2021

COVID Update, Variants and Vaccinations July 15, 2021

There are a number of elements of COVID-19 that are of great concern. First and foremost is that cases are again on the rise, in Texas and across this country; there is about 10% increase week over week for more than two weeks. Hospitalizations are also increasing. Previous to this we had seen a long period of declines in these numbers, then a plateau, and now a sustained increase over two to three weeks. This is a fact, and facts are stubborn things. We can't change population statistics, but we can understand and respond to them. Here is some context: Researchers recently monitored at a group of about 4000 healthcare workers and first-responders in Texas and elsewhere, from December 2020 through April 2021. The results were published in the New England Journal of Medicine and they showed that 172 of these people became sick with COVID during that period. Of these only 5 were fully vaccinated, 11 had received one of 2 shots and the other 156 people who got COVID were unvaccinated. Looking at these same data in another way the evidence showed that the full vaccination series results in about 91% protection and partial vaccination provided about 81% protection. Also, we know from other sources that almost all of the recent hospitalizations and deaths are in unvaccinated individuals.

There is concern about the vaccinations themselves. There are two main types of vaccines for COVID-19. The first shots that were available were from Pfizer and then a little later the Moderna vaccine became available. These are both known as mRNA vaccines, because they consist of an entirely new type of vaccine that uses messenger RNA to directly instruct the body's own molecular machinery to construct proteins that eventually induce an immune response in the body. The other vaccine in this country is from the company Johnson & Johnson (J&J, also in collaboration with Jansen), and it uses a more familiar type of technology in which a modified virus is injected into the body to elicit an immune response. Astra-Zeneca is another company that has a similar vaccine which is used widely in other parts of the world, but not in the US. The best evidence indicates that there are risks associated with these vaccines, as there are for all vaccines and indeed for all medications. We know that the probability of developing a particular side effect depends on the age, sex, genetics and personal history of exposures and medications etc. There is, for example, a risk of a particular blood clotting disorder in women of reproductive age who get the J&J or Astra-Zeneca vaccine. They have a risk of about 1 in 10,000 of suffering this disorder, vs 1 to 2 in 100,000 risk of having the same thing happen without having the vaccine. This should be thought of in comparison to the virtual certainty of having a blood clotting disorder if you become very ill with COVID-19. Everyone who is hospitalized with COVID has some sort of blood clotting abnormality. The cause of death is often related to abnormal blood clotting. With the mRNA vaccines there appears to be an association with inflammation of the heart muscle (myocarditis) in young men and boys after vaccination with one of these vaccines. However, myocarditis is much more common and severe in COVID in this same population. What it comes down to is that any side effects seen with the vaccines are also seen in COVID-19, and they are at least as common in the disease as they are after vaccination, plus you have all of the other bad things that COVID causes besides!

There is also great worry about the variants. The original virus is sometimes called Wuhan-1. That is the variant that caused so much death in Italy and New York. Before we had very many local cases, that variant had been outcompeted by another variant known as D614G. These two types are often lumped together and called original or "wild type." The D614G variant spread faster (was more transmissible), but did not cause worse disease. That variant was soon replaced in the United Kingdom by another variant know as B.1.1.7, or "alpha.*" The alpha variant is about twice as transmissible and also caused

disease that was about twice as likely to result in hospitalization and almost twice as likely to result in death. That became the predominant strain here, until very recently when the delta variant became predominant. Delta spreads 2-4 times as fast as the wild type and is at least twice as likely to result in serious illness, hospitalization or death. Research shows, however, that the treatments and vaccines work about as well in the alpha and delta variants as in the wild types. There are two other types that are of potentially greater concern. In South Africa a variant known as beta (aka B.1.351) made headlines when the vaccines provided only 50-70% protection against it, instead of 70-100% protection for other types tested. There is also another variant that appears to have originated in Brazil which has a similar ability to evade vaccines. This one is known as gamma (aka B.1.1.28.1 or P.1), and in the last month it is responsible for most of the 1.85 million new cases and 50,800 deaths in Brazil. For comparison, India had 1.5 million new cases and 45,000 deaths in the same period. India has 6 times Brazil's 214 million people.

