# British Columbia Influenza Surveillance Bulletin

Influenza Season 2015-16, Number 8, Week 3 January 17 to 23, 2016

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# Heightened Influenza Activity in BC, Mainly Due to Influenza B

In week 3 (January 17 to 23), influenza activity remained elevated in BC, with influenza B viruses predominating. Community-based influenza-like illness (ILI) indicators were at expected levels for this time of year.

At the BCCDC Public Health Laboratory, influenza positivity increased from ~20% in weeks 51-1 to 32% in week 2 and 34% in week 3. As seen in other recent weeks, influenza B detections comprised an increasing proportion of influenza detections, outnumbering influenza A detections at a ratio of 1.6:1. Among influenza A detections, A(H1N1)pdm09 and A(H3N2) subtype viruses co-circulated.

Since our last bulletin one week ago, one new labconfirmed influenza B outbreak was reported in a long-term care facility (LTCF) in FHA and one new influenza A outbreak was reported in an LTCF in VCHA, both with onset in week 4, and 7 new ILI outbreaks were reported in schools in IHA.

In week 3, MSP consultation rates for Influenza Illness continued an increasing trend throughout the province, notably in FHA, VCHA and NHA. Sentinel ILI consultation rates were within expected 10-year historical averages for this time of year.

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Report Disseminated: January 28, 2016



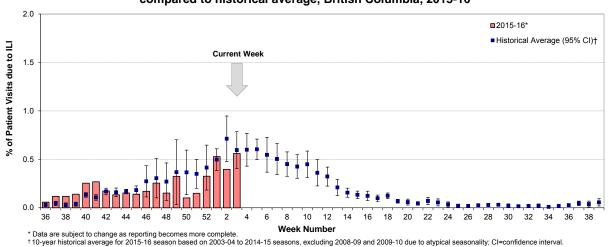




# **British Columbia**

## **Sentinel Physicians**

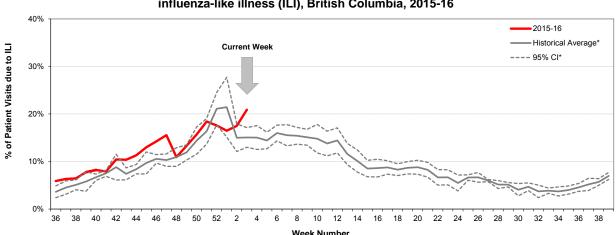
In week 3, the proportion of patients with influenza-like illness (ILI) among those presenting to sentinel sites was within 10-year historical levels for this time of year at 0.56%. So far, 60% of sentinel sites have reported for week 3.



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**

In week 3, the proportion of visits to BC Children's Hospital Emergency Room (ER) attributed to ILI increased to 21% and was above the 5-year historical average for this time of year.



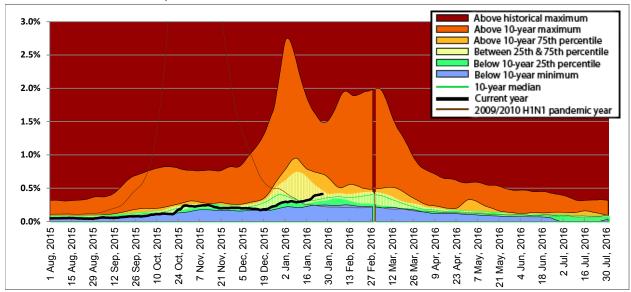
Percent of patients presenting to BC Children's Hospital ER attributed to influenza-like illness (ILI), British Columbia, 2015-16

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 week 3, BC Medical Services Plan (MSP) general practitioner claims for influenza illness (II), as a proportion of all submitted MSP claims, continued an increasing trend, notably in FHA, VCHA, and NHA as well as for the province overall. In FHA, rates were above 10-year 75<sup>th</sup> percentiles, while, in VCHA and NHA, rates were within 10-year median levels. In IHA and VIHA, rates remained below 10-year 25<sup>th</sup> percentiles.



