

2020

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Coronavirus

January 26, 2020

Coronavirus is the word of the day, it seems, and with it our attention is focused on the real-time development of a disease that is new in human history. It is somewhat unfortunate that the word "coronavirus" has been given such attention, because it is exactly the type of information that gives rise to the saying, "a little knowledge is a dangerous thing," and also because it obscures some of what we need to know. To explain what I mean, let's begin with a review of the facts. The name currently given to the new disease that has captured everyone's attention is novel coronavirus infection of 2019 or 2019-nCoV. It first came to the attention of the authorities outside of China on January 5, 2020. On that date Chinese authorities filed a report with the World Health Organization saying that 59 individuals in Wuhan Province had developed pneumonia caused by an unknown agent, with symptom onset ranging from Dec. 12 to 29, 2019. Wuhan City, the province capital, is a city with a greater metropolitan area population of more than 9 million people, situated on the Yangtze River. In downtown Wuhan there is what is known as a "wet meat market" where live fish and animals, domestic and exotic, are sold. It is now believed that the virus we call 2019-nCoV originated in that market, which is located quite close to both the River and the train station. The novel virus has an animal reservoir, has recently mutated to be able to infect humans, and is very similar to a coronavirus that typically infects bats. It is also quite similar to the SARS virus and is known to have been passed from one human to another.

There are 7 types of coronavirus that are known to infect humans. All of these are similar in the way they are transmitted and in the initial stages of the illness. They all cause runny nose, cough and other symptoms of the common cold. They are typically transmitted when small amounts of virus-containing secretions from an infected individual are taken into the mouth, nose or eye of the soon-to-be-infected person. Remember this: it's always about the mouth, nose or eye, and if someone who is infected touches one of those locations with their hands and then you touch those hands, you can bring that infectious material to your mouth, nose or eyes, if you don't disinfect your hands first. You can also get sick if you eat undercooked meat or drink raw milk that contains the virus. Generally, the time from exposure to illness is 5 to 6 days, but it can be as little as 2 or as many as 14 days. A person is contagious before they show symptoms, but how long before is variable. Four types of coronavirus cause only the symptoms of the common cold, but then there are these 3: 2019-nCoV, SARS and MERS. These last three have all produced death in a high percentage of the people known to be infected. To say that this new disease from China is caused by coronavirus may cause exaggerated concern about a particular person, if we learn that they have been diagnosed with coronavirus (a little knowledge...). On the other hand, to stress its similarity to SARS (Sudden Acute Respiratory Syndrome) and MERS (Middle East Respiratory Syndrome) might cause generalized fears, such as fear of all travel, for example.

What we need to know is that at this time (January 26, 2020 at 4:30 PM), all of the infected persons in this country had travel to Wuhan, China. Currently there are 5 persons in four states (AZ, CA, IL, WA) who have been diagnosed, and about a hundred more are under investigation. The disease is known to be present in 29 of China's 33 provinces. There is currently no legitimate need to be concerned about catching this disease from anyone without a history of travel in China in the last 14 days. The disease has been spread from human to human, but it will continue to be true that everyone who becomes sick with 2019-nCoV will have a history of travel to China, or some history of a link to someone who got sick after travel to China.

Watching this coronavirus spread has been like watching a motor vehicle crash in slow motion. At first it seemed as if it might be avoided, but then there was first contact. After that the details remained unpredictable, but it was never in doubt that we would see devastation. In early February, when I saw that more than 10 million people were in the area we are calling the epicenter of the outbreak, it was clear to me that the virus would escape from there undetected, and it would go on to spread over the entire globe. Even if only 1 person in 10 within the epicenter became infected, and the chance of any one individual traveling to another area and infecting someone in a new location was one in a million, undetected spread to the entire world was likely. We knew then that there was likely asymptomatic spread and that this disease was infective enough that each person infected gives it to (on average) more than 2 people over the course of 14 days. That means that the number of people infected would at least double every 14 days in the nature course of things.

The World Health Organization declared a pandemic on March 11, 2020. That designation refers to the geography of spread of an infectious disease, that it has global spread, and does not reflect any indication of the severity of the illness or other dimensions of the disease.

I gotta tell you ... I absolutely believe that everything IS exactly as it is supposed to be. Unfortunately, sometimes it is supposed to be difficult.

Also, consider this Zen story:

A family went to a priest and asked that he prepare a blessing for the family, then write it on a scroll that they could keep as a family heirloom. He agreed to do so, and asked them to return in a few days to receive it. When they returned, they were angry and horrified to find that he had written:

Grandfather dies
Father dies
Son dies

He offered to write a different blessing, but pointed out that the words he had written reflect a life that is free of that most wretched grief of a parent facing the death of their child. When we really look at the things that are important, we see that the avoidance of suffering is much more powerfully beneficial than any enhancement of pleasure ever could be. The family was satisfied with the priest's work, and took it gratefully. Whether they displayed it prominently is not recorded.