The best news in regard to variants is this: Even though vaccines offer only 50-70% reduced chance of illness with beta and gamma variants, the vaccines still offer almost 100% protection against severe disease and death due to these variants. The best news about vaccines is that everyone who needs one – that is everyone 12 y/o and up – can get one. In Ballinger call the Ballinger Memorial Hospital Clinic at (325) 365-5737, and you have your choice of any of the three shots for which you are eligible. Similarly, in Winters, call the North Runnels Hospital Clinic at (325) 754-1317. Supplies may be limited.

* Since the power structure has decided that it is not politically correct to name a virus or variant according to the place it originated, it has been decreed that the UK variant is to be called alpha, the South Africa variant is beta, the Brazil variant is gamma, the variant from India is delta and the Peru variant is lambda.

What We Need To Do To Live With COVID, An Update July 29, 2021

We have learned a lot about COVID over the last 18 months, and the truth is that most of us would prefer to forget all about it! But we can't afford to. That being the case, I have put together a short summation of the best and most pertinent information for easy reference.

First, COVID is an RNA type of virus that mutates moderately fast, and new mutations will replace older varieties if the new ones are better able to reproduce themselves. Consequently, we are facing a new wave caused by the delta variant, because it is more transmissible. Last year we had disease due to COVID-19 but no influenza in our community, because we were doing things to reduce the transmission of respiratory viruses, and COVID was 2-4 times as transmissible as the viruses that cause flu. Because flu, COVID and virtually all respiratory viruses are spread by droplets, a mask worn by someone who is shedding virus is useful. Also, virus particles that land on surfaces can be picked up on the hands and carried to a mucosal surface and the person can then be infected. Therefore, it is important to wash or disinfect hands before touching ones eyes, mouth, nose or food/drink. What we were doing was completely effective at stopping flu, but not COVID. The delta variant is 2-4 times as transmissible as last year's COVID, and it is more likely to cause severe disease in the unvaccinated. Therefore, we are seeing a more rapid rise in case counts than at any time in the past. According to information recently provided by Texas DSHS (on July 20, 2021), Texas had an 82% increase in cases in the prior week and a 180% increase over the prior two weeks. There was a 40 % increase in hospitalizations and a 26% increase in deaths due to COVID over the preceding week.

Second, having the disease of COVID or getting one of the vaccines for COVID results in relatively good immunity in most people. At one time we were afraid that people who got COVID a second time might have a worse course, but that does not appear to be the case. The evidence indicates that COVID vaccines usually result in higher levels of antibodies than does infection, but having the infection probably causes the body to have other protective responses in addition to antibodies. It is also important to distinguish between a positive test and having the disease. The usual method of identifying COVID is by a molecular test that uses a very sensitive methodology of Polymerase Chain Reaction (PCR), and for that reason it lacks the capacity to distinguish between virus that is intact and functional versus virus that has been killed by drying or other means. That means a positive PCR test is significant in certain settings, but not in others. There are other testing methodologies, but proper interpretation of a positive or negative test result requires context and other information. A PCR test in someone who has recovered from COVID in the last 90 days is not useful for two reasons. The protection against COVID infection appears to be excellent in almost everyone for at least 90 days, and also it is known that people can shed viral particles for up to 90 days, without being infectious. Immunity is probably the only reliable way of limiting the spread of disease, because delta is so much more transmissible.

Third, we have learned more about spread:

- All of the COVID vaccines are highly effective at preventing the spread of COVID.
- The most common way that COVID spreads is through close contact between unvaccinated individuals. **The definition of close contact** is any intimate contact or being in close proximity

(within 6 feet) without proper Personal Protective Equipment (PPE) for a total of 15 minutes over a 24 hour period.*

