

Influenza (Flu) for the 2019/2020 Season

The Northern Hemisphere transitions into the 2019/2020 Flu Season with the hope that this season will be closer to a more normal one than the past two seasons (2017/18 & 2018/19) were. The 2017/2018 season was the worst season in over a decade, when considering an across-the-board “High” severity for all age groups, the number of weeks above the epidemic threshold, number of deaths, particularly deaths, etc. And, although the 2018/19 season was better than the season before, it was the longest season in many years, stretching into May, had two case period peaks, significant numbers of hospitalizations across the age range, and a high pediatric mortality rate. Severe seasons are not unexpected when the dominant strain, at least for part of the season is an H3N2 strain, which is notorious for drifting mid-season. Both of the last two seasons had two circulating Influenza A flu viruses that each dominated for part of the season. While domination was shared with H1N1, which was responsible for the 2009/10 Pandemic, it is usually well matched in the flu vaccine, and is typically a somewhat milder flu unless secondary complications arise, which is more likely in those at greater risk for complications (see list below). The H3N2 strain, on the other hand, is known for having a low match rate with the season’s flu vaccine, mostly due to its propensity to drift after the flu vaccine make-up has been decided as well as during the season. Furthermore, it is often a more virulent type than other Influenza A viruses. In fact, the World Health Organization (WHO) held up deciding on which H3N2 strain would be part of the 2019/20 vaccine because of all the drift in the H3N2 virus DURING the 2019/20 Season. Still, most severe illnesses and many of the deaths from flu are in those that were not vaccinated (vaccination, even if not a perfect match, often provides at least some level of protection).

A summary of this past season’s flu season has not been published by the CDC yet, so there are facts and data that can’t be presented here. Weekly flu summaries won’t start being published for a few weeks yet, and the CDC has published that flu activity is currently low, but anecdotally and watching FirstWatch RIN Alerts, there has been an uptick in ILI (influenza-like illness). So, in preparation for the upcoming season (2019/20), this document contains seasonal flu information that can help prevent, identify, control and treat (or be treated) for the flu. The links provide a path to more detail on the topics and to more links for a deeper dive into the subject. There is also a link to the CDC Home page for health care professionals for more flu science, clinical and public health applications.

Flu Basics provide an introduction to seasonal influenza, as well as a review for those that may be dealing with it in patients they are responding to, their own households and families, or their workplaces. <https://www.cdc.gov/flu/about/keyfacts.htm>
<https://www.cdc.gov/flu/professionals/index.htm>
<https://www.cdc.gov/flu/about/index.html>

ILI – Influenza-like-illness: anyone who presents with a fever at or greater than 100° F (37.8° C) and either/both cough or sore throat and, with no known cause other than influenza, as the likely cause. In cases when Flu is known to be in an area, the identification of ILI, in the absence of influenza testing, can result in a presumption of “Flu”.

Antivirals may also be given, when appropriately prescribed by a health care provider (MD, DO, ARNP, PA), without a positive flu test and their use is encouraged in those with high risk of complications from flu.

Seasonal Flu – Influenza: a viral respiratory illness made up of Influenza A or B viruses (for humans) which may be diagnosed by a flu test. A list of signs and symptoms is included in this document

Influenza A viruses have subtypes of hemagglutinin (H1 – H18) and neuraminidase (N1-N11). Influenza A viruses can be further identified by Strain. The current strains that have been seen in the last flu seasons are H1N1 and H3N2. Influenza B viruses don't have subtypes but do have strains and lineages. The current lineages circulating of Influenza B are B/Yamagata and B/Victoria.

Changes in influenza viruses can appear and, if previously not seen, will be called variants. Very different influenza A viruses, typically from reassortment, or remix, of multiple strains within an animal (often a pig since they can get human, avian, and swine flus), from those that have previously circulated will be called Novel viruses and may lead to a pandemic, to which no one or very few will have any immunity. The 2009 (H1N1) was just such a novel virus and replaced the previously known H1N1. Novel viruses are risky for the entire world since spread may be rapid.

The naming of all influenza viruses, regardless of host, was made standard throughout the world by the WHO in 1979/80. For more information about types of flu viruses and nomenclature, see: <https://www.cdc.gov/flu/about/viruses/types.htm>

Flu Vital Statistics:

Transmission (Sharing): flu can be spread up to 6 feet in the air in the event of a sneeze, cough or by talking when tiny droplets fall/fly into mouths, noses, and perhaps eyes, although some references suggest that most transmission via the air are within a meter/3 ft. Droplets can also fall on or be introduced by contaminated hands onto surfaces or objects (fomites) such as tables, toys, light switches, phones, pens and pencils and then be picked up by someone that becomes exposed to the flu when they touch the contamination and then touch their face/eyes, nose, mouth.

People are most able to spread the virus in the first 3-4 days after developing symptoms. Healthy adults may be contagious starting the day before their symptoms begin and able to pass it on for up to a week after getting sick. Kids and those that have compromised immune systems may continue to spread their germs for 7 to 10 days typically, but can be even longer.

<https://www.cdc.gov/flu/about/disease/spread.htm>

Note (this does not change current recommended guidelines but awareness is appropriate): American Society for Microbiology's Press Release on a Japanese Study of *Influenza A & Alcohol Sanitizers*:

<https://www.asm.org/Press-Releases/2019/September-1/Towards-Better-Hand-Hygiene-for-Flu-Prevention>

Incubation: the time from exposure to the virus until signs and symptoms develop is variable but generally is between 1 to 4 days after the virus enters the body, with an average of 2 days before signs and symptoms appear. This means that you may get the virus before someone even knows they are sick or pass along the virus before you know you're sick. Some people will be exposed and be infectious (have the ability to spread the germs to someone else) but have no symptoms at all for the entire time.

