BRITISH COLUMBIA (BC) INFLUENZA SURVEILLANCE *2008-2009* UPDATE

BC Centre for Disease Control
AN AGENCY OF THE PROVINCIAL HEALTH SERVICES AUTHORITY

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Number 25: Weeks 25-28
June 21 – July 18, 2009

Ongoing Circulation of Swine-Origin Influenza A/H1N1 in BC with Increasing Reports of Hospitalizations

Contents:

Highlights

In weeks 25-28 (June 21 – July 18), the proportion of patients presenting to sentinel physicians with ILI continued to increase to levels above the expected range for this time of year. A similar increase was observed in Medical Services Plan claims for influenza illness, particularly in the Lower Mainland and on Vancouver Island. No school or facility influenza outbreaks were reported during this period. Twenty-three percent (239/1033) of respiratory specimens tested at the BC Provincial Laboratory during weeks 25-28 were positive for swine-origin influenza (SOIV) H1N1, and 0.5% (5/1033) were positive for human influenza viruses. To-date approximately 5% of SOIV cases in BC have been admitted to hospital, with increasing reports of hospitalizations in recent weeks. Together, BC surveillance indicators suggest ongoing, above average ILI activity, predominantly attributed to pandemic influenza H1N1 (SOIV).

Sentinel Physicians

During weeks 25-27, the percentage of patients presenting to sentinel physicians with ILI continued to increase to 0.25% - 0.35%. (See graph on page 4.)

MSP

Influenza illness as a proportion of all submitted BC Medical Services Plan (MSP) claims also steadily increased over this period (weeks 25-28). As shown in the graphs on pages 5-6, this increase was apparent on a regional level in VCHA, FHA, and VIHA. (See graphs on pages 4-6.)

ILI Outbreaks

No influenza outbreaks were reported in schools or facilities during weeks 25-28. Sporadic SOIV H1N1 outbreaks have been reported in other settings, including at least two summer camps. Since April 20, when public health partners were first informed of the evolving situation in Mexico, specimens have been submitted to BCCDC Laboratory Services in relation to 33 ILI outbreak investigations (22 in LTCFs, 4 in schools, 2 in ACFs, 2 in correctional facilities, 2 in summer camps, and 1 in a workplace). Influenza A/H3N2 was identified in 4 of the investigations (all LTCFs), SOIV H1N1 was identified in 4 (two summer camps, one school, one correctional facility), influenza B in 1 school, rhino/enterovirus in 3 LTCFs, HMPV in 2 LTCFs, and coronavirus in a workplace. No pathogen was identified in the other 18. (See graph on page 6.)

Please remember to notify BCCDC of any ILI outbreaks occurring in your region by sending an e-mail to ilioutbreak@bccdc.ca and attaching the outbreak report form (a copy is found at the end of this report).

Laboratory Reports

BCCDC Laboratory Services tested 1033 respiratory specimens in weeks 25-28. Five (0.5%) specimens tested positive for human influenza viruses (2 human influenza A/H1, 2 A/H3, and 1 B). Two hundred thirty-nine (23%) tested positive for SOIV H1N1. Other respiratory pathogens detected included: rhino/enterovirus (2% of specimens tested),

parainfluenza (0.5%), coronavirus (0.1%), and RSV (0.1%).

During weeks 25-28, Children's and Women's Health Centre Laboratory tested 158 respiratory specimens. Seven percent tested positive for SOIV H1N1, 3% for parainfluenza, 2% for adenovirus, and 1% for RSV. (See graphs on page 7.)

Swine-origin influenza H1N1

To-date, nearly five hundred SOIV H1N1 cases have been detected in BC. Approximately 5% of these cases have been admitted to a hospital, with increasing reports of hospitalizations in recent weeks, as shown in the epidemic curve on page 8. There have been two deaths with laboratory-confirmation of SOIV. The age distribution of SOIV H1N1 cases indicates that younger persons are disproportionately affected, as shown in the graph on page 8.

For up-to-date information on confirmed cases of swine influenza in Canada, visit: http://www.phac-aspc.gc.ca/alert-alerte/swine-porcine/surveillance-eng.php

BC-specific information, including resources for healthcare professionals, is available here: http://www.bccdc.ca/resourcematerials/newsandalerts/healthalerts/H1N1FluVirusHumanSwineFlu.htm

CANADA

FluWatch

During weeks 24-27, overall influenza activity in Canada remained higher than expected for this time of year but showed signs of decrease. The proportion of tests positive for influenza in Canada decreased from approximately 30% in week 23 to 13% in week 27. The ILI consultation rate likewise decreased from 41 per 1000 patient visits in week 23 to 21 per 1000 patient visits in week 27. http://www.phac-aspc.gc.ca/fluwatch/

