

The Coronal Virus and Challenge to Our State Organizations

Part 10
Friday March 27, 2020

Month	World Virus Cases ⁱ	World Virus Deaths
January 31	10,017	120
February 7	30,000	700
February 14	65,000	1,400
February 21	77,000	2,250
February 28	84,000	3,000
March 6	101,000	3,408
March 13	136,000	5,000
March 20	250,000	10,000
March 27	550,000	25,000

Cases In Texasⁱⁱ

Date	Cases	Deaths
March 19	173	3
March 27	1662	23

Path of the Virus

The virus continues from a few first, limited individual cases to clusters of cases now to an explosion. The numbers are stunning. Every state, every city in the United States has existing cases that now add to new infections unless infected persons are successfully isolated-quarantined. This is a different phase of the pandemic from travelers from an infection area such as the state of Washington or Asian countries, first China, bringing the infection in. We passed through the “importing phase” in January and February.

Now we are dealing with the spread of infection from people in the United States. Effective response must move from restricting travelers to restricting the spread from active carriers in each community. The emphasis is on individual quarantines and controlling movement in the community as well as wearing masks to protect others from one’s breathing and coughing. The primary mode of transmission is now thought to be from droplets that are expelled when an infected person sneezes, coughs or simply breaths out.

What Is The Virus And Potential Infections And Deaths

The coronavirus is a recent variant of a type of virus that affects the respiratory system of people. It spreads rapidly from person to person and can rest for hours and even days (17 days or more) on various surfaces and maintain its infectivity. How many people in the United States can be potentially infected? One respected virologist, Marc Lipsitch of Harvard's School of Public Health places 20 percent of the American population of 330 million (66 million) at the low end of the rate of those infected we may see. Britain and Germany are preparing for 60 to 70 percent.

Unlike the seasonal flu, it is more deadly. The flu has a death rate of one tenth of one percent (.001). This virus is estimated at between 1 and 4 percent, making it 10 to 40 times as deadly.ⁱⁱⁱ But there are very different assessments from virologists about both the extent of infection and the associated death rate.^{iv v} Sunetra Gupta of Oxford and Michael Levitt, a Nobel laureate and Stanford biophysicist are among those that feel the numbers of persons with the virus are underestimated. Thus cases of infections, hospitalizations and deaths are a far smaller percentage than some of the experts that view the virus as far more dangerous.^{vi}

The challenge is how do we control the spread from each infected person to several others. The main way the virus seems to travel is from the breathing, coughing and sneezing of the infected person to the face, mouth and eyes of another person. The answer to control the spread is to enforce a strict quarantine on each infected person and minimize as much close social contact among all people as possible. My colleague at the University of Texas, Professor Lauren Myers^{vii} has developed a pandemic model to show the effect in central Texas of using social distancing to mitigate the spread and impact. Slowing the spread reduces the rate of infected persons and those that require hospitalization. Slowing the spread is a key to managing the infections.

That effort began in the United States this week. Quarantine cannot be strictly observed or enforced unless persons are placed in guarded quarters or tagged with some form of transponder that communicates geographical position. That may be done in some countries like Taiwan, South Korea or China but not likely in our country. There are challenges with reducing social movement and contact. Some persons may refuse to comply and there are times when a person must venture out for needed supplies. Another compounding problem is the growing number of homeless persons. There is evidence in Austin as an example of rising concerns of persons' safety with very high levels of purchases of guns and ammo.^{viii}

Given the experience of China we might infer this acceleration of infection will occur through April and into June of this year. By then most of the persons in urban areas and those that travel will have been exposed. The medical community and hospitals will probably be overwhelmed. That is currently the state in China, Italy and France, Seattle, San Francisco, Los Angeles and is occurring in New York City and New Orleans. The extreme example is New Orleans and its decision to hold Mardi Gras festivals in late February as the virus was getting a foothold in only 3 or 4 states. Over one million persons traveled to Louisiana during Mardi Gras and were in close contact on the streets in New Orleans making it one of the hardest hit cities in the world.^{ix} Count Austin as very fortunate that it cancelled SXSW scheduled to begin on March 13!

