

British Columbia Influenza Surveillance Bulletin

Influenza Season 2016-17, Number 23, Weeks 33-38
August 13 to September 23, 2017

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Early Season Update: Sporadic Flu Detections Continue in BC

Sporadic influenza activity has been detected in BC during this late summer and early fall period. Three new facility outbreaks have been reported to the BCCDC in September, including two with influenza A and one with influenza B. Sporadic facility influenza outbreaks have previously been reported as early as week 37.

At the BCCDC Public Health Laboratory, **influenza positivity** has remained between 5-10% since week 34. Influenza A(H3N2) has been the predominant subtype during this period. Sporadic influenza detections, notably due to A(H3N2) during this period, have occurred in recent seasons since 2012-13 but represent an elevated level of detections as compared to pre-2012-13 seasons.

Influenza activity continues to remain elevated in the **southern hemisphere**. In Australia and New Zealand, higher than usual influenza activity, predominately due to A(H3N2), was reported during their seasonal epidemic. In some Southeast Asian countries, high levels of influenza activity continue to be reported.

On September 28, 2017, the WHO announced the vaccine components for the **2018 southern hemisphere vaccine**, recommending a change for 2 of the 3 trivalent vaccine strains. Specifically, the WHO replaced the A(H3N2) and influenza B components (see page 12 for details).

This will be the final bulletin of the 2016-17 surveillance period. The 2017-18 surveillance period will begin on October 1, 2017.

Prepared by BCCDC Influenza & Emerging Respiratory Pathogens Team

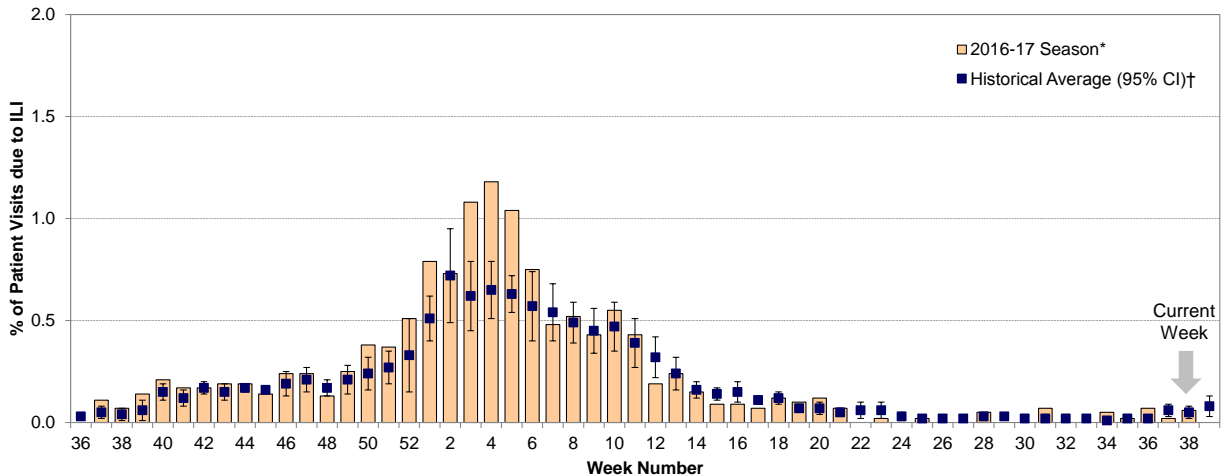
Report Disseminated: September 28, 2017

British Columbia

Sentinel Physicians

During weeks 33-38, the proportion of patients with influenza-like illness (ILI) among those presenting to sentinel sites remained at inter-seasonal levels. Rates are subject to change as reporting becomes more complete.

