Part 1: A Tailored Approach to the COVID-19 Pandemic

To government policy makers:

"Groupthink requires individuals to avoid raising controversial issues or alternative solutions, and there is loss of individual creativity, uniqueness and independent thinking." (https://en.wikipedia.org/wiki/Groupthink)

Foreword

My name is Gary Cangelosi, and I am a businessman in Charlotte, North Carolina. I do not hold a government position. I have been closely following the news on the COVID-19 pandemic as it sweeps the United States and the world, coming up with alternative ideas and suggestions on how to approach the pandemic that I think are worthy of consideration. I have decided to write a letter proposing my ideas to the president's coronavirus task force, my governor, and the congressional senators and representatives who represent North Carolina. As citizens of this great nation, it is our civic responsibility to offer feedback and suggestions to the officials who govern our country. This letter began as a brief analysis of the health aspects of the COVID-19 pandemic, but I soon realized that to strategically combat this pandemic would require a more comprehensive analysis of the health, economic, social, and political aspects of this pandemic. I hope you will take the time to read it.

Mitigating this pandemic is a logistical challenge for government officials and business leaders, and my profession requires a great deal of logistics. Before starting my career as a real estate developer forty years ago, I studied architecture and intellectual history at Tulane University. Throughout my career, I have worked with a great number of government officials on zoning laws, land development codes, and building codes. I have developed residential subdivisions and built single-family homes and townhouses, as well as large mixed-use commercial developments with apartments, office buildings, and retail buildings.

These endeavors require market analysis, financial feasibility studies, architectural and civil engineering design, site and building construction management, and property management. I also know how recessions can affect marketplace economics, having lived through more than I care to remember. My background in intellectual history also helps me compare this crisis to past events, putting them in context so we can learn from mistakes and successes.

In this analysis and commentary, I offer an alternative approach to mitigating the spread of this virus—an approach different from any that the president's coronavirus task force has released to date. This country would be wise to heed these words of King Solomon: "Where there is no guidance the people fall, but in abundance of counselors there is victory."

My analysis supports the current conclusion by the infectious disease experts advising the president that this pandemic is not like this year's flu but is potentially a dangerous viral storm that could result in great loss of life if not properly addressed and managed. I will simply challenge the effectiveness of their current approach to mitigating the COVID-19 pandemic.

And most important, using their data, I will make the case for a far more effective government approach to resolving this crisis.

Because the issues surrounding this pandemic are so complex and involved, I will first offer some background information before presenting my alternative approach to resolving this crisis. This analysis is lengthy, partly because it also provides practical guidelines that illustrate how this approach can be implemented in the real world. To test any hypothesis or plan on how to address mitigating this pandemic, it needs to be analyzed in real-life situations to determine if it really works as designed. Sometimes a well-intentioned plan has unintentional consequences that can even make the situation worse.

This paper concludes with a discussion of the current political climate, acerbated by this pandemic. Please feel free to pass along this paper to friends, coworkers, government officials, or others who may be interested in the subject.

A few definitions may be in order. The term *coronavirus* refers to the new coronavirus (or SARS-CoV-2) that first appeared in late 2019 in Wuhan, China. This coronavirus causes the disease COVID-19, which stands for coronavirus disease 2019. COVID-19 is the name of the disease, not the virus.

Introduction

The COVID-19 pandemic is often compared to the 1918 influenza pandemic, which killed more than 50 million people around the world. It took two years for the 1918 pandemic to run its course before herd immunity was achieved and the pandemic came to an end. But with the advances in modern medicine and health care today, we can reduce the number of deaths until herd immunity is achieved or a vaccine is developed and widely administered, which would take one to two years. Until then, the current goal of our government is to slow the rate of infection from the coronavirus so that our health care system is not overwhelmed and people needlessly die because of inadequate care. This is known as bending the curve until herd immunity is achieved, and it is typically accomplished through social distancing so too many people do not get infected by this coronavirus at the same time. A local fire department can handle a couple of house fires at one time, but if there were ten fires during the same period, eight homes would be neglected and destroyed.

Some countries like Sweden are allowing the young, low-risk population to continue normal activities while encouraging social distancing for high-risk senior citizens until herd immunity is achieved or a vaccine is available. England considered this approach at first, but they soon decided that imposing social distancing on all population groups through temporary economic shutdowns of their economy was a wiser approach. This is the current approach being followed by the president's coronavirus task force and many governors around the country.

Part 1: A Tailored Approach to the COVID-19 Pandemic

So, what is the best approach to mitigating this pandemic? There are basically three choices:

1. Allow a country's population to rapidly gain herd immunity, with no form of social distancing imposed by the government.
2. Impose social distancing on all population groups, even though this will slow down the rate of herd immunity.
3. Allow the low-risk population to continue normal social activities to rapidly gain herd immunity, while imposing social distancing only on the high-risk population.

Overview of the COVID-19 Pandemic

The Centers for Disease Control and Prevention estimates that this year's seasonal flu infected 39 to 56 million Americans and killed between 24,000 to 62,000 people with a projected .1 percent mortality rate. Despite this number of deaths, the government obviously did not institute drastic measures to combat the spread of this year's flu. But most infectious disease experts seem to agree that SARS-CoV-2 is much more contagious than this year's influenza, and it could potentially infect up to 70 percent of the American population of 330 million people, or 231 million Americans, before running its course.

When people come down with the flu, they usually quarantine themselves at home until they recover so they do not infect others in their community. One reason the coronavirus is more contagious is because, unlike the flu, which is generally only contagious once an infected person is symptomatic, people infected with the coronavirus can be asymptomatic for a week or more and can infect a lot of people in their community during that time without even knowing they had the virus.

And because people can be asymptomatic with this virus, there is fierce debate as to the actual mortality rate of this coronavirus compared to this year's influenza. That is because antibody testing of the general population has just begun, and the number of asymptomatic infected individuals or those with very mild symptoms who were never tested and recorded can range from 25 percent to 90 percent, which clearly affects the calculation of the mortality rate. Is the mortality rate 1 percent of those infected and ten times more deadly than the flu, or is it .3 percent and three times more deadly than the flu?

If this coronavirus does infect 70 percent of the 330 million people in this country, and it is ten times more deadly, then it could potentially kill more than 2 million Americans, which would clearly justify drastic measures by the government to contain its spread. Despite the current uncertainty about the mortality rate of this virus, the infectious disease experts advising the president and the governors believe this pandemic is far more contagious and deadly than this year's flu and a massive government effort is required to combat this coronavirus until such time as we gain herd immunity or have a safe and effective vaccine.

Part 1: A Tailored Approach to the COVID-19 Pandemic

During hurricane season, weather experts often disagree on the dangers and direction of an approaching hurricane. The European and American weather models are often at odds, predicting conflicting paths the hurricane will take. Recently, the European model has produced the most accurate weather forecast, but weather experts do the best they can with the limited data they have and with the imperfect models they use.

Whereas hurricanes typically blow through a small region over a couple of days and the recovery effort can begin as soon as it passes, this viral storm will hover over the entire United States for up to two years and with a much longer recovery period, which is why the accuracy of our models for dealing with this coronavirus are so important. It is one thing to ask people in West Palm Beach, Florida, to hunker down and board up their businesses for a week, as they did last year in preparation for Hurricane Dorian, but it is quite another thing to ask them to hunker down for a whole year.

There is also some uncertainty among scientists and medical experts as to whether a person with coronavirus antibodies remains immune or can be reinfected, and how long this immunity might last. Given that the recovered people of Wuhan returned to their community without causing another major outbreak indicates that recovered people do have some form of immunity to this virus for some extended period of time. Therefore, my analysis will assume that if a recovered person tests positive again at a later date, it is an anomaly or a testing error, and that a recovered person will remain immune until such time as an effective vaccine is widely available and administered. Since the president's coronavirus task force model is also based on this assumption, I will use their same data and assumptions in presenting my approach so a fair comparison between the two approaches can be made.

In the initial stages of a viral outbreak like COVID-19, extensive testing, contact tracing, and containment of the infected local community can control the spread of a virus and prevent a pandemic. China obviously missed this opportunity. And with commercial airliners disseminating thousands of infected passengers out of the commercial hub of Wuhan before its airport was shut down, a pandemic was born.

Community transmission of the coronavirus has already occurred throughout the world. And modern nations around the world have now resorted to mitigation efforts to at least reduce the rate of infection until a universal vaccine can be developed and administered. Experts have made the case that if the rate of infection is too fast and hospitals are overwhelmed with seriously ill patients, then proper care and life support will be degraded and there will be a large increase in fatalities. This was evidenced in northern Italy in February, unfortunately, as the virus ravaged the area. No one wants to see a forest fire get out of control, run its course, and needlessly destroy thousands of homes. It usually takes an enormous effort by multiple government agencies to control the spread of the fire before it burns out.

Part 1: A Tailored Approach to the COVID-19 Pandemic

Infectious disease experts assume that during the next year or two, up to 70 percent of the US population will eventually get the coronavirus, recover, develop antibodies to the virus, and gain herd immunity. The virus will then largely disappear from the population and mitigation efforts will no longer be necessary. Hospitals can return to normal, again performing elective and nonemergency surgeries. Herd immunity is almost as effective in stopping this pandemic as a vaccine. Once the 1918 flu pandemic reached herd immunity in a couple of years, it disappeared even without a vaccine. Of course, it killed 50 million people in the process.

In the meantime, the objective of the president's coronavirus task force is to slow down the rate of infection from the coronavirus in order to bend the curve until the herd gains immunity. Allowing this highly contagious virus to spread unimpeded would be a quick way to achieve herd immunity and bring this crisis to an end, but this approach would significantly increase the mortality rate as hospitals became overwhelmed. Hospitals are well prepared for an elevated number of admissions from complications from influenza during the annual flu season, but the coronavirus is no ordinary annual flu as evidenced by the disturbing pictures inside hospitals in Wuhan, northern Italy, and New York City.

The current approach to flattening the curve until herd immunity is reached or a vaccine is widely available entails monitoring the rate of infection and number of hospital admissions throughout the country to determine if the rate of infection is getting out of hand. If these rates are increasing too fast, then the state and local governments should institute policies that greatly reduce person-to-person interactions through both social and economic engagements to reduce the rate of infection. This is referred to as social distancing, and companies like Microsoft can simply send employees home to work remotely and use Microsoft Teams to continue to interact with one another. Zoom has also been a popular videoconferencing tool for remote working.

But there are many businesses, such as restaurants, meat processing facilities, and department stores, where workers cannot work remotely. As such, the current approach to flattening the curve entails state and local governments shutting down large segments of the economy on a temporary basis to prevent human-to-human transmission of the virus until the rate of infection becomes more manageable. Unfortunately, this method of social distancing creates a temporary recession and seriously disrupts what was once a thriving economy—not only in this country, but around the world.

Economic Impact

Many governors and business owners have complained bitterly about the government-imposed recession to slow down the rate of infection. But a case can be made that the COVID-19 pandemic would cause a recession anyway, even if the government did not impose a temporary shutdown. Who would want to go to a restaurant, a Broadway play, or a Yankees game in New York City if the nightly news showed ghastly images of overwhelmed hospitals and rows of

refrigerated trailers serving as temporary morgues? In addition, on their own initiative, large numbers of local affluent customers who patronized these businesses have already fled the city for second homes in less infected areas. If Governor Andrew Cuomo and Mayor Bill de Blasio allowed the economy of New York City to reopen next week, it would still experience a recession even without a government-imposed shutdown.

Moreover, historians who have studied the 1918 influenza pandemic have observed that the cities that closed down businesses and social gatherings early not only had fewer deaths, but they came out of their recession faster than cities that did not impose social distancing by closing businesses. That is an important lesson to learn from history for those complaining about the economic hardship.

The current model and approach, however, predicts that although the temporary economic shutdowns can be lifted after a couple of months, as the number of coronavirus cases escalate once again after the shutdowns are lifted, they will have to be reimposed throughout the summer and into the fall, and possibly into next year. The second year of the 1918 pandemic was far worse than the first year. In fact, our economy may not begin the long road to recovery until two years from now, when a vaccine becomes widely available.

With the certain possibility of mounting damage to the economic health of the nation, many governors and business leaders have begun voicing concerns that the cure may be worse than the disease. They are suggesting that the government should let the virus run its natural course and let the herd gain immunity as rapidly as possible; we will have to live with the fact that the hospitals will be overwhelmed and many people will die. They are often criticized by the press for callously putting profits and the economic health of their states over the physical health of their people. Regardless of their motives, they should be taken seriously because a long-term economic recession with high unemployment can cause extreme poverty, which leads to malnutrition, unsanitary housing, disease, and a much higher mortality rate.

Venezuela is a case in point. This once relatively prosperous country was ravaged by the effects of a prolonged and deep recession. Their recession was not caused by a virus, however, but by the misinformed and deceptive socialist policies of President Hugo Chávez and his successor, Nicolás Maduro, for the last twenty years. As a result of the collapse of their economy, the infant mortality rate in the country has skyrocketed and the life expectancy rate has plummeted. Their health care system has also collapsed, and thousands of people have needlessly died from easily treatable illnesses. They have no need to bend the curve to prevent their hospitals from being overloaded due to the COVID-19 pandemic because there are no longer any functioning hospitals for the general population. Therefore, the increase in the rates of poverty, malnutrition, and disease caused by a recession should be factored into any scientific model for how to mitigate this pandemic.

It is also important to remember that there are two aspects to human health—the physical health of our bodies and the mental health of our minds. Even with strong, healthy bodies that can climb mountains, many people find that their lives are not worth living if they are experiencing overwhelming mental depression and pain from economic dysfunction and see no hope for their future. The decision on how to approach this pandemic should not become a moral debate in which a government official has to determine if the physical and mental health of their citizens are more important than their economic health. And the press should stop demonizing governors and business owners who are warning that the current cure could be worse than the disease, for it certainly could be if we are not careful in how we manage this crisis using periodic economic shutdowns to increase social distancing.

