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

British Columbia Influenza Surveillance Bulletin

Influenza Season 2016-17, Number 18, Week 12 March 19 to 25, 2017

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Late-season Influenza Outbreaks but Overall Low-level Activity in BC

During week 12 (March 19 to 25, 2017), most surveillance indicators were at expected seasonal levels, although late-season influenza outbreaks continue to be reported from long-term care facilities (LTCFs). Influenza B remains the dominant type in week 12.

At the BCCDC Public Health Laboratory, influenza positivity remained elevated but fell slightly to below 20% for the first time since week 50. Influenza B viruses comprised approximately 70% of all influenza detections in week 12.

Since last week's bulletin, 4 new influenza outbreaks were reported, including 2 with influenza A and 2 with influenza B detected. The majority of the 189 LTCF outbreaks reported to date this season had influenza A detected, although an increasing number of influenza B outbreaks have been reported in recent weeks. This cumulative tally already exceeds the total number of LTCF outbreaks reported during the last A(H3N2)-dominant season in 2014-15 (n=165 from week 40 to week 17), which had previously been associated with the highest number of LTCF outbreaks recorded in the past decade.

Other surveillance indicators (e.g. MSP, sentinel ILI) were at expected levels for this time of year.

Prepared by BCCDC Influenza & Emerging Respiratory Pathogens Team

Report Disseminated: March 30, 2017



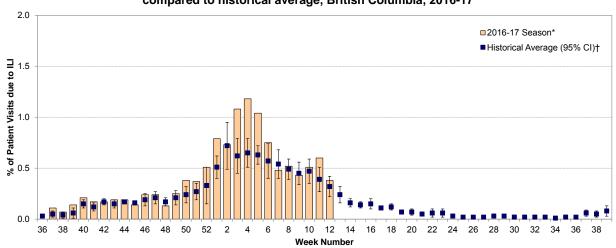




British Columbia

Sentinel Physicians

The proportion of patients with influenza-like illness (ILI) among those presenting to sentinel sites was within the 10-year historical average for this time of year at 0.38% in week 12. So far, 52% of sites have reported data for week 12; rates are subject to change as reporting becomes more complete.

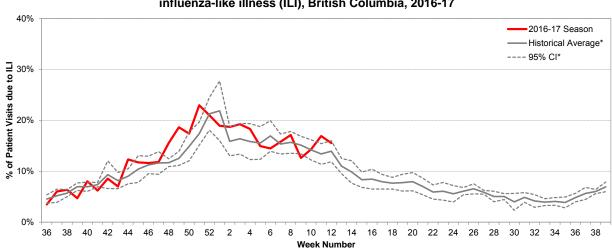


Percent of patient visits to sentinel physicians due to influenza-like illness (ILI) compared to historical average, British Columbia, 2016-17

* Data are subject to change as reporting becomes more complete. One hospital ER site that reported ILI rates ≥5% was excluded from the graph. † 10-year historical average for 2016-17 season based on 2004-05 to 2015-2016 seasons, excluding 2008-09 and 2009-10 due to atypical seasonality; CI=confidence interval.

BC Children's Hospital Emergency Room

In week 12, the proportion of visits to BC Children's Hospital Emergency Room (ER) attributed to ILI was 16%, slightly higher than the 5-year historical average but within expected values for this time of year.



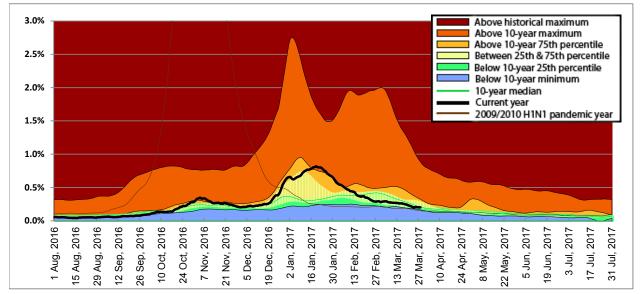
Percent of patients presenting to BC Children's Hospital ER attributed to influenza-like illness (ILI), British Columbia, 2016-17

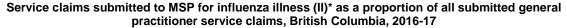
Source: BCCH Admitting, Discharge, Transfer database (ADT). Data includes records with a triage chief complaint of "flu" or "influenza" or "fever/cough." * 5-year historical average for 2016-17 season based on 2011-12 to 2015-16 seasons; CI=confidence interval.



