

British Columbia Influenza Surveillance Bulletin

Influenza Season 2016-17, Number 16, Week 9

February 26 to March 4, 2017

Table of Contents:

British Columbia:

Sentinel Physicians	Page 2
Children's Hospital ER	Page 2
Medical Services Plan	Page 3
Laboratory Surveillance	Page 5
ILI Outbreaks	Page 8

Canada:

FluWatch Activity levels	Page 9
NML Strain Characterization	Page 9
NML Antiviral Resistance	Page 9
2016-17 Mid-season VE	Page 10

International:

USA (CDC) Surveillance	Page 11
WHO	Page 11

Influenza Vaccine Components (WHO Recommendations)

2016-17 Northern Hemisphere	Page 12
2017-18 Northern Hemisphere	Page 12

Additional Information:

Explanatory note	Page 13
List of Acronyms	Page 13
Web Sites	Page 13
Outbreak Report Form	Page 14

Late-season Influenza B Activity Increasing But Still Low Level in BC

During week 9 (February 26 to March 4, 2017), influenza A(H3N2) activity continued to decline in BC, with most surveillance indicators at expected seasonal levels. Late-season influenza B activity has been increasing in recent weeks, as has typically been observed in recent seasons, but remains at low levels.

At the BCCDC Public Health Laboratory, influenza positivity remained stable just above 20% in week 9. Influenza B viruses comprised about one-third of all influenza detections during this period.

Since our last bulletin one week ago, 9 new influenza outbreaks were reported from long-term care facilities, including 5 with influenza A and 4 with influenza B detected. The majority of the cumulative 187 facility outbreaks reported to date this season had influenza A detected, although an increasing number of influenza B outbreaks have been reported in recent weeks (n=8 in total since week 5).

Medical Services Plan (MSP) claims for influenza illness were at expected median levels for this time of year. Sentinel ILI rates decreased from the previous week and were significantly below the 10-year historical average for this time of year.

Prepared by BCCDC Influenza & Emerging Respiratory Pathogens Team

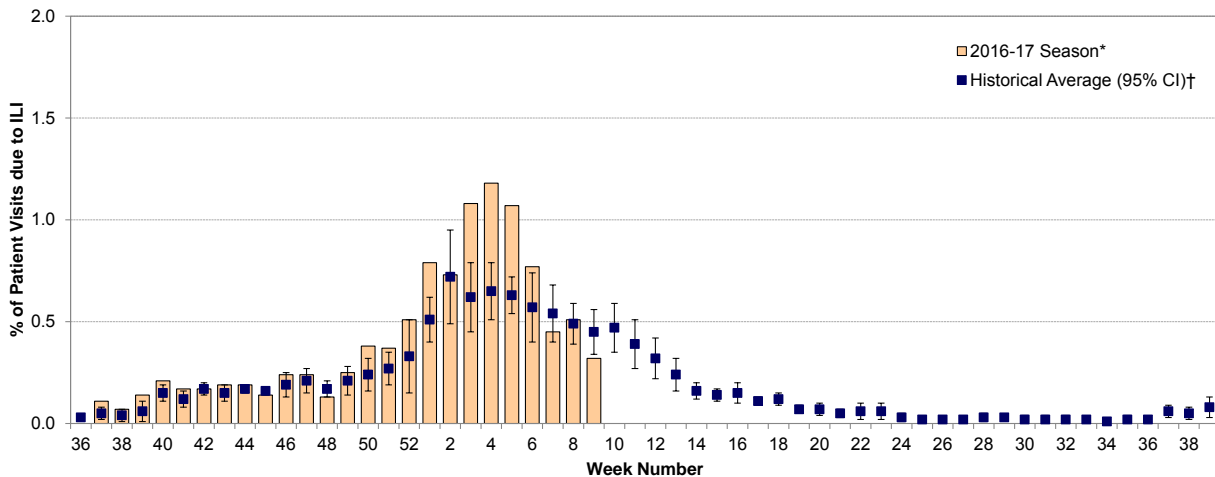
Report Disseminated: March 9, 2017

British Columbia

Sentinel Physicians

In week 9, the proportion of patients with influenza-like illness (ILI) among those presenting to sentinel sites declined to 0.32% and was significantly below the 10-year historical average for this time of year. So far, 48% of sites have reported data for week 9; 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

