza A and B co-infections [one with A(H3N2) and B co-infection and one with A(H1N1)pdm09 and B co-infection]. 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.

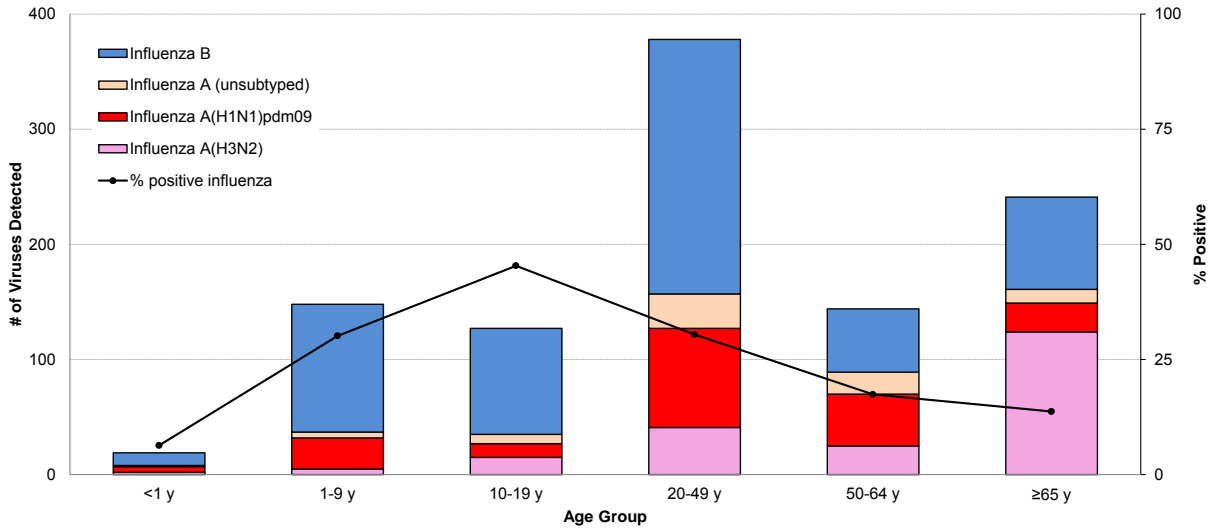
So far this season (cumulatively since week 40), about one-half (49%) of influenza detections have been in non-elderly, working-aged adults 20-64 years, with a smaller proportion of detections in children <20 years (28%) and elderly adults ≥65 years (23%). However, this age distribution differs by influenza 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



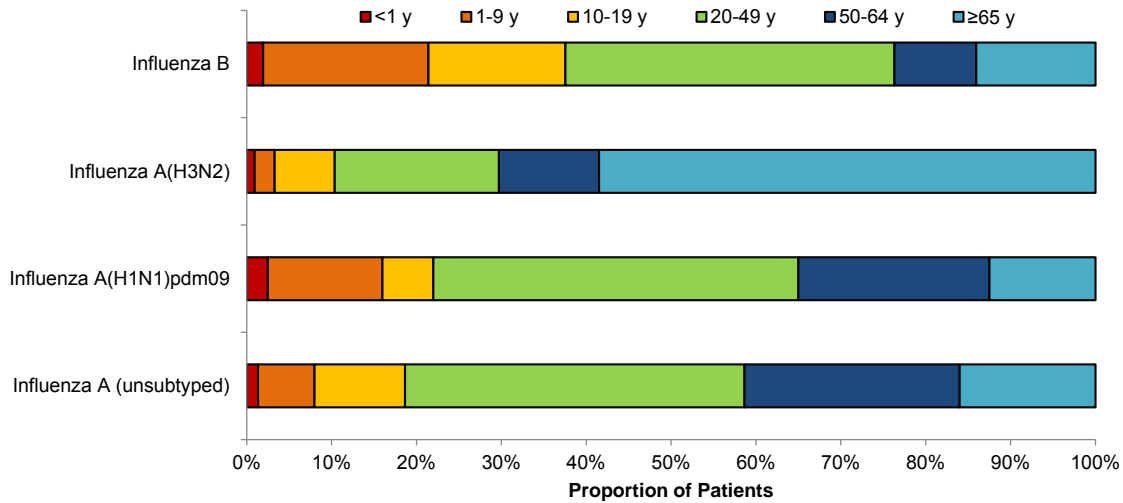
Data are current to February 17, 2016.

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



Data are current to February 17, 2016; figure includes cumulative influenza detections for specimens collected from weeks 40-6.