If there is any good thing about this disease, it is that it adheres to the natural order of Grandfather dies, then perhaps Father dies, and son is likely able to carry on and live a normal life with immunity from this disease. When parents bring their children to the ER with a bad cold and cough, I often tell them, "Your child has a cold. It's chest cold, but it's a cold. It's simply one of more than 120 different respiratory viruses that are in our community. One of their most important jobs, between 1 and 9 years of age, is to catch most of these viruses. By getting

sick with them at this age they develop enough immunities to live without frequent colds later in life." This coronavirus will probably be just be one more virus, in a few years. It's also worth noting that new infectious diseases change characteristics with time, and this almost always results in less severe symptoms. This is because milder versions of the germ are spread more easily (sicker people stay home or may be more apt to die before spreading the disease) so that milder versions of this virus are likely to outcompete the nastier versions. We have already seen that to be the case with this virus. There are at least two known genotypes, and the deadlier genotype is comprising less and less of the cases, as a proportion. It turns out that the cases in Washington state are almost all are genetically identical, and they are of the more uncommon and more deadly variety. (That, by the way, suggests that it was brought there by a single person.)

Only time will tell what will happen with this disease, and I do look forward to being able to test for it at our hospital. However, the test is only valuable for a couple of things. If the illness is not widespread in the community, the test can tell us who does have the disease. Once we find a new case (we say 'index case') we isolate them from others and follow the chain back to see where they contracted their illness. We can also test and isolate as necessary, all who were exposed along that chain, as well as by the index case. That's the reason I wish we had the test, to protect the community. Once the illness is widespread, testing will actually be less important, unless and until we have specific treatments that target the virus.

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The Most Important Things, in the Time of COVID

March 19.2020

The most important thing to do if you are well, in order to remain well, is to wash your hands for 20 seconds before you touch your face or anything that goes into or around your mouth, nose or eyes. The most important thing to do if you are infected, in order to not infect others, is to wash your hands (for 20 seconds) after touching your face etc., before touching another person or anything that another person will touch. Sneezing/coughing into your elbow, or into tissue (then throwing it in the trash and washing your hands for 20 seconds) is also important. Since we cannot know if we are infected we must wash our hands before **and** after we touch our mouth, eyes or nose. Mask wearing and the other things that people talk about using the term "social distancing," like keeping 6 feet away, or avoiding crowds will have little positive effect, if we don't get very good about washing our hands. Using alcohol-based hand sanitizers may be substituted sometimes, if hand washing is impractical. However, washing after every few applications is critically important because sanitizers leave a little bit of residue to which dirt can adhere, and they don't remove the dirt and grime to which germs cling and in which they survive. Cleaning surfaces properly is another simple thing that is also important. All of the economic hardship that the country is being put through will be worth relatively little if we don't do those simple things.

It is important to understand that there are certain things that we know about this virus that allow us to make very reliable predictions about the way it will affect our population. The 2 most important pieces of information are the answers to these questions:

1. Once a person gets infected how many people are they likely to infect?
2. Once a person gets infected, how long will they be infectious and how sick are they likely to get?

The numerical answer to the first question is known as "R naught" or "Ro." If the Ro for a given infection is less than 1, the infection will die out. That is exactly what happened with SARS, several years ago. For COVID-19 the Ro is said to be 2 to 3, and maybe higher. We know that one person often infects 5 or 6 people, and sometimes it is about a dozen or more. All of the strenuous social distance efforts, the emphasis on hand washing and wiping surfaces appropriately are all intended to reduce Ro to as small a number as possible. Less than one would be ideal. The answers to the second question actually affect the first question. If people remain infectious for a long time and don't get very sick, they have the greatest chance of infecting a lot of other people. Unlike the first question, we don't currently have any way of affecting the answers to the second question. The only things that we can do, in this particular case, is to give comfort (treating the fever with Tylenol, for example) and supportive care such as supplemental oxygen for severe cases or ventilator support for the most severe cases. That's all.

As long as the answer to the first question is greater than 1, and there are no other factors involved, predicting the spread of the virus in a population that has no experience with it and hence no immunity, is simple. It will spread just like a bacteria introduced into a culture dish. There is some period of time during which the number of bacteria will double, so the growth in number of bacteria will be relatively slow at first, but the rate of increase will rapidly rise and the number will grow exponentially.... Until the population runs out of food. Then the number of bacteria will peak and rapidly fall off. It usually stabilizes at some level that is relatively low, compared with the peak. In this analogy the new coronavirus is like the bacteria, the world is the culture dish and we are the food supply.

