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A Narrative Review of the COVID-19 Infodemic and Censorship in Healthcare

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A Narrative Review of the COVID-19 Infodemic and Censorship in Healthcare

Abstract

Ideological and financial motivations have undermined science for decades. In this narrative review, we explore how organizations and governments used misinformation, disinformation, censorship, and secrecy to manage the COVID-19 pandemic. Various rationales for employing censorship and secrecy during the COVID-19 pandemic are examined including how organizations and governments create confusion about the risks associated with their products and blame avoidance to shift responsibility and to avoid accountability for their actions. Methods of censorship employed during the COVID-19 pandemic are reviewed, examples are provided, and the consequences of these actions are reviewed. Information included in this review was obtained from scientific papers, government documents, mass media articles, books, and personal accounts of physicians and scientists. We examine how the use of censorship and secrecy created a challenge for scientists, physicians, politicians, and the general public in trying to understand COVID-related topics. Finally, strategies for managing censorship and secrecy during a pandemic are presented.

Keywords

censorship, conspiracy theory, COVID-19, disinformation, heterodox views, malinformation, misinformation, orthodox narrative, politics, secrecy, US government policies, World Health Organization

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A Narrative Review of Censorship and Secrecy During the COVID-19 Pandemic

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Abstract

Ideological and financial motivations have undermined science for decades. In this narrative review, we explore how organizations and governments used misinformation, disinformation, censorship, and secrecy to manage the COVID-19 pandemic. Various rationales for employing censorship and secrecy during the COVID-19 pandemic are examined including how organizations and governments create confusion about the risks associated with their products and blame avoidance to shift responsibility and to avoid accountability for their actions. Methods of censorship employed during the COVID-19 pandemic are reviewed, examples are provided, and the consequences of these actions are reviewed. Information included in this review was obtained from scientific papers, government documents, mass media articles, books, and personal accounts of physicians and scientists. We examine how the use of censorship and secrecy created a challenge for scientists, physicians, politicians, and the general public in trying to understand COVID-related topics. Finally, strategies for managing censorship and secrecy during a pandemic are presented.

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Keywords

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A critical intervention during a public health emergency is to provide reliable, truthful, accurate, and helpful information to all members of society. The goal of sharing information during a pandemic is not only for the purposes of transparency but also to inform first responders, medical personnel, and the general public of measures to mitigate the impact of the pandemic by adhering to public health recommendations. However, information can be distorted and shaped by corporations and governments for financial gain or ideological purposes.

In this paper, we demonstrate how censorship and secrecy were employed by organizations and governments during the COVID-19 pandemic for financial gain and to avoid responsibility for their actions during the COVID-19 pandemic. Four topic areas are used for illustrative purposes: (1) the origin of the SARS-CoV-2 virus, (2) measures recommended by governments to deal with the pandemic, (3) COVID-19 vaccines, and (4) treatments for COVID-19. The works of Freudenburg, Oreskes and Conway, and Balfour and colleagues are used as a framework for understanding the actions of corporations and governments in the areas of censorship and secrecy in particular.

We also explore how censorship and secrecy created challenges for scientists, physicians, politicians, and the general public who were

attempting to understand COVID-related topics. Methods of censorship

Liester et al.: A Narrative Review of the COVID-19 Infodemic and Censorship in Healthcare employed during the COVID-19 pandemic are discussed with examples provided. The consequences of this censorship are reviewed. Rationales espoused to justify the use of censorship and secrecy during the COVID-19 pandemic are discussed. Finally, strategies for managing censorship and secrecy during future pandemics are presented.

Information for this narrative review was gathered from numerous sources including: (1) published scientific papers found using PubMed and Google Scholar; (2) government documents located on the internet; (3) mass media articles (e.g., newspapers, magazines, webpages, blogs); (4) Substack articles; (5) books written by physicians, scientists, and journalists; and (6) the personal accounts of physicians and scientists.

Secrecy and Censorship During Public Health Emergencies

One example of secrecy and censorship occurring during a public health emergency involved the Swine Flu fiasco of 1976. After US Army private David Lewis died of the Swine Flu at Fort Dix on February 4 of that year, US Secretary of Health, Education and Welfare F. David Lewis warned that an epidemic of the same flu that killed private Lewis was likely to occur in the fall. Comparing this flu to the 1918 "Spanish flu" that killed half a million Americans, Lewis predicted the pending flu would be an apocalypse that would likely kill one million Americans. The Centers for Disease Control (CDC) estimated 80 percent of the population would need to be vaccinated to prevent an epidemic, and funding was obtained from the US Congress to support this mass vaccination campaign. However, there were problems (Eschner 2017).

The US government planned to buy 200 million doses of the vaccines, but one drug company produced two million vaccines with the wrong strain of virus (Klein 2023). Clinical studies then found the vaccines did not produce an adequate antibody response in children. Subsequent studies determined the strain was less virulent than was originally thought, and the United States was the only country that had chosen to pursue mass vaccinations. By the time immunizations began on October 1, the predicted epidemic had failed to emerge. But what did emerge were approximately 450 cases of Guillain-Barre Syndrome in those who received the vaccination (Schonberger et al, 1979). Critics accused President Gerald Ford of attempting to frighten the public to improve his chances of winning the upcoming election, and questions were raised about whether the primary motivation for mass vaccinations was to enable pharmaceutical companies to earn huge profits (Eschner 2017; Klein 2023).

For decades, scientists described how ideological and financial motivations can undermine science. Oreskes and Conway (2010) point out that corporations such as the tobacco and fossil fuel industries mislead the public by funding misinformation campaigns. By presenting uncertainty and questioning the credibility of scientific findings, these "merchants of doubt" create confusion about the risks associated with their industries' products. Key elements of Oreskes and Conway's ideas on corporate misinformation and disinformation campaigns include:

1. *Tactics of doubt*: Corporations engage in deliberate strategies to create doubt about scientific findings. For example, the tobacco industry used

these tactics to cast doubt on the health risks of smoking despite

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overwhelming evidence of the dangers of smoking. By creating the perception of scientific uncertainty, corporations manipulate public perception, even when the science is clear.

2. *Use of so-called "experts"*: Corporations hire or fund scientists to challenge or undermine scientific findings. These individuals are often described as credible experts, despite being outside the mainstream scientific community. This tactic is used to shape public opinion, despite scientific evidence that contradicts the corporate narrative.
3. *Media manipulation*: Corporations take advantage of the media to shape public opinion. By introducing fringe or discredited perspectives, corporations ensure that media coverage gives disproportionate weight to their desired narrative, even when it is not supported by scientific evidence.

The net result of these campaigns is an erosion in the public's trust in science and scientific institutions. By creating doubt and confusion, corporations manipulate public perception for their own financial gain.

Sociologist William R. Freudenburg (1993) described the concept of *blame avoidance* to explain how corporations and government institutions shift responsibility and avoid accountability for actions that result in adverse social consequences. This is accomplished in multiple ways. *Disproportionate attribution of blame* occurs when corporations manipulate public narratives to redirect blame toward others (Freudenburg and Gramling 2011); *normalization of deviance* describes how, over time, risky practices become normalized, reducing the likelihood that problems will be recognized as

serious threats (Freudenburg and Gramling 2011), and *privileged access to information* is a means for avoiding responsibility. By controlling access to critical information, corporations and governments make it difficult for the public or regulatory bodies to fully understand the risks or consequences of their actions or products. By controlling the flow of information, corporations diffuse or delay blame (Freudenburg 2005). They also use *misdirection* to divert public attention away from their actions; instead, they focus attention on smaller, less critical issues or shift the narrative away from their culpability to natural causes (Freudenburg 2007). *Regulatory capture* is another way corporations avoid accountability (Freudenburg and Gramling 2011).¹²

Balfour, Adams, and Nickels (2019) also describe how organizations can perpetuate harm and injustice through bureaucratic processes. They argue that administrative evil occurs when individuals, acting under the guise of professionalism, neutrality, or efficiency, lose sight of moral considerations and contribute to or enable actions that result in suffering, injustice, or even atrocities for individuals and society.

During and following the COVID-19 pandemic, corporations, and governments employed numerous strategies to manage information related to the pandemic and create a desired narrative (e.g., the orthodox narrative). These strategies include censorship, which was utilized extensively during the COVID-19 pandemic against those who challenged

¹² "Regulatory capture" is defined as "the practice whereby private industry professionals or lobbyists overtake regulatory agencies to serve their own interests"; see "Science, the Endless Frontier of Regulatory Capture,"

<https://www.sciencedirect.com/science/article/pii/S0016328721001695>

Liester et al.: A Narrative Review of the COVID-19 Infodemic and Censorship in Healthcare the orthodox narrative (Shir-Raz et al. 2023), and secrecy, which involved the often deliberate concealment of scientific and economic information held by regulatory agencies, pharmaceutical companies, and governments from the public.

Origin of the SARS-CoV-2 Virus

The origin of the SARS-CoV-2 virus that was responsible for COVID-19 has been the subject of intense debate since early in the pandemic, and this debate has been influenced by censorship and secrecy. A report by the World Health Organization (WHO) released March 30, 2021, claimed the virus most likely jumped from animals to humans through an emissary animal (World Health Organization 2021). The following year, the National Institutes of Health (NIH) claimed the SARS-CoV-2 virus likely originated through viral evolution in nature and jumped from an animal host to humans. The NIH also supported the idea that the SARS-CoV virus originated in bats and spread from infected civets to humans (National Institutes of Health 2022).

