

British Columbia Influenza Surveillance Bulletin

Influenza Season 2016-17, Number 02, Week 42

October 16 to 22, 2016

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More Influenza A(H3N2) Outbreaks in Long-term Care Facilities in BC

During week 42 (October 16 to 22, 2016), multiple influenza A(H3N2) outbreaks in long-term care facilities (LTCFs) were reported against a backdrop of higher than expected influenza detections for this time of year but still overall low-level activity in the community.

At the BCCDC Public Health Laboratory, influenza positivity remained above 10% again in week 42. Since week 40 of the 2016-17 season, the cumulative number of influenza detections and percent positivity (n=72, 12%) has been higher than comparable periods from the 2014-15 (n=41, 7%) and 2015-16 (n=28, 5%) seasons, suggesting earlier than usual seasonal activity that requires ongoing monitoring.

Influenza A(H3N2) has been the dominant subtype so far this season, with the majority of influenza detections in elderly adults ≥ 65 years old, consistent with LTCF outbreak reports, but also involving younger adults and children.

A total of 7 LTCF influenza A(H3N2) outbreaks have been reported since week 37. Reporting of LTCF outbreaks this early in the fall is atypical, although outbreaks did occur as early as week 32 in 2014-15 and 2015-16 (n=7 and 5, respectively, for the comparable time periods).

Enteroviruses were the most commonly detected other respiratory virus during this period. Since our last bulletin, 3 new cases of enterovirus D68 (EV-D68) were detected, bringing the total number of cases detected in BC since August 2016 to 38.

Prepared by BCCDC Influenza & Emerging Respiratory Pathogens Team

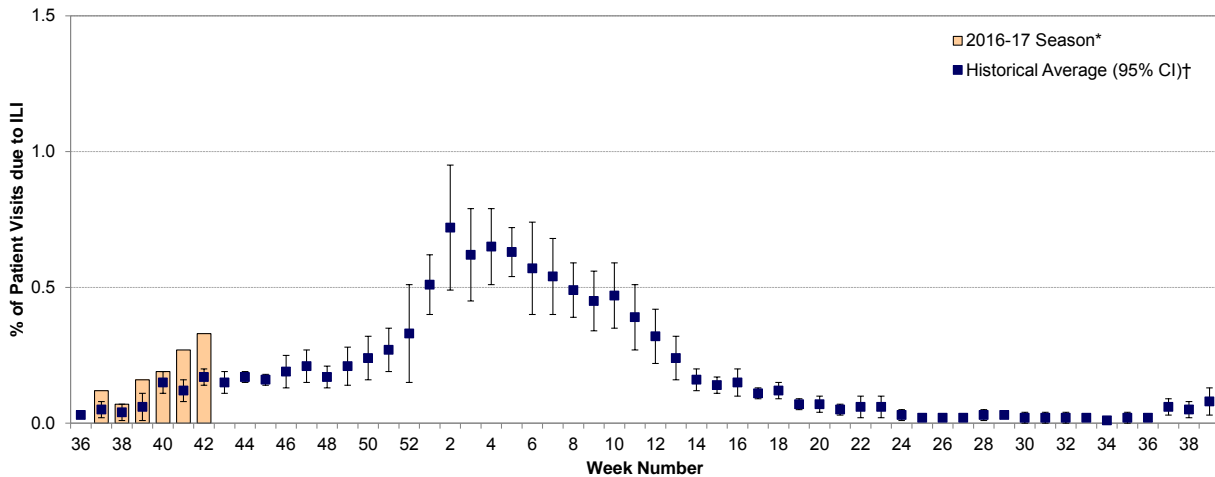
Report Disseminated: October 27, 2016

British Columbia

Sentinel Physicians

During week 42, the proportion of patients with influenza-like illness (ILI) among those presenting to sentinel sites was significantly higher than the 10-year historical average for the second consecutive week at 0.33%. So far, 43% of sentinel sites have reported data for this week.