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

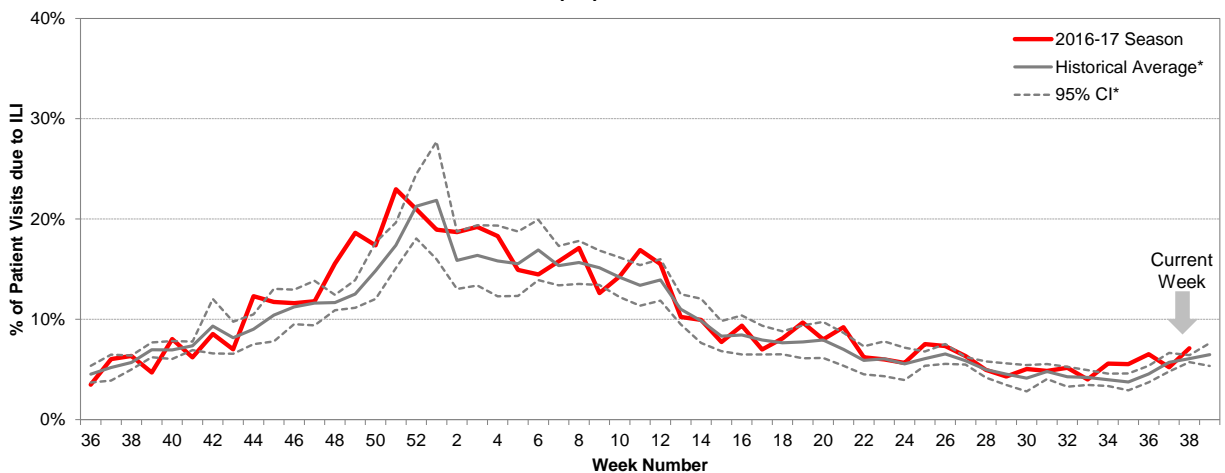


* Data are subject to change as reporting becomes more complete. One hospital ER site that reported ILI rates $\geq 5\%$ was excluded from the graph.
† 10-year historical average for 2016-17 season based on 2004-05 to 2015-2016 seasons, excluding 2008-09 and 2009-10 due to atypical seasonality; CI=confidence interval.

BC Children's Hospital Emergency Room

In weeks 33-38, the proportion of visits to BC Children's Hospital Emergency Room (ER) attributed to ILI was generally consistent with the historical average for the past 5 seasons but rose above the upper 95% confidence interval in weeks 34-36 and in week 38.

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

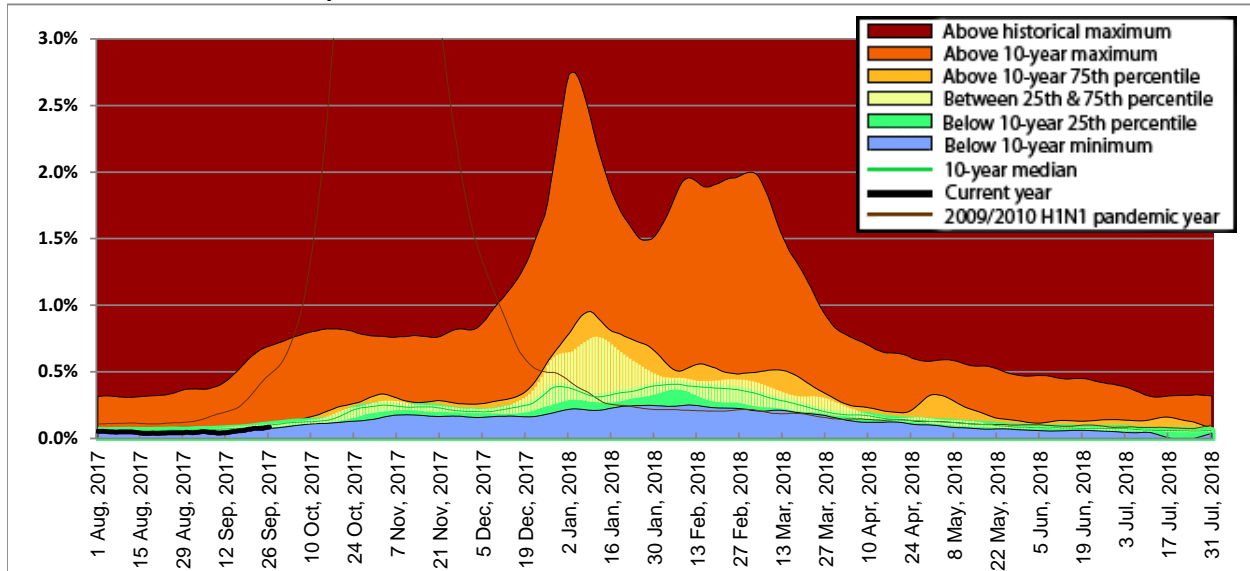


Source: BCCH Admitting, Discharge, Transfer database (ADT). Data includes records with a triage chief complaint of "flu" or "influenza" or "fever/cough."
* 5-year historical average for 2016-17 season based on 2011-12 to 2015-16 seasons; CI=confidence interval.

