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

British Columbia Influenza Surveillance Bulletin

Influenza Season 2015-16, Number 18, Week 14 April 3 to 9, 2016

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Late-Season Influenza A(H1N1)pdm09 Circulation Continues in BC

In week 14 (April 3 to 9, 2016), most influenza surveillance indicators continued a declining trend and returned to expected seasonal levels for this time of year. Although the epidemic peak has likely passed, influenza viruses, mostly A(H1N1)pdm09, continued to be detected, indicating ongoing lateseason activity.

At the BCCDC Public Health Laboratory, influenza positivity remained elevated at 28% in week 14, declining from a peak of 45% in week 6. Influenza A(H1N1)pdm09 viruses continued to predominate, comprising ~70% of influenza detections with known type/subtype, and with lesser co-circulation of influenza B viruses.

Since our last bulletin one week ago, one new influenza A outbreak (subtype pending) was reported in FHA with onset in week 14.

Medical Services Plan (MSP) claims for influenza illness continued a steady decline and approached median levels in week 14. Sentinel ILI rates were within the 10-year historical average for this time of year.

Prepared by BCCDC Influenza & Emerging Respiratory Pathogens Team

Report Disseminated: April 14, 2016



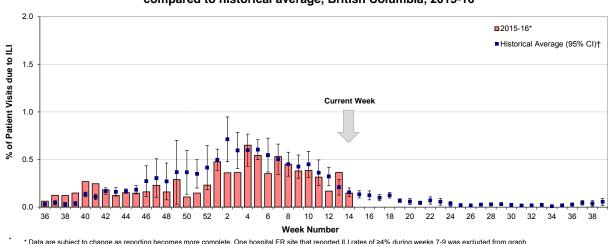




British Columbia

Sentinel Physicians

The proportion of patients with influenza-like illness (ILI) among those presenting to sentinel sites fell to 0.15% in week 14, consistent with the 10-year historical average for this time of year. So far, 60% of sentinel sites have reported for week 14.

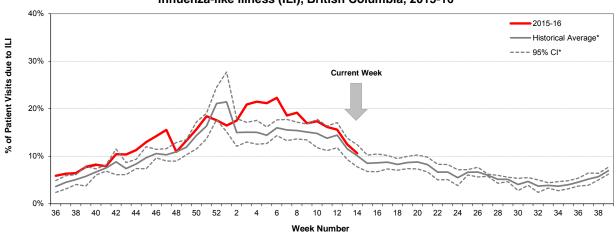


Percent of patient visits to sentinel physicians due to influenza-like illness (ILI) compared to historical average, British Columbia, 2015-16

* Data are subject to change as reporting becomes more complete. One hospital ER site that reported ILI rates of ≥4% during weeks 7-9 was excluded from graph.
†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; CI=confidence interval.

BC Children's Hospital Emergency Room

The proportion of visits to BC Children's Hospital Emergency Room (ER) attributed to ILI continued a downward trend, falling from 13% in week 13 to 11% in week 14, and was consistent with the 5-year historical average for this time of year.



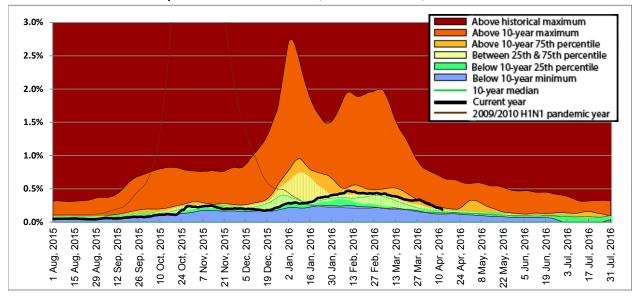
Percent of patients presenting to BC Children's Hospital ER attributed to influenza-like illness (ILI), British Columbia, 2015-16

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

BC Medical Services Plan (MSP) general practitioner claims for influenza illness (II), as a proportion of all submitted MSP claims, continued a steady decline, approaching median levels in week 14. Rates were between 10-year 25th and 75th percentiles in all Health Authorities and for the province overall in week 14, with the exception of VIHA where rates were above 10-year maximums. Overall, rates for this season continue to be lower than historical peak levels observed in previous seasons and suggest a later than typical seasonality.



