Influenza Activity Continues to Increase in BC

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Highlights
During week 6 (February 8-14, 2009), 4 ILI outbreaks occurred in schools in IHA and VIHA, 2 lab-confirmed influenza A/H3 outbreaks occurred in LTCFs in FHA and VCHA, and 1 lab-confirmed influenza A/H3 outbreak occurred in an extended care unit of a hospital in VCHA. Twenty-eight percent (64 / 228) of respiratory specimens tested in BC laboratories (BCCDC and Children’s and Women’s Health Centre) during week 6 were positive for influenza, of which 78% were influenza A and 22% were influenza B. Of those influenza A specimens that were sub-typed during week 6, 86% were A/H3. To date this season (February 18), 81% (221 / 274) of influenza isolates have been type A, and of those sub-typed, 52% (108 / 207) have been A/H3. Oselamivir resistance continues to be reported in nearly all A/H1N1 viruses. The rate of ILI visits to physicians has steadily increased over the past six weeks but remains slightly below average for this time of year. (See graph and table on page 4.)

ILI Outbreaks
Four ILI outbreaks in schools in IHA and VIHA (no pathogens identified) were reported during week 6. Lab-confirmed influenza A/H3 outbreaks were reported in 2 LTCFs (in FHA and VCHA) and 1 extended care unit within a hospital (in VCHA). Since the start of the season (Sept 28), specimens have been submitted to BCCDC Laboratory Services in relation to 72 ILI outbreak investigations. Rhinovirus/enterovirus was identified in 13 (18%) of the investigations, influenza in 12 (17%), RSV in 6 (8%), human metapneumovirus (HMPV) in 5 (7%), parainfluenza in 3 (4%), and coronavirus in 2 (3%). No pathogen was identified in the other 31 investigations. (See graph on page 5.)

Please remember to notify BCCDC if an outbreak of ILI occurs in your region, by emailing ilioutbreak@bccdc.ca and attaching the outbreak report form (a copy is found at the end of this report).

Laboratory Reports
During week 6, BCCDC Laboratory Services tested 141 respiratory specimens. Forty-two (30%) specimens tested positive for influenza A, and 12 (9%) tested positive for influenza B. Thirty-five of the influenza A specimens tested positive for influenza A/H3, of which 30 (86%) were A/H3 and 5 (14%) were A/H1. An additional 15 specimens tested positive for RSV, 9 for rhino/enterovirus, 3 for HMPV, 2 for coronavirus, and 2 for parainfluenza.

During week 6, Children’s and Women’s Health Centre Laboratory tested 87 respiratory specimens. Twenty-four (28%) specimens tested positive for RSV, 8 influenza A, 2 influenza B, 2 parainfluenza, and 1 adenovirus. (See graphs on page 6.)

To date this season (February 18), 81% (221 / 274) of influenza isolates tested at both laboratories have been type A, and of those sub-typed, 52% (108 / 207) have been A/H3.
Oseltamivir Resistance

To date (February 18, 2009) during the 2008-09 season, BCCDC has assessed 88 A/H1N1 isolates for oseltamivir resistance; 80 show genotypic evidence of oseltamivir resistance, and the other 8 are indeterminate and undergoing further assessment through sequencing of the neuraminidase gene. Thus, all A/H1N1 specimens for which oseltamivir sensitivity could be determined have so far been found resistant to date in BC during the 2008-09 season.

Health care providers considering use of antivirals are advised to consult public health and surveillance updates and to stay informed about influenza activity and resistance patterns throughout the season. The BCCDC has shared interim guidelines for antiviral options in the context of evolving resistance patterns with local health authorities. Local health authorities may be consulted for more information.

Antiviral Resistance

Drug susceptibility testing at the NML as of Feb 13 indicated that all (n=52) H1N1 isolates tested to date were resistant to oseltamivir, while all H3N2 (n=17) and influenza B (n=111) isolates tested were sensitive to oseltamivir. Of those isolates tested for amantadine resistance, all (n=54) H1N1 isolates were found to be sensitive, and all (n=47) H3N2 isolates were found to be resistant. All 175 (45 H1N1, 18 H3N2, and 112 influenza B) isolates that have been tested for zanamivir resistance were sensitive.