Medical Services Plan

In weeks 33-38, BC Medical Services Plan (MSP) general practitioner claims for influenza illness (II), as a proportion of all submitted MSP claims, were at or below expected median levels for this time of year in all regions of the province.

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

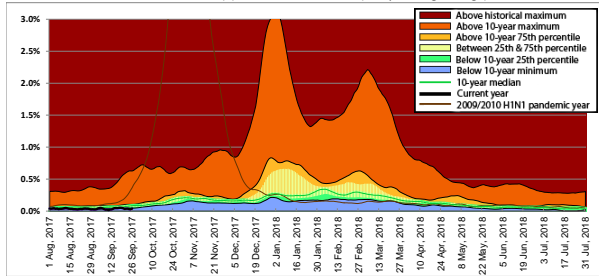


* Influenza illness is tracked as the percentage of all submitted MSP general practitioner claims with ICD-9 code 487 (influenza).

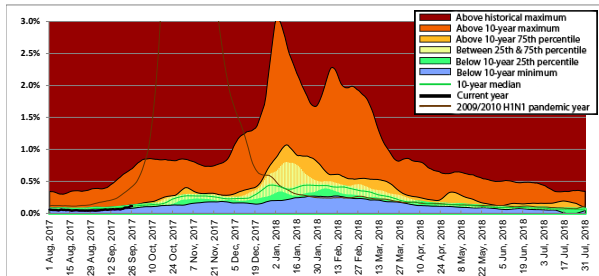
Data for the period August 1, 2009 to July 31, 2010 have been excluded from the 10-year median calculation due to atypical seasonality during the 2009/2010 H1N1 pandemic year. MSP week beginning August 1, 2017 corresponds to sentinel ILI week 31; data are current to September 26, 2017.

