Influenza (FLU) Update for Week #03
Week Ending 1-19-19

The CDC reported that **Influenza** (**Flu**) activity, which includes diagnosed flu as well as **ILI** (**Influenza-Like-Illness**), increased. The percentage of respiratory specimens testing positive for flu increased to 16.1% from 12.4% last week, all 10 Regions reported flu levels above baseline, and the number of hospitalizations from flu continued to increase.

Influenza A viruses were the most common found in the samples tested, with Influenza A(H1N1)pdm09 the most dominant, except in Region 4 (the Southeast), which again had A(H3) viruses dominate. Influenzas A (H1N1), A (H3N2) and Influenza B viruses were considered to be co-circulating.

The vast majority of the flu viruses were genetically similar to the 2018/19 Flu Vaccine with Influenza A viruses in the mid to high 90% range.

A Canadian Study, published in *Eurosurveillance*, presented the first vaccine effectiveness (VE) rates for this season which showed an overall VE for all combined flu viruses as 68%; H1N1 alone was 72%.
The published article can be found here:
https://www.eurosurveillance.org/content/10.2807/1560-7917.ES.2019.24.4.1900055

The CDC has published its *2018/19 Flu Season Preliminary Burden Estimates* with 9.8 – 11.4 million flu illnesses, 4.6 – 5.4 million medical visits for flu, and 113,000 – 136,000 flu-related hospitalizations.

See this link for more details on Flu and ILI activity, including charts, graphs and maps:
https://www.cdc.gov/flu/weekly/index.htm

FirstWatch RIN (**Regional Influenza Network**) Alerts showed a decrease last week from the previous week.

For the most recently reported week, ending January 19, 2019, the CDC reported:
Influenza-like illness (ILI) visits to clinics & other non-hospital facilities increased to at 3.3% (l. w. 3.1%) & remained above the national baseline of 2.2%. All 10 regions reported ILI at or above their region-specific baselines. New York City and 18 states had high ILI activity.

Flu cases, documented by positive flu tests on respiratory specimens, were reported as Widespread in 36 states. Clinical lab testing for influenza was positive for 16.1% of specimens, compared to 12.4% last week, with a range of 9.5% (Region 3) to 18.6% in Region 1; Region 3 was the only region to report a level in the single digits.

Influenza A remained the dominant flu for 98.0% of the flu tests reported (96.7% last week), with 81.2% (89.1% last week) as A (H1N1)pdm09 viruses and the H3N2 subtype at 18.8% (10.9% last week). The rest of the tests showed 2.0% (3.3% l.w.) tested as Influenza B viruses, with 55.6% the Yamagata lineage and 44.4% as the Victoria lineage.
This shows a small increase in Influenza A viruses and therefore slightly less Influenza B. Typically, Influenza B viruses cause less severe illness and occur more towards the Spring.

More that 99% of the flu viruses tested were found to have greatly reduced inhibition to the antivirals oseltamivir, zanamivir (100%), and peramivir (Tamiflu, Relenza, and Rapivab, respectively). High resistance continued to the adamantane group of antivirals, namely Amantadine and rimantadine (Flumadine), which are also not effective for any Influenza B viruses.
Baloxavir marboxil, under the brand name Xofluza, is a new influenza antiviral drug approved in October 2018, as a new alternative. It also works on Influenza B viruses and controls the virus in a different way.
The CDC recommends treatment with antivirals, as early as possible, for those with confirmed or suspected flu with severe, complicated, or progressive disease, those who are hospitalized, or at high risk for complications of flu. See this link for a list of those at risk for complications from flu: **https://www.cdc.gov/flu/about/disease/high_risk.htm**

The CDC provides an interactive U.S. map that will link to each state's public health authorities. ILI and Flu information and processes, as well as other diseases and public health topics. This site includes a tremendous amount of information at the State and even Local level. Find it at this site:
https://www.cdc.gov/flu/weekly/usmap.htm

For Influenza-Like Illness:

High ILI Activity: (**New York City & 18 states**): Alabama, Colorado, Georgia, Indiana, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Nebraska, New Jersey, New Mexico, Oklahoma, Rhode Island, South Carolina, Texas, Vermont, and Virginia
Moderate ILI Activity: (**10 states**): Alaska, Arizona, Arkansas, Mississippi, Missouri, Nevada, New Hampshire, New York, North Carolina, and Pennsylvania
Low Activity: (**Washington D.C., & 8 states)**: California, Connecticut, Illinois, Minnesota, Utah, West Virginia, Wisconsin, and Wyoming
Minimal Activity: (14 states): Delaware, Florida, Hawaii, Idaho, Iowa, Maine, Michigan, Montana, North Dakota, Ohio, Oregon, South Dakota, Tennessee, and Washington
Puerto Rico had insufficient data to calculate ILI levels

