

British Columbia Influenza Surveillance Bulletin

Influenza Season 2014-15, Number 9, Weeks 48-49

November 23 to December 6, 2014

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Increasing Influenza A(H3N2) Activity

In weeks 48-49 (November 23 to December 6, 2014), influenza activity in BC, predominantly A(H3N2), continued to increase, following an earlier than usual start to the season.

At the BC provincial laboratory, influenza detections increased to 17% in weeks 48-49, driven in part by influenza outbreaks in long-term care facilities (LTCFs) and an acute care facility.

Seven new lab-confirmed influenza A outbreaks [5 A(H3N2) and 2 with subtype pending] were reported since our last bulletin. Of these, 6 were reported from LTCFs in FHA (5) and VCHA (1) and one was reported from an acute care facility in VIHA. To date this season, 18 lab-confirmed influenza outbreaks have been reported, 17 due to influenza A and 1 due to influenza B. Of the influenza A outbreaks with subtype information available, all were A(H3N2).

Among other respiratory viruses, respiratory syncytial virus (RSV) continues to show increasing seasonal activity, concurrent with decreased circulation of entero/rhinovirus, including a decrease in incident cases of enterovirus D68 (EV-D68).

Prepared by BCCDC Influenza & Emerging Respiratory Pathogens Team

Contributors: Helen Guiyun Li, Catharine Chambers, Lisan Kwindt, Danuta Skowronski

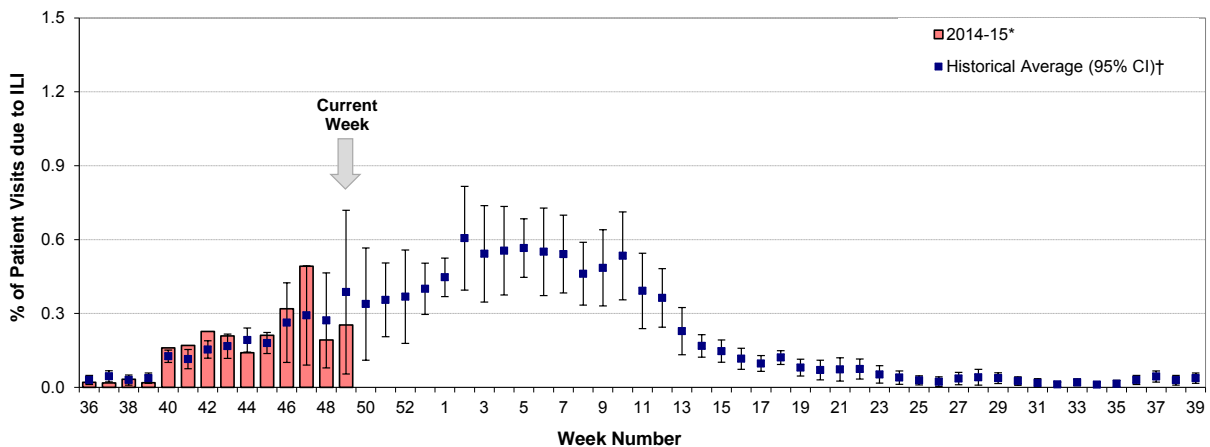
Report Disseminated: December 11, 2014

British Columbia

Sentinel Physicians

In weeks 48-49, the proportion of patients with influenza-like illness (ILI) among those presenting to sentinel physicians was below historical averages for this time of year at 0.2-0.3%, despite an increasing trend observed in previous weeks. However, data are subject to change as reporting becomes more complete. So far, 58% and 42% of sentinel sites have reported data in weeks 48 and 49, respectively.

