



# Vaccination and Lupus

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# Disclosures

I have no relevant disclosures


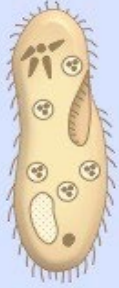





# Rundown

- ▶ Science lesson!
  - ▶ What is immunity?
  - ▶ What's a vaccine and how does it work?
- ▶ What vaccines do you need and how are they taken?
- ▶ Frequently asked questions
- ▶ Your questions!

# What is a pathogen?

- ▶ The scientific name for a “germ”
- ▶ This is a microscopic organism capable of causing disease in people
  - ▶ Your body is better at fighting them when its seen something similar before

CELLULAR (LIVING)				ACELLULAR
				
<b>Parasites</b> (e.g. <i>helminthes</i> ) ⇒ Tapeworm	<b>Protozoa</b> (e.g. <i>plasmodia</i> ) ⇒ Malaria	<b>Fungi</b> (e.g. <i>tinea</i> ) ⇒ Athlete's foot	<b>Prokaryote</b> (i.e. <i>bacteria</i> ) ⇒ Leprosy	<b>Virus</b> (e.g. <i>HIV</i> ) ⇒ AIDS

Roundworm  
Lice

Toxoplasmosis  
Giardia

Yeast  
infection  
Ringworm

Tuberculosis  
Strep throat

COVID-19  
Flu

Not all microscopic  
organisms are bad!



# How does our immune system recognize them?

- ▶ Wherever a pathogen gets into our body (skin, gut, lungs, urinary tract, etc), our body tries to protect us from it
- ▶ White blood cells floating around in your blood and are sent in to do this



# Continued

Link to video: [HERE](#)

## ► Neutrophils (First line of defense)



These cause inflammation, trap the pathogen, release substances that kill pathogens. They also contribute to fevers, body aches, and generally feeling unwell.

## • Lymphocytes (Second line of defense)



- Smarter and more stealthy
- They swallow up the pathogen and process it
- They show pieces of the pathogen to other smart immune cells which can make **antibodies**
- These antibodies will always recognize that invader and tag it as soon as it comes through the door again
- When recognized, it is easy for our immune system to kill the germs without causing us any damage, and the germ has no chance to cause an infection