- We can limit spread of COVID through quarantine and isolation.
- **Isolation refers to** people known to have the disease, and it is recommended that these people stay at home, limit close contact with other people and keep a temperature log of twice daily temperatures (morning and evening). This isolation may be ended in 10 days after the onset of symptoms, if they have had no fever for 24 hours and are not using any medications that would block a fever, such as Tylenol or ibuprofen.
- Because we are in a pandemic, people who develop fever, loss of taste or smell, runny nose or other nasal symptoms are considered to have COVID until proven otherwise, and must be medically evaluated or else isolate just as if they had been diagnosed with COVID, as outlined above.
- Someone who gets sick with **COVID is most contagious on the day symptoms begin**, and they have been capable of passing on the virus for the prior 48 hours. This is the pre-symptomatic period. They remain capable of transmitting the virus for up to a week, but rarely more than that. For good measure, the CDC has chosen 2 days before and 10 days after onset of symptoms as the beginning and end of the infectious period, for individuals who were previously healthy.
- **Quarantine refers to** an individual who has close contact with someone during the 12 day infectious period, as defined above.
- Except in certain circumstances, people who have been in close contact with someone who has COVID-19 should quarantine. However, the following people with recent exposure may NOT need to quarantine:
    - People who have been fully vaccinated (see **fully vaccinated, below)**
    - People who were previously diagnosed with COVID-19 within the last three months
- The CDC says, "Local public health authorities determine and establish the quarantine options for their jurisdictions. CDC currently recommends a quarantine period of 14 days. However, based on local circumstances and resources, the following options to shorten quarantine are acceptable alternatives."
    1. Quarantine can end after Day 10 without testing and if no symptoms have been reported during daily monitoring. With this strategy, residual post-quarantine transmission risk is estimated to be about 1% with an upper limit of about 10%.
    2. When diagnostic testing resources are… available… quarantine can end after Day 7 if a diagnostic specimen tests negative and if no symptoms were reported during daily monitoring. The specimen may be collected and tested within 48 hours before the time of planned quarantine discontinuation (e.g., in anticipation of testing delays), but quarantine cannot be discontinued earlier than after Day 7. With this strategy, the residual post-quarantine transmission risk is estimated to be about 5% with an upper limit of about 12%.
- As the Health Authority for Runnels County, Dr. Bradly Bundrant MD, MPH affirms that the alternatives 1 and 2 above may be used in this County. Therefore, an exposed individual may obtain a test as early as day 5, and they may end quarantine at the end of the 7th day following their last close contact, provided they keep a twice daily temperature log through day 14, and remain completely free of fever or symptoms of COVID.
- Many people who have COVID actually have symptoms, but they believe that their cough or runny nose are due to allergies or a cold. Although exact studies are lacking, a good estimate is

that 1/3 to ½ of spread is due to people who have symptoms, and the rest is due to people without symptoms.

- Because we are in a pandemic, people who develop fever, loss of taste or smell, runny nose or other nasal symptoms are considered to have COVID until proven otherwise, and must be medically evaluated or else isolate just as if they had been diagnosed with COVID, as outlined above. ALSO, anyone who has ANY symptoms of COVID should consider getting medical evaluation and, as a minimum, they should take their temperature twice daily, wear a mask and minimize close contact with others, until all symptoms have resolved.
- Spread by people without symptoms is due about equally to truly asymptomatic (those who will become infected but never have any symptoms) and pre-symptomatic (people who will go on to develop symptoms, and are able to spread the disease in the 48 hours prior to developing symptoms).
- Masks (cloth or surgical) worn by infected persons, reduce the spread of respiratory viruses, because masks deflect the stream of expired air, and in doing so they catch a large proportion of the respiratory droplets on which the viruses ride.
- Cloth or surgical masks are less effective at keeping out droplets that are suspended in the air, as these droplets can still be inhaled if most of the air comes around the sides/top/bottom of the mask.
- A fresh, properly worn N-95 filters 100% of the inspired air, and therefore is quite good at stopping virtually all respiratory droplets. The CDC no longer advises re-use of N-95 masks.
- Children less than 12 y/o are unlikely to spread the virus to adults and are also very unlikely to be very sick with COVID. For that reason, I do not believe that the expected benefit is worth whatever risk is associated with the vaccine.
- It is debatable whether the benefits of masks exceed the harms, in children under 12 y/o.