Percent of patient visits to sentinel physicians due to influenza-like illness (ILI) compared to historical average, British Columbia, 2014-15

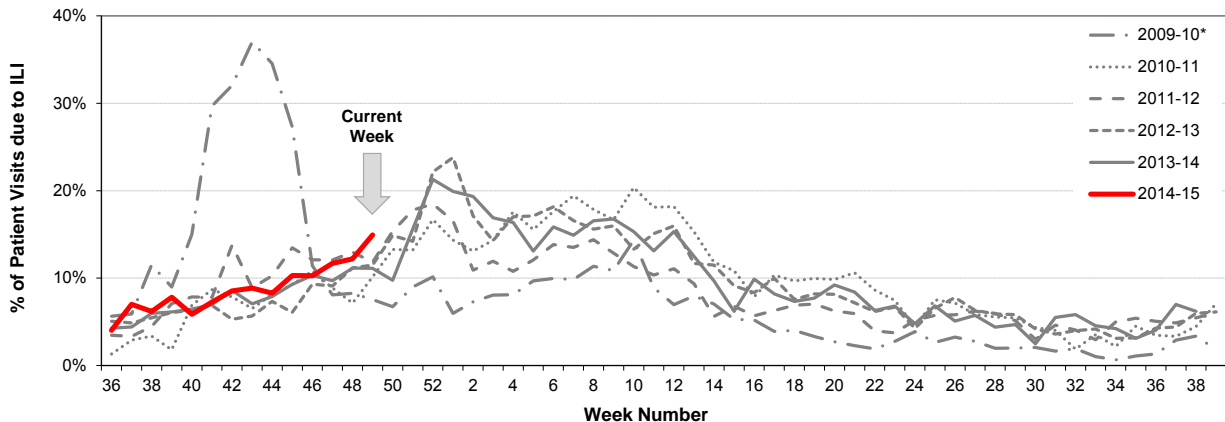


* Data are subject to change as reporting becomes more complete.
† Historical average based on 2002-03 to 2013-14 seasons, excluding 2008-09 and 2009-10 due to atypical seasonality; CI=confidence interval.

BC Children's Hospital Emergency Room

The proportion of visits to BC Children's Hospital Emergency Room (ER) attributed to ILI was 12% in week 48 and 15% in week 49, continuing an increasing trend since week 40 but consistent with rates observed in previous seasons for this time of year.

Percent of patients presenting to BC Children's Hospital ER with triage chief complaint of "flu," "influenza" or "fever/cough," British Columbia, 2014-15



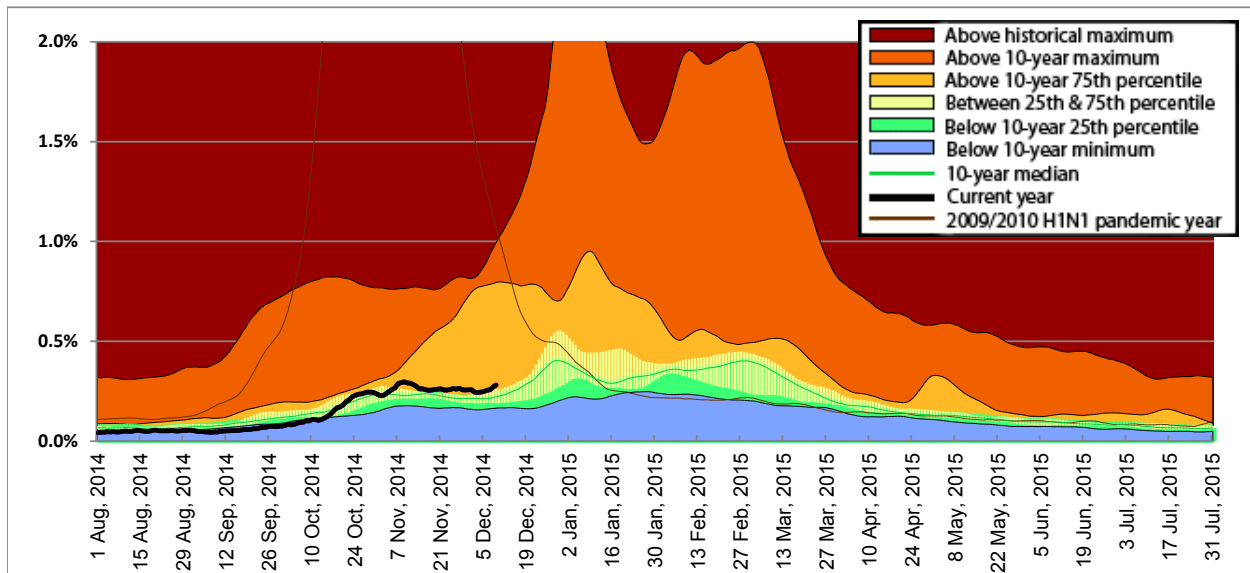
Source: BCCH Admitting, discharge, transfer database, ADT

* Data from 2010-11 to 2014-15 are based on new variable (Triage Chief Complaint) for capturing ILI symptoms and are not directly comparable to data for 2009-10. In week 9 of the 2011-12 season, the BCCH ER implemented a new data collection system, the National Ambulatory Care Reporting System (NACRS); data are not directly comparable to data collected using old system.