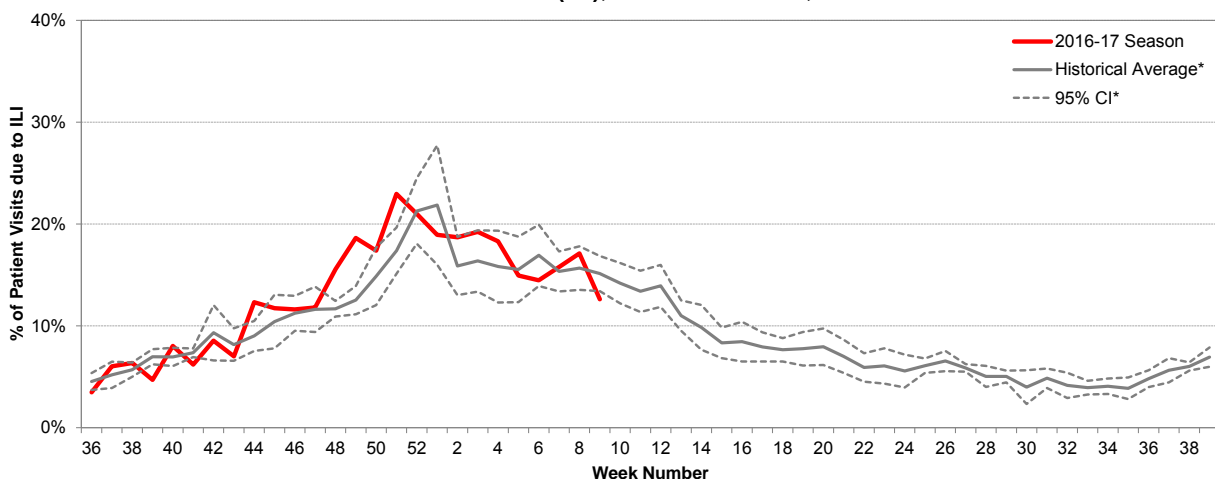


* Data are subject to change as reporting becomes more complete. One hospital ER site that reported ILI rates $\geq 5\%$ was excluded from the graph.
† 10-year historical average for 2016-17 season based on 2004-05 to 2015-2016 seasons, excluding 2008-09 and 2009-10 due to atypical seasonality; CI=confidence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

BC Children's Hospital Emergency Room

In week 9, the proportion of visits to BC Children's Hospital Emergency Room (ER) attributed to ILI declined to 13% and was slightly below the 5-year historical average for this time of year.