National Microbiology Laboratory

Since Sept 1, 2008 and as of July 16, 1154 influenza isolates from provincial and hospital labs have been characterized at the National Microbiology Laboratory (NML):
243 A/Brisbane/59/07(H1N1)-like* † from BC, AB, SK, MB, ON, QC, NB, NS, & PEI;
168 A/Brisbane/10/07(H3N2)-like* † from all ten provinces;
11 B/Florida/04/06(Yamagata)-like* from AB, ON, QC, & NB;
379 B/Malaysia/2506/04(Victoria)-like from all ten provinces;
178 B/ Brisbane/60/08(Victoria)-like † from BC, AB, SK, MB, ON, QC, NB, NS, & NU;
And, 175 A/California/07/2009-like§ from BC, AB, SK, MB, ON, QC, NB, NS, NT, & NU;
* indicates a strain match to the 2008-09 vaccine
† indicates a strain match to the 2009-10 vaccine
§ A/California/07/2009 (H1N1) is the variant reference virus (SOIV) selected by WHO as a potential candidate for a pandemic influenza A/H1N1 vaccine.

Antiviral Resistance

Drug susceptibility testing at the NML as of July 16 indicated that most (n=305) human influenza A/H1N1 isolates tested to date were resistant to oseltamivir (one human H1N1 isolate identified since mid-April was sensitive). All human H3N2 (n=186), influenza B (n=570), and SOIV H1N1 (n=255) isolates tested at the NML were found to be sensitive to oseltamivir. Of the isolates tested for amantadine resistance, all (n=306) human H1N1 isolates were found to be sensitive, all (n=383) human H3N2 isolates were found to be resistant, and all (n=283) SOIV H1N1 isolates were found to be resistant. All 1099 (242 human H1N1, 182 human H3N2, 575 influenza B, and 100 s-oiv H1N1) isolates that have been tested for zanamivir resistance were sensitive.

On July 21, Canada reported its first case of oseltamivir resistant SOIV H1N1 in a patient from Quebec who received post-exposure prophylaxis following illness in a family member. Three other SOIV H1N1 isolates (from Hong Kong and Japan) have been identified in cases with no epidemiological links to one another, suggesting that instances of oseltamivir resistance in SOIV H1N1 viruses are thus far sporadic.

In summary, global surveillance has shown that circulating SOIV H1N1 viruses are resistant to amantadine but remain sensitive to zanamivir and oseltamivir, although sporadic cases of oseltamivir resistance have been observed.

INTERNATIONAL

In the United States, influenza activity levels decreased during weeks 25-27 but remained higher than usual for this time of year. Twenty-four percent of respiratory specimens tested in collaborating US

reference laboratories during week 27 were positive for influenza, representing a steady decrease from the peak of 39% during week 24. Over 99% of the influenza detections during week 27 were SOIV H1N1. Influenza activity in Europe remains low in most countries, with the exception of the UK, which reported high and widespread activity during week 27, predominantly due to SOIV H1N1. Details are available at: http://www.cdc.gov/flu/weekly/ and http://www.eiss.org .

Several countries in the Southern Hemisphere have reported severe winter influenza activity, with SOIV H1N1 accounting for the majority of detections in Australia, Chile, and Argentina. Notably, Australia has reported over 15,000 confirmed cases of SOIV H1N1, as of July 23; a cumulative total of approximately 1700 (11%) SOIV cases have been admitted to hospital. For more information, see: http://www.healthemergency.gov.au/internet/healthemergency/publishing.nsf/Content/updates

For up-to-date information on SOIV H1N1 globally, visit the WHO website at: http://www.who.int/csr/disease/swineflu/en/index.html

Vaccine Composition

The 2008-09 influenza vaccine contained 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 seasonal influenza vaccine:

- 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 .

Contact Us:

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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
MSP: BC Medical Services Plan
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/
NACI Statement on Influenza Vaccination for the 2008-09 Season: http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/08vol34/acs-3/index-eng.php
Washington State Flu Updates:
http://www.doh.wa.gov/ehsphl/epidemiology/CD/HTML/FluUpdate.htm
USA Weekly Surveillance reports:
http://www.cdc.gov/flu/weekly/
European Influenza Surveillance Scheme:
http://www.eiss.org/index.cgi
WHO – Global Influenza Programme:
http://www.who.int/csr/disease/influenza/mission/
WHO – Weekly Epidemiological Record:
http://www.who.int/wer/en/
Influenza Centre (Australia):
http://www.influenzacentre.org/

2. Avian Influenza Web Sites
World Health Organization – Avian Influenza:
http://www.who.int/csr/disease/avian_influenza/en/
World Organization for Animal Health:
http://www.oie.int/eng/en_index.htm

3. This Report On-line
http://www.bccdc.ca/dis-cond/DiseaseStatsReports/influSurveillanceReports.htm

4. Swine Influenza Web Sites
BCCDC: http://www.bccdc.ca/dis-cond/a-z/_h/HumanSwineFlu/default.htm
PHAC: http://www.phac-aspc.gc.ca/alert-alerte/swine_200904-eng.php
US CDC: http://www.cdc.gov/swineflu/index.htm
WHO: http://www.who.int/csr/disease/swineflu/en/index.html