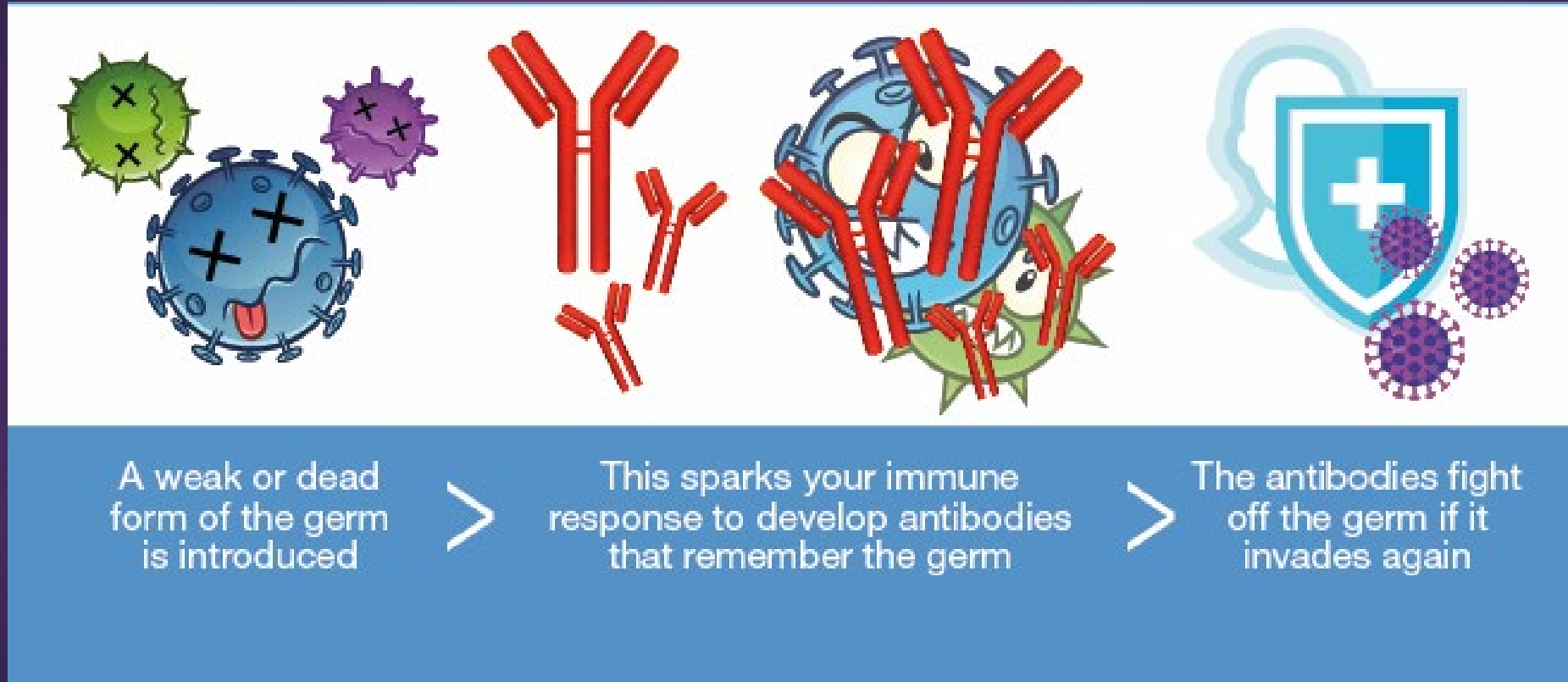


# What is immunity and how do I get it?

- ▶ Having antibodies against germs makes you immune to that germ
- ▶ There are two ways to do this:
  1. Get the infection and get over it
  2. “Show” your body the pathogen so it recognizes it
- ▶ The second way is better because you don’t have to be sick and it can’t harm you in any serious way

# So what is a vaccine & how does it work?

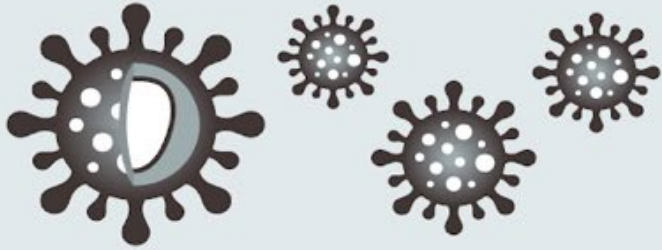
- It is a killed, weakened, or fragmented (cut up) pathogen





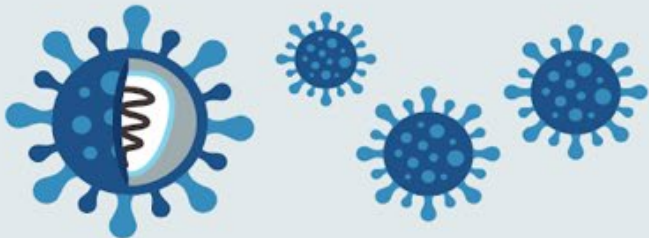
# FOUR WAYS TO MAKE A VACCINE

## INACTIVATED VACCINES



Use a killed virus to trigger an immune response.

## ATTENUATED VACCINES



Use a weakened virus to trigger the immune response.

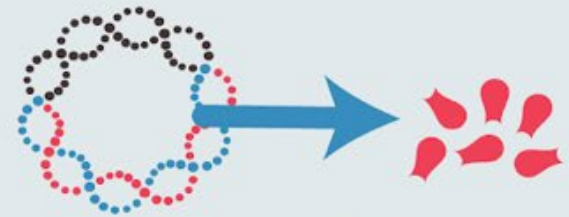


## SUBUNIT VACCINES



Use only a portion of a virus to teach the immune system to recognize the whole virus.

