TO VAX OR NOT TO VAX; THAT IS THE QUESTION
An Editorial

Much has been said in the previous Ethics 501 Newsletters concerning Covid, and as time passes new information becomes available resulting in more questions being asked. During the last month more studies have been published, more information has risen and these will be explored along with possible ethical problems.

One phrase that keeps surfacing is breakthrough infections. What is a breakthrough infection? Simply put it is a Covid infection, primarily Delta, which infects a vaccinated individual. One may ask how that can happen if the individual is vaccinated. As an August 26th New York Times article states; ***The vaccines were designed to prevent severe illness, not infection.*** The simple answer is vaccines are not 100% effective and can be measured two ways; efficacy against symptomatic disease and efficacy against hospitalization. Pfizer, the first vaccine to gain FDA approval has an 88% and 96% efficacy based on the criteria above. Moderna's efficacy is 90% and 95% with Johnson and Johnson coming in at 71% and 86%. These are based on reporting from Yale Medicine. It appears that Moderna is more effective that the other two against the Delta variant, and also the studies so far have shown Moderna has the highest efficacy six months out.

The last newsletter mentioned that a new variant, Lambda, has appeared. Now there is a third and fourth, Mu and C1.2 respectively. According to Business Insider and The Wall Street Journal, these are not as infectious as Delta. That is welcome news; any ray of hope is encouraging.

The following figures represent the percentage of **fully** vaccinated persons for the USA, by states within Regency 4 and for Canada and the province of Ontario as of September 16th:

USA – 55.0%
Canada – 69.2%
Indiana – 47.1%
Kentucky – 50.0%
Michigan – 51.2%
Ohio – 49.2%
West Virginia – 39.9%
Ontario – 68.1%

Congratulations go to Ontario. It should be noted that the USA had a fully ramped up vaccine delivery system before Canada, however Canada has been more compliant than the USA as the percentages show.

Let's get back to the question; to vax or not to vax. I had a conversation with a retired dentist who lives in a midwestern state 30 miles from a major metropolitan area. His dentist has now retired and the young dentist who now has the practice is an anti-vaxxer. The retired dentist then thought about going to his daughter's dentist, however that dentist is also an anti-vaxxer. What is keeping healthcare workers from getting the vaccination? After all, the phrase, "follow the science", is reverberated over and over. As dentists, we are part of the healthcare delivery

system, and we are scientists. What is the problem? Is it politics? Is it the fear of a reaction to the vaccine? Are natural antibodies better? Let's address each one of these.

Is it politics? – YES, but NO – It's a public health issue

Both sides have contributed to the state we are presently experiencing. As the vaccine was being developed by the previous administration, many on both sides publicly made it clear they would not take the vaccine as they felt the vaccine was rushed. Vaccine research actually began after the Spanish Flu in 1918 that saw an estimated 500 million worldwide infections with 25-50 million deaths. It should be noted that the mRNA technology was developed to combat the SARS virus which occurred in 2003. The SARS virus did not materialize as predicted due viral interference from the high rate of flu that season which competed with the SARS virus. However, and I repeat, the medical technology has been around since 2003 which is the reason that the Moderna and Pfizer vaccines were able to be introduced in December of 2020.

With the political divide that is present, both sides are entrenched and unwilling to budge. Jerry Jones, the owner of the Dallas Cowboys, said this on his weekly radio program, and I paraphrase:

> ***Everyone has a right to make their own decisions regarding their health and their body. I believe in that completely until your decisions as to yourself impact negatively many others. Then, the common good takes over. And I'm arm-waving here, but that has everything to do with the way I look at our team, the Cowboys, or the way I look at our society. We have got to check 'I' at the door and go forward with 'we.' Your Dallas Cowboys are doing that."***

Fortunately, this message has been made by leaders on both sides, however it is falling on deaf ears. The mantra I hear from these leaders is similar to Stuart Varney; "Take the Jab".

We now have a mandate for federal workers to take the vaccine and a mandate was issued last week which would require the vaccine for private businesses employing more than 100 workers to be enforced by OSHA. This will elicit a constitutional question concerning the federal government's right to impose such a mandate. I will leave that question to the constitutional scholars to answer and the courts to decide; as for me I am following the science.

Is it the fear of a reaction to the vaccine? – YES, for those who choose to not follow the science

Before any eyebrows are raised let me be clear that there are individuals who may have an autoimmune disease which will elicit a possible life-threatening response to the vaccine. They have every right to decline the vaccine. And, there are exemptions for certain religious reasons. These groups stand alone and are not part of the larger group that fear the vaccine.

The Public Health Insider, from Seattle and King County in Washington State, published the results of the risk for unvaccinated people compared to vaccinated people. Their Dashboard showed that unvaccinated people were:

> ***7 times more likely to test positive for COVID-19 than vaccinated people***
> ***49 times more likely to be hospitalized than vaccinated people***

32 times more likely to die from COVID-19 than vaccinated people.