Medical Services Plan

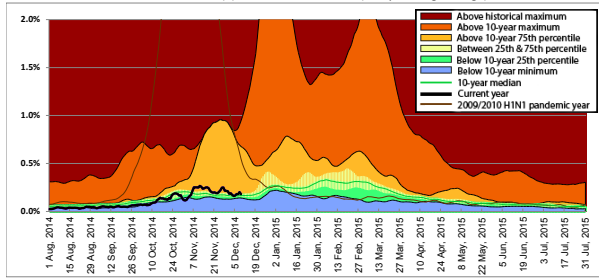
In weeks 48-49, BC Medical Services Plan (MSP) general practitioner claims for influenza illness (II), as a proportion of all submitted MSP claims, remained stable and slightly above historical norms for this time of year following a sharp increase earlier this season. In all regional Health Authorities, except VCHA, and for the province overall, rates were above 10-year 75th percentiles. In VCHA, rates were between 10-year 25th and 75th percentiles.

Service claims submitted to MSP for influenza illness (II)* as a proportion of all submitted general practitioner service claims, British Columbia, 2014-15

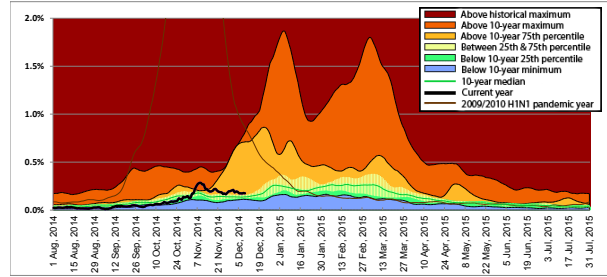


* Influenza illness is tracked as the percentage of all submitted MSP general practitioner claims with ICD-9 code 487 (influenza). Data provided by Population Health Surveillance and Epidemiology, BC Ministry of Health Services. Note: MSP week beginning 3 August 2014 corresponds to sentinel ILI week 32; data current to December 9, 2014.