Two studies were published side-by-side in *Science* supporting the WHO's hypothesis regarding the origins of the virus. Worobey et al. (2022) and Pekar et al. (2022) both pointed to the transfer of the virus from animals to humans at the Huanan Seafood Wholesale Market in Wuhan as the original source of the virus. This hypothesis that the SARS-CoV-2 virus emerged from animals in the Huanan Seafood Wholesale Market in Wuhan came to be known as "the wet market theory" (Andersen et al. 2020). However, evidence emerged suggesting the SARS-CoV-2 virus may have originated from the nearby Wuhan Institute of Virology (WIV). Evidence

supporting this theory came from the discovery that the US government was funding research at the WIV through the NIH prior to the COVID-19 pandemic (Christenson 2024).

Four years prior to the pandemic, University of North Carolina virologist Ralph Baric published research that he co-authored with Chinese virologist Shi Zhengli reporting the creation of an altered coronavirus capable of infecting humans (Menachery et al. 2015). The Obama administration ordered a pause on this type of research, known as “gain-of-function research” in October 2014 as it increased the virulence or transmissibility of viruses. Such research was considered too dangerous as it had the potential to create a virus that, if released, could cause a pandemic. But in December 2017, the NIH announced it was lifting the moratorium on gain-of-function research involving influenza, MERS, and SARS viruses, stating that such research was important to help “develop strategies and effective countermeasures against rapidly evolving pathogens that pose a threat to public health” (National Institutes of Health 2017).

The US Congress held hearings in May 2021 to investigate the origin of the SARS-CoV-2 virus. Dr. Anthony Fauci (2021), director of the National Institutes of Allergy and Infectious Diseases (NIAID) from 1984-2022, testified the “NIH has not ever and does not now fund gain-of-function research in the Wuhan Institute of Virology.”¹³ However, the next year the NIAID, part of the NIH, acknowledged they had funded research at the WIV through EcoHealth Alliance, a US-based, nongovernmental organization that

¹³ The NIAID is one of 27 institutes that make up the National Institutes of Health

Liester et al.: A Narrative Review of the COVID-19 Infodemic and Censorship in Healthcare claims to develop “science-based solutions to prevent pandemics.”¹⁴

However, the NIAID claimed the naturally occurring bat coronaviruses they studied were genetically different from SARS-CoV-2 and therefore could not have caused the COVID-19 pandemic. The idea that the SARS-CoV-2 virus had originated from the WIV came to be known as the “lab leak theory”; the NIAID’s response to this theory was to claim it was based on “misleading and false allegations” (National Institutes of Allergy and Infectious Diseases 2022a). The lab leak theory was subsequently labeled a “conspiracy theory” (Holmes 2022).¹⁵

Not everyone agreed that this was a conspiracy theory. For example, in testimony before the US House Committee on Oversight and Accountability in March 2023, the Chairman of the *Lancet* Covid-19 Commission, Professor Jeffrey Sachs (2023), reported that his commission concluded that both a laboratory origin and a natural origin were possible. The US House Select Subcommittee on the Coronavirus Pandemic (2023) conducted their own investigation into the origin of the SARS-CoV-2 virus and considered whether the lab leak theory was a conspiracy theory. Complicating this investigation was the discovery that Dr. David Morens, a longtime senior adviser to Fauci, deleted emails to avoid potential Freedom of Information Act (FOIA) requests (Tobias 2024). This environment of secrecy resulted in numerous FOIA requests for records (Ruskin 2024; Magness and Harrigan 2021) and protracted litigation by organizations who

¹⁴ See: EcoHealth Alliance, accessed November 30, 2024, <https://www.ecohealthalliance.org/>

¹⁵ A “conspiracy theory” is generally defined as “a belief that an event or situation is the result of a secret plan made by powerful people”; see *Cambridge Dictionary*, <https://dictionary.cambridge.org/us/dictionary/english/conspiracy-theory>

sued governments in an effort to obtain withheld information (e.g., American Civil Liberties Union 2024; American Oversight 2020).

In February 2023, the US Federal Bureau of Investigation (FBI) Director Christopher A. Wray stated that COVID-19 “most likely” originated from a lab incident in Wuhan, China (Kaur and Diamond 2023). However, Wray failed to acknowledge the US government’s role in funding research at the WIV.

Allegations also surfaced that Fauci attempted to influence the opinion of scientists who published a paper regarding the origin of the SARS CoV-2 virus. These allegations resulted in further speculations regarding the true origin in of the pandemic (Cohen 2023). The paper, titled “The Proximal Origin of SARS-CoV-2,” published in *Nature Medicine* in 2020, argued SARS-CoV-2 most likely evolved in nature, rather than having been manufactured by scientists (Andersen et al. 2020). Originally, its authors were leaning toward a lab-leak origin for the virus, but later changed their minds and instead wrote the virus most likely emerged from nature (Tobias 2023). Only later was it revealed that several of the authors received millions of dollars in grant money from the NIAID after shifting to Fauci’s preferred narrative (Grim 2023).

Further fueling suspicions of a cover-up was the testimony of a US Central Intelligence Agency (CIA) whistleblower before the US Congress. This whistleblower, reportedly a highly credible senior-level CIA officer, alleged the CIA offered six experts financial incentives to change their position on the origin of the COVID-19 pandemic. The whistleblower testified that of the seven members assigned to the CIA team charged with analyzing

Liester et al.: A Narrative Review of the COVID-19 Infodemic and Censorship in Healthcare the origin of the COVID-19 pandemic, six officers concluded the virus likely originated from a lab in Wuhan, China. However, after the CIA offered financial incentives to these experts to change their positions, six reported a zoonotic origin for the virus (Impelli 2023). In a perhaps related incident, Dr. Fauci allegedly visited CIA headquarters to “influence” its investigation into the COVID-19 origins (Wenstrup 2023).

The US government’s use of secrecy to obscure information regarding the origin of the SARS-CoV-2 virus has been challenged by numerous groups, such as the nonprofit investigative public health group US Right to Know (USRTK). This group has filed more than 140 state, federal, and international public records requests asking for information about the origins of SARS-CoV-2, and the risks of biosafety labs and gain-of-function research. When these requests were not fulfilled, USRTK filed lawsuits against federal agencies for violating provisions of the FOIA (Ruskin 2024).

Responses to the COVID-19 Pandemic

Responses to the COVID-19 pandemic included efforts by governments and non-governmental agencies, such as the WHO, to control the narrative. For example, the WHO responded to the pandemic by launching a new information platform entitled “WHO Information Network for Epidemics” (EPI-WIN). WHO employees designed this platform to communicate with social media companies, including Facebook, Twitter, and TikTok, to make sure individuals using Google or other social media sites would see a box that directed them to websites the WHO considered reliable, such as the WHO website, or those of the users’ ministries of health, public health

institutes, or centers for disease control (Zarocostas 2020). This was effectively a propaganda campaign, in which the WHO attempted to control the COVID-19 narrative.¹⁶ The use of propaganda allows organizations to hold power over anyone who stands in disagreement with their narrative (Ilyas 2024).

The apparent goal of the WHO's approach was to suppress, denigrate, and rebrand emerging data as "fake news," "misinformation," "disinformation," "malinformation," "anti-science," "anti-vaccine," and "conspiracy theory." One of the major challenges with this approach involves substantiating what constitutes credible, accurate versus inaccurate information. The labels applied by the WHO to emerging anti-narrative data have been so ambiguous and overused that they have nearly lost any consistent operational definition. Instead, they are used as weapons to discredit individuals whom they disagree with (Habgood-Coote 2018; Maret 2016; 2018).

Governments and their agencies also pressured social media to censor individuals who challenged their narrative. One example is a US/UK nonprofit organization named "The Center for Countering Digital Hate" (CCDH), which has ties to the Democratic Party. The CCDH identified twelve individuals they labeled the "disinformation dozen," whom they claimed were responsible for nearly two-thirds of "anti-vaccine content" on social media platforms and encouraged social media sites such as Facebook, Google, and Twitter to deplatform these individuals (Center for Countering Digital Hate 2021).

¹⁶ "Propaganda is false or misleading information or ideas addressed to a mass audience by parties who thereby gain an advantage" (Huckin 2016, 126).

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However, the motives of the CCDH have been called into question after they refused to respond to a federal subpoena seeking to learn who provides their financial support (Thacker 2023).

State governments also became involved in efforts to censor information related to the COVID pandemic. In September 2022, California Governor Gavin Newsom signed AB 2098 into law that authorized state regulators to discipline doctors by withdrawing their medical licenses if they communicated information that the state government defined as misinformation or disinformation (California Legislative Information 2022). This bill was repealed one year later (Liberty Justice Center 2024).

Another response of governments to the COVID-19 pandemic was the implementation of lockdowns. These lockdowns, which varied in length and severity, included restrictions on movement, closures of nonessential businesses, schools, and public spaces, as well as limitations on social gatherings (Mayr, Nußbaumer-Streit, and Gartlehner 2020). The rationale for lockdowns originated from a recommendation made by Fauci and the White House Coronavirus Task Force involving social distancing. The CDC issued guidelines recommending people avoid coming within six feet of people from other households. This "6-foot rule" was used by authorities as scientific justification for closing schools, businesses, churches, and other institutions. However, four years after he recommended social distancing, Fauci told Congress that the 6-foot rule, rather than being based on specific evidence, "sort of just appeared." He acknowledged this recommendation "wasn't based on data" (Select Subcommittee on the Coronavirus Pandemic 2024).

