

Sedgwick County Health Department Q&A, May 2021

Maize USD 266 collected questions about the COVID vaccination from high school sophomores, juniors, and seniors and their families. Thanks to Sedgwick County Health Department Epidemiologist Kaylee Hervey and COVID-19 Outreach Specialist Amanda Bustamante for providing the following answers. For more Sedgwick County Health Department COVID resources, please visit www.sedgwickcounty.org/covid-19.

How many people in Sedgwick County have been vaccinated, and what does it mean?

- As of April 28, 2021:
 - 45.3 percent of people 18 and older have received one dose of either the Pfizer or Moderna vaccines.
 - 37.2 percent are considered fully vaccinated (by receiving the second dose of the Pfizer or Moderna vaccines or Johnson & Johnson).
- To be fully vaccinated, you must be two or more weeks past the date of the final dose in your vaccination series, since it can take up to two weeks for your body to fully develop immunity.

How many teenagers in Sedgwick County have been vaccinated?

- As of April 28, 2021:
 - 4,458 people ages 16 to 18 years old have received one dose.
 - 1,968 are considered fully vaccinated.

If both parents are vaccinated, should a teenager in the same household be vaccinated?

- Yes. The teenager likely still goes outside the home, where they could be exposed and infected. Nationally, we are seeing an increase in cases in younger age groups. Being vaccinated helps prevent illness and protects friends or family who may be too young to receive the vaccine or who are at a higher risk for severe illness.
- Additionally, to achieve herd immunity, 70 to 85 percent of the population should be vaccinated. If teenagers, and eventually younger children, are not vaccinated, there is an increased risk that the virus will mutate and begin to cause more severe illness in younger populations.

What is herd immunity, and why does it matter?

- Herd immunity is a form of indirect protection against infectious diseases. It occurs when enough people in a population are immune to the disease that there are no susceptible people that the disease can spread to if someone is infected with that illness. Achieving herd immunity helps stop disease spread and also protects people who are not immune to that illness. The percent of the population who need to be immune to reach herd immunity varies based on the disease and how infectious it is.
- For COVID-19, herd immunity is estimated to be 70 percent to 85 percent. Since having COVID-19 disease does not confer long-term immunity, this means that 70 percent to 85 percent of people in our area need to be fully vaccinated to prevent transmission.

Are these vaccines still under emergency use authorization? If so, why have they not been fully approved yet?

- All three COVID-19 vaccines are still under the U.S. Food and Drug Administration (FDA)'s Emergency Use Authorization (EUA). In a public health emergency, manufacturing and approval of vaccines or treatments can be streamlined through an EUA. An EUA does not affect vaccine safety, because it does not impact development, including research or clinical studies and studying side effects/adverse reactions, since vaccinations in an EUA still must have completed all three phases of clinical trials. Instead, it speeds up manufacturing and administrative processes by allowing the vaccine developer to manufacture the vaccine while clinical trials are happening, unlike the standard approval process where manufacturing cannot happen until after approval.
- To apply for a Biologics License Application (FDA approval), the developer must have at least six months of data about the vaccine and follow-up of vaccine recipients. Both the Pfizer and Moderna vaccinations are close to this point and are expected to apply for approval in the next few months. However, it usually takes the FDA six months to review an application after it has been submitted, so full FDA approval likely will not occur until later this year.

What is mRNA technology?

- mRNA (messenger RNA) is genetic material that tells your body how to make proteins. mRNA technology uses synthetic mRNA to mimic this process. The mRNA delivers a part of a virus or other disease into the body to either prompt an immune response or for disease treatment.
- mRNA vaccines work by giving your cells instructions to make a protein from the disease. For COVID-19, this protein is part of the spike protein on the SARS-CoV-2 virus. The instructions to make the spike protein is coded in the mRNA, which is then injected into the upper arm. When your cells pick up the mRNA, the cells then produce spike protein. After the protein is created, your cells break down the mRNA. At no point does the mRNA enter the nucleus, where your DNA is housed in the cell. The cell then displays the spike protein piece on its surface where your immune system identifies that it does not belong and starts an immune response and makes antibodies against COVID-19.
- One advantage to mRNA vaccines is that they are targeted to specific parts of a virus, so the antibodies are also targeted specifically and will be more effective at preventing severe disease than just having COVID-19 disease itself.

Why have previous mRNA vaccines for other coronaviruses like SARS been aborted?

How are these any different?

- One of the big reasons that the COVID-19 vaccines are different from previous mRNA vaccines is funding. With a pandemic, a large amount of resources, companies, and governments were focused on making the COVID-19 vaccinations, which allowed things to progress quickly.

- These vaccinations also rely on research that has been going on for decades. Scientists first began looking at synthetic mRNA for use in medicine in the 1970s and use in vaccines in the 1990s. Research has been ongoing for mRNA vaccines for various diseases, including flu, Zika virus, rabies, malaria, and cytomegalovirus. The research has also been used for cancer treatments. Companies that were already focusing on mRNA vaccines, such as Moderna and BioNTech (Pfizer's vaccine), were able to build on their previous research and adapt it quickly to COVID-19. The previous research, nimbleness of mRNA to be adapted to specific viruses, and resources available all allowed the COVID-19 vaccinations to be developed in a short amount of time.

What studies have been done on the accumulation of the spike protein made from the mRNA strand in these shots?

