British Columbia Influenza Surveillance Bulletin

Influenza Season 2015-16, Number 6, Weeks 50-52 December 13, 2015 to January 2, 2016

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Mix of Influenza B, A(H3N2) and A(H1N1)pdm09 Circulating in BC

In weeks 50-52 (December 13, 2015 to January 2, 2016), surveillance indicators suggest a slight increase in influenza activity in BC, with a mix of influenza B, A(H3N2) and A(H1N1)pdm09 cocirculating.

At the BCCDC Public Health Laboratory, influenza positivity increased from 6% in week 50 to 17% in week 52. Although influenza A(H3N2) viruses comprise the majority of detections overall this season to date, a greater proportion (more than half) of detections were influenza B during the most recent weeks 50-52, with co-circulation of A(H3N2) and A(H1N1)pdm09. About half of the influenza detections so far this season have been in elderly adults ≥65 years of age, with a greater proportion of influenza B detections in children and younger adults compared to A(H3N2) viruses that predominated earlier this season.

Entero/rhinoviruses were the most commonly detected other respiratory viruses, with increasing detection of respiratory syncytial virus (RSV).

Since our last bulletin three weeks ago, two new labconfirmed influenza B outbreaks were reported in long-term care facilities in FHA, bringing the cumulative seasonal tally (since mid-August) to 13 influenza facility outbreaks.

Prepared by BCCDC Influenza & Emerging Respiratory Pathogens Team

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Report Disseminated: January 7, 2016

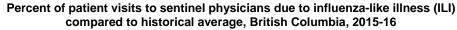


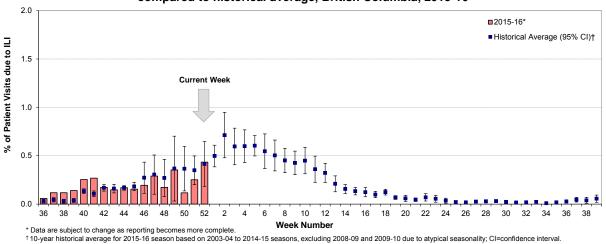


British Columbia

Sentinel Physicians

In weeks 50-52, the proportion of patients with influenza-like illness (ILI) among those presenting to sentinel sites increased from a low of 0.12% in week 50 to 0.43% in week 52. Rates were significantly below 10-year historical levels in week 50, but within expected historical levels for weeks 51-52. So far, 56%, 50%, and 41% of sentinel sites have reported for weeks 50, 51, and 52, respectively.

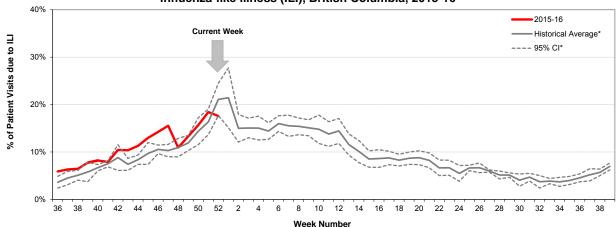




BC Children's Hospital Emergency Room

In weeks 50-52, the proportion of visits to BC Children's Hospital Emergency Room (ER) attributed to ILI continued an increasing trend, rising to 16% in week 50 and 18% in weeks 51-52, but remained within 5-year historical average levels.

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."

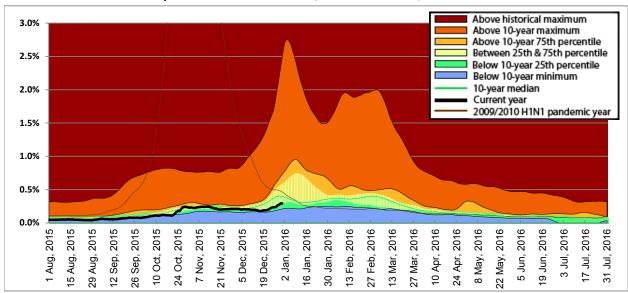
^{* 5-}year historical average for 2015-16 season based on 2010-11 to 2014-15 seasons; Cl=confidence interval

Medical Services Plan

NOTE: When the BC Influenza Surveillance Bulletin #6 was originally published, Medical Services Plan (MSP) charts were temporarily unavailable. These charts were added to the online version on January 8, 2016.

BC Medical Services Plan (MSP) general practitioner claims for influenza illness (II), as a proportion of all submitted MSP claims, remained at or below 10-year median levels across the province in weeks 50-52.

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).

