

## WEBINAR QUESTIONS:

### Overview – COVID-19 Disease and Post-COVID Symptoms

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#### **How soon do you think a booster vaccination will be available?**

We are still evaluating how long protection lasts after vaccination. Recent data supports that the immune response remains strong at 6-9 months. We anticipate that booster vaccinations will be required, particularly if the COVID-19 virus mutates. Whether this will be an annual booster vaccine, similar to the flu vaccination, or a longer period is still unknown.

#### **Have you seen any temporary vocal cord paralysis in asymptomatic patients? Or Eosinophilic Esophagitis (EoE) development?**

The usual cause of vocal cord paralysis is from the inflammation and irritation of the vagus nerve by the virus infection and the inflammation from our immune system. The vagus nerve controls the vocal cord movements.

I have not personally seen asymptomatic COVID patients who develop vocal cord paralysis. However, there are patients who develop damage to the nerve that controls the vocal cords. These patients are often difficult to diagnose because they present with shortness of breath and are evaluated for pulmonary or respiratory conditions. The good news is that this problem can be treated with speech therapy that uses specific exercises to improve the function of the respiratory muscles and the vocal cords.

EoE is a rare allergic condition that affects the esophagus. The esophagus becomes inflamed due to infiltration of eosinophils, a specific type of white blood cell. When severe, the esophagus becomes narrow and patients are not able to swallow food and develop chest pain or heartburn. There is not enough information yet to determine whether COVID-19 causes EoE.

#### **Is there a record of persons experiencing repeat acute cases of Covid (vs long haulers)? If so, how many had multiple cases?**

We have seen a small number of individuals who develop a second case of COVID-19. These tend to occur more than 12 weeks or 90 days after the first case. Usually, the first case was relatively mild. It is likely that the person failed to develop a very strong immune response to the first infection and does not have immunity against the virus. People who are immunocompromised may be at greater risk because their initial immune response may not be as robust.

Persons with Post-COVID symptoms are not generally re-infected with the virus. Rather they have ongoing, persistent symptoms that are related to a hyperactive immune response and inflammation due to the initial viral infection.

#### **If you had a severe case and developed a high number of antibodies already, how can the vaccination protect you more? Won't the natural antibodies protect you?**

The antibodies that are generated by our immune system after COVID infection are not necessarily able to neutralize the virus. They will bind some parts of the virus, but they are not necessarily protective. The proteins that are generated from the vaccine specifically induce antibodies that neutralize the virus

and prevent it from infection our cells. When a person who has recovered from COVID-19 is vaccinated, the infection has primed the immune system to generate a stronger response to the vaccine and we see very strong antibody responses to the initial COVID virus strain and also cross protection against some of the variant strains.

## **Will you go over herd immunity regarding Alabama?**

Herd immunity refers to when a population has sufficient proportion of the population with immunity to prevent an infectious disease from spreading through the population. Immunity can be generated from natural infection, which likely is not as robust or durable as that generated from the vaccine, or from vaccine-induced immunity. For COVID, we need at least 70% of our population to have immunity to prevent widespread infection. We do not know what proportion of our population has immunity from COVID infection but we do know that less than 30% of our population is fully vaccinated. To have herd immunity, we need a greater number of Alabamians to get vaccinated.

## **Do you have to have a positive test to be seen at the clinic? Some long haulers who were not hospitalized and were ill early in the pandemic were not able to get a test during the acute phase and do not have a positive test result, but all symptoms clearly indicate COVID infection and serious post-COVID symptoms for many months.**

Although a positive test is not required to be seen in UAB's Post-COVID Treatment Program, it is helpful to confirm that an individual had COVID-19 disease. Our program will see those who have experienced a COVID-like illness and symptoms consistent with long COVID.

## **I started out very healthy, but after having COVID, I experienced joint pain that has tapered over six weeks. Now other things have come up such as pulmonary hypertension and kidney failure. I feel fine, but bloodwork indicates these conditions exist. Why do I not feel fatigued or ill?**

The human body is very resilient and lab tests do not always capture all aspects of health. If you have abnormalities detected by lab testing or imaging, it is important to remain engaged with your primary care provider for regular evaluations in case you develop any symptoms related to the findings.

## **Do your post-COVID specialists see and treat people who are out of state by telehealth?**

Currently, we do not have any providers who practice over state lines. If the patient is willing to come to Birmingham, we do try to coordinate as many appointments as possible into the same day.

