

From Dr. Tammy Gutierrez...

Hello to all!

I am sending out this message to you because I have been fielding a lot of questions about Covid-19 lately, and it is growing rapidly in this area.

There is still a lot we don't know for sure about Covid, but there are also a lot of things we have learned. I am going to try to summarize (a) what we know now, and (b) what I have been doing for my patients and friends who have had it so far, based on that knowledge. **By no means** do I think that I have all the answers, but these are my best educated guesses as to best practices at this time:

WHAT WE KNOW ABOUT HOW COVID-19 AFFECTS US OVER TIME:

- Days 1-4 after exposure: virus is getting in, growing in our airways and gut lining, starting to find its way into our blood vessel lining.
- Days 3-7 after exposure: the immune system is fighting the virus, and people who are not able to clean up the mess fast enough will start to feel sick. This can be fatigue, sore throat, headache, body aches, fever, tummy upset, diarrhea, rash, purple toes or fingers, stuffy nose, cough, loss of taste/smell, brain fog, dizziness, hallucinations, or breathing issues.
- Days 6-10 after exposure: either the mess is mostly cleaned up and people are improving, OR the immune response is ramping up and becoming the bigger part of the problem for those who are not getting better. This is often where people start having more shortness of breath, deeper fatigue, and oxygen levels start falling, prompting a trip to the ER.
- Days 10-21 after exposure – People are feeling one of the following:
 - o (a) all better (*our immune system won, clean-up was effective*),
 - o (b) people can't breathe, oxygen is low, feel very sick and heading to the hospital (*our immune system is over-reacting and causing more mess*), or
 - o (c) people are struggling with "long-Covid" symptoms, such as fatigue, depression or anxiety, confusion, poor focus, poor exercise tolerance, persistent dry cough, mild shortness of breath (*the body is unable to clean up the mess and may be starting to have clots, other vascular complications due to the blood vessel inflammation*).
- First 3 mos. after covid infection – even if your symptoms were mild or non-existent, you have an increased risk of clots b/c of the way covid affects your blood vessels. People, even young adults, can have strokes, leg clots, or pulmonary emboli without warning.
- 2-6 mos. after having covid-19 – a small number of people are showing signs of auto-immune disease. This is still very early data, not well-characterized yet, but appears similar to lupus in some patients. We don't know whether this will be a major problem with covid, or whether the high stress and other pre-existing factors were setting these people up for an auto-immune issue and covid was just the straw that broke the camel's back. I suspect we will know more on this by spring.
- 4-6 mos. after covid infection – you can **catch it again**, and the second infection is more often **WORSE** than the first, even in young people. We don't understand this fully yet, but my best guess from what we do know is that one or both of the following is happening:

- (a) the damage to the inside of the blood vessels and any microscopic clotting damage (even asymptomatic) from the first infection has not fully healed yet, setting the stage for the second infection to hit already-vulnerable systems;
- (b) the immune system remembers the first infection well enough to get more irritated more quickly the second time around, making people have more of the over-aggressive immune response issues on round 2.
- (c) both of the above.

WHAT I WOULD DO IF I HAD COVID (AND WHY):

We do not know for sure everything about this infection, but we do know that covid tends to cause at least two kinds of problems in the people who get very sick: (a) out-of-control inflammation (sometimes called a cytokine storm), and (b) increased risk of clots. We do know that there are lifestyle strategies and supplements that help lower excessive cytokines, calm inflammation, and decrease clotting, so this is what I plan to do if I catch covid:

****Please understand that if you take prescription medications or have significant liver or kidney disease, then you need to discuss any supplements you ever consider taking with your doctor first, to make sure there are not important interactions. Supplements are medications as well!*