INTERNATIONAL

During week 5 (Feb 1-7), influenza activity continued to increase in the United States. The rate of ILI visits to sentinel physicians increased from 2.3% in the previous week to 3.2% in week 5, exceeding the national baseline and the ILI rate for week 5 of last season. To date this season, US laboratories have detected influenza in 5881 respiratory specimens, of which 83% were influenza A. Of the influenza A isolates that have been sub-typed, 88% were A/H1.

Two hundred and thirty-six of 240 (98%) A/H1 viruses tested were found to be resistant to oseltamivir. For more information, visit: http://www.cdc.gov/flu/weekly/.

During week 5 (Feb 1-7), influenza activity continued to increase across central Europe while generally decreasing in western Europe. Of the 16,959 influenza virus detections in Europe since the start of the season (week 40), 95% were influenza A, and of those sub-typed, 93% were A/H3. For more information, visit: http://www.eiss.org.

Avian Influenza

Since 2003 and to date (Feb 18, 2009), the WHO has confirmed 408 human avian influenza A/H5N1 cases and 254 deaths, with 2 recent human cases reported in Vietnam. For more information on human avian influenza cases please visit: http://www.who.int/csr/disease/avian_influenza

Avian influenza A/H5N2 was detected among two commercial poultry flocks in FHA over the course of the past 4 weeks. All affected birds have been culled,
and surrounding farms are under enhanced surveillance. To date, there have been no reports of human illness attributed to this outbreak of avian influenza. Protective measures include personal protective equipment, vaccination, and antiviral prophylaxis for all persons who may be exposed to infected poultry. BCCDC, CFIA, FHA, and other authorities continue to monitor the situation and ensure that all necessary outbreak control measures are taken.

For further information on confirmed avian influenza outbreaks in poultry, please visit: http://www.oie.int/downld/AVIAN%20INFLUENZA/A_AI-Asia.htm.

Vaccine Composition
This year’s (2008-09) influenza vaccine contains the following virus antigens:
- A/Brisbane/59/2007(H1N1)-like
- A/Brisbane/10/2007(H3N2)-like
  Note: A/Uruguay/716/2007(H3N2) is antigenically equivalent to A/Brisbane/10/2007(H3N2) and may be included by vaccine producers.
- B/Florida/04/2006(Yamagata lineage)-like

The WHO has announced the recommended components of the 2009-10 northern hemisphere influenza vaccines:
- A/Brisbane/59/2007(H1N1)-like
- A/Brisbane/10/2007(H3N2)-like
- B/Brisbane/60/2008(Victoria lineage)-like

Thus, only the B component will be changed from the 2008-09 vaccine. Additional information can be found here: http://www.who.int/csr/disease/influenza/recommendations2009_10north/en/index.html.

Activity Level Definitions
Sporadic influenza activity: sporadically occurring ILI and laboratory-confirmed influenza during previous 4 weeks, with no outbreaks.

Localized influenza activity: as for sporadic activity, but with ILI outbreaks in schools and worksites, or laboratory-confirmed influenza outbreaks in residential institutions occurring in less than 50% of the influenza surveillance regions during the week of reporting.

Widespread influenza activity: as for localized activity, but with outbreaks occurring in greater than or equal to 50% of the influenza surveillance regions during the week of reporting.

List of Acronyms
ACF: Acute Care Facility
AI: Avian Influenza
FHA: Fraser Health Authority
HMPV: Human metapneumovirus
HSDA: Health Service Delivery Area
IHA: Interior Health Authority
ILI: Influenza-Like Illness
LTCF: Long Term Care Facility
NHA: Northern Health Authority
NML: National Microbiological Laboratory
OIE: World Organization for Animal Health
RSV: Respiratory syncytial virus
VCHA: Vancouver Coastal Health Authority
VIHA: Vancouver Island Health Authority
WHO: World Health Organization

Web Sites
1. Influenza Web Sites
Canada – Flu Watch: http://www.phac-aspc.gc.ca/fluwatch/
USA Weekly Surveillance reports: http://www.cdc.gov/flu/weekly/
European Influenza Surveillance Scheme: http://www.eiss.org/index.cgi
WHO – Weekly Epidemiological Record: http://www.who.int/wer/en/
Influenza Centre (Australia): http://www.influenzacentre.org/

