



## True or False: Busting Myths about COVID-19 Vaccines

### **My child has zero to minimal risk of becoming sick with COVID-19.**

**FALSE.** Children can be infected with the virus that causes COVID-19 and can get sick with COVID-19. Most children with COVID-19 have mild symptoms or they may have no symptoms at all (“asymptomatic”). Fewer children have been sick with COVID-19 compared to adults. However, children with certain underlying medical conditions and infants (less than 1 year old) might be at increased risk for severe illness from COVID-19. Some children have developed a rare but serious disease that is linked to COVID-19 called multisystem inflammatory syndrome (MIS-C). MIS-C is a serious condition associated with COVID-19 where different body parts can become inflamed, including the heart, lungs, kidneys, brain, skin, eyes, or gastrointestinal organs.

### **Children need to get vaccinated against COVID-19.**

**TRUE.** While, compared to older adults, it is less likely that children infected with COVID will become very ill, it is not zero. As of Dec 31, 2020, over 2.2 million children have had a documented COVID-19 infection, over 9000 have been hospitalized due to more severe COVID and 179 children have died of the infection. The vaccine is important for the health and safety of children, but also to prevent them from spreading the disease to adults such as parents, grandparents, and teachers.

### **Children do not need to wear masks.**

**FALSE.** In general, children 2 years and older should wear a mask. Masks offer some protection to you and are also meant to protect those around you, in case you are unknowingly infected with the virus that causes COVID-19. However, CDC recognizes that wearing masks may not be possible in every situation or for some people. Appropriate and consistent use of masks may be challenging for some children, such as children with certain disabilities, including cognitive, intellectual, developmental, sensory and behavioral disorders. Learn more about what you should do if your child or you cannot wear masks in certain situations.

### **My child can hang out with their friends during the pandemic.**

**TRUE-ish.** The more people your child interacts with, and the longer that interaction, the higher the risk of COVID-19 spread. While your child may spend time with other people when they return to childcare or school settings, reducing the number of people your child interacts with outside people within your household, childcare facility or school can reduce the risk of getting and spreading the virus that causes COVID-19. CDC recommends children 2 years of age and older wear a mask in public settings or when around people who do not live in their household, especially when it is difficult to stay at least 6 feet from others. However, masks should not be a substitute for other preventive measures such as frequent hand washing and staying at least 6 feet away from others.

### **COVID-19 vaccines can give me COVID.**

**FALSE.** The vaccines only contain a piece of the virus. Depending on the vaccine, it either contains the piece of the virus that tells our body to make the spike protein or it contains the spike protein itself. The spike protein is what the virus uses to attach to our cells and start an infection. The body then makes antibodies to the spike protein, which protect people against COVID-19 should they be exposed to the virus. The vaccine does not contain the whole virus, so it is impossible to get COVID-19 by getting vaccinated.



**The risk of death from receiving the COVID-19 vaccine is higher than the risk of death from the COVID-19 virus.**

**FALSE.** While there are many mild cases of COVID-19, about a fifth of infections result in severe disease, and nearly 1% of infected people die. For older people and those with underlying health problems, the risk of death can be anywhere from 10 to several hundred times higher. To date all seven COVID-19 vaccines that have completed large efficacy trials — Pfizer, Moderna, Johnson & Johnson, Novavax, AstraZeneca, Sputnik V and Sinovac — appear to be 100% effective for serious complications. Not one vaccinated person has gotten sick enough to require hospitalization. Not a single vaccinated person has died of COVID-19.

**COVID-19 vaccines can help end the pandemic.**

**TRUE!** Vaccines are going to be critical to get rid of the pandemic. It's much safer to get a vaccine than to contract COVID-19.

**COVID-19 vaccines could help reopen the U.S. economy.**

**TRUE.** While masks, social distancing and hand hygiene can prevent 85 percent of COVID cases, vaccines are key to returning to the lifestyles and workplaces we enjoyed before the pandemic.

**COVID-19 vaccines can alter the DNA of people who receive the vaccine.**

**FALSE.** The vaccines DO NOT change your DNA. For all four COVID vaccines under development (Pfizer, Moderna, AstraZeneca and Janssen), the main function is to bring messenger RNA, also known as mRNA, into a part of our cell called the cytoplasm. The genetic material known as DNA is in the nucleus of our cells. There is a wall around the nucleus that prevents RNA from getting into the nucleus. Thus, the vaccines have no ability to change our DNA. Also, the mRNA used in these vaccines only lasts in our cytoplasm for a few days, and then our body destroys it. So, the mRNA does its job of having our body make a harmless piece of the spike protein in COVID-19, and then our body starts an immune response against the spike protein. This immune response is what protects us against being infected by COVID-19.

**COVID-19 vaccines contain human stem cells.**

**FALSE.** None of the vaccines contain human cells. The Pfizer and Moderna vaccines are pure mRNA that was made in the lab. This process does not use any cells at all. The AstraZeneca and Janssen vaccines use an adenovirus to bring the spike protein gene to our cells. Viruses need to grow in cells. After the adenovirus used in the AstraZeneca and Janssen vaccines are grown, the virus is collected from the cells and purified. So there ONLY is virus, NO human cells, in the AstraZeneca and Janssen vaccine. The initial cell line for the AstraZeneca vaccine came from human embryonic kidney cells. However, those cells were obtained over 60 years ago. There are NO human cells in the finished product of either the AstraZeneca or Janssen vaccine.

**COVID-19 vaccines cause infertility.**

**FALSE.** This is a hoax. It is absolutely untrue.

**People with underlying conditions shouldn't get vaccinated.**

**FALSE.** People who have underlying conditions—like diabetes and heart disease, for example—are at a high risk for getting complications from COVID-19, so it's even more reason why they should get vaccinated.

