

PERSPECTIVE

Anti-science conspiracies pose new threats to US biomedicine in 2023

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1 | INTRODUCTION

As America enters its fourth pandemic year, the full toll of COVID-19 on the public health of the country is coming into view. Even beyond our staggering 1.1 million deaths are the many millions of hospitalizations and the ensuing prolonged rehabilitations expected for long COVID cases. Newer data indicate that long COVID is more likely to occur after a severe bout of the infection.¹

The University of Washington Institute for Health Metrics employs a metric known as disability-adjusted life years or DALYs² which roughly refers to the years of life lost either from premature death or disability. On both fronts we will soon have numbers assigned to the DALYs lost from COVID-19, and they will be eye-wateringly high.

2 | AN UNFORCED ERROR OF CATASTROPHIC PROPORTIONS

Tragically, many of these COVID-19 deaths and DALYs in America could have been averted with better acceptance of vaccines, especially during the deadly delta variant wave in the last half of 2021, and omicron BA.1 wave in the first quarter of 2022. In the months just prior to the onset of delta wave the Biden Administration had announced that any American who wanted a vaccine would have access to one.³ During delta, COVID-19 vaccinations exhibited over

90% protective immunity versus death,⁴ and yet an estimated 40,000 Texans died because they declined to get immunized.⁵ Nationally, that number of unnecessary deaths was approximately four to five-fold higher.⁶

The analyses from *The New York Times* and healthcare data specialist, Charles Gaba, reports that those deaths overwhelmingly occurred in conservative or Republican-majority states.^{7,8} Moreover, the “redder” the state in terms of voters, the lower the immunization rates, and the higher deaths climbed. This observation was so striking that David Leonhardt at *The New York Times* invoked the term, “red Covid”.^{7,8}

The phenomenon of red Covid was not a random occurrence but instead an expected outcome of predation linked to extremist politics.⁹ Some members of the House Freedom Caucus and even US senators sought to discredit the effectiveness and safety of COVID-19 vaccinations during the delta and omicron waves. They kicked this off at the July 2021 CPAC (Conservative Political Action) conference held in Dallas, Texas, claiming they will vaccinate you and then take away your guns and bibles,¹⁰ while highlighting prominent antivaccine activists.¹¹ This was preceded and followed by multiple public statements by both House and Senate members discrediting vaccines.^{12–16} In parallel, both the watchdog Media Matters and a social science group based at ETH Zurich, the Swiss Federal Institute of Technology in Europe, documented how evening Fox News broadcasts disparaged vaccines

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during America's devastating delta variant wave in the awful summer and fall of 2021.^{17–19}

Thousands of Americans in conservative states believed it all, and they paid with their lives. They fell victim to a coordinated campaign of antiscience aggression. Its three major elements included antivaccine and anti-science rhetoric from federal and state elected officials, together with amplification nightly on Fox News (and other news outlets) and academic cover from a few universities and extremist think tanks.²⁰

3 | THE ASSAULT

In a 1799 letter written from Mount Vernon, George Washington offered, “...offensive operations, often times, is the surest, if not the only (in some cases) means of defence”,²¹ or simply put, “the best defense is a good offense”.²² Just before the new year, prominent House members and Kevin McCarthy, the new House Speaker, announced they will create a select subcommittee or hold investigative hearings on COVID-19 origins and vaccine mandates.^{23–26} In January 2023, select subcommittee member, Rep. Marjorie Taylor Greene, took to Twitter²⁷: “I demand an IMMEDIATE investigation into Covid vaccines and the dramatic increase of people dying suddenly!”. However, as the US Centers for Disease Control and Prevention (CDC) told the Reuters news service at the end of 2022: “To date, CDC has not detected any unusual or unexpected patterns for deaths following immunization that would indicate that COVID vaccines are causing or contributing to deaths”.²⁸

Following an October 2022 GOP Senate interim report,^{29,30} with claims that COVID-19 arose from a “research-related incident” in Wuhan, China, possibly due to “genetic recombination experiments as part of its coronavirus research,” including insertions of “furin-cleavage sites,” Republican members from the House Judiciary and Oversight Committees announced they will investigate evidence that COVID-19 arose because of US National Institutes of Health (NIH) funded research to the United States and Chinese research institutions, including the Wuhan Institute of Virology, or that this information was covered up by the leadership of the NIH.^{25,26} The reality is that their assertions run counter to the mainstream community of prominent virologists and other US biomedical scientists who dismiss claims that the virus was engineered in a laboratory, and instead provide strong evidence for the natural or zoonotic origins of COVID-19,^{31–34} just as the first two major coronavirus epidemics or pandemics of this century – severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS) – arose from bats to humans through a mammalian intermediate

host.^{33,34} A third possibility – that the SARS-2 coronavirus was accidentally leaked from a coronavirus research laboratory – cannot be entirely dismissed, especially with US intelligence agencies divided on this matter.³⁵ However, the accumulating published data on natural or zoonotic origins^{31–34} provide a far more complete story and one that is consistent with the way SARS emerged in Southern China in 2002. Some of the confusion around this issue could be resolved if the Chinese Government shared the international community's urgency to permit open epidemiologic and virologic investigations for coronavirus origins in Central China.