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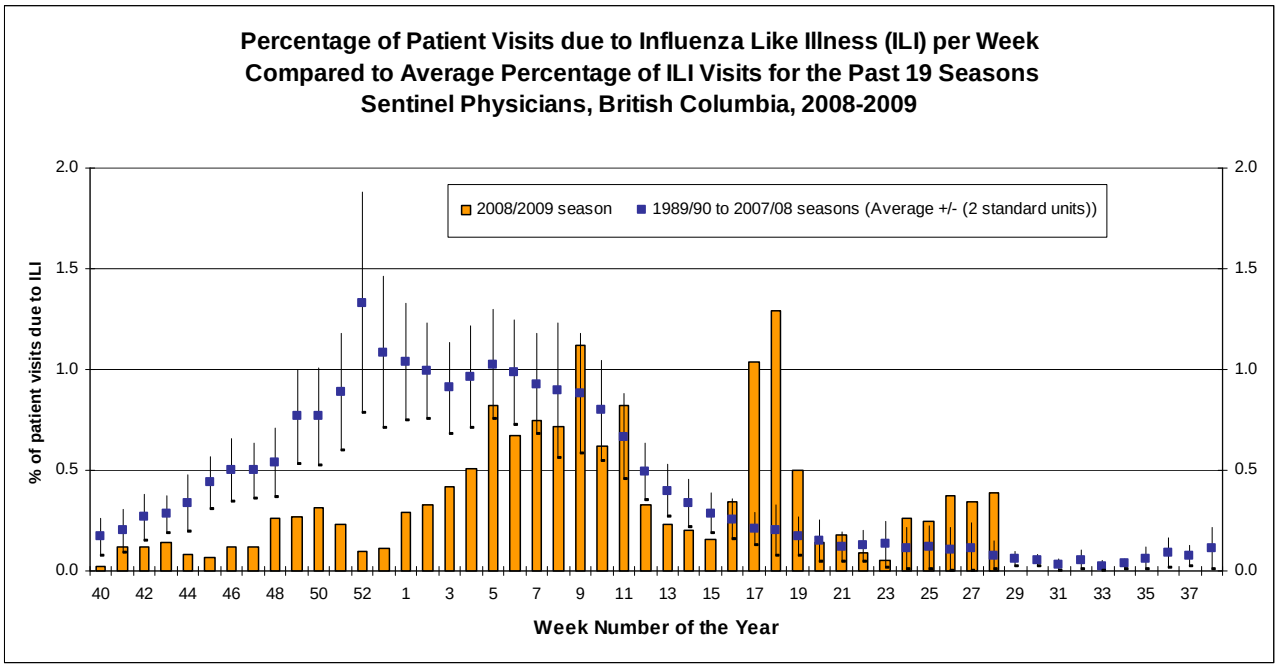
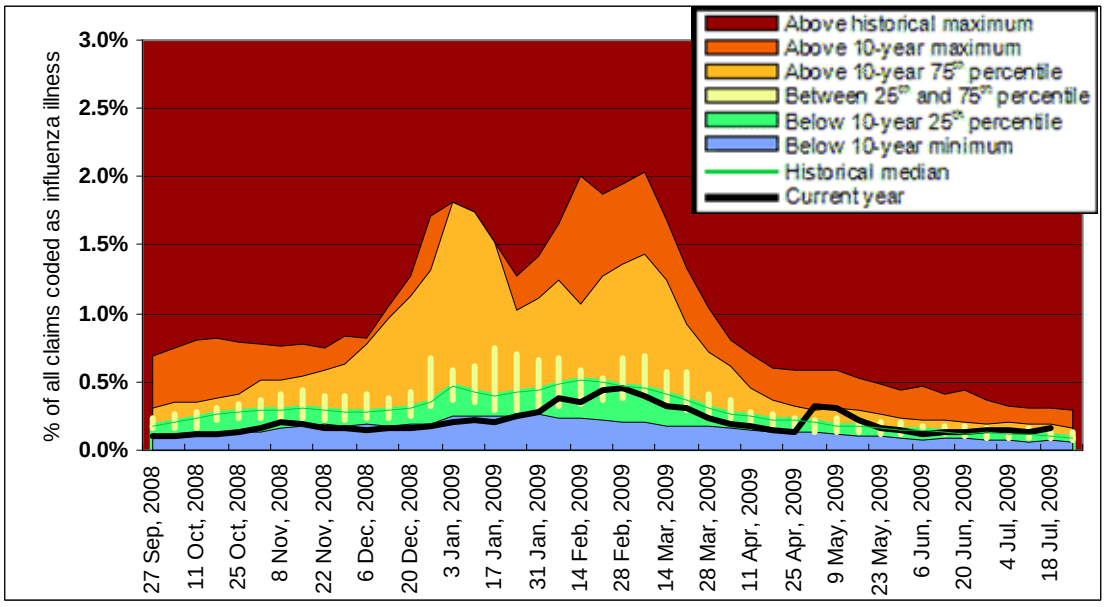
WEEKLY SENTINEL ILI



INFLUENZA ILLNESS CLAIMS* VIA BC MEDICAL SERVICES PLAN (MSP)
ENTIRE PROVINCE – CURRENT TO JULY 21, 2009



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

NOTE: MSP week 27 Sep 2008 corresponds to sentinel ILI week 40.

