BC Centre for Disease Control An agency of the Provincial Health Services Authority

British Columbia Influenza Surveillance Bulletin

Influenza Season 2015-16, Number 12, Week 7 February 14 to 20, 2016

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Mixed Circulation of Influenza A and B

In week 7 (February 14 to 20, 2016), influenza activity remained elevated in BC, with mixed circulation of influenza A and B viruses.

At the BCCDC Public Health Laboratory, influenza positivity decreased slightly in week 7 but remained above 40%. While influenza B viruses comprised the majority of influenza detections from week 50 to week 5, influenza A viruses, predominately A(H1N1)pdm09, have comprised an approximately equal proportion of influenza detections since week 6.

Since our last bulletin one week ago, two new labconfirmed influenza B outbreaks were reported: one from a long-term care facility in IHA in week 6 and one from a rehabilitation facility in VCHA in week 7.

On February 25, 2016, the WHO announced its recommended components for the 2016-17 northern hemisphere influenza vaccine, including: an A/California/7/2009(H1N1)pdm09-like virus, retained as vaccine component since the 2009 pandemic; an A/Hong Kong/4801/2014(H3N2)-like virus, representing a clade-level change to a 3C.2a virus; and a B/Brisbane/60/2008-like virus, representing a lineage-level change to a B/Victoria virus. Quadrivalent vaccines will also contain a B/Phuket/3073/2013(Yamagata)-like virus. These recommended components are the same as those to be used for the 2016 southern hemisphere vaccine.

Prepared by BCCDC Influenza & Emerging Respiratory Pathogens Team

Report Disseminated: February 25, 2016



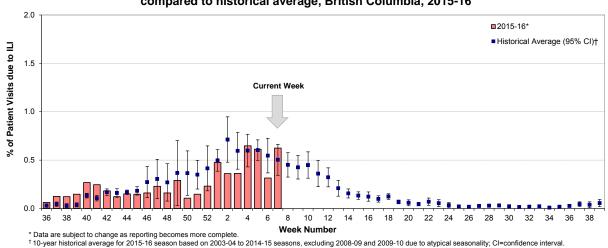




British Columbia

Sentinel Physicians

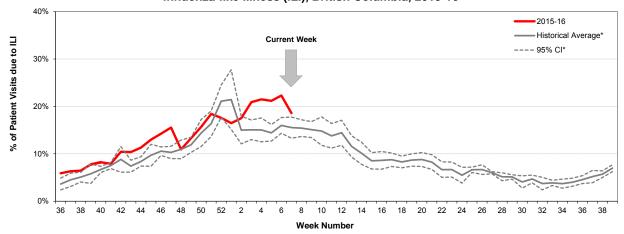
In week 7, the proportion of patients with influenza-like illness (ILI) among those presenting to sentinel sites increased to 0.6% but was within the 10-year historical average for this time of year. One site located in a hospital ER reported ILI rates of 5% in week 7 and has been excluded from the graph. If this site is included, ILI rates increased to >1%. So far, 46% of sentinel sites have reported for week 7.



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 dropped from 22% in week 6 to 19% in week 7, but remained above the 5-year historical average for the fifth consecutive week.



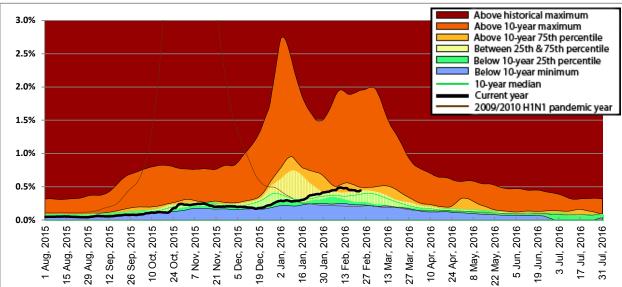
Percent of patients presenting to BC Children's Hospital ER attributed to influenza-like illness (ILI), British Columbia, 2015-16

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 7, BC Medical Services Plan (MSP) general practitioner claims for influenza illness (II), as a proportion of all submitted MSP claims, remained elevated for the province overall. Increasing activity was seen in IHA and VIHA, while decreasing activity was seen in VCHA and FHA. In all regions of the province, rates were above 10-year 75th percentiles for this time of year. Note, however, that current activity levels are lower than the earlier peak activity levels observed in previous seasons.



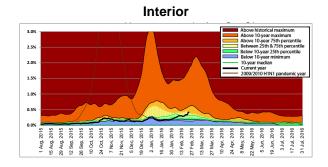
Service claims submitted to MSP for influenza illness (II)* as a proportion of all submitted general practitioner service claims, British Columbia, 2015-16

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

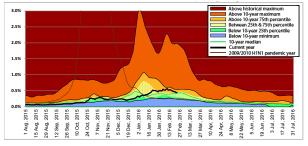
Data for the period August 1, 2009 to July 31, 2010 have been excluded from the 10-year median calculation due to atypical seasonality during the 2009/2010 H1N1 pandemic year. MSP week beginning August 1, 2015 corresponds to sentinel ILI week 30; data are current to February 23, 2016.

