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Healthy Choices for Mind and Body - Newsletter

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Putting medical and nutrition news in historical, scientific, and just plain practical context.

Pfizer-BNT COVID Vaccine Supply & Adverse Reactions

by Ann Gerhardt, MD

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Bottom line at the top: The seriously limited supply of mRNA vaccines to SARS-Cov-2 should be followed by other vaccine types, but it is not clear when they will finish trials, be approved and be available for use.. Currently available mRNA/lipid nanoparticle vaccines cause some severe reactions explained below but should not dissuade most people from receiving it.

Limited Vaccine Supply: Our Federal government in July locked in commitment for 100 million doses of Pfizer-BNT's vaccine. That will vaccinate 50 million people who will receive an initial dose and a booster dose. When Pfizer offered the U.S. more doses in the fall and the U.S. refused to accept the offer , Pfizer committed its vaccine production to other countries through at least June 2021.

The Moderna vaccine, developed in conjunction the National Institutes of Health and using U.S. government funding, has promised doses for 100 million people. It doesn't have the manufacturing capacity to ramp up production past that limit. The U.S. population is 331.6 million people, so we have a committed supply of vaccine for less than half our population.

Because of the limited COVID-19 vaccine supply, most states limit the opportunity to receive it to healthcare workers, nursing home residents, some essential workers and those who are immunocompromised. A few permit vaccination of elderly and otherwise medically high-risk people. Inadequate planning and money for distribution systems has delayed the vaccine's getting into people's arms. Of almost 12.5 million doses delivered to states, fewer than 3 million have been used.



Pfizer Vaccine Injection

Other vaccines are coming but we don't know when they will be approved. The Astra-Zeneca vaccine is close to approval in the U.S. and it is entirely different than the first two approved vaccines. It is an

adenovirus that causes the common cold in chimpanzees that has been modified so that it doesn't cause human infection but does make the SARS-CoV-2 spike protein. Our bodies will clear the virus and make antibody to the spike protein.

Novavax makes a vaccine of intact spike protein encased in a soap-like nanoparticle that so far appears to be safe. There are more vaccine types in the pipeline. At some point we should have a variety of vaccines that might enable personalized vaccine choice.

Reactions: On December 24 at 10:30AM I was injected with the Pfizer-BNT COVID vaccine. It and the Moderna vaccine consist of mRNA encoding spike protein encased in a protective lipid (fat) coating. At 10:35AM I felt my throat thicken deep in my neck. I had to concentrate and work to swallow my saliva. The feeling rose to the back of my throat gradually over the next 5 minutes and my airways felt tight.

The other eleven socially distanced people waiting the prescribed post-injection 15 minutes were comfortably talking or looking at their phones. I raised my hand to share my symptoms and soon a nurse was walking me across the street to the Emergency Department at Sutter Hospital, where I work. By that time, a dry cough intermittently erupted from my tight lungs. The reaction plateaued at a not-severe level about the time I received an epinephrine injection and oral antihistamine. After another half-hour I returned to work. After ten days my throat feels normal and the lungs feel tight only occasionally.

About the same time, two other reportedly highly allergic people in the United Kingdom (UK) had more life-threatening reactions than mine to the same vaccine, causing the UK to prohibit administration of the vaccine to highly allergic people. In addition to many environmental, animal and food allergies, I am chemically sensitive, meaning a variety of chemicals induce asthma and headache in me. I wonder if the UK recipients were also chemically sensitive, reacting on that basis to the vaccine's lipid nanoparticle.

At least one lipid in the viral coating is known to be "reactogenic," just like complex lipid-sugar compounds that scientists have used for years to boost immune reactions. It is strange that Pfizer-BNT reported no severe allergic reactions in the 40,000 subjects in their Phase 3 trial. Perhaps highly allergic people refused trial participation. In the Moderna vaccine's early trials, the vaccine did induce some severe reactions.

Here is the compound that Pfizer-BNT feels would cause most reactions:

((4-hydroxybutyl)azanediyl)bis(hexane-6,1diy1)bis(2-hexyldecanoate), known as ALC3015.

It looks scary but no worse than the formula for CoQ10, which people pop like candy to prolong life and is similar to ubiquinone that our bodies make:

[(2E,6E,10E,14W,18E,22E,25E,30E,34E)-3,7,11,15,19decamethyltetraconta-2,6,10,14,18,22,26,30,34,38-decaenyl]-5,6-dimethoxy-3methylcyclohexa-2,5-diene-1,4-dione.

The point is, do not let the chemical name scare you - we are made of chemicals, the names for most of which would scare you.

I'm NOT encouraging vaccine skepticism or avoidance. My guess is that you needn't worry about severe allergic reactions unless you have chemical sensitivity and/or allergies to a wide variety of things. A majority of residents where I live have pollen, tree, grass or weed allergies, but reactions like mine have been rare. **Expect some degree of swelling and pain at the injection site and maybe short-term fever, fatigue or aches which are not life-threatening.**

I will not be able to get my booster dose of the Pfizer-BNT vaccine. A second shot boosts antibody to SARS-CoV-2 spike protein, which is why it is prescribed. It also boosts non-specific reactions, such as those to the lipid nanoparticle. I will continue to mask and remain safely distanced, which is what everyone should do, even after vaccination. Until there is herd immunity a vaccinated person may not get the disease but could still transmit to others any virus that happens to lodge in the respiratory tract.¶

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