British Columbia Influenza Surveillance Bulletin

Influenza Season 2015-16, Number 2, Weeks 41-42 October 11 to 24, 2015

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Low-level Influenza Activity Continues in BC

In weeks 41-42 (October 11 to 24, 2015), low-level influenza activity continued to be detected in BC.

At the BC provincial laboratory, 3% of patients tested positive for influenza in weeks 41-42, with influenza A(H3N2) viruses comprising the majority of detections. Entero/rhinoviruses continued to be the most commonly detected respiratory viruses during this period.

Cumulatively (since week 40), the total number of influenza detections so far during the 2015-16 season (n=26) exceeds the number in any prior season of the past 10 years over the same period, with the exception of the 2009 pandemic and last year's A(H3N2)-dominant 2014-15 season (n=38), signalling early seasonal activity and warranting ongoing monitoring for the 2015-16 season.

Since our last bulletin 2 weeks ago, no new labconfirmed influenza outbreaks have been reported. In total since mid-August, 5 influenza A outbreaks (all H3N2) have been reported in long-term care facilities to date.

This week, researchers from the BC Centre for Disease Control, along with provincial and national colleagues, published a paper in the peer-reviewed journal *EuroSurveillance* describing enterovirus D68 (EV-D68) epidemic activity in Canada during the fall of 2014, during which over 200 cases were detected in BC. The full publication (open access) is available from: www.eurosurveillance.org/ViewArticle.aspx?Articleid=21 283.

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British Columbia

Sentinel Physicians

The proportion of patients with influenza-like illness (ILI) among those presenting to sentinel sites remained significantly above the 10-year historical average for the fifth consecutive week in week 41 at 0.30% but was within expected levels in week 42 at 0.19%. To date, 67% and 61% of sentinel sites have reported data for weeks 41 and 42, respectively.



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

BC Children's Hospital Emergency Room

The proportion of visits to BC Children's Hospital Emergency Room (ER) attributed to ILI was 8% in week 41 and 11% in week 42, slightly higher than the 5-year historical average but within the expected range for this time of year.



Percent of patients presenting to BC Children's Hospital ER attributed to

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



Medical Services Plan

In weeks 41-42, BC Medical Services Plan (MSP) general practitioner claims for influenza illness (II), as a proportion of all submitted MSP claims, increased slightly but remained between 10-year 25th and 75th percentiles for the province overall. Some regional variation was observed, with rates exceeding the 75th percentile in IHA but below the 10-year minimum in NHA.





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

Data for the period August 1, 2009 to July 31, 2010 have been excluded from the 10-year median calculation due to atypical seasonality during the 2009/2010 H1N1 pandemic year. MSP week beginning August 1, 2015 corresponds to sentinel ILI week 30; data are current to October 27, 2015.

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







Vancouver Coastal



Vancouver Island



Northern





Laboratory Reports

BC Public Health Microbiology & Reference Laboratory (PHMRL)

In weeks 41-42, 387 patients were tested for respiratory viruses at the BC Public Health Microbiology & Reference Laboratory (PHMRL), PHSA. Of these, 12 (3%) tested positive for influenza, including 11 (92%) influenza A [7 A(H3N2), 1 A(H1N1)pdm09 and 3 subtype pending] and one (8%) influenza B. Entero/rhinoviruses continued to be the most commonly detected respiratory viruses during this period.

So far during the 2015-16 season (since week 40, starting October 4, 2015), 26 patients have tested positive for influenza at the BC PHMRL, including 23 (88%) influenza A [19 A(H3N2), 1 A(H1N1)pdm09 and 3 subtype pending] and 3 (12%) influenza B. This tally is higher than the total number of influenza detections over the same period in any prior season of the past 10 years, with the exception of the 2009 pandemic and last season's A(H3N2)-dominant 2014-15 season (n=38), suggesting early seasonal activity again for the 2015-16 season. The majority of detections so far this season continue to be in elderly adults aged \geq 65 years, driven in part by earlier 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, 2015-16

Note: PHMRL data current to October 28, 2015.