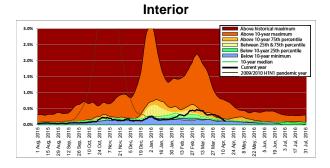
Service claims submitted to MSP for influenza illness (II)* as a proportion of all submitted general practitioner service claims, British Columbia, 2015-16

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

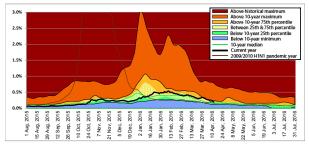
Data for the period August 1, 2009 to July 31, 2010 have been excluded from the 10-year median calculation due to atypical seasonality during the 2009/2010 H1N1 pandemic year. MSP week beginning August 1, 2015 corresponds to sentinel ILI week 30; data are current to April 12, 2016.

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

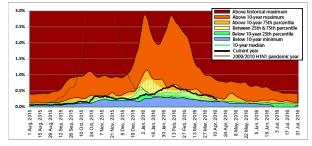
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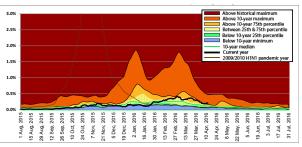




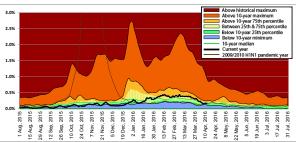
Vancouver Coastal



Vancouver Island



Northern





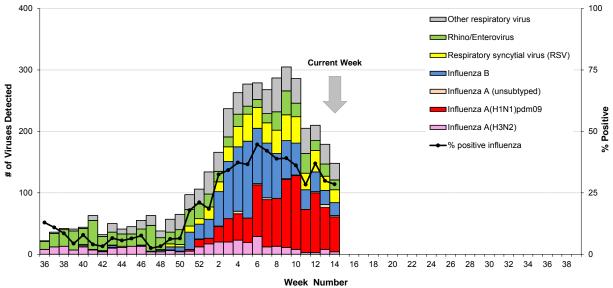
Laboratory Reports

BCCDC Public Health Laboratory

In week 14, 295 patients were tested for respiratory viruses at the BCCDC Public Health Laboratory (PHL). Of these, 83 (28%) tested positive for influenza, including 62 (75%) with influenza A [56 A(H1N1)pdm09, 4 A(H3N2), and 2 subtype pending], 20 (24%) with influenza B, and one adult patient with an influenza A(H1N1)pdm09 and B co-infection. Since peaking at 45% in week 6, influenza positivity has continued a steady declining trend but remained elevated at 28% in week 14. Influenza A(H1N1)pdm09 continued to be the predominant circulating influenza virus detected at the BCCDC PHL in week 14, comprising ~70% of influenza detections with known type/subtype. Respiratory syncytial viruses (RSV) and entero/rhinoviruses were also detected during this period.

Cumulatively since week 40 (starting October 4, 2015), 2162 (28%) patients have tested positive for influenza at the BCCDC PHL, including 1217 (56%) with influenza A [919 A(H1N1)pdm09, 289 A(H3N2), and 9 subtype pending], 940 (43%) with influenza B, and five 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 and B/Victoria lineage viruses predominating over B/Yamagata lineage viruses throughout.

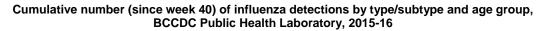
So far this season (cumulatively since week 40), just over one-half (53%) of influenza detections have been in non-elderly, working-aged adults 20-64 years, with a smaller proportion of detections in children <20 years (25%) and elderly adults ≥65 years (22%). However, this age distribution differs by 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.