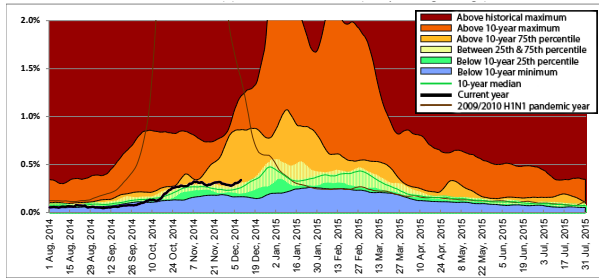
Interior



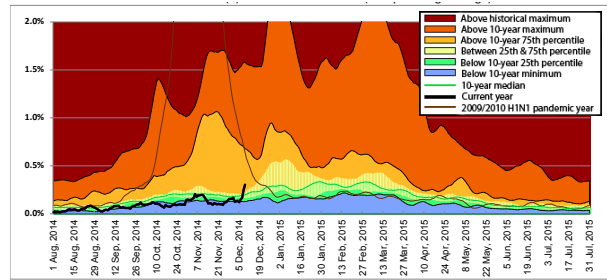
Vancouver Island



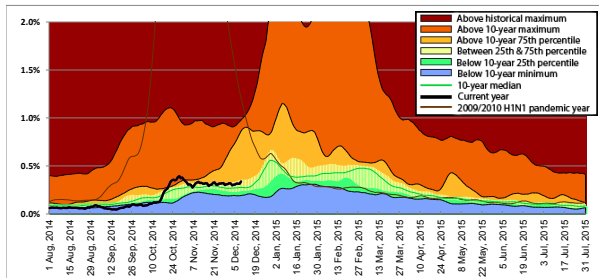
Fraser



Northern



Vancouver Coastal



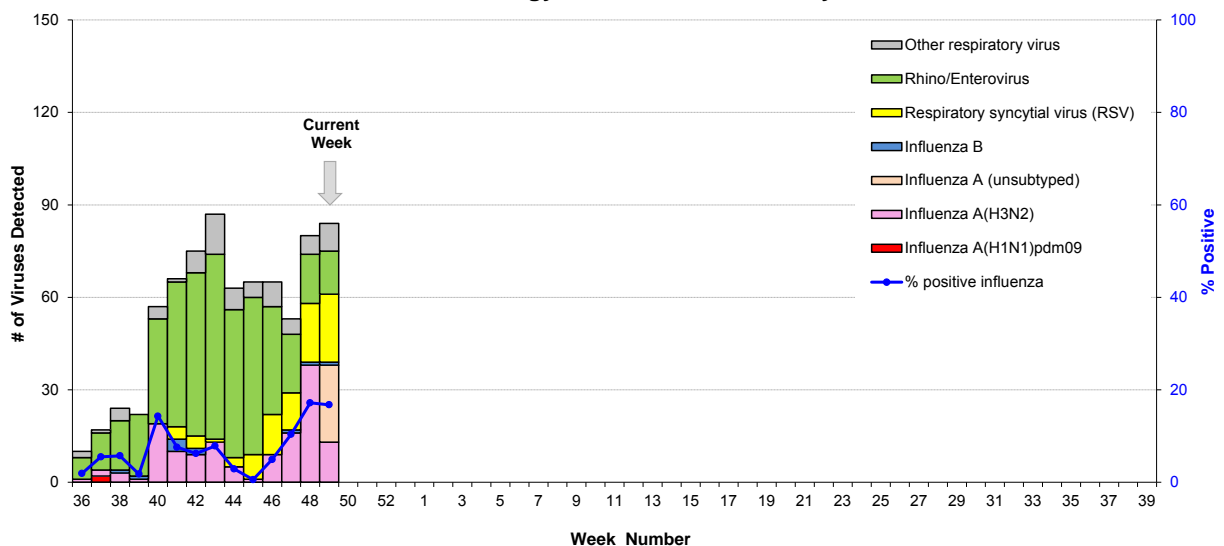
Laboratory Reports

BC Public Health Microbiology & Reference Laboratory (PHMRL)

In weeks 48-49, the BC Public Health Microbiology & Reference Laboratory (PHMRL) tested 454 patients for respiratory viruses. Of these, 78 (17%) had laboratory-confirmed influenza, including 76 (97%) influenza A [51 A(H3N2) and 25 with subtype pending] and 2 (3%) influenza B. The influenza percent positivity increased from <1% in week 45 to 17% in weeks 48-49 and following a period of early activity in weeks 40-44. Among other respiratory virus detections, 9% of patients were positive for respiratory syncytial virus (RSV) in weeks 48-49, continuing an increasing trend compared to previous weeks this season. The number of entero/rhinovirus-positive patients continued to decrease during this period.

Cumulatively, during the 2014-15 influenza season (since week 40, starting September 28, 2014), 166 (9%) patients have tested positive for influenza at the BC PHMRL, including 157 (95%) with influenza A [132 A(H3N2) and 25 with subtype pending] and 9 (5%) with influenza B. So far this season since week 40, A(H3N2) has been the dominant subtype, with no detection of A(H1N1)pdm09 in BC. The majority of influenza detections continue to be in elderly adults (≥ 65 years of age), driven in part by reports of influenza outbreaks in long-term care facilities (LTCFs).

Influenza and other virus detections among respiratory specimens submitted to BC Public Health Microbiology & Reference Laboratory, PHSA, 2014-15