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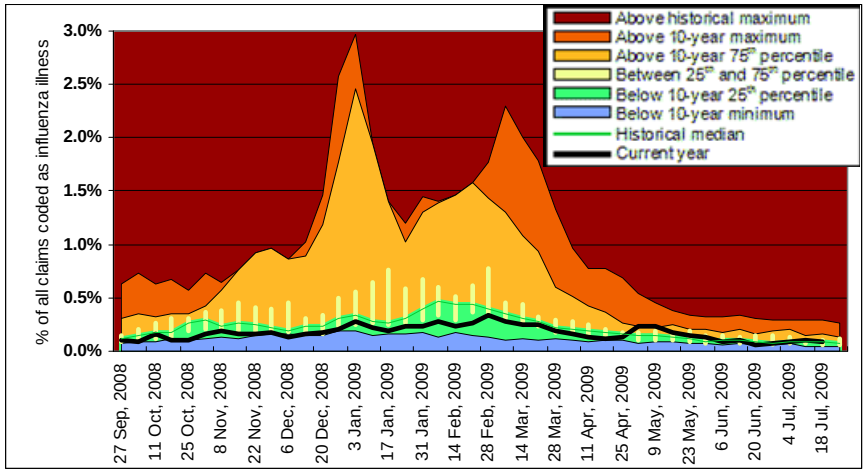
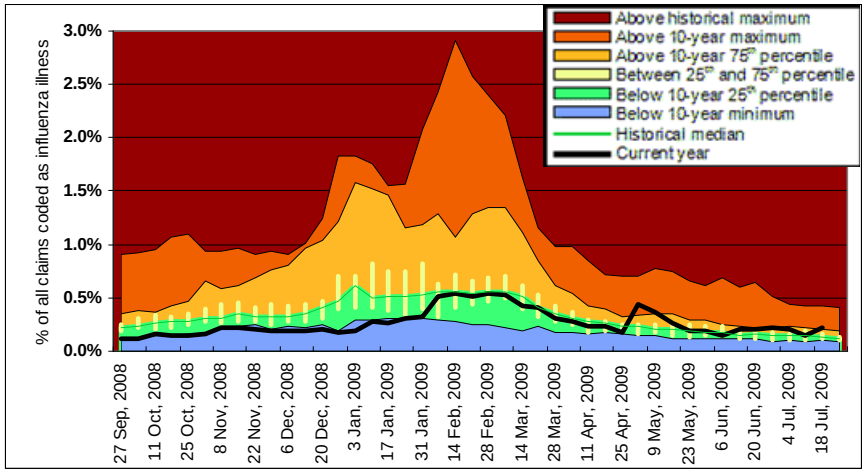
INFLUENZA ILLNESS CLAIMS* VIA BC MEDICAL SERVICES PLAN (MSP) BY REGIONAL HEALTH AUTHORITY (RHA) – CURRENT TO JULY 21, 2009