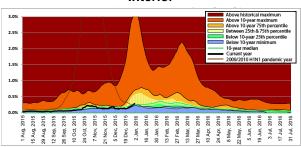
Data for the period August 1, 2009 to July 31, 2010 have been excluded from the 10-year median calculation due to atypical seasonality during the 2009/2010 H1N1 pandemic year. MSP week beginning August 1, 2015 corresponds to sentinel ILI week 30; data are current to December 31, 2015.

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

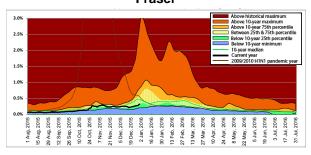
BC Centre for Disease Control

An agency of the Provincial Health Services Authority

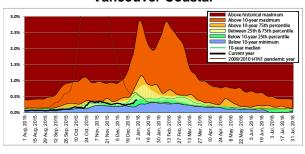
Interior



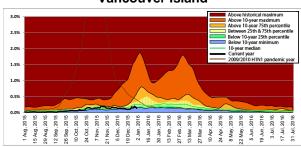
Fraser



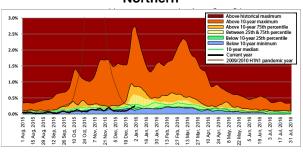
Vancouver Coastal



Vancouver Island



Northern



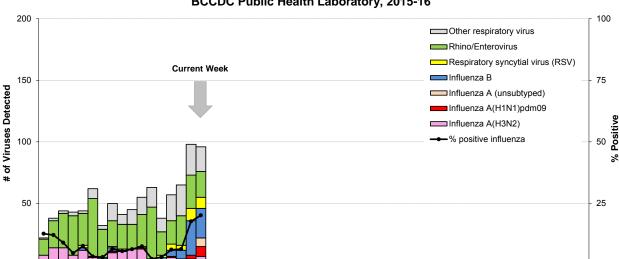
Laboratory Reports

BCCDC Public Health Laboratory

In weeks 50-52, 613 patients were tested for respiratory viruses at the BCCDC Public Health Laboratory. Of these, 94 (15%) tested positive for influenza, including 35 (37%) influenza A [16 A(H3N2), 12 A(H1N1)pdm09, and 7 subtype pending], and 59 (63%) influenza B. Influenza positivity rose sharply from 6% in week 50 to 17% in week 52 and included a mix of A(H3N2), A(H1N1)pdm09 and influenza B viruses. Entero/rhinoviruses remained the most commonly detected other respiratory viruses during this period, with increasing detection of respiratory syncytial virus (RSV) in weeks 51 and 52.

Cumulatively since week 40 (starting October 4, 2015), 192 patients have tested positive for influenza at the BCCDC Public Health Laboratory, including 120 (63%) influenza A [96 A(H3N2), 17 A(H1N1)pdm09 and 7 subtype pending] and 72 (38%) influenza B. So far during the 2015-16 season, influenza A(H3N2) viruses have predominated, comprising more than two-thirds of influenza detections with known type/subtype until week 48. However, in recent weeks, an increasing proportion of influenza B (comprising more than 50% of influenza detections since week 50) and, to a lesser extent, A(H1N1)pdm09 viruses have been detected.

Almost half of influenza detections so far during the 2015-16 season have been in elderly adults aged ≥65 years due to the predominance of A(H3N2) activity earlier this season. However, elderly adults comprise a smaller proportion of detections among influenza B (31%) and A(H1N1)pdm09 (24%) cases compared to A(H3N2) (67%) cases.



10 12

Week Number

18

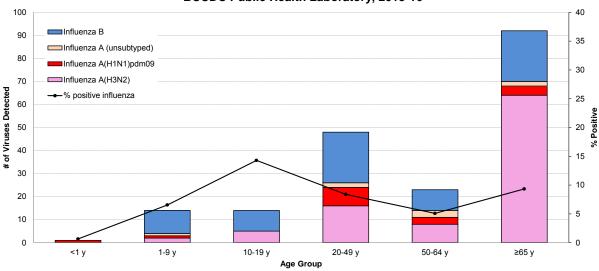
20 22

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

Data are current to January 6, 2016.

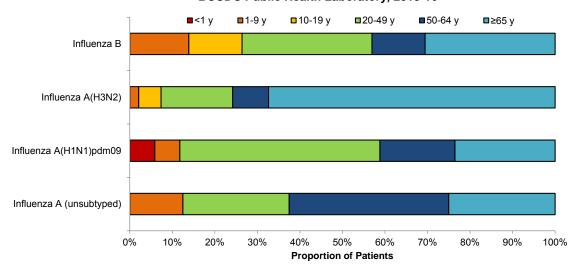
40 42 44 46 48 50 52

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



Data are current to January 6, 2016; figure includes cumulative influenza detections for specimens collected from weeks 40-52.