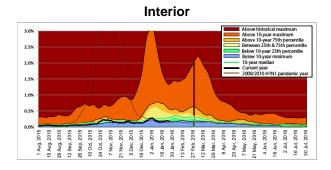
# Service claims submitted to MSP for influenza illness (II)\* as a proportion of all submitted general practitioner service claims, British Columbia, 2015-16

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

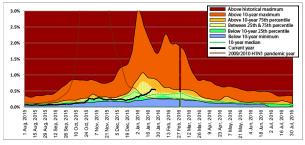
Data for the period August 1, 2009 to July 31, 2010 have been excluded from the 10-year median calculation due to atypical seasonality during the 2009/2010 H1N1 pandemic year. MSP week beginning August 1, 2015 corresponds to sentinel ILI week 30; data are current to January 26, 2016.

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

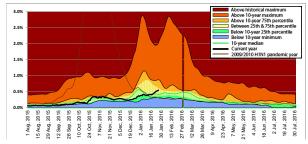
**Explanatory note (January 21, 2016):** The gap in the historical data on the MSP graphs represents missing data for February 29, due to the leap year in 2016. The BC Ministry of Health is working to resolve this issue.



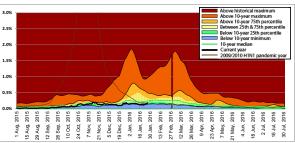




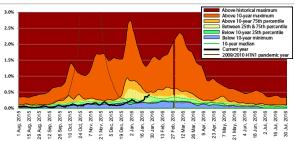
#### Vancouver Coastal



Vancouver Island



Northern





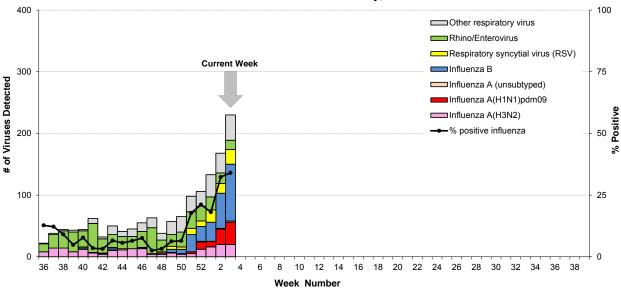
#### Laboratory Reports

#### **BCCDC Public Health Laboratory**

In week 3, 441 patients were tested for respiratory viruses at the BCCDC Public Health Laboratory. Of these, 150 (34%) tested positive for influenza, including 58 (39%) influenza A [20 A(H3N2), 36 A(H1N1)pdm09, and 2 subtype pending] and 92 (61%) influenza B. In recent weeks, influenza positivity increased sharply from <10% in weeks prior to week 50 to approximately 20% in weeks 51-1 to 32% in week 2. Influenza positivity remained elevated at 34% in week 3, driven by an increase in influenza B detections which continue to outnumber influenza A detections at a ratio of 1.6:1.

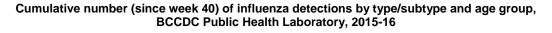
Cumulatively since week 40 (starting October 4, 2015), 499 (14%) patients have tested positive for influenza at the BCCDC Public Health Laboratory, including 248 (50%) with influenza A [156 A(H3N2), 90 A(H1N1)pdm09 and 2 subtype pending], 250 (50%) with influenza B, and one patient with an A(H1N1)pdm09 and influenza B co-infection. In recent weeks, influenza B viruses have comprised an increasing proportion of influenza detections (>50% of influenza detections since week 50), with influenza B/Victoria lineage viruses predominating over B/Yamagata lineage viruses at a ratio of 3:1 so far this season. Among influenza A detections, A(H3N2) and A(H1N1)pdm09 subtype viruses have co-circulated in approximately equal proportions since week 51.

