COVID-19 Vaccine:
Making the Right Choice for You

Air Force Medical Readiness Agency
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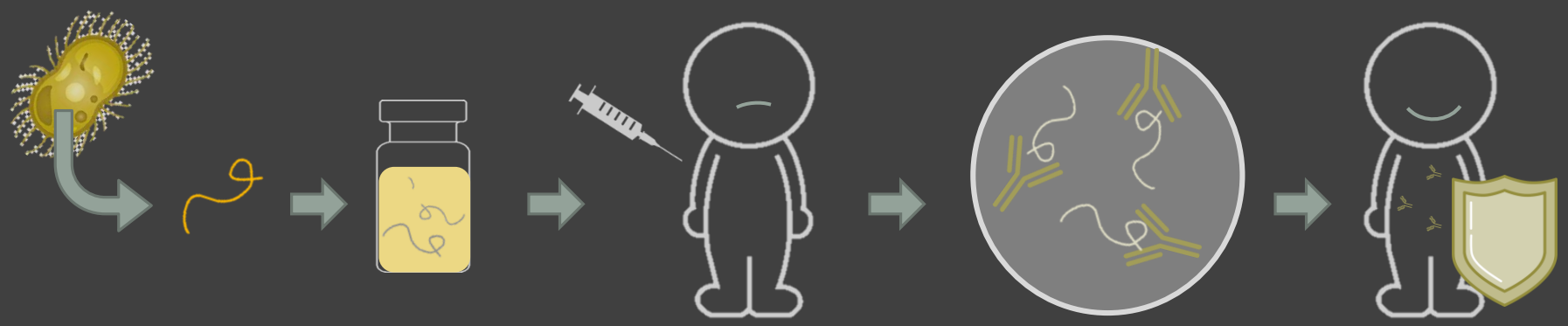
How Vaccines Work

(Some examples: Chickenpox, Tetanus, Shingles, Influenza, etc.)



Step 1:
small pieces of a virus or bacteria are chosen by scientists in a laboratory that a person's body could recognize but won't make them sick

Step 2:
the selected particle is put into a vial with other fluids to stabilize them until it can be delivered

Step 3:
the vaccine is given to individual people using a specific amount and location (usually an injection in the arm)

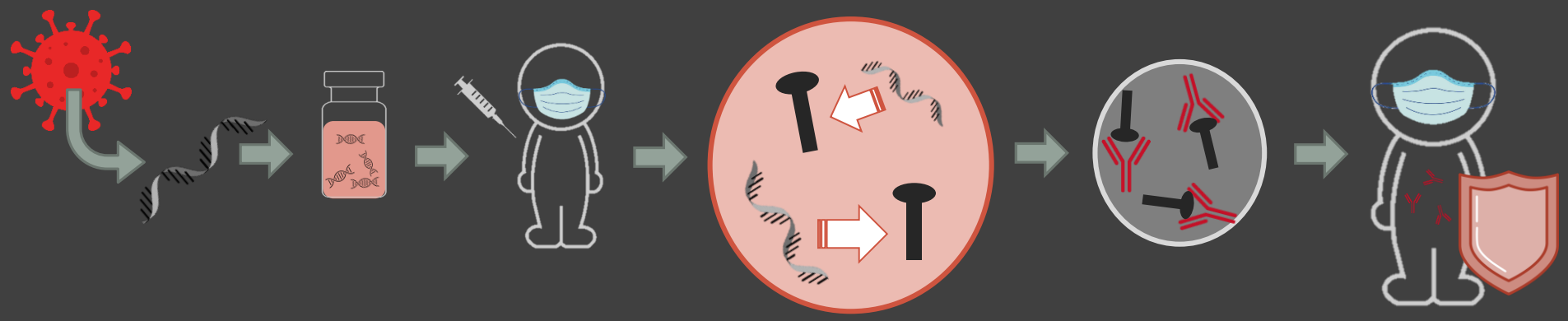
Step 4:
the body fights the pieces of virus or bacteria, just like any other exposure to a disease, and even develops memory cells (antibodies)

Step 5:
the body keeps those memory cells to quickly respond to that virus or bacteria if it comes across them in the future

Sometimes the body needs a "booster" to help those memory cells remember how to fight the virus or bacteria, which is given as a second (or third) dose of the vaccine

How current COVID-19 Vaccines Work

- Current COVID-19 Vaccines work the same EXCEPT instead of giving each person a piece of the virus, a small part of it's genetic instructions (messenger RNA, or mRNA) teaches our cells how to make the "spike protein" found on the surface of the SARS-CoV-2 (COVID-19) virus
- Once the spike protein is created, the genetic instructions are destroyed by the body - each mRNA only makes one copy
- The piece of the virus your body creates is what helps the body develop the memory cells--activated the next time it finds that spike protein