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

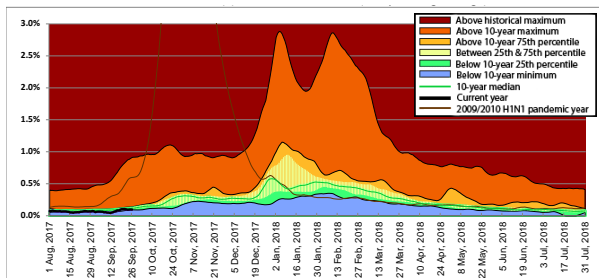
Interior



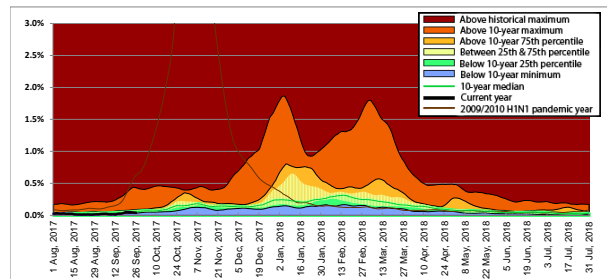
Fraser



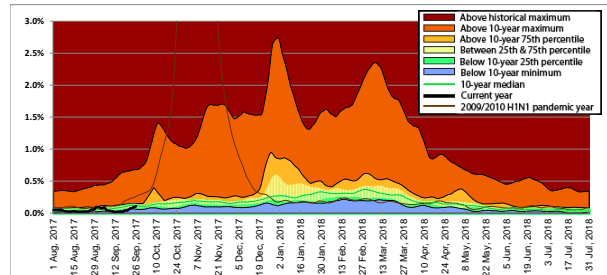
Vancouver Coastal



Vancouver Island



Northern

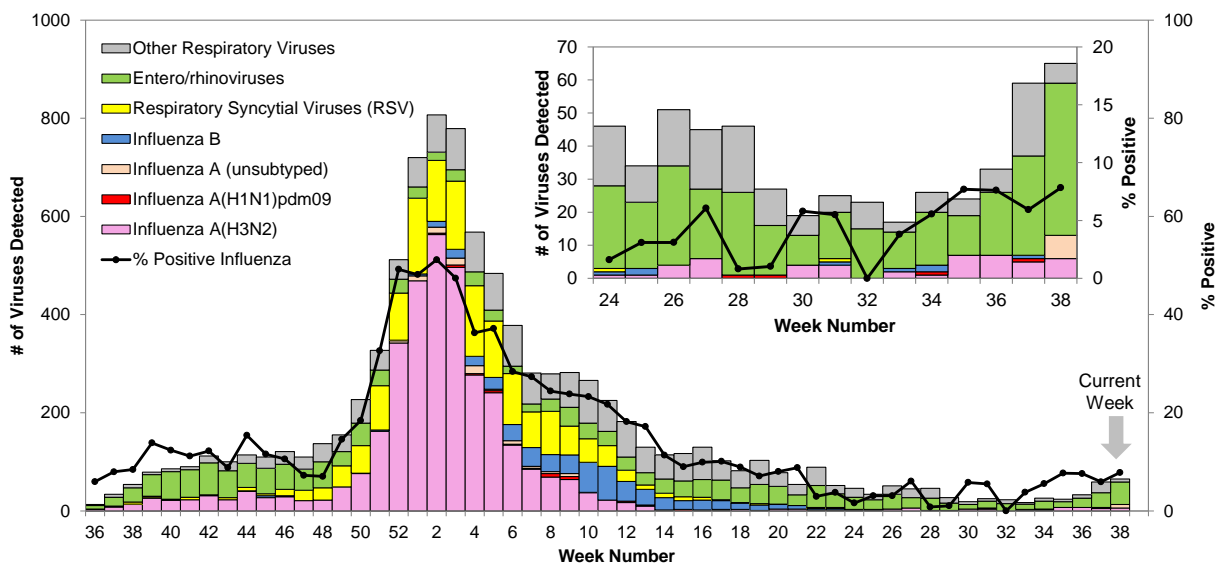


Laboratory Reports

BCCDC Public Health Laboratory

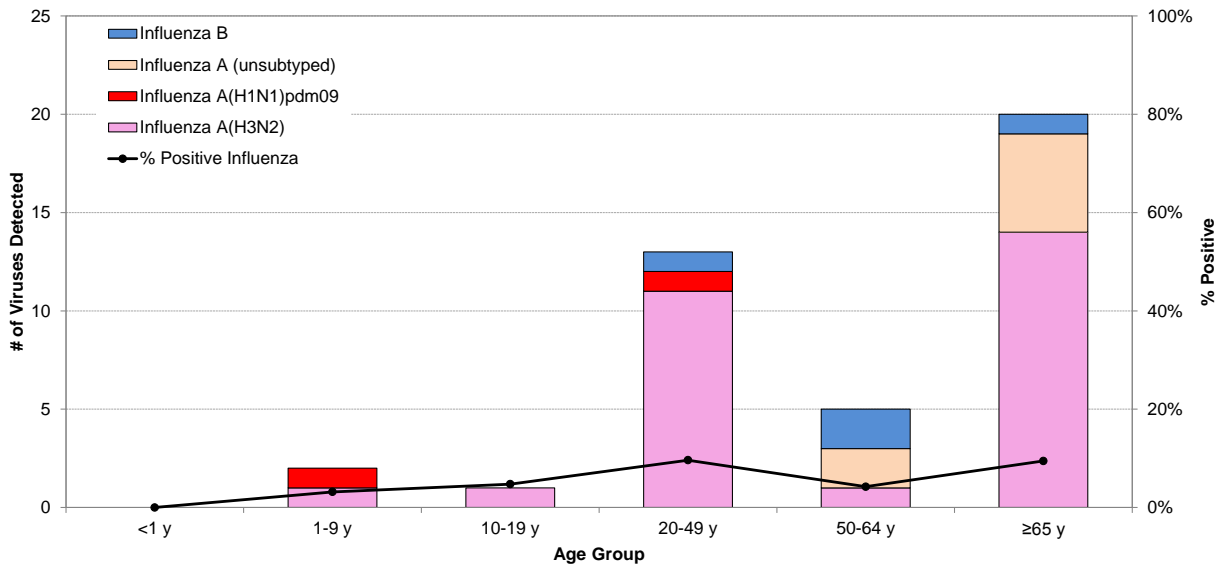
Cumulatively during the surveillance period (week 33 starting August 13, 2017 to week 38 ending September 23, 2017), 41 (7%) patients tested positive for influenza at the BCCDC Public Health Laboratory (PHL), including 37 (90%) with influenza A [28 A(H3N2), 2 A(H1N1)pdm09, and 7 A(Unsubtyped)] and 4 (10%) with influenza B. Influenza positivity has remained above 5% but less than 10% since week 34; sporadic influenza detections, mostly belonging to the A(H3N2) subtype, have continued at low levels during this period. These A(H3N2) detections are consistent with prior recent seasons; sporadic detections, during this period, have occurred since the 2012-13 season but represent an elevated level of detections as compared to pre-2012-13 seasons. Enteroviruses were the most commonly detected respiratory virus during this period but were also detected at low levels; they have increased slightly in recent weeks.