Not everyone agreed with this approach. *The Great Barrington*

Declaration was an open letter published in October 2020 in response to COVID-19 lockdowns. The authors of this declaration were Stanford University Professor Jayanta "Jay" Bhattacharya,¹⁷ former Harvard University Professor Martin Kulldorff (2024), and Oxford University Professor Sunetra Gupta (2024). The Declaration expressed "grave concerns about the damaging physical and mental health impacts of the prevailing COVID-19 policies" (Kulldorff, Gupta, and Bhattacharya 2020). This letter was censored by Google and Reddit. When Google was used to search for "Great Barrington Declaration," most people in English-speaking countries were not directed to the Declaration, but to articles critical of the text. Reddit removed links to the *Great Barrington Declaration* on two of its most popular subreddits for discussion of the coronavirus (Myers 2020).

The wearing of masks was another controversial recommendation of governments around the world. Fauci initially said masks were not necessary. On March 8, 2020, on the TV show 60 Minutes, Fauci said: "there is no reason to be walking around with a mask" (Schwartz 2020). But in May, Fauci said that wearing a mask was necessary for everyone, even children, to "protect each other" (CNN 2020). This triggered many state and local governments, along with private businesses, to institute mask mandates (Etzel 2024). Two weeks later, Fauci claimed his initial rationale for recommending against masks was that the public health community was concerned about supply shortages, and he wanted to protect healthcare

¹⁷ As of August 2015, Bhattacharya's curriculum vitae listed 86 articles published in peer-reviewed journals; see

Liester et al.: A Narrative Review of the COVID-19 Infodemic and Censorship in Healthcare workers from contracting the coronavirus from infected people (Ross 2020).

When critics challenged his flip-flopping advice on masks, Fauci claimed that attacks on him were attacks on science:

A lot of what you're seeing as attacks on me, quite frankly, are attacks on science because all of the things that I have spoken about consistently from the very beginning have been fundamentally based on science. So if you are trying to get at me as a public health official and a scientist, you're really attacking not only Dr. Anthony Fauci, you're attacking science. (Townhall.com 2021)

Later during congressional testimony, Fauci acknowledged that he reviewed no scientific evidence regarding children wearing masks or maintaining a 6-foot distance from others before he made these recommendations (Select Subcommittee on the Coronavirus Pandemic 2024).

Around the world, numerous people were threatened with the loss of their jobs if they made statements that countered their governments' dominant narratives about the COVID-19 vaccines. In Australia, the national medical boards and the Australian Health Practitioner Regulatory Agency (AHPRA) warned doctors, nurses, and pharmacists that if they expressed information to patients or on social media that countered the government's narrative, they faced harsh penalties that included the loss of their job (Aubusson 2021). This was not an empty threat. During the first year following the release of the COVID-19 vaccine (2021-22), AHPRA suspended the licenses of 21 health practitioners and many more were investigated. In some cases, these health practitioners were driven to suicide. In 2023, AHPRA released a study that revealed between January 2019 and December 2021, 16 health practitioners took their own lives while they were being

investigated by the AHPRA, and four more attempted suicide or self-harmed (Barnett 2023).

Many people employed in a wide range of careers lost their jobs or income during the COVID-19 pandemic for noncompliance with vaccine mandates (Blankley 2022; Gooding 2023; Hsu 2022; Myers 2023; Sherman 2022; Stewart 2021). In the healthcare field, doctors, nurses, and other healthcare workers were fired from their jobs for refusing to be vaccinated or for challenging the orthodox narrative about COVID-19, the COVID-19 vaccines, or treatments for COVID-19.

One example is Dr. Peter McCullough, who was vice chief of internal medicine at Baylor University Medical Center.¹⁸ In February 2021, McCullough's contract was not renewed by Baylor and the press reported this action was the result of "spreading COVID misinformation" (Riley 2021). In 2021, Baylor sued McCullough in District Court for alleged violation of the terms of his separation agreement and obtained a restraining order holding him to the abided agreement. In 2023, the case was dismissed with prejudice and Baylor was forced to pay attorney fees in the case. McCullough was also a Professor at Texas A&M College of Medicine but lost his position for "spreading misinformation" (Riley 2021). McCullough has been threatened with removal of his board certification in internal medicine and cardiology by the American Board of Internal Medicine (ABIM) because of his testimony in Texas Senate subcommittee hearings about the risks of the COVID-19 vaccines (Berry 2022).

¹⁸ McCullough is a board-certified internist and cardiologist who served as section chief of cardiology of the University of Missouri–Kansas City School of Medicine, spent three years as chief academic and scientific officer of the St. John Providence Health System, and was vice chief of internal medicine at Baylor University Medical Center.

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Another method utilized to censor heterodox opinions has been to remove doctors from journal editorships. McCullough also served as co-editor of *Reviews in Cardiovascular Medicine* during the years 2009–2018, then assumed the editor-in-chief role in 2019. Subsequently, the following statement appeared in the journal (2022): “much to our regret, McCullough stepped down from his editor-in-chief role in the journal last week as his term of office was ended in early March.” However, McCullough did not resign from his role; he was terminated. McCullough explained “there was no phone call, no board meeting, no due process. Just e-mails or certified letters” (Berry 2022).

Andreas Schofbeck, who was the CEO of a large German health insurance company (BKK ProVita), was fired from his job on March 1, 2022, after he presented evidence that COVID-19 vaccines had killed 31,000 Germans and injured many more. Schofbeck had been scheduled to meet with members of the Paul Ehrlich Institute, a German federal agency, medical regulatory body, and research institution for vaccines and biomedicines. The meeting was organized so that Schofbeck could discuss his findings, but he was prevented from attending the meeting by being dismissed from his job without notice just hours prior to the start of the meeting (Crawford 2022; Martin 2022).

Australian gynecologist Luke McLindon was fired by the hospital where he was employed in June 2022 for refusing the COVID-19 vaccine, despite having already contracted and recovered from COVID-19.¹⁹ He was fired just

¹⁹ Luke McLindon is an Australian gynecologist who led the fertility services at the Mater Hospital, where he worked for 13 years. He was also the research lead of the fertility services unit at the hospital as well as the principal investigator in a series of randomized

prior to his release of data showing a miscarriage rate of greater than 70 percent in women who received the COVID-19 vaccine prior to becoming pregnant (Read 2022).

Martin Kulldorff, a Swedish infectious-disease epidemiologist, biostatistician, and co-author of the *Great Barrington Declaration* was a professor of medicine at Harvard University and Mass General Brigham for over 20 years when he was dismissed March, 2024 (Kulldorff 2024). Kulldorff was dismissed when he refused the COVID-19 vaccine, which challenged Harvard's vaccine mandate that required individuals who contracted COVID-19 - and therefore had natural immunity - to get the vaccine anyway (Nevradakis 2024). In addition, Kulldorff challenged the US government's dominant narrative about lockdowns and school closures by pointing out that Sweden, the only major Western nation to reject school closures and lockdowns, had the lowest excess mortality rate among major European countries during the pandemic - a rate less than half that of the United States.

COVID-19 Vaccines

Secrecy and censorship surrounded the vaccines developed to prevent infection and transmission of COVID-19. President Joe Biden (2021) claimed the COVID-19 pandemic was a "pandemic of the unvaccinated" and encouraged individuals to get the vaccine (Kim 2023). However, several studies found Biden's statement to be untrue. Despite cases increasing

controlled trials. For two years, McLindon co-led the advanced laparoscopic gynecology surgical service. He is also President of the Australasian Institute for Restorative

Liester et al.: A Narrative Review of the COVID-19 Infodemic and Censorship in Healthcare slightly among the unvaccinated from August 2021 through mid-October 2021, by early December 2021 the majority of cases were among the vaccinated (McLeod et al. 2021). Furthermore, this increase was associated with a higher proportion of vaccinated individuals being hospitalized or admitted to the ICU, compared to unvaccinated individuals, despite vaccine mandates and high vaccine uptake (McLeod et al. 2021). Additional studies also refuted the idea that the pandemic was being spread by the unvaccinated (Kampf 2021; Bardosh et al. 2022).

To this day, the CDC recommends the vaccines for adults and children as young as six months of age (Centers for Disease Control and Prevention 2023, 2024). However, the effectiveness and safety of the vaccines remains debatable. Reports have described a lack of efficacy among vaccinated individuals with certain strains of the virus (Shrestha et al. 2023) and a higher incidence of COVID-19 infection among vaccinated than unvaccinated individuals (Nakatani et al. 2024; Feldstein et al. 2024).

Regarding safety, a preclinical study found the lipid nanoparticles carrying SARS-CoV-2 spike mRNA circulate systemically and are taken up by vital organ systems throughout the body (Luo et al. 2025). Additionally, researchers from several countries found elevated levels of DNA in the RNA vaccines, raising concerns about the possible increased risk of cancer (Kämmerer, McCullough and Steger 2024; McKernan 2023). An excess risk of serious adverse effects was reported following vaccination by both the Pfizer and Moderna vaccines (Fraimon et al. 2022); a peer-reviewed COVID-19 vaccine autopsy study found a high likelihood of a causal link between COVID-19 vaccines and death (Hulscher et al. 2024). Complicating the

assessment of safety has been the discovery that the risk of adverse events (AEs) related to the COVID-19 vaccines has been kept secret by the CDC and FDA.

The Vaccine Adverse Event Reporting System (VAERS) is a national system that monitors potential safety issues with vaccines and is co-managed by the CDC and FDA (Centers for Disease Control and Food and Drug Administration n.d.). Safety issues are monitored by collecting reports of AEs following vaccination. However, what is not commonly known is that VAERS maintains two separate databases - one public and one private. Reports to VAERS that are recorded in the private database are not accessible to the public (Block 2023). The rationale for maintaining a secret database is unknown.

