



# NATIONAL VETERINARY LABORATORY

P.O. Box 239, 1Tice Road  
Franklin Lakes, NJ 07417  
877-NVL-LABS (877-685-5227)  
[www.natvetlab.com](http://www.natvetlab.com)

## NEWSLETTER

### COVID-19 “Ain’t” Over:

### Breakthrough Infections, Long COVID and Animals!©

Evelyn E. Zuckerman, Editor

Summer 2021

Vol. 20 Number 3

#### In This Issue:

The Summer 2021 NVL Newsletter will stress this turbulent time in the world, **COVID-19 AIN'T OVER!** Only a few months ago there seemed to be a light at the end of our pandemic tunnel. Presently we are faced with the Delta variant, younger adults and children developing COVID-19 and not a full FDA approval of the vaccines. Now there is conflict, even violent conflict, of Americans over their politics regarding many of the scientific facts regarding the COVID-19 pandemic. We have had an insurrection on January 6<sup>th</sup>, the generation of the Delta SARS-CoV-2 variant, the rise of antivaxxers in many countries, and the emerging Long COVID syndrome in about 40% of people who have recovered from symptomatic and non-symptomatic SARS-CoV-2/COVID-19 infection/disease. We are also in the midst of another surge in COVID-19 case numbers as summer comes to an end. In addition, a large number of animal species, including white-tailed deer, are susceptible to this virus which is problematic for them and for us as a possible source of more virulent mutant variants.



The reason I, Dr. Hardy, continue to write about the SARS-CoV-2/COVID-19 is that it is having such a continued effect on all people and many animal species in the world. I am trying to present the scientific facts, knowledge of the virus and disease, and to correct the willful misinformation that is continuing from social media and some politicians. During the past year I have written 4 Newsletters on the subject and received many compliments from our clients, and was even invited to present a UN webinar on pandemics. However recently, an irate message from a veterinarian asking me not to send this “propaganda” or their hospital would not use our laboratory any longer. His “propaganda” are my facts as I clearly reference all the topics I write about, and when I do give my opinion, I write that under a heading of “Commentary.” I guess one

unhappy client out of 9,194 is good odds, but for this crucial subject, it is one too many.

#### Introduction:

Let's open with a few memorable quotes from Mark Twain which may pertain to our current situation: “Get your facts first, then you can distort them as you please” and “A man who carries a cat by the tail learns something he can learn in no other way.” Both seem to have relevance now- the first about distorting facts applies to COVID-19 and the methods to control the pandemic as there are so many sources for blatant misinformation. The second quote, we veterinarians know full well what happens when you carry a cat by its tail- you get bitten and/or scratched. With the plethora of distorted information, there is a needless continuation of the pandemic resulting in more tragic deaths. To use another Twain insight- “It's not the size of the dog in the fight, it's the size of the fight in the dog.” We can take this to mean that we can defeat this pandemic if everyone works together using scientific facts as our guide.

#### Some Facts:

**Masks:** There are ample studies that prove masks are effective against the spread of SARS-CoV-2 for the wearer and for people exposed to an infected mask-wearer. Yes, masks are uncomfortable, but so is dying!

**COVID-19 Vaccinations:** The present vaccines in the US, under emergency authorization, are amazingly effective in preventing severe disease and death. Unfortunately, like many vaccines, they don't absolutely prevent all infections. These “breakthrough infections” are the reasons mask mandates may again become necessary.

**COVID-19 Vaccine Side-effects:** There are the usual side effects seen with most vaccines, sore injection sites, malaise for a day or so, fever and aches and pains. The vaccine does not change the DNA of the person, but may rarely cause transient inflammation in various sites. The side effects are so much less severe than the symptoms of COVID-19. All the experts say over and over that the vaccine is the only way out of the pandemic and getting back to a normal life.

**Individual Freedoms:** There are not abrogation of individual freedoms if an employer,

the government, military, mandate COVID-19 vaccinations since there are already such mandates for many other vaccines. Schools require: diphtheria, pertussis, tetanus (DTaP), measles, mumps, rubella (MMR), polio, and chickenpox (varicella).<sup>1</sup> Thus adding another vaccine, against the lethal COVID-19 SARS-CoV-2, seems not to be an unprecedented abridge on personal liberties.

#### The Current Increase in COVID Infections and Deaths:

The facts are clear that this new spike of infections throughout the country is occurring in >90% in UNVACCINATED people, mostly by the Delta variant that arose in India.