For Flu (positive flu tests)**:**

Widespread Activity: (36 states): Alabama, Arizona, California, Colorado, Connecticut, Delaware, Florida, Idaho, Indiana, Iowa, Kansas, Kentucky, Maryland, Massachusetts, Michigan, Minnesota, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Texas, Utah, Vermont, Virginia, and Wyoming
Regional Activity (**Puerto Rico & 11 states**)**:** Arkansas, Georgia, Illinois, Louisiana, Maine, Mississippi, Missouri, North Dakota, Tennessee, Washington, and Wisconsin
Local Activity (3 states): Alaska, Hawaii, and West Virginia,
Sporadic Activity: (Washington D.C., & the U.S. Virgin Islands)
Guam did not report

Other Data:

The Hospitalization rate from Flu was 14.8 per 100,000 (last week 12.4/100,000). Older adults (age ≥ 65 years) had the highest hospitalization rate at 38.3 per 100,000 (l.w. 31.9/); children (ages 0-4) had 26.5 per 100,000 (last week 23.5/), and adults (age 50-64 years) at 19.8 per 100,000 (l.w. 16.3/). Most, 93% (l.w. 92.3%), were caused by Influenza A viruses; 5.8% (l.w. 6.2%) were from Influenza B viruses; 0.6% (l.w. 0.7%) showed co-infection with both Influenza A and B viruses; and 0.7% (l.w. 0.8%) were not typed for a specific flu virus. Note, for clarity, the percentages reported by the CDC add up to 100.1%.

Death rates for pneumonia & influenza in adults for week #02 is at 7.2%, and above the epidemic threshold of 7.1% for this week. This is the first time this flu season that the epidemic threshold has been met. Death reports often aren't reported for data purposes the same week and are typically reported by the CDC a week behind.

There were another three (3) pediatric deaths attributed to flu reported this week, for a total of 22 for this flu season.

Flu in Canada, Europe & the World:

Canada:
According to the Public Health Agency of Canada (PHAC), Flu continues to circulate throughout Canada flu for Week #03, ending 1/19/19. The Eastern Region reported higher levels of flu than other regions in the country. The number of positive flu tests continued to decrease. Influenza A remained the most common strain at 98%, with the majority Influenza A(H1N1)pdm09. The majority of the confirmed flu cases and hospitalizations were for those under age 65.

Widespread Activity in 0 Regions:
Localized Activity in 23 Regions: Alta. (1), Ont. (6), Que. (4), N.L. (2), N.S. (4), P.E.I. (1) and N.B. (5)
Sporadic Activity in 26 Regions: B.C. (5), Alta. (4), Sask. (3), Man. (5), Que (2), N.B. (2), N.L. (2), Nvt. (1), and N.W.T. (1)
No Activity in 3 Regions: Ont. (1), N.W.T. (1), Nvt (1)
No Data was reported in 1 Region: Y. T. (1)

For more specific information see:
On flu activity: **https://www.canada.ca/en/public-health/services/publications/diseases-conditions/fluwatch/2018-2019/week3-january-13-january-19-2019.html**

Canadian Flu Information:
https://www.canada.ca/en/public-health/services/diseases/flu-influenza.html

General Page for Canadian Flu Watch Surveillance with links to different components:
https://www.canada.ca/en/public-health/services/diseases/flu-influenza/influenza-surveillance.html

About the Canadian Influenza Activity Surveillance System:
https://www.canada.ca/en/public-health/services/diseases/flu-influenza/influenza-surveillance/about-fluwatch.html

Europe:
According to the European Center for Disease Prevention & Control **(ECDC), for Week # 3 (Jan 14-20, 2019)**, Influenza activity continued to increase throughout the European Region. The samples taken from those with ILI or ARI (acute respiratory illness), by sentinel primary healthcare sites, showed 48.8% positive for flu viruses. The majority of circulating virus remained Influenza A for patients both in hospital and out. Influenza A viruses were dominant with few influenza B viruses found. Influenza A(H1N1) viruses were identified more than A (H3N2). Mortality from 23 Member States reported that all-cause mortality was at expected levels for this time of year, although a few countries reported some excess mortality in their elderly.
For more information see: http://flunewseurope.org/

World: The **World Health Organization (WHO) provides info** on Influenza in Member Countries **here**: **https://www.who.int/influenza/surveillance_monitoring/en/**

First Responder Specific Information

There are many websites that may be helpful in planning and managing seasonal flu within First Responder organizations. A few of those websites are included here:

NIOSH on Flu for Employers/Employees:
https://www.cdc.gov/niosh/topics/flu/

Protection from Flu:
https://www.cdc.gov/flu/protect/habits/index.htm

Weekly Flu Map:
https://www.cdc.gov/flu/weekly/usmap.htm

World Map Showing Flu & Other Infectious Diseases:
http://www.healthmap.org/en/

Other Actions First Responders Should Consider

First Responders should be vaccinated for Flu each season to prevent getting flu themselves, taking it home to family members, or transmitting it to patients in their care. Family members and patients may be at increased risk of complications from flu.