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

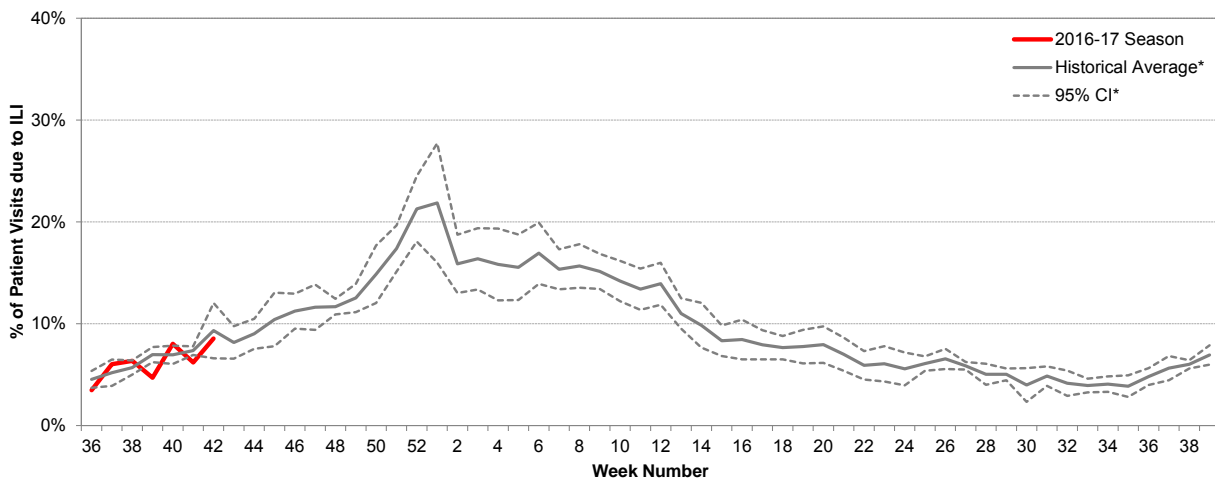


* Data are subject to change as reporting becomes more complete.
† 10-year historical average for 2016-17 season based on 2004-05 to 2015-2016 seasons, excluding 2008-09 and 2009-10 due to atypical seasonality; CI=confidence interval.

BC Children’s Hospital Emergency Room

During week 42, the proportion of visits to BC Children’s Hospital Emergency Room (ER) attributed to ILI was 9%, consistent with expected seasonal levels 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