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

Note: PHMRL data current to October 28, 2015.

BC Children's and Women's Health Centre Laboratory

In weeks 41-42, BC Children's and Women's Health Centre Laboratory conducted 76 tests for influenza; none were positive for influenza A or B. Entero/rhinoviruses were the most commonly detected respiratory viruses over this period.



Influenza and other virus detections among respiratory specimens submitted to BC Children's and Women's Health Centre Laboratory, 2015-16

* Positive rates were caculated 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 weeks ago, no new lab-confirmed influenza outbreaks have been reported, although a number of ILI outbreaks in LTCFs due to entero/rhinoviruses were reported.

In total since mid-August (weeks 32-42), 5 LTCF influenza A outbreaks have been reported (all H3N2 subtype). Summer and/or early fall reporting of LTCF influenza outbreaks is atypical. In no other season since the 2009 pandemic have influenza outbreaks in LTCFs been reported at this time of year, with the exception of the A(H3N2)-dominant 2014-15 season for which 8 LTCF influenza outbreaks [7 A(H3N2) and 1 B] were reported during the same time period as for the current season.

Number of influenza-like illness (ILI) outbreaks reported, compared to current sentinel ILI rate and historical average sentinel ILI rate, British Columbia 2015-16



* Facility-based influenza outbreaks defined as 2 or more ILI cases within 7-day period, with at least one laboratory-confirmed case of influenza. † School-based ILI outbreak defined as >10% absenteeism on any day, most likely due to ILI. * 10-year historical average for 2015-18 season based on 2003-04 to 2014-15 seasons, excluding 2008-09 and 2009-10 due to atypical seasonality.



National

FluWatch (week 41, October 11-17, 2015):

In week 41, influenza activity was low in Canada. Overall, the majority of regions in Canada reported no influenza activity; sporadic activity was reported in a few regions across Canada, and one region in Ontario reported localized activity. The percent of tests positive for influenza remained low at 1.4%; however, this is the highest recorded value compared to the previous five seasons during the same period. To date, 92% of influenza detections have been influenza A and the majority of those subtyped have been A(H3N2). Among cases with reported age, the largest proportion was in those ≥65 years of age (48%). No new influenza outbreaks were reported over this period. 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 29, 2015, the National Microbiology Laboratory (NML) received 12 influenza viruses [8 A(H3N2), 1 A(H1N1)pdm09 and 3 B] from Canadian laboratories for antigenic characterization.

Influenza A(H3N2): Of the 8 influenza A(H3N2) viruses, only one grew to sufficient titre for antigenic characterization by haemagglutination inhibition (HI) assay and was characterized as antigenically similar to cell-passaged A/Switzerland/9715293/2013, the WHO-recommended A(H3N2) component for the 2015-16 northern hemisphere influenza vaccine. Genetic characterization was performed on the remaining 7 viruses that did not grow to sufficient titre for HI assay to infer antigenic properties. Of the 7 A(H3N2) viruses genetically characterized, all 7 belonged to a genetic group in which most viruses were antigenically related to cell-passaged A/Switzerland/9715293/2013.

Influenza A(H1N1)pdm09: The one A(H1N1)pdm09 virus characterized was antigenically similar to cellpassaged A/California/7/2009, the WHO-recommended A(H1N1) component for the 2015-16 northern hemisphere influenza vaccine.

<u>Influenza B</u>: All 3 of the influenza B viruses characterized were antigenically similar to cell-passaged B/Phuket/3073/2013 (Yamagata lineage), the recommended influenza B component for the 2015-16 northern hemisphere influenza vaccine.

