# UPDATE ON COVID-19

## August 6, 2020

It has been 5 months and counting since the onset of the COVID-19 pandemic and there is NO end in sight. We are all in this together and it will not be over until *herd immunity* and/or a safe and effective vaccine is readily available and has immunized about 70% of our population.

Click on the following link from the Mayo Clinic to better understand **Herd Immunity**:

**https://www.mayoclinic.org/diseases-conditions/coronavirus/in-depth/herd-immunity-and-coronavirus/art-20486808**

## Be Mindful and Safe by following these guidelines to prevent the spread of coronavirus (SARS-CoV-2), which is responsible for the disease COVID-19:

- Remember: Someone may have the COVID-19 virus and unknowingly spread it to others, even if they don't have symptoms.
- Therefore:
    - Assume everyone you come into contact with may have the Coronavirus.
    - Avoid large events and mass gatherings.
    - Avoid close contact (within about 6 feet, or 2 meters) with anyone who is sick or has symptoms.
    - Stay home as much as possible
    - Maintain ***social distancing*** between yourself and others (within 6 feet). [Read: *Social Distancing 3-D Simulation* below]
- Wash your hands often with soap and water for at least 20 seconds or use an alcohol-based hand sanitizer (containing at least 60% alcohol) when returning home.
- Wear a **mask or cloth face covering** while in all public spaces (*Read discussion below*)
- Cover your mouth and nose with your elbow or a tissue when you cough or sneeze.
- Avoid touching your eyes, nose and mouth.
- Clean and disinfect high-touch surfaces, such as doorknobs, light switches, electronics and counters daily.
- If you believe you may have been exposed to the virus OR if you suspect you may have COVID-19 symptoms:
    - Call your doctor or Urgent Care facility for instructions.
    - Get tested and avoid contact with others until your results are available. (NOTE: Same day testing results for COVID-19 is available at many Urgent Care Centers and reportedly have a 93% accuracy)
    - Stay home from work, school and public areas, unless going for medical care.
    - Avoid public transportation, taxis and ridesharing.
    - Avoid sharing dishes, glasses, bedding and other household items, if you're sick.
- Use PPE precautions when it is necessary to be near someone who is ill.

## SOCIAL DISTANCING:

View the following *3-D Simulation* demonstrating why social distancing is so important. Click on this link and scroll your screen upwards to view the presentation:

**https://www.nytimes.com/interactive/2020/04/14/science/coronavirus-transmission-cough-6-feet-ar-ul.html**

## IF YOU HAVE SYMPTOMS, ARE YOU INFECTED?

**COVID-19** is caused by the SARS-CoV-2 virus and is detected by either one of two methods:

1. Detection for the **presence of the virus** by RT-PCR. The test can be done on respiratory samples obtained by various methods, including a nasopharyngeal swab or sputum sample. [9] Results are generally available within a few hours or up to 7 days or more.[10], depending on the lab that performs the test. The RT-PCR test performed with throat swabs is only reliable in the first week of the disease. Later, the virus can disappear in the throat while it continues to multiply in the lungs. For infected people tested in the second week, alternatively sample material can from coughed up material (sputum).[11]

2. Detection of specific **antibodies**, including **IgM** and **IgG**, produced in response to infection is through a blood test (serology). Antibody testing can be used both for the diagnosis of infection (either current or past), as well as population surveillance (tracing). Antibody tests show how many people have been infected, including those whose symptoms were minor or who were asymptomatic. However, the duration and effectiveness of this immune response are still unclear.[1]
   According to the FDA, **IgM** antibodies to SARS-CoV-2 are generally detectable in blood several days after initial infection, although levels over the course of infection are not well characterized.[15] **IgG** antibodies to SARS-CoV-2 generally become detectable 10–14 days after infection and normally peak around 28 days after the onset of infection. However, it is still not clear how broad, how long or how effective this immune response is.[1] It is presumed that once a person has been infected the chance of getting a second infection 2 -3 months later is low, but the duration of any protective immunity is not known. (Refer to Figures 1 and 2 below)

