

## **To my valued patients**

### **On the hydroxychloroquine front**

More hopeful signs for hydroxychloroquine were announced when on Tuesday March 31 an article was published in medrxiv which is an online server for medical articles before they have undergone peer review. This is one of the first times a controlled study was performed using hydroxychloroquine for this COVID-19 outbreak. A controlled study is one where treatment is given to one group and not to another; differences between the two groups are then evaluated. The study took place in Wuhan. For a change, the study did not include the most severely ill, but instead looked at mild and moderately ill people. Hydroxychloroquine helped to speed the recovery of this small group of patients who were mildly ill.



Cough, fever and pneumonia went away faster and the disease seemed less likely to become severe. Previous studies were criticized because there were no controls, but this report is different. This study was of 62 people with an average age of 45. 31 patients were randomized to receive a 5-day course of hydroxychloroquine while the other 31 patients did not receive treatment. There was no difference between the two groups in the distribution of age or gender. Results from the study indicate that 'time to clinical recovery', 'body temperature recovery time' and 'remission of cough' were significantly shortened in the treatment group. The 4 patients who progressed to severe illness occurred in the control group.

It is important to note that most of the studies to date have been small. Even so, these studies are consistently showing a benefit. This is good news. Hopefully more studies will confirm this report.

### **COVID-19 Vaccine Candidate**

The University of Pittsburgh School of Medicine announced on Thursday April 2 that a potential vaccine against SARS-CoV-2 was tested in mice and produced antibodies thought to be sufficient for neutralizing the virus. The study was published in EBIOMedicine, a journal published by The Lancet. The reason that the researchers were able to ramp up so quickly is due to the groundwork that was laid during the 2003 SARS-CoV and 2014 MERS-CoV outbreaks which are closely related to our SARS-CoV-2.

In a previous newsletter, I described a new novel technique for vaccines that uses mRNA. The University of Pittsburgh vaccine uses an older technique that uses lab-made pieces of viral protein. It is delivered in a unique way, though, through a microneedle array to increase potency. See below to see the small patch of 400 tiny deliveries that delivers the spike protein pieces into the skin where the immune response is strongest. The patch goes on like a Band-Aid; the needles which are made of sugar, and the protein pieces simply dissolve into the skin.



### **Finally, an antibody test in our future**

Up to 40 companies, facilities and institutions are working on an antibody test so we can truly see who has been infected and who is immune. The FDA approved an antibody test on Thursday, the first for use in the US. This new test, made by Cellex, looks for two types of antibodies: Immunoglobulin M, made by the body just a few days into infection and immunoglobulin G, made later but better at surveillance. The test can give results in 15 minutes. The advantage of the test is that you don't need special swabs and medium to transport the specimen. Regular collection blood tubes should suffice. The reagents (chemicals needed to do the test) should be widely available since this type of testing is not new, although I don't have specific knowledge of this test.

### **Gloves**

I have noticed many people wearing gloves. If you wear gloves for any significant period, you will coat the gloves with the same germ substances that would accumulate on your hands. As such, if you touch your face, you will defeat your safety measure.

If you take your gloves off incorrectly you will also defeat the purpose of the gloves by contaminating your hands. Remember when removing your gloves, it is important that you not touch the outside of the glove with your bare skin. Beginning with your dominant hand you can remove the other glove, peeling it off your hand without touching the outside. Then, you can proceed to carefully do the same thing using your ungloved dominant hand to remove the glove from your other hand.



### Interesting co-infections

We are finding that 5-20% of COVID-19 patients can have other concomitant respiratory viruses. Therefore, some hospitals are starting to do a respiratory panel searching for other viruses even if COVID-19 testing is positive.

### Quarantine vs. Isolation

Quarantine separates people who were exposed but asymptomatic to see if they become symptomatic. No protective masks or gloves are required if there is contact with people who have been quarantined. The duration of quarantine for COVID-19 is until 14 days have passed from first exposure. If symptoms appear, the infected person is moved to isolation.

Isolation separates the person under investigation for COVID-19 with or without a positive SARS-CoV-2. Protective masks and gloves are required. The timeline for discontinuation of isolation is based on the person's test results.

### What is 7 and 72?

For doctors and patients, the key to ending isolation from a positive SARS-CoV-2 test is **7 days since symptom onset AND 72 hours since "recovery"** (no fever without Tylenol, aspirin, Advil, Aleve or similar drugs and improvement of symptoms). **That is 7 and 72.**

### Art and Quarantine

For another interesting case of art and quarantine, please read the description below.



This is a slight modification of the famous Mona Lisa by Leonardo da Vinci. The oil painting by the Italian grandmaster was originally completed in 1506 and modified more recently. The woman is seated against an imaginary landscape; the blues of the landscape compliment the facemask. Notice the striking contrast of the post-modern health protection materials against the hazy and seemingly isolated landscape imagined by the artist and painted using sfumato, a technique resulting in forms without borders, in a manner of smoke or beyond the focus plane.