Finally, there are medications to prevent and treat COVID, including the variants. We know that the vaccines are almost as effective against the delta variant as against the original type. The Johnson and Johnson vaccine was originally about 70% effective, it is about 67% effective against the delta variant. The Moderna vaccine was about 94% effective and it is about 94% effective against delta. The Pfizer vaccine was about 96% effective and it's about 88% effective against the delta variety. All of the vaccines are more than 90-95% effective at preventing death d/t COVID of all known types. All vaccines have some failure rate, and they are all more likely to fail in people who have a suppressed immune system, including those who have had organ transplants, are on chemotherapy, are getting biologic treatments for arthritis or are taking corticosteroids such as prednisone. It takes two weeks for the body to mount an effective antibody response, therefore a person is considered **fully vaccinated** two weeks after they received the Johnson and Johnson shot or two weeks after the final shot of the series for the other two vaccines. The best news about vaccines is that everyone who needs one – that is everyone 12 y/o and up – can get one. In Ballinger call the Ballinger Memorial Hospital Clinic at (325) 365-5737, and you have your choice of any of the three shots for which you are eligible. Similarly, in Winters, call the North Runnels Hospital Clinic at (325) 754-1317. Supplies may be limited. All of the treatments that we have, including Regeneron and ivermectin, are equally appropriate in individuals who are sick with COVID, whether they have previously been vaccinated or previously had COVID. It is of interest to note that a new oral agent, molnupiravir, is under consideration by the Food and Drug Administration or Emergency Use Authorization (EUA), and if molnupiravir receives this EUA Merck will receive approximately $1.2 billion to supply approximately 1.7 million courses of molnupiravir to the United States government.

However, molnupiravir would not be eligible to get an EUA if ivermectin or any other oral agent were to be recognized as effective treatment for COVID-19.

Remember, call the Clinics above if you think that you want vaccination or if you need to be evaluated or treated. Call 911 if you are having trouble breathing.

Please stay safe, and do all that you can to keep well and help others do the same.

* Exception: In the K–12 indoor classroom setting, the close contact definition excludes students who were within 3 to 6 feet of an infected student (laboratory-confirmed or a clinically compatible illness) where

- both students were engaged in consistent and correct use of well-fitting masks; and
- other K–12 school prevention strategies (such as universal and correct mask use, physical distancing, increased ventilation) were in place in the K–12 school setting.

https://www.cdc.gov/coronavirus/2019-ncov/php/contact-tracing/contact-tracing-plan Appendix

Not a Pandemic of the Unvaccinated December 9, 2021

COVID is not the flu, and it is not Ebola. These simple facts explain much of confusion about our government's response to the pandemic. The 'superpower' which this virus has is that it is often highly contagious in people who have no significant symptoms. Even in people who do get symptoms, they are most contagious at the time symptoms start, and for 24 hours prior to and following the onset of symptoms. That is very different from the flu. Almost all of the admonitions issued by our government would be very practical if this were a flu pandemic, because flu symptoms typically mount quickly and include fever by the time the flu victim is very contagious. When a person feels bad and has a fever, wearing a mask and staying away from other people makes sense. Likewise, it is common sense for the people around the victim to be fastidious about hand washing and other hygiene measures. It is not common sense to live perpetually in that state, unless we are in the midst of an epidemic of an Ebola-like disease that spreads very easily and has a very high mortality. (About 50% or more of Ebola patients die, regardless of age or previous health status). It is easy to fall into the trap of thinking that COVID is like the flu. I remember many times when I told people that after they were fully vaccinated they could be around their 80 year-old relatives without worry or special precautions. I was especially encouraged after the initial reports showed that the mRNA vaccines were 94-95% effective in preventing COVID, and the Moderna vaccine was 100% effective in preventing severe COVID in the trials. I have been disappointed that my experience has taught me differently. Although the vaccines certainly do help to reduce the chance of symptomatic disease, it seems to be less than a 90% reduction. The reduction in severe disease seems to be closer to 90% than to 100%. Vaccination for COVID appears to make it more likely that the person will be completely asymptomatic, if they become infected. However, we know that they will shed just as much virus, but for a slightly shorter period of time. A recent article in the journal *Lancet* (November 20, 2021), titled "COVID-19: stigmatizing the unvaccinated is not justified," makes some of these same points. Stigmatization of the unvaccinated might be justified if COVID behaved like the flu; it doesn't, and to continue to act as if it does is dangerous as well as idiotic.