Medical Services Plan

In week 12, BC Medical Services Plan (MSP) general practitioner claims for influenza illness (II), as a proportion of all submitted MSP claims, were at or below expected median levels for this time of year in all regions of the province.



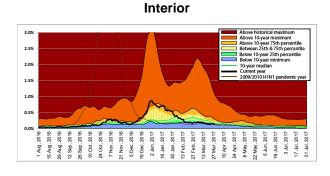


* Influenza illness is tracked as the percentage of all submitted MSP general practitioner claims with ICD-9 code 487 (influenza).

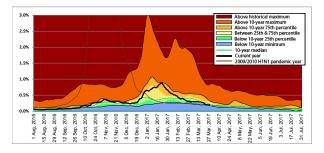
Data for the period August 1, 2009 to July 31, 2010 have been excluded from the 10-year median calculation due to atypical seasonality during the 2009/2010 H1N1 pandemic year. MSP week beginning August 1, 2016 corresponds to sentinel ILI week 31; data are current to March 28, 2017.

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

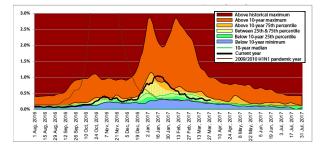




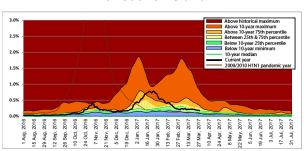




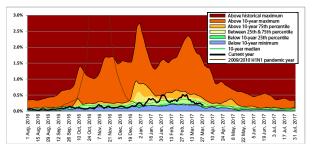
Vancouver Coastal



Vancouver Island



Northern



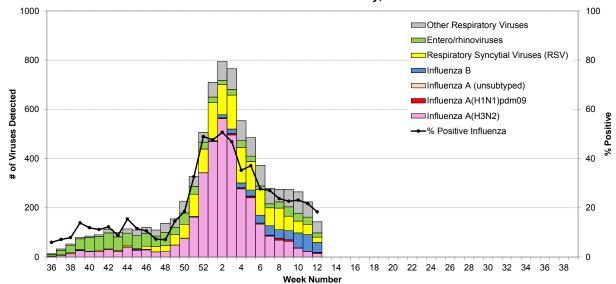


Laboratory Reports

BCCDC Public Health Laboratory

In week 12, 322 patients were tested for respiratory viruses at the BCCDC Public Health Laboratory (PHL). Of these, 59 (18%) tested positive for influenza, including 19 (32%) with influenza A [15 A(H3N2), 3 A(H1N1)pdm09 and 1 with subtype pending] and 40 (68%) with influenza B. Overall influenza positivity remained elevated but fell slightly to below 20% for the first time since week 50. Influenza B viruses continued to comprise the majority of influenza detections at the BCCDC PHL, representing approximately 70% of all influenza detections in week 12.

Cumulatively since week 40 (starting October 2, 2016), 3741 (32%) patients tested positive for influenza at the BCCDC PHL, including 3341 (89%) with influenza A [3302 A(H3N2), 35 A(H1N1)pdm09 and 4 subtype pending], 397 (11%) with influenza B and three patients who had both influenza A and B detected during the season. Elderly adults \geq 65 years old are disproportionately represented among influenza A(H3N2) detections, although younger age groups are also affected; whereas, adults 20-64 years old comprise a larger proportion of influenza B detections.