Perform proper hand hygiene including frequent handwashing and the use of hand sanitizers in general, and particularly when providing patient care or after touching surfaces.

Masks (N95 or N100) should be used in the presence of patients with cough and/or fever; preferably before being within 6 feet of the patient. This becomes even more important if droplet producing procedures are being performed (i.e. suctioning, nebulizer treatments, BVM, intubation).

Care should be taken to avoid touching your own face and mucous membranes (eyes, mouth, nose) since the flu virus is frequently found on surfaces such as door knobs, writing & recording tools (pens and tablets), cot and equipment handles, phones, light switches, as well as clothing, bed clothes, etc.

Report signs/symptoms of flu to your physician or other appropriate provider for early assessment and care. Alert your employer per policy.

Cough and sneeze into your sleeve, if a tissue is not available, and not onto your hands. Watch this Youtube video for a humorous but educational approach on the subject.
https://www.youtube.com/watch?v=CtnEwvUWDo0

Stay away from others if you are sick.

Be aware of your exposure risk and history to prevent exposing others. Take extra precautions or avoid those with immunocompromise, when possible, if you have a known or likely exposure.

Antivirals may be indicated for the treatment of flu, particularly for those in high risk groups, those who are hospitalized or have severe, complicated or progressing flu. Those that present with 48 hours of the onset of symptoms may also be given antivirals, based on PCP judgement but make sure the practitioner is aware of their Frist Responder Role. See
https://www.cdc.gov/flu/antivirals/whatyoushould.htm
And, for consideration when looking at yourself, your family and friends, or your patients, consider the following information regarding complications of flu:
Flu is much more worrisome for the very young and the elderly, as well as those who fit into one of the high risk categories see this link for the list:
https://www.cdc.gov/flu/about/disease/high_risk.htm . Signs of ILI/Flu in this group requires careful assessment to rule out complications and these groups are much more likely to need medical oversight to assure adequate care. Young children and those over 65 are typically at greater risk for complications, hospitalization, and even death. Consideration should be given to perhaps monitoring these groups more closely, with inclination for more comprehensive assessment and transport for further evaluation, when presented with possible flu and any signs of complications.
Complications of flu, sometimes requiring hospitalization and even leading to death, tend to occur after the person has begun to get better from the flu and then appears to relapse. EMS personnel may want to look more closely at those patients when the call is not about the initial signs and symptoms of flu, but about increasing or different signs that have appeared, often from five days to two weeks after the initial flu symptoms began.

A study was published by the Institute for Clinical Evaluative Sciences in *NEJM (New England Journal of Medicine*). See details below:

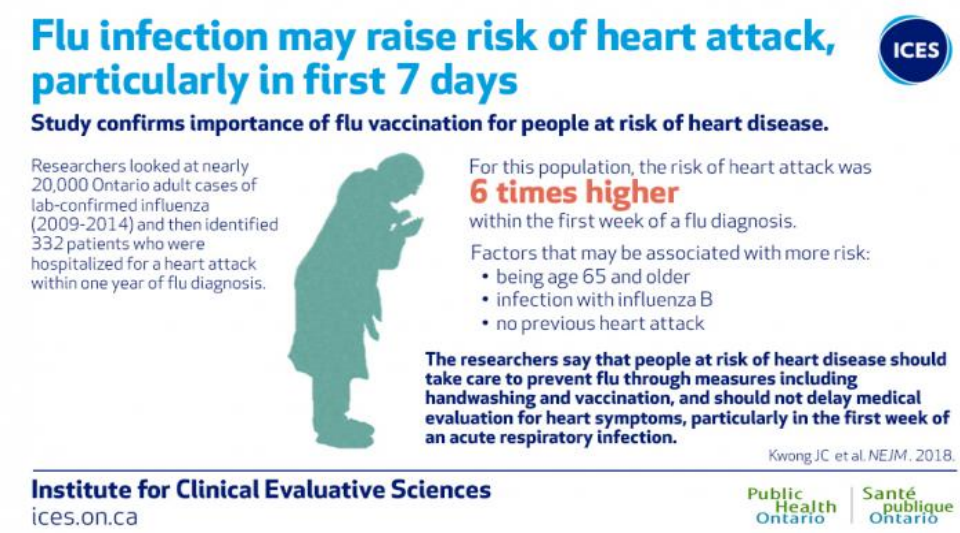

Image courtesy of ICES/PHO

"The researchers add that patients should not delay medical evaluation for heart symptoms particularly within the first week of an acute respiratory infection." (Lisa Schnirring, News Editor: *CIDRAP News* ;Jan 25, 2018)
For more information on Influenza and the Heart Attack Study, please see the link below.
https://www.eurekalert.org/pub_releases/2018-01/pho-rcl011818.php

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