The vaccines worked better at first, and we are being told that the reason for diminished effectiveness is that the concentration of antibodies declines over time. That is part of the truth. A little-known fact is that the antibody level that is required for prevention of the now predominant Delta variant is 8 to 20 times higher than that required to prevent disease caused by the variants which were predominant previously. (Petra Mlcochova, "Delta variant emergence, replication and sensitivity to neutralizing antibodies" in *bioRxiv*. 2021) That is exactly what we would expect from a viral pathogen. Evolution of these viruses will always favor lineages that spread more easily and evade host defenses, whether natural or pharmaceutical. The reason typically given for the complete dominance of the Delta variant is that it spreads more easily, because to admit that COVID is changing to evade our vaccines would be politically incorrect, or perhaps even ideologically suspect. Well, that's okay, because Delta may very soon be supplanted by a new variant called Omicron. I have been worried about some other variants, such as Beta (from South Africa) or Gamma (from Brazil) would gain a foot-hold in this country, but they have not. The reason they haven't is that Delta is so successful, and it has effectively excluded them from the gene pool. The reason I have been worried about Beta or Gamma is that they have a particular mutation known as E484K that makes them able to evade most of our approved drugs and vaccines, but they lack the mutations that make Delta so highly contagious. Omicron has dozens of different mutations, in a pattern that has not ever been seen before. Omicron is different, and its differences

point up yet another important piece of misinformation. We are told, “Every time COVID is passed from one person to another, there is a chance for mutation.” That is another incorrect and frankly dangerous misunderstanding or falsehood. Almost certainly the collection of mutations seen in Omicron were the result of a long lasting COVID infection within one person. Very likely this was someone who had some type of immunosuppression, such as HIV, and took one or more COVID vaccines or treatments (possibly convalescent plasma). Each one of these acted as an evolutionary pressure, thinning the viral population so that the only virus remaining after each treatment/vaccine were immune to that vaccine or therapy. Omicron has several mutations that are typical of rapidly spreading variants, and it has a mutation that has not been seen previously in the wild: E484A. We know that E484K in the Beta variant results in substantial or complete evasion of all of our current vaccines, and may cause diminished effectiveness of our most commonly used monoclonal antibody therapies (produced by Regeneron and Eli Lily). In the March 10, 2021 edition of the journal Cell Host & Microbe, Zhuoming Liu *et. al* describe their efforts to predict and verify which potential mutations could be problematic; they indicate that E484A would likely cause diminished effectiveness of natural immunity. It would likely be otherwise equivalent to the E484K substitution.

It is worth noting that the spike protein on the surface of the viral particle which is responsible for COVID is the location of not only E484, but of all of the targets for the first generation of approved COVID therapeutics. There are a few different ‘hand holds’ where antibodies can ‘grab on’. Natural immunity utilizes several other sites for antibodies to grab, and natural immunity also utilizes cellular immunity that doesn’t require a hand hold. The repurposed drugs that have been found to be useful in COVID include inhaled budesonide and the antidepressants fluvoxamine and fluoxetine (Prozac). There is also evidence that hydroxychloroquine as well as ivermectin, colchicine and some antibiotics have some effectiveness, in addition to zinc and melatonin and vitamins C and D. All of these substances, as well as the new drugs discussed below, are likely to have maintained therapeutic benefit against Omicron.

We are very fortunate to just be getting new therapeutics to which Omicron has not been exposed. Sotrovimab is one such drug. The ending “mab” tells you that this is a monoclonal antibody, and thus it must be given IV. It is made by Glaxo-Smith Kline and is given as a one-time dose to those with COVID and at least one risk factor. It should be given as soon as possible and never after the 10^{th} day of infection. Instead of attacking a portion of the rapidly mutating spike region of the virus, sotrovimab attacks the evolutionarily conserved envelope of the virus. Merck and Ridgeback Biotherapeutics have applied to the FDA for Emergency Use Authorization (EUA) for their oral antiviral drug molnupiravir for treatment of COVID-19. The application is to be discussed at the FDA's Antimicrobial Drugs Advisory Committee meeting on Nov. 30, 2021. The drug is an antiviral that has been under investigation for years, and works by introducing copying errors during the viral RNA replication process. In the trial it reduced the risk of hospitalization by approximately 50% (7.3% vs 14.1% with placebo). There were no deaths in the molnupiravir group compared to 8 deaths in the equally large placebo group. The dose is 4 pills (200mg each) twice daily for 5 days. Paxlovid is a new drug combination that has been developed by Pfizer, consisting of a new drug (PF-07321332) and ritonavir, currently used in HIV treatment. The company has asked for an EUA, “as soon as possible.” Paxlovid is given twice a day, 300mg (two 150mg tablets) of PF-07321332 with one 100mg tablet of ritonavir, and was found to reduce the risk of hospitalization by 89% compared to placebo. There were no deaths reported in patients who received the drug, as compared to 10 deaths in the same number of similar patients who received