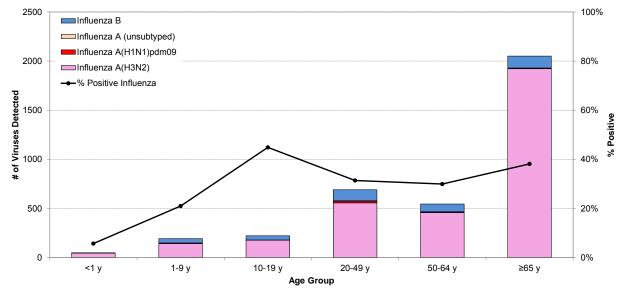


Influenza and other virus detections among respiratory specimens submitted to BCCDC Public Health Laboratory, 2016-17

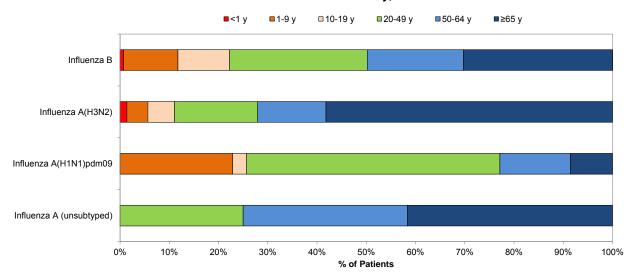
Data are current to March 29, 2017.

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Data are current to March 29, 2017; figure includes cumulative influenza detections for specimens collected from weeks 40-12.



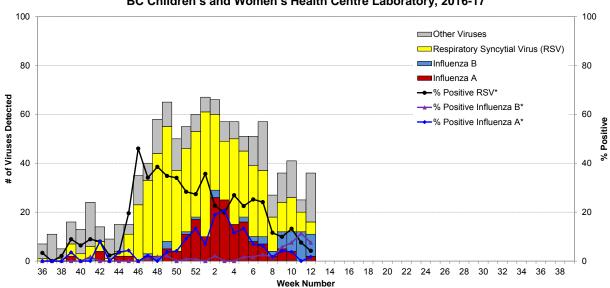
Age distribution of influenza detections (cumulative since week 40), BCCDC Public Health Laboratory, 2016-17

Data are current to March 29, 2017; figure includes cumulative influenza detections for specimens collected from weeks 40-12.



BC Children's and Women's Health Centre Laboratory

In week 12, the proportion of tests positive for influenza B at the BC Children's and Women's Health Centre Laboratory remained elevated but fell slightly from the previous week from 11% to 8%. Of the 119 tests conducted, 9 (8%) were positive for influenza B and 2 (2%) were positive for influenza A; 5 (4%) were positive for respiratory syncytial virus (RSV).



Influenza and other virus detections among respiratory specimens submitted to BC Children's and Women's Health Centre Laboratory, 2016-17

* 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.



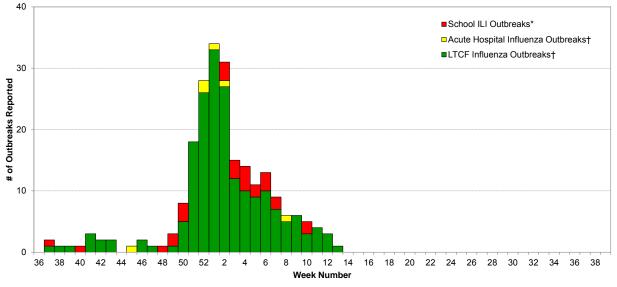
Influenza-like Illness (ILI) Outbreaks

Since last week's bulletin, four new influenza outbreaks were reported, all from long-term care facilities (LTCFs). Two were reported from FHA (both influenza A, subtype pending), and two from VCHA (both influenza B). Onset dates ranged from weeks 11 through 13.

Cumulatively during the 2016-17 season (since week 37, starting September 11, 2016), a total of 199 influenza outbreaks have been reported as of March 30, 2017, including 189 in LTCFs, six in acute care settings, and four from other facility types. This cumulative tally of LTCF outbreaks for the 2016-17 season (n=189) already exceeds the total number of LTCF outbreaks reported during the last A(H3N2)-dominant season in 2014-15 (n=165 from week 40 to week 17), which had previously been associated with the highest number of LTCF outbreaks recorded in the past decade.

The majority (182/199, 91%) of facility outbreaks reported this season had influenza A detected [all A(H3N2) where subtype information is available]; however, an increasing number of outbreaks with influenza B detected have been reported in recent weeks. In total this season, 16 influenza B outbreaks were reported. One outbreak with both influenza A and B detected was additionally reported.

A total of 27 school ILI outbreaks have also been reported so far during the 2016-17 season but without etiologic agent identified.