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

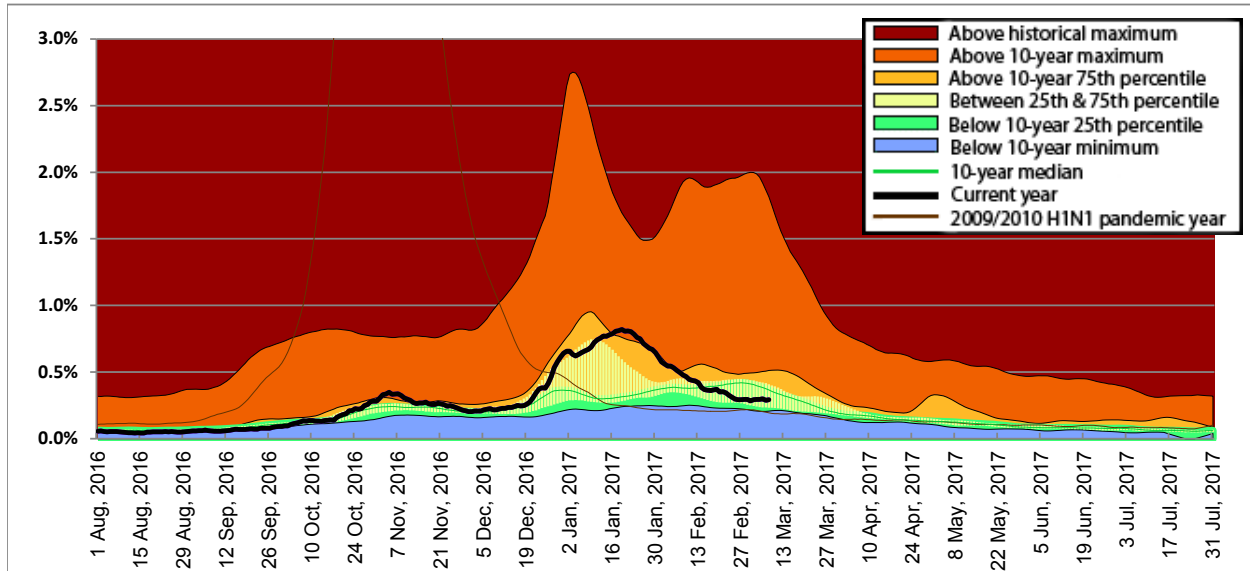


Source: BCCCH Admitting, Discharge, Transfer database (ADT). Data includes records with a triage chief complaint of "flu" or "influenza" or "fever/cough."
* 5-year historical average for 2016-17 season based on 2011-12 to 2015-16 seasons; CI=confidence interval.

Medical Services Plan

In week 9, BC Medical Services Plan (MSP) general practitioner claims for influenza illness (II), as a proportion of all submitted MSP claims, were at expected median levels for this time of year in all regions of the province, except in NHA where rates were slightly above the 10-year 75th percentile.

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

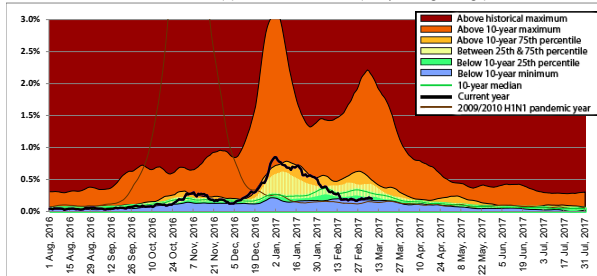


* Influenza illness is tracked as the percentage of all submitted MSP general practitioner claims with ICD-9 code 487 (influenza).

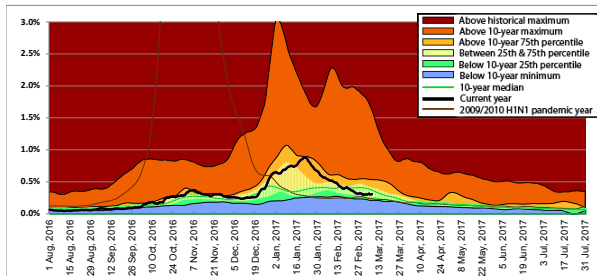
Data for the period August 1, 2009 to July 31, 2010 have been excluded from the 10-year median calculation due to atypical seasonality during the 2009/2010 H1N1 pandemic year. MSP week beginning August 1, 2016 corresponds to sentinel ILI week 31; data are current to March 8, 2017.