President Biden was not the only one who blamed the unvaccinated for the spread of COVID. The WHO released a message on Twitter (now X) by Dr. Peter Hotez, calling the movement that challenged the dominant narrative about COVID-19 vaccines “anti-science aggression” and “a major killing force.” Dr. Hotez also claimed “anti-science” kills more people than gun violence, global terrorism, nuclear proliferation, or cyber-attacks” (World Health Organization 2022). Monikers such as these contribute to what Dr. Vinay Prasad (2021) calls “vaccine tribalism.”²⁰ Prasad (2021) explains:

[There] are people who are quick to label legitimate scientific dialog as "anti-vax" or "dangerous misinformation." ... They couple this condemnation with a strong sense that they are "morally" correct, working to purge the world of dangerous anti-vax thinking. Ironically, they are further polarizing an already polarized debate, and worse,

²⁰

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they are simply wrong. These are real and live issues. Intelligent scientists have to discuss these policy implications openly.

Prasad, who has been critical of the US public-health response to COVID-19, was censored when he was disinvited by the American College of Clinical Pharmacy (ACCP) to give a keynote presentation at their Annual Meeting. The ACCP's stated reason was that people had tweeted their opposition to Prasad being invited (Prasad 2023).

Another example of censorship related to the vaccines involves Dr. Panagis Polykretis, a Greek/Italian biologist who hypothesized the mechanism of autoimmune inflammation triggered by the COVID-19 vaccines in off-target tissues. In a letter to the editor of the *Scandinavian Journal of Immunology*, Polykretis (2022) strongly recommended that biodistribution studies be performed. This letter was heavily criticized and marked as "misinforming" (Gül and Öztürk 2022; Polykretis and McCullough 2023). **However, over time**, findings from several scientific publications demonstrated that the COVID-19 vaccines can exhibit an off-target distribution in tissues leading to severe damage. An international, multidisciplinary team of medical professionals and researchers authored a review article describing this damage and the resulting harm (Polykretis et al. 2023). This review encountered a long and unexplainable obstruction to getting published, despite its being evidence-based and using solid scientific data published in peer-reviewed journals (Polykretis 2023).

Another type of censorship related to the COVID-19 vaccines involves the retraction of published papers and preprint articles that present heterodox views of COVID-19 vaccines. According to the journal *Nature*,

more than 10,000 articles were retracted in 2023 - an all-time annual record (Van Noorden 2023). While many reasons are offered for retracting these papers (e.g., sham papers, peer-review fraud), some of them were retracted solely for challenging the dominant narrative about COVID-19 vaccines (e.g. Jiang and Mei 2021; Gibo et al. 2024; Hulscher et al, 2024; Mead et al. 2024).

A preprint is a version of a scholarly paper that is shared publicly before it has been peer reviewed or published in a journal. This allows for the rapid dissemination of research so that researchers can receive feedback from peers around the world and allows for improvement of the quality of their paper prior to submitting it to a journal for review and publication. Preprints provide for debate within the scientific community – especially during critical times - before the publication of research and are an essential tool for modern research, complementing traditional publication processes while fostering a culture of openness and collaboration. However, numerous preprints that challenged orthodox COVID-19 narratives were retracted (e.g. Hulscher et al. 2023).

Another approach used to suppress heterodox views about COVID-19 vaccines is financial censorship. This has occurred through a process known as “debanking,” whereby individuals are prevented from accessing funds in their bank accounts or accessing lines of credit. Debanking has occurred to individuals in both Canada and the United States (Nevradakis 2023c). During the COVID pandemic, the Canadian government froze the bank accounts and canceled credit cards of individuals who supported the Canadian truckers’ protest against COVID-19 vaccine mandates (Fung 2022). When Prime

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Minister Justin Trudeau took this step in 2022, it was the first time a Canadian prime minister had ever used the Emergencies Act, which allows the prime minister to take exceptional steps during a national emergency that "seriously threatens the ability of the Government of Canada to preserve the sovereignty, security and territorial integrity of Canada" (Thomas 2022).

Another example of debanking occurred in July 2023, when JP Morgan Chase Bank canceled all the business bank accounts of Dr. Joseph Mercola in the United States. But they did not stop there. They also canceled the personal bank accounts of Mercola's chief executive officer, chief financial officer, and their respective spouses and children (Mercola 2023a). Mercola had been labeled a "misinformation superspreader" for presenting heterodox views about COVID-19 vaccinations and treatments (Abrams and Hoffman 2022).

In addition to censoring doctors and scientists, the US government exerted pressure on corporations to participate in censorship to maintain the orthodox narrative concerning COVID vaccines. An example is the pressure exerted by the US government on retail bookseller Amazon.com to suppress books that suggested vaccines were unsafe or ineffective. Amazon, which is responsible for more than 50% of sales from the Big Five publishers and controls 50 to 80 percent of US book distribution (Curcic 2023), initially refused to comply with the government's requests. However, over time, the retail giant acquiesced and placed such books on its "Do Not Promote" list (Berenson 2024).

Treatments for COVID-19

Censorship also occurred in relation to several medicines that were shown to be effective against COVID-19. Due to the lack of effective treatments early in the COVID pandemic, many physicians turned to using repurposed, FDA approved medicines for off label use as a treatment for COVID-19. These include ivermectin (IVM) (FLCCC Alliance 2023a) and hydroxychloroquine (HCQ) (US Food and Drug Administration 2020a). Additionally, novel treatments, such as chlorine dioxide (US Food and Drug Administration 2021a) were utilized and found to be effective, mostly in countries outside the US.

IVM is a Nobel Prize-winning, inexpensive medication which has successfully treated parasitic diseases in humans for decades. IVM was first approved for human use in 1987 for the treatment of parasitic diseases, under the name Mectizan[®]. IVM also inhibits the replication of more than 10 different viruses (Kory 2023a).

Dr. Hector Carvallo and colleagues at the University of Buenos Aires in Argentina submitted a manuscript to the *Journal of the American Medical Association (JAMA)* in early 2020, demonstrating that IVM, in combination with aspirin, dexamethasone, and enoxaparin, dramatically reduced morbidity and mortality associated with COVID-19. This paper was rejected by *JAMA*. Dr. Carvallo subsequently published his research demonstrating IVM prevented COVID-19 (Hirsch and Carvallo 2020) and was a safe and effective treatment for COVID-19 (Carvallo et al. 2020). Dr. Carvallo shared his results with the FDA and CDC.

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Four months later, Dr. Pierre Kory testified before the Homeland Security Committee meeting hosted by Senator Ron Johnson.²¹ The topic of the hearing was "Focus on Early Treatment of COVID-19." Kory's testimony was posted on YouTube and rapidly accrued over 8 million views before it was deleted (Johnson 2024; Kory 2023b). Dr. Kory (2020) reported:

We now have data from over 20 well-designed clinical studies, ten of them randomized, controlled trials, with every study consistently reporting large magnitude and statistically significant benefits in decreasing transmission rates, shortening recovery times, decreasing hospitalizations, or large reductions in deaths. This clinical data is also supported by multiple basic science, *in vitro* and animal studies.

In the United States, physicians are allowed to prescribe FDA approved medicines for conditions other than the one they were approved for; this is known as prescribing "off label." The FDA's role is to regulate the commercial availability of novel therapeutics, not to restrict physician prescribing (Gopal et al. 2021). This is affirmed on the FDA website:

From the FDA perspective, once the FDA approves a drug, healthcare providers generally may prescribe the drug for an unapproved use when they judge that it is medically appropriate for their patient. (US Food and Drug Administration 2018)

Off-label prescribing of FDA-approved medications is common and accounts for 10-20 percent of all prescriptions (Fitzgerald & O'Malley 2014). However, doctors were told by the FDA they should not prescribe IVM to treat COVID-19 (US Food and Drug Administration 2021b). Eight months after Carvallo published his findings regarding the safety and efficacy of IVM as a

²¹ Dr. Pierre Kory is a physician who specializes in Internal Medicine, Pulmonary Diseases, and Critical Care Medicine. He is a Former Associate Professor, Chief of Critical Care Service, and Medical Director of Trauma and Life Support Center at the University of Wisconsin.

treatment for COVID-19, the FDA warned the public not to use IVM to treat or prevent COVID-19 and labeled it a "horse dewormer" (Steib 2022).

However, in March 2024, the FDA agreed to remove all of their website and social media posts warning people not to take IVM as a treatment for COVID-19. This occurred only after doctors sued the FDA, alleging the agency had exceeded its authority when it told patients and health professionals not to use the drug (Baletti 2024).

IVM was used to successfully treat COVID-19 in many other countries around the world (Dscheim 2024). A meta-analysis of 105 studies using IVM as a treatment for COVID-19 demonstrated this medicine reduced the risk of mortality, ventilation, hospitalization, progression, recovery, cases, viral clearance, and ICU admission (Covid Analysis 2024). Despite studies demonstrating the efficacy of IVM, the US government allegedly paid the two largest US pharmaceutical companies - Walgreens and CVS - billions of dollars *not* to fill prescriptions for this potentially life-saving medicine (Thorp and Thorp 2024). Furthermore, doctors who prescribed IVM for their patients risked losing their medical license or specialty board certifications (FLCCC Alliance 2023b; Defender Staff 2022; Fiore 2024).

HCQ is another medicine that was censored during the pandemic. HCQ is an inexpensive medicine used to prevent and treat malaria and is also prescribed as a therapy for autoimmune diseases, such as rheumatoid arthritis and Lupus as well as other disorders. A meta-analysis of 43 studies found that early treatment of COVID-19 with HCQ was safe and effective as a treatment for COVID-19 (Prodromos and Rumschlag 2020). However,

subsequent studies that employed much higher doses and started treatment

Liester et al.: A Narrative Review of the COVID-19 Infodemic and Censorship in Healthcare much later in the course of illness found HCQ to be ineffective or even dangerous (Borba et al. 2020; Chorin et al. 2020).

