British Columbia Influenza Surveillance Bulletin

Influenza Season 2015-16, Number 9, Week 4 January 24 to 30, 2016

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Increasing Influenza Activity in BC, Influenza B Still Predominating

In week 4 (January 24 to 30, 2016), influenza activity continued to increase in BC, with influenza B viruses predominating.

At the BCCDC Public Health Laboratory, influenza positivity has increased steadily in recent weeks, ranging from 32% in week 2 to 35% in week 4. Influenza B detections continued to outnumber influenza A detections, comprising about two-thirds of all influenza positive specimens in week 4. Among influenza A detections, A(H1N1)pdm09 viruses now slightly outnumber A(H3N2) viruses that predominated earlier this season.

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

With increased influenza B activity provincially, the BCCDC was notified this week of a cluster of children in FHA with myositis (i.e. inflammation of muscle tissue) associated with respiratory symptoms. Myositis is a recognized complication of influenza in children, notably influenza B, and is generally selflimited. In this cluster, at least four children were seen in hospital, and influenza B was detected in one.

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Report Disseminated: February 4, 2016



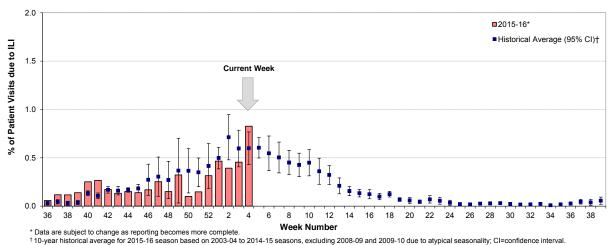




British Columbia

Sentinel Physicians

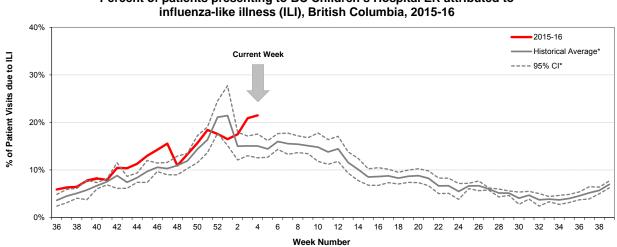
In week 4, the proportion of patients with influenza-like illness (ILI) among those presenting to sentinel sites was significantly above the 10-year historical average for this time of year at 0.83%. So far, 49% of sentinel sites have reported for week 4.



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 4, the proportion of visits to BC Children's Hospital Emergency Room (ER) attributed to ILI increased slightly to 22% and was significantly above the 5-year historical average for this time of year.



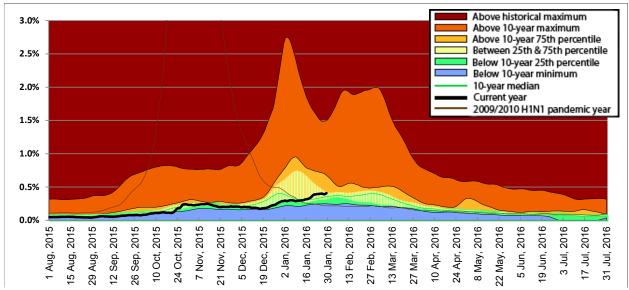
Percent of patients presenting to BC Children's Hospital ER attributed to

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 week 4, BC Medical Services Plan (MSP) general practitioner claims for influenza illness (II), as a proportion of all submitted MSP claims, increased in all regions of the province, except in IHA. In FHA and VCHA, rates were above 10-year 75th percentiles; in VIHA, NHA and for the province overall, rates were within 10-year median levels; while in IHA, rates were below 10-year 25th percentiles.

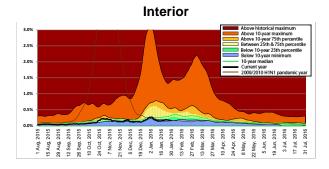


Service claims submitted to MSP for influenza illness (II)* as a proportion of all submitted general practitioner service claims, British Columbia, 2015-16

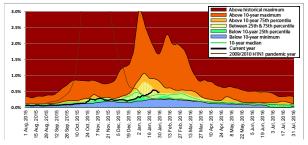
* Influenza illness is tracked as the percentage of all submitted MSP general practitioner claims with ICD-9 code 487 (influenza).

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 29, 2016.

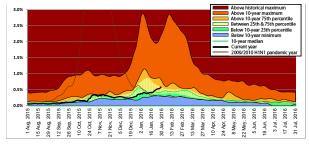
Data provided by Population Health Surveillance and Epidemiology, BC Ministry of Health Services.