## NUCLEIC ACID VACCINES



Use virus DNA or RNA to enable human cells to manufacture portions of a virus to trigger the immune response.



The University of Arizona  
Health Sciences

# Summary

▶ [VIDEO RECAP!](#)



# What kind of vaccines are recommended and safe to take in lupus?

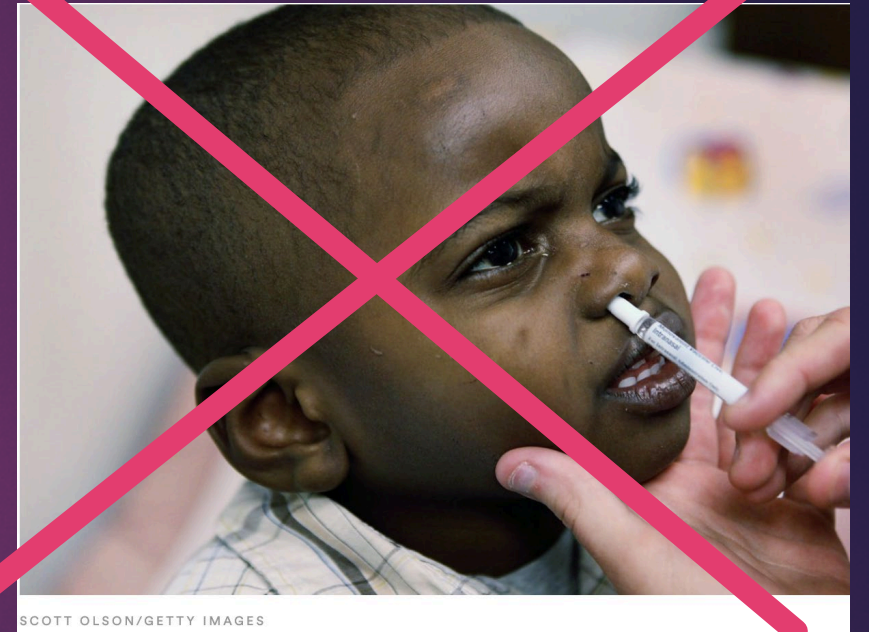
- ▶ Killed or inactivated vaccines
- ▶ Live attenuated – ok if you are taking only plaquenil

1. Influenza shot
2. Tdap – Tetanus, diphtheria, and pertussis
3. Pneumonia
4. COVID
5. Shingles (Shingrix)



# Flu

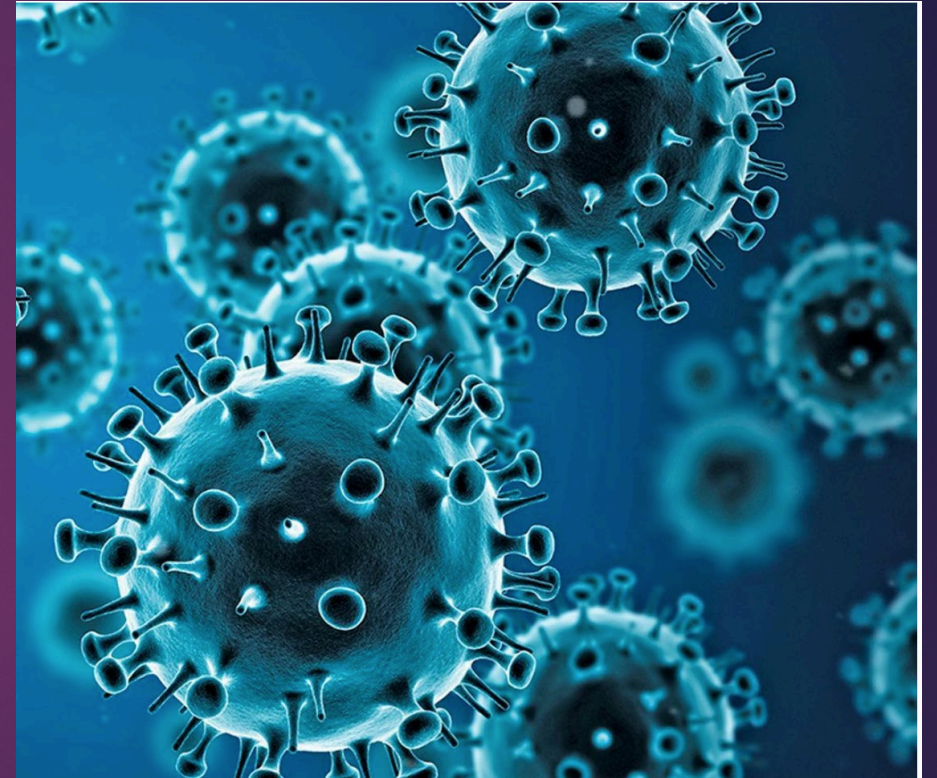
- ▶ Several forms- inactivated, recombinant, live attenuated
- ▶ Flu **shots** are killed or recombinant vaccines – these are recommended
- ▶ The **intranasal type** is weakened live flu– don't take this if you take strong immunosuppressants
- ▶ Every type protects against 4 strains of flu
- ▶ Recommended every year to ALL people, not just lupus patients