National Microbiology Laboratory (NML): Antiviral Resistance

From September 1 to October 29, 2015, the NML received influenza viruses from Canadian laboratories for drug susceptibility testing. Of the 13 influenza A viruses [12 A(H3N2) and 1 A(H1N1)pdm09] tested against amantadine, all were resistant. Of the 17 influenza viruses [13 A(H3N2), 1 A(H1N1)pdm09 and 3 B] tested against oseltamivir, all were sensitive. Of the 17 influenza viruses [13 A(H3N2), 1 A(H3N2), 1 A(H1N1)pdm09 and 3 B] tested against zanamivir, all were sensitive.

International

USA (week 41, ending October 17, 2015): During week 41, influenza activity was low in the United States. The most frequently identified influenza virus type in week 41 was influenza A, with A(H3N2) viruses predominating. The proportion of outpatient visits for ILI was 1.4%, which was below the national baseline of 2.1%. All 10 regions reported ILI below region-specific baseline levels. Puerto Rico, New York City and 50 states experienced minimal ILI activity and the District of Columbia had insufficient data. The proportion of deaths attributed to pneumonia and influenza (P&I) was below their epidemic threshold. No influenza-associated pediatric deaths were reported. Details are available at: www.cdc.gov/flu/weekly/.

WHO (as of October 19, 2015): Globally, influenza activity generally decreased or remained low in both hemispheres, with only a few countries reporting elevated respiratory illness levels. In the northern hemisphere, influenza activity continued at low, inter-seasonal levels with sporadic detections. Increased respiratory syncytial virus (RSV) activity was reported in the United States. Few influenza detections were reported by countries in Africa. In countries with reported influenza activity in both Eastern and Western Africa, influenza type A viruses predominated. In tropical countries of the Americas, Central America and the Caribbean, influenza activity remained at low levels, with the exception of Cuba, where high numbers of severe acute respiratory infections (SARI) were still reported, associated with influenza A(H1N1)pdm09 virus and RSV. In Colombia, acute respiratory illness (ARI) activity has started to decrease in recent weeks but RSV activity remains high compared to previous years. In tropical Asia, countries in Southern and South East Asia reported low influenza activity overall except in India and Lao People's Democratic Republic where increased activity mainly due to A(H1N1)pdm09 virus in India and A(H3N2) virus in Lao PDR continued to be reported. Influenza activity declined in southern China. In temperate South America, respiratory virus activity continued to decrease in recent weeks after RSV activity peaked in early July and influenza virus activity peaked at the end of August. In Chile, after a later than usual increase and peak in influenza activity in August and early September, ILI activity decreased in recent weeks with decreased influenza A and RSV detections. In South Africa, the influenza season ended by mid-September with only sporadic detections of influenza B viruses in recent weeks. ILI and RSV activity also remain low. In Australia and New Zealand, influenza activity continued to decrease after peaks in mid-August. Recent influenza virus detections were predominantly influenza B viruses. In New Zealand, ILI activity was just above the seasonal threshold. From September 21 to October 4, 2015, the WHO Global Influenza Surveillance and Response System (GISRS) laboratories tested more than 49,103 specimens. Of these, 2,240 were positive for influenza viruses: 1,495 (67%) were typed as influenza A and 745 (33%) as influenza B. Of the sub-typed influenza A viruses, 350 (30%) were influenza A(H1N1)pdm09 and 824 (70%) were influenza A(H3N2). Of the characterized B viruses, 138 (67%) belonged to the B-Yamagata lineage and 69 (33%) to the B-Victoria lineage. Details are available at: www.who.int/influenza/surveillance monitoring/updates/en/.