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

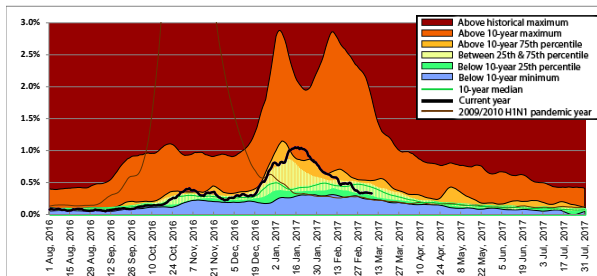
Interior



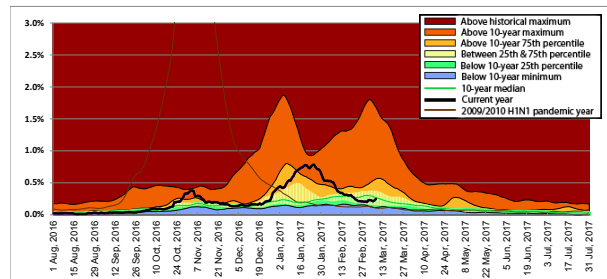
Fraser



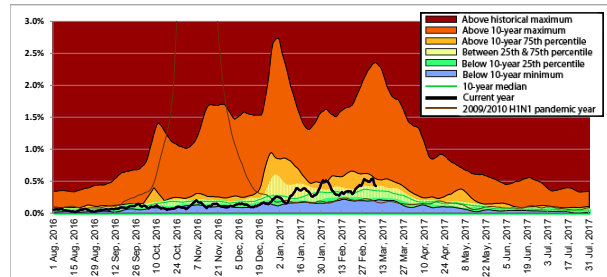
Vancouver Coastal



Vancouver Island



Northern



Laboratory Reports

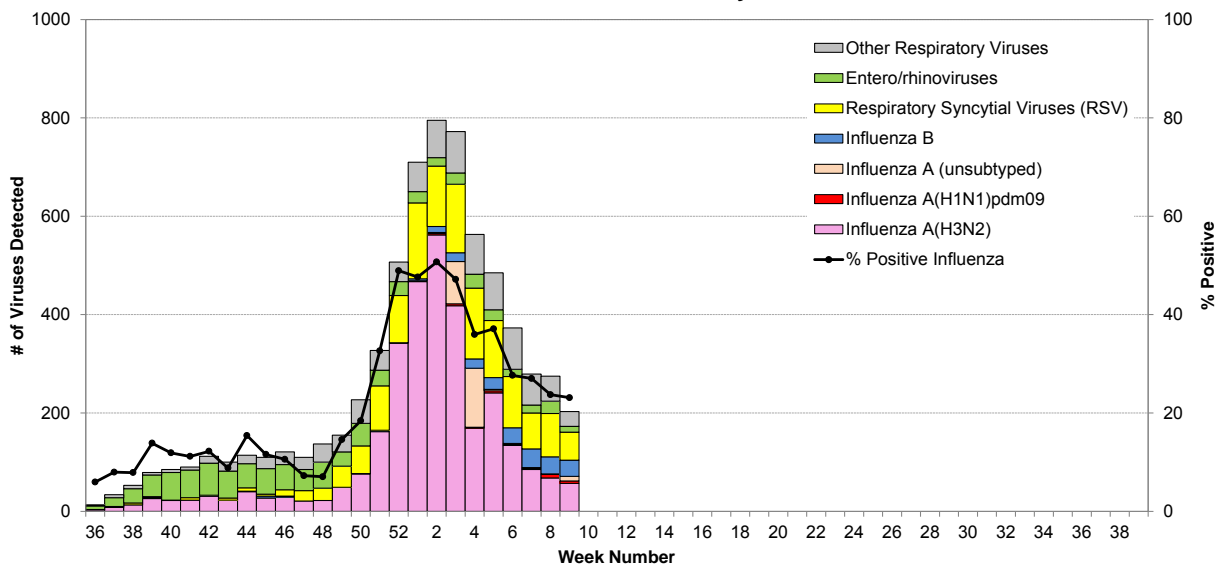
BCCDC Public Health Laboratory

In week 9, 450 patients were tested for respiratory viruses at the BCCDC Public Health Laboratory (PHL). Of these, 103 (23%) tested positive for influenza, including 70 (68%) with influenza A [57 A(H3N2), 5 A(H1N1)pdm09 and 8 with subtype pending] and 33 (32%) with influenza B. Overall influenza positivity remained stable just above 20% in week 9. Respiratory syncytial virus (RSV) was the most frequently detected other respiratory virus, comprising 13% of detections in week 9.

Influenza A(H3N2) remains the dominant type/subtype among influenza detections so far during the 2016-17 season; however, influenza B viruses have comprised an increasing proportion of detections in recent weeks. In week 9, about one-third of all influenza detections were type B.