In July 2020, the FDA warned against using HCQ outside the hospital setting or a clinical trial, due to a reported risk of heart rhythm problems (US Food and Drug Administration 2020a). This warning was based in part upon the results of a study published in the *Lancet* that reported patients treated with HCQ were at increased risk for heart arrhythmias and were more likely to die than patients who did not take HCQ. Just days after this study was published, WHO's Director General Dr Tedros Ghebreyesus announced the Organization was stopping studies exploring the use of HCQ as a treatment for COVID-19 due to safety concerns. However, *Lancet* retracted this paper on June 5, 2020, after one of the authors refused to share his raw data with scientists who questioned his findings. Furthermore, it was revealed that he had not shared his raw data with his co-authors (Gabler and Rabin 2020; Mehra et al. 2020). The FDA reiterated their warning against using HCQ in January 2022, again pointing to the risk of heart rhythm problems (US Food and Drug Administration 2022). This was despite studies involving thousands of individuals that found no increased risk of arrhythmias among users of HCQ (Lo et al. 2021; Hoque et al. 2022).

Physicians who recommended HCQ as a treatment for COVID-19 faced censorship. One example is the French virologist Professor Didier Raoult, who advocated for the use of HCQ. Raoult and colleagues conducted a small clinical trial using this regimen and reported a 100 percent cure rate (Sayare 2020). After they advocated for the use of HCQ as a treatment for COVID-19, Raoult and his colleagues experienced censorship. The institute where

they worked (Institut Hospitalo-Universitaire Méditerranée Infection) became the target of cyber harassment, and the authors had difficulty publishing articles that challenged the orthodox COVID-19 narrative (Brouqui et al. 2023). Subsequently, a cyber harassment campaign was initiated by anonymous individuals who criticized more than 350 scientific articles whose authorship included at least one member of Raoult's institute (Brouqui et al. 2023; Cousin-Frankel 2015). Governmental agencies that regulate the French healthcare industry examined 30,000 pages of documents and conducted 700 hours of interviews. Of the hundreds of articles reviewed, only two produced disagreement between the inspectors and scientists at the institute. Yet anonymous individuals also wrote to 90 journal editors suggesting possible scientific fraud. Subsequently, some journal editors flagged articles authored by members of Raoult's organization with "expression of concerns" without allowing the authors to defend themselves. Subsequently, these journal editors indicated they would not publish any more papers from the institute (Brouqui et al. 2023).

A third treatment for COVID-19 that faced censorship is chlorine dioxide, a simple molecule used in the United States, Europe, and other parts of the world as a water purifying treatment (Liester 2021). Due to its broad-spectrum antiviral activity, this treatment aroused interest as a potential treatment for COVID-19 (Kály-Kullai et al. 2020). Millions of people drink chlorine dioxide in their municipal water system every day, yet when scientists in Central and South America reported this inexpensive product was effectively treating COVID-19, the FDA claimed it was "dangerous" and labeled it "bleach" (US Food and Drug Administration 2021a). Chlorine

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dioxide was also labeled “fraudulent and harmful” by the FDA (US Food and
Drug Administration 2020b), despite its approval as a treatment for COVID-
19 in Bolivia (Senate Press 2020).

When this product was approved in Bolivia for the prevention and
treatment of COVID-19, an announcement was posted online but was
removed a short time later. Regardless of evidence from around the world
showing IVM, HCQ, chlorine dioxide, and other treatments were considered
safe and effective during the pandemic crisis, they were often labeled “fake
cures” and their use was discouraged or punished (Goodman and Carmichael
2020). Instead, more expensive medicines, such as Remdesivir (Khunte et
al. 2023) and Paxlovid (Young et al. 2021), were employed. Remdesivir was
promoted despite a study from the University of Iowa that showed treatment
with this medicine resulted in longer hospital stays and no improvement in
survival (Ohl et al. 2021).

Additional Methods of Censorship and Secrecy

Countless additional methods of censorship and secrecy were
employed during the COVID-19 pandemic. One method utilized to discredit
information that countered the orthodox narrative was the use of labels by
governments and corporations as part of a misinformation campaign to
mislead the public, for example “misinformation,” “disinformation,”
“malinformation,” “rumors,” and “conspiracy theories” (Zarocostas 2020;
Lancet Infectious Diseases 2020).²³ Labels such as “right-wing conspiracist”

²³ *Misinformation* is defined as “information that is false, but not created with the
intention of causing harm” whereas *disinformation* is “information that is false and
deliberately created to harm a person, social group, organization or country” (Howard

(Lewis 2023) and “misinformation” (Clark 2022) were used to cast doubt on the validity of information challenging pharmaceutical and government narratives, such as COVID-19 vaccines being “safe and effective” (Maragakis and Kelen, 2022), and HCQ (Food and Drug Administration 2022) and IVM (Food and Drug Administration 2024) being ineffective for COVID-19. While some might argue that labels are an important tactic used by governments to quell harmful or false information (Viswanath, 2021), the use of labels can also have a polarizing effect (Prasad 2021) and can be used in misinformation campaigns to create doubt about scientific findings (Oreskes and Conway 2010).

Another method used by the US government involved pressuring large social media companies such as Meta (parent company of Facebook) and the technology conglomerate Alphabet (parent company of Google and YouTube) to censor posts, videos, and other online content (Committee on the Judiciary and the Select Subcommittee on the Weaponization of the Federal Government 2024). Branches of the US government that allegedly participated in this action included the White House, the Surgeon General’s office, the FBI, the CDC, and the Cybersecurity and Infrastructure Security Agency (CISA) (Nevradakis 2023a; Nevradakis 2023b). The United States Department of Homeland Security (DHS) was also involved in “keeping Americans safe and helping detect and slow the spread of the virus” (US

University, “Digital Informers Definitions,” 2021, <https://coas.howard.edu/sites/coas.howard.edu/files/2021-07/Digital%20Informers%3B%20MIS-Information%20Definitions.pdf>). *Malinformation*, on the other hand, is “information that is based on reality, used to inflict harm on a person, organization or country” (Wardle and Derakhshan 2017). A *rumor* is defined as “talk or opinion widely disseminated with no discernible source” (*Merriam-Webster Dictionary*, “Rumor,” 2024, <https://www.merriam-webster.com/dictionary/rumor>) and a *conspiracy theory* is “a belief that an event or situation is the result of a secret plan made by powerful

Liester et al.: A Narrative Review of the COVID-19 Infodemic and Censorship in Healthcare Department of Homeland Security 2023). One method DHS utilized to accomplish this goal was to manage “rumor control” by publishing a list of COVID-related “rumors” along with “facts” presented by the US government to counter those rumors; however, its efforts at “rumor control” may have been influenced by their involvement in funding gain-of-function research. A report written by the Inspector General at the Department of Defense found the Pentagon provided over \$54 million in grants to EcoHealth Alliance, the company engaged in gain-of-function research at the WIV that is at the center of the controversy over the origin of the SARS-CoV-2 virus (Inspector General 2024). A district judge characterized the censorship by the US government as “the most massive attack against free speech in United States’ history” (Kheriaty 2023).

Social media companies acquiesced to government pressure and censored physicians who posted heterodox views on their social media accounts. One example involves a medical school department chairman censored by Facebook in March 2020 for posting that COVID-19 may have emerged from a lab accident or lab incompetence. This physician is board certified in three specialties, with a master’s in public health in epidemiology, and he wrote his thesis for the US Army War College on countermeasures for bioterrorism in 2005.²⁴

Doctors who question or disagree with their government’s or licensing agency’s narrative are still at risk of losing their license or medical specialty

²⁴ Anonymous, 2024. All interviews were conducted in confidentiality, and the name of the interviewee is withheld by mutual agreement due to the sensitive nature of the interviewee’s position.

board certification. In the United States, the Federation of State Medical Boards (FSMB), an entity that controls the state medical licensing boards, issued the following policy statement,

Physicians who generate and spread COVID-19 vaccine misinformation or disinformation are risking disciplinary action by state medical boards, including the suspension or revocation of their medical license. (Federation of State Medical Boards 2021)

Even members of the US Congress were censored on social media for posting comments that ran counter to the dominant narrative. For example, Rep. Thomas Massie from Kentucky had a tweet flagged for censorship after he referenced an Israeli study showing better protection from acquired immunity than COVID vaccine immunity (Committee on the Judiciary and the Select Subcommittee on the Weaponization of the Federal Government 2023). This tweet was flagged by the Virality Project, a program created by the Stanford Internet Observatory. On their website, the Virality Project is described as “a global study aimed at understanding the disinformation dynamics specific to the COVID-19 crisis.” This project expanded in January 2020 to partner with New York University, the University of Washington, the National Council on Citizenship, and Graphika (Stanford University).

Additional evidence regarding censorship is likely to arise in the future as multiple lawsuits against the pharmaceutical companies who produced the COVID-19 vaccines and the US government proceed through US courts. These include lawsuits by the US attorneys general of the states of Texas and Kansas, who are suing Pfizer for misrepresenting COVID-19 vaccine efficacy, conspiring to censor public discourse (Paxton 2023) and misleading

vaccine marketing (Hills 2024). In addition, Robert F. Kennedy Jr. is suing

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Google and YouTube for allegedly collaborating with the White House to
censor his views on COVID-19 vaccinations and the pharmaceutical industry
(Brennan 2023). A lawsuit has also been filed in the US by the attorneys
general of the states of Missouri and Louisiana, accusing the federal
government of colluding with social media companies like Twitter and
Facebook to censor viewpoints that conflicted with the government's views
on COVID-19 (New Civil Liberties Alliance 2023; Hancock 2023).