## **Why would the immune response to the vaccine be stronger than your immune system's response to a high viral load?**

The immune response may or may not be stronger to the vaccine than natural infection. However, the vaccine induces neutralizing antibodies that are very specific to stopping the virus from infecting your cells and replicating. The antibodies from natural infection may not be targeted to prevent infection.

## **What causes the hair loss?**

This is likely due to the stress that the COVID-19 infection puts on your body. In general, hair loss to stress is a common phenomenon and described in other viral infections as well as in pregnancy and with certain medications. Our dermatologist will discuss treatments at greater length during her talk.

## **My wife had Shingles, and now appears to have post-COVID. She has had many of the symptoms you discussed for months. Have you seen a correlation between COVID and Shingles?**

Similar to hair loss, certain viral infections can be reactivated by the stress of COVID infection. Cold sores related to herpes or shingles reactivation are two examples of latent viral infections that can reactivate due to the stress induced by COVID-19 infection.

## **I have been feeling really tired after the vaccine. It has been a month. How long are these side effects going to last?**

That is a long time to continue to feel fatigued after receiving the vaccine. It may be reasonable to be assessed by your primary care provider about this symptom.

## **Are any female patients reporting hormonal changes after their COVID diagnosis? Especially any long-Covid patients? Like changes in their cycles, weight gain that is not explained, difficulty losing the weight gained?**

The COVID-19 virus attaches to a certain receptor in the body called ACE-2. This receptor is found in many organs and tissues in the body including endocrine organs like the pancreas and the reproductive organs. Several women have reported changes in their menstrual cycle and hormonal issues to our coordinators; however, we do not know whether or how COVID affects the ovaries. There is data that indicate testicular dysfunction can occur in males. Additionally, pancreatic dysfunction can occur leading to hypoglycemia (low blood sugar) and hyperglycemia (high blood sugar).

## **Does UAB continue to recommend that pregnant women get vaccinated?**

All pregnant women should discuss COVID-19 vaccination with their OBGYN. We do know that pregnant women are at greater risk for severe disease with COVID-19 and at greater risk for hospitalization with COVID-19 disease. While pregnant women were excluded from participation in the initial trials for COVID-19 vaccines, emerging data support that these vaccines are safe for pregnant women. There have not been any safety concerns for pregnant women who have been vaccinated or for their infants. There is a registry for pregnant women who receive the COVID-19 vaccine to increase the amount of data for this high-risk population. Women can volunteer to register at the “V-safe After Vaccine Health Checker” at the CDC website ([V-safe After Vaccination Health Checker | CDC](https://www.cdc.gov/v-safe/)).

## **Have DART studies been made available with the new vaccines?**

Developmental and Reproductive Toxicology (DART) Studies are performed in laboratory animals to assess different aspects of reproductive capacity. The three vaccines that have been granted Emergency Use Authorization by the FDA (Pfizer-BioNtech, Moderna, and Janssen) have all completed DART animal-model studies in the preclinical phase of development. There were no safety concerns in pregnancy in these trials.

## **What could be the cause(s) of joint and muscle pain in extremities with post-COVID?**

It is likely related to a persistent inflammatory response to the initial viral infection. It is also possible that the hyperimmune activation induces a type of autoimmunity against the person’s muscles.

## **Should people have B12, iron, Vitamin D, or folic acid lab work completed for fatigue?**

A comprehensive workup for persistent fatigue could include these tests as part of a larger battery of lab testing. I encourage patients to seek an evaluation for persistent fatigue to evaluate if there is an easily addressable problem.

## **How can someone find antibody testing?**

COVID antibody testing is widely available through any clinical lab. These antibody tests will determine whether the patient has had previous infection, but not whether they have protection. Additionally, the level of antibodies decreases over time and may reduce below the level of protection over time. Ask your medical provider about COVID antibody testing.

## **How important is COVID testing at this time for those not vaccinated?**

For those who develop symptoms that are consistent with COVID-19, I would encourage them to seek testing. If positive, there are treatments available to prevent progressive disease for those at higher risk. Also, a person should limit contact with others for 10 days after onset of symptoms to prevent the spread of COVID-19 among family and friends.

## **Have you seen neurologic symptoms in patients who were not initially sick enough to be hospitalized? For example, a young man who has lost his ability to walk, feed himself, etc.**

For a subset of people, new COVID-related symptoms occur in the post-COVID period, including neurologic manifestations. For symptoms that impair ability to complete normal activities, it is reasonable to seek an evaluation.