COVID-19 Vaccine: Questions & Answers

By Carol Kuhn, M.D.

I am offering a facts based presentation of the COVID-19 vaccine and questions, concerns, and science based answers. My references are at the end of the article with website links for further information.

What is COVID-19?

COVID-19 is caused by a coronavirus called SARS-CoV-2. This type of coronavirus has not been seen before. You can get COVID-19 through contact with another person who has the virus. It is predominately a respiratory illness that can affect other organs. People with COVID-19 may have a wide range of symptoms from mild symptoms to severe illness. Symptoms may appear 2 to 14 days after exposure to the virus. Symptoms may include: fever or chills; cough; shortness of breath; fatigue; muscle or body aches; headache; new loss of taste or smell; sore throat; congestion or runny nose; nausea or vomiting; diarrhea.

Reasons for having the COVID-19 Vaccine:

- Protect myself and my family
- Help stop the spread in the community
- Set an example for others: family, and community-at-large

How do we know the vaccine is effective and safe? Why should we trust the vaccine? To assess safety FDA (Food and Drug Administration) typically advises that a minimum of 3,000 participants are included in the trial. Safety is the most important priority in vaccine approval. The current COVID-19 vaccine trials include 30,000 to 50,000 participants.

Most side effects occur within 6 weeks of vaccination. To be more cautious, the FDA requires 8 weeks of safety monitoring of the COVID-19 vaccines. Monitoring for safety will continue as the vaccine is distributed to the public.

Is new technology being used and is that dangerous to me? What is mRNA vaccine?

The first two COVID-19 vaccines: Pfizer (BNT 162b2) and Moderna (mRNA-1273) are both mRNA vaccines. They DO NOT contain COVID-19 virus.

Can mRNA vaccine give you COVID-19? No, the vaccines do not contain SARS-CoV-2 and cannot give you COVID-19.

Can mRNA vaccine change my DNA? No

- mRNA technology is new in vaccine production but is already used in cancer treatment. It has been studied for more than ten years.
- COVID-19 mRNA vaccines give instructions for our cells to make a harmless piece that looks like the “spike protein”. The spike protein is found on the surface of the COVID-19 virus.
- Our bodies recognize that this protein should not be there, so they build antibodies that will remember how to fight the virus that causes COVID-19 if we are infected in the future.
What is an EUA and what does it mean to you?

- **An Emergency Use Authorization (EUA)** for a vaccine is based on the need to use a vaccine quickly to save lives during a public health emergency
- EUA is a shorter process but *no steps are “skipped” in the safety evaluation process*
- The FDA will assess if the vaccine known and potential benefits outweigh the known and potential risks. The FDA is using the same strict standards that it has used for decades
- Two separate advisory boards (VRBPAC and ACIP) will also review the data and make recommendations
- An EUA does NOT imply that the authorization was done too quickly or that the vaccine is not safe

How was the vaccine developed so quickly?

- Global effort with the world’s leading scientists focused on a single task
- Nearly unlimited resources (money, knowledge, manpower; technology)
- A large pool of diverse adult volunteer trial participants (30,000-50,000 participants)

How effective are the COVID-19 vaccines?

Efficacy overall:

- **Pfizer (BNT 162b2):** 95% protection from having an infection (45% of participants were 56-85 years); *approved for 16 years of age & older*
- **Moderna (mRNA-1273):** 94% protection from having an infection (23% were over 65 years); *approved for 18 years of age and older*

*Similar efficacy with different race, ethnicity, and age*

Vaccine schedule and protection timeline:

- Most of the vaccines are **2 doses, 3-4 weeks apart** (Pfizer: 3 weeks; Moderna: 4 weeks)
- Protection occurs **1-2 weeks after second dose**
- We will most likely not know how long the vaccine will be protective once we receive it. We will know more as time passes in the current research
- May need to have vaccine shots for COVID-19 on a regular basis (like the annual flu shot)

**YOU MUST GET THE SECOND DOSE:** The vaccine will not protect you if you only get one dose. It is important to get the SAME VACCINE as the first dose.

What should I expect when I get the vaccine? *(Remember the vaccine cannot give you COVID-19)*

- You can expect to have short-term discomfort: fatigue, headache, muscle pain, chills, fever and pain at injection site (muscle in upper arm) after vaccination
- These reactions will last for **24-48 hours** and are typically more pronounced after the second dose
- Side effects mean your body is doing its job and making antibodies *(IT IS A GOOD THING)*
• These side effects are normal, common and expected

**Most common side effects: based on clinical trials:**

• Fever: 4-16%
• Fatigue: 34-59%
• Headache: 25-52%
• Muscular pain: 14-37%
  Side effects were more common after the second dose of the vaccine


There is a remote chance that the COVID-19 vaccine could cause a severe allergic reaction, which would usually occur within a few minutes to one hour after getting the vaccine. For this reason you will be asked to stay at the place where you received the vaccine for monitoring after vaccination (usually 15 minutes; longer if you have a history of severe reaction, including anaphylaxis after a different vaccine).

• Difficulty breathing
• Swelling of your face and throat
• A fast heartbeat
• A bad rash all over your body
• Dizziness and weakness

**Screening questions to review/mention to your health provider before you receive a COVID-19 vaccine.** A “yes” answer may NOT disqualify you for the vaccine, but important to mention:

• Have any allergies
• Have a fever
• Have a bleeding disorder or are on a blood thinner
• Are immunocompromised or are on a medicine that affects your immune system
• Are pregnant or plan to become pregnant
• Are breastfeeding
• Have received another COVID-19 vaccine

**What if I actually had COVID-19 infection?**

• It is safe to get the COVID-19 vaccine even if you had COVID-19
• Even if you had COVID-19, it is important to get vaccinated. It could give you longer or better protection against the disease
• Even if you have positive antibodies you should get the COVID-19 vaccine

Timing of other vaccines: it is recommended that you NOT receive a different type of vaccine within 28 days before or after receiving the COVID-19 vaccine. However, this is not an absolute contraindication at this point.
Will I still need to wear a mask after I have my second COVID-19 vaccine? **YES!**

Similar to other vaccines, a large number of people in the community will need to get vaccinated before transmission drops enough to stop the use of masks.

We must continue to adhere to wearing face masks, maintaining physical distance (staying at least 6 feet apart when in buildings and outside) and avoiding even small gatherings with others outside our “bubble”. (Bubble is an unofficial term used to describe the cluster of people outside your household with whom you feel comfortable spending time with during the pandemic.) However, this is still risky, because when you interact with more people, you increase the odds of acquiring Covid-19. Staying at home and limiting face-to-face contact with people is still the best way to avoid Covid-19 spread. **Vaccines are the only way to control the COVID-19 pandemic.** We all need to do our part and get vaccinated if we want to get back to “a normal life”.

**REFERENCES:**

It is important to get information from reliable sources. **Social media is full of misinformation and opinions based on that misinformation.** Here are some links to information which I referenced in writing this article and recommend:

- CDC: [https://www.cdc.gov/vaccines/hcp/covid-conversations/answering-questions.html](https://www.cdc.gov/vaccines/hcp/covid-conversations/answering-questions.html)
- CDC: Provider Resources for COVID-19 Vaccine Conversations with Patients and Answering Patients’ Questions: [https://www.cdc.gov/vaccines/hcp/covid-conversations.html/](https://www.cdc.gov/vaccines/hcp/covid-conversations.html/)
  n_1_13_21.pptx

Carol Kuhn, MD

January 15, 2021