Now, if you get sick with what may be COVID-19 you need to pay attention to your symptoms, and remember that we cannot do anything about the answer to the second question. There is nothing that a doctor can do for you that you cannot do at home by yourself, unless you need to be hospitalized for supportive care such as IV fluids, supplemental oxygen or ventilator support. So, if you are short of breath or you are vomiting and think you are getting dehydrated, seek medical advice or medical care. Otherwise, don't seek treatment or testing. It will be worse than useless to go get tested -- if you can find a test -- because you can't change how sick you will get, and you can only increase the number of people you infect by going out to get tested. You may think, "I want to know what I have." You won't. You likely won't ever know "What you have," unless you get very sick and stay sick for a week or more. If you are someone who is healthy and gets COVID-19, then goes to get tested, by the time the results come back they will tell you what you **had**. The test results typically take 4-7 days to come back, and by that time you will be feeling just about well again. What if it's the flu? A very similar thing applies. If you are someone who is generally well, unless you are short of breath or needing supportive care for some other reason, stay home. Even if you would have gone to the doctor with the same symptoms last year. Stay home this year, because the time and resources spent taking care of you will likely be better spent on someone who does need supportive care, and also because you might catch the COVID virus at the same time you are learning that you just had the flu. The same thing applies to having a cold and to most cases of bronchitis, which are really chest colds. Stay home unless you are really sick.

If you want to call someone, you can call 2-1-1, and use Option 6, 7AM-6PM Mon-Fri. Another choice is Shannon Medical Center's telemedicine website at www.ShannonOnDemand.com.

Also, for general questions as well as information about specific situations, visit the Texas Department of Health (DHS) site for coronavirus at <https://www.dshs.texas.gov/coronavirus>

Here are other good sources

CDC Coronavirus page

<https://www.cdc.gov/coronavirus/2019-ncov/index.html>

CDC Coronavirus Guidance for School Settings

<https://www.cdc.gov/coronavirus/2019-ncov/community/schools-childcare/index.html>

Johns Hopkins interactive map, one of the most detailed yet up to date sources of information and statistics

<https://coronavirus.jhu.edu/map.html>

Here is a list of 274 surface cleaning and sanitizing products

About 150 (those designated "N") can be relied on to protect against the virus that causes COVID-19

<https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>

The CoViD-19 Vaccine and other mitigation efforts

April 9, 2020

Many people have hopeful expectations that an effective vaccine may soon be available to protect our population from COVID-19 (**Corona Virus Discovered in 2019**). I would by no means minimize the seriousness of this disease nor the benefits of a vaccine to stop its spread, but I would like to suggest that perhaps the pandemic IS the vaccine that is needed to protect our population against even greater threats that are real possibilities. Any serious discussion of vaccines should be grounded in the history. Dr. Edward Jenner paid attention to the peasant lore that milk maids who had been afflicted with cow pox (*vaccinia*--*vac* is Latin word for cow) never got smallpox (*variola*). Therefore, he experimented and successfully put some of the pus from a *vaccinia* lesion into a small cut he made on one arm of his test subjects. This produced a case of cow pox, a fairly uncomfortable pustular disease, in these individuals. However, it gave these people life-long immunity to the related disease of small pox. We now know that by introducing this foreign agent into their bodies he was stressing their immune systems. The natural reaction to stress is what provides the beneficial effect of vaccination.

It is worth noting that there have been countless warnings of our vulnerability to a pandemic. Bill Gates and others have often told us of the need to prepare for exactly the situation we have today. The Worldwide Threat Assessments developed for the office of the Director of National Intelligence in 2017 and 2018 surveyed many potential scenarios and even suggested a coronavirus jumping from another species to humans as a potential cause of the next pandemic. In July of 2015 the Department of Homeland Security published a short document entitled "PANDEMIC IMPACTS TO LIFELINE CRITICAL INFRASTRUCTURE" that is filled with eerily familiar statements like this: Second to vaccine development, the most effective and economical mitigation strategy is a rapidly deployed and multilayered approach combining various intervention strategies such as social distancing, school closures, and treatment with antivirals. On Page 9 is a tri-color Figure with a high-peaked curve and a longer lower curve, labeled respectively, "Pandemic Outbreak: No Intervention," and, "Pandemic Outbreak: With Intervention." Beneath the curve is this explanation, "Intervention policies that can help minimize the effect of a pandemic include: school closures, antivirals to be used for treatment and prophylaxis, and social distancing measures—i.e., limiting physical contact with others, voluntary household quarantining of the ill, and wearing gloves and appropriate protective masks such as N95 respirators."

https://content.govdelivery.com/attachments/MIMSP/2015/08/05/file_attachments/414079/OCIA%2B-%2BPandemic%2BImpacts%2Bto%2BLifeline%2BCritical%2BInfrastructure.pdf,