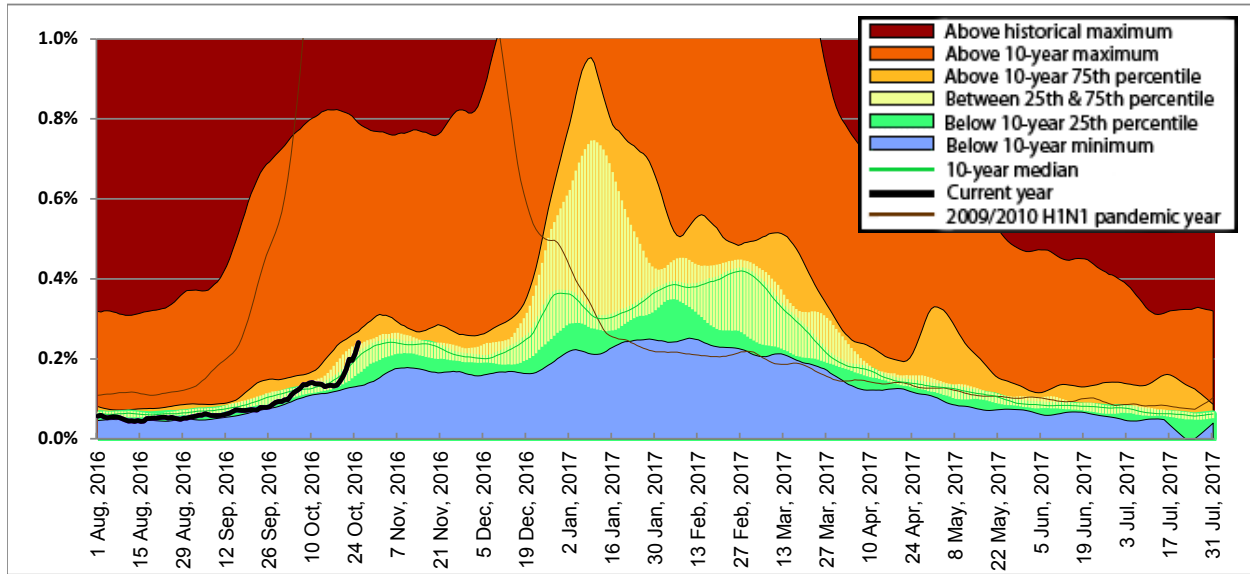


Source: BCCH Admitting, Discharge, Transfer database (ADT). Data includes records with a triage chief complaint of "flu" or "influenza" or "fever/cough."
* 5-year historical average for 2016-17 season based on 2011-12 to 2015-16 seasons; CI=confidence interval.

Medical Services Plan

During week 42, BC Medical Services Plan (MSP) general practitioner claims for influenza illness (II), as a proportion of all submitted MSP claims, increased slightly and was above the 10-year 75th percentile for the province overall. An increasing trend in MSP claims for II was observed in FHA, VCHA and VIHA.

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

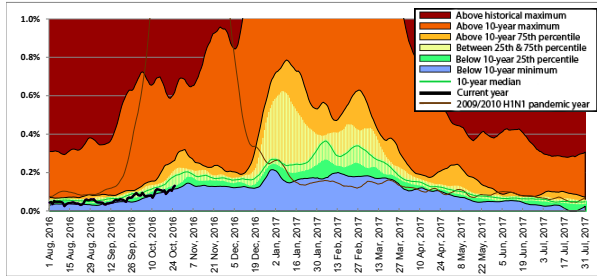


* Influenza illness is tracked as the percentage of all submitted MSP general practitioner claims with ICD-9 code 487 (influenza).

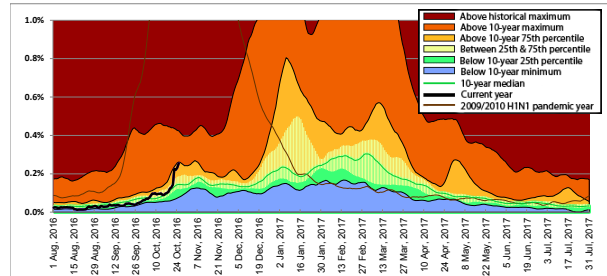
Data for the period August 1, 2009 to July 31, 2010 have been excluded from the 10-year median calculation due to atypical seasonality during the 2009/2010 H1N1 pandemic year. MSP week beginning August 1, 2016 corresponds to sentinel ILI week 31; data are current to October 25, 2016.