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



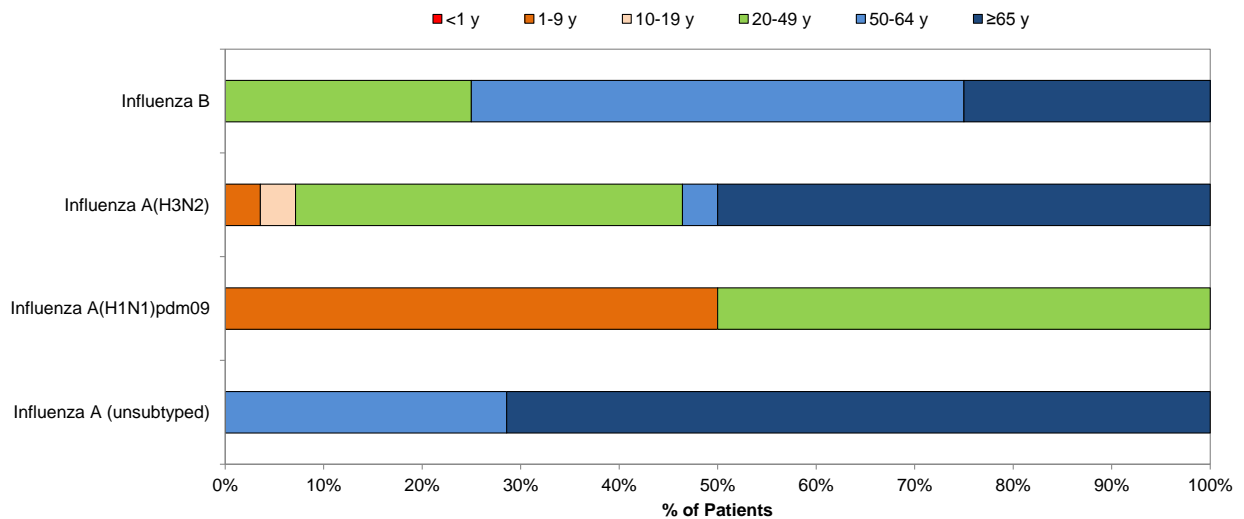
Data are current to September 27, 2017.

Cumulative number (weeks 33-38) of influenza detections by type/subtype and age group, BCCDC Public Health Laboratory, 2016-17



Data are current to September 27, 2017; figure includes cumulative influenza detections for specimens collected from weeks 33-38.

Age distribution of influenza detections (cumulative total, weeks 33-38), BCCDC Public Health Laboratory, 2016-17