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

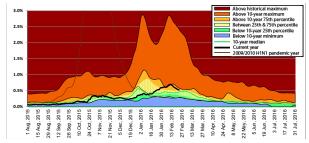
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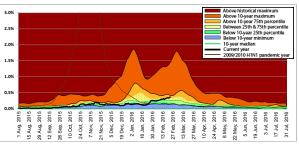




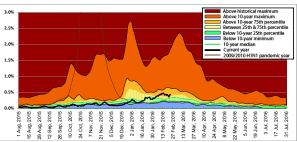
Vancouver Coastal



Vancouver Island



Northern





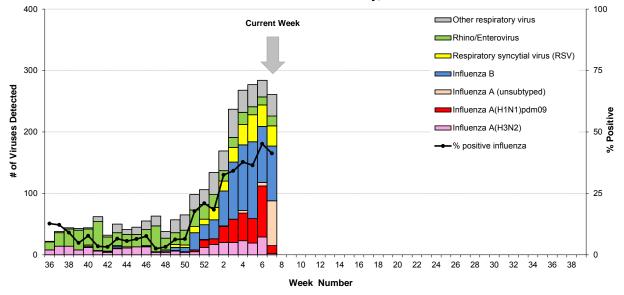
Laboratory Reports

BCCDC Public Health Laboratory

In week 7, 429 patients were tested for respiratory viruses at the BCCDC Public Health Laboratory (PHL). Of these, 174 (41%) tested positive for influenza, including 85 (49%) with influenza A [13 A(H1N1)pdm09, 2 A(H3N2), and 70 subtype pending], 87 (50%) with influenza B, and two (1%) adult patients with influenza A and B co-infection. Influenza positivity decreased slightly in week 7 but remained above 40%. While influenza B viruses comprised the majority of influenza detections from week 50 to week 5, influenza A viruses, predominately A(H1N1)pdm09 among those with known subtype, have comprised an approximately equal proportion of influenza detections since week 6. Respiratory syncytial viruses (RSV) were also commonly detected during this period.

Cumulatively since week 40 (starting October 4, 2015), 1,234 (23%) patients have tested positive for influenza at the BCCDC PHL, including 573 (46%) with influenza A [271 A(H1N1)pdm09, 228 A(H3N2), and 74 subtype pending], 657 (53%) with influenza B, and four adult patients with influenza A and B co-infections. The 2015-16 season to date has been characterized by mixed circulation of influenza A and B viruses, with A(H1N1)pdm09 subtype viruses predominating over A(H3N2) subtype viruses since week 2 among influenza A detections and B/Victoria lineage viruses predominating over B/Yamagata lineage viruses among influenza B detections.

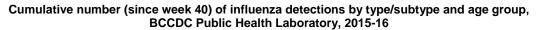
So far this season (cumulatively since week 40), just over one-half (51%) of influenza detections have been in non-elderly, working-aged adults 20-64 years, with a smaller proportion of detections in children <20 years (27%) and elderly adults ≥65 years (21%). However, this age distribution differs by influenza type/subtype: adults 20-64 years, and to a lesser extent children <20 years, comprise a larger proportion of A(H1N1)pdm09 and influenza B cases, while elderly adults ≥65 years comprise a larger proportion of A(H3N2) cases.

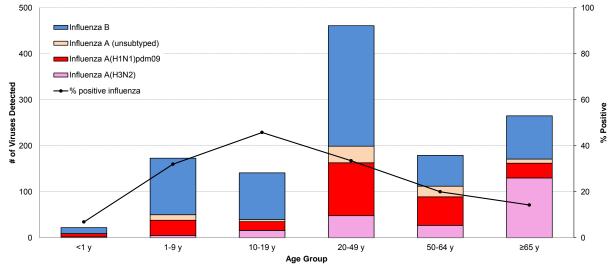




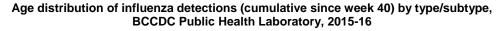
Data are current to February 24, 2016.

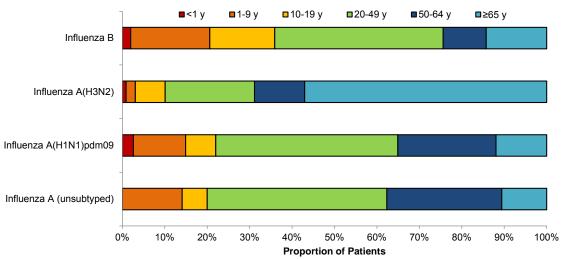
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Data are current to February 24, 2016; figure includes cumulative influenza detections for specimens collected from weeks 40-7.