Things to know about mRNA vaccines

- mRNA vaccines have been well-studied for influenza, Zika, rabies, and cytomegalovirus (CMV)
- mRNA does not enter the DNA in the human cell
- mRNA from SARS-CoV-2 cannot give someone COVID-19

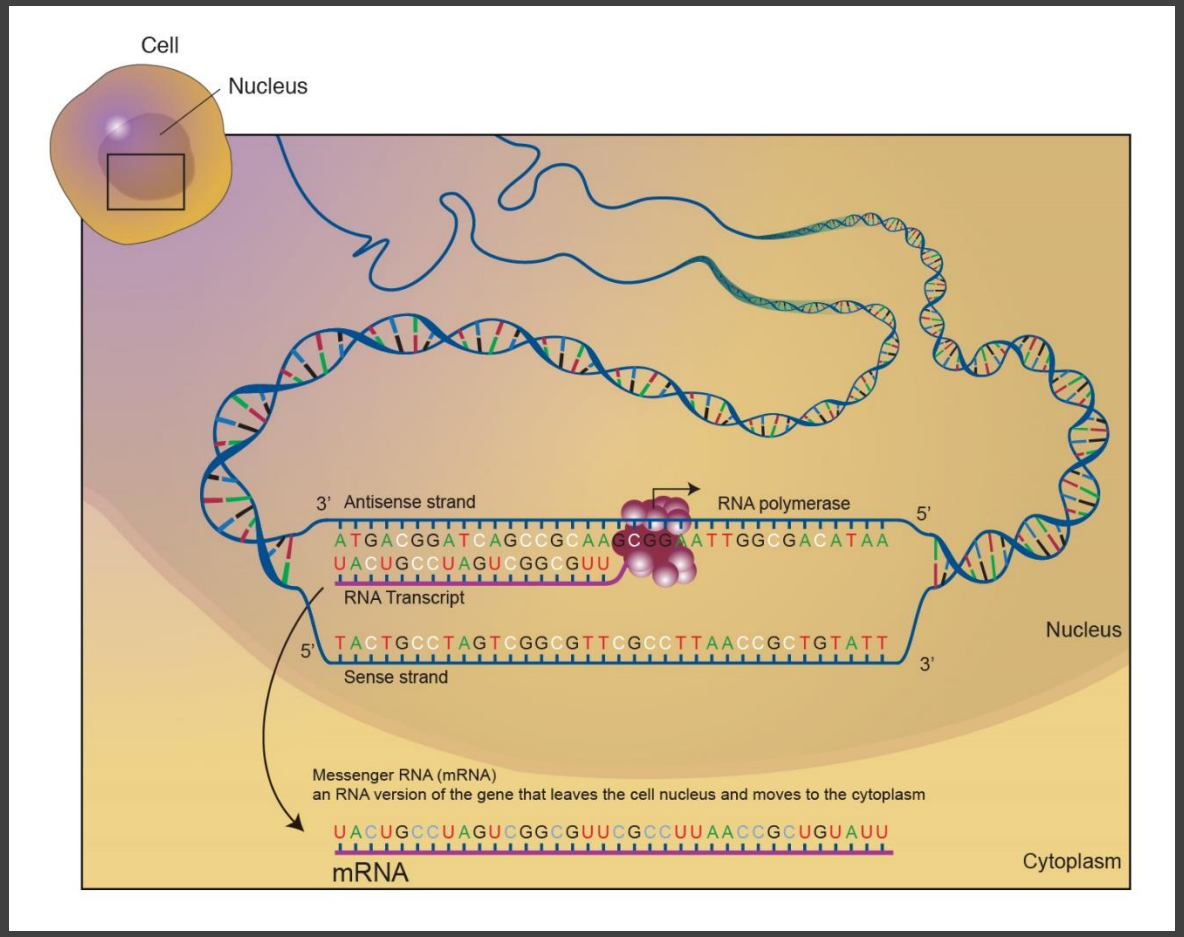


Illustration from www.genome.gov/genetics-glossary/messenger-rna

COVID-19 Vaccines Currently Available

- Two vaccines have received Emergency Use Authorization (EUA):
  Pfizer/BioNTech (BNT162b2)
  Moderna (mRNA-1273)
- Both are messenger RNA (mRNA) vaccines with a 2-dose schedule
- Both were very effective at preventing COVID-19 (95% for Pfizer and 94% for Moderna)
- Duration of protection is not yet known
- These vaccines have received FDA authorization for patients 16 years and older (Pfizer) and patients 18 years and older (Moderna)

COVID-19 Vaccine Safety

- Speed of development was possible because vaccines were pre-purchased which allowed companies to begin immediate large-scale production of the vaccines
- All safety checks throughout the vaccine development process were accomplished, as required – just given a priority review at every level
- Current vaccines have been tested through world-wide clinical trials
  - Phase 3 studies included large number of participants (40,000+ with Pfizer/30,000+ with Moderna)
  - ~30% of U.S. participants were racial/ethnic minorities (Hispanic, African American, Asian & Native American)
- No serious safety concerns were noted in either study
- Noted reactions were mild (headache, fatigue, muscle aches, joint pain) and occurred in about 2-4% of participants