The Global Impact

Our American economy is interconnected with advanced as well as developing nations around the world in today's global economy. When we close our coffee shops to create social distancing, we stop buying espresso machines from Italy, and their advanced economy takes a hit. And when we stop buying coffee beans grown in Costa Rica, Guatemala, and Kenya, their economies take a nosedive, which greatly increases their level of poverty, and, subsequently, their mortality rate. Malls, department stores, and apparel sellers in this country have been shut down for the past two months, leaving millions of textile workers in Bangladesh, India, and Pakistan without a livelihood and with no safety net. We are not alone in this fight against the coronavirus.

Sadly, this global recession has just begun, and it could possibly last for two years, as advanced nations combat the virus with periodic government shutdowns of their economies. Poverty experts around the world are now sounding the alarm that the global recession caused by closed borders and government-imposed social distancing is already forcing tens of millions of poor citizens in developing nations into extreme poverty in just the last two months. They have reported that more than 60 million young children are experiencing severe malnutrition due to the global response to this pandemic in just the last month alone. It is conceivable that 30 million of these children will die from starvation and that the rest will have permanent brain damage due to malnutrition, which will cause lifelong disabilities, continuing the cycle of extreme poverty. The life expectancy of the 30 million survivors will likely be reduced to thirty-five years, which is a delayed form of mortality that can be attributed to this global recession. If you combine the numbers of dead children and those who die prematurely, the impact from this global recession in just two months could already be 60 million deaths. Thus, if the current rate of mortality continues every two months for another twelve months, the mortality rate at the end of the year would be 360 million people (6 x 60 million).

What if the method of mitigating the coronavirus through repeated periods of recessionary economic shutdowns during the next year saves 500,000 American lives but causes the developing nations to lose 360 million lives? We are all fellow human beings on this planet, and

that prospect alone should give infectious disease experts and American policy makers pause when using massive economic shutdowns in this country to reduce our rate of infection from the coronavirus, so our hospitals are not overwhelmed. And they should certainly take the time to consider alternative approaches that could not only reduce the mortality rate in this country but at the same time inflict the least amount of damage to the world's economy.

Dr. Anthony Fauci, the leading US infectious disease expert on the president's task force, recently admitted in a news conference that he knows very little about economics. I imagine that most infectious disease experts, epidemiologists, and physicians advising the president and the governors were busy mastering their own fields of knowledge during their advanced education and may have never taken a course in economics. Therefore, they simply do not have the expertise to model the increased mortality rate and health consequences of a prolonged global recession.

But they do have a moral imperative to consider the damage to a nation's economy, as well as the world's economy, when developing an approach to mitigating this pandemic if their desire is to save as many lives as possible—not only in this country but around the world. There are two rates of mortality associated with this pandemic: one from the virus itself, if left to run its natural course; and another from poverty, due to severe economic dysfunction and stagnation. The president's coronavirus task force urgently needs to consult with economists and learn how to develop models that not only track the rate of death from the virus if we do not bend the curve, but also the rate of death due to the increased rate of unemployment and poverty that results from periodic government-imposed shutdowns of our economy.

Most infectious disease experts agree that the real solution to the COVID-19 pandemic will be herd immunity and the administering of a vaccine. Therefore, until we have a vaccine, the goal of any government solution to this pandemic should be to achieve herd immunity as rapidly as possible without overwhelming the hospital systems—and, of course, with as little damage as possible to our economy and the global economy.

The purpose of this analysis is to present an alternative approach that achieves these goals better than the current solution being implemented by federal and state governments. Some of these suggestions may initially seem counterproductive and even harmful; they will certainly go against the groupthink among the infectious disease experts leading the battle against this pandemic. This new approach involves a paradigm shift, so allow me to make my case before arriving at any conclusions regarding its effectiveness in achieving these goals.

The 1918 Influenza Pandemic Versus the COVID-19 Pandemic

When developing a strategy to combat a particular pandemic, it is helpful to study historical precedents. But it is also critically important to take into consideration the significant differences of prior pandemics when formulating a new strategy to combat a new virus with different characteristics.

Part 1: A Tailored Approach to the COVID-19 Pandemic

The COVID-19 pandemic is often compared to the 1918 influenza pandemic, or the Spanish flu pandemic, which ranks among the worst in world history, infecting roughly one-third of the world's population. That particular strain of influenza affected the upper respiratory tract, as is the case with most seasonal flu viruses, but it also bound to the lower respiratory tract, which made it both more contagious and far more deadly. A patient's lung tissue filled with fluid and hemorrhages, resulting in bacterial pneumonia, which caused most of the deaths during that pandemic. A person could be perfectly healthy one day and dead in two to three days. And it killed 675,000 people in this country from all age groups indiscriminately, regardless if they were infants, young healthy soldiers gathered for World War I, or elderly citizens. The following is a quote from the CDC describing this characteristic of the 1918 flu virus: "Mortality was high in people younger than 5 years old, 20–40 years old, and 65 years and older. The high mortality in healthy people, including those in the 20–40 year age group, was a unique feature of this pandemic."[1]

It took two years for the 1918 flu virus to run its course before herd immunity was achieved and the virus disappeared from the population. But a unique feature of the virus is that it indiscriminately killed people from all age groups—whether they were healthy or unhealthy or young or old. Once infected, everyone was at a high risk of dying from a severe case of pneumonia.

SARS-CoV-2 is also extremely contagious. Based on the current data, however, it is now well-known that this unique coronavirus affects different segments of the population in remarkably different ways than the Spanish flu. Certain segments of the population are at low risk of coming down with the disease and experiencing severe complications, while others are at high risk and would likely require hospitalization. Infants can be infected, but unlike the 1918 pandemic, it is extremely rare that they get sick and even rarer that they die from the virus. Young adults, too, are generally at low risk of catching the virus and becoming critically ill. In fact, healthy young adults are often asymptomatic; if they do develop symptoms, they are often so mild that they can continue their lifestyle and never even see a doctor. There are, of course, rare exceptions. Some do develop serious complications and require hospitalization, but in most cases, few will become critically ill and require intensive care, and fewer still will die. Researchers are presently trying to determine if there is a genetic factor that is contributing to otherwise healthy young people succumbing to this disease. But this low-risk group clearly requires less hospital care and has a low mortality rate.

The elderly, however, are experiencing a high rate of severe illness and death. Experts believe one reason may be that older people have advanced immune systems because they have been exposed to many viruses over their lifetimes. Their immune systems massively overreact to the

[1] "History of 1918 Flu Pandemic," Centers for Disease Control and Prevention, last reviewed March 21, 2018, https://www.cdc.gov/flu/pandemic-resources/1918-commemoration/1918-pandemic-history.htm.

intruding coronavirus, causing excessive inflammation and the buildup of fluid in their lungs, further damaging other critical organs when they are deprived of oxygen.

Regardless of age, those with underlying chronic health conditions such as high blood pressure, diabetes, asthma, and obesity are also far more likely to have poor outcomes, such as being put on a ventilator or dying, than those with no underlying conditions. The sickest patients require a ventilator to keep them alive; some need to be on the ventilator for days, others, for weeks in an intensive care unit. As hospitals become overwhelmed with COVID-19 patients, intensive care units become filled. The concern is that many people will needlessly die as a result of inadequate care because there was no room for them in the ICU.

Most hospitals have the capacity to care for and monitor a large number of seriously ill people in their community. But when they become critically ill, they are transferred to the hospital's ICU, which has a limited number of beds. An ICU contains highly specialized equipment and a specially trained staff, which is why hospitals size them for the number of critically ill patients they typically receive in a given year. Intensive care units are not sized to handle a pandemic, much less the COVID-19 pandemic, which has overwhelmed many intensive care units.

Returning to the analogy of the local fire department once again, they may be able to handle two fires a day if they could put each fire out within a few hours. But if each fire required a week to extinguish, and there was a sudden surge of eight additional fires each day, one can easily understand how quickly they could be overwhelmed. To make matters worse, imagine if several firemen were injured while putting out each one of these ten fires occurring each day. Not only would they not have enough equipment to extinguish these fires, but they would also not have enough personnel left to handle the sudden increase in fires. Local communities could rush to build new fire stations, purchase new equipment, and hire additional firemen, but even that would not help if the sudden increase of fires is being caused by a forest fire that is raging out of control. In this case, the only realistic course of action would be to attempt to slow down the speed of the forest fire to prevent it from spreading too quickly. This is often done by cutting down large sections of the forest to create cleared areas, so the fire runs out of combustible fuel.

This method of mitigation compares to the approach of federal and state governments to curb the spread of the highly contagious coronavirus by shutting down large sections of the economy to create social distancing between people, which prevents too many people from getting infected at the same time—which would surely overwhelm our health care system as the above analogy demonstrates.

Most important, the data indicates that it is the high-risk population with underlying health conditions and the elderly who are overloading the health care system—not the low-risk young, healthy population. Of course, there is a sliding scale between the low- to high-risk population. Many are at moderate risk of infection and will suffer only mild complications of the disease. If a young person is obese and has asthma or diabetes, they would be at an elevated risk. And if a

person is in their eighties with multiple underlying health conditions, they would be at an extremely high risk of dying from this virus if they came in contact with an asymptomatic, low-risk grandchild.

It turns out that the COVID-19 pandemic is remarkably different from the 1918 flu pandemic. Whereas even healthy young soldiers gathered in barracks or in trenches during World War I died in great numbers when infected with the Spanish flu, the coronavirus only minimally affects young people in today's armed services.

The USS *Roosevelt* Aircraft Carrier and the *Diamond Princess* Luxury Cruise Ship

To illustrate this difference, consider the recent outbreak of the coronavirus on the aircraft carrier *Theodore Roosevelt*, with a crew of nearly 5,000 service members. The number of infections is still going up, but at one point, 850 healthy young sailors tested positive. Surprisingly, 60 percent were found to be asymptomatic. Only 1 percent, or nine sailors, required hospitalization, and only one of them became critically ill and died. That is a mortality rate of .001 percent, compared to a .01 percent mortality rate for this year's seasonal flu. In contrast, if the crew of 5,000 had become sick with the Spanish flu, which indiscriminately killed people of all age groups, almost 2,000 sailors would probably have died.

Now consider the *Diamond Princess* cruise ship with 3,711 passengers and crew members that had a similar outbreak of COVID-19. The total number of confirmed cases with the virus reached 712 patients, which results in a similar ratio of sailors who tested positive for the virus on the *Roosevelt*. Most of the cruise ship passengers fit into the high-risk category because they were predominately retired senior citizens, many with underlying health conditions making them more susceptible to complications from the virus. Of the 712 people on the cruise ship who tested positive, 18 percent were asymptomatic compared to 60 percent of the sailors on the *Roosevelt*. Of the cruise line passengers with the disease, 37 were admitted to the ICU, whereas only one sailor required ICU care, and he later died. The ICU ratio of cruise line passengers to sailors is 37 to 1, and a mortality ratio of 9 to 1. The mortality rate on the *Diamond Princess* with high-risk passengers was 1.3 percent, whereas the mortality rate on the *Roosevelt* with low-risk sailors was .001 percent. That is an enormous difference in ICU admissions and mortality rates between the high-risk population and the low-risk population.

Now, assume for a moment that both the *Roosevelt* and the *Diamond Princess*, both with a similar number of passengers infected with COVID-19, docked in the same port at the same time, and they both evacuated their seriously ill passengers to a small community hospital. The hospital has the capacity to care for and monitor a sudden number of seriously ill people. Yet, when they become critically ill, they are transferred to the ICU, which has far less capacity to handle a sudden surge of patients. But as the above data showed, the cruise ship had 37 high-risk passengers who required intensive care, while only one sailor became critically ill and needed intensive care. The infected low-risk sailors would not have made any appreciable

difference in the local hospital's intensive care unit's ability to handle this sudden surge of critically ill patients. It is the high-risk population that is overburdening intensive care units in this country, not the low-risk population.

Further, if the low-risk population was somehow allowed to simply get infected without infecting the high-risk population, they would rapidly achieve herd immunity without overburdening the health care system. On the other hand, if no measures such as social distancing were used to protect the high-risk population from SARS-CoV-2, the ICU wards in this country would be overwhelmed and many people would needlessly die.

Experts in this country who have studied SARS-CoV-2 have learned that there is a well-known pattern to this virus that can inform policy makers on how to tailor their response to mitigate this pandemic. Whereas the 1918 influenza indiscriminately sickened and killed people from all age groups (healthy and unhealthy), this coronavirus affects certain population groups quite differently, and these two groups can be separated into low-risk and high-risk populations for the COVID-19 disease.

Most important, these distinctions can work to our advantage as we develop a different approach to mitigate this pandemic than the one taken to mitigate the 1918 flu pandemic. In other words, there is a silver lining to this dangerous virus that we can take advantage of when formulating a plan to combat it. Government policy makers need to design a strategic plan to moderate the effect of this pandemic that would be structured around the fact that there are low-risk and high-risk population groups.

Ideally, you would want to accelerate the rate of herd immunity among the low-risk population through normal social interactions, given the fact that very few low-risk people suffer adverse health effects. And, at the same time, slow down the rate of infection among the high-risk population through social distancing, so that the health care system is not overwhelmed. The challenge is to develop a strategy that allows the low-risk group to continue to get infected so that they achieve herd immunity as rapidly as possible, while at the same time protecting the high-risk population. The faster the low-risk population achieves herd immunity, the sooner the high-risk group can resume normal social interactions in their community.

The Failure of the Current Approach to Mitigate This Pandemic

Unfortunately, today's infection disease experts advising our government leaders apparently are not taking into consideration the unique characteristics of COVID-19; they are designing a solution to this pandemic that is modeled on the one used in the 1918 pandemic. The root problem with their approach is that it involves *indiscriminate social distancing* for both low-risk and high-risk population groups in order to prevent hospitals and ICU wards from being overwhelmed. This approach prolongs the crisis because it slows down the rate of herd immunity among the low-risk population. And when government authorities mandate

economic shutdowns to create social distancing to bend the curve, both population groups are included, which is causing pervasive economic dysfunction.