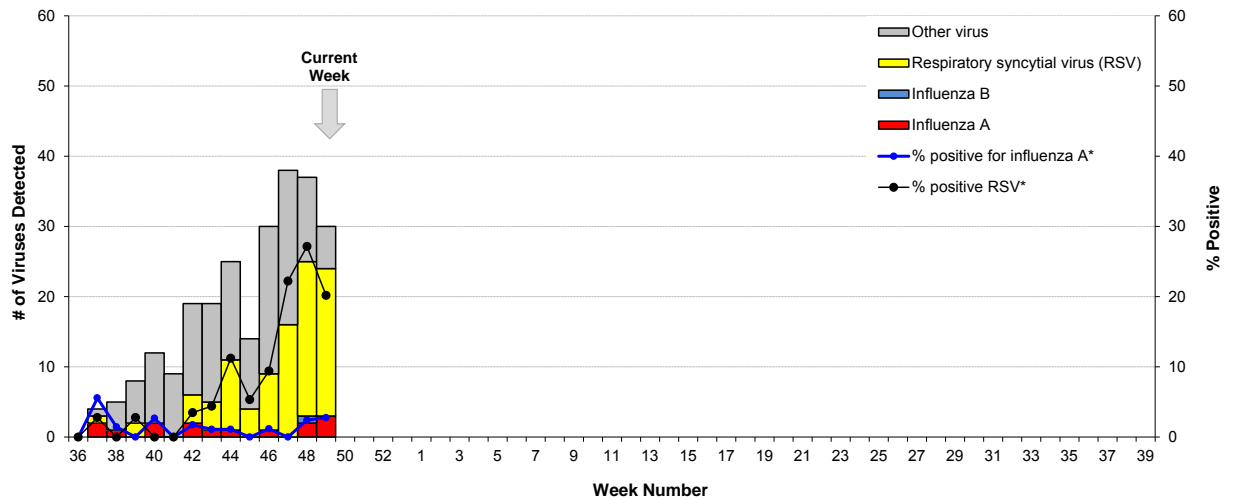


Note: Data current to December 11, 2014.

BC Children's and Women's Health Centre Laboratory

In weeks 48-49, the BC Children's and Women's Health Centre Laboratory conducted 192 tests for influenza A and 185 tests for influenza B. Of these, 5 (3%) were positive for influenza A, including 2 (2%) in week 48 and 3 (3%) in week 49; one (0.5%) was positive for influenza B in week 48. RSV was the most commonly detected respiratory virus during this period. The proportion of tests positive for RSV was 27% in week 48 and 20% in week 49.

Influenza and other virus detections among respiratory specimens submitted to BC Children's and Women's Health Centre Laboratory, 2014-15



* 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.

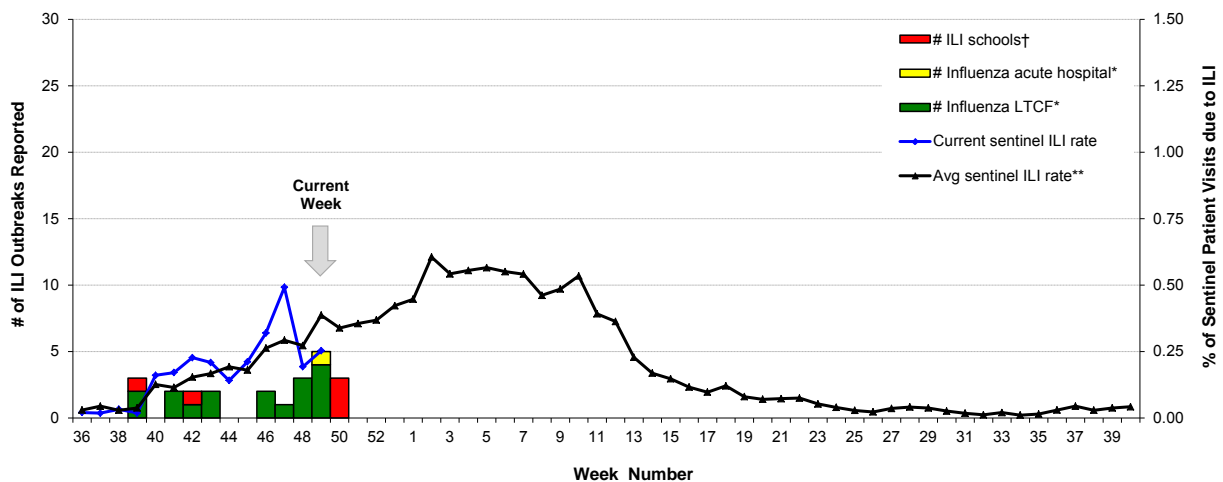
Influenza-like Illness (ILI) Outbreaks

Since our last bulletin, 7 new laboratory-confirmed influenza A outbreaks [5 A(H3N2) and 2 with subtype pending] were reported, all with symptom onset in week 48 or week 49. Of these, 6 were reported from LTCFs in FHA (5) and VCHA (1) and one was reported from an acute care facility in VIHA. One additional LTCF outbreak due to influenza A(H3N2) occurred in FHA with symptom onset in week 48, as previously reported.