What We As Individuals and Members Of Our Organizations Can Do

We must be well informed about this epidemic, how it spreads and the risks to others. As a general rule self-isolate as much as possible. When with others, maintain 6 feet of distance. Be informed on the symptoms, how it spreads including its presence on surfaces like door handles, elevator buttons, hand rails, desks, telephones and paper. It is reported to remain infectious from a few hours to several days on some surfaces.

Each organization should have a website available to all that provides data about the virus and how to address prevention as well as reporting suspected infections. Think through agency procedures that could increase the risk of infection. Offices that serve the public or procedures that require coming to agency offices as much as possible should likely be replaced by the use of the telephone and internet access. Remember all that can be done to minimize social contact helps control spread.

Use this site from the Texas Department of State Health Services to track their case recording and provide daily information about the issue: <https://dshs.texas.gov/coronavirus/>

[Current Situation: Coronavirus Disease 2019 \(COVID-19\) Outbreak-Immunity](#)

People that recover from the coronavirus as with other infections that occur comes from the body's immune system. In effect the body develops a "memory" of the infecting substance and creates specific responses to attach and destroy a specific invader. In many ways a vaccine creates such a specific antibody without the impact of the full disease.

From the NY Times:

"The body's first line of defense against an infectious virus is an antibody called immunoglobulin M, whose job is to stay vigilant in the body and alert the rest of the immune system to intruders like viruses and bacteria.

Days into an infection, the immune system refines this antibody into a second type, called immunoglobulin G, exquisitely designed to recognize and neutralize a specific virus.

The refinement may take as long as a week; both the process and the potency of the final antibodies can vary. Some people make powerful neutralizing antibodies to an infection, while others mount a milder response.

The antibodies generated in response to infection with some viruses — polio or measles, for example — bestow a lifetime of immunity. But antibodies to

the coronaviruses that cause the common cold persist for just one to three years — and that may be true of their new cousin as well.

A study in macaques infected with the new coronavirus suggested that once infected, the monkeys produce neutralizing antibodies and resist further infection. But it is unclear how long the monkeys, or people infected with the virus, will remain immune.

Most people who became infected during the SARS epidemic — that virus is a close cousin of the new coronavirus, called SARS-CoV-2 — had long-term immunity lasting eight to 10 years, said Vineet D. Menachery, a virologist at the University of Texas Medical Branch at Galveston.

Those who recovered from MERS, another coronavirus, saw much shorter-term protection, Dr. Menachery said. People who have been infected with the new coronavirus may have immunity lasting at least one to two years, he added: “Beyond that, we can’t predict.”

Still, even if antibody protection were short-lasting and people became reinfected, the second bout with the coronavirus would likely be much milder than the first, said Florian Krammer, a microbiologist at the Icahn School of Medicine at Mount Sinai in New York.

Even after the body stops producing neutralizing antibodies, a subset of immune memory cells can reactivate a response effectively, he noted.”^x

Research References On Specific Medications and Vaccines

Several laboratories are working on a vaccine, but finding one including testing and then producing and providing it as the annual flu vaccine is done is probably 18 months away. Currently an experimental vaccine is being tested in State of Washington and China

<https://www.clinicaltrialsarena.com/analysis/coronavirus-mers-cov-drugs/>

Remdesivir <https://www.gilead.com/news-and-press/press-room/press-releases/2020/3/new-clinical-study-data-for-gileads-investigational-hiv-1-capsid-inhibitor-gs-6207-presented-at-croi-2020>

Drug used for many years to treat malaria

Hydroxychlorquine <https://www.nature.com/articles/s41421-020-0156-0>

Building organizational and personal resiliency is the critical response for all.

Economic Issues

A separate consideration apart from the specifics of the virus, prevention and treatment is how this is affecting the community and the economy. The immediate issues are levels of working and trade. Holding one's job is critical to survival but if one works with others then the risk of acquiring the virus is increased. The service economy including hotels, airlines, restaurants and bars has been greatly impacted. Manufacturing particularly those products that come from long lines of assembly and use overseas suppliers may have a lag time relative to services like travel and lodging but will begin in April to show stress. Dropping energy consumption is very evident and that is affecting several areas of the state.