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

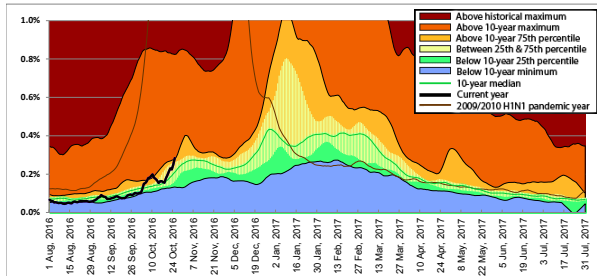
Interior



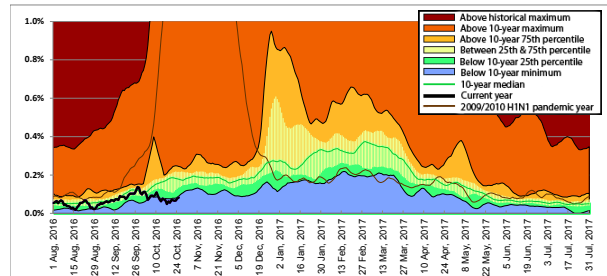
Vancouver Island



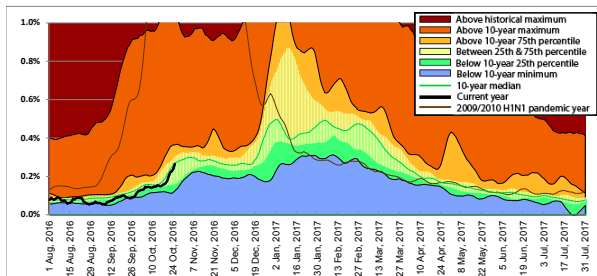
Fraser



Northern



Vancouver Coastal



Laboratory Reports

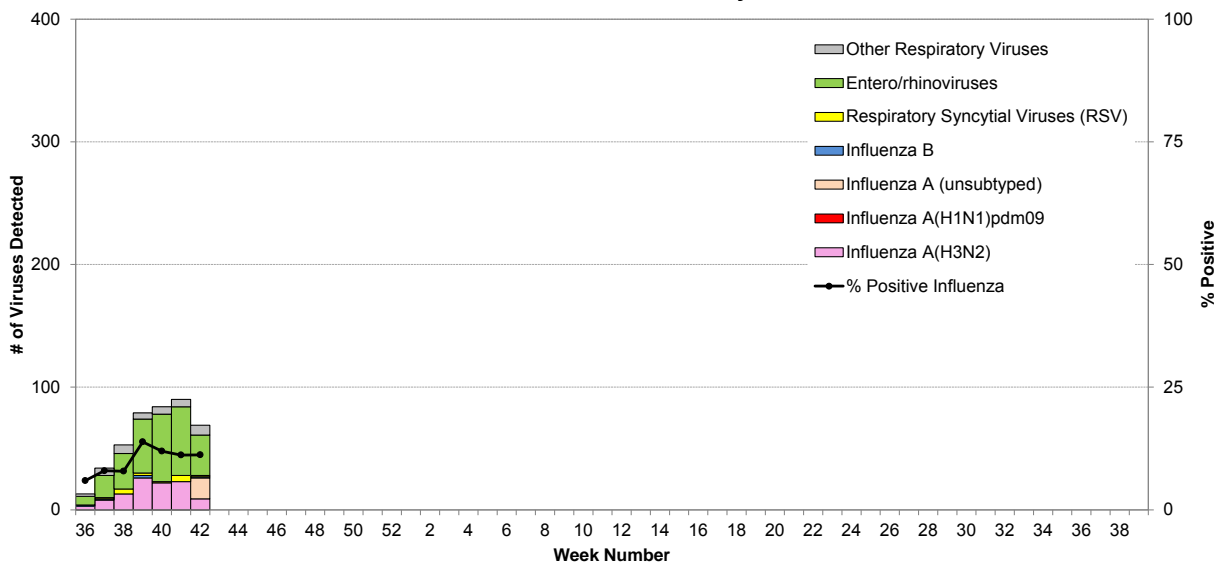
BCCDC Public Health Laboratory

During week 42, 241 patients were tested for respiratory viruses at the BCCDC Public Health Laboratory (PHL). Of these, 27 (11%) tested positive for influenza, including 26 (96%) influenza A [9 A(H3N2) and 17 with subtype pending] and one (4%) influenza B. Overall influenza positivity has remained elevated above 10% since week 39. Enteroviruses were the most commonly detected respiratory virus during this period.

Cumulatively since week 40 (starting October 2, 2016), 72 (12%) patients tested positive for influenza at the BCCDC PHL, including 71 (99%) with influenza A [54 A(H3N2) and 17 subtype pending] and one (1%) with influenza B. This is more than 2.5 times the number of influenza detections during the comparable period from the prior 2015-16 season (n=28, 5%) and almost double the number from the last dominant A(H3N2) season in 2014-15 (n=41, 7%), suggesting earlier than usual activity so far this season.