In week 49, 2 further ILI LTCF outbreaks were reported: one from IHA with symptom onset in week 48 and one from VCHA with symptom onset in week 49. Laboratory results were pending at the time of writing. So far in week 50, 3 ILI outbreaks in schools were reported in IHA.

Cumulatively, since week 39 (starting September 21, 2014), 18 laboratory-confirmed influenza outbreaks have been reported, including 17 due to influenza A [15 A(H3N2) and 2 with subtype pending] and 1 due to influenza B. Of these, 17 were reported from LTCFs and one was reported from an acute care facility. To date, all but two of the reported laboratory-confirmed influenza outbreaks have occurred in FHA or VCHA, with two reported from VIHA.

Number of influenza-like illness (ILI) outbreaks reported, compared to current sentinel ILI rate and historical average sentinel ILI rate, British Columbia, 2014-15



* 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.
 ** Historical values exclude 2008-09 and 2009-10 seasons due to atypical seasonality.

National

FluWatch (week 48)

In week 48, laboratory detections of influenza increased sharply for the second consecutive week (twice the number detected in week 47) and hospitalizations with influenza also increased. The majority of laboratory detections and hospitalizations continued to be reported in BC, AB, ON and QC, but with increasing activity in SK and MB. In week 48, 630 (15%) influenza viruses were detected, including 609 (97%) influenza A [287 A(H3N2) and 322 untyped] and 21 (3%) influenza B. A(H3N2) continues to be the most common type of influenza affecting Canadians. In both laboratory detections and hospitalizations, the majority of cases have been among seniors ≥65 years of age. Similar to the previous week, there was a large number of newly-reported laboratory-confirmed outbreaks of influenza in week 48: 21 reported in 5 provinces. Of these, 17 were in LTCFs, 3 in hospitals and one in another institutional or community setting. To date this season, 52 outbreaks in LTCFs have been reported. Details are available at: www.phac-aspc.gc.ca/fluwatch/14-15/index-eng.php.

National Microbiology Laboratory (NML): Strain Characterization

From September 1, 2014, to December 11, 2014, the National Microbiology Laboratory (NML) has antigenically characterized 25 influenza viruses [11 A(H3N2) and 14 influenza B] that were received from Canadian laboratories. Of the viruses characterized, 9/11 (82%) A(H3N2) viruses and 3/14 (21%) influenza B/Yamagata-lineage viruses showed reduced titres with antiserum raised against 2014-15 influenza vaccine reference virus, signalling possible antigenic drift in circulating virus. In addition, genetic characterization performed on recent A(H3N2) viruses that could not be antigenically characterized by haemagglutination inhibition (HI) assay showed that 38 A(H3N2) viruses belonged to a genetic group that typically shows reduced titres to A/Texas/50/2012 due to amino acid mutations at key antigenic sites.

Influenza viruses were characterized as antigenically similar to:

- 2 A/Texas/50/2012(H3N2)-like^{*}
- 9 Reduced titre with antiserum raised against A/Texas/50/2012(H3N2)
- 0 A/California/07/2009(H1N1)pdm09-like[†]
- 11 B/Massachusetts/02/2012-like (Yamagata lineage)[‡]
- 3 Reduced titre with antiserum raised against B/Massachusetts/02/2012
- 0 B/Brisbane/60/2008-like (Victoria lineage)[§]

^{*} WHO-recommended influenza A(H3N2) component for the 2014-15 Northern Hemisphere influenza vaccine.

[†] WHO-recommended influenza A(H1N1) component for the 2014-15 Northern Hemisphere influenza vaccine.

[‡] WHO-recommended influenza B component for the 2014-15 Northern Hemisphere influenza vaccine.