This is evidenced by the more than 40 million unemployed Americans as of May 21, 2020, and the trillions of dollars the federal government is spending on propping up the economy. If this approach of shutting down our economy continues much longer, it will have the unintentional consequence of sickening and potentially killing millions more people around the world than it would have if the virus had been simply left alone to run its course. Indeed, the cure is likely to be worse than the disease.

Another major problem with the current approach is that the use of indiscriminate social distancing prolongs the day the general population achieves herd immunity. And the slower the rate of herd immunity, the more often the economy must be periodically shut down to create social distancing, further deepening the pandemic's devastating effects on both the people and the economy.

Therefore, since the availability of a vaccine is reported to be one to two years away, we urgently need to find a way to accelerate the rate of herd immunity among the low-risk population without overwhelming the hospital systems in this country—and it must be done in a way that doesn't devastate our economy, such as through periodic government-imposed economic recessions. The current approach is counterproductive; it is not only decelerating the rate of herd immunity through social distancing, but it is also deepening the damage to the global economy.

Proposed Solution

There is a rather simple solution to this perplexing problem, however. Rather than modeling a mitigation approach after the one used during the 1918 pandemic, a more effective solution would be to create a new approach based on the unique characteristics of SARS-CoV-2. It would involve a "tailored" form of social distancing and mitigation based on the low-risk and high-risk population groups. With this tailored approach, those with a low risk of complications from COVID-19 would actually be encouraged to continue normal social and economic interactions, while those with high risk of severe complications would be encouraged to practice social distancing and avoid exposure to low-risk people who may be asymptomatic. As will be demonstrated, this approach will accelerate herd immunity without overwhelming the health care system, thereby reducing the overall mortality rate. And, most important, it will minimize the damage to our nation's economy, as well as the world's economy, because the low-risk population will remain engaged in normal economic activity. The net result will be fewer deaths in this country and far fewer deaths in developing nations around the world due to poverty and malnutrition.

This approach of intentionally allowing the low-risk population to become infected may seem reckless and irresponsible. Since this is counterintuitive to the current approach, I will use the

recent outbreak of the coronavirus on the aircraft carrier *Theodore Roosevelt* once again as a case study to demonstrate why the current approach fails and why a tailored approach to mitigate this pandemic is the correct strategy.

As of April 24, 2020, out of the 5,000-member crew, 850 sailors tested positive for the virus. Following current federal guidelines, Captain Brett Crozier wanted all 5,000 sailors, except 400 essential crew members needed to maintain the ship, evacuated to facilities on the island of Guam. After Captain Crozier's controversial email to his superiors describing the dire situation and his plan to evacuate the ship leaked to the press, his approach to managing the outbreak eventually prevailed, and 4,600 sailors were evacuated. The nine sailors who were seriously ill were medevaced to US Naval Hospital Guam, and the other 841 infected sailors were quarantined in barracks on the naval base on the island. The remaining 3,750 uninfected sailors were sent to separate barracks or hotels, where they could practice social distancing. But this approach obviously shut down the *Roosevelt*, taking it out of commission and dealing a blow to the navy, which has been struggling with aircraft carrier deployment gaps the last several years.

How does the navy plan to restore the *Roosevelt*'s normal operations? It will be difficult to completely sanitize the ship. And what would happen if one of the returning sailors is infected? Would the virus overtake the ship once again, leading to yet another round of onshore social distancing and sheltering—resulting in the ship being taken out of commission again? This could go on for months. There are already twenty-six navy ships with coronavirus outbreaks at this time, and this pattern will likely occur on just about every ship in the navy's fleet if this same approach is followed. The Defense Department is presently grappling to find ways to protect the troops of all military branches from the rampaging virus while still performing essential operations.

The current approach to mitigating this pandemic is failing—whether on a ship or in our communities—because it is not modeled on the unique characteristics of COVID-19, which affects low-risk and high-risk population groups differently. If the crew aboard the *Roosevelt* had been infected with the deadly Spanish flu, which killed people in all age groups indiscriminately, then Captain Crozier's approach that followed current protocol would have been justified. But to date, only one low-risk sailor has died, proving that this virus is significantly different and demands a more tailored approach to control it.

Let us now see how a tailored approach modeled on the unique features of SARS-CoV-2 would work on the *Roosevelt* if it were overtaken with the coronavirus today. The first step would be to divide the sailors into low-risk and high-risk groups, based on their age, overall health, and underlying chronic health conditions such as high blood pressure, diabetes, asthma, and obesity. Based on the overall younger ages of the sailors and their likelihood of being in good health, let us assume that only 10 percent are high risk. So, of the 5,000 crew members on the ship, 500 would be considered high risk and 4,500 would be low risk.

The next step would be to test the 500 high-risk sailors for infection. We will assume that 100 sailors test positive and 400 test negative. The 400 high-risk sailors that tested negative would be placed in a fourteen-day quarantine off the ship to see if they get the disease. Out of the 100 high-risk sailors who test positive, nine sailors are seriously ill with the COVID-19 disease and would be sent to the closest hospital for enhanced medical care and observation, while the remaining 91 infected high-risk sailors who are asymptomatic or have mild symptoms would remain on the ship.

The ship's active crew of 4,591 sailors would also include the initial 850 sailors who tested positive for the virus. Remember, 60 percent of the initial infected sailors were asymptomatic, while the rest had only mild symptoms and recuperated in a few days. And nine sailors became seriously ill and needed to be transported to a hospital. The remaining 4,591 crew members could resume their normal duties on the ship, even if they were not at full strength. Only one high-risk sailor with the disease dies, but as the eight ill sailors in the hospital recover, they will then have antibodies to the virus and can safely rejoin the rest of the crew, increasing the crew's number on the ship to 4,599.

As for the 400 sailors in quarantine who were exposed to the virus but did not get the disease, they would remain at high risk. As a result, they would need to be placed on assignments on land that would allow for social distancing until a vaccine becomes available. If they later contracted the virus, recovered, and developed antibodies to the virus, they could rejoin the crew aboard the ship. In the meantime, to bring the ship's remaining 4,599-member crew back to full strength, the navy would need to replace these high-risk sailors with 401 sailors considered low risk.

Given that this coronavirus is highly contagious, it is inevitable that the 850 infected sailors aboard the ship would infect the majority of the rest of the crew. But based on the extremely low percentage of crew members with the virus who became seriously ill, the ship's medical operations would be able to handle this influx of patients; it would not be overwhelmed. A few crew members might not survive the illness, but that is unavoidable; low risk does not mean no risk. Perhaps they were genetically predisposed to die from the virus, as the medical community is discovering. The concept of flattening the curve does not prevent those who are destined to die from this virus from dying. Rather, it prevents too many people from being infected with the virus at the same time and overwhelming the hospital system, possibly resulting in more deaths because they are unable to receive proper care.

The purpose of intentionally leaving the 850 infected sailors on the ship is to allow the crew to rapidly gain herd immunity and have antibodies to the virus without overburdening the ship's medical facilities or facilities in the port city. And the ship's crew would be back to full strength in a matter of weeks. The ship would limp along as the crew rapidly gains herd immunity, but it could maintain its important function as an aircraft carrier. If the ship can function without having to go out of commission while dealing with an outbreak of the common flu every year, then surely it can function while it deals with an outbreak of the coronavirus, which has a

mortality rate of only .001 percent among its low-risk crew members. Remember, sailors at high risk have been removed from the ship.

Another benefit of this rapid herd immunity approach among the low-risk sailors on the ship is that when the ship sails again and docks in other ports, the sailors will now have coronavirus antibodies and can safely leave the ship without adversely affecting the local population in the city where they disembarked. Nor will they endanger their families or local communities when they are home on extended leave. The faster the low-risk population is infected and gains antibodies to the virus, the safer it is for the high-risk population to come in contact with them in the community at large.

Herein lies the wisdom of this tailored mitigation approach. Low-risk sailors were intentionally allowed to get infected through normal person-to-person contact because their reactions to the virus were largely minimal. Only a very small percentage of sailors required hospitalization; hospitals and intensive care units will not be overwhelmed. As herd immunity gained traction among the low-risk group, the sailors could leave the ship and freely mingle among any high-risk group they encountered, not putting them at risk for catching the virus. At the same time, the high-risk sailors who had been removed from the ship were practicing social distancing to protect themselves from infection, which in turn, slowed their rate of infection, resulting in a manageable number of hospital and ICU admissions. But most important, it was not necessary to take the ship out of commission. A reduced crew operating an aircraft carrier for a short period of time might not be ideal, but the ship would remain functional throughout this pandemic.

This approach of isolating only high-risk sailors accomplishes the same objectives as the current mitigation approach; it still bends the curve without overwhelming the navy's medical support system. But it is a far superior approach because not only is herd immunity achieved more quickly (while we wait for a vaccine), it also allows the ship's economic function to continue unimpeded, even with a slightly reduced number of crew members. This is in sharp contrast to the current model that supports indiscriminate sheltering of both high- and low-risk groups of sailors off the ship, in barracks, rendering the ship functionally obsolete for weeks.

It may seem counterintuitive, but the current policy of indiscriminate social distancing for the entire population actually increases the mortality rate of the high-risk population, even without factoring in the number of deaths caused by a deep global recession. That is because the current approach extends the timeline for the low-risk population to get infected and gain immunity, which in turn, increases the time-exposure risk of infection for high-risk individuals who come in contact with the low-risk population.

Let me explain. A high-risk person comes in contact with a number of low-risk people when they go out in public for essential needs such as groceries. If these low-risk people are only gradually getting infected because they, too, are practicing social distancing, then the high-risk

person will continue to be exposed to this virus for a long time—possibly until a vaccine becomes available.

But if the low-risk population achieves rapid immunity through normal social interactions and are no longer contagious, then the risk of infection for the high-risk population when they go out in public over the next year is dramatically reduced because a greater number of the recovered low-risk population will have antibodies and will no longer be contagious. This, in turn, will result in a reduction in the number of hospital admissions *and* a reduction in the mortality rate of the high-risk group. Remember, the low-risk population rarely has severe complications from the virus. There will be a measurable increase of hospital admissions as the low-risk population stops social distancing among themselves, but based on the case study of USS *Roosevelt*, this minimal number of patients should not overwhelm a hospital or an ICU.

In short, the faster the low-risk population achieves immunity by engaging in normal social interactions, the faster the high-risk population can reenter the social and economic life of the community. Instead of remaining in isolation for another year or two until a vaccine-based immunity is achieved, the high-risk group can slowly come out of isolation within a matter of a few months, as the low-risk population rapidly achieves herd immunity.

Furthermore, allowing the low-risk population to continue social and economic interactions throughout this pandemic will prevent the economy from going into a deeper recession. Admittedly, the economy will suffer, even with this tailored approach. If the high-risk group represents 30 percent of the population, their isolation and absence from the economic mainstream will certainly slow the economy, but it would not bring it to a screeching halt. The sooner the low-risk population achieves herd immunity, the sooner the high-risk population can reenter the marketplace and the shorter the recession. This is a win-win situation for the physical and mental health of the nation, as well as for its economic health.

I do not have the expertise to model the speed at which the low-risk population would achieve herd immunity through this tailored approach, but it could possibly be as soon as six months if this program were instituted nationally. The economy might limp along for a few months until herd immunity is achieved or a vaccine is widely available, but it will remain strong enough to enable it to rebound quickly.

Today, many businesses are in a type of government-enforced paralysis. This could be compared to a person who has been bedridden for several weeks. Their muscles rapidly deteriorate, and when they start walking again, fatigue quickly sets in. But there is also “muscle memory,” which allows muscles to recover rapidly once a person starts exercising again. With good exercise, within a couple of weeks a person will regain his or her previous strength and stamina. Therefore, if we restore our economy quickly, we will be back on our feet in no time. But if our economy atrophies for too long, it will take many years for it to regain its original strength.

Part 1: A Tailored Approach to the COVID-19 Pandemic

The Wisdom of the General Public

The president's coronavirus task force has done an excellent job letting the public know the health conditions that constitute being at high risk for severe illness from this virus, and they have updated those conditions as new findings are revealed. Most people know if they are obese or have high blood pressure, diabetes, or asthma. If not, they can simply visit their doctor or area clinic for evaluation to find out if they have an elevated risk. Doctors' offices and medical clinics would welcome the business since their waiting rooms have been virtually empty during the last few months.

Government officials often underestimate how much common sense the general population has. Healthy young people and college students know they are at low risk of coronavirus infection, and they crowded Florida beaches during their March spring break. The high-risk retirees in the area were smart enough to stay far away from these partygoers and shelter in place while they were in town. Those spring breakers need to realize, though, that they could be asymptomatic, and they should keep their distance from the older high-risk population such as their grandparents. The general public has for the most part understood their relative risk for serous complications from COVID-19. There should be no need for the government to use excessive coercion to get the American people to act responsibly during this pandemic.

Civil disobedience is becoming an issue, however. Some Americans are becoming impatient. They want to be liberated from the indiscriminate social distancing rules. They want to go back to work, to feed their families, to keep a roof over their head. They need the health insurance they lost when their jobs went away. They intuitively realize that the current approach being used to mitigate this pandemic needs to change.

The current government approach requiring both low-risk and high-risk groups to social distance has shut down the economy far too long. And with the availability of a coronavirus vaccine one to two years away, the outlook for our economy is rather bleak, particularly if the governors impose a rolling set of economic shutdowns during the next year. The current mitigation strategy needs to be adjusted soon so the economy can rebound quickly.