DURING INITIAL SYMPTOMS – GOALS: LOWER INFLAMMATION AND CLEAN UP MESS

- 1) REST, REST, REST! – the number one thing I would do if I had Covid is go to bed. Even if I was not sleeping, I would be resting, so that all of my body's energy was devoted to healing. Plan to have some meals cooked and in the freezer (like homemade soup, simple stir-fry, things that would feel good on an upset tummy) in case you need to just rest for a couple days.
- 2) Drink crazy amounts of water – aim to get in 64-90oz water/day, so that your body can flush wherever it needs to flush. Your pee should be clear.
- 3) Lower stress levels – have a plan in place for who is going to take care of kids, bills, other responsibilities if you have to “check-out” for 3-10 days. You don't want to be trying to figure this out when you are supposed to be resting. If you are sick, stop watching the news, put away high-adrenaline things, and let your body be as calm as possible. Adrenaline feeds that cytokine storm process.
- 4) Get a pulse oximeter (goes on your finger and reads your oxygen levels) – you can buy one for your extended family or with a friend group now, and then whoever gets sick can use it until they are better. Monitor your oxygen levels 3-4x/day while you are sick, and if it is dropping below 94%, you need to go to the doctor or hospital. Many people who have Covid have NO IDEA that their oxygen levels are crazy low for days before they start feeling short of breath, and this is causing heart, brain, kidney, liver, and lung damage if untreated.
- 5) Quercetin with bromelain 400-800mg twice a day for 3-14 days, until symptoms are gone – Quercetin is a phytonutrient found in apples, onions, red grapes, and several other plant foods. This may be part of why “an apple a day keeps the doctor away.” Quercetin helps with respiratory inflammation, symptoms, and boosts healthy immune function WITHOUT tipping it over into excess. *It is generally well-tolerated, but it is not for pregnant people or people with significant kidney disease. People who take a lot of prescription medications need to ask their*

doctor before adding supplements, to make sure there are no interactions. Now brand is good option.

- 6) NAC (N-acetylcysteine) is very helpful at cleaning up inflammation and mess from toxins or infection, and we know from prior studies that it directly lowers the types of cytokines that are elevated in covid-19-associated cytokine storm patients. It also seems to be helpful in flu patients. *Patients with uncontrolled asthma or with allergies to acetyl cysteine should not take NAC. Also, it can enhance the effects of nitroglycerin, so if people who are taking nitroglycerin regularly for severe heart disease should not take this without consulting the doctor first.* Life Extension is a good brand, take 600mg twice a day until symptoms are gone.
- 7) Things to talk about with your doctor: inhaled steroids,

***Things I am NOT taking this year when I am sick: astragalus and elderberry – both of these boost the body's anti-viral immune reaction, but possibly in a way that could make the immune OVER reaction more likely. They are generally great tools in the winter, but I am not using them myself or in patients this year.

PREVENTING CLOTS (starting with infection and continuing for the next 2-3 months)

- 1) If I had known heart disease, diabetes, hypertension, or other vascular disease, I would take one full-dose (325mg) coated aspirin daily for the first 3 mos. after infection to help prevent blood clots. Studies on this are ongoing now and suggesting benefit so far. *Aspirin is not safe in kids under 18yrs old, and it can irritate the stomach lining and kidneys. People with major heartburn, ulcers, other acid issues, bleeding problems, or kidney disease should talk to their doctor before taking aspirin.*
- 2) Since I do not have known cardiovascular disease, I prefer to use a more natural anti-coagulation approach if I get Covid-19. Both of the following supplements are known to help thin the blood comparable to ibuprofen, and both also have anti-inflammatory properties that can help lower cytokine levels and calm inflammatory reactions. I would take both of these for 3 mos. after Covid, if I catch it.
 - a. Ginger - Ginger 550mg is essentially equivalent to taking ibuprofen for pain, helps with fever and muscle aches, and it is also very good for the gut lining. It also has a mild blood thinning effect, if taken 3x/day. *Don't take it if you are already on a prescription blood thinner, or if you have severe heartburn, as it can aggravate that. Ginger can also help lower blood sugar in diabetics, so if you are on one diabetes med you need to be careful not to drop your sugars too low.* Both Now brand and Nature's Way Ginger 550mg are inexpensive options. Take your ginger at least an hour before bedtime to avoid having heartburn when you lay down.
 - b. Turmeric/Curcumin - also helps thin the blood, boosts clean-up, and lowers inflammation. If I get Covid-19, I would take 1000mg twice a day to lower my clot risk quickly, but jumping to a high dose like this will usually cause some diarrhea for a week or two. Starting with lower doses and going up over a couple weeks can prevent the diarrhea, but I would personally risk the extra bathroom visits to lower my clot risk if I had Covid right now. *People with severe liver problems should talk to their doctor before taking supplements, and, like ginger, turmeric can help lower blood sugar in diabetics, so*

