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COVID-19 Therapeutics

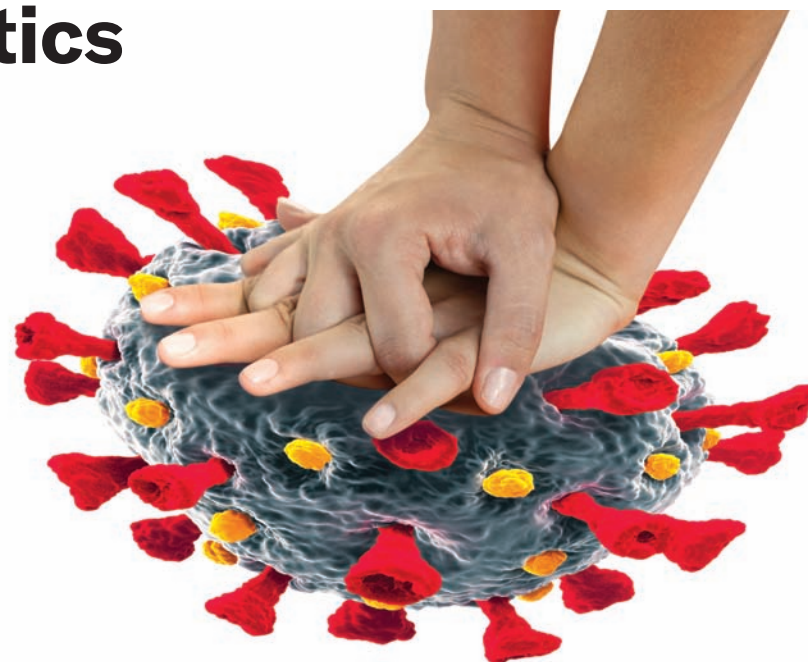
Richard Simoneaux Steven L. Shafer, MD
Editor-in-Chief

As SARS-CoV-2 spread across the globe early last year, the WHO initiated the “Solidarity Trial” to efficiently see if existing drugs could be repurposed to treat COVID-19 (asamonitor.pub/3kj5hmV; asamonitor.pub/3zaBsJb). Fifty-two nations are participating in the WHO Solidarity Trial. Unfortunately, the first four drugs evaluated – remdesivir, hydroxychloroquine, lopinavir, and interferon – all had the same outcome: little or no effect on hospitalized patients with COVID-19, as indicated by overall mortality, initiation of ventilation, and duration of hospital stay (*N Engl J*

Med 2021;384:497-511). Although the U.S. is not a participant in the Solidarity Trial, several therapeutics have received emergency use authorizations (EUAs) from the U.S. Food and Drug Administration. Even though effective vaccines are now available in the U.S., effective antiviral treatment remains an essential component of managing the COVID-19 pandemic (asamonitor.pub/2Z45MsR).

EUA therapies

Table 1 shows the antiviral therapies for COVID-19 that have been authorized for
Continued on page 4



Perioperative Medicine and the Environment: Are We Obsessed with ‘Clean’ but Oblivious to ‘Green’?

Zachary Deutch, MD, FASA Brian Chesebro, MD

Hello, everyone, and welcome to the November 2021 “Ask the Expert.” This month, we are going to explore a topic with huge implications for the medical field and the planet, namely the environmental impact of perioperative medicine. All of us are familiar with the concepts of climate change, ozone layer depletion, and the push

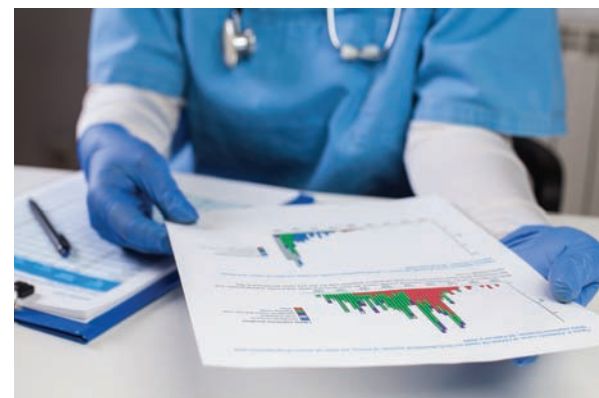
for sustainability in equipment/device production and utilization. But what do these things really mean to us as anesthesia professionals and physicians? Where should our priorities lie, and how should we conduct ourselves? There are no easy answers to these questions, but our Expert, **Dr. Brian Chesebro**, will educate us, and thereby
Continued on page 6

Impact of COVID-19 on Excess Mortality

Dibash Kumar Das, PhD

The COVID-19 pandemic has resulted in excess mortality. Excess mortality encompasses the total number of deaths from all causes during a crisis observed in a given period compared with what would have been expected based on past trends and seasonality. The confirmed deaths due to COVID-19 offer information about the cause of death. In contrast, excess mortality is important both for modeling the transmission dynamics of the disease as well as providing information about the burden of mortality potentially related to the pandemic.