- When you get an mRNA vaccine, the mRNA gives your cells instructions to make the SARS-CoV-2 spike protein. These proteins are what cause your body to make an immune response. The spike protein was selected as a vaccine target because it binds to your cell receptors and helps the virus enter your cells when you are infected with SARS-CoV-2.
- After vaccination with the mRNA vaccine, your body's immune system will react to the presence of the spike proteins and will begin to develop antibodies. This immune response is why some people feel ill after being vaccinated. Since your immune system cannot tell the difference between just the spike protein and the actual SARS-CoV-2 virus, during its response, it will also destroy the "infected" cells with the spike protein and train the body to recognize that protein. Overall, the spike protein does not accumulate to significant levels in the body.
- When you receive your second (booster) dose of the vaccine, the dose ensures that your body creates both short-term and long-term antibodies specific to the SARS-CoV-2 spike protein.

The [sedgwickcounty.org](https://www.sedgwickcounty.org) "myths and facts" page says I can still transmit COVID if I am vaccinated. How is that?

- Although the COVID-19 vaccinations are highly effective at preventing severe illness or death, it is still possible for someone to become infected with COVID-19 after being fully vaccinated. Their illness will likely be mild, or they won't even have symptoms. However, spreading the disease to others is still possible, since their body still produces virus particles. Additional research is being conducted to determine how infectious individuals are after receiving the COVID-19 vaccination.

How long after having COVID-19 can I be vaccinated?

- As long as you are out of isolation if you had COVID-19, you can be vaccinated for COVID-19. When vaccine supplies were more limited, there was a recommendation to wait 90 days after having COVID-19 to be vaccinated. However, this was based on the 90 days of presumed immunity after having COVID-19 and a lack of vaccine supply. There is no medical reason why you cannot be vaccinated in the 90 days after having

COVID-19, especially now that we have plenty of vaccines. If you have concerns about being vaccinated after having COVID-19, speak to your healthcare provider.

- If you are identified as a close contact of a COVID-19 case you should complete your quarantine period before being vaccinated.

Does vaccination have any effect on a woman's fertility?

- No, the vaccines do not have any effect on a woman's fertility. There is no evidence to suggest that the COVID-19 vaccines can cause infertility. In fact, many pregnant women have chosen to receive the vaccine, and data shows their babies are being born with antibodies and are protected from birth.

I have heard about several people across the nation who have an anaphylaxis reaction to shellfish and have had an anaphylaxis reaction within minutes of receiving the COVID-19 vaccine. Have the vaccine manufacturers figured out what ingredient is causing this? If not, will they? If so, is the vaccine available without this ingredient?

- The Centers for Disease Control and Prevention (CDC) recommends that people are vaccinated even if they have a history of severe allergic reactions not related to vaccines, such as food, pet, environmental, or latex allergies, but they should discuss the risks and benefits with their doctor. Your doctor can speak to your specific medical history and help you decide if it is safe for you to get vaccinated. In some cases, the pros will outweigh the cons, but that is a conversation to have with your medical provider.
- In specific regards to shellfish, at this time, they have not dialed in on a reason or ingredient. It is not a guarantee that those with shellfish allergies will have a reaction. It's hard to say right now if there will be a time when the unknown ingredient is no longer involved. But this is why an observation period is required, to ensure qualified medical personnel are on site to assist.

I have heard young adults died from blood clots and strokes after the vaccine. Where can I find information on the risks I might face from this new type of shot?

- The [FDA](#) is a great resource for information on potential risks. All vaccine fact sheets have been updated to include information on such things, and those are available online and when you go to receive the vaccine.

What long-term risks are being tested for this new shot?

- The FDA continues to monitor the production of vaccines to ensure safety even after approval. There are a variety of systems that monitor vaccines after they have been approved or authorized, such as Phase 4. Phase 4 is the "formal" period, where many vaccines conduct studies even after approval and licensed to continue testing the safety, efficacy with the variants, and other potential uses. There is also VAERS, a CDC app whose sole purpose is to detect possible signals of adverse events associated with vaccines. Research on the COVID-19 vaccine has not stopped, and medical professionals continue to look at many things daily.

What side effects can people get from the polyethylene glycol in these shots?

- Polyethylene glycol (PEG) is an ingredient in both Pfizer and Moderna and serves as a nano lipid, a hydrogel. Several household products, such as toothpaste, skin creams, and laxatives, use PEG. If there is a concern regarding an allergic reaction, consult your medical provider before receiving the vaccine. Side effects are reported from the vaccine as a whole and not against specific ingredients, so it's hard to say if people are experiencing side effects from this ingredient.

What are the benefits to being vaccinated?

- If you are fully vaccinated (at or more than two weeks after the final dose in your vaccine series), then you do not have to quarantine for six months after the date of your last vaccine in your series as long as you do not develop symptoms after being exposed to someone with COVID-19.

If a vaccine protects me from getting the virus, why would I still need to wear a mask if vaccinated and I won't be spreading it anymore?

- Although the COVID-19 vaccinations are effective at preventing severe illness or death, it is still possible for someone to become infected with COVID-19 after being fully vaccinated. Their illness will likely be mild, or they won't even have symptoms. However, it is still possible that they may be able to spread the disease to others, since their body still may make virus particles. If you have particles in your nose, you can still spread them to others. Wearing a mask helps prevent that transmission, especially if you are around people who may not be vaccinated.