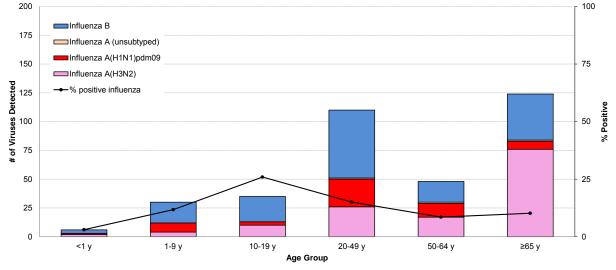
In recent weeks, an increasing proportion of influenza detections has been in younger, working-aged adults 20-64 years (representing 44% of influenza detections so far this season) and to a lesser extent children <20 years (20% of detections), due to increased circulation of A(H1N1)pdm09 and influenza B viruses, compared to earlier weeks this season when influenza A(H3N2) viruses predominated and elderly adults aged ≥65 years were more affected.



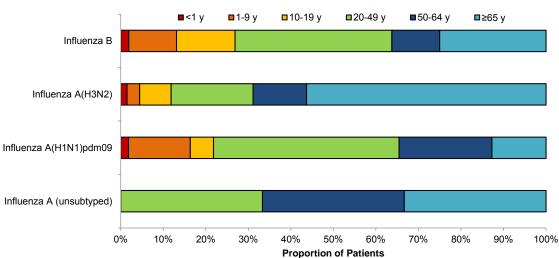
#### Influenza and other virus detections among respiratory specimens submitted to BCCDC Public Health Laboratory, 2015-16

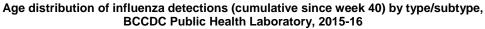
Data are current to January 27, 2016.





Data are current to January 27, 2016; figure includes cumulative influenza detections for specimens collected from weeks 40-3.



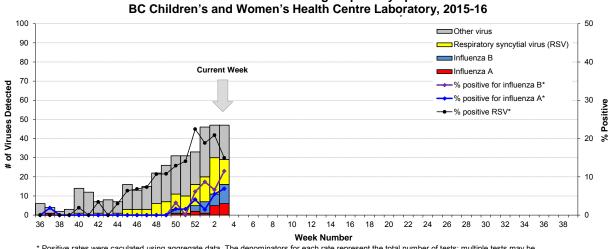


Data are current to January 27, 2016; figure includes cumulative influenza detections for specimens collected from weeks 40-3.



## BC Children's and Women's Health Centre Laboratory

In week 3, the BC Children's and Women's Health Centre Laboratory conducted 87 tests for influenza; 6 (7%) were positive for influenza A, and 10 (11%) were positive for influenza B. The proportion of tests positive for respiratory syncytial virus (RSV) dropped to 15% in week 3. Human Metapneumovirus was also commonly detected over this period.





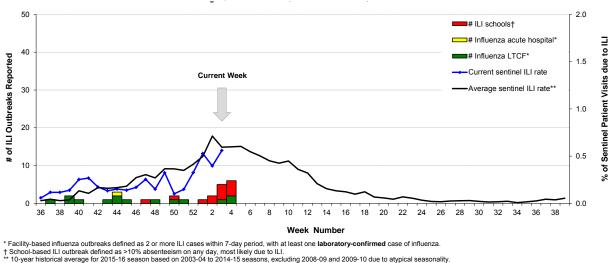
\* Positive rates were caculated using aggregate data. The denominators for each rate represent the total number of tests; multiple tests may be performed for a single specimen and/or patient.



#### Influenza-like Illness (ILI) Outbreaks

Since our last bulletin one week ago, two new lab-confirmed influenza outbreaks, one with influenza B detected in FHA and one with influenza A detected in VCHA, were reported from long-term care facilities (LTCFs), both with onset in week 4. Seven new ILI outbreaks were reported from schools in IHA: three in week 3, and four in week 4.

In total since mid-August (since week 32, starting August 9, 2015), 16 influenza outbreaks [11 A(H3N2), 1 with both A(H3N2) and A(H1N1)pdm09 viruses detected, 1 influenza A (subtype pending), and 3 influenza B] have been reported from facilities, including 15 from LTCFs and one from an acute care facility. Thirteen school ILI outbreaks have been reported so far this 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

## Updated AMMI Guidelines: LTCF Outbreak Control

In December 2015, the Association of Medical Microbiology and Infectious Disease (AMMI) Canada posted updated recommendations for influenza antiviral drug treatment and prophylaxis for the 2015-16 season, notably in relation to control of influenza outbreaks in long-term care facilities, available from www.ammi.ca/guidelines.