Excess mortality is shaped by several drivers of all-cause mortality that correlate to the pandemic and the social distancing



directives that came with the pandemic. These drivers include health care being delayed or deferred during the pandemic, racial and socioeconomic inequities, increase in mental health disorders, increased alcohol use, and increased opioid use. This all makes it clear that the two metrics –
Continued on page 10



SPECIAL SECTION

Artificial Intelligence and
Disruptive Innovation

24-32

Guest Editor: Uday Jain, BSEE, MD, PhD, FASA

Excess Mortality*Continued from page 1*

confirmed deaths due to COVID-19, and excess mortality – are needed to understand the total impact of the pandemic on deaths.

Direct COVID-19 deaths in 2020 substantially underestimates total excess mortality attributable to COVID-19

Globally, 1,813,188 COVID-19 deaths were reported in 2020. However, the latest World Health Organization data indicates an excess mortality of at least 3,000,000 ([asamonitor.pub/3jFzhsR](https://pubs.asanmonitor.org/3jFzhsR)). In the United States, the Centers for Disease Control and Prevention (CDC) reported that nearly 3.4 million Americans died in 2020, a record high ([asamonitor.pub/3zEeH1e](https://pubs.asanmonitor.org/3zEeH1e)). Of those deaths, the COVID-19 pandemic was responsible for approximately 375,000 in the United States during 2020. More specifically, the estimated 2020 age-adjusted death rate increased for the first time since 2017. According to a recent study published in *JAMA*, the age-adjusted death rate increased by 15.9%, from 715.2 in 2019 to 828.7 deaths per 100,000 population in 2020 (*JAMA* 2021;325:1829-30).

In a separate study that analyzed direct COVID-19 and all-cause mortality occurring in 2,096 U.S. counties in 2020, researchers discovered that for every 100 deaths allocated to COVID-19, 120 all-cause deaths occurred (95% CI, 116-124), indicating that 17% (95% CI, 14%-19%) of excess deaths were attributed to causes of death other than COVID-19 itself. The total number of residents living in these counties was 319.1 million. The study also revealed racial inequities in COVID-19 mortality increased when excess deaths not allocated to COVID-19 were considered (*PLoS Medicine* May 2021). Counties with more non-Hispanic Black residents registered a higher proportion of excess deaths not assigned to COVID-19, with the percentage of excess deaths among non-Hispanic Black individuals (16.9%) exceeding their share of the U.S. population (12.5%) (*JAMA* 2021;325:1786-9).

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Excess mortality among patients hospitalized during the pandemic

In an observational study of adults without COVID-19 with unplanned hospitalizations at 51 hospitals across six Western states from March through December 2020, it was discovered that there was a significant increase in mortality among patients admitted during the pandemic with a variety of non-COVID-19 illnesses and injuries (*J Hosp Med* July 2021). While volumes declined, the study approximates that mortality rates in the U.S. increased by 15%, up to 19% in the spring of 2020. Of the identified excess mortalities, just 38%-77% could be attributed to COVID-19, with the remainder attributed to other conditions.

Death rates spike for some of the leading causes of mortality in the U.S. amid COVID-19

Recently, the CDC provided full-year provisional data that demonstrate the remarkable increases in the death rates in 2020 for some of the leading causes of mortality in the U.S. (*MMWR* 2021;70:519-22). The death rate from Parkinson's disease was up 11%, Alzheimer's 8%, and stroke 4%.

Moreover, there have been marked increases in deaths caused by heart disease. The heart disease death rate – which has been steadily decreasing over the long term – climbed to 167 deaths per 100,000 population, from 161.5 in 2019. In the past 20 years, it was only the second time that the rate had increased. This increase, of more than 3%, exceeded the less than 1% increase seen in 2015. In raw numbers, this constituted to approximately 32,000 more heart disease deaths in 2020 than in 2019.