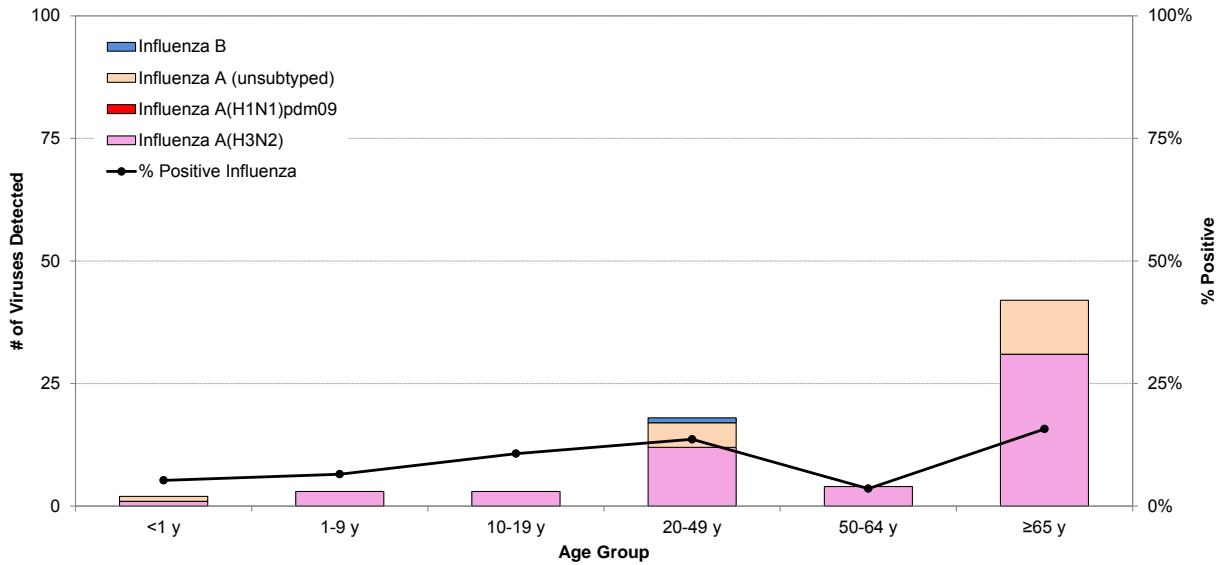
So far during the 2016-17 season, influenza A(H3N2) has been the dominant subtype among influenza detections. The majority of influenza detections have been in elderly adults ≥ 65 years old, consistent with early season outbreak reports from long-term care facilities (LTCFs) and dominant circulation of A(H3N2) subtype viruses so far this season. However, a greater proportion of influenza A(H3N2) detections so far during the 2016-17 season are in non-elderly individuals < 64 years old compared to the same period of the last early dominant A(H3N2) season in 2014-15 (43% vs. 26%, respectively).

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



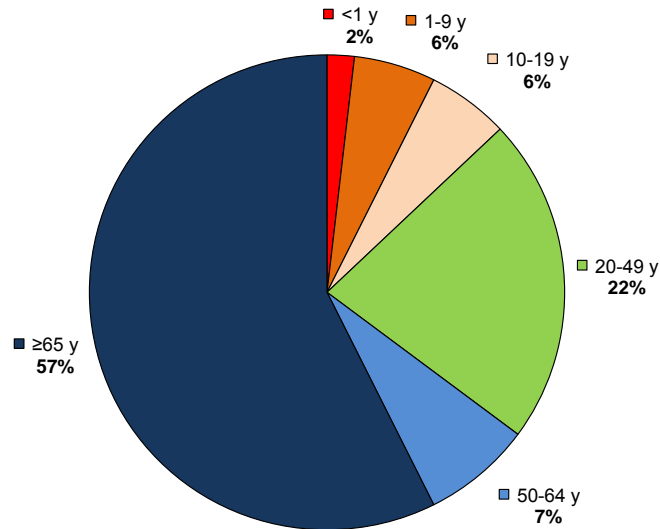
Data are current to October 26, 2016.