COVID-19 Vaccine Safety

- Clinical trial data has been carefully reviewed by experts
  - The Food and Drug Administration (FDA) has reviewed all data
  - FDA granted Emergency Use Authorization because known and potential benefits outweighed the known and potential risks of the vaccine
  - The Advisory Committee for Immunization Practices (ACIP) includes external scientists and medical experts and reviewed all safety data before making a recommendation for use in the general public
- Adverse events from all administered vaccines are closely monitored to adjust administration plans and clinical recommendations if needed
  - Data are entered into a central vaccine safety monitoring system
  - Tracked within Department of Defense

    AND
  - Tracked nationwide by Centers for Disease Control & Prevention (CDC)

Number of Doses

- Two shots are needed to provide the best protection against COVID-19 for both vaccines
- The **first** shot primes the immune system, helping it recognize the virus, and the **second** shot strengthens the immune response
- The currently available COVID-19 vaccines differ in the spacing between doses
  - Pfizer/BioNTech (BNT162b2):
    second dose 21 days after **first** dose
  - Moderna (mRNA-1273):
    second dose 28 days after **first** dose

Potential Risks & Side Effects

- Most Common Side Effects
  - Swelling or redness around the injection site
  - Muscle or joint aches and pains
  - Fatigue, Headache
  - Fever

    Note: these are signs your body is fighting the spike protein and usually resolves in 1-3 days
- Highest Risk is a Severe Allergic Reaction (very rare)
  - Individuals with a history of allergic reactions to vaccines should talk to their healthcare provider before receiving the vaccine
  - This is the key reason to wait 15-30 minutes after receiving vaccine
- If you have another concern, make sure to discuss it with your healthcare provider

Prioritization

- Priority is to protect our service members, DoD civilians and families to safeguard national security capabilities and support the whole-of-government response to the COVID-19 Pandemic
- Vaccination distribution is based on risk factors:
  - Health care workers and emergency services personnel
  - Personnel performing critical national mission
  - Those with medical complications or multiple diseases
  - Vaccines will be offered to other beneficiaries as more vaccines are available and after priority individuals have been vaccinated

Although getting the vaccine is voluntary,
DoD personnel are encouraged to get it to protect their health, their families and their community

How to Get Your Vaccine

- Each medical treatment facility will provide vaccines based on the approved prioritization plan
- Timing will depend on availability of vaccine provided and number of individuals in each priority group
- Each facility has a communication plan that will notify each group when vaccines are available
- Ensure you know where the information is being shared - usually on the installation website and social media platforms
- It is your choice to receive or not receive the COVID-19 Vaccine. Should you decide not to receive it, it will not change your standard medical care
- Long-term side effects (if any) would be considered a service-connected disability for active duty members

After Receiving the Vaccine

- The COVID-19 vaccine is only one of many important tools to help stop this pandemic
- No vaccine is 100% effective
- It typically takes a few weeks to build immunity against the virus
- It is possible to get infected with the virus right before or right after the vaccine was administered
- It is important to **continue** using all the tools available to help stop this pandemic as we learn more about how COVID-19 vaccines work in real-world conditions
- Continue all public health measures:
  - Cover your mouth and nose with a mask when around others
  - Wash your hands often
  - Stay at least 6 feet away from others and avoid large gatherings

Key Points

COVID-19 Vaccines cannot make you sick with the coronavirus

- Authorized and recommended vaccines *do not* contain the *live* virus that causes COVID-19

Vaccine Purpose

- To teach immune system to recognize and fight the virus that causes COVID-19
- Sometimes this process can cause a fever; this is normal and is a sign the body is building protection against the virus

It typically takes a few weeks to build immunity against the virus

- It is possible to get infected with the virus right before or right after the vaccine was administered
- To reduce the chance of being exposed or spreading to others, continue to wear a mask, wash your hand & maintain social distancing

Resources and References

Consult with your healthcare team for questions specific to your medical status

Additional Information can be found at:

Food and Drug Administration (FDA): https://www.fda.gov/emergency-preparedness-and-response/coronavirus-disease-2019-covid-19/covid-19-vaccines

Center for Disease Control (CDC): https://www.cdc.gov/coronavirus/2019-ncov/vaccines/expect.html

Moderna vaccine:

- https://www.modernatx.com/
- FDA Factsheet: https://www.modernatx.com/covid19vaccine-eua/

Pfizer vaccine:

- https://www.pfizer.com/news/hot-topics/the_facts_about_pfizer_and_biontech_s_covid_19_vaccine
- FDA Factsheet: https://www.fda.gov/media/144414/download