



## COVID-19, 1 Year and Still Counting- March 2021

SARS-CoV-2 spillover from Wuhan, China, occurred 1-year-ago and has changed the world, possibly forever. However, there seems to be a light at the end of this long tunnel, after more than 500,000 Americans have died from COVID-19. That light consists of the 3 presently approved SARS-CoV-2 COVID-19 vaccines being given to Americans and people around the world. The rapid development of these highly effective vaccines is truly an astounding triumph of fact-based science and medicine. See the Table below for a summary of the clinical trial data from the 3 approved COVID-19 vaccines. **These large well-done studies found that all 3 vaccines protect against severe COVID-19 disease requiring hospitalization, and from death. This is remarkable!**

### COVID-19 Vaccine Trials Approved by 3-3-2021

	Vaccine	Vaccine	Placebo	Placebo	Efficiency
Company	# COVID Cases	No. at Risk	# COVID Cases	No. at Risk	(%)*
<b>Pfizer-BioNTech<sup>1,3</sup></b>					
Overall	8	17,411	162	17,511	95.0%
16 to 55 yrs	5	9,897	114	9,955	95.6%
>55 yrs	3	7,500	48	7,543	93.7%
≥65 yrs	1	3,848	19	3,880	94.7%
≥75 yrs	0	774	5	785	100%
<b>Asymptomatic dz</b>	NA	NA	NA	NA	74.0%**
<b>Hospitalization</b>	0	17,411	NA	17,411	100%
<b>Death</b>	0	17,411	NA	17,411	100%
<b>Moderna<sup>2</sup></b>					
Overall	5	13,934	90	13,883	94.5%
18-64 yrs	5	10,407	75	10,384	93.4%
≥65 yrs	0	3,527	15	3,499	100%
Chronic lung dz	0	661	6	673	100%
Signif Heart dz	0	686	3	678	100%
Obesity (BMI>30)	2	5,269	46	5,207	95.8%
Severe Obesity >40	1	901	11	884	91.2%
Diabetes	0	1,338	7	1,309	100%
Liver dz	0	93	0	90	NA
<b>Asymptomatic dz</b>	NA	NA	NA	NA	NA
<b>Hospitalization</b>	0	13,934	NA	13,934	100%
<b>Death</b>	0	13,934	NA	13,934	100%
<b>J &amp; J<sup>3</sup></b>					
Overall	NA	44,325 <sup>§</sup>	NA	44,325	66%
>18 yrs	NA	NA	NA	NA	85%
>60 yrs	NA	13,610	NA	13,610	95%
<b>Asymptomatic dz</b>	NA	NA	NA	NA	NA
<b>Hospitalization</b>	0	44,325 <sup>§</sup>	NA	44,325 <sup>§</sup>	100%
<b>Severe dz</b>	NA	39,321	NA	39,321	85.4%
<b>Mod &amp; Severe dz</b>	NA	39,321	NA	39,321	66.1%
<b>Death</b>	0	44,325 <sup>§</sup>	5	44,325 <sup>§</sup>	100%

NA= Not available, § Breakdown of age categories not yet available \*\* may prevent viral transmission

Asymptomatic dz means a person with a PCR positive test, but showing no COVID-19 symptoms. **\*\*\*Over\*\*\***

\* Vaccine efficiency means protection from developing COVID-19 symptoms, not protection from getting infected with the virus. What does 95% vaccine efficiency really mean? The Pfizer and Moderna vaccinated people, with ~95% efficiency, does not mean that 5% got infected, it means their infection rates were about 100 times less than that, or 0.04%. They were 20 times less likely than the control placebo group to get the disease COVID-19. Only the Pfizer trial looked at asymptomatic infections and found that the vaccine was 74% efficient, which means that the vaccination can even reduce the transmission of the SARS-CoV-2 virus.

Despite some criticism, the COVID-19 vaccine technology and vaccine clinical trials were not new nor rushed. The mRNA technology and the adenovirus vectors have been in research with other vaccines for approximately a decade and the clinical trials were very large double-blind studies. Double-blind studies mean that the vaccine participants, and the physicians monitoring the participants, did not know who were vaccinated and who received placebo inoculations. Only at the end of the required observation time was the code broken by an evaluation committee to determine the outcome of the study.

The Pfizer and Moderna COVID-19 vaccines are mRNA vaccines that encode for the surface protein (S) of the SARS-CoV-2 virus. They require 2 shots and must be kept at ultra-low temperatures as described in our Winter 2021, Volume 20, Number 1, Newsletter, available on our web site [www.natvetlab.com](http://www.natvetlab.com). In contrast, the Johnson and Johnson vaccine is a single shot COVID-19 vaccine consisting of a replication-incompetent recombinant adenovirus type 26 vector expressing the SARS-CoV-2 spike (S) protein. It can be stored for months in a standard refrigerator and up to 2 years in a standard freezer. The lower efficiency of the J&J vaccine may be due to the clinical trial parameters where the studies were carried out in various geographic areas (USA, Latin America, and South Africa), where, unlike the Pfizer and Moderna vaccine trials, the viral variants were circulating.

The generation of viral mutant variants, is the reason why it is still essential to continue wearing masks and practicing social distancing, even after you have been vaccinated, to ensure a vaccinated person who gets infected, but does not develop COVID symptoms, does not spread the virus. It is incomprehensible that now, just when vaccination programs have ramped up, some states (Texas and Mississippi) are opening up by removing all mask mandates and allowing businesses to operate at full capacity. By the way, Texas, the 2<sup>nd</sup> most populous state, presently has the highest current infectivity rate, 12.5%, as it opens up and 44,000 Texans have already died of COVID-19! This may allow viral variants, resistant to present vaccine immunity, to spread widely before the majority of people are vaccinated and thus will make the vaccines less effective. These decisions may not only affect residents of Texas and Mississippi, they may allow the spread of the virus to all other areas of our country.

**Mask up and social distance- Cats do it!**



**Commentary: So, the message from the public health experts is: get vaccinated with any of the approved vaccines, continue mask wearing and social distancing until the majority of people in this country are vaccinated. When we accomplish this, new infections should decrease dramatically. Then a re-evaluation of the public health status can be done, and we can get back to a normal existence. We owe a great deal of gratitude to the volunteers in all COVID-19 vaccine studies!**

#### References:

1. Pollack, FP, Thomas, SJ, et al. Safety and Efficacy of the BNT162b2 mRNA Covid-19 Vaccine. NEJM 2020;2603-15.
2. Baden, LR, El Sahly, HM et al. Efficacy and Safety of the mRNA-1273 SARS-CoV-2 Vaccine. NEJM 2021;403-16.
3. Dragan, N, Barda, N et al. BNT162b2 mRNA Covid-19 Vaccine in a Nationwide Vaccination Setting. February 24, 2021 NEJM.org DOI:10.1056/NEJMoa2101765.
4. Johnson & Johnson, Co. Unpublished data March 2021.