Number of influenza-like illness (ILI) outbreaks reported, compared to current sentinel ILI rate and historical average sentinel ILI rate, British Columbia 2016-17

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

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



National

FluWatch (week 11, March 12 to 18, 2017)

Overall, the slow decline in influenza activity in Canada has continued in week 11. However, many parts of Canada, particularly the Eastern and Atlantic regions are still reporting elevated activity. In week 11, the number of laboratory detections, outbreaks and the number of geographic regions with influenza activity, decreased from the previous week. Although adult sentinel hospitalizations decreased from the previous week, the number of hospitalizations and deaths reported by participating provinces and territories increased. Influenza B detections and outbreaks in Canada are slowly increasing. Although declining for most indicators, influenza A(H3N2) continues to be the most common subtype of influenza affecting Canadians. The majority of laboratory detections, hospitalizations and deaths have been among adults aged ≥65 years. 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, 2016 to March 30, 2017, the National Microbiology Laboratory (NML) received 1460 influenza viruses [1293 A(H3N2), 31 A(H1N1)pdm09 and 136 B] from Canadian laboratories for antigenic characterization.

Influenza A(H3N2): Of the 1293 influenza A(H3N2) viruses, only 329 (25%) had sufficient haemagglutination titre for antigenic characterization by haemagglutination inhibition (HI) assay. Of the 329 viruses characterized by HI assay, all were considered antigenically similar to A/Hong Kong/4801/2014, the WHO-recommended A(H3N2) component for the 2016-17 northern hemisphere influenza vaccine. Of the 326 out of 329 viruses antigenically characterized with available sequencing information, 278 (85%) belonged to genetic group 3C.2a and 48 (15%) belonged to genetic group 3C.3a. Genetic characterization was performed to infer antigenic properties on the remaining 964 viruses that did not grow to sufficient haemagglutination titre for HI assay. Of the 964 viruses genetically characterized, all were reported to belong to genetic group 3C.2a, which includes the A/Hong Kong/4801/2014 vaccine strain.

Influenza A(H1N1)pdm09: The 31 A(H1N1)pdm09 viruses characterized were antigenically similar to A/California/7/2009, the WHO-recommended A(H1N1) component for the 2016-17 northern hemisphere influenza vaccine.

Influenza B: Of the 136 influenza B viruses characterized, 40 (29%) were antigenically similar to a B/Brisbane/60/2008(Victoria lineage)-like virus, the WHO-recommended influenza B component for the 2016-17 northern hemisphere trivalent influenza vaccine. The remaining 96 (71%) viruses were characterized as a B/Phuket/3073/2013(Yamagata lineage)-like virus, the other WHO-recommended influenza B component for the 2016-17 northern hemisphere quadrivalent influenza vaccine containing two influenza B components.

National Microbiology Laboratory (NML): Antiviral Resistance

From September 1, 2016 to March 30, 2017, the NML received influenza viruses from Canadian laboratories for drug susceptibility testing.

<u>Amantadine</u>: Of the 186 influenza A viruses [161 A(H3N2) and 25 A(H1N1)pdm09] tested against amantadine, all were resistant.

Oseltamivir: Of the 788 influenza viruses [662 A(H3N2), 25 A(H1N1)pdm09 and 101 B] tested against oseltamivir, 787 out of 788 were sensitive; one A(H3N2) virus was resistant to oseltamivir.

Zanamivir: Of the 788 influenza viruses [662 A(H3N2), 24 A(H1N1)pdm09 and 102 B] tested against zanamivir, all were sensitive.



Mid-season Estimates of 2016-17 Influenza Vaccine Effectiveness, North America

<u>Canada</u>

On February 9, 2017, researchers from the Canadian Sentinel Practitioner Surveillance Network (SPSN) published the first mid-season estimates of influenza vaccine effectiveness (VE) for the 2016-17 season. They found VE of 42% (95% confidence interval (CI): 18-59%) against outpatient medically attended, laboratory-confirmed A(H3N2) illness, which has been the dominant subtype so far this season. This finding indicates that, compared to unvaccinated people, the risk of A(H3N2) illness in vaccinated people was reduced by about 40%. This VE estimate is consistent with vaccine protection typically expected for A(H3N2)-dominant seasons, but is considerably higher than in the last A(H3N2)-dominant 2014-15 season when no vaccine protection was found.