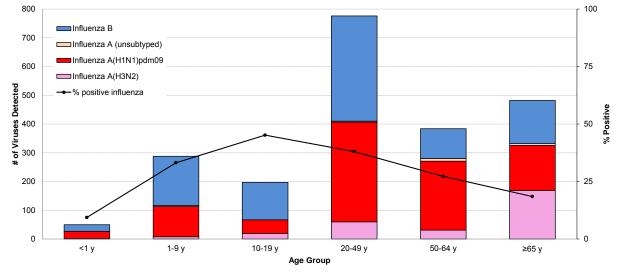




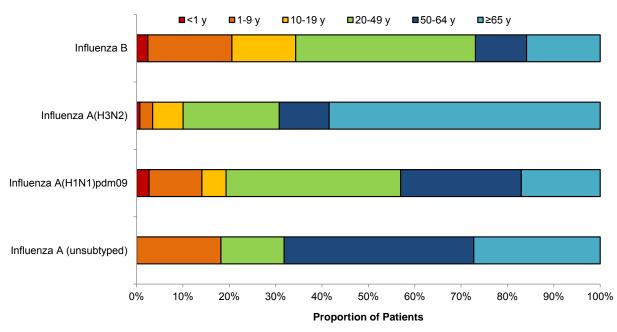
Data are current to April 13, 2016.

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Data are current to April 13, 2016; figure includes cumulative influenza detections for specimens collected from weeks 40-14.



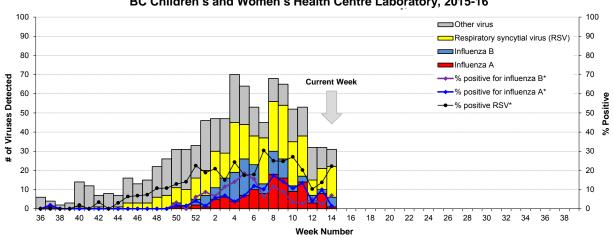
Age distribution of influenza detections (cumulative since week 40) by type/subtype, BCCDC Public Health Laboratory, 2015-16

Data are current to April 13, 2016; figure includes cumulative influenza detections for specimens collected from weeks 40-14.



BC Children's and Women's Health Centre Laboratory

In week 14, the BC Children's and Women's Health Centre Laboratory conducted 72 tests for influenza; 1 (1%) was positive for influenza A, and 5 (7%) were positive for influenza B. Respiratory syncytial viruses (RSV) were also commonly detected during this period.





* Positive rates were calculated 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

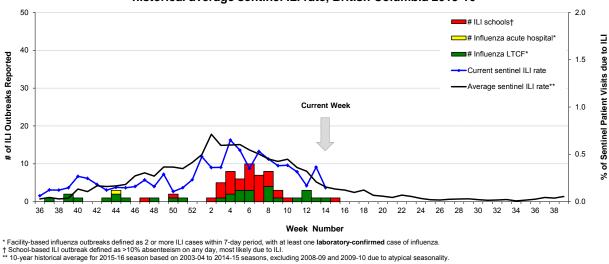
Since our last bulletin one week ago, one new lab-confirmed influenza A outbreak (subtype pending) was reported in a long-term care facility (LTCF) in FHA, with onset in week 14. One new ILI outbreak was reported in a school in week 15.

In total since mid-August (since week 32, starting August 9, 2015), 35 influenza outbreaks have been reported from facilities, including 32 from LTCFs, 1 from an acute care facility, and 2 from rehabilitation facilities:

- 17 with influenza A(H3N2) detected; •
- 4 with influenza A(H1N1)pdm09 detected; •
- 1 with influenza A (subtype pending) detected; •
- 2 with both influenza A(H3N2) and A(H1N1)pdm09 detected; •
- 2 with both influenza A(H3N2) and B detected; and •
- 9 with influenza B detected.

Of note, despite prominent A(H1N1)pdm09 contribution to influenza detections overall this season in BC (among laboratory detections by the BCCDC PHL with known type/subtype: 43% A(H1N1)pdm09, 13% A(H3N2) and 44% influenza B), A(H1N1)pdm09 has been a lesser contributor to facility influenza outbreaks (among facility influenza outbreaks with known type/subtype: 19% A(H1N1)pdm09, 68% A(H3N2), 35% influenza B).