## COVID-19 Infection Timeline and Testing:

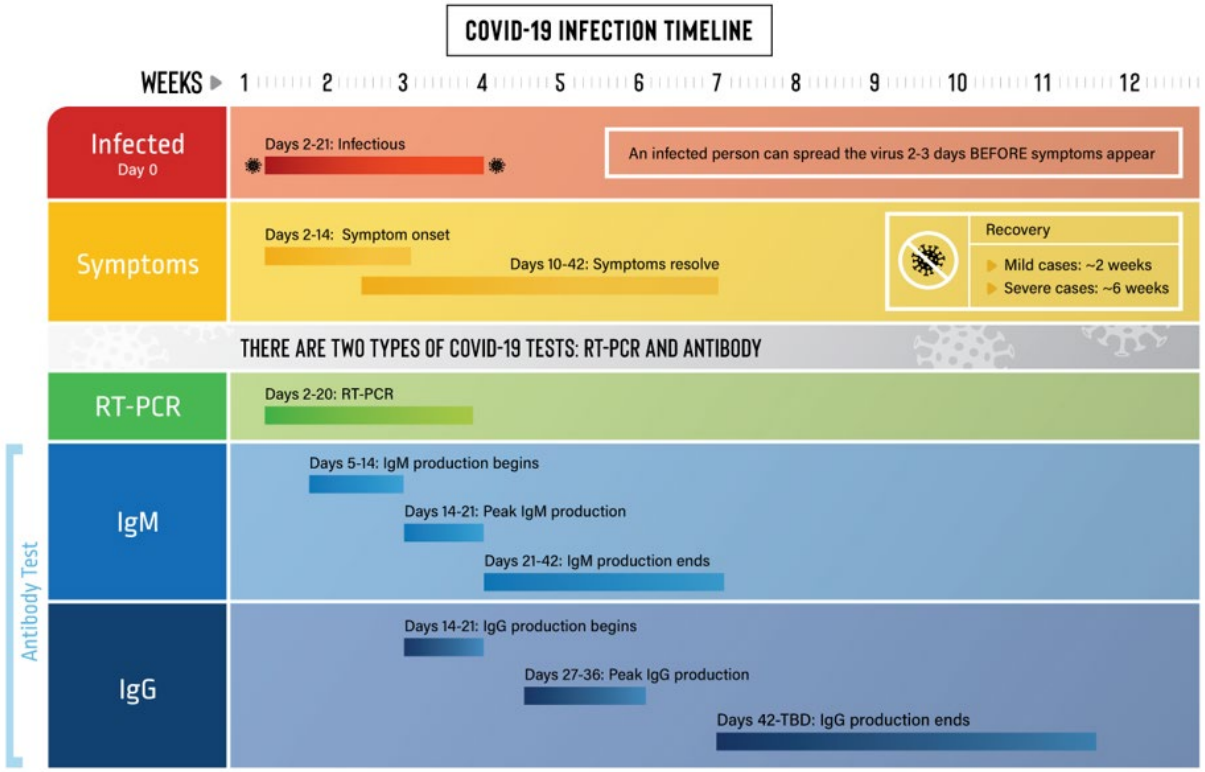


*Figure 1: COVID-19 Infection Timeline*

**Figure 2** illustrates our current understanding of the rise and fall of SARS-CoV-2 (COVID-19) RNA and antigen, IgM antibody, and IgG antibody, and the correlation of these levels with the initial time of infection, onset of symptoms, and recovery phase.