# Flu Continued

- ▶ Repeat yearly because it mutates
- ▶ If you feel fatigue, chills, muscle aches– this is your immune response to the vaccine and NOT the flu
- ▶ If you are over 65, ask for the HIGH DOSE vaccine
- ▶ Less flu around now because of masks, but will return



Hospitalcmq.com



# Can anyone not get the flu shot?

- ▶ Children under 6 months
- ▶ Probably those who have had Guillain Barre Syndrome
- ▶ Those who had a severe allergic reaction to the flu before
  - ▶ 1.31 per one million vaccine doses given
- ▶ Those with **severe** egg allergies **CAN** get the flu shot but should be monitored for 30 minutes.





# Tetanus, diphtheria, and pertussis

- ▶ Recommended every 10 years to ALL people, regardless of health or medicines
- ▶ Thanks to this vaccine, these diseases hardly exist in our society anymore
- ▶ Most common side effect: sore arm for a few days
- ▶ Tetanus shot is occasionally repeated earlier if you have a cut or scrape and go to the ER—this is to boost immunity



# Pneumonia

- ▶ Two shots– Prevnar (PCV13) and Pneumovax (PPSV23)
- ▶ Protects against many kinds of bacterial pneumonia
- ▶ Recommended for every adult over 65
- ▶ Recommended earlier if you are taking immunosuppression
- ▶ Take Prevnar first, then Pneumovax 8 + weeks later
- ▶ If Pneumovax first, wait 1 year for prevnar
- ▶ Consider repeat pneumovax once in 5 years
  
- ▶ Takeaway: Two shots and maybe another in 5 years



# Shingles

- ▶ Shingrix is a recombinant vaccine
- ▶ Effectively replaces Zostavax
- ▶ Recommended 50+ years old
- ▶ If you've had chickenpox or shingles, consider it
- ▶ If you are on immunosuppression, consider this even BEFORE age 50, as this considerably increases risk of shingles





# Shingrix Continued

- ▶ Two shots, 2-6 months apart
- ▶ Ok after Zostavax (the other vaccine that was less effective) but you must wait two months
- ▶ Over 90% effective at preventing shingles
- ▶ If shingles still happens, you will have less nerve pain
- ▶ Not available in our office - get this through most commercial pharmacies



# COVID-19: Who should get it?

Authorized For	Pfizer-BioNTech	Moderna	J&J / Janssen
4 years and under	No	No	No
5–11 years old	<b>Yes</b>	No	No
12–17 years old	<b>Yes</b>	No	No
18 years and older	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>

cdc.gov as  
of Nov 23,  
2021



# How do I take it?

- ▶ Pfizer: Shot 1, then shot 2 in **3 weeks**. People taking strong immunosuppression should consider a third dose in 28 days after the first two.
- ▶ Moderna: Shot 1, then Shot 2 in **4 weeks**. People taking strong immunosuppression should consider a third dose in 28 days after the first two.
- ▶ Johnson and Johnson: 1 shot, no extra shots.