placebo. Like molnupiravir, Paxlovid inhibits a step in the replication process, but at a later stage, preventing the necessary cleavage of proteins after they are produced under the direction of viral RNA.

Masks still work, and so does staying entirely away from other people, but I think that we have all begun to understand that “every form of refuge has it’s price.” Fortunately, there are some really good masks available now. My favorite is the BYD CARE N-95 respirator, available from Amazon in a pack of 20 for $19.95. I advise this: Have one mask for each day of the week; at the end of the day put the mask in a paper bag, and set it aside for a week. If they don’t let them get soiled, you can safely use these 7 for 2 months. The virus will not be viable after 7 days, as long as the mask remains clean and dry. If you get COVID or the masks become wet or soiled, throw them away.

A Time to Celebrate December 23, 2021

It is a time to celebrate, and I bring glad tidings. This is a wonderful time of the year, and there are so many decent people who work hard every day to make good things happen. I want to tell you about some of these.

Ballinger, Runnels County and the surrounding area are becoming healthier by reversing the trends that had threatened the centuries-long trend in increasing life expectancy. For many hundreds of years, on a global basis, and for all of the history of this great country, life expectancy has been increasing. This has been too often attributed to better medicines or better governance, and it is neither of these. Instead, it is the result of increasing individual freedom and economic self-determination compounding benefits of free association for collective community action (See "The Two Revolutions of 1776" at www.hawc4rc.org). Of course, medicine played a role within that, but the main way that government played a positive role is through the gradual development of ways in which governments can be made to constrain themselves and by which power has been decentralized. The Magna Carta and the glorious revolution of 1688 in England, then the Declaration of Independence, the American Revolution and the penning of our hallowed Constitution are some of the milestones of this transformation. These events were local, but had global consequences on people and governance. It is not by happenstance that the recent decline in life expectancy follows many decades in which economic and political power have become increasingly concentrated, individuals increasingly dependent and communities increasingly fragmented. Even before COVID struck, life expectancy in this country had been declining for three years, with the top three drivers being drug overdoses, liver disease (driven by alcohol abuse and obesity) and suicide. None of these stems from a lack of medical care, and evidence shows that they are best addressed by interventions that focus on community/fellowship, individual accountability and reliance on a higher power. One of the things that has become abundantly clear from our experience with COVID is that seemingly minor differences in health can lead to vast differences in length and quality of life. Health inequities, including food insecurity, Adverse Childhood Experiences (ACEs) and whether one has a family or a trusted community on which to rely in times of trouble are probably the most fundamental determinants of health.

The great fact is that small groups of committed individuals have been coming together to do wonderful things. Ballinger Cares is a new organization that began to organize about a year ago. They received their 501c3 nonprofit status earlier this year, and on December 16 this year they received a grant from the San Angelo Health Foundation which will allow them to purchase a building. They are in negotiations to purchase the National Guard armory in Ballinger. Currently they have a collection and resale center for clothing and home goods in the old Senior Center at 627 Strong Ave. It is open for collection and sales, Monday thru Friday 9-12 and upon request. They also distribute food once a month in the new community center. For more information call Carla Campbell @ 325-365-6049 or email carla102@msn.com . The mailing address is P. O. Box 802, Ballinger, TX 76821