they need to be careful not to overmedicate if they are taking turmeric. Most turmeric products on the market are not very potent. You need to have a good one, with 95% curcuminoids and bioperine to help with absorption OR the Meriva form of curcumin. Pure Encapsulations, Thorne, or Me First Living are good brand options online.

LONG-TERM RECOVERY AFTER COVID:

- 1) Eat your rainbow – we need lots of phytonutrients to clean up the mess and repair things after a major internal battle, even if we won the battle relatively easily. Try to get 6-12 servings of veggies and fruits every day, in all 6 colors (red, orange, yellow, green, blue/purple/black, and white/tan/brown).
- 2) Omega 3 – we need lots of omega 3 fats to heal blood vessels and brain cells, both of which are hit by Covid. Foods high in omega 3 include: (a) fatty fish (wild Pacific salmon, sardines, mackerel, anchovies; try to avoid tuna b/c high in mercury, and only occasional cod b/c moderate on mercury list), (b) some in well-sourced free-range egg yolk, (c) flaxseeds - ground at home within 24 hrs. of use b/c the omega starts to degrade after grinding, (d) chia seeds. I use a mix of fresh-ground flax and almond flour to bread veggies or chicken, and I toss flax seeds onto almost every meal. Buy them whole and keep them in the fridge. Also, cutting back on your omega 6 fats (soybean oil, sunflower seed oil, lecithin, corn oil, vegetable oil, grapeseed oil, peanut oil, canola oil, most nut oils) helps you need less omega 3, b/c the ratio is very important (goal omega 3: omega 6 = 1:3, most Americans 1:20-50!)
- 3) Boost foods that help heal the endothelium (the lining of your blood vessels that gets hit so hard by Covid): beets, dark leafy greens, garlic, well-sourced meat, dark chocolate, citrus fruits, pomegranate, tree nuts and seeds, watermelon, grape products, garlic and onions, rhubarb, red and black berries. Fish (even the simple white fish, like tilapia and catfish) are also good, b/c they are high in taurine and citrulline, which are amino acids shown to lower blood vessel inflammation in people who smoke or have known vascular disease.
- 4) Move more – exercise is one of the most potent anti-inflammatory treatments we have, and it both lowers clot risk and supports healing. Start gentle, and ramp up as tolerated, to a goal of 30-60 min a day.
- 5) Mental health support – don't spend your internal healing resources on stress! Schedule breaks from the news, time with loved ones, start journaling, try a gratitude practice, etc. Patients with higher baseline stress levels are doing worse with Covid, and Covid infection seems to leave an increased risk of depression and anxiety that takes weeks-months to recover.

Of course, our number one strategy is still PREVENTION!

The evidence is overwhelmingly clear now that:

- Covid is mostly spread through indoor air sharing, so play outside as much as possible and limit indoor activities to family or a small and consistent bubble of people who are limiting their circle to your family as well.
- Masks work well for Covid. They work extremely well to protect other people and moderately well to protect the wearer, but if BOTH people wear masks, then transmission is rare. If you have to be indoors with other people, wear a mask the entire time, every time.