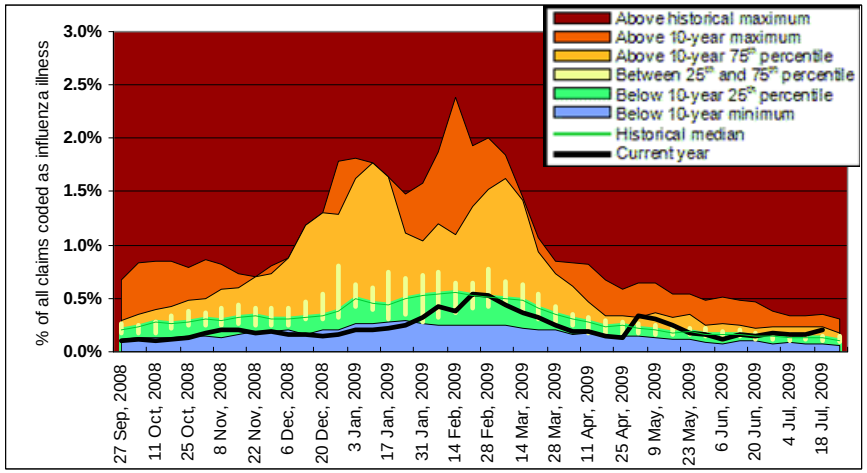
Interior



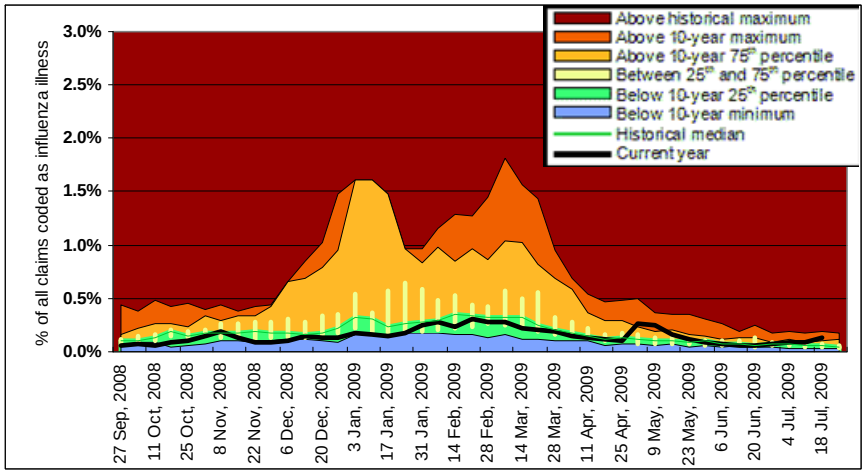
Vancouver Coastal



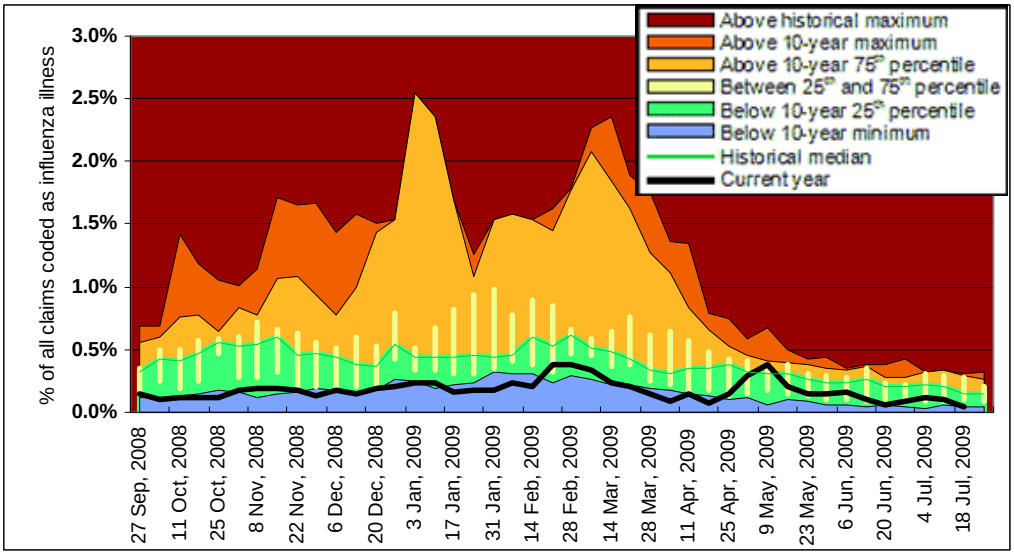
Fraser



Vancouver Island

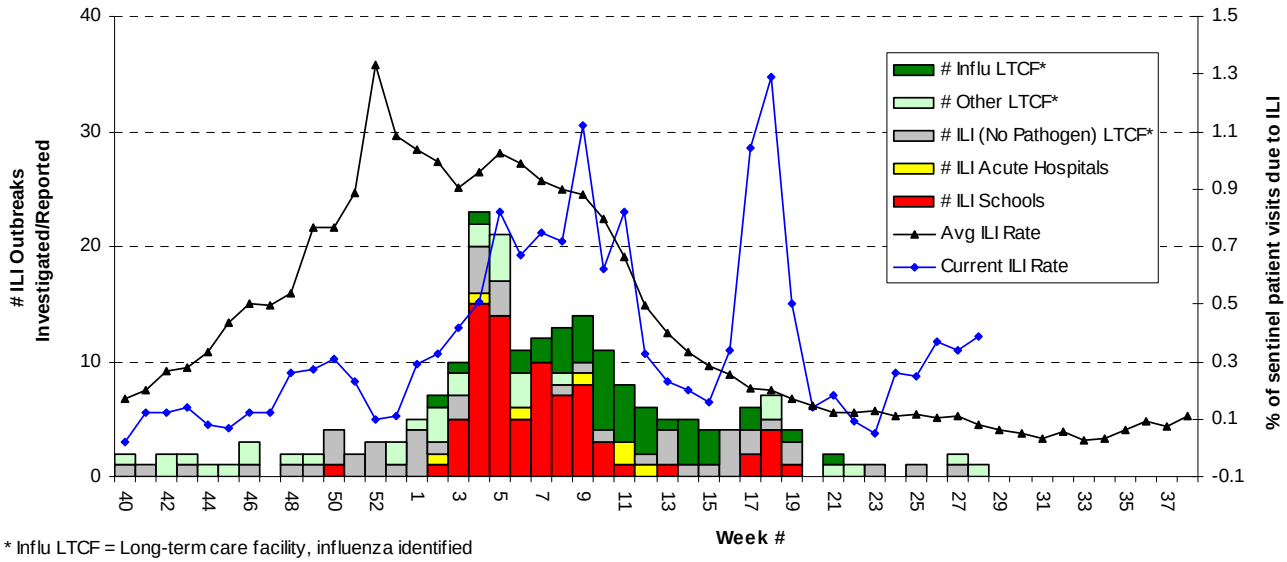