Diabetes mellitus (DM) also increased during the pandemic. Although DM and poor glucose control does not increase the risk of contracting COVID-19, its presence is closely related to higher risk of worse COVID-19 outcome, particularly in poorly controlled subjects. DM deaths increased to 24.6 per 100,000 in 2020, up from 21.6 in 2019, translating to 13,000 more diabetes deaths. The 14% increase was the largest growth in the diabetes death rate in decades.

Although the CDC provided statistics, they offered no explanations on how many of the casualties were people who had been infected with – and debilitated by – COVID-19 but whose deaths were as-

signed primarily to heart disease, diabetes, or other conditions.

COVID-19 exacerbates suicide factors

Adding to this, the pandemic and the resulting economic recession has generated much anxiety and stress for many and has exacerbated numerous known suicide

“Overall, these statistics on excess mortality suggest that official reports of direct COVID-19 death counts in the U.S. substantially underestimated total excess mortality attributable to COVID-19. The present findings underscore the pressing need to improve public health messaging, communication, and education to ensure that patients with developing conditions seek and receive prompt medical care.”

factors for people already suffering from mental illness and substance use disorders (SUD).

During the pandemic, approximately four in 10 adults in the U.S. have described symptoms of anxiety or depressive disorder, an increase from one in 10 adults who reported these symptoms from January to June 2019 ([asamonitor.pub/3zCiYCz](https://pubs.asanmonitor.org/3zCiYCz); [asamonitor.pub/3mR09YF](https://pubs.asanmonitor.org/3mR09YF)). A KFF Health Tracking Poll from July 2020 also discovered that many adults are reporting specific negative effects on their mental health and well-being, such

as difficulty sleeping (36%) or eating (32%), and increases in alcohol consumption or substance use (12%) ([asamonitor.pub/3yGqsDm](https://pubs.asanmonitor.org/3yGqsDm)).

The combination of social isolation and loneliness, barriers to mental health treatment, economic stress, and pervasive national anxiety, are creating what a viewpoint from *JAMA Psychiatry* referred to as “a perfect storm” for suicide mortality (*JAMA Psychiatry* 2020;77:1093-4). According to an analysis conducted by the national public health group Well Being Trust, as many as 75,000 Americans could die because of drug or alcohol misuse and suicide because of the coronavirus pandemic ([asamonitor.pub/3zARZaz](https://pubs.asanmonitor.org/3zARZaz)).

Although the pandemic has not found considerable changes in the overall rates of suicide, certain groups may be more susceptible to the effects of the pandemic and experience increased suicide rates. Compared with all adults, young adults are more likely to report substance use (25% vs. 13%) and suicidal thoughts (26% vs. 11%) ([asamonitor.pub/38xycwM](https://pubs.asanmonitor.org/38xycwM)).

The practice of anesthesia has also gone through significant challenges during the COVID-19 pandemic. Among the seriously ill patients with COVID-19, up to 75% were intubated in the U.S. (*Front Med* July 2020). This type of high volume of patients who need invasive mechanical ventilation support has put significant pressure on anesthesia professionals. Additionally, transmission of COVID-19 to health care workers remains a significant contributor to stress and anxiety among anesthesiologists. Consequently, it is vital to remain alert and prevent mental health crises, as the pandemic may also have long-term impacts on mental health.

Overall, these statistics on excess mortality suggests that official reports of direct COVID-19 death counts in the U.S. substantially underestimated total excess mortality attributable to COVID-19. The present findings underscore the pressing need to improve public health messaging, communication, and education to ensure that patients with developing conditions seek and receive prompt medical care. ■

Corrections

In the September 2021 *ASA Monitor*, the In the Know column titled “Get Vaccinated, or Get COVID-19” included a misprint for Figure 4, which represented the time course for COVID-19 cases and deaths in Peru. Please access the corrected figure at [asamonitor.pub/3tul18i](https://pubs.asanmonitor.org/3tul18i).

The September Guest Editor, Kumar G. Belani, MBBS, would like to alert readers to revised statistics in the article “Anesthesiology Landscape – The Future Is Bright!” regarding the numbers of anesthesia providers in the U.S. Upon further review, the previously used sources appeared to conflate certain categories of providers into the same number. We have included a new source and what we feel to be more accurate numbers in the online version ([asamonitor.pub/3m4F379](https://pubs.asanmonitor.org/3m4F379)) of this article. (Calculations by ASA's Analytics and Research Services. National Plan and Provider Enumeration System [NPPES] as of 6/17/2021.)



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