Rationale for Employing Secrecy and Censorship

Censorship and secrecy may be deemed necessary or unavoidable under certain conditions. For example, national security may require governments to censor and keep certain information secret to prevent it from falling into the hands of foreign adversaries. Similarly, trade secrets may require the use of censorship or secrecy to protect company intellectual property and profits. However, censorship can also be used as a form of propaganda, public relations, or even advertising by governments and private corporations attempting to create favorable public impressions. One example involves the tobacco companies who withheld information regarding the health risks of smoking (Marx 2001). So what justification exists for employing censorship and secrecy during COVID-19?

One rationale offered was the importance of controlling "false information." The Johns Hopkins Center for Health Security reported that false information caused "reduced trust in public health responders, increased belief in false medical cures, and politicization of public health measures" during the COVID-19 pandemic (Sell et al. 2021). However,

determining whether information is false can be challenging, and the suppression of heterodox views can limit progress in science and medicine.

Another rationale espoused for employing censorship during the COVID-19 pandemic related to the severity of the crisis. The extreme nature of the public health emergency was suggested as a valid reason to support censorship (Human Rights Watch 2023). But does evidence justify the use of censorship and secrecy based upon the severity of the pandemic? The WHO reported nearly 7 million people died worldwide as a result of COVID-19 (World Health Organization 2024a). But COVID-19 was only the third leading cause of death in the United States during 2020 and 2021; it did not make it into the top three causes in 2022, when “unintentional injury” moved into the third spot, ahead of COVID. In each of these three years, both heart disease and cancer caused more deaths than COVID-19 (Murphy et al. 2021; Xu et al. 2021; Ahmad et al. 2021), yet no public emergency was declared. No emergency steps were taken to reduce the death toll from heart disease or cancer.

Furthermore, following the pandemic an increase in excess mortality is reported in several countries across the world (Aarstad and Kvitastein 2023; Kuhbandner and Reitzner 2023). A study that estimated Germany’s excess mortality for the years 2020-2022 found there were roughly 4,000 excess deaths in 2020, compared to roughly 34,000 and 60,000 excess deaths in 2021 and 2022, respectively (Kuhbandner and Reitzner 2023). A recent study conducted in Japan found the age-adjusted death rates for leukemia, breast, and pancreatic cancers increased significantly in 2022 when

compared with 2020, the first year of the pandemic and before COVID-19

Liester et al.: A Narrative Review of the COVID-19 Infodemic and Censorship in Healthcare vaccines were widely administered (Gibo et al. 2024). Despite this alarming escalation in cancers and deaths, no action has been taken to investigate the cause of the excess cancers and mortality occurring worldwide.

An additional rationale suggested to justify censorship and secrecy was the protection of business and trade secrets (Greene 2021). A FOIA request from a group of more than 30 scientists and professors at Yale, Harvard, UCLA, and other universities requested vaccine-related documents regarding the clinical trials that resulted in the FDA granting an Emergency Use Authorization (EUA) for the Pfizer-BioNTech Covid-19 vaccine. US Department of Justice lawyers responded that they needed time to review the documents and redact “confidential business and trade secret information of Pfizer or BioNTech and personal privacy information of patients who participated in clinical trials” (*Public Health & Medical Professionals for Transparency v. Food & Drug Admin* 2021). The FDA proposed releasing the 450,000 pages of documents at a rate of 500 pages per month, a process that would require 75 years to release all the records (Greene 2021, 2022; Scarella 2022). The court denied this request and instead ordered the release of 55,000 pages per month, which gave the FDA eight months to produce the documents. The judge’s decision came after he concluded “this FOIA request is of paramount public importance” (Siri 2022; Wolf 2024).

Following the release of these records, a group of 3,250 doctors, scientists, and other volunteers reviewed the records, then published a book containing their findings. Titled *The Pfizer Papers*, this project was directed by Amy Kelly, COO of *Daily Clout*, who oversaw the volunteers analyzing the

documents.²⁵ The book, edited by Naomi Wolf and Amy Kelly, outlined

findings culled from Pfizer's documents:

- Nine months after the rollout of the COVID-19 mRNA vaccines, birth rates dropped significantly in 13 of 19 European countries as well as England, Wales, Australia, and Taiwan (p. 4). Pfizer originally committed to following both the vaccinated and placebo cohorts for up to 26 months. But 5 months after initiating the study, Pfizer unblinded the placebo group and offered the mRNA injections to the original placebo recipients. Within 8 months of starting the study, nearly 90% of the original placebo group had received at least one Pfizer mRNA injection, thus eliminating a control group (p. 119-120).
- Following vaccination, younger patients began presenting with cancers. Their tumors were bigger and grew faster than cancers that existed prior to the vaccine. Also, the onset of more than one cancer at a time became more common (p. 128).
- Adverse events occurred in over 54 percent of cases of "maternal exposure" to the vaccine and included 53 reports of spontaneous abortion (p. 153).
- Premature labor and delivery cases occurred in vaccinated women, as well as two newborn deaths (p. 154).
- 19% of babies who were exposed to Pfizer's COVID mRNA vaccine via their mothers' breast milk experienced 48 different categories of adverse events (p. 154).
- Autoimmunity case reports reported to VAERS increased 24-fold from 2020 to 2021, and annual autoimmunity-related fatalities increased 37-fold during the same period (p. 181).
- The spike protein and inflammation were still present in heart tissue one year after receipt of the mRNA COVID vaccine (p. 270).
- Over a 3.7-fold increase in the number of deaths due to cardiovascular events occurred in vaccinated subjects compared to placebo subjects (p. 295).
- The vaccine Pfizer rolled out to the public was different than the formulation used on the majority of clinical trial participants, and the public was not informed of this (p. 343).
- The public vaccine is contaminated with high levels of DNA plasmid fragments (p. 344).
- 2.5 months after Pfizer rolled out their COVID-19 vaccine, they changed the criteria for "Vaccination Failure," resulting in 99% of reported cases not meeting criteria for Vaccination Failure (p. 364).
- Pfizer concealed deaths in the vaccinated cohort that occurred during the clinical trial to make its results look more favorable when applying for its emergency use authorization filing with the FDA (p. 368-371).
- There were twice as many cardiovascular adverse events in the vaccinated arm of the clinical trial as the placebo arm (p. 371).

²⁵ The documents are also available at the Public Health and Medical Professionals for

These findings raise the question: Was Pfizer protecting trade secrets or merely hiding information that would reduce their profits? To date, only Daily Clout has reviewed these documents.

The use of censorship and secrecy during the COVID-19 pandemic for financial gain is not limited to Pfizer. Oxfam (2022) reported that during the pandemic, the 10 richest men in the world doubled their wealth, while the incomes of 99 percent of humanity dropped. But it wasn't just the wealthiest who profited from the COVID-19 pandemic. In 2023, Moderna paid the US government \$400 million for sharing in the development of what was initially known as the NIH-Moderna COVID-19 vaccine. The \$400 million was an initial payment that was to be distributed to the NIH and two US universities involved in the development of the vaccine (Mueller 2023). This payment was necessitated by a US law enacted in 1980 known as the Bayh-Dole Act, which enables universities, nonprofit research institutions, and small businesses to own, patent, and commercialize inventions developed under federally funded research programs within their organizations (Drexel University 2024). Notably, Moderna and the US government continue to fight over who owns the rights to the COVID-10 vaccine (Stolberg and Robbins 2021).

Pharmaceutical companies and the nongovernmental organizations (NGOs) they sponsor also censor information that runs counter to their self-interested narratives. For example, Moderna works with the Public Good Project (PGP), which monitors 150 million websites for evidence of vaccine hesitancy or COVID-19 vaccine misinformation. PGP also coordinates with

social media platforms, government agencies, and news websites to censor information that contradicts their preferred narrative (Fang and Poulson 2023).

Regulatory capture may also explain instances of censorship and secrecy during the pandemic. Even prior to the pandemic, capture by pharmaceutical companies of the regulatory agencies they are tasked with regulating raised concerns about conflicts of interest (Angell and Reading 2005; Demasi 2022). Payments from pharmaceutical companies to US government agencies that promoted their products raised suspicions of ulterior motives. One example involves payments from pharmaceutical companies to the NIH, who promoted COVID-19 vaccines (Mueller 2023; Andrzejewski 2024). In 2022 and 2023, pharmaceutical and healthcare companies paid the NIH \$710,381,160 in third-party royalties (Andrzejewski 2024). These payments, which were distributed among the NIH leadership and scientists, came from healthcare entities that licensed inventions created in federal, taxpayer-funded laboratories. The NIAID, run by Anthony Fauci, received 97 percent of these payments, which added up to \$690,218,610 (Andrzejewski 2024). These figures were disclosed only after a FOIA request was filed and the NIH was sued twice in federal court. The report describing these payments was heavily redacted, obscuring information about who received many of these payments (Andrzejewski 2024).

These same US government agencies that received millions of dollars in payments from pharmaceutical and healthcare companies also discouraged the use of safe, inexpensive medicines for the treatment of

COVID-19 (e.g. IVM and HCO) at a time when no approved treatments

Liester et al.: A Narrative Review of the COVID-19 Infodemic and Censorship in Healthcare existed and before vaccines were available. What was the reason for this, given an overwhelming majority of studies demonstrating these medicines were effective against COVID-19 (FLCCC 2023a; Kory 2020; Kory et al. 2021)? Is there a connection between the US government recommending against inexpensive treatments for COVID-19 while receiving hundreds of millions of dollars in payments from companies that coproduced vaccines for COVID-19? While these payments do not prove duplicity, they do raise questions around a serious conflict of interest.