The Health and Wellness Coalition for Runnels County (aka HAWC or HAWC4RC) also received their 501c3 nonprofit status recently, and will be one of the organizations which will have an office in the Ballinger Cares building. HAWC is already working in multiple ways to directly address the drivers of health and disease. As has been noted, community is central to thriving, and HAWC participated in the

Christmas in Olde Ballinger festivities by hosting Santa Clause for pictures with the kids at Bearcat Nutrition after the parade. The plan is to make this an annual event, as a wonderful time was had by all. You can see pictures on the Facebook page (Health And Wellness Coalition For Runnels County) and obtain health information or learn about programs and events at www.hawc4rc.org. Full disclosure – I have been heavily involved with HAWC, and you can find my previous articles on the website as well.

The House of Healing in Abilene is a new ministry which has recently been begun by a number of churches in Abilene in order to provide food and lodging for persons or families from the surrounding area who need temporarily to live close to Hendrick hospital, either because they have a family member who is in the hospital, or they need daily outpatient services there. These churches are working with local churches in each of the surrounding counties to build 20 small houses, each of which is, "designated and primarily purposed for one of the surrounding counties." Each house costs $55K to build, is 392 sq. ft. and has an area for parking, a queen-size bed, TV, kitchen and washer/dryer in addition to the usual amenities of a hotel room. There is no charge for lodging, food or transportation, as each house will be 'adopted' by a church in Abilene, and that congregation will be responsible for providing these things for the people staying in that house. The ministry also has contracts with local hotels/motels to provide additional capacity, and they have already utilized these contracts to provide hundreds of nights of housing. Already the construction has begun on the house for Runnels County, and the pastor of God's Chapel in Ballinger, Joseph Buse, was present at the dedication on December 17 at which time he placed a bible for incorporation into the foundation, near the front door. God's Chapel has contributed $5,000, and it is hoped that 10 other churches will also contribute $5K each, or that the churches of Runnels County will cooperate in some meaningful way so as to provide for the initial construction. Runnels and the surrounding counties are not expected to provide for the maintenance or upkeep of their respective houses, as it is anticipated that other donations to the ministry, along with the support of churches in Abilene, will be sufficient to sustain the project. You may call Brian Massey for further information at (325) 660-7719.

There are a number of other positive developments in the county, more than I have space to tell, but I will close here with this. I do wish you all Happy Hanukkah, Merry Christmas and Happy New Year, and I urge you all to remember the reasons for the seasons. I know Christ as my Lord and Savior, and I remember that Judah Macabee and his followers were able to triumph over the secularism their time, and rededicate the Temple to worship of the Holy One of Israel. I pray that we can win a bloodless battle against the secularism of our time, and return to time-honored principles of faith and charity.

There is much good news in regard to COVID December 30, 2021

There are now federally authorized oral medications for the early treatment of COVID. The drug manufacturers Pfizer and Merck each have newly authorized drugs which interfere with the production and processing of proteins that make up the different parts of the virus. When a cell is infected with SARS CoV-2, the virus that causes COVID-19, the viral RNA instructs the cell's 'protein making machinery' (known as a ribosome) to go into action. In this process the RNA strand is read, and two viral protein molecules are produced. These are then cut into different pieces by viral enzymes called proteases, and the pieces assembled to make a new viral particle.

Paxlovid is the brand name of the Pfizer drug, and it is the first oral medication authorized by the FDA for treatment of COVID-19 since the EUA (Emergency Use Authorization) for hydroxychloroquine was revoked on June 15, 2020. Paxlovid was studied in a group of subjects equally divided into treatment and control groups. There were 10 COVID deaths in the control group, and none in the treatment group. There was also marked reduction in hospitalizations (almost 90% fewer), and there were no serious side effects. Paxlovid actually is a combination of two medications, nirmatrelvir (PF-07321332) and ritonavir (currently part of some regimens used to treat HIV). Paxlovid is authorized for use by persons who contract COVID and are at high risk for severe disease. These drugs are protease inhibitors that interfere with the cleavage of viral protein molecules and thus prevent the assembly of new viral particles. They are in separate tablets that are to be taken together twice daily for 5 days beginning as soon as possible after diagnosis of the disease. It is not to be prescribed to hospitalized patients, though patients taking the drug at the time of admission may continue with their course of treatment, and it is not to be used in patients under 12 years or 40 kg. (or 88 lbs.).