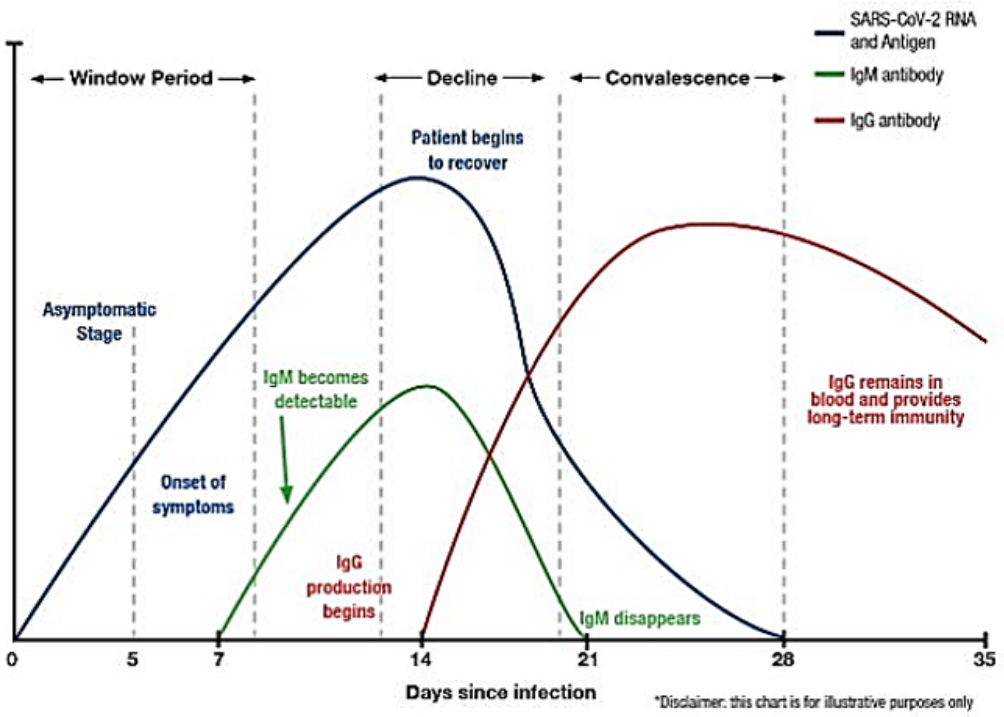


*Figure 2: Variation of the Levels of SARS-CoV-2 RNA and Antigen, IgM and IgG after infecti*

## Why wearing a mask is a powerful tool in ending the COVID19 pandemic.

**Wearing a mask serves two purposes:**

1. *Protects the **wearer*** from getting infected
2. P*rotects **others*** from being infected by the wearer.

Protecting the **wearer** is difficult: It requires medical-grade N95 masks and a proper fit. But masks are also be worn to prevent the outward transmission to **others**, and this is their most important use for society. If we lower the likelihood of one person infecting another, the impact is exponential resulting in a huge decrease risk of infecting others and deaths. Luckily, blocking transmission outward at the source is much easier and can be accomplished with something as simple as a cloth mask.

A key transmission route of COVID-19 is via droplets that fly out of our mouths — that includes when we speak or sing, not just when we cough or sneeze. A portion of these droplets quickly evaporate, becoming tiny particles whose inhalation by those nearby is hard to prevent unless they are wearing a mask. This is especially relevant for doctors and nurses who work with sick people all day. That is why their gear is called “personal protective equipment,” or PPE, and has stringent requirements for fit in order to stop *ingress* — the term for the transmission of these outside particles to the wearer.

Obviously, society-wide source control by protecting others becomes very important during a pandemic. The good news is that preventing transmission to others through egress is relatively

easy. Research shows that even a cotton mask dramatically reduces the number of virus particles emitted from our mouths — by as much as 99 percent, depending on the number of layers in the mask. This reduction provides two huge benefits. Fewer virus particles mean that people have a better chance of avoiding infection, and if they are infected, the lower viral exposure load may give them a better chance of contracting only a mild illness. (Refer to the Social Distancing link above)

COVID-19 has been hard to control partly because people can infect others before they themselves display any symptoms. Three recent studies show that nearly half of patients are infected by people who aren't coughing or sneezing. Many people have no awareness of the risk they pose to others, because they don't feel sick themselves, and many may never become overtly ill. Masks help us significantly reduce the risk of our spreading the virus to others. And because we don't know for sure who's sick, the only solution is for everyone to wear masks. This eventually benefits the wearer because: *My mask protects you; your mask protects me.*

Please ***Be Aware***, ***Be Mindful*** and ***follow the guidelines*** I have listed above.

Regards,

Gordon C. Gunn, M.D.

Coming Soon: **How to Boost Our Bodies' Immune Defenses During this Pandemic**