A study published by the New England Journal of Medicine on August 25, 2021 showed the following concerns of the risks associated for unvaccinated people versus vaccinated people who received the Pfizer vaccine. The study included the records of more than 2.4 million vaccinated individuals and 240,000 people infected with SARS-CoV-2. The results were:

> ***The Pfizer COVID-19 vaccine was associated with increased risk for swelling of the lymph nodes (78.4 events per 100,000 individuals), shingles (15.8 events), appendicitis (5.0 events), and myocarditis (2.7 events).***
> ***The study also found that infection with SARS-CoV-2 was related to significantly more serious risks, including heart arrhythmia (166.1 events per 100,000 individuals), acute kidney injury (125.4 events), pulmonary embolism (61.7 events), deep-vein thrombosis (43.0 events), myocardial infarction (25.1 events), myocarditis (11.0 events), pericarditis (10.9 events), and intracranial hemorrhage (7.6 events).*** (Emphasis is mine)

The study in the New England Journal concludes with:

> ***We estimated that the BNT162b2 vaccine resulted in an increased incidence of a few adverse events over a 42-day follow-up period. Although most of these events were mild, some of them, such as myocarditis, could be potentially serious. However, our results indicate that SARS-CoV-2 infection is itself a very strong risk factor for myocarditis, and it also substantially increases the risk of multiple other serious adverse events. These findings help to shed light on the short- and medium-term risks of the vaccine and place them in clinical context. Further studies will be needed to estimate the potential of long-term adverse events.***

Are natural antibodies better? Yes, if you like to gamble.

If your experience is similar to mine you know of several healthy friends who contracted COVID prior to the vaccines being available who succumbed to the illness. If your feelings are similar to mine, you mourn the loss of a life cut short. Then, there are those who refused the vaccine and succumbed to the illness. Their lives are also mourned. Reports are numerous from non-vaccinated individuals surviving a life threatening Covid hospitalization that they wished they had taken the vaccine.

The science tells us that a survived Covid infection causes natural antibodies to be produced. The question is this; Is the risk in obtaining natural antibodies worth the chance of surviving a Covid infection even though the risk of death associated with Covid is perceived to be low in healthy individuals? The following study may add fuel to taking the risk.

A study out of Israel states:

> ***The natural immune protection that develops after a SARS-CoV-2 infection offers considerably more of a shield against the Delta variant of the pandemic coronavirus than two doses of the Pfizer-BioNTech vaccine, according to a large Israeli study.***

This led some scientists to say they wished the study contained a statement saying, “Do not try this at home.” An active elderly good friend of mine always said “I may wear out, but I will never rust out.” I remember Charles Swindoll replying to this statement saying, “Either way you’re out.” Why would you want gamble with increased odds of 32 to 1 of dying from COVID to build natural immunity or a 49 to 1 odd of being hospitalized?

The study goes on to say:

> ***…the immune systems of people who develop natural immunity to SARS-CoV-2 and then get vaccinated produce exceptionally broad and potent antibodies against the coronavirus. The preprint, for example, reported that people who were previously infected and then vaccinated with an mRNA vaccine had antibodies in their blood that neutralized the infectivity of another virus, harmless to humans, that was engineered to express a version of the coronavirus spike protein that contains 20 concerning mutations.***

And:

> ***In another analysis, the researchers compared more than 14,000 people who had a confirmed SARS-CoV-2 infection and were still unvaccinated with an equivalent number of previously infected people who received one dose of the Pfizer-BioNTech vaccine. The team found that the unvaccinated group was twice as likely to be reinfected as the singly vaccinated.***

It is clear that if a person has survived COVID and has developed natural antibodies, the science says to get at least one vaccination.

Many businesses have mandated vaccines and some, like Delta Airlines, have placed a caveat requiring the unvaccinated to obtain weekly COVID tests at their own expense, are requiring them to wear masks and limiting the areas they have access to. Earlier this week a group of 12 oral healthcare providers has asked that:

> ***… governmental executive, regulatory, and legislative entities to mandate that all oral health care workers, including oral health care students and residents, be vaccinated against COVID-19. The statement recognizes that a small minority of oral health care workers may not be able to be vaccinated due to medical contraindications.***

Of note in this group asking for a mandate is the American Dental Hygiene Association, the National Dental Association and the Hispanic Dental Association.

There have been several comments on the last newsletter and all centered around the insightful comment from Anwer Dean, a Fellow in the Ontario Section, who stated;

> ***Unless told otherwise most patient's reasonable expectation would be that staff are vaccinated in the healthcare setting. A patient not made aware of anything to the contrary, means informed consent to be treated was not given by the patient. In the***

event of an unfortunate case of transmission there could be a very dire civil liability for the office.

The retired dentist mentioned earlier said that Anwer's quote caused a light to turn on in realizing that patients assume that when they enter our offices that they will be completely safe. Remember the motto; Do no harm. This is reverberated throughout The Principles of Ethics and Code of Conduct.

To vax or not to vax; the answer is easy if you leave politics out of it and follow the science. It is imperative that you and I not only provide excellent oral care but also educate our patients concerning their oral and systemic issues of which vaccinations are a part.

The views expressed in this editorial are that of the author and is not meant to be a position by the American College of Dentistry.

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