CoVID-19 Vaccination

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mRNA for spike protein of coronavirus

mRNA is injected into muscle

The vaccine triggers production of the spike protein and antibodies specific to it
Pfizer & Moderna data – what the FDA saw:

**Cumulative Event Rate**

**Cumulative Event Rate %**

**Efficacy End Point Subgroup**

<table>
<thead>
<tr>
<th>Subgroup</th>
<th>No. of participants</th>
<th>Surveillance time (no. at risk)</th>
<th>No. of participants</th>
<th>Surveillance time (no. at risk)</th>
<th>VE (95% CI) percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covid-19 occurrence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>After dose 1</td>
<td>50</td>
<td>44 (2,314)</td>
<td>82</td>
<td>3,082 (21,238)</td>
<td>82.0 (75.6-86.3)</td>
</tr>
<tr>
<td>After dose 2 or before dose 2</td>
<td>39</td>
<td>22</td>
<td>62</td>
<td>25,356 (95.6-98.4)</td>
<td></td>
</tr>
<tr>
<td>Days 2 to 7 after dose 2</td>
<td>2</td>
<td>21</td>
<td>210</td>
<td>310 (95.0-98.8)</td>
<td></td>
</tr>
<tr>
<td>Days 8 to 28 after dose 2</td>
<td>9</td>
<td>372</td>
<td>372</td>
<td>372 (95.8-98.6)</td>
<td></td>
</tr>
</tbody>
</table>

**No. of participants**

- mRNA-1273: 14370, 14383, 14000, 13964, 13940, 12981, 12285, 10686, 8283, 5683, 2594, 598, 0
- Placebo: 14370, 14383, 14000, 13964, 13940, 12981, 12285, 10686, 8283, 5683, 2594, 598, 0
Vaccine Prioritization

- Because vaccine supplies are currently limited, states must make vaccine available in phases

- In consultation with the NC Vaccine Advisory Committee, NC chose to align to the CDC’s ACIP recommendations which were released on December 22nd

<table>
<thead>
<tr>
<th>ACIP Recommendations</th>
<th>North Carolina’s Updated Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Phase 1a</strong></td>
<td><strong>Phase 1a</strong></td>
</tr>
<tr>
<td>Health Care workers</td>
<td>Health care workers directly caring for or working in areas with patients with COVID-19</td>
</tr>
<tr>
<td>Long Term Care Staff and Residents</td>
<td>Long-term care staff and residents</td>
</tr>
<tr>
<td><strong>Phase 1b</strong></td>
<td><strong>Phase 1b</strong></td>
</tr>
<tr>
<td>People ≥75 years</td>
<td>Group 1. People ≥75 years</td>
</tr>
<tr>
<td>Frontline essential workers</td>
<td>Group 2. Frontline essential and health care workers ≥50</td>
</tr>
<tr>
<td><strong>Phase 1c</strong></td>
<td><strong>Phase 2</strong></td>
</tr>
<tr>
<td>Persons aged 65-74 years</td>
<td>Group 1. Persons aged 65-74 years</td>
</tr>
<tr>
<td>Persons aged 16-64 years with high-risk medical conditions</td>
<td>Group 2. Persons aged 16-64 years with high-risk medical conditions</td>
</tr>
<tr>
<td>Other essential workers</td>
<td>Group 3. Anyone who is incarcerated or living in other close group living settings who has not already been vaccinated</td>
</tr>
<tr>
<td></td>
<td>Group 4. Other essential workers</td>
</tr>
</tbody>
</table>
There have been intentional efforts to recruit volunteers from historically marginalized populations.

Source: https://www.pfizer.com/science/coronavirus/vaccine

Source: https://www.modernatx.com/sites/default/files/content_documents/2020-COVE-Study-Enrollment-Completion-10.22.20.pdf
### Myth #1
**You CANNOT get COVID-19 from the vaccine.**
*(however, you can still get CoVID early after dose #1)*

<table>
<thead>
<tr>
<th>Vaccines imitate COVID without giving it to you.</th>
<th>You can fight off the real virus if it tries to attack you.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vaccine</strong></td>
<td><strong>Antibodies</strong></td>
</tr>
<tr>
<td><img src="image1" alt="Vaccine" /></td>
<td><img src="image2" alt="Antibodies" /></td>
</tr>
<tr>
<td>The Pfizer-BioNTech and Moderna vaccines give your body instructions to make a protein that safely teaches your body to make an antibody to fight the real COVID-19.</td>
<td>After getting vaccinated, you develop the ability to fight off the real virus because your body is strong enough and knows how to win.</td>
</tr>
</tbody>
</table>

- This myth may originate b/c tradition misconception of how the flu vaccine works, and also because some other CoVID vaccines use live virus vectors, but not Pfizer / Moderna
Myth #2
There are no fertility / pregnancy issues associated with the vaccine.

• No recognized issues in pregnancy or breastfeeding
  – In fact ACOG advise discussion + vaccination
  – Given higher complications with pregnancy + CoVID, more concerns
    • This myth likely originated by comments from a previous employee of Pfizer and has been widely discredited as scientifically implausible. No animal or human studies have supported this myth.

• No use of human cells in developing vaccine
  – In fact, really only has 3 ingredients (mRNA, lipid/fat carrier molecule, polyethylene glycol [PEG]), and diluted with saline
    • This myth originated because part of the AZ vaccine vector was originally cultured from cell lines, but nothing to do with the vaccines currently on the market in US.

• No fertility concerns
  – In fact, not only not followed long enough to have calculated this, but no biologically plausible reason
    • No idea where this myth came from....
Myth #3
If you react to the first, no need for the second

- Reactions to the first are not common.
- We do not expect the durability or length of protection to be as strong if you miss out on the second dose.

- This "myth" may come from benefit with first dose. Protection is strong within 2 weeks, but we don’t know if that translates to dose lasting long enough to keep us protected. We don’t yet know that…

- Just because someone has symptoms after the first, no link with reacting to the second dose.
Myth #4
Increased chances of neuro complications?

- Other historical vaccines have led to Guillain-Barre, but none seen here with over 9million doses given.

- This myth appears to have come from 2 places.
  
  - Firstly, the AstraZeneca vaccine had potential reactions of myelitis, leading to appropriate trial pauses and then reassuringly, clearance – current vaccines have NOT had concerns.
  
  - Secondly, 4 cases of Bell’s palsy occurred in Pfizer trial – but this is not different than the naturally occurring background rate of Bell’s palsy in the community (20-30/100k/year). Likely has nothing to do with the vaccine, rather observer bias.
Doctor’s Death After Covid Vaccine Is Being Investigated

A Florida physician developed an unusual blood disorder shortly after he received the Pfizer vaccine. It is not yet known if the shot is linked to the illness.

**Expectation setting?**

- *Other* unusual reactions attributed to the vaccine are likely.

- Only with complete investigation will these be determined to be associated in time only, and unrelated, or actually causally associated.
Questions?

Use your smartphone's browser to go to vsafe.cdc.gov

OR

Aim your smartphone's camera at this code

Keep practicing the 3 Ws: Wear, Wait, and Wash.

If you leave home, know your 3 Ws! ¡Si sales de casa, recuerda las 3 Ms!

WEAR
a cloth mask over your nose and mouth.

MASCARILLA
Usar una mascarilla de tela cubriendo nariz y boca.

WAIT
6 feet apart. Avoid close contact.

MANTENER
6 pies (2 metros) de distancia. Evitar estar cerca de los demás.

WASH
your hands or use hand sanitizer.

MANOS
Lavarte las manos con frecuencia o usar desinfectante para manos.

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