What I hope I have illustrated is that prior to this current pandemic there was already an awareness of the threat, and an understanding of what ought to be done to prepare. What was lacking was a capacity to accept that really terrible things CAN happen, even though no one has ever seen such things before, and the willingness to act. This perhaps can be best illustrated by comparing our attitudes and behaviors in regard to the hijacking of airliners on September 10, 2001, versus today. It is a little like that now, with a deadly pandemic. As often noted, pandemic is a term that indicates world-wide spread of a disease, and says nothing of the severity of the disease. The H1N1 was a much ballyhooed pandemic, that probably dulled our initial response to the current one, because the disease it caused was little different from the usual seasonal flu. The current pandemic, on the other hand may serve to sharpen our attention. As Samuel Johnson said, "Depend upon it, sir, when a man knows he is to be hanged in a fortnight, it concentrates the mind wonderfully." We need to bring our concentration to bear on a

number of individual circumstances that are well known, but not taken seriously. A short list of these includes: 1. the vulnerability of our power grid, to attack or to unusually powerful solar flares, such as the Carrington event in 1859 that seriously disrupted telegraphy (the only electrical grid in existence at the time), 2. our reliance on China for medicine and other essential products and 3. our almost total reliance on cell phones and GPS for essential and emergency services.

We have already seen some beneficial effects of this pandemic. The stress has greatly accelerated movements that were underway but had been impeded by inertia or vested interests. Here are two examples: Until about mid-March of this year the Medicare restrictions on telemedicine made it strictly a niche service, now it is mainstream. Until late March, a Nurse Practitioner or Physician Assistant could not order home health services for a Medicare beneficiary, but because of the latest Coronavirus emergency aid package (signed on March 27) now they can.

I do not intend to minimize anyone's suffering, when I say that I believe everything IS exactly as it should be. Indeed, it is a belief that I had often expressed for many years. And then my son died... I wondered if I could continue to believe it. Now I know that nothing has ever given me more comfort in that time than that firm belief. Because of it I have been saved from every "what if..." my thinking or perceptions presented. My thoughts are endless, but infinitely more infinite is God's love and grace. May you find it now. May we all find it now.

COVID facts and recommendations

April 16, 2020

As I write this at noon on Sunday April 12, 2020 Texas has had 124,533 tests for COVID-19 performed, and resulted with 13,484 confirmed cases; 1,338 of these are currently in hospital. The number who have died of the disease is 271, and 2,014 are said to have recovered (from Texas Case Counts at <https://dshs.texas.gov/coronavirus>). Each of these figures tells a story. The number tested is a reflection of two things: the number of tests available is one, and the number of people that had a credible presentation (history plus clinical findings) suggesting that they might actually have the disease. Almost exactly 10% of the people tested were positive for the disease. This is a number that is pretty consistent in places where there is low or negligible community spread (as opposed to places like New York City, where at the height of their epidemic the rate of positives was 30% or more). (For more information and comparisons across states, see MMWR April 10, 2020 https://www.cdc.gov/mmwr/volumes/69/wr/mm6915e4.htm?s_cid=mm6915e4_w.) Of the confirmed Texas cases, less than 11% are in the hospital, and 2% of those infected have died. Looking at it another way, of the people who were legitimately worried and got the test, only 0.2% have died. That may be the most important number of all, for most of us. For someone in Texas who is sick with a COVID-like illness, the chance of death is about 0.2%. Of course it is more if you are older and have underlying illness, and less if you are young and healthy, (see <https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-at-higher-risk.html>) but those odds are not much different from the chance of death if you have the flu. The numbers are a little worse if you look at the country as a whole. There are 2,688,766 people who have been tested, with 532,339 positives and 21,418 deaths. So not quite 20% of the tests have been positive, and the rate of death is 4%, for those infected. Of the people tested the death rate is 0.8%. The reason I say that the rate of death among those with a COVID-like illness is the most important number is this: By now we all know the signs of COVID, and they are fever, cough, shortness of breath, fatigue and may include GI symptoms such as nausea or diarrhea in addition to runny nose. No test is required, you know if you have this. If you do, your chance of something serious happening (if you live in Texas) is almost exactly the same as if you had the flu. Two important differences, at this point, is that there are prescription medications (such as Tamiflu or Xofluz) that you can take which may shorten the duration of flu symptoms by a few hours, or at most by a day, and also there is a widely available vaccine to help reduce or prevent illness from the flu. These differences aside we can think about COVID-19 and flu in exactly the same way. If you knew that you had the flu you would (should!) stay home until you are no longer contagious, drink plenty of fluids and take Tylenol (acetaminophen) for the fever and body aches. Then, if you got sicker and had a hard time breathing, were vomiting and getting dehydrated etc. you would call your doctor or go to the ER. It is exactly the same with COVID, with one exception. Please don't just show up at the ER. Call first. If you need more information, the CDC has terrific tools to use if you are sick at <https://www.cdc.gov/coronavirus/2019-ncov/if-you-are-sick/steps-when-sick.html>.