Although some US federal agencies, such as the CDC, claim they do not accept financial support from private industries or corporations, their foundations do. In 1992, Congress established the National Foundation for the CDC so that the Centers could obtain more funding for its work. This created a third party through which organizations can donate money to the CDC (A Midwestern Doctor 2022). This foundation, and others like it, are not subject to legal oversight and are not required to comply with FOIA requests. What organizations donate to the CDC Foundation? Some of these contributors include vaccine makers such as Pfizer, AstraZeneca, and Johnson and Johnson. Gilead, who produces the anti-COVID medication Remdesivir, is another donor. Additional funders include big tech companies such as Facebook, Google, and Microsoft. The Bill and Melinda Gates Foundation, which earned millions by investing in COVID-19 vaccines, donated more than \$57 million to the CDC Foundation in 2018-2022 (A Midwestern Doctor 2022). Despite employees of the CDC sending an anonymous letter to their leadership more than seven years ago, stating “our mission is being influenced and shaped by outside parties and rogue

interests,” nothing has changed (CDC Scientists Preserving Integrity, Diligence, and Ethics in Research 2016).

During the COVID-19 pandemic, numerous additional potential conflicts of interest arose involving transfers of large sums of money. These include pharmaceutical company payments to the agencies who regulate them. In 1992, the US Congress passed the Prescription Drug User Fee Act (PDUFA), which permits the pharmaceutical industry to pay the FDA directly through “user fees” (US Congress 1992) intended to accelerate the speed and improve the efficiency of the review process for new drugs (Wang and Wertheimer 2022). However, reductions in review times for new drugs have been found to be associated with increases in both adverse drug reactions (ADRs) that require hospitalization and death (Olson 2002).

Following the passage of PDUFA, the FDA evolved from an agency that was funded through the US Treasury to one financially dependent on the pharmaceutical industry. The amount of money paid to the FDA by the pharmaceutical industry rose thirty-fold, from \$29 million in 1993 to \$884 million in 2016 (Demasi 2022). Critics of the PDUFA program allege that this has resulted in the FDA becoming more closely aligned with the pharmaceutical industry and has impaired the FDA’s safety review process (Wang and Wertheimer 2022).

The United States is not the only country whose regulatory agencies receive significant funding from pharmaceutical companies. A report in the *British Medical Journal* revealed that regulatory agencies in several countries now receive the majority of their annual budgets from the pharmaceutical industry they regulate (e.g., Canada, 50.5%; United States, 65%; Japan,

Liester et al.: A Narrative Review of the COVID-19 Infodemic and Censorship in Healthcare 85%; United Kingdom, 86%; Europe, 89%; Australia, 96%) (Demasi 2022).

How does this financial support from the pharmaceutical industry influence regulatory agencies' decisions when approving new vaccines or drugs?

The proportion of the FDA's Center for Drug Evaluation budget spent on new drug reviews increased from 53 percent in 1992 to 79 percent in 2003. This increase resulted in a commensurate decline in spending on post-market safety reviews and a shift in responsibility for conducting these reviews from the FDA to the pharmaceutical industry. Has this change influenced the safety of new products? Of the 1,339 requests from the FDA to pharmaceutical companies in 2003 to conduct post-market safety studies, nearly 60 percent were not even started (Wang and Wertheimer 2022). This raises the question: Can the pharmaceutical companies be trusted to provide safe and effective products?

A study published in 2020 in *JAMA* found that 85 percent of the 26 largest pharmaceutical companies collectively paid nearly \$33 billion in fines for illegal activity such as pricing violations, off-label marketing, and kickbacks between January 2003 and December 2016 (Arnold et al. 2020). The fines paid by the top 11 companies totaled \$28.8 billion. Second on this list of offenders is Pfizer, who was fined nearly \$3 billion during this period and paid the second largest fine in pharmaceutical history, a \$2.3 billion settlement in 2009, which included a \$1.3 billion criminal fine and a \$1 billion civil settlement for illegal drug promotion (Arnold et al. 2020). Did these fines cause the pharmaceutical companies to change their illegal practices? It is doubtful. Their profits far exceed the cost of these penalties.

Almashat et al. (2010) describe how pharmaceutical company lawsuit settlements increased rapidly in the early 2000s for state and federal violations that included overcharging government health programs, unlawful promotion, monopoly practices, kickbacks, concealment of study findings, poor quality manufacturing practices, damaging the environment, financial violations, and illegal distribution. It would appear that paying fines is viewed as part of the cost of doing business. Pfizer reportedly profited \$56.7 billion from sales of its COVID-19 Comirnaty vaccine and its antiviral medication Paxlovid in 2022, and after expenses retained a net profit of \$31.4 billion (Phillips 2023). A portion of this profit came from the US government (i.e., US taxpayers) payments to Pfizer for the purchase of Paxlovid, which have amounted to more than \$10 billion US (Prasad 2024). Moderna earned \$18.4 billion in sales during 2022 for its Spikevax vaccine, which was codeveloped with the NIH (Dunleavy 2023).

Danish physician, medical researcher, and cofounder of the Cochrane Collaboration Peter Gøtzsche was expelled from the Governing Board of the Cochrane Collaboration after he challenged pharmaceutical companies' undue influence over medicine. In his book *Deadly Medicine and Organised Crime: How Big Pharma has Corrupted Healthcare*, Gøtzsche (2013) compares the pharmaceutical industry to organized crime by highlighting the billions of dollars in fines paid over the years by this industry, their manipulation of data from industry-sponsored clinical trials, and their history of threatening and harassing individuals who do not support their goals. Gøtzsche was also highly critical of the COVID-19 vaccines. In a preprint, he

wrote "Serious and severe harms of the COVID-19 vaccines have been

Liester et al.: A Narrative Review of the COVID-19 Infodemic and Censorship in Healthcare ignored or downplayed, and sometimes been deliberately excluded by the study sponsors in high impact medical journals” (Gøtzsche and Demasi 2022).

Gøtzsche is not the only esteemed physician critical of the pharmaceutical industry’s disproportionate influence over medicine. Numerous medical journal editors have expressed similar concerns. Marcia Angell and Kate Reading’s (2005) book *The Truth About the Drug Companies: How They Deceive Us and What to Do About It* describes how pharmaceutical companies use bribes and kickbacks to persuade doctors to prescribe their products.²⁶ The former editor of the *British Medical Journal* Richard Smith (2005) has also criticized the pharmaceutical companies’ influence over medicine in his paper titled “Medical Journals Are an Extension of the Marketing Arm of Pharmaceutical Companies.” Richard Horton (2004), Editor-in-Chief of *Lancet*, expressed similar concerns: “Journals have devolved into information laundering operations for the pharmaceutical industry.” Horton (2015) added that due to “flagrant conflicts of interest ... much of the scientific literature, perhaps half, may simply be untrue.”

Censorship by medical journals may also have financial incentives. Although most medical journals require authors to report conflicts of interest, many editors of these same journals possess undisclosed conflicts of interest (COI) that may influence their decisions about which manuscripts are published (Haque et al. 2018). A 2018 retrospective observational study published in the journal *PLOS One* found 320 of 703 (46%) physician editors

²⁶ Angell is the former editor-in-chief of the *New England Journal of Medicine* and currently a Senior Lecturer in the Department of Global Health and Social Medicine at Harvard Medical School.

of US medical journals received 8,659 payments totaling \$8,120,562 from private industry; only 7 of 34 (21%) publicly reported their COI (Haque et al. 2018). Similar COI exist for peer reviewers of medical journals (Nguyen et al. 2024). A recent JAMA study looked at US physician peer reviewers for *BMJ*, *JAMA*, *Lancet*, and *New England Journal of Medicine* (NEJM), using each journal's 2022 reviewer list and found more than half of the 1,962 peer reviewers in this study received industry payments in 2020-2022 (Nguyen et al. 2024).

Questions have arisen as to why scientific studies demonstrating the efficacy of inexpensive treatments for COVID-19 (e.g., IVM, HCQ) were suppressed. Wouldn't medical journal editors jump at the opportunity to print research demonstrating the efficacy and safety of life-saving treatments? Maybe not. Liu et al. (2017) found in their study that among 713 editors from 52 influential, high-impact US medical journals, over 50 percent received general payments and 20 percent received research payments from pharmaceutical and medical device manufacturers. The most stunning example is that of the *Journal of the American College of Cardiology* where 19 of its editors received an average of \$475,072 US personally, and another \$119,407 US for "research" in a single year (Liu et al. 2017).

Medical schools also receive millions of dollars from pharmaceutical companies, allowing these companies to influence the education of future doctors. This money, which often comes in the form of research grants, supports medical research at these institutions, but also opens the door for

the participation of pharmaceutical company employees in research. This has

Liester et al.: A Narrative Review of the COVID-19 Infodemic and Censorship in Healthcare the potential to influence the interpretation of the research results (Hensley 2019; Paulus and Ravi 2024).

Doctors in leadership positions at academic medical centers also receive payments for serving on the boards of pharmaceutical companies (Anderson et al., 2014). Anderson et al. (2014) found that 40 percent of large pharmaceutical companies had at least one board member who held a major leadership role at an academic medical center. These academics earned on average more than \$300,000 annually for their board service. In the United States, the former dean of the Yale School of Medicine, Robert Alpern, received more money from pharmaceutical companies than any other US medical school dean in 2018 - \$648,183 from the pharmaceutical companies Abbott Laboratories and AbbVie Inc. (Peryer 2019). That same year, he also served on the board of directors of both companies (Peryer 2019). Alpern resigned as dean of the Yale School of Medicine at the end of 2018 (Cho and Peryer 2018).