Emerging Respiratory Pathogens

Enterovirus D68 (EV-D68), Canada:

This week, investigators from the BC Centre for Disease Control (BCCDC), along with provincial and national colleagues, published a paper in the peer-reviewed journal EuroSurveillance describing enterovirus D68 (EV-D68) epidemic activity in Canada during the fall of 2014, during which over 200 cases were detected in BC. Two surveillance systems were used to learn about patient risk for EV-D68: community-based testing of patients with symptoms similar to influenza-like illness (ILI) in three provinces (BC, Alberta and Quebec) and the testing of patients who were admitted to hospital with severe respiratory illness in BC. Among patients with ILI, the study showed an 8-fold increase in EV-D68 detections from October to December 2014 compared to the same period in 2013. Children and adults who sought care from a general practitioner for ILI were equally affected, suggesting susceptibility across a wide range of age groups. In contrast, children were more likely to be hospitalized with severe respiratory disease compared to adults. Children under the age of 10 had a 4- to 5-fold higher rate of hospitalization related to EV-D68 compared to older children between the ages of 10-19 and a 15- to 20fold higher rate compared to adults over age 20. Children may be at higher risk for severe disease due to greater exposure opportunities and lack of pre-existing immunity, but this could also reflect closer observation and testing by clinicians when children are affected. Five cases of acute flaccid paralysis, a condition defined by neurological symptoms and extreme muscle weakness, were identified in BC during the 2014 outbreak, with symptoms persisting more than nine months later. Three deaths were also reported though it remains unclear if EV-D68 infections caused these severe illnesses. The three patients who died all had underlying conditions or co-infections that likely contributed to their cause of death. The EV-D68 strains that circulated in BC during the fall of 2014 were found to be similar to other strains globally, including those that caused the 2014 outbreak in the US, with no clustering by disease severity or risk factors. The BC provincial laboratory has been continuing to test for EV-D68 in 2015, with no cases found in August or September of this year. Ongoing surveillance in both community and hospital settings is needed in order for investigators to learn more about the disease incidence and potential atrisk groups.

For the full publication (open access): www.eurosurveillance.org/ViewArticle.aspx?ArticleId=21283.

WHO Recommendations for Influenza Vaccines

WHO Recommendations for 2015-16 Northern Hemisphere Influenza Vaccine

On February 26, 2015, the WHO announced the recommended strain components for the 2015-16 Northern Hemisphere trivalent influenza vaccine (TIV):*

- an A/California/7/2009(H1N1)pdm09-like virus;†
- an A/Switzerland/9715293/2013(H3N2)-like virus;‡
- a B/Phuket/3073/2013-like (Yamagata-lineage) virus.§

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

* These recommended strains are the same as those used for the 2015 Southern Hemisphere vaccine.

† Recommended strain has been retained as the A(H1N1) component since the 2009 pandemic and has been included in the Northern Hemisphere vaccine since 2010-11.

‡ A/South Australia/55/2014, A/Norway/466/2014, and A/Stockholm/6/2014 are A/Switzerland/9715293/2013-like viruses. Recommended strain is considered antigenically distinct from the A/Texas/50/2012-like virus recommended for the 2014-15 Northern Hemisphere vaccine and clusters within the emerging phylogenetic clade 3C.3a.

§ Recommended strain is the same influenza B-Yamagata lineage as the B/Massachusetts/2/2012-like virus recommended for the 2014-15 Northern Hemisphere vaccine but represents a phylogenetic clade-level change from clade 2 to clade 3.

For further details: www.who.int/influenza/vaccines/virus/recommendations/2015 16 north/en/.

WHO Recommendations for 2016 Southern Hemisphere Influenza Vaccine

On September 24, 2015, the WHO announced recommended strain components for the 2016 Southern Hemisphere trivalent influenza vaccine (TIV):*

- an A/California/7/2009 (H1N1)pdm09-like virus;†
- an A/Hong Kong/4801/2014(H3N2)-like virus;
- a B/Brisbane/60/2008-like (Victoria-lineage) virus.§

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

* Recommended strains represent a change for two of the three components used for the 2015 Southern Hemisphere and 2015-16 Northern Hemisphere vaccines.

† Recommended strain has been retained as the A(H1N1) component since the 2009 pandemic and has been included in the Southern Hemisphere vaccine since 2010 and in the Northern Hemisphere vaccine since 2010-11.