If state governors have not realized by now that many of their citizens are sensing something is wrong with the current approach to mitigating this pandemic, they are about to abruptly find out as peaceful protests around the country start turning into riots and looting that will rival the unrest that erupted in more than one hundred American cities after the assassination of Martin Luther King Jr. in 1968. National Guardsmen with loaded rifles were brought in to put down any violence. The forty-eight-year-old governor of Michigan was not born until four years later; perhaps she is unaware of the potential destruction of civil unrest.

The Michigan governor's restrictions to the state economy to force social distancing on all population groups have been especially smothering. We are now seeing images of people filled with desperation, fueled by uncertainty and instability, who are promoting civil unrest by carrying semi-automatic weapons to amplify their voices. Michigan has no laws regulating

assault weapons. Let us hope none of these disenchanted Americans choose to use their weapons in the current protests at the Michigan state Capitol—or it will be the governor who will be sheltering in place, not them. [Note: It was only days after I wrote this paragraph that the Michigan governor's office revealed she was no longer going into her office because of the number of death threats she was receiving. My prediction came true.]

For those who do not see the approaching storm, allow me to forecast the headlines of tomorrow.

The French Revolution in the late 1700s was a period of great disenchantment. The upheaval was caused by widespread discontent due to economic policies of King Louis XVI, which led to an unmanageable national debt and high unemployment, extreme hunger, and malnutrition as people's businesses failed while the aristocratic elite continued to live a life of extravagant luxury. When Marie Antoinette, the queen of France, offered the starving people cake instead of bread ("Let them eat cake"), it was not well received. When rioting, looting, and striking began in earnest, the national army could not put down the revolt, and the king and the aristocratic elite met a rather unpleasant end to their lives. [Note: I wrote this paragraph yesterday and woke this morning to read today's headline, "'She needs to eat lead': Michigan Governor Whitmer faces death threats." The reference to "lead" is a not-so-subtle allusion to the lead poisoning that took place in Flint, Michigan, when the state government grossly mismanaged the municipal water supply. No one was prosecuted, but they should have been.]

We are obviously not living in France during the eighteenth century, but Americans are a hardworking people who are used to eating steak for dinner and cake for dessert, not just dinner rolls. When government officials start taking away their jobs, their steak dinners, and their homes that they earned by the sweat of their brow, they will most certainly have a fight on their hands.

To understand the potential dangers that government officials face from people who have lost their livelihoods, consider this idea that Rush Limbaugh recently espoused on his radio show. He asked his audience that if a government continues to take away people's businesses and destroy their livelihoods, then what right does that government have to receive revenue from property taxes, state income taxes, federal income taxes, or any other fees the government is normally entitled to?

In Greece, a major reason the government has not been able to pay interest on their massive national debt is because 90 percent of the people refuse to pay income taxes. In a search for an alternative way to get these tax revenues, they decided to add the people's tax bills to their electric and gas utility bills. But that plan backfired because the people refused to pay their utility bills, and they dared their government to turn off the electrical and gas services to their homes. The Greek government still cannot pay their bills without the help of Germany and the European Union. These bailouts have allowed the country to remain peaceful. By the way, gun ownership in Greece is low and firearms are used mainly for hunting.

In the United States, however, gun ownership is a different story—there are more guns than people in this country. It is estimated there are more than 393 million civilian-owned firearms in the United States. And many of these weapons are high-powered hunting rifles and military-style assault weapons.

If governors continue to order a rolling set of mandatory economic shutdowns to control the spread of the coronavirus, riots in Michigan and in other states will soon get out of control, and the National Guard units of those states might no longer be able to control the civil unrest. In that case, the federal government will have to impose martial law and use military forces to restore order.

There is already an active militia movement in this country. And many members of these volunteer militia groups are anti-government extremists fixated on gun rights. They are well aware of the Second Amendment of the US Constitution: "A well-regulated Militia, being necessary to the security of a free State, the right of the people to keep and bear Arms, shall not be infringed." Many constitutional scholars believe this provision was included in our constitution to protect the people against a tyrannical central government taking away their liberty and economic livelihoods.

Tensions have been simmering for some time. As people watch their freedoms being stripped away, even if only temporarily, such as during this pandemic, they could be provoked to violence. This country has already endured one revolution and a civil war; hopefully, we will not have to endure another one. Anyone familiar with the dynamics of American history realizes that this scenario is not that far-fetched.

Again, many Americans are becoming impatient with the restrictions the government is placing on them. The current strategy to mitigate this pandemic needs to be adjusted so the economy can bounce back soon—and rebound without threat of future shutdowns. The tailored approach that I am proposing not only minimizes the economic damage to our country, but also prevents the needless deaths of many Americans who will need intensive care when they get critically ill.

The best way to illustrate how this tailored approach would work is to look at a variety of social and economic situations in our communities.

Colleges and Universities

College students, like the sailors on USS *Roosevelt*, are a predominantly young and low-risk group. The tailored approach would be to keep all colleges and universities open during this pandemic, with a different social interaction policy for low-risk students and high-risk students. Low-risk students would be allowed to return to their campuses to complete the semester, live in crowded dorms, go to bars and restaurants, and enjoy the social life of their campuses, which is a once-in-a-lifetime experience for most students. The majority will eventually become

infected with the virus, recover, and gain antibodies to the virus without overburdening local health care facilities.

If students wish to return home to visit their families at the end the semester, the school will need to provide free antibody testing to see if they can safely return home to parents and other family members who may be at high risk. If the test results are positive, they can return home to visit family and friends who may be high risk without fear of infecting them. But if they test negative, they are still at risk of getting the virus and infecting others; it would not be wise for them to return home. With this approach, colleges would be encouraged to remain open all year, providing housing and cafeteria food so that these low-risk students can remain on campus and not return home to risk infecting high-risk family or friends.

With this approach, it is essential that a reliable antibody test be available. Currently, there are more than 150 antibody tests the FDA has authorized on an emergency basis without performing the normal verification that is required. The FDA should narrow this list down to a few tests from major companies, such as those from Roche Pharmaceuticals and Abbott Laboratories.

Students will need to be educated on this tailored approach. I would suggest that all professors attend a seminar on the tailored approach and devote the first day of class to educating their students on the process. But common sense should prevail as they accept personal responsibility to follow these guidelines that support the health and well-being of others, especially family and friends who might suffer greatly if they caught the virus. Once the students graduate, many of them will have had the virus and will then have antibodies to the virus, so they can enter the workforce and become productive members of society—assuming they can still find jobs.

Inevitably a small number of low-risk students will get extremely ill and wish they had never gone to that fraternity or sorority party. Unfortunately, a few might die. And some parents might lash out and blame the university, but ultimately, the university should not be held responsible for spreading the COVID-19 disease. Students can also choose to postpone their education for a period of time if they do not want to accept that risk. And the university should reserve their place in school for when they return.

The high-risk group of students, on the other hand, would be encouraged to follow a different set of guidelines. They would be advised to maintain social distancing and to continue their education online if possible. Otherwise, they would be allowed to take a leave of absence until the virus has run its course. Professors who are at high risk would also have to be accommodated; they could teach their classes remotely from a home office using video conferencing, or younger substitute professors could take their place in the classrooms.

Campuses might not operate at full capacity until a vaccine is available, but they would continue to function, which would be less of a strain on the school's operating budget than the massive loss of revenue from a shutdown, which is quickly becoming a huge problem for

institutions of higher learning. Some college campuses might not survive. Most important, this approach enables the young and healthy low-risk students who remain on campus to gain herd immunity at a faster pace, so they can rejoin their families and communities.

One of the biggest mistakes this country made was closing institutions of higher learning to mitigate this pandemic. The large number of infected yet asymptomatic students who returned home likely infected many of their parents, grandparents, and other relatives and friends, many of whom would have been high risk. Researchers in Italy have found that one of the reasons the outbreak in the Lombardy region was so deadly among the older adult members of the population, especially grandparents, is because the government closed the grammar schools while allowing businesses to remain open. Many working mothers dropped off their children at their grandparents' homes for the day, exposing high-risk grandparents to the virus. Many of the children were asymptomatic, yet highly contagious. Tragically, grandmothers and grandfathers became infected, overwhelming local hospitals and bringing the country's health care system to the brink of collapse. Thousands died.

Schools in all nations should remain open throughout this pandemic. Schools with grades K through twelve should follow the same tailored approach as colleges and universities. Low-risk students and teachers would remain in school. High-risk teachers could teach remotely by video conferencing into the classroom or take a leave of absence while low-risk substitute teachers take their places. High-risk students would be advised to maintain social distancing and to continue their education online, if possible, or be homeschooled.

Restaurants

Restaurants, including school cafeterias, would also remain open using this tailored approach. If restaurant and cafeteria workers are young, healthy, and at low risk for severe complications, they would continue to work as normal. As they eventually get exposed, infected, and gain immunity, they would miss work for a short period, but they would be able to return as soon as they are well. Any workers in the high-risk group, however, would be allowed to take a leave of absence and shelter in place in their homes. This might represent 20 percent of these workers. These businesses would struggle because of the shortage of workers, but their customer bases would also be reduced because many who were at high risk would not be dining out.

With the tailored approach, tables could be set for full occupancy and regular menus could be used. Cleaning and sanitizing are required even in normal times, but excessive sanitizing surfaces would not be necessary for the low-risk population.

The high-risk population will certainly miss going to their favorite restaurant, so to accommodate these people, the restaurants could designate one day of the week as "Safe Dining Day," when extra precautions would be taken. All wait staff would wear masks, and menus would be single-use, paper menus. Tables would be spaced at least six feet apart, and enhanced sanitation practices would be put in place.

Eventually, though, when the low-risk employees develop antibodies to the virus, they will not need to wear masks. But if a high-risk customer entered the restaurant on Safe Dining Day and noticed an employee wasn't wearing one, they would probably be hesitant to dine there. And if the employee explained why they weren't wearing a mask, could they be trusted?

One solution that would identify someone as having coronavirus antibodies would be for them to wear a uniquely designed card similar to a driver's license, immediately designating that the wearer has the virus antibodies. If a high-risk customer at a restaurant noticed an employee who was visibly wearing this card on their shirt or around their neck, they would be put at ease, making their dining experience far more enjoyable.

To prevent counterfeit cards from entering the marketplace will require government involvement and regulation. Obviously, someone at high-risk would be put in significant danger if they came in close contact with someone who was being fraudulent about having antibodies to the coronavirus. When we look for a premium steak in a grocery store, we search for a label that reads "Certified Angus Beef." Because the meat industry in this country is heavily regulated, we can trust that we are indeed getting the premium quality of meat we are paying for.

The most logical government agency to regulate and issue these cards would be the Division of Motor Vehicles of each state, which already oversees driver's licenses and vehicle registrations. To obtain a card, a person would simply to go to their local DMV office to get a coronavirus antibody test for verification. Abbott Labs has recently developed a speedy antibody test that can deliver results in minutes, which would enable this testing. Once the results are confirmed, the DMV would create a card that included a unique identification code on the back as well as a barcode or a QR code. This would help prevent the circulation of fraudulent cards.

If a customer is concerned about the fraudulent use of a card, they could use a mobile app to scan the card to verify that the worker had been tested as Herd Certified. If someone was found wearing a counterfeit card or someone else's card, they should be severely punished by law for knowingly endangering someone else's life. Large fines and mandatory jail time should be imposed.

Before long, all restaurant employees and a large number of the general public would be wearing Herd Certified cards, and the restaurant would no longer need to promote a Safe Dining Day because every day of the week would be a safe day to dine for all people, including those at high risk. That is the beauty of this approach that accelerates the rate of herd immunity among the low-risk population.

Most important, restaurants, cafeterias and other eating establishments would not have to shut down when following this tailored approach. The livelihood of millions of people will not have to be abruptly crushed, which has been the case during these last few months.

Admittedly, there are millions of illegal workers in our restaurants, food processing plants, and agricultural fields, and this is certainly not the time to be harassing them. They need to be able

to freely go to a local DMV office for an antibody test and not have to present any identification. Now is certainly not the time to address such a difficult and divisive issue. Perhaps the idled ICE workers can get a temporary job at one of the fifty state DMV offices to assist them in processing these cards.

Amended Paycheck Protection Program

So far, there have been two rounds of the Paycheck Protection Plan (PPP) legislation passed by Congress to help small businesses weather the government-imposed economic shutdown. This tailored approach would also have a significant impact on the third round (PPP-3). This third round would certainly pay out much less than each of the previous rounds because only the high-risk employees are sheltering in place in their homes. Congress could pass legislation that would set up a form of disability compensation for temporarily disabled employees until we get through this pandemic. To qualify for the Temporarily Disabled Employees (TDE) program, unemployed high-risk employees would be required to obtain a doctor's certification stating they have well-defined underlying medical conditions that cause them to be at high-risk for severe illness if they catch the coronavirus at their place of employment.

If 20 percent of the workforce is made up of these temporarily disabled workers, then the PPP-3 loan program could be dramatically reduced by 80 percent, greatly lessening the financial burden on the federal government. If this approach had been implemented from the beginning, instead of the federal government paying out $659 billion, the payout would be closer to $132 billion. This tailored mitigation approach would save the country hundreds of billions of dollars through these programs alone, and it would be far easier for Congress to extend the TDE program for many months until we achieve herd immunity or a vaccine is readily available.

The current indiscriminate approach toward mitigating the coronavirus by closing most small businesses, such as restaurants, causes massive unemployment among both low-risk *and* high-risk employees. Congress will be forced to budget trillions of additional dollars to support the tens of millions of workers throughout recurring shutdowns. Since this is all deficit spending, I am not sure we can even call this a budget item.

Most important, with the tailored approach, businesses like restaurants would remain open, greatly reducing the negative downstream economic impact to farmers, shipping companies, equipment suppliers, and other vendors. Restaurants may suffer to some degree having to operate with a reduced staff and customer base, but at least they do not have to shutter, as is the case with the current approach. Restaurants in New York City have now been shut down for ten weeks, and one industry expert is already predicting that 50 percent will no longer be in business when the shutdown ends. Imagine if periodic shutdowns continue for through the end of year.