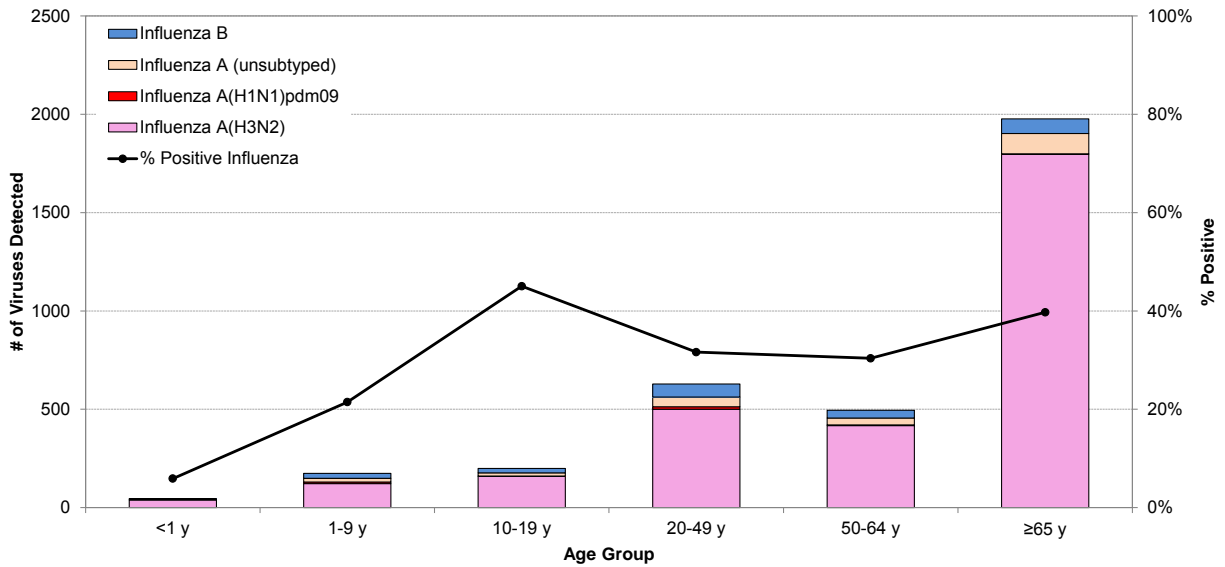
Cumulatively since week 40 (starting October 2, 2016), 3504 (33%) patients tested positive for influenza at the BCCDC PHL, including 3276 (94%) with influenza A [3033 A(H3N2), 29 A(H1N1)pdm09 and 214 subtype pending], 225 (6%) with influenza B and three patients who had both influenza A and B detected during the season. Elderly adults ≥ 65 years old are disproportionately represented among influenza detections, although younger age groups are also affected.

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



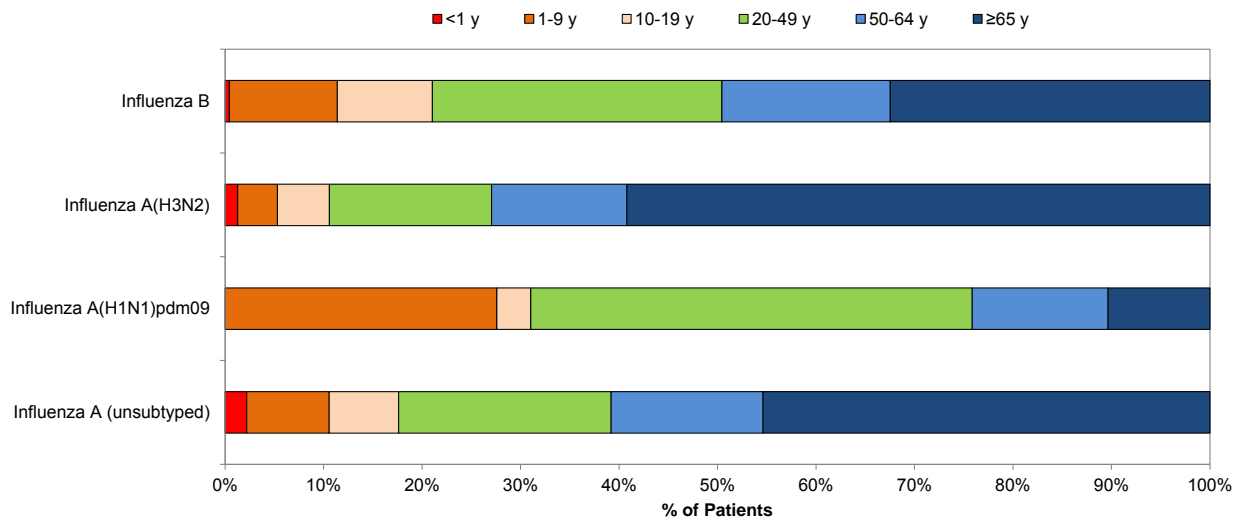
Data are current to March 8, 2017.

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



Data are current to March 8, 2017; figure includes cumulative influenza detections for specimens collected from weeks 40-9.

