

On Booster vaccines:

September 16, 2021

Moderna just released new data that confirms that people who received their first Moderna vaccine an average of 13 months ago are more likely to experience a breakthrough COVID-19 infection than those individuals who received their first shot an average of 8 months ago. Based on this and similar data from Pfizer, booster vaccines will likely be available in the next 1-2 months.

So what does this mean in layman's terms: well, we know that with time the effectiveness in preventing infection in all the vaccines will wane (decrease). But what does this mean to you clinically, and what should you do about it?

1. **First understand: COVID-19 vaccines do NOT 100% prevent you from ever becoming infected.** They are specifically designed to bolster your body's own natural immune system so that it can successfully fight off the infection if you are exposed to COVID and contract the virus.
2. **One of the reasons the vaccines are demonstrating a slow decrease in efficacy is that the virus itself continues to mutate and create new variants.** The vaccine that was developed in 2019-2020 was specifically targeting the original virus. Its efficacy has proven to be remarkably outstanding...greater than 90% initially (compare that to the annual influenza 'flu' vaccine which is typically about 65-70% effective).
3. **Why are these variants appearing so rapidly?** Well, variants of the COVID-19 virus appear when the virus is actively reproducing (replicating) itself in an infected host. Mutations of the virus' RNA that are responsible for new variants are simply random events that occur naturally in all living organisms. The greater the number of infections worldwide, the greater the number of potential variants.

PS: variants are the reason we need to get a flu shot every year...the influenza virus continues to mutate around the world so that the strains that cause infection each year are different than the virus that we were vaccinated for the previous year.

4. **But, even without the inevitable appearance of variants, the protectiveness of the COVID-19 vaccine will naturally decrease.** Hence...the reason for the discussion on booster shots. Studies by Pfizer and Moderna have clearly shown an increase in circulating antibodies following a 3rd shot. Intuitively, this will bolster one's ability to fend off an infection, AND to prevent a mild infection from becoming life-threatening.
5. **Then why should there be any controversy about starting booster vaccinations?** Several reasons: **first**, there is the humanistic/moral question of trying to vaccinate as many people worldwide as possible to actually stop the virus from continuing to mutate and spread.

Second: there are always concerns regarding the balance between the benefit of increased protection from the vaccine versus potential side-effects. We do not ever want the cure to be worse than the disease. So studies are ongoing around the world specifically looking at the benefits of a 3rd shot in terms of decreasing the risk of infection/hospitalization/death. These studies will help to determine the **timing** of a 3rd vaccine shot.

6. **What can I do to remain safe until I am eligible to receive the 3rd vaccine shot?** This is the MOST important message I can offer.

The single best way a vaccinated (and of course unvaccinated) person can prevent contracting the virus is to **AVOID EXPOSURE TO THE VIRUS**. This is simply common sense. Don't put yourself in a situation where there is a higher likelihood that you will be exposed to the virus and potentially have a breakthrough infection.

7. **If I am already vaccinated, what would be considered a 'high-risk' activity?** Although we are doing a tremendous job in increasing our vaccination numbers here in NC as well as across the country (nearly 70% of all eligible people nationally have now received at least one dose), we have lower numbers in NC and here in New Bern: **< 55% of eligible people are completely vaccinated**. This unfortunately means that there remains a large pool of folks that are at much higher risk for becoming infected with the delta variant, and of course spreading it to others.

Recommendations are straight-forward:

- a. **Wear a mask in all public indoor settings.** The virus circulates for hours in stores, restaurants, and other enclosed spaces with large crowds of people.
- b. **Continue to practice safe distancing.** This obviously applies to indoor settings, especially with crowded conditions, but also outdoors if there are large numbers of people in close quarters, such as a sports event or concert.
- c. **If you believe you have been exposed to an infected person...** quarantine yourself and get tested after 48-72 hours after the exposure or if you start to experience symptoms.
- d. **Remember...even a vaccinated person can spread the virus and make someone else sick.** Fortunately, the time frame that a vaccinated person may pass the infection to a family member or friend is likely **shorter** than in an unvaccinated person.

Bottom line: be smart! **Do not take chances with your own life or the lives of your family, friends, and co-workers**. And...**get vaccinated** as soon as possible. The vaccines are safe! They have been in active development for over 15 years (dating back to the previous outbreaks of the other coronaviruses – SARS and MERS), they are FDA-approved, and are the most rigorously studied medications ever released... to date **5.8 billion doses** have been given around the world with continued active scrutiny for potential challenges, side-effects..... that's an incredible amount of testing!!

Quick stats: according to the **CDC**, from April through July 2021

Unvaccinated: 569,142 cases (**92%**) 34,972 hospitalizations (**92%**) 6,132 deaths (**91%**)

Vaccinated: 46,312 cases (**8%**) 2,976 hospitalizations (**8%**) 616 deaths (**9%**)

Since the delta variant became the most common variant in the United States, **fully vaccinated people** had a reduced risk of:

Infection **5X**

Hospitalization **>10X**

Death **>10X**

Vaccination clearly offers strong protection against COVID-19

How are we doing here in New Bern:

Trend at CarolinaEast Medical Center: spiking COVID-19 case in the last **8 weeks**.

July 20th 3 patients hospitalized with COVID-19, none requiring a ventilator.

August 2nd: 8 pts hospitalized, 1 on the ventilator

August 10th: 23 pts hospitalized, 1 on the ventilator, 1 death

August 23rd: 25 pts hospitalized, 2 on the ventilator, 6 additional deaths

August 31st: 54 pts hospitalized, 2 on the ventilator, 8 additional deaths

September 14th: 48 pts hospitalized, 7 on the ventilator, 8 additional deaths

In short, we are seeing similar numbers here in New Bern as the rest of the country as a result of the delta variant. Again, this is why it remains so important to practice safe habits when outside of your home.

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