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

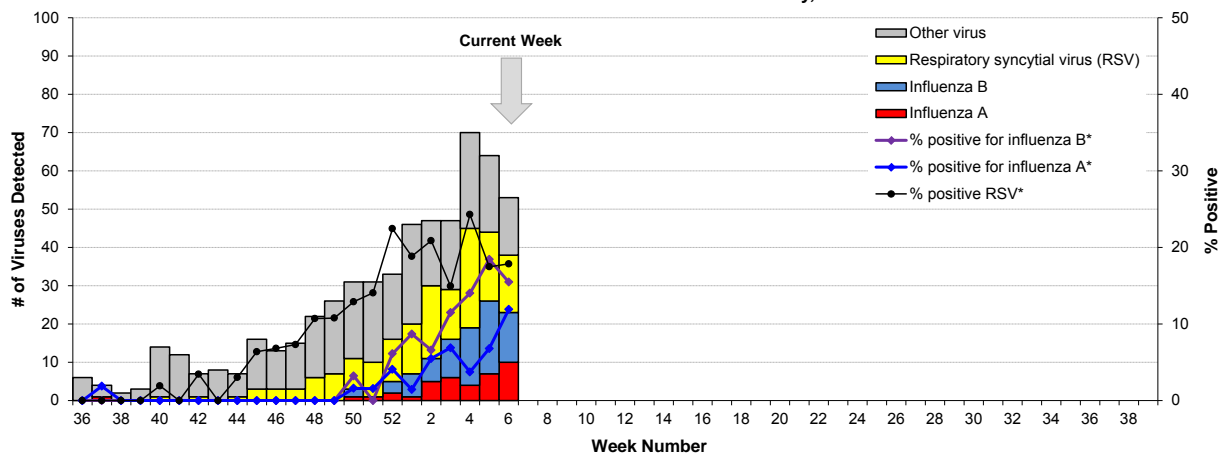


Data are current to February 17, 2016; figure includes cumulative influenza detections for specimens collected from weeks 40-6.

BC Children’s and Women’s Health Centre Laboratory

In week 6, the BC Children’s and Women’s Health Centre Laboratory conducted 84 tests for influenza; 10 (12%) were positive for influenza A, and 13 (15%) were positive for influenza B. The proportion of tests positive for influenza B decreased from 18% in week 5 to 15% in week 6, while the proportion positive for influenza A increased from 7% in week 5 to 12% in week 6. Respiratory syncytial virus (RSV) was also commonly detected (18% of tests positive in week 6).

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

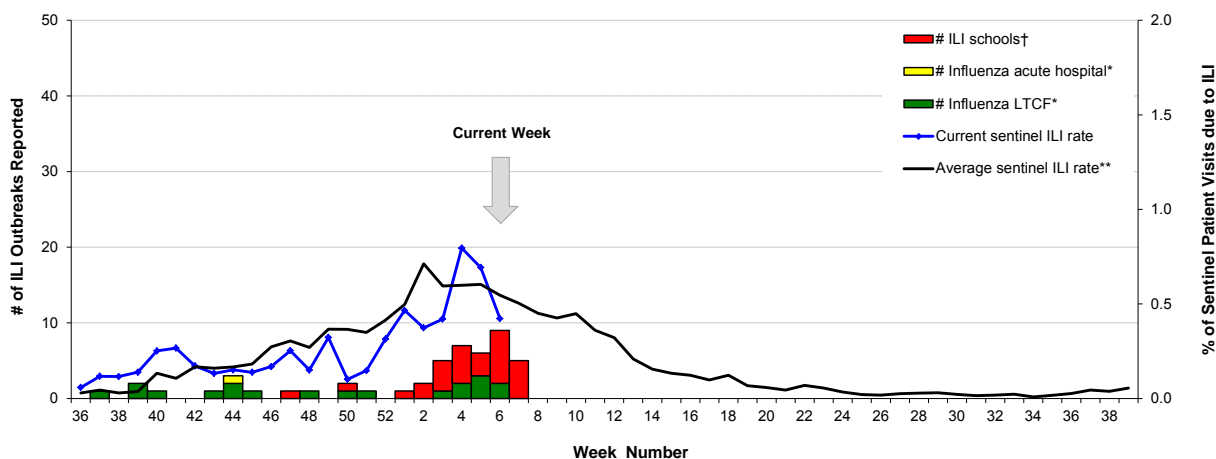
Since our last bulletin one week ago, three new lab-confirmed influenza outbreaks were reported from long-term care facilities (LTCF): one influenza B outbreak in VCHA with onset in week 5; one A(H3N2) outbreak in FHA with onset in week 6; and one outbreak in VCHA with onset in week 6 where both influenza A (subtype pending) and B were detected. One LTCF outbreak in VCHA in week 5 that was reported in last week's bulletin as influenza A (subtype pending) subsequently had both influenza A(H3N2) and influenza B detected. Eight new ILI outbreaks were reported from schools in IHA: three in week 6, and five in week 7.

In total since mid-August (since week 32, starting August 9, 2015), 21 influenza outbreaks have been reported from facilities, including 20 from LTCFs and one from an acute care facility:

- 13 with A(H3N2) detected;
- 1 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 had subtype pending);
- 1 with influenza A detected (subtype pending); and
- 4 with influenza B detected.

Twenty-nine 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.