This tailored approach is far superior to the current approach, which requires both low-risk and high-risk employees in small businesses to shelter in place for extended periods of time, causing

severe long-term damage to small businesses, the economy, *and* the federal budget. Congress is currently spending almost a trillion dollars a month to sustain the economy, and even more if you include what the Federal Reserve is electronically printing to backstop failing corporate debt bonds, municipal bonds, and bank loans to insure liquidity. The Federal Reserve has so far prevented another financial crisis like the one that caused the Great Recession. And to date, they have done an outstanding job shoring up the financial industry.

But if Congress continues to spend almost a trillion dollars a month for the next twelve months, or until this pandemic is over, the country will be in debt for at least an additional twelve trillion dollars. By that time, the United States could be facing a sovereign debt crisis with unimaginable consequences. Many economists are warning of a coming depression, but to my knowledge, none have described the devastating impact a sovereign debt meltdown would have on the American way of life.

In addition, many state constitutions require a balanced state budget; they cannot borrow money to pay for deficit spending. They are going to face a multitude of challenges when revenues from sales and income taxes plunge this year. The federal government will have to come to their aid with some kind of financial assistance plan, otherwise a large number of state employees will be laid off and important state services will be greatly diminished or discontinued. North Carolina has already canceled 70 percent of the state's highway projects, and the recession has just begun. And these road improvements were needed yesterday, not tomorrow.

Corporate Offices

Under this tailored approach to social distancing, large corporations would encourage low-risk employees to resume going to the office to work. At the same time, these companies would continue to make provisions for high-risk employees, allowing them to continue working from home. Or they could come up with a customized solution in which high-risk employees would be put at less risk if they returned to work, such as working in separate offices or on a separate floor. If any high-risk employees do get infected with the virus and gain antibodies to the virus, they can then return to their original office space.

Many companies already use security cards or fobs to allow employees access to their offices, and once an employee has tested positive for antibodies, the cards could include "Herd Certified" that would allow the employee to associate with high-risk workers on their designated floor.

Housing Arrangements

Living arrangements will continue to be a real challenge with this tailored approach to the pandemic, especially if any family members are at high risk. With low-risk members returning to normal social and economic interactions, when they return home, they would obviously put

high-risk family members or housemates at greater risk of contracting the coronavirus and becoming critically ill. For this tailored approach to work, it is essential for the high-risk population to be protected day and night.

With more than 64 million Americans living in multigenerational households, a strategy will need to be developed to protect the high-risk population when low-risk workers return home. Health care workers and emergency first responders are already rising to this challenge by finding temporary living arrangements to protect high-risk family members. After they gain antibodies to the virus, they can safely return to their high-risk family members or housemates.

In other words, either the low-risk person or the high-risk person will need to find alternative housing during this pandemic. Some people will be able to join a household they already know, while others may need to go online and use Airbnb, VRBO, and Homeaway to find a temporary, affordable home that matches their risk profile. For example, these apps could be modified to list any available low-risk household for someone seeking to protect a high-risk family member or housemate. Local community organizations, churches, and government organizations will also need to help provide this kind of assistance. Each household with a mix of low-risk and high-risk occupants will have to decide which person should look for alternative housing.

For those who cannot find someone to take them in or cannot afford the extra cost of separate housing, Congress should create a fund that would allow the states to grant vouchers to people who need assistance with their housing expenses. There is no shortage of vacant Airbnb homes or hotel rooms, and the industry could certainly use the business. Just as local and state governments are responsible during hurricanes for providing school gyms as a temporary shelter for their citizens who have no place to go, they should be responsible for providing temporary safe harbors for people until it is safe for them to return home. This program would be like the government programs for food stamps, and it could be referred to as the “Safe Harbor” program until we get through this pandemic. It could be administered though the same agencies that administer the food stamps program.

Grocery Stores and Retail Stores

This tailored approach would allow for low-risk employees to resume working in grocery stores and retail stores in an effort to accelerate herd immunity among low-risk employees. They would not wear masks or be required to put up temporary shields at checkout counters. Remember, with the tailored approach, we want the low-risk population to rapidly gain herd immunity. The high-risk workers, however, should take a temporary leave of absence and if necessary, go on the TDE program.

Grocery stores and retail stores present a special problem for high-risk customers who need to shop for groceries and other goods because they will be exposed to potentially infected but asymptomatic store workers and fellow customers. Of course, the simple solution would be for

high-risk customers to shop online and have their groceries and other goods delivered or have a friend or neighbor shop for them.

A better solution would be for grocery and retail stores to designate special days exclusively for high-risk shoppers to come into the store, requiring all store employees and shoppers to wear masks during those days, combined with extraordinary measures of disinfecting. These special days could be referred to as a Safe Shopping Day. And as more and more clerks gain herd immunity and start wearing Herd Certified cards, the more often the high-risk population can come out of isolation and engage in normal economic interactions.

For the low-risk population, six days of the week would be a return to normal patterns of working, shopping, and socializing. But every Wednesday could be designated as a Safe Shopping Day for high-risk people to reengage in a somewhat normal life. Thus, the burden on businesses to constantly be wearing masks and constantly sanitizing surfaces would be limited to just one day a week. Wearing masks is a very impersonal experience, not to mention that it irritates the skin on one's face.

Loneliness and depression among the elderly and high-risk population has become a real problem due to the current social distancing measures. The sooner they can resume going to restaurants during Safe Dining Days and shopping for goods on Safe Shopping Days, the sooner they can be relieved of the loneliness and depression.

Agriculture, Food, and Related Industries

Meat processing plants that supply grocery stores have been in the news lately, with more and more shutting down as their workers become infected with the coronavirus. One large pork processing plant in Missouri with 373 confirmed infections was recently closed. All infected were asymptomatic, so why on earth was this important plant shut down? These workers were obviously a low-risk group.

With the tailored approach, the plant would not have needed to close. The high-risk workers could shelter in place at their homes and if necessary, go on the TDE program until they either get infected themselves and develop antibodies and can return to work, or until a vaccine is developed. But the remaining low-risk workers could continue operating the plant, with no social restrictions necessary, such as wearing masks or distancing at least six feet apart. Because they are at low risk for the COVID-19 disease, there is no reason for them to practice social distancing. This will allow the low-risk workers to gain herd immunity at a quicker rate. This shuttering of meat processing plants has led to meat shortages across the country, as well as a rise in prices of all meat products, which could not have happened at a worse time.

Migrant workers, too, play an essential role in feeding this country. With this tailored approach, healthy low-risk migrant workers would continue working on farms to harvest crops and in meat processing plants. The current approach of indiscriminate social distancing for both

low- and high-risk population groups is creating hysteria in the agricultural industry, and it is plunging the American economy deeper into crisis. Farmers are plowing under vegetable crops, dumping milk, tossing out eggs, and killing pigs, cows, and chickens because their processing plants are shut down. Many farms are on the brink of collapse.

It is unfortunate, but many young and healthy low-risk workers in meat processing plants are afraid to return to their jobs. I believe the infectious disease experts advising the president and the governors have done a poor job of explaining the relative risk for COVID-19 to the low-risk workers in this country, particularly those working in the food processing industry. People know how to assess risk when properly informed about the relative risk.

The coronavirus is an invisible and potentially deadly threat; we rely on infectious disease experts, doctors, and the media to communicate accurate and timely information and guidance on the risks associated with the COVID-19 disease. Yet, the very low odds for the low-risk worker of dying from contracting this disease are not being considered in their guidance. As a result, managers of these processing facilities do not know how to critically assess the risk for their workers so they can work in a safe environment, and the workers do not understand when it is relatively safe to go to work.

President Trump has recently declared meat processing plants “critical infrastructure,” which means shuttered plants must reopen, and no plants will be shut down in the future. Yet, some low-risk workers have become so frightened by the government and the media that they now are considering quitting their jobs for fear of catching the virus and dying once they return. Labor unions are still at odds as they try to resolve the many complex and moving issues of the effects the pandemic is having on workers. Of course, high-risk workers should practice social distancing and remain at home and go on the TDE program, but low-risk workers should not be frightened of the virus when they go to work. And there is certainly no reason for them to wear masks and work six feet apart.

Again, following this tailored approach to the pandemic, the objective is for the low-risk population to get infected during the next six months so they can have antibodies and gain herd immunity and, in turn, not potentially harm the high-risk population in the communities in which they live. Moreover, many workers in processing plants are from Latino cultures, and they live with parents, grandparents, and other extended family members; these low-risk workers might have to find temporary housing to prevent transmitting the virus to their high-risk loved ones. But the sooner they gain antibodies, the sooner they can return to live with their extended families and enjoy communal meals together, which is so important in many Latino cultures.

The infectious disease experts on the president’s coronavirus task force urgently need to create a simplified chart outlining the relative risk for workers based on age and underlying conditions so everyone can make informed decisions about their work and home environments. For those living in poor, underserved communities who might not have internet access, local social or

health workers will need to reach out and distribute the chart guidelines. For example, the chart would list high blood pressure as a condition that would add another level of risk for complications from the disease, informing a person that they are at moderate risk for the disease. If they are obese and in their sixties, they would be at high risk for serious illness from the disease.

It is imperative that the information be updated on a regular basis as new research is done and the data changes, so every American has access to the most recent findings from one trusted source. If someone needed assistance understanding their relative risk, a social or health care worker could encourage them to visit their local doctor or clinic for counseling. With this important information, people can determine if they can safely go to a restaurant any day of the week, or if they should only go on Safe Dining Days, or if they should order takeout and have it delivered to their home. We are not all infectious disease specialists, so the only way we can make these rational decisions is to be well-informed by these specialists. But when properly informed, the general population can be trusted to act responsibly. A father crossing a road with his small child knows the relative risks associated with crossing a local neighborhood street versus a two lane highway versus a four lane interstate highway.

Recent polling about whether people agree with their respective governor's decision to reopen their state's economy have indicated that more than 60 percent of the people think it is the wrong decision and indiscriminate social distancing should continue. Obviously, the general population has been unduly frightened; these poll numbers would likely be dramatically different if a simple chart with all these COVID-19 guidelines were widely disseminated with a tailored approach to this pandemic. The economy would literally start coming back to life in a matter of days.

Long-Term Care Facilities

Assisted living centers and nursing homes have been profoundly affected by COVID-19. They account for about one-fifth of all deaths in the United States to date. The virus is known to be more deadly to aging, immune-compromised people in small, confined settings, like these facilities, especially as workers frequently move from room to room, inadvertently spreading infection.

Aggressive coronavirus testing can protect this vulnerable population, however. But first, in line with this tailored approach, all high-risk workers would immediately go home to shelter in place and if necessary, go on the TDE program until they either get infected themselves and develop antibodies and can return to work or until a vaccine is developed. The remaining low-risk workers, as well as every visitor, should be tested each day before entering the facility. If they test positive, they would be sent home until they recover and develop antibodies to the virus. It is better for these facilities to remain open with a reduced staff than to have infected workers lethally infecting the elderly who are in their care.

It is unfortunate that many workers at these facilities barely earn the federal minimum wage, without the benefit of paid sick leave. One worker recently interviewed on national news admitted that she went to work with a fever because she could not afford to miss a paycheck. This is incomprehensible, and the state and federal governments should immediately address this issue in the senior care industry.

Tragically, too, senior care facilities have had to operate with a limited number of coronavirus test kits—and these are the facilities with the largest concentration of high-risk people. They should have been given the same top priority as hospitals, clinics, and medical centers when it comes to having test kits. The Abbott Labs rapid testing kits would have no doubt saved many lives. The outbreak of the coronavirus at the Life Care Center community in Washington state was first reported on March 1. Yet here we are sixty-plus days later, and the vast majority of the long-term care facilities around the country are still not equipped with the Abbott Labs testing machines and supplies. It is a safe bet that future historians will look back with condemnation on the government's failure to protect its most vulnerable population.

The general public and press have been upset that COVID-19 testing for the general population has not been readily available through the drive-through test sites at CVS, Walgreens, and other retail locations across the country. But with the tailored approach, the need for widespread testing is not needed for the general population of low-risk people. Why test them if they are only associating with other low-risk people? The only time a low-risk person needs to be tested is when they are entering a facility such as a senior health care center or a hospital, when they are going to be in proximity of extremely high-risk people.

The lack of testing for the general population dominates the news every day with the Trump administration getting the blame. But with the tailored approach, there is no reason to test low-risk people who are only interacting with low-risk people. The tailored approach offers a whole new way of thinking about the need for testing, and it should bring the hysteria over the lack of testing for the general population to an end.

Dental Offices

Following this tailored approach, dental offices would remain open during the pandemic. High-risk workers would take a leave of absence and go home to shelter in place and if necessary, go on the TDE program until they can safely return to work. The remaining low-risk office workers would be tested daily before entering the office, with dental practices being given the same high priority as health care centers in the distribution of the Abbott Labs rapid testing kits. Each patient would also be tested and screened before they begin their dental exam or procedure. A reasonable surcharge would be added to each patient's bill to cover the cost of testing. And high-risk patients would be encouraged to postpone dental visits, if possible. But with proper screening and additional medical liability insurance, dental practices could and should remain in operation.

The Airline Industry

The airline industry faces a significant challenge to remain viable. In line with this tailored approach, high-risk airline workers would need to shelter in place at home and go on the TDE program, if necessary, while flights could continue in operation by low-risk pilots and crew members. The reduced crew levels should not be problematic because passenger levels will remain reduced for some time.

To accommodate high-risk passengers, a limited number of separate flights at separate gates or separate terminals could be set aside. These flights would be known as "Safe to Fly" flights. These planes would undergo a rigorous disinfection process. For these flights, all crew members and passengers would be screened for the virus before boarding the plane using the Abbott Labs testing machines. The current TSA screening process at all airports would include screening for COVID-19.