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

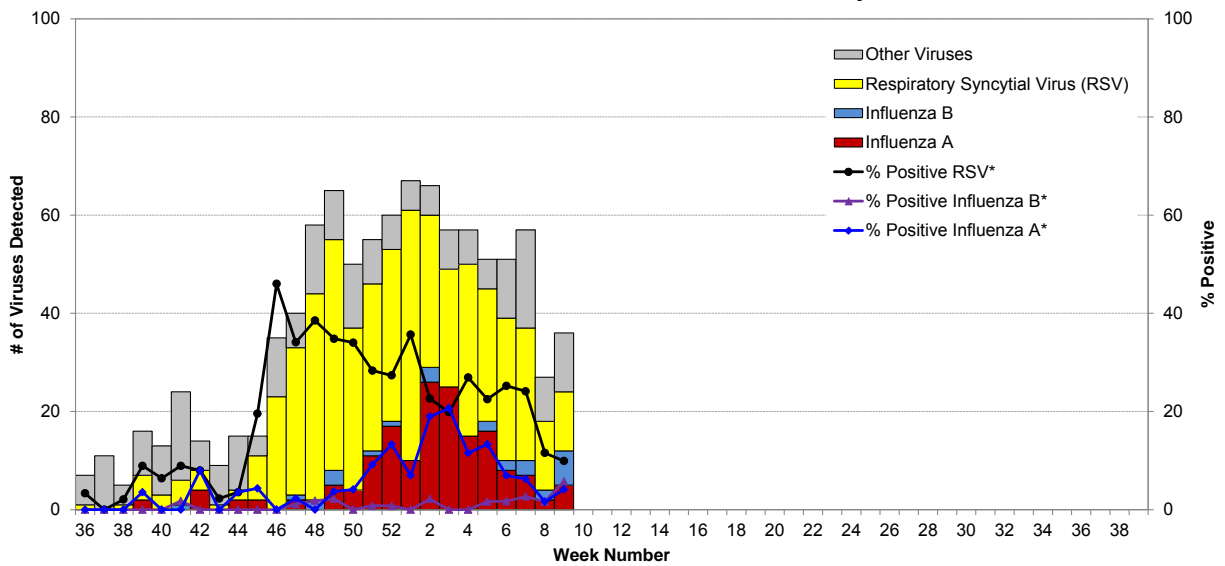


Data are current to March 8, 2017; figure includes cumulative influenza detections for specimens collected from weeks 40-9.

BC Children’s and Women’s Health Centre Laboratory

In week 9, the proportion of tests positive for influenza A or B increased slightly at the BC Children’s and Women’s Health Centre Laboratory, while the proportion positive for respiratory syncytial virus (RSV) continued to decrease, although remained the most commonly detected respiratory virus during this period. Of the 121 tests conducted in week 9, 5 (4%) were positive for influenza A and 7 (6%) were positive for influenza B; 12 (10%) were positive for RSV.