#### Present Pandemic Statistics<sup>2</sup> As of 8-10-2021

Worldwide SARS-CoV-2 Infections: 203,925,022  
Worldwide deaths from COVID-19: 4,313,342  
USA Infections: 36,050,630  
USA Deaths: 618,108  
USA Fully vaccinated: 166,861,912 50.8%  
USA % vaccinated by age: CDC data 8-10-2021<sup>1</sup>  
≥ 12 yrs. of age 58.8%  
≥ 18 yrs. of age 61.2%  
≥ 65 yrs. of age 80.5%

#### Personal Experience:

The National Veterinary Laboratory is located in New Jersey, the densest populated state in the country. Along with New York, we had a terrible fist wave of the pandemic, probably due to both states having the largest international airports in the country which dropped European travelers, infected with the SARS-CoV-2 virus, into our states. During the first wave, our staff lost 5 close friends to the disease, and one of Dr. Hardy's children's family of 5 all became infected. Fortunately, all recovered quickly, however the 2 older adults have the Long COVID syndrome for the past 8 months. Our entire lab staff is fully vaccinated for the past 4 months, but one staff's family member has recently had a breakthrough infection. That person has recovered having had minor symptoms and not requiring hospitalization. We have experienced the total spectrum of the COVID pandemic and thus we are intent to try to correct all the willful misinformation about this disease. If our country can pull together and reach a sufficient herd-immunity through vaccinations, we can reduce the disease to an occasional spotty occurrence and wait for a potent anti-viral to be developed which can further reduce the occurrence.

## Breakthrough Infections:

A breakthrough SARS-CoV-2 infection is occurring in <1% of COVID fully-vaccinated people.<sup>3</sup> Presently 80% are caused by the Delta variant. The person may be totally asymptomatic, or have mild disease, very rarely require hospitalization and extremely rarely, die. More than 99.9% of breakthrough infections do not require hospitalization or end in a fatality. This is exactly what any vaccine is meant to do. The prevalence of breakthrough infections is not yet known, but the consequences surely are less dangerous in a vaccinated person than in one not vaccinated. The evidence for this is in the statistics of the recent upsurge in infections, hospitalizations occurring mostly (>90%) in unvaccinated people in states with low vaccination rates and in places with less mask wearing and more relaxed social distancing.

## Long COVID:

Long COVID has many synonyms, but the term is self-explanatory. Long COVID can occur in infected people with no, mild, or severe symptoms. Some people who recover from the acute phase of the disease have lingering symptoms or even different symptoms (Long COVID) than during the acute clinical phase. Long COVID is likely the first disease that was defined by patients on social media platforms such as Facebook and Twitter.<sup>4</sup> Only after seeing online posts from patients describing various long-term symptoms, did the medical community take these complaints seriously.

One study found 39% of 410 adults with post-acute disease still had symptoms of Long COVID 7 to 9 months later.<sup>3</sup> The CDC has collected data on Long COVID cases and defined the symptoms:

### Common Long COVID Symptoms:<sup>5,6</sup>

#### Fatigue- is the most common symptom\*



Cognitive impairment- "Brain fog"\*

Arthralgia\*

Myalgia\*

Fever\*

Mood changes- psychic\*

Impaired daily function and mobility\*

Dyspnea

Post-exertional malaise and/or poor endurance

Cough

Chest pain

Headache

Palpitations and/or tachycardia

Paresthesia

Abdominal pain

Diarrhea

Insomnia and other sleep difficulties

Lightheadedness

Pain

Rash (e.g., urticaria)

Menstrual cycle irregularities

\* Sequelae symptoms also seen in people after recovering from *Bartonella*-induced Cat Scratch Disease.<sup>7</sup>

A study in Norway of 72 people with SARS-CoV-2 COVID-19 found that 11% reported memory problems (brain fog).<sup>5</sup> These studies show that even though COVID-19 is a respiratory disease, there are wide-spread inflammatory pathologies in multiple organs- heart, liver, kidneys and pancreas and brain. This syndrome is called the multisystem inflammatory syndrome and occurs in adults and children.<sup>6</sup>

The discovery of Long COVID is yet another good reason to get vaccinated in order to avoid the acute COVID disease and, if people are lucky enough to survive the acute phase, to avoid the possible long term, or even life-long pathologies.

## Antivaxxers:

The recent surge of new infections in this country is occurring mostly (>90%) in unvaccinated people infected with the more dangerous Delta variant. This alarming occurrence should demonstrate, to those people reluctant to be vaccinated, that the vaccines are working and are safe. Despite the constant reporting of these facts, almost half of Americans are still not vaccinated. One woman interviewed on TV stated that "I am not concerned with COVID at all." She said this after 1½ years into the pandemic, where to date 618,108 Americans have died of the disease, and countless others are suffering, and will be suffering, from the Long COVID syndrome.