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



Data are current to October 26, 2016; figure includes cumulative influenza detections for specimens collected from weeks 40-42.

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



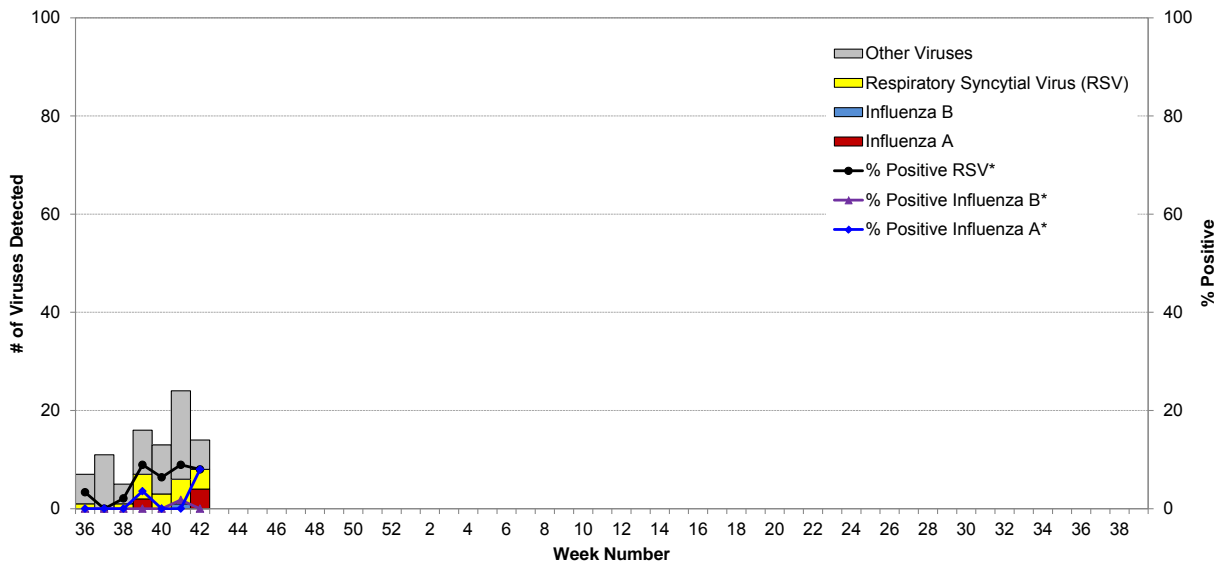
Data are current to October 26, 2016; figure includes cumulative influenza detections for specimens collected from weeks 40-42.

BC Children’s and Women’s Health Centre Laboratory

During week 42, the BC Children’s and Women’s Health Centre Laboratory conducted 50 tests for influenza A and B. Of these, 4 (8%) were positive for influenza A; none were positive for influenza B. Of interest, influenza A detections by the BC Children’s and Women’s Health Centre accompanied other early season indicators of influenza activity for the same period in 2014-15, but not in 2015-16.

Respiratory syncytial viruses (RSV) and entero/rhinoviruses were also commonly detected among non-influenza respiratory viruses during this period.