# What Side Effects May Happen?

On the arm where you got the shot:



- Pain
- Redness
- Swelling

Throughout the rest of your body:



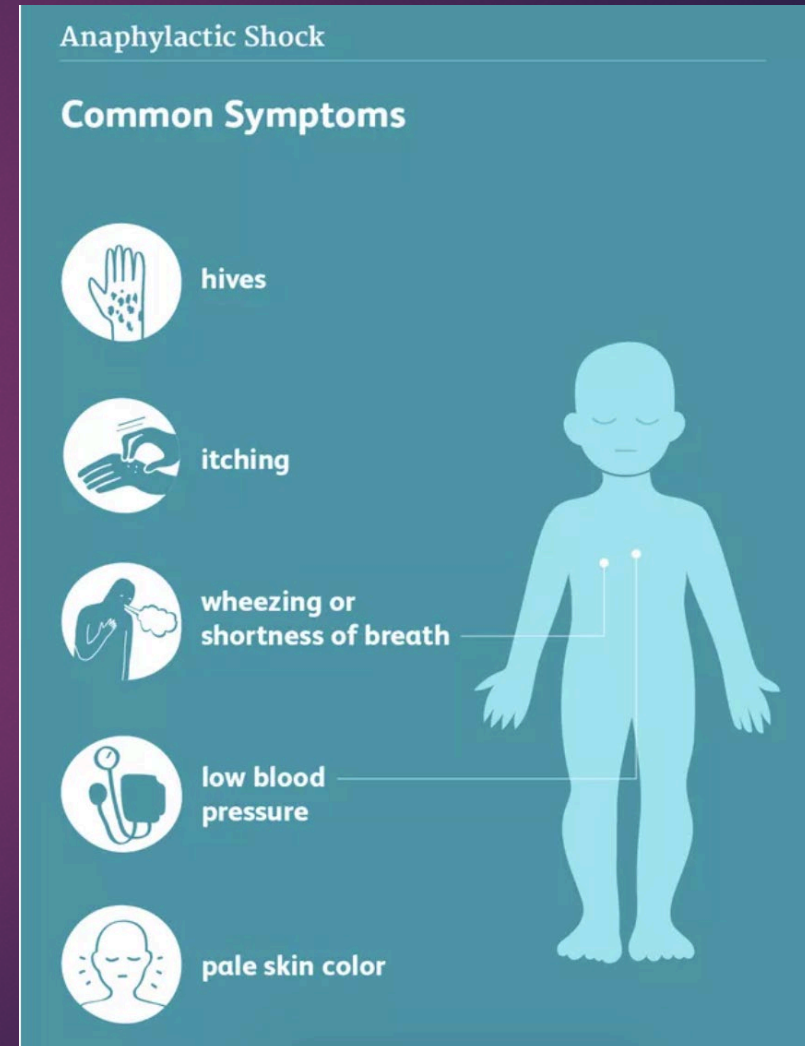
- Tiredness
- Headache
- Muscle pain
- Chills
- Fever
- Nausea
- Lymph node swelling

- May last up to a few days
- Can happen with any brand and with shots 1, 2, or 3



# Is there anyone who can't receive it?

- ▶ Only if you had a SEVERE allergic reaction to the first ones
- ▶ Having the side effects discussed is NOT the same thing as an allergy
- ▶ Allergy: Hives, lip/tongue/throat/eye swelling, trouble breathing, wheezing, low blood pressure



# Do I need it if I've had COVID?

▶ YES!!