Age distribution of influenza detections (cumulative since week 40) by type/subtype, BCCDC Public Health Laboratory, 2015-16

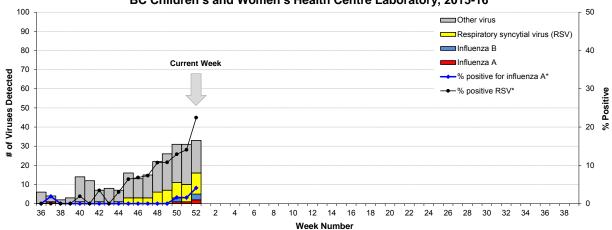


Data are current to January 6, 2016; figure includes cumulative influenza detections for specimens collected from weeks 40-52.

BC Children's and Women's Health Centre Laboratory

In weeks 50-52, the BC Children's and Women's Health Centre Laboratory conducted 175 tests for influenza; 4 (2%) were positive for influenza A, and 5 (3%) were positive for influenza B. The proportion of tests positive for respiratory syncytial virus (RSV) continued to rise from 13% in week 50 to 22% in week 52. Parainfluenza and human Metapneumovirus were also commonly detected over this period.

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



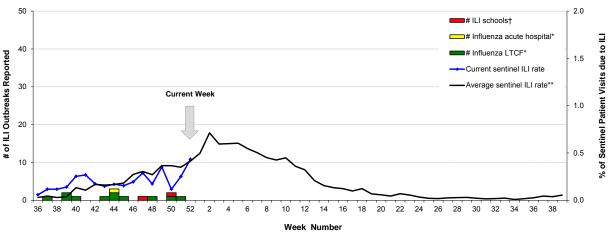
^{*} Positive rates were caculated using aggregate data. The denominators for each rate represent the total number of tests; multiple tests may be performed for a single specimen and/or patient.

Influenza-like Illness (ILI) Outbreaks

Since our last bulletin three weeks ago, two new lab-confirmed influenza B outbreaks were reported in FHA with onset in week 50 and 51, respectively.

In total since mid-August (since week 32, starting August 9, 2015), 13 influenza outbreaks [11 A(H3N2) and 2 influenza B] have been reported from facilities, including 12 from long-term care facilities (LTCFs) and one from an acute care facility. Two school ILI outbreaks (one in week 47 and one in week 50) 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



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

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.

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

** 10-year historical average for 2015-16 season based on 2003-04 to 2014-15 seasons, excluding 2008-09 and 2009-10 due to atypical seasonality.

National

FluWatch (week 50, December 13 to 19, 2015):

In week 50, several influenza surveillance indicators revealed that influenza activity is on the rise nationally compared to previous weeks. Overall, low/sporadic influenza activity was reported across the country; however, a slight increase in activity levels was reported compared to week 49. Laboratory detections of influenza are below expected levels for this time of the year; in week 50, 2% of tests were positive for influenza compared to the expected range of 8-24% based on the previous five seasons. So far this season, influenza A(H3N2) has been the most common subtype affecting Canadians (83% of influenza A detections with known subtype); however, an increase in the number of influenza A(H1N1) cases has been noted over the past few weeks. To date, the majority of influenza laboratory detections and hospitalizations have been in seniors greater than 65 years of age. One new lab-confirmed influenza outbreak was reported in a LTCF in week 50.

Details are available at: <u>healthycanadians.gc.ca/diseases-conditions-maladies-affections/disease-maladie/flu-grippe/surveillance/fluwatch-reports-rapports-surveillance-influenza-eng.php</u>.

National Microbiology Laboratory (NML): Strain Characterization

From September 1, 2015 to January 7, 2016, the National Microbiology Laboratory (NML) received 122 influenza viruses [71 A(H3N2), 26 A(H1N1)pdm09 and 25 B] from Canadian laboratories for antigenic characterization.

Influenza A(H3N2): Of the 71 influenza A(H3N2) viruses, only 6 (8%) had sufficient titre for antigenic characterization by haemagglutination inhibition (HI) assay. Of the 6 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 65 viruses that did not grow to sufficient titre for HI assay. Of the 65 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.

Influenza A(H1N1)pdm09: The 26 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 25 influenza B viruses characterized, 16 (64%) 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. Nine (36%) 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 7, 2016, the NML received influenza viruses from Canadian laboratories for drug susceptibility testing. Of the 106 influenza A viruses [82 A(H3N2) and 24 A(H1N1)pdm09] tested against amantadine, all were resistant with the exception of one A(H3N2) virus which was sensitive to amantadine. Of the 129 influenza viruses [77 A(H3N2), 26 A(H1N1)pdm09 and 26 B] tested against oseltamivir, all were sensitive. Of the 129 influenza viruses [77 A(H3N2), 26 A(H1N1)pdm09 and 26 B] tested against zanamivir, all were sensitive.