The full report is available at: www.eurosurveillance.org/ViewArticle.aspx?ArticleId=22714.

United States

On February 17, 2017, the U.S. Flu VE Network published mid-season estimates of 2016-17 influenza VE, reporting an adjusted VE of 43% (95% CI: 29-54%) for A(H3N2). These findings are consistent with Canadian mid-season estimates published last week, suggesting VE of around 40% against outpatient, medically attended A(H3N2) illness, which has been the dominant influenza strain so far during the 2016-17 season. Both the Canadian and U.S. studies used a test-negative design to derive influenza VE.

For details see: www.cdc.gov/mmwr/volumes/66/wr/mm6606a3.htm?s_cid=mm6606a3_w.



International

USA (week 11, March 12 to 18, 2017)

During week 11, influenza activity decreased, but remained elevated in the United States. The most frequently identified influenza virus subtype reported by public health laboratories during week 11 was influenza A(H3N2). The percentage of respiratory specimens testing positive for influenza in clinical laboratories decreased. Of the 880 A(H3N2) viruses genetically characterized by the US CDC during the 2016-17 season, 96% belonged to genetic group 3C.2a, including the newly emerging subgroup 3C.2a1, and 4% to group 3C.3a based on analysis of HA gene segments. The proportion of deaths attributed to pneumonia and influenza (P&I) was above the system-specific epidemic threshold. Two influenza-associated pediatric deaths were reported. A cumulative rate for the season of 50.4 laboratory-confirmed influenza-associated hospitalizations per 100,000 population was reported. The proportion of outpatient visits for ILI was 3.2%, which is above the national baseline of 2.2%. The geographic spread of influenza in 36 states was reported as widespread; 10 states reported regional activity; 2 states reported local activity; and 2 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/.



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 (Victoria-lineage)-like 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 (Yamagata-lineage)-like 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 2017-18 Northern Hemisphere Influenza Vaccine

On March 2, 2017, the WHO announced the recommended strain components for the 2017-18 northern hemisphere trivalent influenza vaccine (TIV):*

- an A/Michigan/45/2015 (H1N1)pdm09-like virus;†
- an A/Hong Kong/4801/2014 (H3N2)-like virus;
- a B/Brisbane/60/2008 (Victoria-lineage)-like 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 (Yamagata-lineage)-like virus.

* These recommended strains are the same as those recommended for the 2017 southern hemisphere TIV and represent a change for one of the three components used for the 2016-17 northern hemisphere TIV and 2016 southern hemisphere TIV.

† Recommended strain represents a change from an A/California/7/2009-like virus, which had been retained as the A(H1N1)pdm09 component since the 2009 pandemic, to an A/Michigan/45/2015-like virus belonging to the emerging phylogenetic subclade 6B.1. For further details: www.who.int/influenza/vaccines/virus/recommendations/2017 18 north/en/.



Additional Information

Explanatory Note:

The surveillance period for the 2016-17 influenza season is defined starting in week 40. Weeks 36-39 of the 2015-16 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/?ID=122&Language=ENG

Web Sites:

BCCDC Emerging Respiratory Pathogen Updates: www.bccdc.ca/health-professionals/data-reports/emerging-respiratory-virus-updates

Influenza Web Sites

Canada – Influenza surveillance (FluWatch): <u>healthycanadians.gc.ca/diseases-conditions-maladies-affections/disease-maladie/flu-grippe/surveillance/index-eng.php</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> Joint ECDC – WHO/Europe weekly influenza update (Flu News Europe): <u>flunewseurope.org</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 fire	-	/yyy): <u>DD / MMM / YYYY</u>		
		Numbers to date	Residents/Students	Staff	
		Total With ILI			
		Hospitalized			
		Died			
С	Update AND Outbreak Declared Over 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 Residents/Students				
		Total	Residents/Students	Stall	
		With ILI			
		Hospitalized			
		Died			
D	Laboratory Infor Specimen(s) subm If yes, organisr		ation:) [(specify:) [] No 🔄 Don't know] No 🔄 Don't know	