- ▶ A big study showed that the risk of getting another infection was TWICE more likely if people who had COVID didn't get a vaccine after



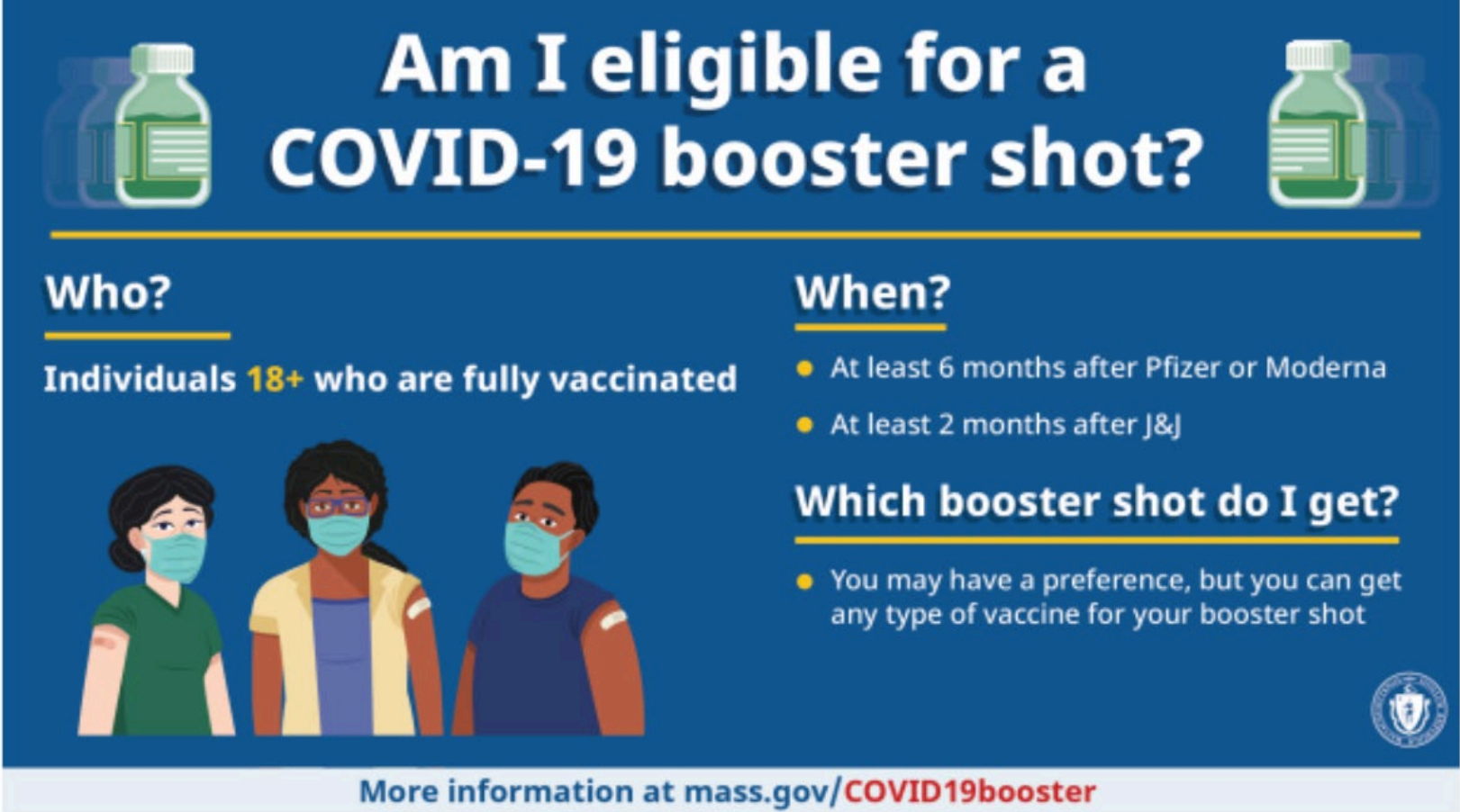
# Is one better than the other?

