DRYDEN
CENTRAL SCHOOL DISTRICT

#Lion Pride

COVID-19
Vaccine Information

Pfizer vs Moderna Vaccines: What's the difference?

PFIZER

- 95% effective
- 30 mcg dose given 21 days apart
- 5 doses per vial
- Must be diluted with saline (0.9%NaCl)
- Stored at -112℉ to -76℉
- 32,621 trial participants
- Approved for use on 12/11/20
- Can be given to anyone 16 years old or older
- mRNA vaccine

MODERNA

- 94.5% effective
- 100 mcg doses given 28 days apart
- 10 doses per vial
- No dilution necessary
- Stored at -13℉ to 15℉
- 30,350 trial participants
- Approved for use on 12/18/20
- Can be given to anyone 18 years old or older
- mRNA vaccine

What's an mRNA vaccine? (messenger RNA or messenger ribonucleic acid vaccines)

- mRNA is a single stranded molecule of RNA that corresponds to the genetic sequence of a gene, and is read by a ribosome in the process of synthesizing a protein.

- An mRNA vaccine teaches our bodies to make a protein- using our bodies normal protein manufacturing system- that can then be recognized as 'not belonging'. Once recognized as being an outsider, the body begins building an immune response and learns to eliminate it.

- This technique is not new in disease treatment and has long been studied, but this is the first use of mRNA in approved vaccines.

Facts about COVID-19 mRNA vaccines:

- COVID-19 mRNA vaccines provide instructions for our cells to make a harmless *piece* of what is called the “spike protein”. The spike protein is found on the surface of the virus that causes COVID-19 (the coronavirus). The virus uses the spike protein to poke its way into our individual cells where it replicates and causes those cells to burst.
- COVID-19 mRNA vaccines do not use live or inactivated virus at all. It is impossible to become infected with COVID-19 from these vaccines.
- COVID-19 mRNA vaccines are given in the upper arm muscle. Once the instructions (mRNA) are inside the muscle cells, the cells follow the instructions and make the protein piece. After the protein piece is made, ***the cell breaks down the instructions and gets rid of them***.
- COVID-19 mRNA vaccines do not affect or interact with our DNA in any way. mRNA never enters the nucleus of our cells which is where our DNA (genetic material) is kept.

Facts, continued...

- Once the protein piece is made, the cell displays it on its surface (showing off its work). Our immune system recognizes that the protein doesn't belong there and begins making antibodies to get rid of it.
- After developing antibodies, our immune system has learned how to recognize and eliminate the spike proteins and protect against future infection.
- Right now, scientists aren't sure how long this immunity will last. They do know that the vaccination offers a better immune response than contracting the virus.
- These vaccines will protect against all coronavirus infections, including the COVID-19 variant which is just being seen in NYS for the first time.
- The benefit of the COVID-19 mRNA vaccine, (like all vaccines), is that once vaccinated, your body will gain protection and the ability to fight infection in the future without making you sick.

mRNA Technology

- mRNA technology was discovered over 30 years ago and has been studied for vaccine purposes for nearly 20 years.
- Scientists have been working on a coronavirus mRNA vaccine since the SARS and MERS outbreaks (both are coronaviruses like COVID-19) - but funding dried up. Once funded and with emergency use allowance, these vaccines were able to be developed and approved quickly. No shortcuts in development or testing were taken, but a lot of red tape and waiting was eliminated!
- Early-stage clinical trials using mRNA vaccines have been carried out for influenza, Zika, rabies, and cytomegalovirus (CMV).

Ingredients:

The ingredients in the Pfizer and Moderna COVID-19 vaccines are very simple and very similar. They are:

- mRNA
- Lipids
- Electrolytes or Buffers
- Sugars

*These vaccines do not contain preservatives, fetal tissue, aluminum, mercury, thermosol, or food allergens, and the vial stoppers do not contain latex.

1. mRNA

We already know what this is by now!

It is the instruction for the cell on how to make the piece of spike protein. It does not do any harm to the person who is vaccinated. It promotes an immune response in the body.

2. Lipids

Lipids are fats. They're used in these vaccines to coat and protect the fragile mRNA. They also promote its circulation throughout the body.