Northern



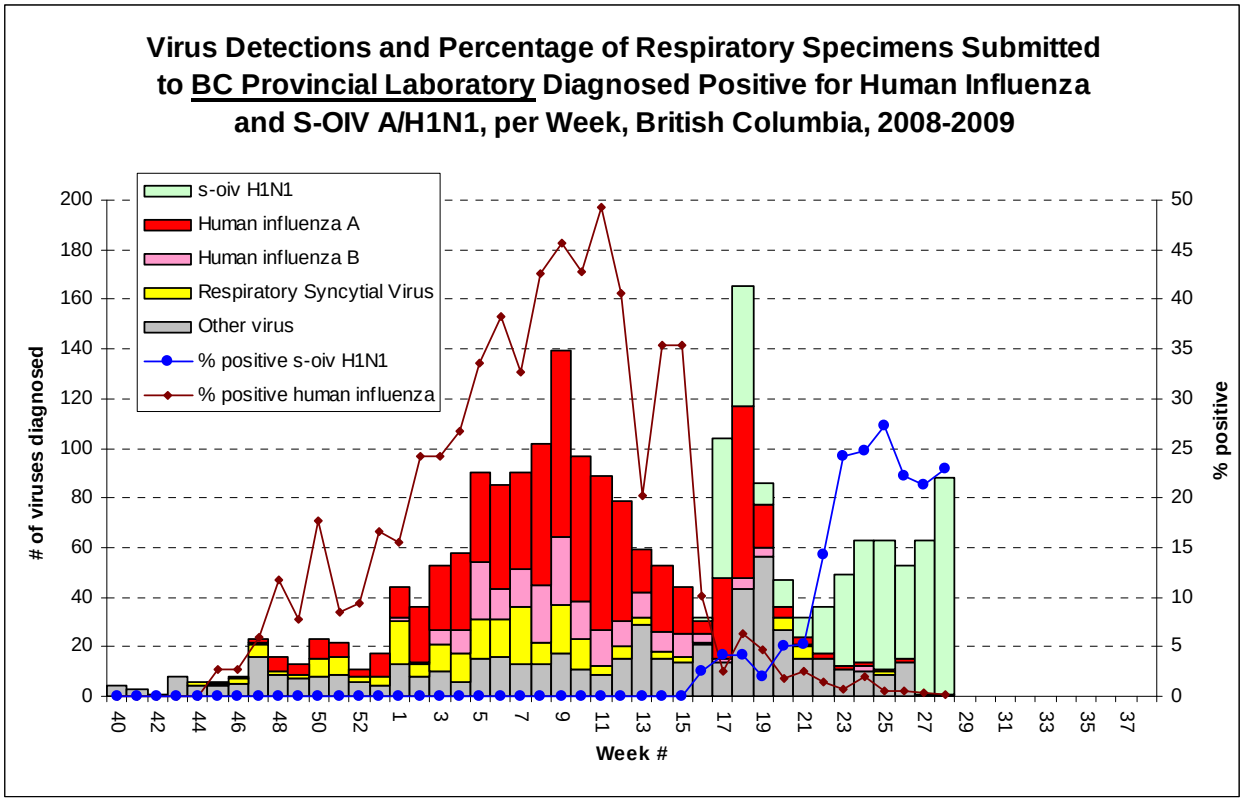
ILI OUTBREAKS

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

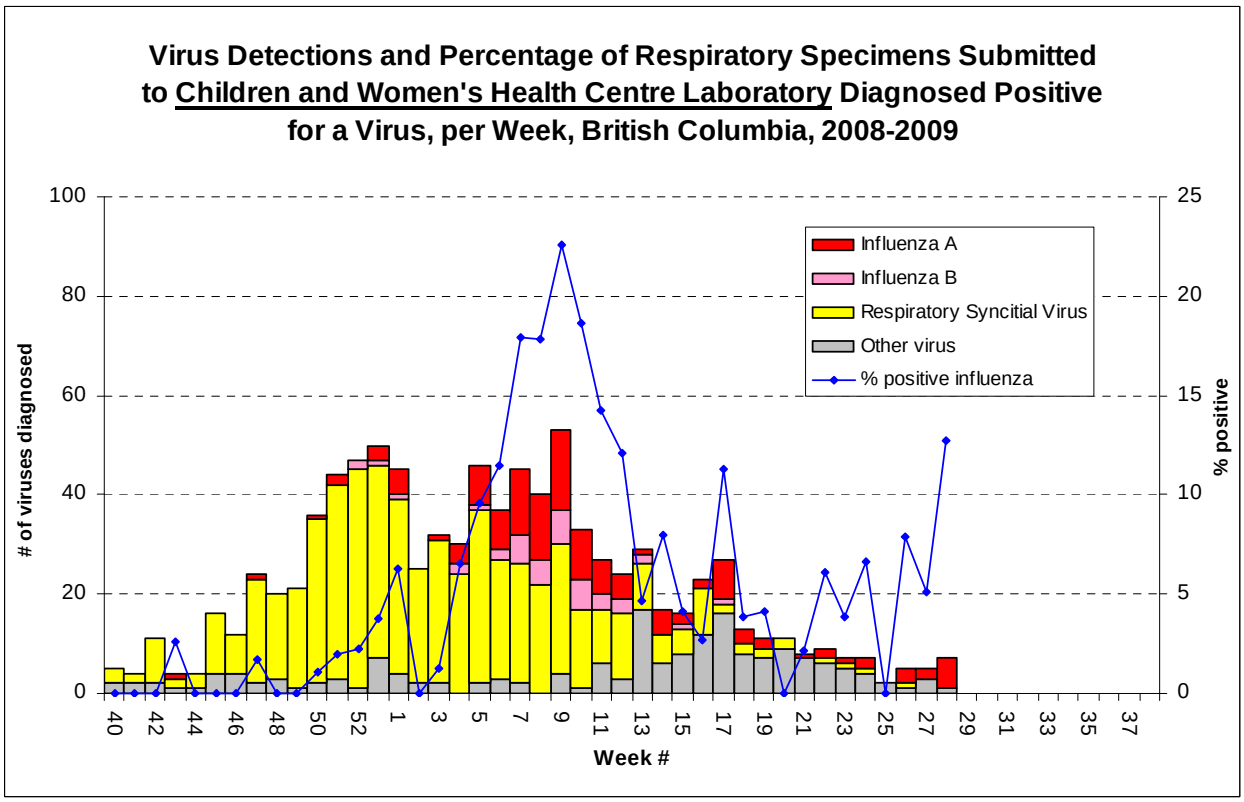


* Influ LTCF = Long-term care facility, influenza identified
* Other LTCF = Long-term care facility, other pathogen identified (including RSV, parainfluenza, adenovirus, and rhino/enterovirus)
* ILI (No Pathogen) LTCF = Long-term care facility, no pathogen identified