Still another potential conflict of interest involves the relationship between those who profit from vaccines and those who recommend the vaccines. For example, the head of the NIAID during the COVID-19 pandemic was Anthony Fauci, who was not only the highest paid employee in the US government at the time (Andrzejewski 2021), but also one of the strongest proponents of the COVID-19 vaccines (Choi 2021; Mulcahy 2020; O'Reilly 2021; Taylor 2022). While the fact that Fauci's organization, the NIH, received hundreds of millions of dollars from Moderna and that he strongly supported the vaccines does not prove he was influenced by the enormous amount of money his organization received, it does create a

conflict of interest, as well as a breach of medical and research ethics, with financial gain being a potential incentivizing factor influencing his support.

Another individual who strongly supported the vaccines and benefited from their sale is former Microsoft CEO Bill Gates, who reportedly invested \$55 million in BioNTech, the European company that partnered with Pfizer to produce the most profitable COVID-19 vaccine in the world (Louise 2021). During the COVID-19 pandemic, the Bill and Melinda Gates Foundation collaborated with three nongovernmental, global health organizations to influence COVID-19 policies: Gavi (2023), a global vaccine organization that Gates helped fund and supported with \$4.1 billion in funding since 2000; the Wellcome Trust, a British research foundation with a multibillion-dollar endowment; and the Coalition for Epidemic Preparedness Innovations (CEPI), an international vaccine research and development group that Gates and Wellcome helped create in 2017. These four organizations collectively spent nearly \$10 billion on COVID-19 since 2020, including donations totaling \$1.4 billion to the WHO. Their leaders, who had access to the highest levels of multinational governments, spent at least \$8.3 million lobbying lawmakers and government officials in the United States and Europe (Banco, Furlong, and Pfahler 2022).

In addition, the Bill and Melinda Gates Foundation trust reportedly invested more than \$250 million in dozens of companies working on COVID-19 vaccines, therapeutics, diagnostics, and manufacturing (Schwab 2020a). The Gates Foundation donated money to other companies as well, including over \$250 million to journalism sites such as the BBC, NBC, Al Jazeera,

Liester et al.: A Narrative Review of the COVID-19 Infodemic and Censorship in Healthcare *Times, Atlantic, Texas Tribune, Gannett, Washington Monthly*, and Center for Investigative Reporting. Charitable organizations affiliated with news outlets, media companies, journalistic organizations, and a variety of other groups creating news content also received money from the foundation. What was the net result of these investments and donations? In addition to the unknown amount of return on the foundation's investments, Gates's personal wealth increased by more than \$10 billion during the COVID-19 pandemic (Schwab 2020b).

Another group that may have benefitted from financial payments during the COVID-19 pandemic are physicians; from 2013 to 2022, 85,087,744 payments totaling \$12.13 billion were made by the pharmaceutical industry to 826,313 physicians in the United States (Sayed et al. 2024). In other words, 57.1 percent of eligible physicians received payments from the pharmaceutical industry. The time period utilized in this study began six years prior to the COVID-19 pandemic. There is no evidence suggesting payments made during the pandemic from the pharmaceutical industry to physicians were directly related to the pandemic. However, the time selected for the study extended to 2022, which was *during* the pandemic, and payments totaling \$1.28 billion were made to 424,417 US physicians by the pharmaceutical industry in 2022 (Sayed et al. 2024). Thus, while this does not prove any undue influence of the pharmaceutical industry over US physicians prior to or during the pandemic, it does raise serious questions about the potential influence of payments to physicians who administered COVID-19 vaccines and prescribed medicines used to treat COVID-19.

Similarly, payments from the US government to physician organizations may have influenced vaccine recommendations. For example, documents obtained through a FOIA request revealed that the American College of Obstetricians and Gynecologists received \$11 million to promote COVID-19 vaccinations as “safe and effective” for pregnant women, despite evidence demonstrating an increased risks of miscarriages and birth defects (Thorp and Thorp 2023). This money was just a small portion of the hundreds of millions of dollars given out by the CDC in grants to create “culturally tailored” pro-vaccine information and train “influential messengers” to promote COVID-19 vaccines in communities of color in every state throughout the United States. These grants were also contingent on the recipients assisting the government enforce federal orders related to quarantine and isolation (Baletti 2023).

Collaboration between government and pharmaceutical companies has raised concerns among a growing number of scientists, physicians, journalists, and some politicians. This collaboration has been referred to as the “bio-pharmaceutical complex,” the “medical industrial complex,” and the “pharmaceutical-industrial complex” (Leake and McCullough 2022). A major component of this complex is referred to as “Big Pharma,” a term that collectively refers to major multinational pharmaceutical companies that together form one of the most profitable and powerful industries in the world (McKay 2023). The pharmaceutic industry spends millions of dollars attempting to influence politicians. In 2023, the pharmaceutical/health products industry spent nearly \$400 million on lobbying in the United States;

Liester et al.: A Narrative Review of the COVID-19 Infodemic and Censorship in Healthcare in 2024, this amount increased relative to the same time period in 2023 (Cirruzzo and Leonard 2024).

Consequences of Censorship and Secrecy

Censorship and secrecy can have numerous adverse consequences. One such consequence is polarization, which results in a Manichean “us versus them” paradigm. Polarization contributes to conflicts between individuals who hold differing opinions. Relationships between physicians, families, and friends have eroded because of opposing ideas about COVID. But in addition to harming relationships, censorship has also impaired scientific and medical advancement. Disagreements over treatments such as IVM and HCQ were deemed punishable offenses, resulting in physicians losing their medical licenses or board certifications if they advocated for their use. The exploration and allowance of heterodox views is fundamental to science and medicine. Without such exploration, science and medicine fail to advance. As Dr. Pierre Kory (2023b, 3) explained:

Physicians apply the scientific method, test different approaches to heal patients, build on what works and ignore what doesn't. Even when scientific insights are widely upheld, challenging of established beliefs has led to innumerable scientific advances throughout history. By preventing the free exchange of ideas among physician-led advocacy groups sharing firsthand treatment experience, censorship is destroying the potential for medical innovation.

Authors from the Institut Hospitalo-Universitaire Méditerranée Infection in Marseille also point out that

Science is a debate with rules. When someone disagrees with the scientific content of an article, comments should be addressed to the journal and be peer reviewed by recognized experts without any conflict of interest, in such a way as to preserve independent and

constructive debate and enrich the quality of science. (Brouqui et al. 2023)

Another adverse consequence of censorship and secrecy is a growing distrust in authorities. Public trust in physicians, regulatory agencies, and governments declined during the COVID-19 pandemic. A survey performed by Actium (2021) found 4 of 10 Americans lost trust in their physician during the pandemic; a University of Chicago study found physicians lost trust in the healthcare system and government health agencies during the pandemic (National Opinion Research Center 2021). In addition, the Robert Wood Johnson Foundation (2021) found only 52 percent of respondents trust the CDC, and even fewer trust their local and state health departments (44% and 41%, respectively). Trust in the US surgeon general is even lower (40%), whereas trust in both the NIH and the FDA is lower still (37%). Rounding out the bottom is the US Department of Health and Human Services (33%). In summary, attempting to force consensus around orthodoxy through censorship and secrecy have directly undermined public trust.

Discussion

Censorship and secrecy can have both beneficial effects (e.g., the protection of national security or trade secrets) and detrimental consequences (e.g., use as propaganda to punish others, loss of trust in governments and corporations). Philosopher and ethicist Sissela Bok (2011, 170) warned that previously untested practices of secrecy in academic

science could "gain such a strong foothold that they affect the momentum,

Liester et al.: A Narrative Review of the COVID-19 Infodemic and Censorship in Healthcare the quality, and the direction of scientific research in ways difficult to reverse."

Historically, corporations and governments have employed misinformation campaigns to mislead the public and blame avoidance strategies to shift responsibility and avoid accountability for their actions. As the numerous examples in this narrative review demonstrate, these same strategies were utilized to benefit individuals, corporations, and governments at the expense of the health and welfare of the general public during the COVID-19 pandemic.

What can be done to resist and circumvent censorship? Brian Martin (2001), emeritus professor of social sciences at the University of Wollongong, Australia, suggests multiple strategies to resist and circumvent censorship, which include: (1) speak out against censorship rather than remaining silent; (2) expose censorship for what it is in order to help suppressed views gain visibility; (3) leak research findings or reports; (4) publish in books to avoid censorship, rather than in medical journals or on social media; (5) document censorship and build support from colleagues, professional associations, social movements, or politicians; and (6) participate in social action. If medicine is to avoid the trap of becoming mired in the illusion of politically defined scientific consensus or medically dysfunctional tribalism, we must end the current tsunami of censorship plaguing science and medicine. Open debate about scientific facts must be encouraged, and heterodox or dissident viewpoints must be supported, rather than suppressed or punished.

The amount of information and scientific data that was censored and kept secret throughout the pandemic is incalculable. However, the evidence presented in this narrative review suggests that lack of access to critical information resulted in the unnecessary and dramatic loss of countless human lives, and possible deaths to follow. Censoring information about the origin of the SARS-CoV-2 virus, the science behind government recommended responses to the pandemic, the safety and efficacy of COVID-19 vaccines, and available treatments for COVID-19 contributed to a loss of trust in healthcare providers and healthcare institutions. Governmental agencies have also delayed the discovery and development of innovative, sustainable, and effective strategies and treatments for future pandemics. The evidence presented in this review suggests we must avoid the trap of rationalizing that censorship and secrecy are justified by the dangers of a pandemic, and instead follow the time-proven practice of openly exchanging ideas and engaging in constructive dialogue, as this provides the most effective strategy for combating future pandemics.

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The authors have no conflicts of interest to report.

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