Molnupiravir is a drug which was being developed for seasonal flu, marketed by Merck, and it received an EUA for use in COVID one day following the EUA for Paxlovid. Molnupiravir is known as a nucleoside analog, which means that it works by creating a 'counterfeit RNA building block' for viral RNA which results in faulty transcription, thus interfering with the propagation of the virus. The evidence for effectiveness is not as compelling as for Paxlovid. Evidence is limited to one Phase III trial, and in that trail with roughly equal numbers in each group, the control group had 9 deaths and the molnupiravir group had one. The hospitalizations were 64 to 45 in favor of treatment and the clearance of virus from the nose was faster with treatment. There were no significant drug related side effects. Like Paxlovid, it is taken twice daily for 5 days and it is not to be prescribed for patients who are in the hospital, but patients how are on the drug may continue with their course if they require admission to the hospital. It is not to be used in anyone younger than 18. The FDA has advised that this drug should be used only if other authorized treatments are unavailable or contraindicated.

More good news is that we now have at-home antigen testing (although supplies are constrained at times). The first thing to know about antigen testing for COVID is that a positive test is solid evidence that the person can infect other people with COVID, whether that person feels sick or not. No test is 100.000% accurate, but when this test is positive that is proof beyond all reasonable doubt. A negative test, on the other hand, may be wrong 10 to 20% of the time. For that reason these tests come in sets of two, along with the instructions that a negative test should be repeated in 24 to 36 hours. One of the foundations of laboratory testing is that every test has a false negative rate, that is the test result will sometimes be negative when the condition or disease is actually present. However, if a second

independent test is also negative, the chance that both will be false negatives is the likelihood that the first test will be, multiplied by the likelihood that the second test is also a false negative. For illustration purposes we will say that the false negative rate is 15% or 0.15. (The test's sensitive is 85%.) By repeating the test 24 to 36 hours later, the two test results are independent and the likelihood of both being falsely negative is (0.15x0.15=0.0225) or a little more than 2%. That's the chance that someone who is infectious with COVID will test negative on two consecutive days, using an antigen test with 85% sensitivity, and that is deemed to be an acceptable risk of missing a case of COVID in the general population. Using these tests there are some circumstances in which people can return to work more quickly after recovering from COVID. Right now this reduced isolation period is limited to health-care workers. They can return 7 days after the onset of symptoms or a positive test, if they have no fever or other symptoms, and they are negative by an antigen test. The CDC also says healthcare workers do not need to quarantine following high-risk exposures if they have received all recommended vaccinations, including a booster. Masking is required in healthcare settings, and that also limits the infectivity of anyone who might be asymptomatically carrying the virus when they return to work in these settings.

As to Omicron, this is the biggest change we have ever seen in COVID. Except for people whose immune system is hyper-aroused, due to recent infection or vaccination for example, everyone is about equally at risk of contracting this variant. Therefore, it is difficult to interpret reports that severe disease is less common with this variant. Suppose a population where 70% of the population has immunity from vaccination or prior disease, and would be safe from the alpha variant, is exposed to Omicron. If they all get the disease we would expect 70% to have milder disease because of their preexisting immunity. On the other hand, there is no reason to expect that Omicron causes worse disease. There is some evidence of decreased activity in lung tissue, and decreased intracellular activity could mean less inflammation and less severe disease.

Finally, I give you this hopeful prediction: This will be the last major wave of COVID.

After the winter of 2021-22 we will have cold, flu and COVID season. We already have strains of cold virus that can be very serious for certain groups, such as RSV (Respiratory Syncytial Virus) which can cause life threating pneumonia in infants but causes only a bad cold for most adults, and COVID will be similar.

This article is intended to provide general information only, and is not to be taken as medical advice. For advice about a particular case or situation, consult your own physician or other trusted health professional. Dr. Bundrant is the designated Health Authority for Runnels County, and the President of the Health and Wellness Coalition for Runnels County. You can follow the Coalition on Facebook or learn more about the Coalition and find more of Dr. Bundrant's articles on the web at www.hawc4rc.org.