National

FluWatch (week 5, January 31 – February 6, 2016)

Overall in week 5 in Canada, several seasonal influenza indicators increased from the previous week. Laboratory detections reached expected levels for this time of the year, rising from 16% in week 4 to 20% in week 5 (expected range based on previous five seasons: 13-24%). Influenza A(H1N1)pdm09 was the most common subtype detected. The number of outbreaks reported continued to increase; a total of 16 new laboratory confirmed influenza outbreaks were reported in week 5. To date this season, 80 outbreaks have been reported. In comparison, at week 5 in the 2014-15 season, 1,225 outbreaks were reported and in the 2013-14 season, 82 outbreaks were reported. In the past 3 weeks, young/middle-aged adults are accounting for an increasing proportion of hospitalizations as reported by participating provinces and territories. In week 5, 41 new lab-confirmed, influenza-associated paediatric hospitalizations were reported by the IMPACT network, 18 due to A(H1N1)pdm09, one due to A(H3N2), and eight due to influenza B; the remainder were influenza A (unsubtyped).

Details are available at: 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 February 18, 2016, the National Microbiology Laboratory (NML) received 411 influenza viruses [118 A(H3N2), 206 A(H1N1)pdm09 and 87 B] from Canadian laboratories for antigenic characterization.

Influenza A(H3N2): Of the 118 influenza A(H3N2) viruses, only 23 (19%) had sufficient haemagglutination titre for antigenic characterization by haemagglutination inhibition (HI) assay. Of the 23 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 95 viruses that did not grow to sufficient haemagglutination titre for HI assay. Of the 95 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 206 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 87 influenza B viruses characterized, 36 (41%) 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 51 (59%) 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 February 18, 2016, the NML received influenza viruses from Canadian laboratories for drug susceptibility testing. Of the 305 influenza A viruses [118 A(H3N2) and 187 A(H1N1)pdm09] tested against amantadine, all were resistant with the exception of one A(H3N2) virus which was sensitive to amantadine. Of the 384 influenza viruses [110 A(H3N2), 196 A(H1N1)pdm09 and 78 B] tested against oseltamivir, all were sensitive except for one A(H1N1)pdm09 virus with a H275Y mutation which was resistant. Of the 383 influenza viruses [110 A(H3N2), 195 A(H1N1)pdm09 and 78 B] tested against zanamivir, all were sensitive.

International

USA (week 5, January 31 – February 6, 2016)

During week 5, influenza activity increased slightly in the United States. The most frequently identified influenza virus type reported by public health laboratories during week 5 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. Two influenza-associated pediatric deaths were reported. A cumulative rate for the season of 3.2 laboratory-confirmed influenza-associated hospitalizations per 100,000 population was reported. The proportion of outpatient visits for ILI was 2.4%, which is above the national baseline of 2.1%. The geographic spread of influenza in seven states was reported as widespread; 17 states reported regional activity; 16 states reported local activity; the District of Columbia and 9 states reported sporadic activity; and one state reported no activity. Details are available at: www.cdc.gov/flu/weekly/.

WHO

There have been no new WHO influenza updates published since our last bulletin. Previous updates are available at: 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/.

WHO Recommendations for Influenza Vaccines

The WHO Consultation and Information Meeting on the Composition of Influenza Virus Vaccines for the Northern Hemisphere 2016-2017 will take place February 22-24, 2016.

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/.

WHO Recommendations for 2016 Southern Hemisphere Influenza Vaccine

On September 24, 2015, the WHO announced recommended strain components for the 2016 Southern 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.

* Recommended strains represent a change for two of the three components used for the 2015 Southern Hemisphere and 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 Southern Hemisphere vaccine since 2010 and 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. Most viruses belonging to A/Hong Kong/4801/2014-like (clade 3C.2a) viruses are considered antigenically related to cell-passaged A/Switzerland/9715293/2013-like (clade 3C.3a) viruses recommended for the 2015 Southern Hemisphere and 2015-16 Northern Hemisphere vaccines but are antigenically distinct from egg-passaged A/Switzerland/9715293/2013-like viruses used in vaccine manufacturing.

§ 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: www.who.int/influenza/vaccines/virus/recommendations/2016_south/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

Web Sites:

BCCDC Emerging Respiratory Pathogen Updates:

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

Influenza Web Sites

Canada – Flu Watch: 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/

European Influenza Surveillance Scheme:

ecdc.europa.eu/EN/HEALTHTOPICS/SEASONAL_INFLUENZA/EPIDEMIOLOGICAL_DATA/Pages/Weekly_Influenza_Surveillance_Overview.aspx

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	<u>Reporting Information</u> 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	<u>First Notification</u>
	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>

Numbers to date	Residents/Students	Staff
Total		
With ILI		
Hospitalized		
Died		

C	<u>Update AND Outbreak Declared Over</u>
	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
Total		
With ILI		
Hospitalized		
Died		

D	<u>Laboratory Information</u>
	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