<u>International</u>

USA (week 51, December 20 to 26, 2015): During week 51, influenza activity increased slightly in the United States. The most frequently identified influenza virus type reported by public health laboratories during week 51 was influenza A, with influenza A (H1N1)pdm09 viruses predominating. The percentage of respiratory specimens testing positive for influenza in clinical laboratories was low. The proportion of deaths attributed to pneumonia and influenza (P&I) was below their system-specific epidemic threshold. No influenza-associated pediatric deaths were reported. The proportion of outpatient visits for ILI was 2.6%, which is above the national baseline of 2.1%. Six of 10 regions reported ILI at or above region-specific baseline levels. Most states reported minimal to low ILI activity, with only two states (New Jersey and South Carolina) experiencing high ILI activity. The geographic spread of influenza in one state (North Carolina) was reported as widespread; five states reported regional activity; 12 states reported local activity; 29 states reported sporadic activity; and three states reported no influenza activity.

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

WHO (as of December 28, 2015): Globally, influenza activity generally remained low in both hemispheres. In a few countries in Central and Northern Asia, as well as in Eastern and Northern Europe, there were slight increases in influenza detections in recent weeks. In Eastern Asia, the rest of Europe. North Africa and North America, influenza activity continued at low, inter-seasonal levels. In southern and western Asia, Iran (Islamic Republic of) and Pakistan reported elevated influenza activity, predominantly influenza A(H1N1)pdm09. Oman reported increased influenza activity, predominantly due to influenza A(H1N1)pdm09 and influenza B viruses, while Bahrain reported a decline in influenza activity. Qatar also reported a decline in influenza activity but remained at elevated levels. 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 remained at low levels, with the exception of Costa Rica (A(H3N2)), Cuba (A(H3N2)) and Nicaragua (A(H1N1)pdm09). In tropical Asia, countries in South East Asia reported low influenza activity overall except Thailand where activity mainly due to B viruses continued to be reported. In the temperate countries of the Southern Hemisphere, respiratory virus activity was generally low in recent weeks with low levels of influenza virus detections reported. From November 30 to December 13, 2015, the WHO GISRS laboratories tested more than 40,491 specimens. of which 2590 were positive for influenza viruses: 2158 (83%) were typed as influenza A and 432 (17%) as influenza B. Of the sub-typed influenza A viruses, 1375 (83%) were influenza A(H1N1)pdm09 and 287 (17%) were influenza A(H3N2). Of the characterized influenza B viruses, 100 (76%) belonged to the B-Yamagata lineage and 32 (24%) 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

MSP: BC Medical Services Plan

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

IHA: Interior Health Authority

ILI: Influenza-Like Illness

VCHA: Vancouver Coastal Health Authority

VIHA: Vancouver Island Health Authority

WHO: World Health Organization

LTCF: Long-Term Care Facility

Current AMMI Canada Guidelines on the Use of Antiviral Drugs for Influenza:

www.ammi.ca/quidelines

Web Sites:

BCCDC Emerging Respiratory Pathogen Updates:

www.bccdc.ca/health-professionals/data-reports/emerging-respiratory-virus-updates

Influenza Web Sites

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

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/

European Influenza Surveillance Scheme:

ecdc.europa.eu/EN/HEALTHTOPICS/SEASONAL_INFLUENZA/EPIDEMIOLOGICAL_DATA/Pages/Wee

kly 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:

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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

version: 26 Oct 2011

Phone: (604) 707-2510

Fax: (604) 707-2516

ilioutbreak@bccdc.ca

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. Reporting Information Health unit/medical health officer notified? Yes No Person Reporting: _____ Title: _____ _____ Email: _____ Contact Phone: _____ HSDA: ____ Health Authority: Full Facility Name: First Notification (complete section **B** below; Section **D** if available) Is this report: Update (complete section **C** below; Section **D** if available) Outbreak Over (complete section **C** below; Section **D** if available) **First Notification** B 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 / YYYYY Numbers to date Residents/Students Staff Total With ILI Hospitalized Died **Update AND Outbreak Declared Over** Date of onset for most recent case of ILI (dd/mm/yyyy): DD / MMM / YYYYY If over, date outbreak declared over (dd/mm/yyyy): __DD / MMM / YYYYY Numbers to date Residents/Students Staff **Total** With ILI Hospitalized Died **Laboratory Information** ☐ Yes (location: _____) ☐ No ☐ Don't know Specimen(s) submitted?

If yes, organism identified? Yes (specify:) No Don't know