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



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

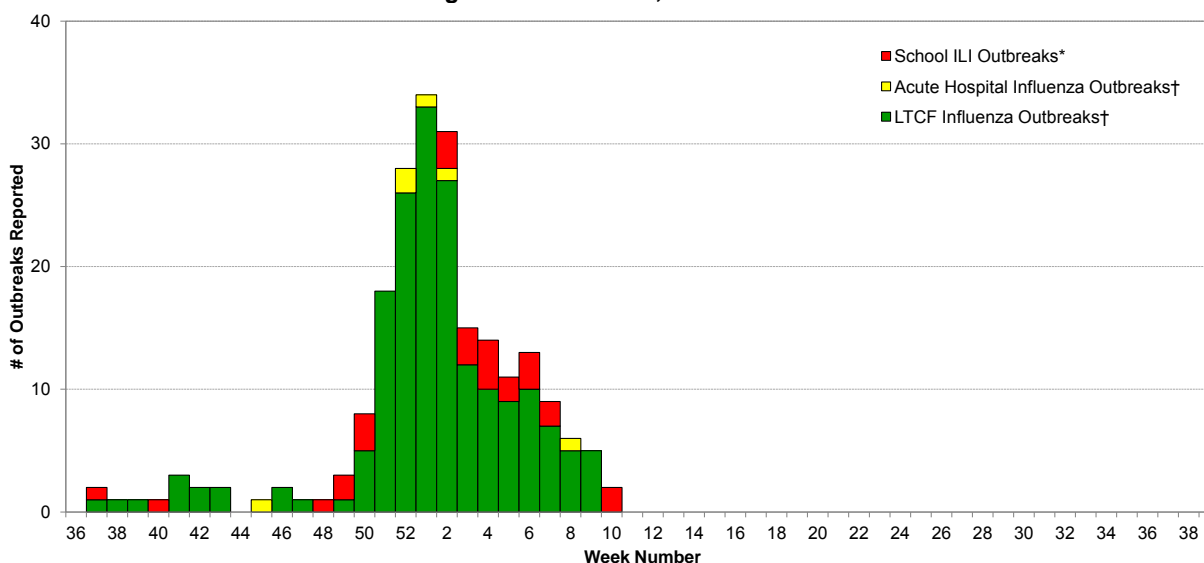
Influenza-like Illness (ILI) Outbreaks

Since our last bulletin one week ago, nine new influenza outbreaks were reported from long-term care facilities (LTCFs), including five with influenza A [3 A(H3N2) and 2 subtype pending] and four with influenza B detected. Of the nine newly reported outbreaks, four were reported from VCHA, two from FHA, two from IHA and one from NHA. Onset dates ranged from weeks 7-9. Two new school ILI outbreaks were reported from IHA, both in week 10.

Cumulatively during the 2016-17 season (since week 37, starting September 11, 2016), a total of 187 influenza outbreaks have been reported as of March 9, 2017, including 178 in LTCFs, six in acute care settings, and three from other facility types. The majority (177/187, 95%) of facility outbreaks reported this season had influenza A detected [all A(H3N2) where subtype information is available]; however, an increasing number of outbreaks with influenza B detected have been reported in recent weeks. In total this season, nine influenza B outbreaks were reported. One outbreak with both influenza A and B detected was additionally reported.

A total of 27 school ILI outbreaks have also been reported so far during the 2016-17 season but without etiologic agent identified.

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



* School-based ILI outbreak defined as >10% absenteeism on any day, most likely due to ILI.

† Facility-based influenza outbreaks defined as 2 or more ILI cases within 7-day period, with at least one laboratory-confirmed case of influenza.

National

FluWatch (week 8, February 19 to 25, 2017)

Overall, the decline in influenza activity in Canada has been slow compared to previous seasons. Many parts of Canada were still reporting elevated activity in week 8. Widespread or localized influenza activity was reported in 29 regions (out of 51 reporting) across 11 provinces. The percentage of tests positive for influenza has remained relatively stable for the past six weeks (ranging from 23% to 25% of tests positive for influenza). In week 8, 57 laboratory confirmed outbreaks were reported (up from 54 reported in the previous week); the majority in long-term care facilities and due to influenza A. In week 8, the number of hospitalizations reported by participating provinces and territories decreased. Influenza A(H3N2) continues to be the most common subtype of influenza affecting Canadians. The majority of laboratory detections, hospitalizations and deaths have been among adults aged ≥ 65 years. 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

There have been no new NML reports since our last bulletin.

Mid-season Estimates of 2016-17 Influenza Vaccine Effectiveness, North America

Canada

On February 9, 2017, researchers from the Canadian Sentinel Practitioner Surveillance Network (SPSN) published the first mid-season estimates of influenza vaccine effectiveness (VE) for the 2016-17 season. They found VE of 42% (95% confidence interval (CI): 18-59%) against outpatient medically attended, laboratory-confirmed A(H3N2) illness, which has been the dominant subtype so far this season. This finding indicates that, compared to unvaccinated people, the risk of A(H3N2) illness in vaccinated people was reduced by about 40%. This VE estimate is consistent with vaccine protection typically expected for A(H3N2)-dominant seasons, but is considerably higher than in the last A(H3N2)-dominant 2014-15 season when no vaccine protection was found.

The full report is available at: www.eurosurveillance.org/ViewArticle.aspx?ArticleId=22714.

United States

On February 17, 2017, the U.S. Flu VE Network published mid-season estimates of 2016-17 influenza VE, reporting an adjusted VE of 43% (95% CI: 29-54%) for A(H3N2). These findings are consistent with Canadian mid-season estimates published last week, suggesting VE of around 40% against outpatient, medically attended A(H3N2) illness, which has been the dominant influenza strain so far during the 2016-17 season. Both the Canadian and U.S. studies used a test-negative design to derive influenza VE.