- ▶ Pfizer and Moderna are both thought to be >90% effective at preventing the earlier variants of COVID, and much more effective than that at preventing death. They are both great.
- ▶ Pfizer vs. Moderna
  - ▶ Recently released Harvard study observed people for 24 weeks after getting vaccine. Over 200,000 patients from the VA population.
  - ▶ 5.75 infections per 1000 people for Pfizer, 4.52 for Moderna with alpha variant
  - ▶ For delta variant (12 week extension period), additional 6.54 infections/1000 people in Pfizer
  - ▶ Death and ICU rates were still extremely similar, and quite low in both groups
  - ▶ MODERNA WAS JUST A BIT BETTER IN THIS STUDY



# When do I get a booster and why?

- ▶ It jogs the memory of the immune system and gives you extra protection



**Am I eligible for a COVID-19 booster shot?**

**Who?**

Individuals **18+** who are fully vaccinated


**When?**

- At least 6 months after Pfizer or Moderna
- At least 2 months after J&J

**Which booster shot do I get?**

- You may have a preference, but you can get any type of vaccine for your booster shot

More information at [mass.gov/COVID19booster](https://mass.gov/COVID19booster)





# What if I'm ok with the risk?

- ▶ Please consider those around you as well, including your loved ones
- ▶ You are not just protecting yourself, you decrease their chance of getting it tremendously
- ▶ The more people it infects, the more it has a chance to mutate, and that is why there are so many variants now. If we stop it from infecting people, there will be less mutation.



# FREQUENTLY ASKED QUESTIONS



<https://sellingenergy.com/faqs/>



# Can I get the flu and COVID shot together?

- ▶ Yes, you are allowed to receive the two together
- ▶ No real evidence saying your reaction will be worse
- ▶ Same is true for the COVID vaccine and other vaccines together

# Can I still have the infection if I'm vaccinated?

- ▶ Your chances are much lower, but yes
- ▶ If you get infected, it will almost definitely be less bad



# Why do some vaccines need to be repeated?

- ▶ Some of the memory cells that make antibodies are lost over time
- ▶ Immune system needs a reminder – a boost
- ▶ Some viruses mutate and the old vaccine doesn't protect as well against the new strain

# Wait! Isn't my immune system already overactive in lupus?

- ▶ Yes, this is auto-immunity (auto means self)
- ▶ Your immune cells have accidentally been trained to attack the DNA inside of healthy cells, which causes lupus symptoms
- ▶ **This does not mean they are better at fighting infections**



# Will the vaccines make my lupus flare?

- ▶ Study at Johns Hopkins recently released with thousands of patients – COVID vaccines and patients with autoimmune disease, many had lupus
- ▶ Many patients had the typical side effects of vaccine
- ▶ Some of them were thought to have mild flares
- ▶ Nobody ended up in the hospital, nobody died
- ▶ Most people who flared were people who had active disease within 6 months of the vaccine, and a portion of these would have flared anyway

# But can I get one if I'm in a flare?

- ▶ In general, best to wait until the flare gets better
- ▶ Many side effects of the flu and COVID vaccines may actually remind you of a flare (muscle aches, fatigue, joint pain, chills)
- ▶ So adding another thing that makes your symptoms worse may not be ideal



# Are they safe while I'm on immunosuppressive medications?

- ▶ Yes, many patients with autoimmune disease are included in trials when these vaccines are released
- ▶ Many of them take strong immunosuppressive medications
- ▶ As long as not live vaccine, there is **no chance** of it causing the illness it is trying to protect you against, even on immunosuppressants

# Do they work as well while I'm on immunosuppressants?

- ▶ Debated
- ▶ **Methotrexate and Rituximab** certainly seem to blunt the response somewhat
- ▶ Other medications possibly
- ▶ THEY STILL PROBABLY WORK SOMEWHAT
- ▶ Some protection is better than none
- ▶ Timing matters– talk to your rheumatologist what to do with your medications



# Resources for more information

- ▶ [CDC.gov/vaccines](https://www.cdc.gov/vaccines)
- ▶ [Lupusil.org](https://www.lupusil.org)
- ▶ Your friendly neighborhood rheumatologist!



# THANK YOU FOR LISTENING!

QUESTIONS OR COMMENTS?