Unless you are a person at higher risk for death from COVID-19, if you do get a COVID-like illness (or CLI), and don't get very sick, you don't need to be tested. That's important in one sense because, on average, the more people tested in any one day the longer it will take for tests results. And people who DO need to be tested may have lots of other people whose peace of mind, or even whose livelihood may be threatened while waiting on those results. It won't be very long, I suspect, before we will have antibody tests that will let you know whether you had COVID or not. So, if you have a CLI and stay home and get

well, then what? If you are one of those workers who must get back to work, the CDC advises that you wait until:

- At least 3 days (72 hours) have passed *since recovery* defined as resolution of fever without the use of fever-reducing medications and improvement in respiratory symptoms (e.g., cough, shortness of breath); **and**,
- At least 7 days have passed *since symptoms first appeared*
<https://www.dshs.texas.gov/coronavirus/docs/NonTestBasedStrategyForReleasingHomeIsolation.pdf>

If you have not been sick, but have been exposed to a suspected or confirmed case, see

<https://www.cdc.gov/coronavirus/2019-ncov/community/critical-workers/implementing-safety-practices.html>

I leave you with one final thought. We have succeeded in "flattening the curve." What that means is that we have lowered the peak number of infections at any one time by lengthening the time during which we will have a significant number of infections. When you hear, "flattening the curve," think, "lengthening the curve." That means for many months we will need to remember and follow the guidelines for hand washing, not touching the face with unwashed hands etc. That includes wearing a mask in public if there is a chance you could have a CLI -- even in an asymptomatic phase.... But we will get through this, and will likely be better for having been through it.

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The most common question I am asked

April 23, 2020

The most common question I am asked these days, in regard to COVID-19, is some version of, “What is going to happen in the months and years ahead?” Before anyone tries to answer that question they should admit their answer is based on this: We know that the vast majority of people who have the disease recover without any problem, and they then have circulating antibodies which **we believe** will confer immunity that will persist for at least one year and probably several years. What **we believe** could be wrong, and if it is then all bets are off. As to what I think is likely to happen, the answer rests on “herd immunity.” I have heard some people refer to this topic with the term, “herd mentality.” Herd immunity and herd mentality are two very different things. To have herd mentality is to follow what others are doing, without thinking for oneself. Doing or thinking a thing just because everyone else is doing or thinking that thing is, as your parents may have pointed out, a bad thing. Herd immunity, on the other hand, is a very good thing. Herd immunity is the protection that is provided to a population when a large majority of the individuals within that population are immune to whatever agent is being considered. It’s probably a poor term, for talking about human populations, but that’s the term we have. As an example, imagine what would happen if all but a random one percent of a population were immune to measles, and then someone with measles traveled to the community. There is only a small chance that they would encounter one of those rare individuals who is not immune. Even if they did infect someone, there will be no significant community spread because the chance of these two contacting and infecting another one of the other rare non-immune individuals is quite small. If they do, the chance of any of these infected people passing their germs on to two people is vanishingly small. In order for a disease to have significant spread, some infected persons must infect more than one new person. In all probability the original infected traveler and the one or two sickened in the community will get well without infecting anyone else, and the measles “outbreak” will be over. That is herd immunity.

Today’s question is harder to answer than the questions from 2 months ago. Two months ago, in mid-February, the questions were, “Will it come here? and what will happen if it does come here?” it is easy to predict what will happen to a population with no effective immunity when a new virus is introduced, if the virus is easy to spread and nothing is done to mitigate the spread. As long as there are no other factors involved, the virus will spread just like a bacteria introduced into a culture dish. If just a few bacteria are placed in a culture dish containing a suitable medium, there will be some period of time during which the number of bacteria will double. The number of bacteria will be small at first, but it will increase, and it will grow exponentially until the bacteria runs out of available food. The number will then peak and decline. It usually stabilizes at some level that is relatively low, compared with the peak. In this analogy the number of coronavirus cases is like the number of bacteria, the world is the culture dish and all non-immune people are the food supply. If we used graph paper to plot the number of bacteria over time we would have a curve just like the curves we have all seen and have been working to flatten. And we have flattened them. If we had not done so, by the time we had reached the apex and were coming down the other side, we would have established a fair degree of herd immunity. Almost everyone in the population would have been infected and would be immune to the virus.... or dead. By flattening and lengthening the curve we have kept our healthcare system from being overwhelmed (hence we have saved lives), but we have also delayed the establishment of natural herd immunity. Until we have herd immunity, either by means of a vaccine or through widespread infection, we must

continue to shelter the people who at high risk of complications and who have not been infected with COVID-19.