As low-risk crews on other flights get infected and gain antibodies, they can be reassigned to these Safe to Fly flights. Pretty soon the whole crew will be wearing Herd Certified immunity cards, and the high-risk travelers will feel more comfortable flying. If Charlotte, North Carolina, has five flights a day going to Washington, DC, one of these flights could be designed as Safe to Fly. I imagine that some of our elderly senators and representatives would take advantage of this program.

Currently the airline industry's revenue is down an astonishing 95 percent due to the wholesale shutdown of the economy and termination of global flights. But this tailored approach enables the industry to begin the long road toward recovery at a faster pace, as low-risk *and* high-risk passengers can resume traveling.

Sports, Amusement Parks, and Churches

With the tailored approach, the low-risk population can resume going to sporting events, amusement parks, and churches as they gain herd immunity. Those at high risk would be advised to shelter in place at home until it is safe for them to return. The same is true for low- and high-risk workers or participants at these events and gatherings; those at low-risk could continue in their jobs, enabling the events to go ahead as planned.

In the sports industry, issues will arise with respect to high-risk season ticket holders who cannot attend some events. They can ask for a refund, or simply sell their tickets, or give them to family or friends. At amusement parks, high-risk elderly grandparents will certainly miss helping with the grandchildren and experiencing their excitement. And pastors should encourage their high-risk congregation members to watch services online as they shelter at home, while normal services open for low-risk members and guests. In the meantime—and most important—sporting events would continue, and amusement parks and churches would remain open.

The athletes participating in sporting events are most likely in the low-risk population, and like the sailors on the aircraft carrier, there is no reason for them to practice social distancing. It was controversial at the time, but the NBA tested all their athletes and found a number of them testing positive. But there was no report of any needing hospitalization, which proves that it is not necessary for them to practice social distancing. Nevertheless, I saw a news clip of professional football players doing exercises while staying ten feet apart on the field, which is utterly ridiculous given that the game requires close contact with heavy exhaling and deep inhaling.

The Cruise Ship Industry

The cruise ship industry presents perhaps the greatest challenge to mitigation because it attracts a disproportionately large number of high-risk senior citizens who remain in relatively close quarters for the entire cruise. It is virtually impossible to segregate them in a safe manner on the ship. Unless the industry can come up with a way to screen and test every single one of its crew members and passengers and thoroughly disinfect the ship before boarding, it should probably remain closed until a vaccine is widely available, despite the economic hardship this creates for those connected to this industry. The only exception would be to tailor the cruise to younger people or newlyweds, and have musical events sponsored by bands and singers of their generation.

There are more than 450,000 jobs that are connected to this industry, many of them in Florida. Florida's $9 billion cruise industry is taking a tremendous hit. Unfortunately, because these companies chose to register the majority of their ships in foreign countries to circumvent American labor laws and taxes, Congress excluded them from receiving bailout funds. The future of their industry is indeed in peril.

Navigating mitigation efforts in these wide range of businesses and circumstances will be difficult. Logistics will be a challenge. But the American people have common sense. Once informed about this tailored strategy, they can be trusted to know when and how to socially interact with others during this pandemic. I am sixty-six years old, but I would consider myself as having only a low to moderate risk of developing severe complications from COVID-19 because I have an ideal body weight, exercise regularly, eat well, and have no underlying health conditions. I will wait until a vaccine is developed before going to a baseball or football game, but I will go to a restaurant on a Safe Dining Day. I will go to the gym and wash my hands after handling any equipment, but I will not attend a crowded exercise class.

The current one-size-fits-all mitigation approach is fairly easy to implement because it creates a blanket form of social distancing for all population groups. This tailored approach, however, will entail developing mitigation policies for a broad range of industries, tailored to the unique conditions of each industry. Local mayors and state governors will need to work long and hard with industry leaders to come up with creative solutions specific to that industry. But we are a

smart and creative nation; I know we can quickly meet this challenge once everyone involved understands the tailored approach to social distancing.

The artificial segregation of the low- and high-risk population groups with this tailored approach may seem odd, unnatural, and unfair—because it is. I find it embarrassing and disrespectful to have to step off a sidewalk to create six feet of distance when someone is walking by me from the opposite direction, and I hate having to wear a mask in grocery stores. But the separation will only be temporary. I find it encouraging when I see young parents and their young children socializing with other young couples with their children.

Testing, Contact Tracing, and High-Risk Tracing

The availability of coronavirus testing in this country has been a contentious subject since the pandemic began. The current mitigation approach of indiscriminate social distancing for both low-risk and high-risk population groups necessitates aggressive large-scale testing to determine who is infected with the virus and who is not, for the protection of everyone.

This tailored approach, however, does not rely so extensively on large-scale testing for the general population. Remember, the overwhelming majority of people—the low-risk population—have almost no risk of serious illness from COVID-19. As they continue their lives normally socializing in the community, allowing businesses to remain open, they will eventually contract the virus and gain herd immunity. In most cases, they would not need to be tested, nor would they need to be quarantined. The limited virus testing would be for the high-risk population group in locations where they are prevalent or in close proximity to others, such as hospitals, senior care facilities, dental offices, and commercial airlines.

Even if large-scale contact tracing were effective at slowing down the infection rate of the coronavirus, it would be counterproductive at this stage of this pandemic because it would slow the rate of herd immunity of the low-risk population. We should take advantage of the fact that the low-risk population on average does not experience the devastating effects of the virus and use this population group to accelerate the rate of herd immunity; this would protect the high-risk population group that is truly at risk from this virus.

Contact tracing only works in the earliest stages of a viral outbreak of a disease like COVID-19. Now that we have extensive community transmission of the virus throughout the country, we should focus on accelerating herd immunity among the low-risk population while protecting the high-risk population through social distancing. That is where states should focus their time and resources—not on massive testing and contact tracing.

The prolonged isolation and stresses of this crisis are beginning to have a profound effect on the mental health of many Americans. People trapped in their homes are experiencing loneliness, anxiety, and depression as they try to cope with the sudden upheaval in their lives and the uncertainty of what lies ahead. This tailored mitigation approach, however, proposes

that only the high-risk population needs to isolate. The low-risk population must continue to circulate in the community, because the sooner that population group reaches herd immunity, the shorter the period of isolation and stress the high-risk group will experience.

This is yet another reason this tailored approach is superior to the current approach, which not only calls for everyone to isolate or shelter in place, but in the process, also prolongs herd immunity, thereby prolonging the despair so many people are experiencing. Once this pandemic is over, everyone will need to reach out to those who were isolated for long periods of time and ask them how they're doing and include them in social get-togethers.

Informing the poor and disadvantaged population who either do not read the news or watch the news about the new tailored approach will be a challenge. Instead of wasting time and resources on contact tracing, local health department workers could map out and personally visit these areas to hand out the charts with the relative risk associated with COVID-19, and educate them on how they should approach social distancing. Far too many of these people do not have health insurance or a family doctor, and many have underlying health conditions they either can't afford to take care of or they're unaware of. This was the case in a number of admissions at both New York City and New Orleans hospitals during the last few months.

Congress should create a voucher program to pay for physical exams. State contact tracers could then distribute the vouchers to the people who need help in determining if they have any underlying condition that increases their risk for COVID-19. I imagine this program would reveal a number of health conditions other than those related to this pandemic, which in turn, would result in fewer hospital emergency room visits. The voucher program would not only save lives during this pandemic, but it would also pay for itself, in time.

Contact tracing is simply not needed with the tailored approach. And the digital technology that is being designed to utilize efficient contact tracing is already being called an invasion of our privacy. We as the people should consider both the short- and long-term impacts of this technology to human rights. If our movement was monitored for less than honorable reasons, it could have a chilling effect on many of our First Amendment freedoms. China, for instance, has used digital contact tracing to track and imprison more than a million Muslims in the Xinjiang region in an effort to prevent Islamic radicalism from infecting others and producing terrorists who could harm their nation. And authoritarian regimes around the world are using facial recognition technology to monitor activists and control dissent. As we consider using digital contact tracing in this country to control the spread of the coronavirus, we need to remember that life, economic prosperity, *and* liberty are essential to a life worth living.

Preparing for a Spike

With this tailored approach that encourages low-risk people to reengage with normal social interactions, hospitals should prepare for an initial spike in admissions. Along with high-risk admissions, there will still be a number of low-risk people who did not know they had an

underlying condition that made them more susceptible to serious complications from the disease. Scientists are also discovering that some young people have some genetic factors that affect the way the virus interacts with the person's respiratory system. And some young people are even experiencing strokes. Low risk does not mean no risk. But as a society, we should not panic, for the acceleration of herd immunity among the low-risk population will soon make it safer for all population groups to reengage in normal social and economic life.

If hospital admission rates do suddenly spike and hospitals become overwhelmed, states can implement policies to slow down the rate. For example, events that involve large densely packed crowds can be temporarily curtailed or postponed for a few weeks. In addition, high-risk people can be encouraged to exercise greater caution during these elevated levels of infection and transmission. Maybe they go grocery shopping every other week instead of once a week, or they use a delivery service to reduce their exposure and rate of infection.

Densely populated cities like New York City might again experience major outbreaks that overwhelm their hospitals and have to resort to government-imposed social distancing for all population groups until the rate of hospitalization is more manageable. They can then return to the tailored mitigation approach by implementing measures such as encouraging businesses in high-rise office towers to create separate elevators and separate office areas for high-risk employees. Residential towers can designate separate elevators for those at high risk. All the while, high-risk people would need to practice social distancing and wear masks while in public.

But the good news for New York City is that even with the recent trauma the city has experienced, they are actually much further along in achieving herd immunity than many densely populated cities in Asian countries that curtailed their rate of infection by requiring everyone to wear masks. The universal wearing of masks did go a long way in curtailing the disease, but it slowed herd immunity in the process. These Asian cities will be dealing with periodic shutdowns of their social and economic life for a long time. New York City did it the hard way, but there is plenty of light at the end of their tunnels, for New York City will be able to freely open their economy and restore normal communal life much faster than those Asian cities.

The Press

For this new strategy to work, it is essential that the press support it and become strategic allies, not antagonists. In general, the press has been quick to rush to judgment whenever there is a spike in coronavirus infection numbers in this country. They will need to understand that this tailored strategy encourages the low-risk population group to actually get the virus in order to gain herd immunity as soon as they can; a spike in infections among low-risk people would be a good thing as long as the high-risk population is practicing social distancing. And it would not significantly increase hospital admission numbers because so few low-risk people suffer severe complications from the virus. As they gain antibodies to the virus, it becomes safer for

the high-risk population group to venture out of their isolation into the community, at least until a vaccine is available.

Hopefully members of the press will understand this logic to the approach, because today mayors and governors are being shamed in the press when the rates of infection go up in their cities and states. This new strategy will be a paradigm change for the president's task force *and* the press.

A Different Way to Chart the Spread of the Coronavirus

The current chart model is a logarithmic graph that illustrates bending the curve until herd immunity can be achieved. The curve bends downward as overall coronavirus infection rates decrease. If the line does not bend downward, then more stringent containment measures are needed.

This type of chart works well for a virus like the 1918 influenza that killed people from all population groups, but it is offers too simplified a view of the more complex SARS-CoV-2. It does not distinguish between the rates of infection, hospitalization, and herd immunity for low-risk population groups compared to high-risk population groups, which are quite different. A separate graph is needed for each population group, depicting their unique rates of infection, hospitalization, and herd immunity. This would enable infectious disease experts to analyze ways in which the two graphs, or population groups, intersect and interact with the other.

For example, the tailored approach predicts that a faster rate of herd immunity among the low-risk population will not negatively impact the health care system. Furthermore, it will also result in a lower mortality rate for the high-risk population than the current approach. That is because the current approach of using social distancing for *all* population groups ends up prolonging the rate of herd immunity, thereby extending the period of high exposure for high-risk individuals, which leads to a higher mortality rate. This is a complicated calculus, but to test this hypothesis, infectious disease experts will have to construct a more complex model of charts.

Another chart should be developed indicating mortality rates due to malnutrition and poverty brought on by a government-induced recession. Then the two charts above should be blended with this chart. I believe this blended chart will prove that this tailored mitigation approach is superior to the current one because it will lead to far fewer deaths without the economic carnage that comes from extreme indiscriminate social distancing.

Lessons from History

From an intellectual history perspective, please allow me to make a few observations about what might happen if we do not quickly change course in how our government is approaching this pandemic.

Part 1: A Tailored Approach to the COVID-19 Pandemic

With the current approach of using recurring economic shutdowns to force all population groups to practice social distancing, the government will have to continue spending trillions of dollars to support the unemployed and businesses that are forced to close. It is highly likely this deficit spending and electronic printing of money will lead to hyperinflation and a sovereign debt crisis. Before long, $100 worth of groceries will cost $500 dollars, then $1,000, then $10,000. This is based on historical precedence.

When Germany lost World War I in 1918, they owed massive debts and reparations to the Allied countries, in accordance with the Treaty of Versailles. Shortly thereafter, they experienced uncontrollable inflation. In 1919, one ounce of gold cost 170 marks. But by 1923, people went shopping with wheelbarrows full of newly printed cash just to buy groceries. It is no coincidence that Adolf Hitler's relentless rise to power began during this crisis in 1919, when he joined an anti-Semitic party and renamed it the National Socialist German Workers' Party. Notice he called it the "Workers' Party." It was a precursor to the Nazi Party.

Eventually, inflation was brought under control, but then the worldwide Great Depression of the 1930s began. It was during this time that Hitler began a powerful propaganda campaign that placed the blame for the depression on the Jews, who owned a number of banks in the country. As unemployment, starvation, and misery grew more severe, people were drawn to Hitler's ideology. And once his right-wing fascist party, the Nazi Party, consolidated power, he was able to restore Germany's economic engine.