# **National**

## FluWatch (week 2, January 10 to 16, 2016):

Overall in week 2, seasonal influenza activity was similar to the previous week. Laboratory detections of influenza slightly increased to 7% in week 2 but remain below the expected range of 14-31% based on rates for the previous five seasons for this time of the year. During week 2, influenza A was the most frequently reported virus type reported, with influenza A(H1N1)pdm09 predominating. To date, the majority of influenza laboratory detections and hospitalizations have been in seniors greater than 65 years of age. Adults aged 65 years and older accounted for 31% of reported influenza cases, with variation observed by type/subtype. Adults aged 65 years and older also represented 46% of reported A(H3N2) cases; whereas, adults aged 20-44 years represented 26% of reported influenza A(H1N1)pdm09 cases and 27% of reported influenza B cases. In week 2, 14 new lab-confirmed, influenza-associated paediatric hospitalizations were reported by the IMPACT network, five due to A(H1N1)pdm09 and seven due to influenza B. 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, 2015 to January 28, 2016, the National Microbiology Laboratory (NML) received 234 influenza viruses [100 A(H3N2), 94 A(H1N1)pdm09 and 40 B] from Canadian laboratories for antigenic characterization.

Influenza A(H3N2): Of the 100 influenza A(H3N2) viruses, only 12 (12%) had sufficient haemagglutination titre for antigenic characterization by haemagglutination inhibition (HI) assay. Of the 12 viruses characterized by HI assay, all were considered antigenically similar to a cell-passaged A/Switzerland/9715293/2013-like virus, the WHO-recommended A(H3N2) component for the 2015-16 northern hemisphere influenza vaccine. Genetic characterization was performed to infer antigenic properties on the remaining 88 viruses that did not grow to sufficient titre for HI assay. Of the 88 A(H3N2) viruses genetically characterized, all were reported to belong to a genetic group in which most viruses were antigenically related to A/Switzerland/9715293/2013.

<u>Influenza A(H1N1)pdm09</u>: The 94 A(H1N1)pdm09 viruses characterized were antigenically similar to an A/California/7/2009-like virus, the WHO-recommended A(H1N1) component for the 2015-16 northern hemisphere influenza vaccine.

Influenza B: Of the 40 influenza B viruses characterized, 25 (63%) were antigenically similar to a B/Phuket/3073/2013-like (Yamagata lineage) virus, the recommended influenza B component for the 2015-16 northern hemisphere influenza vaccine. Fifteen (38%) were characterized as a B/Brisbane/60/2008-like (Victoria lineage) virus, the recommended influenza B component for the 2015-16 northern hemisphere quadrivalent influenza vaccine containing two influenza B components.

## National Microbiology Laboratory (NML): Antiviral Resistance

From September 1, 2015 to January 28, 2016, the NML received influenza viruses from Canadian laboratories for drug susceptibility testing. Of the 162 influenza A viruses [101 A(H3N2) and 61 A(H1N1)pdm09] tested against amantadine, all were resistant with the exception of one A(H3N2) virus which was sensitive to amantadine. Of the 222 influenza viruses [96 A(H3N2), 85 A(H1N1)pdm09 and 41 B] tested against oseltamivir, all were sensitive. Of the 222 influenza viruses [96 A(H3N2), 85 A(H1N1)pdm09 and 41 B] tested against zanamivir, all were sensitive.