**Immunocompromised individuals can get vaccinated against COVID-19.**

**TRUE.** The mRNA vaccines (Pfizer and Moderna) are not "live" vaccines and thus immunocompromised individuals are at no greater risk from these vaccines than any other person. While neither the AstraZeneca nor Janssen vaccines use adenoviruses that can grow in our body, they



are “live”. Thus, while we have no reason to think either the Astra Zeneca or Janssen vaccines are of increased risk to people with immunocompromising conditions, it would be best to discuss with your doctor if one type of the COVID-19 vaccine may be better for you.

**COVID-19 vaccines were developed and approved so quickly that appropriate safety checks were not done.**

**FALSE.** Things have moved faster than normal, but we have done everything correctly. The FDA was able to approve an Emergency Use Authorization for Pfizer based on its good safety and efficacy profile. We have been very careful in monitoring safety and have taken no short cuts in evaluating the vaccines at Cincinnati Children’s. Almost 40,000 people enrolled in Pfizer nationwide, over 30,000 enrolled in Moderna and close to 30,000 for both Janssen and AstraZeneca. Thus, we will have a lot of safety data before the other vaccines are licensed.

**Everyone who receives a COVID-19 vaccine has serious side effects.**

**FALSE.** Many people have no symptoms at all. If people are going to have symptoms, the most common have been soreness at the site of vaccination, headaches and fatigue. Some people have had body aches and rarely (less than 10%) people have had chills and/or a fever. If people are going to have side effects, they typically start 1-2 days after vaccination and last for 1-2 days. Some people have had more side effects with the second dose of vaccine but again the side effects are short lasting. One could think of the symptoms described above are a good thing as it is a sign that the vaccine is working. While we would prefer that no one who received the vaccine had any side effects, we think the benefit of protection against a potentially lethal virus FAR outweighs the possible risks of the vaccine.

**Once you get vaccinated, you don’t have to wear masks or practice social distancing.**

**FALSE.** You absolutely still have to wear masks and social distance. If you’re walking around in public, how do you know who is vaccinated? And no vaccine is 100% effective. These vaccines are 95% effective, which is an incredibly high percentage, but that means there will still be 5% of people who won’t be protected. Get a vaccine, wear your mask and then a few months later, when we know that everyone has been vaccinated, we can go back to life the way it was.

**Fully vaccinated people who have been exposed to someone infected with the virus can skip COVID-19 quarantines.**

**TRUE.** "Vaccinated persons with an exposure to someone with suspected or confirmed COVID-19 are not required to quarantine if they meet all of the following criteria," the CDC says. The criteria: They must be fully vaccinated – having had both shots with at least two weeks having passed since the second shot. That's because it takes two weeks to build full immunity after the second dose of vaccine; it's possible even vaccinated people could harbor the virus in their noses and throats, and pass it to others. And everyone, vaccinated or not, needs to follow all other precautions to prevent the spread of the virus. This includes wearing a mask, staying at least 6 feet away from others, avoiding crowds, avoiding poorly ventilated spaces, covering coughs and sneezes, and washing hands often.

**The COVID-19 vaccine is not effective since fully vaccinated individuals still have to wear masks and stay socially distant.**

**FALSE.** We know that both the Pfizer and Moderna vaccines are 94% effective against disease, both mild and severe. We still don’t know how well those vaccines (or AZ or Janssen) protect against infection. So, the concern is that while an immunized person won’t get disease, they may still be able to get infected and pass the virus to non-immune people who then may get disease. Even if they do get infected, if the immunized person wears a mask, they should decrease transmission. The other thing is that we don’t want people to think just because they are vaccinated, they don’t have to follow any rules. Easier to say “everyone still needs to stay appropriately distanced and wear masks”.



**It is safe for pregnant women to get the COVID-19 vaccine.**

**TRUE.** While we have not yet specifically tested COVID-19 vaccines in pregnant women, there is no reason to suspect that the COVID-19 vaccines currently being tested would be of risk to the mother or her baby. The American College of Obstetrics and Gynecology (ACOG) has recommended; “that COVID-19 vaccines should not be withheld from pregnant individuals who meet criteria for vaccination based on ACIP-recommended priority groups”. Additionally; “COVID-19 vaccines should be offered to lactating individuals similar to non-lactating individuals”. COVID-19 vaccine testing in pregnant women is planned and likely will start in the spring of this year.

**It's safe for women to get a COVID-19 vaccine if they would like to have a baby one day.**

**TRUE.** People who want to get pregnant in the future may receive the COVID-19 vaccine. Based on current knowledge, experts believe that COVID-19 vaccines are unlikely to pose a risk to a person trying to become pregnant in the short or long term. Scientists study every vaccine carefully for side effects immediately and for years afterward. The COVID-19 vaccines are being studied carefully now and will continue to be studied for many years, similar to other vaccines. The COVID-19 vaccine, like other vaccines, works by training our bodies to develop antibodies to fight against the virus that causes COVID-19, to prevent future illness. There is currently no evidence that antibodies formed from COVID-19 vaccination cause any problems with pregnancy, including the development of the placenta. In addition, there is no evidence suggesting that fertility problems are a side effect of ANY vaccine. People who are trying to become pregnant now or who plan to try in the future may receive the COVID-19 vaccine when it becomes available to them.

**Millions of Americans might die of COVID-19 if we don't get vaccinated.**

**TRUE.** The overall fatality rate for COVID is 2 percent to 3 percent. That rate might sound small, but if you apply it to the entire population it would equate to about 5 million to 10 million people who would die from COVID. That would entail a lot of human suffering and exact a huge emotional toll on families faced with losing loved ones.