3. Electrolytes and buffers

Electrolytes are common and harmless. The Pfizer vaccine includes trace amounts of potassium chloride, monobasic potassium phosphate, sodium chloride, and dibasic sodium phosphate dihydrate. They are used by the body and are vital to its health. They are found in many foods we consume and supplements we take. They help the vaccine to maintain the proper pH level and help to keep the components of the vaccine suspended properly once rehydrated. They also help to make the vaccine injection more comfortable to receive.

The Moderna vaccine includes what is called a ‘tris buffer’, also in trace amounts. It’s composed of amines, a simple acid, a salt, and a sugar. This buffer improves distribution of the vaccine throughout the body, keeps the components evenly distributed, assists with comfortable administration, helps prevent bacterial growth, maintains pH, and protects the mRNA.

4. Sugars

The sugar found in these vaccines acts to prevent damage to the mRNA component, especially when it’s frozen.

Side Effects of Both Vaccines:

Common:

- Redness, swelling, or pain at the injection site
- Headache
- Fatigue
- Muscle/joint pain
- Fever/chills
- Nausea, vomiting, diarrhea
- Feeling unwell
- Swollen lymph nodes

*These side effects are usually short lasting (less than 24-48 hours) if they occur at all. They are symptoms of the immune response and indicate that your body is doing hard work to protect you.

Side Effects, continued...

Rare:

- Difficulty breathing
- Swelling of your face and throat
- Rapid heartbeat
- Rash
- Dizziness and weakness

*Severe adverse reactions to the vaccines have been rare and have occurred at about the same rate as with any vaccine. A severe reaction would usually occur within a few minutes to an hour after receiving the vaccine.

Why should I?

A commonly asked question is, “Why should I get vaccinated if a COVID-19 infection has a 99% (or better) survival rate?”

Because any number of preventable deaths is too many

Because COVID-19 symptoms can persist and keep you ill for months

Because COVID-19 can cause permanent damage to your body

What Damage?

What kind of damage can a COVID-19 infection cause?

Heart: Imaging tests taken months after recovery from COVID-19 have shown lasting damage to the heart muscle, emen in people who experienced only mild COVID-19 symptoms, and even in young people. This will increase the risk of heart failure or other heart complications in the future.

Lungs: The type of pneumonia often associated with COVID-19 can cause long-standing damage to the tiny air sacs (alveoli) in the lungs. The resulting scar tissue can lead to long-term breathing problems

Brain: Even in young people, COVID-19 can cause strokes, seizures, and Guillain-Barre syndrome- a condition that causes temporary paralysis. COVID-19 may also increase the risk of developing Parkinson's Disease and Alzheimer's disease.

Other known potential problems: Blood clots, inflammation severe enough to affect spleen, kidneys, nerves, etc., deprivation of oxygen to brain affecting cognitive function.

Who shouldn’t get the vaccine?

People with a history of allergic reactions to any of the vaccine ingredients should not get the vaccine.

Everyone should consult with their personal physician if they have concerns.

Who should get vaccinated?

Everyone else.

Remember, the Pfizer vaccine has only been approved so far for anyone 16 years of age or older.

The Moderna vaccine has only been approved so far for anyone 18 years of age or older.

What is V-Safe?

The CDC has developed a program called V-Safe. It is a text messaging and web-survey program with which patients are monitored after vaccination. It is designed to be used with any phone with texting capabilities and can also be used on a computer.

It will be used to continue monitoring recipients of the vaccines as the weeks and months go by for side-effects and results.

How does V-Safe work?

V-Safe will ask you for some demographic information which is protected.

After you receive your first vaccination, you will be contacted daily by the CDC during the first week, then weekly for six weeks, then at 3,6, and 12 months.

After you receive the second vaccination (the booster), the timeline will reset.

During these check-ins, you will report any side-effects you're experiencing from the vaccination. You'll report any adverse symptoms, even if you're unsure if they are due to the vaccinations.

A CDC representative will follow up on any clinically important health impacting event such as missing work, difficulty with the activities of daily living, or hospitalization.

The CDC will regularly report the results of the V-Safe program to the public on their website.

PLEASE GET VACCINATED

The vaccine benefits outweigh the known risks of contracting COVID-19.

The sooner we're all vaccinated, the sooner we can remove our masks and hug our friends again.

For a list of references and resources, please see the PDF version of this slideshow, found on our website and titled, "COVID-19 Vaccine Information".