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

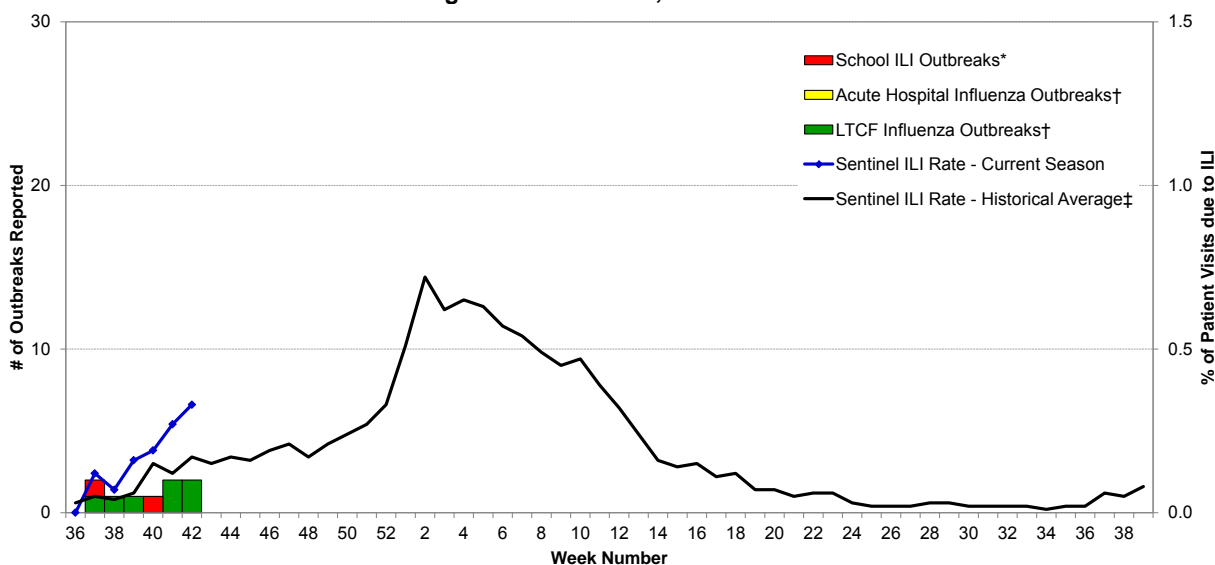
Since our last bulletin, 2 new lab-confirmed influenza outbreaks were reported from long-term care facilities (LTCFs): one with influenza A(H3N2) detected in IHA with onset in week 41 and one with influenza A(H3N2) detected in VCHA with onset in week 42.

Reporting of LTCF outbreaks during summer/early fall is atypical. However, during the 2014-15 and 2015-16 seasons, sporadic LTCF outbreaks were reported as early as week 32.

So far, since week 37 (starting September 11, 2016), a total of 7 LTCF outbreaks, all with influenza A(H3N2) detected, have been reported during the 2016-17 season. By comparison, to the current week there were 7 influenza outbreaks in 2014-15 and 5 influenza outbreaks in 2015-16; whereas, prior to those most recent seasons, LTCF outbreaks had not been reported this early in the season.

Two school ILI outbreaks have also been reported so far during the 2016-17 season but without etiologic agent identified. Of note, school ILI outbreaks were similarly reported contemporaneous to early LTCF influenza A(H3N2) outbreak reports for the same period in 2014-15, but not in 2015-16.

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.

Emerging Respiratory Viruses

Enterovirus D68 (EV-D68), British Columbia

Since our last bulletin one week ago, 3 new cases of enterovirus D68 (EV-D68) were detected at the BCCDC Public Health Laboratory, bringing the total number of cases detected in BC since August 2016 to 38 cases.

Of the 38 laboratory-confirmed EV-D68 cases reported in BC to date since August 2016, 29 (76%) were detected in children <10 years old, and of those, the majority (16/29, 55%) have been detected in infants/toddlers <2 years old. At least two-thirds of cases with known information have been hospitalized and one infant/toddler presented with neurologic illness characterized by arm paralysis and some truncal weakness. Cases have been detected in all regions of the province. EV-D68 cases have also been reported in other parts of Canada, the US, and Europe in recent months, including one case in a young child ≤2 years old in Alberta with acute flaccid paralysis.