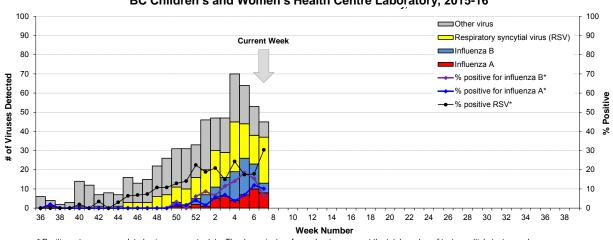


Data are current to February 24, 2016; figure includes cumulative influenza detections for specimens collected from weeks 40-7.



BC Children's and Women's Health Centre Laboratory

In week 7, the BC Children's and Women's Health Centre Laboratory conducted 79 tests for influenza; 8 (10%) were positive for influenza A, and 5 (6%) were positive for influenza B. The proportion of tests positive for influenza B decreased from 15% in week 6 to 6% in week 7, while the proportion positive for influenza A remained stable around 10% in week 7. Respiratory syncytial virus (RSV) was the predominant respiratory virus detected (30% of tests for RSV were positive in week 7).



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.



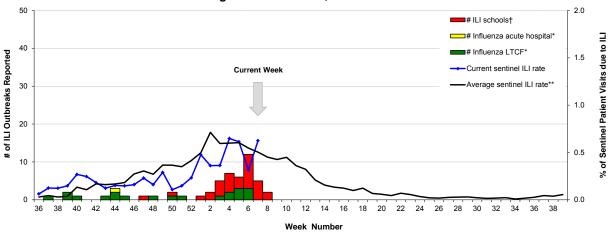
Influenza-like Illness (ILI) Outbreaks

Since our last bulletin one week ago, two new lab-confirmed influenza B outbreaks were reported: one from a long-term care facility (LTCF) in IHA with onset in week 6 and one from a rehabilitation facility in VCHA with onset in week 7 (not shown on graph). Four new ILI outbreaks were reported from schools in IHA: two in week 6, and two in week 8.

In total since mid-August (since week 32, starting August 9, 2015), 23 influenza outbreaks have been reported from facilities, including 21 from LTCFs, one from an acute care facility, and one from a nonresidential facility:

- 13 with A(H3N2) detected; •
- 1 with both A(H3N2) and A(H1N1)pdm09 detected; •
- 2 with both influenza A and B detected (for the influenza A detections, one was A(H3N2) and one • has subtype pending);
- 1 with influenza A detected (subtype pending); and •
- 6 with influenza B detected.

Thirty-three 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

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

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 6, February 7 - 13, 2016)

Overall in week 6, influenza activity in Canada continued to increase. An increase in laboratory detections and outbreaks of influenza were reported in week 6 with the majority due to influenza A. The percentage of tests positive for influenza increased from 21% in week 5 to 26% in week 6, above the five-year expected levels for this time of year (range: 13-22%). However, with the late start to the 2015-16 influenza season, these above normal levels are not unexpected and are typical of peak season levels. Influenza A(H1N1)pdm09 was the most common influenza subtype detected. Young/middle-aged adults accounted for an increasing proportion of hospitalizations as reported by participating provinces and territories. Paediatric hospitalizations reported by the IMPACT network have increased substantially over the past few weeks, reaching 76 hospitalizations in week 6. 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 February 25, 2016, the National Microbiology Laboratory (NML) received 521 influenza viruses [122 A(H3N2), 268 A(H1N1)pdm09 and 131 B] from Canadian laboratories for antigenic characterization.

Influenza A(H3N2): Of the 122 influenza A(H3N2) viruses, only 27 (22%) had sufficient haemagglutination titre for antigenic characterization by haemagglutination inhibition (HI) assay. Of the 27 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 95 viruses that did not grow to sufficient haemagglutination titre for HI assay. Of the 95 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 268 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 131 influenza B viruses characterized, 46 (35%) 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, while 85 (65%) 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 February 25, 2016, the NML received influenza viruses from Canadian laboratories for drug susceptibility testing. Of the 336 influenza A viruses [126 A(H3N2) and 210 A(H1N1)pdm09] tested against amantadine, all were resistant with the exception of one A(H3N2) virus which was sensitive to amantadine. Of the 465 influenza viruses [116 A(H3N2), 230 A(H1N1)pdm09 and 119 B] tested against oseltamivir, all were sensitive except for one A(H1N1)pdm09 virus with a H275Y mutation which was resistant to oseltamivir. Of the 465 influenza viruses [116 A(H3N2), 230 A(H1N1)pdm09 and 119 B] tested against zanamivir, all were sensitive.