In communities that have seen few or no infections there remains the potential for rapid spread, but as long as people stay away from events like Mardi Gras and Chinese New Year, rapid spread – in my opinion – is unlikely if we do the things we have rehearsed: Wash your hands (for 20 seconds) before and after touching your face or another person's face. Stay home when you are sick. Wear a mask if you must be out and you think there is any chance you might be getting sick, or have recently gotten over being sick. Sneeze/cough into your elbow, or into tissue (then throw it in the trash and wash your hands for 20 seconds). Wear a mask if you must be near people who have a respiratory illness. Wipe frequently touched surfaces regularly, using a good disinfectant. It will also help if we become more meticulous about throwing our cups, cans, bottles and diapers into the trash. If we will do these things and are otherwise courteous and careful, most of us can return to most of the things we used to do. This virus will be with us forever. I see only two ways for the most vulnerable of our citizens to return to seeing their grandchildren etc. One way is to have widespread and readily available antibody testing. In that case we could see which of the vulnerable population has immunity to COVID-19, and they could go out without fear. For the vulnerable who have no immunity, we could test everyone who desired to visit them, and only allow visits from people who are immune to COVID-19, as they could not have an active infection. The other alternative is herd immunity, preferably through immunization with a vaccine.

We entered a new phase of the pandemic

May 7, 2020

We have entered a new phase of this pandemic. Beginning May 1, the Governor of Texas loosened the restrictions that have been in place to prevent the spread of SARS COV2, the virus causing the disease known as COVID-19. However, we in Runnels County entered an important and entirely different new phase of this pandemic on April 30. On that day we had the third case of the disease in our county. The first case was a man who travels regularly, and he is convinced that he contracted the disease outside of the county. He was tested on April 20, and his wife tested positive a few days later. These cases could be called, "travel related," and we do not believe that they have passed the disease on to others here, as they have had relatively little contact with anyone else in the county. The third case is an individual who lives in Winters and works in a convenience store there. They are not involved in food preparation, but they have had a large number of close contacts in the days prior to their positive test. They believe that they contracted the virus where they work, but have no clue as to who might have passed it to them. This is what is known as "community spread," meaning spread that is proceeding without any known exposures or risks such as travel. All three cases are doing well at the present time and have self-quarantined since receiving the diagnosis, but we all need to take note of the fact that we now have community spread in our county, and we need to behave differently. The three types of things that we can do are sanitation measures, such as hand washing and sanitizing surfaces, mitigation, such as coughing into your sleeve or wearing a mask, and social distancing, staying six feet or more apart when possible.

We also need to be aware of the costs and the benefits of the social distancing measures that have been recommended or mandated to slow the spread of COVID-19. Previous epidemics and pandemics have always had economic costs, and those costs were mostly due to the people who died from these diseases. This time we have avoided a big jump in the number of deaths. The deaths due to automobile accidents appears to be down, for instance, and many of the COVID deaths are in people who would likely have died soon in any case. We have, however, had great costs associated with the social distancing measures we have undertaken to "flatten the curve." Going forward, as we begin to open up in places where this disease is spreading in the community, we all need to know how to interact safely and what to expect of a person who has COVID. Also, we all need to know what to do if we are exposed to someone who either has the disease or may have the disease. Let me first address the people who have a positive test for the disease. They need to self-isolate, starting from the time they suspect they have the disease. They need to remain in isolation until at least 10 days after their first symptom AND at least 3 days (72 hours) after their last fever (they cannot be taking any drugs such as Tylenol or ibuprofen or aspirin, that could mask a fever, during any of that 72 hours).

Before the year is out, a lot of us are going to have an experience such as this: A person with whom you were in contact has tested positive for COVID. So, what does that mean for you? What does it mean for the people with whom you have had contact afterwards? The CDC says that anyone who has been in close contact with a laboratory proven case of COVID should self-isolate for 14 days. What is close contact? I have only found that definition in the guidance for healthcare workers, but the definition there is, "within 6 feet of the person for 2 minutes or more, if they are not wearing a mask, or 10 minutes or more if they are wearing a mask." This highlights two important things about a mask. First, it is based on the understanding that a mask is not for the protection of the one wearing the mask, it is for the protection of those around them. (Respirators, such as N95 masks are different, in that respect.)

Second, it shows the practical benefit of wearing a mask. If you were in contact with a positive case, you should self-isolate. You should also look back to see when was the earliest time that you might have had contact with that positive case, while they were infectious. From that earliest time, count forward 48 hours, and that is the time that you -- if you contracted the disease -- could have begun to infect others. If you never wore a mask, everyone who was within 6 feet of you for 2 minutes after that time would be advised to self-isolate. However, if you always wore a mask, the number of people that you would have to advise to self-isolate would be fewer, because only those people who were within 6 feet for 10 minutes would be advised to self-isolate. In this hypothetical case of exposure, self-quarantine should last until 14 days after your last contact with the positive case, assuming you did not show symptoms.

So, if everyone wore masks in public for the next few months, not only would the number of new cases be fewer, the number of people that would have to self-quarantine would be greatly reduced as well. Time will tell, but I expect to see the number of infections will form a long and fairly flat curve that stretches for months. The information and advice given above is based on the CDC and Texas DSHS guidance as I understand it at the beginning of May. To a certain extent this guidance is probabilistic, rather than absolute, and a compromise between total safety and what is practical. My advice is to always be extra careful, and get used to it.