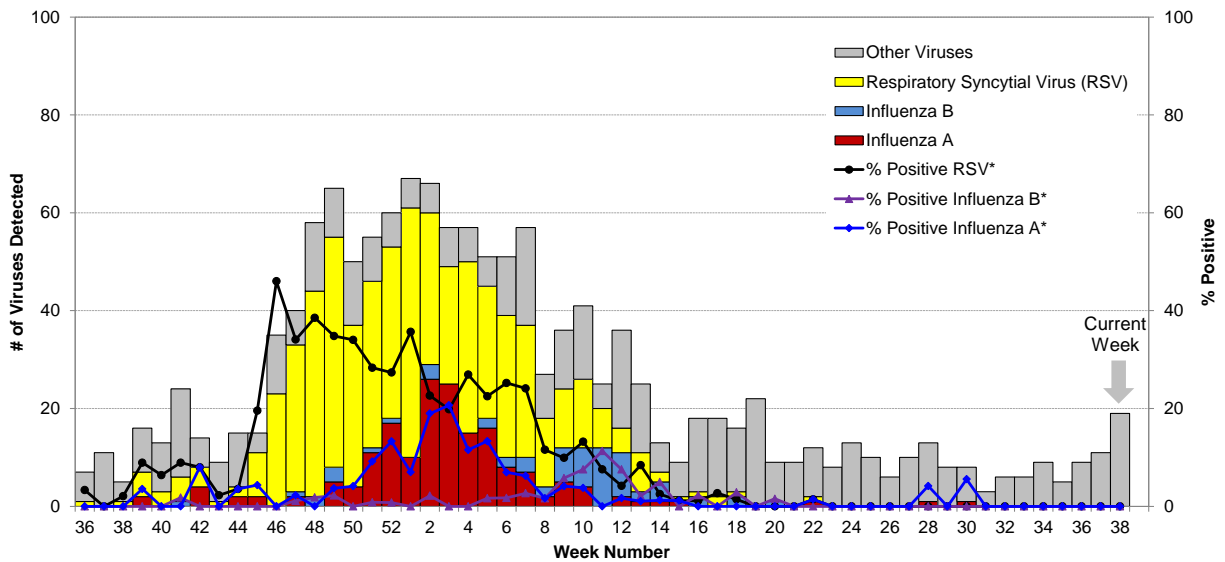


Data are current to September 27, 2017; figure includes cumulative influenza detections for specimens collected from weeks 33-38.

BC Children's and Women's Health Centre Laboratory

In weeks 33-38, 124 tests for respiratory viruses were conducted at the BC Children's and Women's Health Centre laboratory. Of these, none were positive for influenza A, influenza B, or respiratory syncytial virus (RSV). During this period, 59 tests were positive for other viruses, mostly rhinovirus and parainfluenza.

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



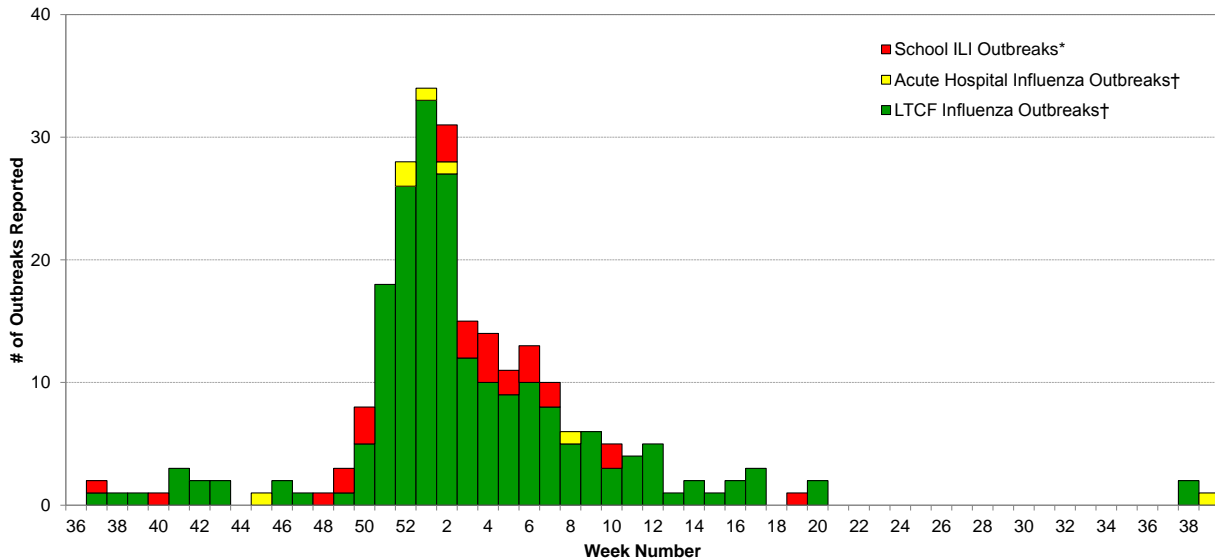
* Positive rates were calculated using aggregate data. The denominators for each rate represent the total number of tests; multiple tests may be performed for a single specimen and/or patient.

Influenza-like Illness (ILI) Outbreaks

In recent weeks, 3 new ILI outbreaks have been reported. Two outbreaks were reported in LTCFs with onset in week 38; 1 Influenza B outbreak in FHA and 1 Influenza A (subtype pending) outbreak in VIHA. Additionally, an Influenza A outbreak was reported in week 39 from an acute care facility in FHA. Since the 2014-15 season, sporadic facility influenza outbreaks have previously been reported as early as week 37; current sporadic outbreak reports are not exceptional in that regard.