The German people began to idolize Hitler. After all, he had brought stability, created jobs, and restored German greatness. Over time, he was able to convince the Germans that evolution had made them a superior race and that they should rule the world. With their powerful economic engine and grand production of war machinery, they embarked on this mission. You know the rest of the tragic story.

Clearly, an economy that experiences hyperinflation followed by a deep depression destabilizes a nation, allowing narcissistic leaders like Hitler to use their charisma to gain even more power over them. And when he successfully resurrected their shattered economy, he wanted to be worshiped as the redeemer and savior he believed himself to be. Americans should never be under the delusion that a tyrannical dictatorship could not happen here. Under the right catastrophic economic conditions, it certainly could happen.

Let us also not forget what took place under left-wing totalitarian regimes, such as Communist China, when the combative revolutionary Chairman Mao Zedong exploited the economic hardships of the poor peasants. Historians estimate that between 45 to 80 million people died because of his unscrupulous tactics and communist ideology. During the Russian Revolution, Vladimir Lenin seized power and formed the Russian Communist Party. Soon thereafter, Lenin exploited the discontent of the Russian workers. He was succeeded by Joseph Stalin, and during Stalin's Great Purge, another 30 million human beings died.

It is critical to realize that workers suffering extreme hardship were lured by these charismatic leaders. When people become deeply disillusioned and desperate, especially during times of severe economic depression, they look for a powerful leader to save them from the destruction they are afraid of—they look for a savior.

When the Ku Klux Klan demons rose from beneath the surface in the struggling South during the Jim Crow era and controlled the hearts and minds of sheriffs, mayors, and judges in their communities, innocent poor African Americans were hanged by the thousands. These poisoned hearts and minds still exist below the surface today, but they are now well-equipped with high-powered deer rifles and assault weapons. Every nation has its own demons that must be kept at bay; otherwise, when they rise to positions of influence and power, life can become hell on earth.

I do have a warning to our European neighbors across the Atlantic Ocean as we experience this pandemic together. Italy was experiencing a sovereign debt problem before this pandemic began in that they were not able to sustain interest payments on their nation's debt. Now, with tax revenues plunging, they lack the financial resources to prop up their economy until they emerge from the recession. Cafes, butcher shops, and bakeries desperately in need of financial support will need to look elsewhere for help. It has already been reported that the Italian mafia is exploiting these small businesses by providing them loans, which is dangerous; organized crime syndicates are not ideal business partners. To make matters worse, multiple scandals over the last 50 years have revealed that organized crime figures in the country have been stashing away billions of dollars in the unregulated Vatican bank in Rome.

Unless the 27 member nations of the EU want to see the mafia spread its tentacles deep into the rest of Europe, it would be wise for the EU to bail out Italy once again to shore up its economy during this pandemic. Germany, the Netherlands, and other Northern European nations are at odds over how to bail out the hardest-hit Southern European countries like Italy, Spain, and Greece. As grim as the economic outlook appears, this deepening rift between member nations of the EU must be shored up. For a quick look into this crisis, the BBC delivers a stern warning to the EU:

https://www.youtube.com/watch?v=HQUImTRA5wE&t=2s
https://www.bbc.com/news/world-europe-52537573

We should all be students of history regarding how totalitarian regimes came to power in other nations. If our country's leaders continue with the current approach to this pandemic and we do experience the economic carnage that many economists are predicting, then we should be on the lookout for the next false messiah who will promise to lead us back to a life of peace and abundant prosperity.

I am still trying to determine whether that leader will come from the extreme left with promises of universal health care and universal basic income for all Americans (as promoted by Alexandria Ocasio-Cortez), or from the extreme right, which includes a long list of hate groups.

Let us hope this country wisely changes course soon in its approach to mitigating this pandemic so that we can quickly return to existing as a relatively prosperous country,

Although I believe they are well-intentioned, I do not think Dr. Brix and Dr. Fauci and their group of infectious disease experts, epidemiologists, and medical doctors understand the existential threat we face with their approach to this pandemic.

Therefore, let us heed the urgent warnings of economists and historians so that this pandemic does not lead to another form of authoritarian regime and a harsh and deadly reality. My family enjoys the American way of life, even with all its shortcomings. And if we live through this pandemic, we would like to continue to enjoy our religious freedom of worship and assembly, which will be at risk under an authoritarian regime.

In fact, governments around the world, including China, should stop wasting valuable time and resources on persecuting minority religious groups in their country. They need to realize that they are only responsible for the physical and material well-being of their citizens, not their spiritual well-being. After a person dies, their eternal destiny can only be determined by that person alone, whether it is nothingness as atheists believe, some version of purgatory or hell, or some unknown kind of heavenly paradise. People are responsible for their own spiritual well-being and determining their own eternal destiny, which is why religious liberty is the single most important civil liberty.

We all have limited knowledge, and we are all fallible, which is why no leader has the right to impose their conclusions about God and the universe on anyone else. Everyone should be free to do their own research by reading any literature on the subject and listening to any speaker who believes they have it all figured out. And if they want to get together as a group to joyfully celebrate their findings, then by all means let them do so. Happy people make good citizens.

Moreover, those with elevated ethics are important to any society. Perhaps if the government officials in Wuhan had been more honest in their assessment of the deadly COVID-19 outbreak in their community instead of concealing evidence and working steadfastly to silent anyone who tried to warn about its spread, this pandemic could have been halted in its tracks. Hopefully, the ruling Chinese Communist Party leader, Xi Jinping, will soon realize that an ethical society with a healthy fear of God goes a long way in inspiring people to speak the truth in any situation, which leads to a more prosperous and civilized society.

And as the American experiment has shown, a country that promotes freedom of religion as well as free enterprise can also be much easier to govern. Why waste valuable time and resources having government workers chase down underground churches and imprison pastors when these same government workers could be working on the next infrastructure project to bring clean water to a country that has a growing population in need of valuable water to irrigate their crops to feed their people.

If a religious assembly is involved in acts of terror, child abuse, or other egregious crimes, then that is another story. The leaders and those involved in the crimes should be punished. Otherwise, it is time that governments around the world commit themselves to being responsible for the physical and material well-being of their people while letting their people be responsible for their own spiritual well-being and eternal destiny. This is particularly true today, because it is going to take a great deal of government time and resources to combat this pandemic.

Potential Treatment

Until there is a proven vaccine, Dr. Birx and Dr. Fauci reported that the NIH and the FDA are looking into both orthodox and unorthodox ways to treat COVID-19, including examining pharmaceutical drugs already approved, as well as those in development, such as Remdesivir. Pharmaceutical companies across the nation and the world are working long and hard to come up with new treatments until an effective vaccine is widely available.

For example, an emergency room physician in Seattle came down with COVID-19 and was experiencing a cytokine storm in the ICU when doctors tried using a drug called Actemra, which is used to treat rheumatoid arthritis. It worked and after four days, the ER physician slowly recovered. (See https://www.latimes.com/world-nation/story/2020-04-13/coworkers-save-coronavirus-doctor.)

Other forms of anti-inflammatory drugs like Advil or ibuprofen have been found to cause further harm, and doctors are now recommending the pain reliever Tylenol. Pharmaceutical labs often look at compounds in plants to see if they can be turned into a beneficial drug. For examine, aspirin is made from the bark of a Willow tree, which contains salicylic acid. Bayer Aspirin uses this ingredient as a pain reliever, and it also works as prevention for heart attacks.

I have seasonal allergies to grasses, weeds, and trees. And when I am cutting the grass during pollen season, I always wear a dust mask to reduce the amount of pollen I breathe in. My allergist also recommended that I use a product called NeilMed Sinus Rinse, which is a saline solution to rinse out my nose and sinuses to remove any pollen that may have accumulated while I worked in the yard. It is just pure salt mixed with warm distilled water, and it is quite soothing to my irritated sinuses.

I asked Joe Graedon (a pharmacologist who produces a syndicated public radio show called *The People's Pharmacy*) if he thought a saline nasal rinse would rinse away any of the coronaviruses I may have inhaled when in public and in close contact with other people. The virus has these strange little hooks that latch onto the mucus lining of a person's nose and sinuses, which leads to rapid reproduction particularly when it makes its way into the lungs. He replied that he did not know whether it would be effective, but it surely would not hurt to try it given that the saline rinse is healthy for someone with allergies.

It seemed to me that a healthy nose and sinus rinse of saltwater is like that of washing one's hands after being out in public. As I understand it, it takes a large number of the viruses to infect someone, so the lower number of the viruses in one's upper respiratory system, the better. Joe Graedon did not know of any scientific laboratory testing my hypothesis. I still think it is a good idea, and the inexpensive products are readily available in any large pharmacy.

I continued to think about other methods of protection against the coronavirus that didn't require a prescription. I came up with a new hypothesis about prevention of COVID-19 disease but also treatment of the disease. Some might think my idea is a little crazy, but many advances in medicine have come from interesting ideas based on observations, such as the discovery of penicillin. For more information on the discovery of penicillin, see the following article by Theodore C. Eickhoff, MD, Professor of Medicine in the Division of Infectious Disease at the University of Colorado Health Sciences Center: https://www.healio.com/endocrinology/news/print/endocrine-today/%7B15afd2a1-2084-4ca6-a4e6-7185f5c4cfb0%7D/penicillin-an-accidental-discovery-changed-the-course-of-medicine.

Dr. Fauci has stated many times that it is extremely important that we find an effective treatment for the disease because a vaccine is one to two years in the future, so I decided to run with my idea. I am not a scientist, so all I can do is present my hypothesis and let those in the scientific community test its viability.

Years ago, I met a man who worked for a highly advanced research lab studying the tobacco plant to see if its leaves contain any active ingredients that could be beneficial to humans. He told me the tobacco plant contains an amazing number of densely packed chemical compounds, for it sucks up a tremendous amount of nutrients from the soil. That explains why tobacco fields require so much fertilization.

Because the tobacco leaf is so full of rich ingredients, it would be a feast for pests and fungi. As such, it contains a very potent natural pesticide and fungicide known as nicotine. Nicotine is a type of salt. And, as it turns out, nicotine is also a bactericide and a virucide. (See https://www.ncbi.nlm.nih.gov/pmc/articles/PMC444439/ and https://www.researchgate.net/publication/325159226_Resolution_of_chronic_rhinitis_to_staphylococcus_aureus_in_a_non-smoker_who_started_to_use_glycerine_based_e-cigarettes_Antibacterial_effects_of_vaping.)

Obviously, if a person slowly burns the leaves containing the nicotine in the form of a cigarette and inhales it, many of these chemical compounds become highly toxic. But the nicotine itself may not be toxic, and it may even have some therapeutic benefits:

> Cigarette smoke is a major health risk factor which significantly increases the incidence of diseases including lung cancer and respiratory infections. However, there is increasing evidence that smokers have a lower incidence of some inflammatory and neurodegenerative diseases. Nicotine is the main immunosuppressive constituent of cigarette smoke, which inhibits both the innate and adaptive immune responses. Unlike

> cigarette smoke, nicotine is not yet considered to be a carcinogen and may, in fact, have therapeutic potential as a neuroprotective and anti-inflammatory agent. This review provides a synopsis summarizing the effects of nicotine on the immune system and its (nicotine) influences on various neurological diseases.
> (See https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4002379/.)

I subsequently did some online research to see if there were any reported beneficial health effects from smoking cigarettes. I was stunned to find an article reporting that smoking tobacco and inhaling the cooked nicotine has some health benefits. It lowers the risk of Parkinson's disease. It lowers the risk of obesity. It can lower the risk of death after some heart attacks. Smoking even helps some drugs work better. (See https://www.livescience.com/15115-5-health-benefits-smoking-disease.html.)

I began to wonder if smoking cigarettes with burned nicotine could have antiviral and antibacterial properties and could not only prevent the disease but could also help treat severely ill COVID-19 patients. Much to my surprise, I discovered a recent article in *The Guardian* reporting that doctors in a major hospital in Paris, France, had found that smokers improved faster than the patients who did not smoke:

> French researchers are planning to test nicotine patches on coronavirus patients and frontline health workers after a study suggested smokers may be much less at risk of contracting the virus. . . . The study at a major Paris hospital suggests a substance in tobacco – possibly nicotine – may be stopping patients who smoke from catching Covid-19. Clinical trials of nicotine patches are awaiting the approval of the country's health authorities. . . . The renowned French neurobiologist Jean-Pierre Changeux, who reviewed the study, suggested the nicotine might stop the virus from reaching cells in the body preventing its spread. Nicotine may also lessen the overreaction of the body's immune system that has been found in the most severe cases of Covid-19 infection. (See https://www.theguardian.com/world/2020/apr/22/french-study-suggests-smokers-at-lower-risk-of-getting-coronavirus.)

A few days later I learned that the study of the possible benefits of nicotine in preventing and treating COVID-19 has been developed into a real scientific hypothesis:

> Based on the current scientific literature and on new epidemiological data which reveal that current smoking status appears to be a protective factor against the infection by SARS-CoV-2 [1], we hypothesize that the nicotinic acetylcholine receptor (nAChR) plays a key role in the pathophysiology of Covid-19 infection and might represent a target for the prevention and control of Covid-19 infection.
> (See https://www.qeios.com/read/FXGQSB.)

Nicotine has developed such a bad reputation that "groupthink" becomes an obstacle in researching its potential benefits. A Harvard Medical School newsletter makes this very point: "Researchers have been talking about nicotine-related drugs for decades, but none are on the

market yet. Part of the problem is reputation." (See https://www.health.harvard.edu/newsletter_article/Nicotine_It_may_have_a_good_side.)