[§] WHO-recommended influenza B component for the 2011-2012 Northern Hemisphere influenza vaccine; for quadrivalent vaccine, a B/Brisbane/60/2008-like virus is recommended as the second influenza B component.

National Microbiology Laboratory (NML): Antiviral Resistance

From September 1, 2014, to December 11, 2014, the NML received influenza viruses from Canadian laboratories for drug susceptibility testing:

Amantadine

- 70 influenza A(H3N2) viruses were tested;
- All tested viruses were resistant.

Oseltamivir

- 74 influenza viruses [60 A(H3N2) and 14 influenza B] were tested;
- All tested viruses were susceptible.

Zanamivir

- 74 influenza viruses [60 A(H3N2) and 14 influenza B] were tested;
- All tested viruses were susceptible.

International

USA (week 48)

During week 48, influenza activity increased in the United States. Of 13,398 specimens tested, 2,274 (17%) were positive for influenza, including 2,129 (94%) influenza A [656 A(H3N2), 5 A(H1N1)pdm09, and 1,468 with subtyping not performed] and 145 (6%) influenza B. Of the 114 A(H3N2) influenza viruses collected since October 1, 2014, and characterized by haemagglutination inhibition (HI) assay, 48 (42%) were characterized as A/Texas/50/2012-like, the A(H3N2) component of the 2014-15 Northern Hemisphere influenza vaccine, and 66 (58%) showed reduced titres with antiserum raised against A/Texas/50/2012 but were antigenically similar to A/Switzerland/9715293/2013, the A(H3N2) component of the 2015 Southern Hemisphere influenza vaccine. The proportion of outpatient visits for ILI increased to above the national baseline of 2.0% for the first time this season, while the proportion of deaths attributed to pneumonia and influenza remained below the epidemic threshold. No new influenza-associated paediatric deaths were reported. Details are available at: www.cdc.gov/flu/weekly/.

WHO (December 1, 2014)

Globally, influenza activity remained low, with the exception of some Pacific Islands. In North America, influenza activity continued to increase. In Europe, overall influenza activity increased slightly but remained low. In tropical countries of the Americas, influenza detections remained low with RSV causing most ILI and severe acute respiratory infections (SARI). In Africa and western Asia, influenza activity was low. In eastern Asia, influenza activity in most countries remained low. In tropical Asia, influenza activity was low with influenza B predominant in Viet Nam. In the southern hemisphere, influenza activity remained low except in several Pacific Islands where ILI activity remained high. During weeks 45-46 (November 2-15, 2014), WHO Global Influenza Surveillance and Response System (GISRS) laboratories tested more than 34,452 specimens. Of these, 2,572 were positive for influenza viruses: 2,123 (83%) were typed as influenza A and 449 (18%) as influenza B. Of the sub-typed influenza A viruses, 27 (3%) were influenza A(H1N1)pdm09, 917 (97%) were influenza A(H3N2), and 1 (0.1%) was influenza A(H5). Of the characterized B viruses, 34 (94%) belonged to the B-Yamagata lineage and 2 (6%) to the B-Victoria lineage. Details are available at: www.who.int/influenza/surveillance_monitoring/updates/en/.

Emerging Respiratory Pathogens

Enterovirus D68 (EV-D68), British Columbia

Since September, the BCCDC has been collecting enhanced surveillance information on laboratory-confirmed cases of enterovirus D68 (EV-D68) in collaboration with the Public Health Agency of Canada.

Severe cases of EV-D68 infection requiring hospitalization continue to show a declining trend in weeks 48-49, as expected for this time of year and concurrent with increased circulation of other seasonal respiratory viruses, such as influenza and RSV. As of December 8, there have been 216 EV-D68 detections in BC, of which 135 were associated with hospitalization. Hospitalization status is unknown for a further 25 cases. Hospitalized cases continue to be predominately children <10 years of age, with males over-represented. Cases have been reported from all regional Health Authorities in BC. Although enteroviruses typically show epidemic activity in late summer/autumn, community circulation may continue through the early winter and a small proportion of cases may experience severe outcomes.

In total since mid-August, four cases of neurologic illness (two paediatric, two adult) and two deaths (one young adult, one elderly) associated with EV-D68 infection have been reported in BC. However, it remains unclear to what extent EV-D68 infection caused or contributed to these severe manifestations. As with other respiratory viruses, including enteroviruses, a proportion of all EV-D68 cases may experience more severe sequelae although the risk for most individuals remains low.