- 2+layer quilting cotton or surgical masks are best. Nylon and other synthetic materials are less effective.
- They must cover BOTH mouth AND nose to be effective
- They should be washed regularly, like underwear.
- The data is overwhelming at this point, but my favorite was the unintentional experiment that Kansas did for us all: They made the mask mandate in stores/public buildings optional for cities. Cities with mask mandates in Kansas have half the rates of covid compared to cities without them since the mandate went into effect, but were similar prior to the mandate. Also, airlines in the Middle East and Asia that require EVERYONE to wear a mask for the whole flight have had ZERO transmission, even on multi-hour flights where passengers were found to have covid after arrival.
- Masks DO NOT work as well for INFLUENZA, which is a much smaller virus, so you need to maintain the physical distancing and hand-washing as well as we enter flu season. In a typical year, many hospitals reach or exceed ICU capacity with influenza, RSV, COPD, and heart disease in the winter months, typically December-March, because all of these things spike this time of year. At the current pace of covid infections, hospitals are likely to run out of both staff and space this winter, as workers get sick/have to quarantine and since the sicker covid patients spend much longer in the ICU (weeks instead of days). This means that you don't want to be hospitalized with influenza or anything else this winter either, if you can avoid it.
- Dose of Covid affects severity of the disease. Even young, healthy people exposed to high doses (for example ICU nurses early in the pandemic who lacked protective equipment) had severe disease, and older people with very mild exposures don't seem to be as sick. Keep your exposures as low as you can, and this will help you weather the storm if you do catch it.
- Unfortunately, herd immunity is NOT the answer for covid, b/c current data suggests immunity from infection only lasts 4-6 months, so please do not try to intentionally infect yourself or your family. We have not seen many re-infections locally because we did not have many people here who had it more than 4-6 mos. ago, but we are far enough into this pandemic elsewhere in the world that these repeat infections are starting to emerge now, and they tend to show worse symptoms the second time around.

UNDERSTANDING THE LONG-TERM OUTLOOK: THERE IS LIGHT AT THE END OF THE TUNNEL

Although covid-19 is unlikely to be gone anytime in the near future, there is a lot of hopeful information, and I feel like that is not given enough attention right now:

- 1) We are MUCH better at helping people recover in the hospital than we were in March and April, so mortality is much lower now. We have learned to use heparin/other blood thinners, oxygen, prone positioning to avoid ventilators, IV steroids for the sicker patients, and other supportive meds that have really cut down on ventilator use, ICU needs, and death rates for many Covid patients. This will continue to be true and will likely improve even further over the coming months UNLESS we just run out of beds/nurses/doctors/dialysis machines/medications/PPE at the hospitals. Our goal as a community is to not let that happen, so that we can do the best job we know how to do right now.

- 2) We are learning and cooperating within the medical community at unprecedented rates. I have been in health care since the late 90's, and I have never seen anything like the pace of research and the level of professional information sharing that has happened this year. Truly inspiring, and it is working, as mentioned in #1 above.
- 3) Testing access is better, though still not perfect by any means. I fully expect us to have even better access to rapid and cheap saliva (or similar) testing by spring at the latest, so that we can do a better job at knowing who is infected quickly and cut down the spread.
- 4) Vaccine studies are progressing at an expected pace, though this is not the magic bullet that many people want right now. I would like to ask for caution and calm on this front. For those who are excited to take a vaccine, there is still a lot of work to be done, and the only people who are realistically candidates for any covid vaccines in the next couple months are (a) frontline health workers, such as ER and ICU personnel, and (b) people in nursing homes or similar living situations that are old and vulnerable. We won't have meaningful safety data or supply to even offer vaccines for the general public before next summer, so don't ride the roller coaster on this one. I do not see mandatory vaccination any time on the horizon, either, as an FYI for those who don't want a vaccine.
- 5) Covid is inspiring many people to take a look at their health and make life changes that will not only help with Covid, but also help prevent future heart disease, strokes, diabetes, etc. We can each take this moment as an opportunity to re-evaluate our own health status, so that we all come out of this stronger and healthier as a society.