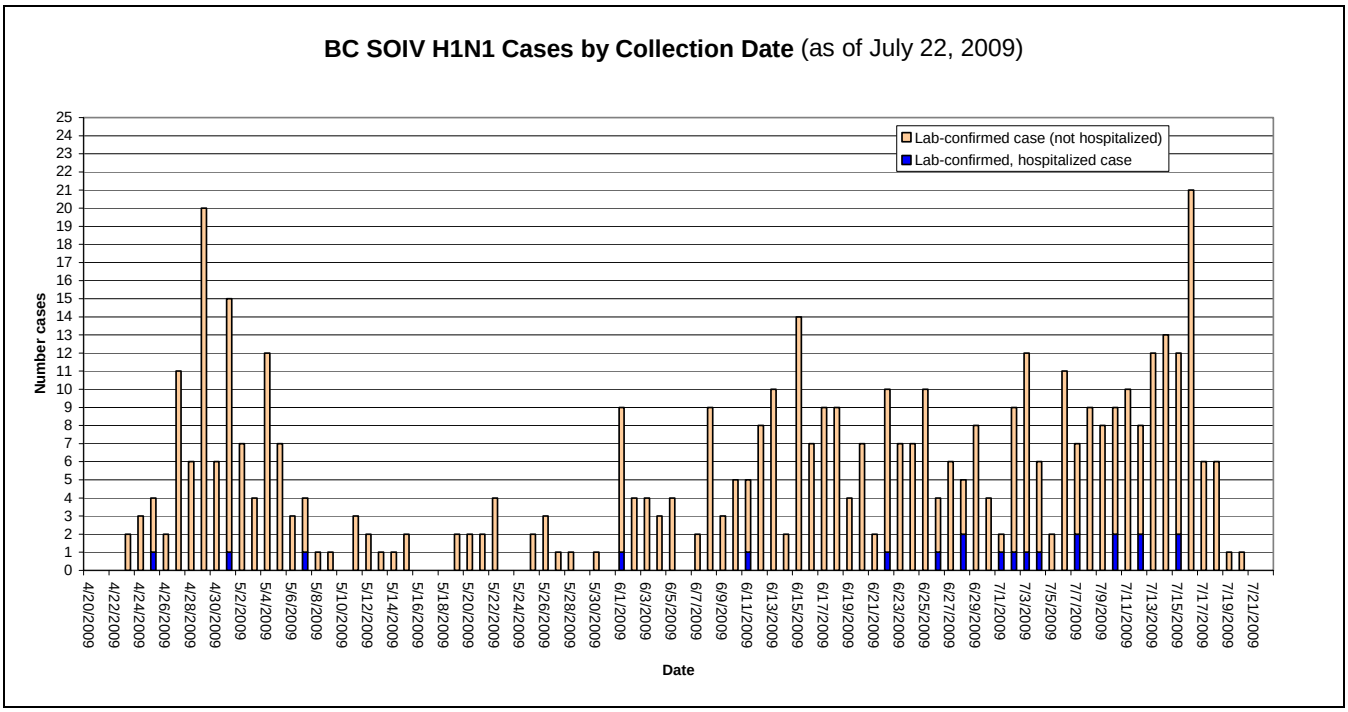
LABORATORY SUMMARY

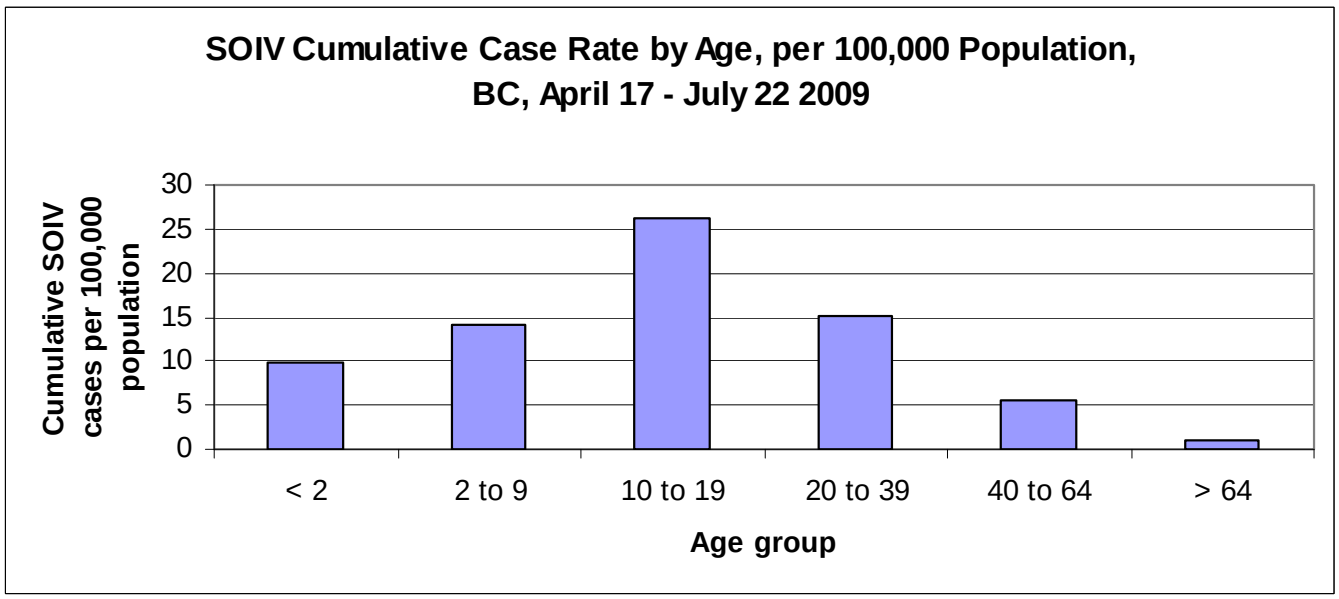


Note: The increase in bars during weeks 17-19 above reflects the large surge in specimens submitted to BCCDC for testing (2594 specimens were tested, a 5-fold increase over the number of tests performed during the 3-week period of peak activity this season). Data on detection of respiratory viruses are not yet available for weeks 27 and 28.



SOIV H1N1


BC SOIV H1N1 Cases by Collection Date (as of July 22, 2009)
Lab-confirmed case (not hospitalized)
Lab-confirmed, hospitalized case
Number cases
Date


SOIV Cumulative Case Rate by Age, per 100,000 Population, BC, April 17 - July 22 2009
Cumulative SOIV cases per 100,000 population
< 2
2 to 9
10 to 19
20 to 39
40 to 64
> 64
Age group

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): _____/_____ / _____

Numbers to date	Residents/Students	Staff
Total		
With ILI		
Hospitalized		
Died		

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): _____ / _____ /_____

Numbers to date	Residents/Students	Staff
Total		
With ILI		
Hospitalized		
Died		

SECTION D: Laboratory Information

Specimen(s) submitted? ☐ Yes (location: _____) ☐ No ☐ Don't know

If yes, organism identified? ☐ Yes (specify: _____) ☐ No ☐ Don't know