The BCCDC has also received anecdotal reports of influenza outbreaks associated with cruise ships that have docked in Vancouver in recent weeks; several cases in older adult (>70 years old) travellers, some with underlying comorbidities, have required hospitalization.

Number of influenza-like illness (ILI) outbreaks reported, 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.

National

FluWatch (weeks 35-36, August 27 to September 9, 2017)

Influenza activity remains at inter-seasonal levels across the country, with a few regions reporting sporadic or localized activity. In weeks 35-36, the majority of influenza detections continued to be A(H3N2). The percentage of laboratory tests positive for influenza is higher for this time of year compared to previous seasons. 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, 2017 to September 28, 2017, the National Microbiology Laboratory (NML) received 5 influenza viruses [2 A(H3N2), and 3 B] from Canadian laboratories for antigenic characterization.

Influenza A(H3N2): Of the 2 influenza A(H3N2) viruses, neither had sufficient haemagglutination titre for antigenic characterization by haemagglutination inhibition (HI) assay. Genetic characterization was therefore performed to infer antigenic properties on the 2 viruses that did not grow to sufficient haemagglutination titre for HI assay. Of the 2 viruses genetically characterized, both were reported to belong to genetic group 3C.2a, which includes the A/Hong Kong/4801/2014 vaccine strain for the 2017-18 northern hemisphere vaccine.

Influenza B: Of the 3 influenza B viruses characterized, all were characterized as a B/Phuket/3073/2013(Yamagata lineage)-like virus, the WHO-recommended influenza B component for the 2017-18 northern hemisphere quadrivalent influenza vaccine containing two influenza B components; none were characterized as a B/Brisbane/60/2008(Victoria lineage)-like virus, the WHO-recommended influenza B component for the 2017-18 northern hemisphere trivalent influenza vaccine.

National Microbiology Laboratory (NML): Antiviral Resistance

From September 1, 2017 to September 28, 2017, the NML received influenza viruses from Canadian laboratories for drug susceptibility testing.

Amantadine: Of the 2 influenza A(H3N2) viruses tested against amantadine, all were resistant.

Oseltamivir: Of the 5 influenza viruses [2 A(H3N2), and 3 B] tested against oseltamivir, all were sensitive.

Zanamivir: Of the 5 influenza viruses [2 A(H3N2), and 3 B] tested against zanamivir, all were sensitive.

International

USA (week 37, September 10 to September 16, 2017)

During week 37, influenza activity was at inter-seasonal levels in the United States. The most frequently identified influenza subtype reported by public health laboratories during week 37 was influenza A(H3N2). The percentage of respiratory specimens testing positive for influenza in clinical laboratories remained at low levels. 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%. Sporadic detections of novel influenza A viruses associated with swine exposure at agriculture fairs have also been reported to the US CDC during summer months. Details are available at: www.cdc.gov/flu/weekly/.

WHO (September 18, 2017)

Influenza activity remained at low levels in the temperate zone of the northern hemisphere. High levels of influenza activity continued to be reported in the temperate zone of the southern hemisphere and in some countries of South and South East Asia. In Central America and the Caribbean influenza activity continued to be reported in a few countries. Worldwide, influenza A(H3N2) viruses were predominating.