2. Avian Influenza Web Sites
World Organization for Animal Health: http://www.oie.int/eng/en_index.htm

3. This Report On-line http://www.bccdc.org/content.php?item=35

Contact Us:
Epidemiology Services
BC Centre for Disease Control (BCCDC)
655 W. 12th Ave, Vancouver BC V5Z 4R4
Tel: (604) 660-6061 / Fax: (604) 660-0197
InfluenzaFieldEpi@bccdc.ca
**WEEKLY ILI**

Percentage of Patient Visits due to Influenza Like Illness (ILI) per Week Compared to Average Percentage of ILI Visits for the Past 10 Seasons Sentinel Physicians, British Columbia, 2008-2009

**INFLUENZA-LIKE ILLNESS BY HEALTH AUTHORITY**

<table>
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<tr>
<th>HEALTH AUTHORITY</th>
<th>Week 6</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>ILI Visits</td>
<td>Total Visits</td>
</tr>
<tr>
<td>Fraser</td>
<td>9</td>
<td>1,230</td>
<td>0.73%</td>
</tr>
<tr>
<td>Interior</td>
<td>0</td>
<td>579</td>
<td>0.00%</td>
</tr>
<tr>
<td>Northern</td>
<td>0</td>
<td>316</td>
<td>0.00%</td>
</tr>
<tr>
<td>Vancouver Coastal</td>
<td>20</td>
<td>417</td>
<td>4.80%</td>
</tr>
<tr>
<td>Vancouver Island</td>
<td>6</td>
<td>1,427</td>
<td>0.42%</td>
</tr>
<tr>
<td>BC Total</td>
<td>35</td>
<td>3,969</td>
<td>0.88%</td>
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</tbody>
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ILI OUTBREAKS

Number of Influenza-Like Illness (ILI) Outbreaks Investigated or Reported, Compared to Current ILI Rate and Average ILI Rate for past 19 years, per Week
British Columbia, 2008-2009

* Influ LTCF = Long-term care facility, influenza identified
* Other LTCF = Long-term care facility, other pathogen identified (including RSV, parainfluenza, adenovirus, and rhino/enterovirus)
* ILI (No Pathogen) LTCF = Long-term care facility, no pathogen identified
LABORATORY SUMMARY

Virus Isolates and Percentage of Respiratory Specimens Submitted to BC Provincial Laboratory Diagnosed Positive for a Virus, per Week, British Columbia, 2008-2009

Virus Isolates and Percentage of Respiratory Specimens Submitted to Children and Women's Health Centre Laboratory Diagnosed Positive for a Virus, per Week, British Columbia, 2008-2009
Influenza-Like Illness (ILI) Outbreak Summary Report Form

Please complete and email to ilioutbreak@bccdc.ca or fax to (604) 660-0197

ILI: Acute onset of respiratory illness with fever and cough and with one or more of the following: sore throat, arthralgia, myalgia, or prostration which could be due to influenza virus. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

Schools and work site outbreak: greater than 10% absenteeism on any day, most likely due to ILI.

Residential institutions (facilities) outbreak: two or more cases of ILI within a seven-day period.

SECTION A: Reporting Information

Person Reporting: ______________________  Title: _____________________________
Contact Phone: ______________________  Email: ____________________________
Health Authority: ______________________  HSDA: ____________________________
Full Facility Name: __________________________________________________________

Is this report:  □ First Notification (complete section B below; Section D if available)
□ Update (complete section C below; Section D if available)
□ Outbreak Over (complete section C below; Section D if available)

SECTION B: 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): __________ /_______ / ______

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<thead>
<tr>
<th>Numbers to date</th>
<th>Residents/Students</th>
<th>Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td></td>
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<tr>
<td>With ILI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospitalized</td>
<td></td>
<td></td>
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<tr>
<td>Died</td>
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</tbody>
</table>

SECTION C: Update AND Outbreak Declared Over

Date of onset for most recent case of ILI (dd/mm/yyyy): __________ /_______ / ______
If over, date outbreak declared over (dd/mm/yyyy): __________ /_______ / ______

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<thead>
<tr>
<th>Numbers to date</th>
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<td>Died</td>
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SECTION D: Laboratory Information

Specimen(s) submitted?  □ Yes (location: _______________)  □ No  □ Don’t know
If yes, organism identified? □ Yes (specify: _______________)  □ No  □ Don’t know