Broad Economic Indicators of the Impact

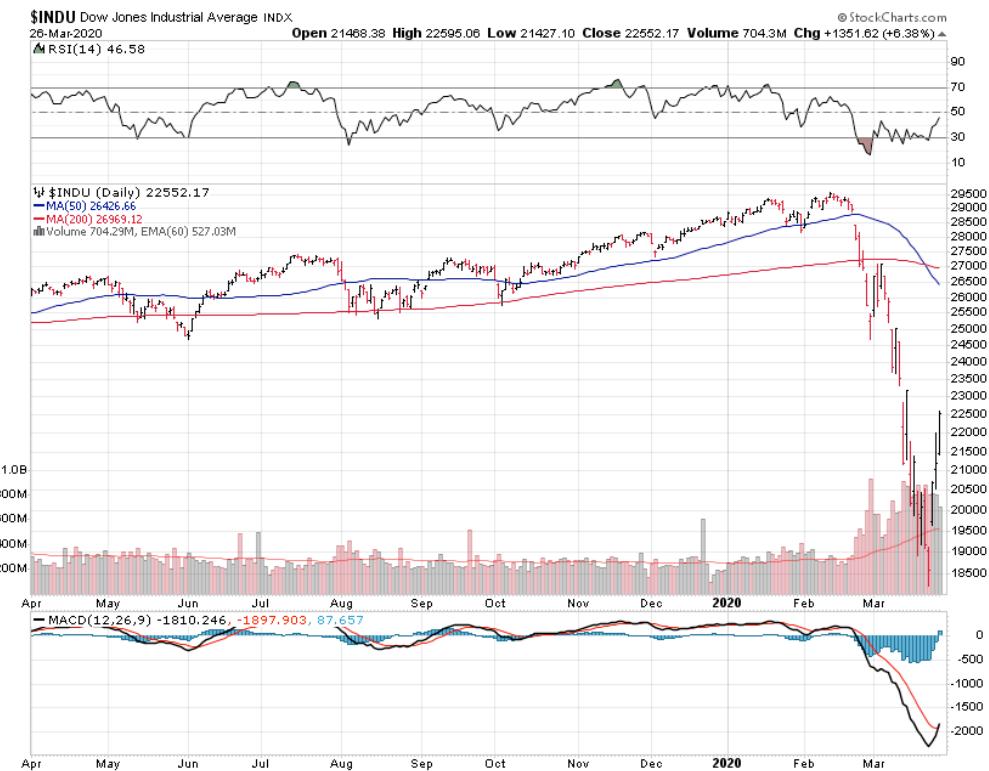
Major indicators of economic activity across the nation continue to contract. Unemployment is predicted to rise to 4% this quarter and a record number, 3.2 million filed for unemployment Thursday. Since February measures of the stock market like the Dow Jones Industrials have lost about a third of their value. Most central to the Texas economy is the price of oil. It has dropped as low as \$20 and closed Thursday, March 26, 2020 at \$22.60. Simply watch the price you pay for a gallon of gasoline. When it is below \$2, then critical implications are underway. It has begun affecting oil production, employment and capital investment in the Permian Basin.^{xi}

Map of All Areas of Infection in All States



Key Economic Indicators: Oil and Stock Market





i <https://www.worldometers.info/coronavirus/>

ii <https://www.livescience.com/coronavirus-updates-united-states.html>

iii <https://www.nytimes.com/interactive/2020/03/16/upshot/coronavirus-best-worst-death-toll-scenario.html>

iv <https://www.dailystandard.com/news/oxford-epidemiologist-heres-why-that-doomsday-model-is-likely-way-off>

v <https://www.latimes.com/science/story/2020-03-22/coronavirus-outbreak-nobel-laureate>

vi <https://nymag.com/intelligencer/2020/03/oxford-study-coronavirus-may-have-infected-half-of-u-k.html>

vii <https://news.utexas.edu/2020/03/26/a-new-texas-covid-19-pandemic-toolkit-shows-the-importance-of-social-distancing/>

viii <https://www.statesman.com/news/20200325/guns-ammunition-fly-off-austins-shelves-as-coronavirus-pandemic-depends>

ix <https://www.nbcnews.com/news/us-news/new-orleans-epicenter-coronavirus-mardi-gras-could-be-blame-doctors-n1167741>

x <https://www.nytimes.com/2020/03/25/health/coronavirus-immunity-antibodies.html?searchResultPosition=1>

xi <https://oilprice.com/Energy/Crude-Oil/The-Permian-Boom-Is-Going-Bust.html>