In 2014, BC along with other Canadian provinces and US states, experienced a nationwide outbreak of EV-D68, with several cases associated with severe respiratory illness notably in children with asthma. By comparison, 129 EV-D68 cases were reported during the same time period to date during the 2014 outbreak, including 4 neurologic cases and 2 deaths. Of the 2014 cases, about two-thirds occurred in children <10 years old and 18% were in infants/toddlers <2 years old, notably lower proportions compared to the current 2016 age profile. During the 2014 outbreak in BC, cases were initially detected in August, with subsequent increase through September and peak in October. A summary of the 2014 outbreak was published in *Euro Surveillance*, available from: www.eurosurveillance.org/ViewArticle.aspx?ArticleId=21283.

Of note, despite systematic testing of over 700 respiratory specimens at the BCCDC Public Health Laboratory for EV-D68 during August and September 2015, no EV-D68 cases were detected in BC last fall, consistent with an expected 2-3 year periodicity.

Generally most EV-D68 cases present with mild respiratory illness; however, EV-D68 infection has been associated with neurologic illness characterized by acute flaccid paralysis in a small subset of cases. People with asthma and other lung conditions may be at higher risk of more serious respiratory complications.

National

FluWatch (week 41, October 9 to 15, 2016)

Influenza activity is at inter-seasonal levels with the majority of regions in Canada reporting low or no influenza activity. In week 41, sporadic or localized influenza activity was reported in 13 regions across six provinces or territories (BC, AB, ON, QC, NS and YK). A total of 41 positive influenza detections were reported, with 1.6% of tests positive in week 41. Influenza A(H3N2) was the most common subtype detected. In week 41, 2.5% of visits to sentinel healthcare professionals were due to influenza-like symptoms. One laboratory-confirmed influenza outbreak in long-term care facility was reported in week 41. Five hospitalizations due to influenza A(H3N2) were reported in week 41. 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 to October 26, 2016, the National Microbiology Laboratory (NML) received 34 influenza viruses [29 A(H3N2), 1 A(H1N1)pdm09 and 4 B] from Canadian laboratories for antigenic characterization.

Influenza A(H3N2): Of the 29 influenza A(H3N2) viruses, only 14 (48%) had sufficient haemagglutination titre for antigenic characterization by haemagglutination inhibition (HI) assay. Of the 14 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. Genetic characterization was performed to infer antigenic properties on the remaining 15 viruses that did not grow to sufficient haemagglutination titre for HI assay. Of the 15 viruses genetically characterized, all were reported to belong to a genetic group in which most viruses were antigenically related to A/Hong Kong/4801/2014.

Influenza A(H1N1)pdm09: The one A(H1N1)pdm09 viruses characterized was 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 4 influenza B viruses characterized, 3 (75%) 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 one (25%) virus was 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 October 26, 2016, the NML received influenza viruses from Canadian laboratories for drug susceptibility testing.

Amantadine: Of the 26 influenza A viruses [25 A(H3N2) and 1 A(H1N1)pdm09] tested against amantadine, all were resistant.

Oseltamivir: Of the 40 influenza viruses [35 A(H3N2), 1 A(H1N1)pdm09 and 4 B] tested against oseltamivir, all were sensitive.

Zanamivir: Of the 40 influenza viruses [35 A(H3N2), 1 A(H1N1)pdm09 and 4 B] tested against zanamivir, all were sensitive.

International

USA (week 41, October 9 to 15, 2016)

During week 41, influenza activity was low in the United States. The most frequently identified influenza virus subtype reported by public health laboratories during week 41 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 1.2%, which is below the national baseline of 2.2%. The geographic spread of influenza in Guam was reported as widespread; one state reported local activity; the District of Columbia, the U.S. Virgin Islands and 41 states reported sporadic activity; eight states reported no activity; and Puerto Rico did not report. Details are available at: www.cdc.gov/flu/weekly/.

WHO

There have been no new WHO Influenza Updates since our last bulletin. Previous updates are available from: 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/.

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/.

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

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): healthycanadians.gc.ca/diseases-conditions-maladies-affectations/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/

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	<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