The attacks on US biomedical scientists are also occurring at the state level. They include unfounded claims that the COVID-19 deaths occurred because of the vaccines. In December 2022, Florida Governor Ron DeSantis has called for a grand jury to investigate COVID-19 vaccines.³⁶ He also proposed to create a “Public Health Integrity Committee” with little expertise in vaccines or vaccinations,³⁶ and in January 2023 railed against what he called a “Biomedical Security State”.³⁷ In Texas, a Senate Health and Human Services Committee interim report was issued at the end of 2022, which is both filled with vaccine disinformation and included the testimony of two prominent antivaccine activists.³⁸

4 | THE FALLOUT: EXTENDED DAMAGE TO AMERICAN BIOMEDICAL SCIENCE

We should expect adverse and potentially long-lasting consequences.

First, the attacks against COVID-19 vaccines may eventually extend to all childhood vaccinations. A Kaiser Family Foundation report finds that parental opposition to vaccination requirements has grown considerably, with 35% of parents against requiring routine immunizations to attend school.³⁹ Another report from [YouGov.com](https://www.yougov.com) finds similar opposition to child vaccinations on political grounds.⁴⁰ A worry is that declines in childhood immunizations could bring back illnesses we once eliminated through high vaccination coverage, including measles, whooping cough, or polio. We just had our first case in many years of paralytic polio, among an unvaccinated man in New York State,⁴¹ and an outbreak of measles among unvaccinated children in Ohio.⁴² Historically we often saw measles epidemics late in the winter–spring months.⁴³

There are concerns that these attacks will demoralize biomedical scientists across the country. *Science Magazine* in 2021 reported that many biomedical scientists live in a climate of fear and that we now face an “avalanche of abuse” both online through emails and

social media, but also through physical confrontations.⁴⁴ Both the Pew Research Center and the Association of American Medical Colleges (AAMC) report unprecedented distrust of scientists.⁴⁵ Such activities could have long-term effects in terms of federal support of the NIH or other biomedical research institutions, or they could discourage university students from pursuing careers in the sciences. I am regularly targeted online through social media and emails, as well as phone calls and even in-person confrontations. The Florida Governor has disparaged me on Fox News, despite my correct predictions regarding COVID-19 in his state,⁴⁶ while about Dr. Anthony Fauci he stated his desire to have “that little elf” thrown “across the Potomac”.⁴⁷

5 | AN URGENCY TO RESPOND

Given that such threats could undermine the future of biomedical science in America, it will be essential for both the Biden White House and its Office of Science and Technology Policy (OSTP) to respond. It also does not help that no permanent NIH Director has been named or put forward for Senate confirmation.⁴⁸ The political drivers for the assaults on biomedical science and scientists remain unclear, but they resemble those directed against climate science and scientists that began a decade ago. During the 20th century, science and scientists were attacked as part of larger ambitions for authoritarian control in the USSR and elsewhere.⁴⁹ The motivation may be similar.

Ultimately, the White House, possibly through OSTP and related agencies, together with the National Academies might consider launching a federal plan to preserve science and protect American scientists. In parallel, we must remember that major viral epidemics and pandemics are increasing in frequency due to a combination of social determinants such as political instability, urbanization, human migrations, and deforestation, as well as physical determinants such as climate change.⁵⁰ For coronaviruses alone, we have had in this century, SARS (severe acute respiratory syndrome) in 2002, MERS (middle eastern respiratory syndrome) in 2012, and now COVID-19. The virus pathogen causing the next major coronavirus epidemic or pandemic could have features that resemble the worst of each of these pathogens – both high mortality rates and transmissibility. Therefore, we must find ways to limit the flow of disinformation to ensure that life-saving vaccines and therapeutics do not go unused as they did in America during the time of COVID-19.

Protections for biomedical scientists might include measures similar to those taken in response to the assault on climate science a decade ago. This might include something akin to a climate scientist legal defense fund,⁵¹ or the

establishment of a new type of clearinghouse organization for biomedical scientists to seek both legal counsel and general support.⁵¹ Potentially, our existing scientific societies or US National Academies of Science or Medicine could serve in this capacity. More complicated is how we limit the spread of disinformation in a free and open society committed to first amendment rights. This concern must be balanced with the stark reality that anti-science aggression is causing a substantial loss of human life, possibly in the hundreds of thousands according to some estimated.⁹ In the meantime, we have much to learn from our social science colleagues from the fields of psychology, sociology, and political science, who might also find innovative ways to counter anti-science aggression. Because we are a nation built on science and technology, there is too much at stake to allow our scientific institutions and profession to falter. This new year of 2023 is shaping up to be a troubling one for American biomedicine. All indications so far suggest that the biomedical scientific community has not prepared adequately, and there are few plans to counter these politically motivated attacks.

AUTHOR CONTRIBUTIONS

The single author conceived of the ideas presented in the manuscript and wrote the entire manuscript without assistance.

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DATA AVAILABILITY STATEMENT

Perspective piece; there are no new primary data presented in the manuscript, it's all cited and published.

DISCLOSURES

Prof Peter Hotez is a co-inventor of a COVID-19 recombinant protein vaccine technology owned by Baylor College of Medicine (BCM) that was recently licensed by BCM non-exclusively and with no patent restrictions to several companies committed to advance vaccines for low- and middle-income countries. The co-inventors have no involvement in license negotiations conducted by BCM. Similar to other research universities, a long-standing BCM policy provides its faculty and staff, who make discoveries that result in a commercial license, a share of any royalty income, according to BCM policy. Prof. Hotez is also the author of several books published by Johns Hopkins University Press and ASM-Wiley Press and receives royalties from those books.

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