The BCCDC will continue to monitor EV-D68 and other seasonal respiratory virus activity in the coming weeks. For more information on EV-D68: www.bccdc.ca/dis-cond/a-z/e/EnterovirusD68/default.htm.

WHO Recommendations for Influenza Vaccines

WHO Recommendations for 2014-15 Northern Hemisphere Influenza Vaccine

On February 20, 2014, the WHO announced the recommended strain components for the 2014-15 Northern Hemisphere trivalent influenza vaccine (TIV):*

- an A/California/7/2009(H1N1)pdm09-like virus;
- an A/Texas/50/2012(H3N2)-like virus;
- a B/Massachusetts/2/2012-like (Yamagata-lineage) virus.

*These recommended strains are the same as those used for the 2013-14 Northern Hemisphere vaccine.

For further details: www.who.int/influenza/vaccines/virus/recommendations/2014_15_north/en/.

WHO Recommendations for 2015 Southern Hemisphere Influenza Vaccine

On September 25, 2014, the WHO announced the recommended strain components for the 2015 Southern 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.‡

*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.

†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_south/en/.

Additional Information

List of Acronyms:

ACF: Acute Care Facility	MSP: BC Medical Services Plan
AI: Avian influenza	NHA: Northern Health Authority
FHA: Fraser Health Authority	NML: National Microbiological Laboratory
HBoV: Human bocavirus	A(H1N1)pdm09: Pandemic H1N1 influenza (2009)
HMPV: Human metapneumovirus	RSV: Respiratory syncytial virus
HSDA: Health Service Delivery Area	VCHA: Vancouver Coastal Health Authority
IHA: Interior Health Authority	VIHA: Vancouver Island Health Authority
ILI: Influenza-Like Illness	WHO: World Health Organization
LTCF: Long-Term Care Facility	

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/dis-cond/DiseaseStatsReports/EmergingRespiratoryVirusUpdates.htm

Influenza Web Sites

Canada – Flu Watch: www.phac-aspc.gc.ca/fluwatch/

Washington State Flu Updates: www.doh.wa.gov/Portals/1/Documents/5100/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/dis-cond/DiseaseStatsReports/influSurveillanceReports.htm

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	<p><u>Reporting Information</u> Health unit/medical health officer notified? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Person Reporting: _____ Title: _____</p> <p>Contact Phone: _____ Email: _____</p> <p>Health Authority: _____ HSDA: _____</p> <p>Full Facility Name: _____</p> <p>Is this report: <input type="checkbox"/> First Notification (<i>complete section B below; Section D if available</i>)</p> <p style="margin-left: 20px;"><input type="checkbox"/> Update (<i>complete section C below; Section D if available</i>)</p> <p style="margin-left: 20px;"><input type="checkbox"/> Outbreak Over (<i>complete section C below; Section D if available</i>)</p>															
B	<p><u>First Notification</u></p> <p>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></p> <p><input type="checkbox"/> Workplace <input type="checkbox"/> School (grades: _____) <input type="checkbox"/> Other (_____)</p> <p>Date of onset of first case of ILI (dd/mm/yyyy): <u>DD/MMM/YYYY</u></p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width: 25%;">Numbers to date</th> <th style="width: 45%;">Residents/Students</th> <th style="width: 30%;">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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C	<p><u>Update AND Outbreak Declared Over</u></p> <p>Date of onset for most recent case of ILI (dd/mm/yyyy): <u>DD/MMM/YYYY</u></p> <p>If over, date outbreak declared over (dd/mm/yyyy): <u>DD/MMM/YYYY</u></p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width: 25%;">Numbers to date</th> <th style="width: 45%;">Residents/Students</th> <th style="width: 30%;">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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D	<p><u>Laboratory Information</u></p> <p>Specimen(s) submitted? <input type="checkbox"/> Yes (location: _____) <input type="checkbox"/> No <input type="checkbox"/> Don't know</p> <p>If yes, organism identified? <input type="checkbox"/> Yes (specify: _____) <input type="checkbox"/> No <input type="checkbox"/> Don't know</p>															