In addition, 38 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 13, March 27 to April 2, 2016)

Influenza activity peaked nationally in week 10; however, lower but sustained activity is being reported throughout the country. Most reporting regions reported sporadic or localized activity. In week 13, the number of influenza A detections was decreasing, while the number of influenza B detections was increasing, accounting for 36% of positive influenza tests. Overall, the percentage of tests positive for influenza continued to decrease, from 30% in week 12 to 28% in week 13, still above the five-year expected levels for this time of year (range: 12-18%). However, with the late start to the 2015-16 influenza season, these above-normal levels are not unexpected. Hospitalizations, ICU admissions and deaths among the paediatric population, while declining, remain above expected levels based on the past several influenza seasons. Fewer outbreaks were reported in week 13 than in the preceding week, with over half of the outbreaks reported in long-term care facilities. 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 April 14, 2016, the National Microbiology Laboratory (NML) received 1580 influenza viruses [179 A(H3N2), 889 A(H1N1)pdm09 and 512 B] from Canadian laboratories for antigenic characterization.

Influenza A(H3N2): Of the 179 influenza A(H3N2) viruses, only 42 (23%) had sufficient haemagglutination titre for antigenic characterization by haemagglutination inhibition (HI) assay. Of the 42 viruses characterized by HI assay, all were considered antigenically similar to cell-passaged A/Switzerland/9715293/2013, the WHO-recommended A(H3N2) component for the 2015-16 northern hemisphere influenza vaccine. Genetic characterization was performed to infer antigenic properties on the remaining 137 viruses that did not grow to sufficient haemagglutination titre for HI assay. Of the 137 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 889 A(H1N1)pdm09 viruses characterized were antigenically similar to A/California/7/2009, the WHO-recommended A(H1N1) component for the 2015-16 northern hemisphere influenza vaccine.

Influenza B: Of the 512 influenza B viruses characterized, 125 (24%) were antigenically similar to B/Phuket/3073/2013 (Yamagata lineage), the recommended influenza B component for the 2015-16 northern hemisphere influenza vaccine, while 387 (76%) were characterized as B/Brisbane/60/2008 (Victoria lineage), 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 April 14, 2016, the NML received influenza viruses from Canadian laboratories for drug susceptibility testing. Of the 1027 influenza A viruses [173 A(H3N2) and 854 A(H1N1)pdm09] tested against amantadine, all were resistant with the exception of one A(H3N2) virus which was sensitive to amantadine. Of the 1078 influenza viruses [142 A(H3N2), 656 A(H1N1)pdm09 and 280 B] tested against oseltamivir, all A(H3N2) and B viruses and 648/656 (99%) A(H1N1)pdm09 viruses were sensitive; eight A(H1N1)pdm09 viruses with a H275Y mutation were resistant. Of the 1079 influenza viruses [142 A(H3N2), 657 A(H1N1)pdm09 and 280 B] tested against zanamivir, all were sensitive.



International

USA (week 13, March 27 - April 2, 2016)

During week 13, influenza activity decreased slightly, but remained elevated in the United States. The most frequently identified influenza virus type reported by public health laboratories during week 13 was influenza A, with influenza A(H1N1)pdm09 viruses predominating. The percentage of respiratory specimens testing positive for influenza in clinical laboratories decreased. 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. Seven influenza-associated paediatric deaths were reported. A cumulative rate for the season of 24.4 laboratory-confirmed influenza-associated hospitalizations per 100,000 population was reported. The proportion of outpatient visits for influenza in 25 states was reported as widespread, 18 states reported regional activity, four states reported local activity, and three states reported sporadic activity. Details are available at: www.cdc.gov/flu/weekly/.

WHO

There have been no new WHO influenza updates since our last bulletin. Previous updates 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 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				