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Local Health Authority of Runnels County

Vaccinations for COVID-19 have begun. Even if we have not had any in this county, it won't be long before we do. This represents the most significant victory yet in the war fought on multiple fronts against this disease. I am reminded of the words of Winston Churchill after the victory at El Alamein in 1942. This was the Allies first major victory against the Nazis, and it was undeniably some sort of a turning point, but the great leader wisely said, "This is not the end, this is not even the beginning of the end, this is just perhaps the end of the beginning." So it was, and so it is now. Then as now, fierce fighting on multiple fronts lay ahead, as well as many – too many – tragic deaths. We are at this moment in the thick of our battle with the virus from China, but we have learned so very much. I want to share with you some facts regarding where we stand and where we are headed, then suggest some things that we should do individually and collectively. Finally, I will give some reasons why these are the things that we should do.

The first and perhaps most important thing that we have learned is that the organizations and institutions we have relied upon for many years are useful, but we must remain skeptical and we must seek truth independently. When this virus first became known by the leaders in the World Health Organization (WHO) they misunderstood or misrepresented it to a tragic degree. When it had spread to multiple parts of the world and people were beginning to die in large proportions, WHO's advice on treatment was that treatment should be "supportive" but under no circumstances should any patient be given corticosteroids in any form or in any dose. We now know that the single most valuable and well documented treatment is corticosteroids. They are lifesaving in many cases and should be used in any COVID illness that requires supplemental oxygen. We have learned a lot of other things about treating patients in the hospital, and are beginning to have more and more treatment options available for earlier treatment of patients. The WHO has done much to confuse the issue in other ways, including using multiple names for the condition in the early days, and then settling on the magnificently opaque name of CoVID-19 (for Coronavirus Disease of 2019). To further confuse this issue, they insist that the name of the virus be completely unrelated to the name of the disease, adopting SARS-2 (Severe Acute Respiratory Syndrome 2) as the official name of the virus.

We also have learned that school-aged children are exceedingly unlikely to be badly affected by the disease, and when they have it they are unlikely to pass it on to their teachers. The Journal Pediatrics is publishing a study based on more than 57 thousand child-care workers who were compared with similar controls, showing that the child-care workers were no more likely to get COVID than were the comparators. These workers worked with children, more than half under 6 y/o during the pandemic, and there was no association between COVID and working with children (odds ratio, 1.06; 95% Confidence Interval [CI], 0.82 to 1.38; P = 0.66).

<https://pediatrics.aappublications.org/content/pediatrics/early/2020/10/16/peds.2020-031971.full.pdf>

Other studies, using a case identification and tracing strategy have found that teachers who became infected with COVID were exposed outside of school, and it is my understanding that (as of 2 weeks ago) there had not been a single proven case of transmission from a child to a teacher. From a public policy standpoint we have learned that – if the goal is to not overwhelm the healthcare system – the best metric to use is not the number of cases of COVID in a region, but rather the percentage of available hospital resources that are required to treat COVID. The threshold of 15% of available hospital beds in a region, or Trauma Service Area (TSA), has come to be a pretty good standard to judge the danger of the system being overwhelmed. We are in TSA K, or Region K, which exceeded the 15% threshold on the 5 consecutive days from Nov. 28 through Dec. 2. These days were the only times that we had trouble transferring critically ill patients to San Angelo. I know this personally. You can find the information on COVID beds as a percent of total hospital beds by going to the DSHS coronavirus dashboard and clicking on COVID-19 Test and Hospital Data, at the bottom right side of the page and then looking under the tab marked Hospitals -Regional.

We have multiple different tests now, and the test for active disease are either molecular (usually PCR) or antigen tests. The Antigen test is rapid and is a good test for anyone who has active symptoms. There are molecular tests that are rapid, and I believe that these are almost as good as the tests that are sent to a reference laboratory. Also, we know that someone who is exposed, and who does develop the disease, will become infectious; and if they are tested the tests will start to show positive at about the same time. This is usually about 48 hours prior to the start of symptoms, and about 3 to 7 days after they were exposed. Most commonly people will develop symptoms about 5 days after exposure if they do contract the disease, but in rare cases they may not show symptoms for as long as 14 days after exposure. Understanding this, the CDC said that persons who have been exposed and are under suspicion of having contracted COVID must quarantine for 14 days from the day of last exposure. They must take their temperature twice daily, monitor their symptoms, and record this information until the end of the 14 days, then they can be released if they have had no fever or symptoms. This guidance has caused great consternation, because a family member who cannot isolate from a spouse or child or parent with the disease may be stuck at home for 24 days, and must wait 14 days beyond the release of the person who we know had the disease! Because there is increasing experience and understanding of both the disease and the costs associated with quarantine, the CDC has given local health authorities the discretion to allow shorter quarantine periods, and also to allow testing to play a role in release from quarantine. (<https://www.cdc.gov/coronavirus/2019-ncov/more/scientific-brief-options-to-reduce-quarantine.html>) According to the best evidence, if a large group of people are exposed to COVID, and a thousand people actually get the disease, only one of that thousand will be released while still infectious if they follow the 14 day guideline. One chance in a thousand is definition of “sure beyond reasonable doubt”, and that is the legal standard by which people are convicted in a court of law. Alternatively, the CDC has said that quarantine may be shortened to 10 days of the same process (taking temperature and monitoring symptoms), or 7 days, if the person has a test (antigen or molecular) within 48 hours of release. Following