<https://www.cdc.gov/flu/about/keyfacts.htm> (duplicate from above)

Signs and Symptoms: often have a sudden onset (some people can name the hour they began to feel awful). Most will have a few of these symptoms; some will have more, some less. Children and elderly patients may have less signs and symptoms, perhaps because their immune systems don't mount as vigorous a defense.

<https://www.cdc.gov/flu/symptoms/symptoms.htm>

Fever: $\geq 100^{\circ}$ F or 38.7° C, although some might not have a fever at all and many may not have one if they took anything that contains Tylenol, aspirin (not for kids/teens), ibuprofen or naproxen. Some fevers can be very high, particularly in children.

Chills

Sore Throat

Cough (likely unproductive), Chest Fullness/Tightness

Stuffy/Runny Nose, Nasal Congestion, Post Nasal Drip

Body or Muscle Aches

Headaches

Fatigue, Tiredness, Weakness, Lethargy, Lack of Energy

Some may have diarrhea or vomiting but it is most common in kids

Complications of Flu: risk of complications vary by age, underlying medical conditions, and immune status. Most people will begin to feel better within a few days but may still feel bad for up to two weeks. Some will not feel better at all or will begin to feel better and then feel worse again. Recurrent flu symptoms (or new ones) for longer than 2 weeks, or after starting to feel better, are a sign of possible complications to flu. Some are just a nuisance; others may be dangerous.

Mild to moderate: ear or sinus infections, persistent cough for 2 weeks or longer

Serious:

Worsening of Underlying/Chronic Conditions such as worsening CHF, exacerbations of COPD, Asthma, etc.

Lower Respiratory Tract Disease such as pneumonia, bronchiolitis, croup, respiratory failure, etc.

Invasive Bacterial Co-Infection

Cardiac Inflammation/Infection such as myositis, endocarditis, arrhythmias, etc.

Musculoskeletal Issues such as rhabdomyolysis, myositis, etc.

Neurological Issues such as encephalopathy, encephalitis, etc.

Multi-Organ Failure such as septic shock, renal failure, respiratory failure, etc.

Those at High Risk for Complications (linked to a higher risk of hospitalization & mortality):

Children less than 5 years; especially risky if under 2 years

Adults 65 years or older

Pregnant Women for the entire pregnancy and up to 2 weeks post-partum

Residents of nursing homes, rehab centers, or other long-term care facilities

American Indian and Alaskan Natives

Hx of Asthma or another Chronic Lung disease

Neurological or neuromuscular conditions

Heart Disease

Blood Disorders such as sickle cell

Endocrine Disorders such as diabetes

Liver or Kidney Disease

Metabolic disorders

Immunocompromised from disease or medication

Children or Teens receiving long-term aspirin

People with extreme obesity (BMI > 40)

<https://www.cdc.gov/flu/highrisk/index.htm>

Preventing:

Flu shots are recommended for anyone greater than 6 months unless medically contraindicated.

Those listed in the complication list above may want to check with their physician about flu vaccination but most will be encouraged to be vaccinated; some may need a different type of vaccination. <https://www.cdc.gov/flu/prevent/keyfacts.htm>

Also, stay away from those that seem sick or who are coughing or sniffing, wash your hands often, use your own pen for signing, use hand sanitizer, avoid touching your face (including eyes, nose & mouth) and sanitize commonly shared objects such as light switches, styli, keyboards, doorknobs, handles, etc.). Consider isolating those that may be at greater risk for catching or fighting the flu, such as the very young or very old, those that can't take the flu vaccine, or those who are immunocompromised because of chemotherapy, cancer, post-transplant therapy, high and/or long dose corticosteroid use.

<https://www.cdc.gov/flu/prevent/actions-prevent-flu.htm>

These two YouTube videos provide a humorous but scientific look at how coughs and sneezes can spread certain germs like flu, and how to decrease the risk of spread of the germs. <https://www.youtube.com/watch?v=CtnEwvUWDo0>

<https://www.youtube.com/watch?v=MKAHNoni0KI>

Diagnosing: it is sometimes difficult to differentiate between the flu and other respiratory or cold viral illnesses. Health care providers may do a Flu test or just assume you have the flu if it is in your area. For those that are high risk with Flu, doing a flu test is more likely.

<https://www.cdc.gov/flu/symptoms/symptoms.htm>



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Treating: most care is supportive such as rest, plenty of fluids, Tylenol or ibuprofen for fever or aches, avoid others, soft diet, flu or cold medicines to improve symptoms (check if you are taking more than one medication to make sure that both don't contain Tylenol, aspirin, or ibuprofen).

<https://www.cdc.gov/flu/treatment/index.html>

If you are at risk for flu complications, have a severe case of flu, or cannot avoid others to prevent spread, your health care provider may choose to prescribe an antiviral. These are particularly helpful if started within 48 hours of the onset of symptoms. The recommendations state that waiting for the confirmation of flu or flu type is not necessary before prescribing an antiviral. Those in the position of prescribing or providing antiviral medications should consult the sensitivity antiviral against the circulating flu strain(s), found in the Weekly Influenza Summary.

It is also important to recognize that there is a new antiviral, baloxavir marboxil (Xofluza®), first used during last flu season (2018/19), which is the first flu antiviral to treat both Influenza A and B flus. <https://www.cdc.gov/flu/treatment/whatyoushould.htm>