Here is what the WHO has to say about smoking as related to COVID-19:

> Tobacco kills more than 8 million people globally every year. More than 7 million of these deaths are from direct tobacco use and around 1.2 million are due to non-smokers being exposed to second-hand smoke. Tobacco smoking is a known risk factor for many respiratory infections and increases the severity of respiratory diseases. A review of studies by public health experts convened by WHO on 29 April 2020 found that smokers are more likely to develop severe disease with COVID-19, compared to non-smokers. COVID-19 is an infectious disease that primarily attacks the lungs. Smoking impairs lung function making it harder for the body to fight off coronaviruses and other diseases. . . . WHO is constantly evaluating new research, including research that examines the link between tobacco use, nicotine use, and COVID-19. (See https://www.who.int/news-room/detail/11-05-2020-who-statement-tobacco-use-and-covid-19.)

It seems obvious that lifelong smokers will have damaged their lungs, but the French study found that the patients who smoked were still better off than those who did not.

Now, this is where my idea that nicotine found in the tobacco leaf could be a good protection against as well as a good treatment for the COVID-19 disease gets really interesting. What if the nicotine was not burned and it was inhaled in an e-cigarette or a vaping device?

I began to search for articles about the potential benefits of inhaling uncooked or unburned nicotine in relation to COVID-19. But the only research I could find in this country were studies dealing with the negative side effects of vaping related to COVID-19. I ran into the same groupthink mindset. The vaping industry has recently been unfairly tainted with illegal versions of the devices with added vitamin E and THC from the marijuana plant. These doctored versions of vaping cause a severe chemical burning of the lungs, which leads to permanent lung damage and even death. (See https://www.franciscanhealth.org/news-and-events/news/what-does-juul-really-do-your-body and https://www.drugwatch.com/news/2020/04/07/can-vaping-make-covid-19-risks-worse/.)

Maybe it is time to think outside the box. I am pretty good at that, so I began to wonder if the inhalation and absorption of uncooked nicotine through a vaping device like Juul would be an effective treatment for COVID-19 without all the negative side effects from inhaling cooked tobacco from a burning cigarette. The Juul device has a cartridge that contains nicotine salts which are heated into a fine mist or vapor that is inhaled deep into the upper respiratory tract and deep into the lower respiratory tract. The original intention was to deliver nicotine safely to people who were addicted to it from smoking, and to protect them against the harmful effects of smoking the dried leaves of the tobacco plant containing all kinds of toxins. Apparently, it is

not the nicotine that is not necessarily bad for you, but all the other burned complex chemicals in the plant.

Pfizer makes a product called Nicotrol Inhaler, which is an FDA-approved nicotine inhalation device that does not burn the nicotine. It is used as an aid to quit smoking. It looks like a cigarette, but it is called an e-cigarette and requires a doctor's prescription. It is designed to be puffed on but not inhaled. The risk of addiction is low due to how the nicotine is absorbed into the body.

These e-cigarettes deliver nicotine to the brain and within seven seconds give the smoker a pleasurable hit of dopamine. Dopamine is thought to be causally linked to the addictive process. The inhaler sends most of its nicotine into the bloodstream through the mouth and throat and is much slower to reach the brain. Ex-smokers do not receive a rush of dopamine and so the experience of using the inhaler is less gratifying.
(See https://www.pfizermedicalinformation.com/en-us/patient/nicotrol-inhaler.)

Nonetheless, during this pandemic, I hope scientists will study the effectiveness of using these e-cigarettes as a viricide and evaluate if these devices could be used as an upper respiratory prevention and treatment device for COVID-19. For example, suppose a high-risk person wearing a substandard homemade mask went to the grocery store to shop, and they unavoidably came into close contact with a person who was infected but asymptomatic. After leaving the store, they could take off their mask and use one of these e-cigarettes to kill any of the virus that may have invaded their nostrils and sinuses. It would be similar to a saline nasal rinse but potentially far better, especially if it turns out that vaporized nicotine is a virucide and kills the coronavirus.

Another approach would be to use a simple nicotine nasal spray designed like the Flonase steroid sprays used for allergies. Pfizer makes this product as well, and it is called Nicotrol NS. The high-risk person would simply use this source of uncooked nicotine after they have been in public in close contact with someone that may be infected. The downside is that these products require a prescription, they are quite expensive, and they treat only the upper respiratory system.

On the other hand, the vaping system pioneered by Juul is a device that can safely deliver vaporized nicotine to both the upper and lower respiratory tract when it is deeply inhaled. Most important, it is inexpensive and readily available without a prescription in convenience stores and vaping retail stores throughout the country. The vapors or fine mists reach deep into the lungs with rapid absorption into the blood stream.
(See https://vaping.com/blog/guides/juul-alternatives-that-dont-suck/.)

It gets even more interesting. Medical experts have recently discovered that the coronavirus infects the blood. And when it spreads throughout the circulatory system, it can affect many of the vital organs of the body such as the heart, kidneys, and liver. People are suffering heart damage and failure, unusual strokes, and extensive damage to other vital organs. The virus

even affects the brain. People have reported wild hallucinations and extreme nightmarish paranoia.

ICU doctors at first thought the damage to these vital organs was caused by a lack of oxygen because of the buildup of fluid in the lungs. But now they believe the problem is coming from the virus itself infecting vital organs as it travels through the bloodstream.

Perhaps vaping devices can be used to safely deliver the vaporized nicotine to the human body via the lungs and then throughout the whole body, including vital organs. In theory, it would not only kill the coronavirus in the upper and lower respiratory system, but once it is absorbed into the bloodstream, the blood would rapidly circulate the nicotine, and it would potentially kill the virus throughout the whole body.

Once the virus gets into the lungs, it causes a dangerous pneumonia to develop. But since nicotine is also a natural antimicrobial chemical, it would also act as a bactericide and just might kill the secondary bacterial infection from the pneumonia. Any fungus in the lungs would also be treated. In short, it would function as a nicotine antibiotic and virucide.

In short, if this hypothesis proves true after rigorous scientific testing, it could be a viable treatment for the many adverse reactions to COVID-19 until a vaccine can be tested and approved.

Most important, ramping up production of nicotine and vaping products will not be a problem because Philip Morris International (now merged with Altria Group), British American Tobacco, and China National Tobacco companies already have massive production capabilities. And if Pfizer dropped their prices and sold their devices over the counter, they have sixty pharmaceutical plants around the world, including the US, Europe, China, India, Japan, and Singapore. If proven effective, this method of prevention and treatment could roll out much faster than any drug in the world.

Another benefit to using e-cigarettes and vaping devices is that, unlike new vaccines, we already have significant knowledge about their safety profile, so we do not have to go through a long testing period to determine toxicity. Apart from the illegally doctored version of vaping with vitamin E and THC, there have been no reports of chemical burns and death from legal versions of vaping nicotine. It seems to me there is no harm in testing this approach to preventing and treating COVID-19 given that no other treatment idea has been proven effective.

The NIH only needs to perform a quick study to determine the efficacy and the potential therapeutic benefits of nicotine. One logical way would be to approach all hospitals around the country and have them compile a list of all the COVID-19 patients who they admitted to their hospitals. They could then contact these patients to ask them if they had ever smoked or used e-cigarettes, Pfizer's Nicotrol Inhaler, or a Juul-type vaping device.

The patients could be evaluated by comparing four groups of people:

1. Those who never smoked and entered the ICU
2. Those who smoked and entered the ICU
3. Those who smoked and then switched to using an e-cigarette or vaping device and entered the ICU
4. Those who never smoked but used a vaping device and entered the ICU

Since vaping is a fairly recent phenomenon and is popular mainly among young millennials, many of whom never smoked, it may be difficult to find many patients in this age group to determine how effective vaping alone is in preventing COVID-19.

Another way to test this hypothesis would be to have a hospital ICU staff begin vaping with the Juul device to determine if their rate of virus infection is different than that of a comparable hospital where the staff does not vape. If none of the ICU staff that vapes gets infected, then we will have discovered a fantastic method of prevention until a vaccine becomes available.

If this hypothesis proves true, I imagine the first line of defense for patients admitted to the hospital would be to put them on a nicotine patch and have them begin vaping. This brief exposure to nicotine would be far better than coming off a ventilator with cognitive impairment and respiratory damage because they were put into a medically induced coma for days or weeks. Nicotine is highly addictive, but one can get over this addiction with some willpower and discipline.

Moreover, if vaping does prove to be an effective preventive measure and a successful early treatment, then the following recommendations could be made:

- After exposure to the public, high-risk persons would use nicotine inhalers or e-cigarettes for the upper respiratory tract as a preventive.
- With early symptoms of the disease, high-risk people would use a vaping device.
- With advanced symptoms, vaping would be combined with the use of nicotine patches.

Perhaps nicotine delivered to the body through a vaping device to the upper and lower respiratory tracts will also treat the annual flu and any secondary bacterial infection. It may even treat the next coronavirus or a disease as deadly as Ebola, which kills nine out of ten people who get infected. Let us make sure the NIH is properly funded to conduct this research. Hopefully, the Bill and Melinda Gates Foundation will get involved in this research, too.

Nicotine may be incredibly addictive, but it is a fascinating, naturally occurring chemical compound. And if smoking cigarettes has already indicated some therapeutic benefits, just imagine what therapeutic benefits could come from uncooked or unburned vaporized nicotine inhaled through an e-cigarette or a vaping device.

For example, what if uncooked nicotine can treat cancer. Consider a patient who waited too long to visit a dermatologist to check out the odd black spot on their arm, and the melanoma

had already spread throughout their body. Because the inhaled nicotine vapor enters the lungs where it is absorbed into the bloodstream, it will then circulate throughout the whole body, including the various parts that contain cancer cells.

Note: A few phrases in the copy in this Potential Treatment section came from websites referenced in this section. Since time is of the essence in getting this paper distributed to the community, please forgive me for not taking the time to properly footnote the quotes. Every day that goes by, people are being hurt by COVID-19, and the economy is being severely damaged. I am writing this paper as fast as I possibly can.

Summary

The 1918 influenza pandemic indiscriminately killed infants, the young, and the old. If COVID-19 were like the 1918 influenza, then the current approach to mitigating this virus until a vaccine is available would make sense. But COVID-19 has some unique characteristics in that the level of adverse symptoms requiring extensive health care is quite different between the young and old and those with certain underlying conditions. Therefore, we are fortunate in that policy makers can develop strategies to combat this virus that are tailored to the low-risk and high-risk populations until a vaccine is available.

In this tailored approach, low-risk people would be encouraged to continue social interactions with other low-risk people to achieve rapid herd immunity, whereas the high-risk population would be encouraged to maintain social distancing until herd immunity is achieved or a vaccine is widely available.

The quicker the low-risk workers get infected, gain antibodies, and are no longer contagious, the less likely the high-risk population will be exposed to infected individuals when they come out of their shelter. This would lead to far fewer deaths for the high-risk population. This bends the curve for hospitals until a vaccine is readily available.

In contrast, the current approach of reducing the rate of infection for low-risk workers through extreme social distancing leaves the high-risk population in greater danger while they wait for herd immunity or until a vaccine becomes available. Therefore, prolonging herd immunity through prolonged periods of social distancing of the whole population is counterproductive and prolongs the loneliness and hardship for those who need to shelter in place.

The coronavirus is highly contagious and if left to spread unimpeded throughout the country, it would surely lead to unnecessary and unacceptable levels of death. It would also cause a deep economic recession because a frightened public would be hesitant to go out into the marketplace except for essentials.

The current approach that enforces indiscriminate social distancing for the entire population will cause even greater long-term economic damage, particularly when a rolling set of economic shutdowns are imposed every time there is a sudden increase in the number of

infections. This will cause even greater malnutrition and poverty in this country and around the world, which will lead to far more deaths than the virus itself. And as history has taught us, these economic catastrophes can lead to new forms of brutal and deadly authoritarian regimes.

Because the low-risk population experience very few complications from COVID-19 and has a low mortality rate, herd immunity for this population should be encouraged through normal social and economic interactions. And because the high-risk population experience far more complications and a much higher mortality rate, policy makers should design plans that slow down their rate of infection through social distancing until such time as a vaccine is widely available.

There will be an early spike in infection rates with this approach and hospitals may need to build some extra tents in their parking lots, but the net result of this policy will be fewer hospitalizations and deaths with much less damage to the economy—and much less damage to state and federal budgets than the current policy.

Another problem facing our nation is that not all governors are on the same page when it comes to mitigating the COVID-19 pandemic. Some states are reopening their economies and others are keeping theirs closed. Interstate commerce needs to resume as quickly as possible. The president's task force needs to not only develop a sustainable strategy to combat this virus, it also needs an approach that will be widely accepted and adopted by all the states.

And because this tailored approach places as much emphasis on protecting the health and physical well-being of the citizens of each state as it does on protecting the health of the various commercial enterprises within the states, we can expect that the governors would gladly adopt this new approach. This will make it much easier to implement a sustainable national strategy. And if the new approach begins to work in this country, then hopefully other countries will adopt this approach so we could have a global strategy. Then global travel and trade could resume, and the global economy could begin to heal. The low-risk population, including students, could resume traveling and studying abroad.

Military leaders study past battles and wars to gain wisdom in confronting today's conflicts after adjusting for the current circumstances. And whenever a nation's military is engaged in warfare, they analyze their enemy's strengths and weaknesses. Along with lessons learned from the past, generals develop a tailored strategy to defeat their enemy based on these strengths and weaknesses.

The current strategy for approaching the COVID-19 pandemic the same way one would approach the 1918 pandemic is the wrong strategy because it fails to take into consideration the strengths and weaknesses of this unique coronavirus and adapt it to the modern world. We may win the battle against the virus but lose the war because the economic carnage will destroy us. It is time for the "generals" leading the effort to defeat the COVID-19 pandemic develop a modified or different strategic approach to this unique pandemic.

Part 1: A Tailored Approach to the COVID-19 Pandemic

This concludes the portion of this paper that addresses the health and economic aspects of the tailored approach to this pandemic. If you are interested in the political aspects of the upcoming presidential election, please read Part 2: The 2020 Presidential Election.

Gary S. Cangelosi
garycan@gmail.com
Published May 25, 2020