this protocol and the same line of reasoning, it is anticipated 50 of 1000 people would be released while still infectious (versus 1 out of 1000 using the 14 day protocol). This seems to me to be a more reasonable balance of harms and benefits, in most – but certainly not all cases. To be clear, a responsible judgement must be made before using the shortened quarantine period, and I am trusting people to act responsibly.

While the most important number to guide public policy is the percentage of hospital beds filled with COVID patients, the number of cases and the number of deaths are also important, and recently the Wallstreet Journal published a map showing new cases, total cases and total deaths by state and by county, for the entire country. These really make clear that there is little correlation between the closing of businesses or schools and the number of cases and deaths. Similarly, the deaths in nearby counties seems uncorrelated until we take into account the characteristics of the population. When we begin to do that, we see that the numbers make much more sense.

County	Cases	by pop.	Deaths	by pop.	Death by75+
Runnels	452	1 in 23	13	1 in 787	1 in 77
Tom Green	10451	1 in 11	148	1 in 806	1 in 51
Taylor	4097	1 in 34	143	1 in 962	1 in 60
Concho	129	1 in 21	3	1 in 909	1 in 97
Coke	196	1 in 17	9	1 in 376	1 in 41
Coleman	201	1 in 41	10	1 in 820	1 in 84
Nolan	923	1 in 16	12	1 in 1220	1 in 52
Texas	1.389M	1 in 21	24143	1 in 1205	1 in 51

Note: These figures are true for these populations at a given point of time in the recent past, but they should not be taken to mean that any individual has this chance of dying from COVID 19.

Regarding the things we should do. First and foremost, do these things that we know work:

1. Wash hands frequently and avoid touching face or food with unwashed hands.
2. Use alcohol based sanitizer as a substitute, when handwashing is not practical.
3. Keep a distance of 6 feet in social situations that allow for this.
4. Use at least a double layer mask over mouth and nose in social situations that do not permit a six-foot distance from others.
5. Stay home if you are sick, or if you have had a significant exposure to COVID.
6. Get a flu shot as soon as possible, and get the COVID vaccine when you are able.

We know that these things work, and we know this from multiple lines of evidence. The first reason I will give is the most compelling, because it is based on what each of us knows and can see for ourselves. Have you had the flu this year? Have you even known anyone who has had the flu this year? The fact is that we have not had a single case of influenza reported in Runnels County this season. That's remarkable! It's unheard of to not have any influenza come through either hospital or any medical office in the county by Thanksgiving. Influenza activity is minimal or nonexistent throughout the state*. How can you explain that, other than by the fact that people are following – however imperfectly – the simple steps listed above. The second line of evidence is that of reason and logic, or what is called biological plausibility. We know that the primary way that the SARS virus is transmitted is by droplets that come from an infected persons mouth and nose, that they are produced in greater quantity by singing and talking loudly and that most of these droplets are of a size that causes them to descend fairly rapidly after they are exhaled. This means that they land on the items near that person, and the residue can be picked up when hands touch these items. This leads to transmission of the illness if the hands then carry viral particles to a moist body surface, such as the eyes or mouth. Transmission can also result if your face is one of the nearby items on which the droplets fall. (This is the logical argument for items 1, 2, 3 and to some extent item 4 above.) We know absolutely that wearing a surgical mask greatly decreases the spread of germs from the mouth to others. There is a reason it is known as a surgical mask: long ago studies were performed, showing that the wearing of such masks by the surgical team decreased the surgical infection rate. These masks are always worn primarily to protect other people and not the wearer of the mask. (This is the main reason item 4 has biological plausibility.) To a certain extent the mask may help to protect a clean zone around the mouth and nose, by acting as a physical barrier to those flying droplets.

We know that only a small percentage of the people who actually have had COVID have been tested for it, and there are usually 4 to 8 additional people who are infected for every reported positive case. In some cases these people were totally asymptomatic, but in my experience there was actually some change in their health. Most commonly they think their allergies got suddenly worse for some reason; the second most common story is that “I thought it was just a cold.” If you have a cold or a fever, or increased drainage – until we get good coverage with the vaccine – please stay home. In regard to the flu shot, it is very hard to tell the difference in the symptoms of the flu and COVID, in most people. By getting the flu shot you will be doing another good thing to protect yourself, your family and your community. Please do this for the sake of all of us.

I will address vaccines and treatments in the next installment.

[*PHR 2-3 Week 48 Flu Report.pdf](#)