International

USA (week 6, February 7 - 13, 2016)

During week 6, influenza activity increased in the United States. The most frequently identified influenza virus type reported by public health laboratories during week 6 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 thresholds. Two influenza-associated paediatric deaths were reported. A cumulative rate for the season of 4.1 laboratory-confirmed influenza-associated hospitalizations per 100,000 population was reported. The proportion of outpatient visits for ILI was 3.1%, which is above the national baseline of 2.1%. The geographic spread of influenza in 12 states was reported as widespread; 20 states reported regional activity; 15 states and the District of Columbia reported local activity; and 3 states reported sporadic activity. Details are available at: www.cdc.gov/flu/weekly/.

WHO (as of February 22, 2016)

Globally, influenza activity in the northern hemisphere continued to increase. High levels of influenza activity have been reported in some countries in Europe. In North America, northern Africa, central and western Asia, increasing activity predominantly of influenza A(H1N1)pdm09 virus was observed. In the temperate countries of northern Asia, activity was ongoing with various proportions of circulating seasonal influenza viruses.

In North America, Canada and the United States of America reported increasing activity predominantly of influenza A(H1N1)pdm09 virus. Mexico reported low levels of A(H3N2) virus activity. Increasing influenza A(H1N1)pdm09 activity continued to be reported in northern, eastern and southern Europe. Belarus, Greece and Ireland reported high-intensity influenza activity and Finland, the Russian Federation and Ukraine reported very high activity. Influenza A(H1N1)pdm09 viruses predominated. In northern Asia, influenza activity was increasing in the Republic of Korea mainly due to influenza A(H1N1)pdm09 virus while in northern China a mixture of influenza A(H1N1)pdm09, A(H3N2) and B viruses were detected. Influenza activity in Mongolia seemed to have peaked with influenza A(H1N1)pdm09 predominating. In Western Asia, influenza activity remained at high levels in Israel and Jordan. Oman reported a decrease in influenza activity. In East Africa in Mauritius increasing influenza A(H1N1)pdm09 activity was reported. In northern Africa, Algeria and Morocco reported increasing influenza A(H1N1)pdm09 virus activity during this period. In tropical countries of the Americas, Central America and the Caribbean, influenza and other respiratory virus activity were overall at low levels in most countries. In Cuba and Jamaica, influenza activity increased during this period. In tropical Asia, countries in Southern and South East Asia continued to report ongoing low influenza activity. In the temperate countries of the Southern Hemisphere respiratory virus activity remained low.

From January 25 to February 7, 2016, the WHO GISRS laboratories tested more than 154,579 specimens. Of these, 38,419 were positive for influenza viruses, including 31,846 (83%) that were typed as influenza A and 6,573 (17%) as influenza B. Of the sub-typed influenza A viruses, 20,503 (87%) were influenza A(H1N1)pdm09 and 3,163 (13%) were influenza A(H3N2). Of the characterized B viruses, 595 (28%) belonged to the B-Yamagata lineage and 1,499 (72%) to the B-Victoria lineage. Details are available at: www.who.int/influenza/surveillance_monitoring/updates/en/.

On February 8, 2016, the WHO published a Risk Assessment on Seasonal Influenza A(H1N1)pdm09, available from: www.who.int/influenza/publications/riskassessment AH1N1pdm09 201602/en/.



WHO Recommendations for Influenza Vaccines

WHO Recommendations for 2016-17 Northern Hemisphere Influenza Vaccine

On February 25, 2016, the WHO announced recommended strain components for the 2016-17 Northern Hemisphere trivalent influenza vaccine (TIV):*

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

These recommended components are the same as those recommended for the 2016 Southern Hemisphere vaccine.

* Recommended strains represent a change for two of the three components used for the 2015-16 Northern Hemisphere vaccines. † Recommended strain has been retained as the A(H1N1) component since the 2009 pandemic and has been included in the Northern Hemisphere vaccine since 2010-11.

‡ Recommended strain for the A(H3N2) component represents a phylogenetic clade-level change from a clade 3C.3a virus to a clade 3C.2a virus.

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

For further details: http://www.who.int/influenza/vaccines/virus/recommendations/2016 17 north/en/.

WHO Recommendations for 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/.



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 12th Ave, Vancouver BC V5Z 4R4

Online: www.bccdc.ca/health-professionals/data-reports/influenza-surveillance-reports

Influenza-Like Illness (ILI) Outbreak Summary Report Form

Please complete and email to <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:	First Notification Update (complete	unit/medical health officer Title: Email: HSDA: (complete section B below e section C below; Section complete section C below;	; Section D if available) 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 first case of ILI (dd/mm/yyyy):DD / MMM / YYYY				
		Numbers to date	Residents/Students	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):DD / 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 Infor		ation:] No 🔲 Don't know	
_	Specimen(s) submitted? Yes (location:) No Don't know If yes, organism identified? Yes (specify:) No Don't know				