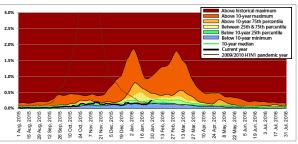




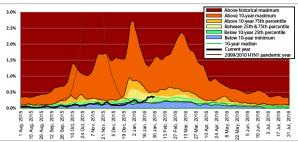
Vancouver Coastal



Vancouver Island



Northern





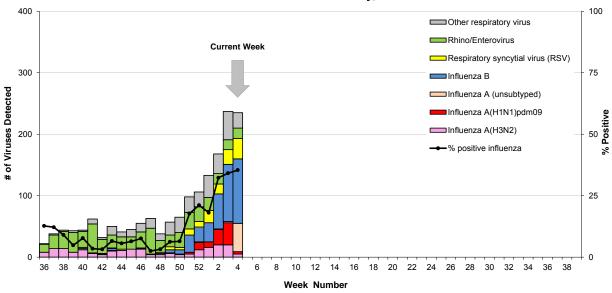
Laboratory Reports

BCCDC Public Health Laboratory

In week 4, 452 patients were tested for respiratory viruses at the BCCDC Public Health Laboratory. Of these, 158 (35%) tested positive for influenza, including 53 (34%) with influenza A [5 A(H3N2), 4 A(H1N1)pdm09, and 44 subtype pending], 104 (66%) with influenza B, and one elderly patient with an influenza A and B co-infection. Influenza positivity has increased steadily in recent weeks (ranging from 32% in week 2 to 35% in week 4), following a sharp rise from around 20% in weeks 51-1 to >30% in weeks 2-4. Influenza B detections continued to outnumber influenza A detections in week 4, comprising about two-thirds of all influenza positive specimens.

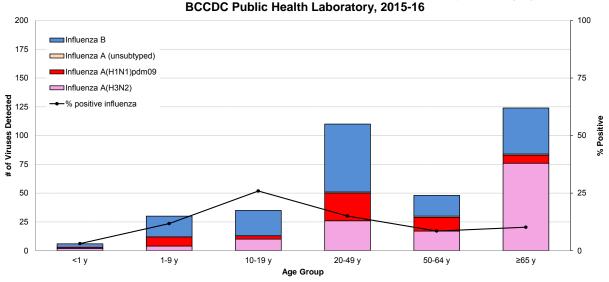
Cumulatively since week 40 (starting October 4, 2015), 654 (17%) patients have tested positive for influenza at the BCCDC Public Health Laboratory, including 299 (50%) with influenza A [161 A(H3N2), 93 A(H1N1)pdm09 and 45 subtype pending], 353 (50%) with influenza B, and two patients with influenza A and B co-infections. Influenza B viruses have comprised the majority 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(H1N1)pdm09 subtype viruses, as of week 3, now slightly outnumber A(H3N2) viruses that predominated earlier this season.

So far this season (cumulatively since week 40), just under one-half (44%) of influenza detections have been in non-elderly, working-aged adults 20-64 years; this proportion has increased in recent weeks driven in part by increased circulation of influenza B and A(H1N1)pdm09 viruses. Elderly adults ≥65 years comprise just over one-third of influenza detections, driven by early season circulation of A(H3N2) viruses, while children <20 years comprise about 20% of detections.



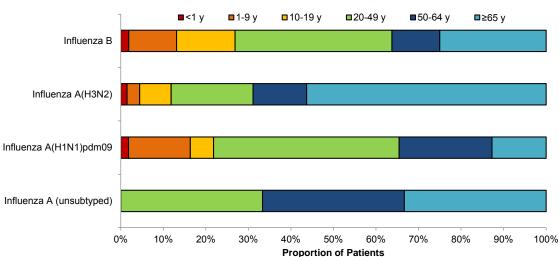
Influenza and other virus detections among respiratory specimens submitted to BCCDC Public Health Laboratory, 2015-16

Data are current to February 3, 2016.



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

Data are current to February 3, 2016; figure includes cumulative influenza detections for specimens collected from weeks 40-4.



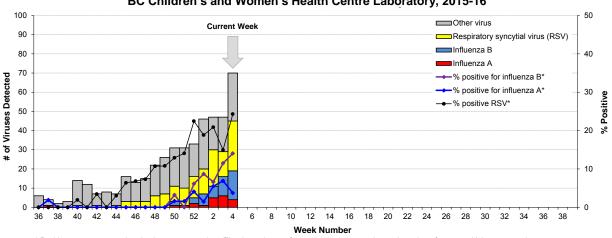
Age distribution of influenza detections (cumulative since week 40) by type/subtype, BCCDC Public Health Laboratory, 2015-16

Data are current to February 3, 2016; figure includes cumulative influenza detections for specimens collected from weeks 40-4.



BC Children's and Women's Health Centre Laboratory

In week 4, the BC Children's and Women's Health Centre Laboratory conducted 107 tests for influenza; 4 (4%) were positive for influenza A, and 15 (14%) were positive for influenza B. The proportion of tests positive for respiratory syncytial virus (RSV) rose to 24% in week 4. Human Metapneumovirus and coronaviruses 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

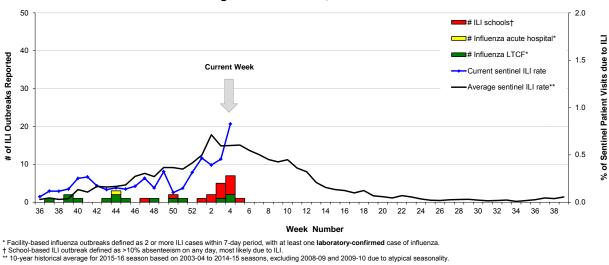
* Positive rates were caculated using aggregate data. The denominators for each rate represent the total number of tests; multiple tests may be performed for a single specimen and/or patient.