# **International**

**USA (week 2, January 10 to 16, 2016):** During week 2, influenza activity increased slightly in the United States. The most frequently identified influenza virus type reported by public health laboratories during week 2 was influenza A, with influenza A (H1N1)pdm09 viruses predominating. The percentage of respiratory specimens testing positive for influenza in clinical laboratories increased. The proportion of deaths attributed to pneumonia and influenza (P&I) was below the system-specific epidemic threshold in the NCHS Mortality Surveillance System and above the system-specific epidemic threshold in the 122 Cities Mortality Reporting System. No influenza-associated paediatric deaths were reported. A cumulative rate for the season of 1.8 laboratory-confirmed influenza-associated hospitalizations per 100,000 population was reported. The proportion of outpatient visits for ILI was 2.1%, which is at the national baseline of 2.1%. Six of 10 regions reported ILI at or above region-specific baseline levels. Most of the country experienced minimal ILI activity. The geographic spread of influenza in three states was reported as widespread; 10 states reported regional activity; 12 states reported local activity; 24 states reported sporadic activity; and one state reported no influenza activity.

Details are available at: www.cdc.gov/flu/weekly/.

WHO (as of January 17, 2016): Increasing influenza activity was reported in northern America, northern and eastern Europe and northern/temperate Asia. High levels of influenza activity continued in some countries in western Asia. Most detected influenza viruses were influenza A(H1N1)pdm09. Influenza activity was slowly increasing but still below seasonal expected levels in northern America. In northern and eastern Europe increasing influenza activity was reported, with still low activity in Western and Southern Europe. An increase in severe acute respiratory infections due to influenza A(H1N1)pdm09 was reported from some eastern European countries. In northern/temperate Asia, influenza activity was ongoing in Mongolia and was increasing in the Republic of Korea. In central and western Asia, influenza activity remained at high levels where Israel, Jordan and Oman reported increased influenza activity, predominantly due to influenza A(H1N1)pdm09 and influenza B viruses. Pakistan reported also elevated influenza activity, predominantly due to influenza A(H1N1)pdm09. Few influenza virus detections were reported by countries in tropical Africa. In tropical countries of the Americas, Central America and the Caribbean, respiratory virus activity was at low levels. In tropical Asia, countries in southern and south east Asia overall reported ongoing low influenza activity. In temperate countries of the Southern Hemisphere respiratory virus activity remained low. From December 28, 2015 to January 10, 2016, the WHO GISRS laboratories tested more than 65.649 specimens, of which 10.502 were positive for influenza viruses: 8,481 (81%) were typed as influenza A and 2,021 (19%) as influenza B. Of the subtyped influenza A viruses, 5,506 (80%) were influenza A(H1N1)pdm09 and 1,357 (20%) were influenza A(H3N2). Of the characterized B viruses, 460 (49%) belonged to the B-Yamagata lineage and 477 (51%) 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 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/health-professionals/data-reports/emerging-respiratory-virus-updates

#### Influenza Web Sites

Canada – Flu Watch: <u>www.phac-aspc.gc.ca/fluwatch/</u> Washington State Flu Updates: <u>http://www.doh.wa.gov/portals/1/documents/5100/420-100-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 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 12<sup>th</sup> 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 <u>ilioutbreak@bccdc.ca</u>

# Note: This form is for provincial surveillance purposes. Please notify your local health unit per local guidelines/requirements.

<b>ILI</b> : 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:	First Notification Update (complete	unit/medical health officer Title: Email: HSDA: (complete section <b>B</b> below e section <b>C</b> below; Section complete section <b>C</b> below;	; Section <b>D</b> if available) <b>D</b> 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 first case of ILI (dd/mm/yyyy): _DD / MMM / YYYY					
		Numbers to date	<b>Residents/Students</b>	Staff		
		Total				
		With ILI				
		Hospitalized Died				
		Died				
C	Update AND Outbreak Declared Over					
C	Date of onset for most recent case of ILI (dd/mm/yyyy):/ MMM / YYYY					
	If over, date outbreak declared over (dd/mm/yyyy): DD / MMM / YYYY					
		Numbers to date Total	Residents/Students	Staff		
		With ILI				
		Hospitalized				
		Died				
	Laboratory Infor	mation				
D	Laboratory Information         Specimen(s) submitted?       Yes (location:       )       No       Don't know					
_	Specimen(s) submitted? Yes (location:) No Don't know If yes, organism identified? Yes (specify:) No Don't know					