For details see: www.cdc.gov/mmwr/volumes/66/wr/mm6606a3.htm?s_cid=mm6606a3_w.

International

USA (week 8, February 19 to 25, 2017)

During week 8, influenza activity remained elevated in the United States. The most frequently identified influenza virus subtype reported by public health laboratories during week 8 was influenza A(H3N2). The percentage of respiratory specimens testing positive for influenza in clinical laboratories remained elevated. Of the 772 A(H3N2) viruses genetically characterized by the US CDC during the 2016-17 season, 96% belonged to genetic group 3C.2a, including the newly emerging subgroup 3C.2a1, and 4% to group 3C.3a based on analysis of HA gene segments. The proportion of deaths attributed to pneumonia and influenza (P&I) was above the system-specific epidemic threshold. Six influenza-associated pediatric deaths were reported. A cumulative rate for the season of 39.4 laboratory-confirmed influenza-associated hospitalizations per 100,000 population was reported. The proportion of outpatient visits for ILI was 4.8%, which is above the national baseline of 2.2%. The geographic spread of influenza in Puerto Rico and 43 states was reported as widespread; Guam and five states reported regional activity; the District of Columbia and two states reported local activity; and the U.S. Virgin Islands reported sporadic activity. Details are available at: www.cdc.gov/flu/weekly/.

WHO (March 6, 2017)

Influenza activity in the temperate zone of the northern hemisphere continued to be elevated in some countries. Influenza activity in many countries especially in East Asia and Europe appeared to have already peaked. Worldwide, influenza A(H3N2) virus was predominant. The majority of influenza viruses characterized so far were similar antigenically to the reference viruses contained in vaccines for use in the 2016-17 northern hemisphere influenza season. Nearly all tested viruses collected recently for antiviral sensitivity were susceptible to the neuraminidase inhibitor antiviral medications.

- In North America, influenza activity continued to increase. ILI and the number of influenza detections remain elevated in the United States with A(H3N2) and B viruses being detected. Influenza activity plateaued in Canada and increased in Mexico with A(H3N2) virus and A(H1N1)pdm09 virus predominating, respectively.
- In Europe, influenza activity remained elevated with influenza A (H3N2) virus being the most prominent subtype. Detections of influenza B virus increased in the recent weeks. Most of the countries reported stable or decreasing trends compared with previous weeks. Persons aged ≥65 years were reported most frequently associated with severe disease from influenza infection.
- In East Asia, influenza activity appeared to be decreasing with influenza A(H3N2) virus predominant. In Western Asia, influenza activity continued to decrease with influenza A(H3N2) and B viruses co-circulating in the region.
- In Southern Asia, influenza activity continued to increase in India and Sri Lanka, with mainly influenza A(H1N1)pdm09 virus reported followed by influenza B virus. In South East Asia, influenza activity remained low.
- In Northern Africa, influenza activity continued to decrease; influenza A(H3N2) and influenza B virus detections were reported. In West Africa, influenza activity continued to be reported in Côte d'Ivoire, Ghana and Niger, with influenza B being the main virus detected.
- In the Caribbean countries and Central America, influenza and other respiratory virus activity remained low in general, except in Puerto Rico where influenza activity remained above the seasonal threshold with influenza A(H3N2) predominating. In Jamaica, severe acute respiratory infection activity increased and peaked above the alert threshold.
- In tropical South America, influenza and other respiratory virus activity remained low, although RSV activity remained elevated in Colombia.
- In the temperate zone of the Southern Hemisphere, influenza activity was at inter-seasonal levels.
- From February 6 to 19, 2017, the WHO GISRS laboratories tested more than 187,734 specimens during that time period. 45,504 were positive for influenza viruses, of which 39,002 (86%) were typed as influenza A and 6,502 (14%) as influenza B. Of the subtyped influenza A viruses, 1,085 (8%) were influenza A(H1N1)pdm09 and 13,342 (93%) were influenza A(H3N2). Of the characterized B viruses, 491 (65%) belonged to the B/Yamagata lineage and 262 (35%) to the B/Victoria lineage.

Details are available at: 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 2017-18 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/.

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>

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