Influenza-like Illness (ILI) Outbreaks

Since our last bulletin one week ago, one new lab-confirmed influenza B outbreak was reported from a long-term care facility (LTCF) in FHA with onset in week 4.¹ Two new ILI outbreaks were reported from schools in IHA: one in week 4, and one in week 5.

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. Fifteen 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

¹ One LTCF outbreak in FHA with onset in week 4 that was previously reported in our last bulletin as influenza B was subsequently reclassified to a non-influenza-associated outbreak and has been removed from the figure.

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.



Cluster of myositis associated with respiratory symptoms

In association with recent increase in influenza B activity, the BCCDC was notified this week of a cluster of about 15-20 children in FHA with myositis (i.e. inflammation of muscle tissue) and respiratory symptoms. At least four of these children were seen in hospital. Influenza B infection was detected in one child; however, respiratory specimens were not systematically collected from patients for diagnostic testing. Acute myositis is a recognized complication of influenza infection in children, more often associated with influenza B infections, but also seen with influenza A. Clinical presentation includes sudden onset of severe pain and tenderness in the calves of both legs resulting in difficulty walking following typical influenza-like illness. The condition is generally self-limited.



National

FluWatch (week 3, January 17 to 23, 2016):

Overall in week 3, seasonal influenza activity increased from the previous week but remained below expected levels for this time of year. Influenza A(H1N1)pdm09 was the most common influenza subtype circulating in Canada, with the majority of influenza detections being reported from western provinces. Influenza B comprises less than a guarter of influenza detections so far this season in almost all provinces, except BC where influenza B represents just over one-third of overall influenza detections. Laboratory detections of influenza increased to 12% in week 3 but remain below the expected range of 13-30% based on rates for the previous five seasons for this time of the year. To date, influenza laboratory detections and hospitalizations have been predominantly in seniors greater than 65 years of age. Adults aged 65 years and older accounted for 27% of reported influenza cases, with variation observed by type/subtype. Adults aged 65 years and older represented 44% of reported A(H3N2) cases; whereas, adults aged 20-44 years represented 26% of reported influenza A(H1N1)pdm09 cases and 29% of reported influenza B cases. In week 3, 24 new lab-confirmed, influenza-associated paediatric hospitalizations were reported by the IMPACT network, nine due to A(H1N1)pdm09, five due to influenza B, and 10 due to influenza A (unsubtyped). Details are available at: healthycanadians.gc.ca/diseasesconditions-maladies-affections/disease-maladie/flu-grippe/surveillance/fluwatch-reports-rapportssurveillance-influenza-eng.php.

National Microbiology Laboratory (NML): Strain Characterization

From September 1, 2015 to February 4, 2016, the National Microbiology Laboratory (NML) received 282 influenza viruses [106 A(H3N2), 132 A(H1N1)pdm09 and 44 B] from Canadian laboratories for antigenic characterization.

Influenza A(H3N2): Of the 106 influenza A(H3N2) viruses, only 15 (14%) had sufficient haemagglutination titre for antigenic characterization by haemagglutination inhibition (HI) assay. Of the 15 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 91 viruses that did not grow to sufficient titre for HI assay. Of the 91 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 132 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 44 influenza B viruses characterized, 27 (61%) 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. Seventeen (39%) 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 4, 2016, the NML received influenza viruses from Canadian laboratories for drug susceptibility testing. Of the 209 influenza A viruses [107 A(H3N2) and 102 A(H1N1)pdm09] tested against amantadine, all were resistant with the exception of one A(H3N2) virus which was sensitive to amantadine. Of the 275 influenza viruses [100 A(H3N2), 129 A(H1N1)pdm09 and 46 B] tested against oseltamivir, all were sensitive. Of the 274 influenza viruses [100 A(H3N2), 128 A(H1N1)pdm09 and 46 B] tested against zanamivir, all were sensitive.



International

USA (week 3, January 17 to 23, 2016): During week 3, influenza activity increased slightly in the United States. The most frequently identified influenza virus type reported by public health laboratories during week 3 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 epidemic thresholds. No influenza-associated paediatric deaths were reported. A cumulative rate for the season of 2.1 laboratory-confirmed influenza-associated hospitalizations per 100,000 population was reported. The proportion of outpatient visits for ILI was 2.2%, which is above the national baseline of 2.1%. The geographic spread of influenza in four states was reported as widespread; 14 states reported regional activity; 12 states reported local activity; and 20 states reported sporadic activity. Details are available at: www.cdc.gov/flu/weekly/.

WHO: There have been no new WHO surveillance updates since our last bulletin. Previous updates 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 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:)				
	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 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				