There is hope that with vaccine mandates from governments, businesses, unions, and schools, and with a final FDA approval of the vaccines, that many more vaccine skeptics or antivaxxers will agree to get their vaccines. This will protect them, their family members and all others from this deadly virus. As veterinarians we have seen the excellent benefits of vaccines for our companion and large animals.

New Jersey, where our laboratory is located, is the most densely populated state in the country and I am proud that we are 7<sup>th</sup> in the percent (60.4%) of people fully vaccinated.

## Animals and COVID-19: Deer:

Two excellent recent studies of North American White-Tailed Deer (*Odocoileus virginianus*) show



they are susceptible to SARS-CoV-2.<sup>8,9</sup> These deer are numerous, they live in small herds and live closely to humans in urban centers (they are beautiful but they eat all our flowers and shrubs!). The first study found these animals to be highly susceptible to the virus due to a high degree of similarity to the human angiotensin-converting enzyme 2 (ACE2), the SARS-CoV-2 cell receptor.<sup>8</sup> Experimentally-infected deer became subclinically infected and shed the virus in their nasal secretions. Importantly, infected deer transmitted the virus to non-inoculated deer by the aerosol route. Viral RNA was found in multiple tissues 21 days post inoculation. All experimentally infected and contact deer seroconverted and developed neutralizing antibodies as early as 7 days p.i. The second study,

in an as yet to be reviewed study, was serosurveillance of white-tailed deer from 4 U.S states, Michigan N=113, Pennsylvania N=142, Illinois N=101, and New York N=29. Antibodies were detected in 152 deer (40%) by a surrogate virus neutralization test.<sup>9</sup> This is a surprisingly high seroprevalence demonstrating exposure of these deer living in close proximity to people. This pool of infected deer might act as a reservoir for spread to other wild animals, might act as a fertile area for development of more dangerous viral variants, and may act as a source for reinfection of people.

There is no information as to how the deer were exposed. Might it have been by contact with infected people, another animal such as mink, domestic cats or ferrets, all of which are also susceptible to the virus, or might it have been through contaminated wastewaters? The authors suggest surveying other wild animals, especially deer predators.

## Commentary by Dr. William D. Hardy, Jr.:

**"Everyone is entitled to their own opinion, but not their own facts." Daniel Patrick Moynihan, Former US Senator. "Hope is being able to see that there is light despite all of the darkness." Desmond Tutu. Let's follow these thinkers and come together to defeat the SARS-CoV-2 virus. OPINION: New York Times, Guest Essay, No COVID shot? Fine. Pay more for your health care. Elizabeth Rosenthal and Glenn Kramon: August 2, 2021. More than 97% of current hospitalized COVID-19 patients are unvaccinated. Some insurance policies will not cover medical expenses resulting from risky behavior, such as scuba diving and rock climbing. The Affordable Care Act allows insurers to charge smokers up to 50% more premium than nonsmokers pay. The authors opine that unvaccinated people are risk-takers thus: "Don't Want a Vaccine? Be Prepared to Pay More for Insurance."**

## References:

1. www.cdc.gov/vaccines/growing/school-vaccinations.
2. John's Hopkins University Coronavirus Resource Center, August 10, 2021.
3. www.kff.org/policy-watch/covid-19-vaccine-breakthrough-cases-data-from-the-states/.
4. Alwan, N.A. The road to addressing Long COVID. Science, 373, 491-493, July 30, 2021.
5. Nehme M, Braillard O, Chappuis F, et al.: Prevalence of Symptoms More Than 7 Months After Diagnosis of Symptomatic COVID-19 in an Outpatient Setting. Ann Intern Med. [Epub ahead of print 6 Jul 2021]. doi:10.7326/M21-0878.]
6. Centers for Disease Control, Updated July 9, 2021 https://www.cdc.gov/coronavirus/2019-ncov/long-term-effects.html
7. Hardy, W.D., JR. and Zuckerman, E.E. *Bartonella*: The Pet Cat-Human Connection. EcoHealth, 7, S1: 67, ISSN 1612-9210, 2011.
8. Palmer MV, et al. Susceptibility of white-tailed deer (*Odocoileus virginianus*) to SARS-CoV-2. J Virol 95:e00083-21. https://doi.org/10.1128/JVI.00083-21.
9. Chandler, J.C., et al. SARS-CoV-2 exposure in wild white-tailed deer (*Odocoileus virginianus*). Preprint at bioRxiv https://doi.org/10.1101/2021.07.29.454326 (2021).

SARS-CoV-2 & COVID-19 references can be obtained at:  
[www.nlm.nih.gov](http://www.nlm.nih.gov)  
National Veterinary Laboratory, Inc., 2021<sup>©</sup>