‡ Recommended strain for the A(H3N2) component represents a phylogenetic clade-level change from a clade 3C.3a virus to a clade 3C.2a virus. Most viruses belonging to A/Hong Kong/4801/2014-like (clade 3C.2a) viruses are considered antigenically related to cell-passaged A/Switzerland/9715293/2013-like (clade 3C.3a) viruses recommended for the 2015 Southern Hemisphere and 2015-16 Northern Hemisphere vaccines but are antigenically distinct from egg-passaged A/Switzerland/9715293/2013-like viruses used in vaccine manufacturing.

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

For further details: www.who.int/influenza/vaccines/virus/recommendations/2016 south/en/.



Additional Information

Explanatory Note:

The surveillance period for the 2015-16 influenza season is defined starting in week 40. Weeks 36-39 of the 2014-15 season are shown on graphs for comparison purposes.

List of Acronyms:

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

Current AMMI Canada Guidelines on the Use of Antiviral Drugs for Influenza: www.ammi.ca/guidelines

Web Sites:

BCCDC Emerging Respiratory Pathogen Updates: www.bccdc.ca/dis-cond/DiseaseStatsReports/EmergingRespiratoryVirusUpdates.htm

Influenza Web Sites

Canada – Flu Watch: <u>www.phac-aspc.gc.ca/fluwatch/</u> Washington State Flu Updates: <u>www.doh.wa.gov/Portals/1/Documents/5100/fluupdate.pdf</u> USA Weekly Surveillance Reports: <u>www.cdc.gov/flu/weekly/</u> European Influenza Surveillance Scheme: <u>ecdc.europa.eu/EN/HEALTHTOPICS/SEASONAL_INFLUENZA/EPIDEMIOLOGICAL_DATA/Pages/Weekly</u> <u>kly Influenza Surveillance Overview.aspx</u> WHO – Weekly Epidemiological Record: <u>www.who.int/wer/en/</u> WHO Collaborating Centre for Reference and Research on Influenza (Australia): <u>www.influenzacentre.org/</u> Australian Influenza Report: <u>www.health.gov.au/internet/main/publishing.nsf/content/cda-surveil-ozflu-flucurr.htm</u> New Zealand Influenza Surveillance Reports: <u>www.surv.esr.cri.nz/virology/influenza weekly update.php</u>

Avian Influenza Web Sites

WHO – Influenza at the Human-Animal Interface: <u>www.who.int/csr/disease/avian_influenza/en/</u> World Organization for Animal Health: <u>www.oie.int/eng/en_index.htm</u>

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 <u>ilioutbreak@bccdc.ca</u>

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 <i>could</i> 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	Reporting Inform Person Reporting: Contact Phone: Health Authority: Full Facility Name: Is this report:	nation Health ☐ First Notification ☐ Update (complete ☐ Outbreak Over (c	unit/medical health officer Title: Email: HSDA: (complete section B below section C below; Section complete section C below;	notified? Yes No Yes No , Section D if available) D if available) Section D if available)	
В	First Notification Type of facility: LTCF Acute Care Hospital Senior's Residence (if ward or wing, please specify name/number:) Workplace School (grades:) Other ()				
	Date of onset of fire	st case of ILI (dd/mm/y	/yyy): <u>DD / MMM / YYYY</u>		
		Numbers to date	Residents/Students	Staff	
		With II I			
		Hospitalized			
		Died			
С	Update AND Outbreak Declared Over Date of onset for most recent case of ILI (dd/mm/yyyy): DD / MMM / YYYY If over, date outbreak declared over (dd/mm/yyyy): DD / MMM / YYYY				
		Numbers to date	Residents/Students	Staff	
		Total			
		With ILI Hospitalized			
		Died			
	L aboratory Infor	mation			
D	Specimen(s) submitted? Yes (location:) No Don't know If yes, organism identified? Yes (specify:) No Don't know				