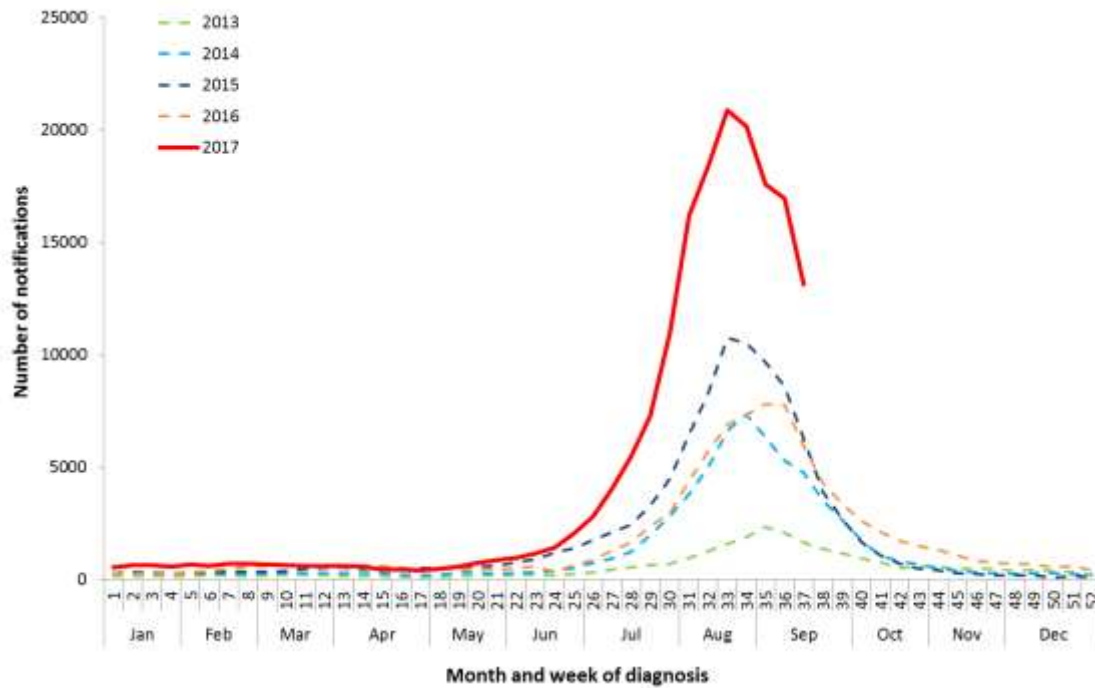
From August 21 to September 3 2017, the WHO GISRS laboratories tested more than 42,603 specimens. Of these, 5268 were positive for influenza viruses including 4609 (88%) typed as influenza A and 659 (13%) as influenza B. Of the subtyped influenza A viruses, 3243 (84%) were influenza A(H3N2) and 602 (16%) were influenza A(H1N1)pdm09. Of the characterized B viruses, 137 (67%) belonged to the B(Yamagata) lineage and 67 (33%) to the B(Victoria) lineage.

In countries in the temperate zone of the southern hemisphere, influenza activity appeared to have peaked in Oceania, South America and South Africa. In Australia, ILI and influenza activity remains elevated but is exhibiting a downward trend. In New Zealand, respiratory illness indicators and influenza activity continued to decrease to below seasonal threshold levels, with influenza A(H3N2) and B Yamagata lineage viruses predominantly detected. In Southern Africa, most of the season was dominated by influenza A(H3N2), in recent weeks influenza B detections were predominant.

In select countries in the tropical zone, high levels of ILI and influenza activity continue to be reported, including in Bhutan, Myanmar, and Cambodia where A(H1N1)pdm09 is predominating, in Southern China where detections of A(H3N2) remain high, and in Thailand where all seasonal influenza subtypes co-circulating. Based on reports, influenza activity appears to have decreased in Nepal.

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

Notifications of laboratory confirmed influenza, Australia, January 1, 2013 to September 15, 2017, by month and week of diagnosis.



Source: Australian Government Department of Health. Australian Influenza Surveillance Report. Number 9. (Published on September 22, 2017).

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 2017-18 Northern Hemisphere Influenza Vaccine

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

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

It is recommended that quadrivalent influenza vaccines (QIV) containing two influenza B viruses contain the above three viruses and a B/Phuket/3073/2013 (Yamagata-lineage)-like virus.

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

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

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

WHO Recommendations for the 2018 Southern Hemisphere Influenza Vaccine

On September 28, 2017, the WHO announced recommended strain components for the 2018 southern hemisphere trivalent influenza vaccine (TIV):*

- an A/Michigan/45/2015 (H1N1)pdm09-like virus;†
- an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus;‡
- a B/Phuket/3073/2013-like (Yamagata-lineage) virus.§

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

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

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

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

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

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

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-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/

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>														
	<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>Total</td> <td></td> <td></td> </tr> <tr> <td>With ILI</td> <td></td> <td></td> </tr> <tr> <td>Hospitalized</td> <td></td> <td></td> </tr> <tr> <td>Died</td> <td></td> <td></td> </tr> </tbody> </table>	Numbers to date	Residents/Students	Staff	Total			With ILI			Hospitalized			Died	
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Total															
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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>														
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Numbers to date	Residents/Students	Staff													
Total															
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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