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Dorit Rubenstein Reiss, *Misinformation and COVID-19*, 63 *Santa Clara L. Rev.* 147 (2023).
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MISINFORMATION AND COVID-19

Dorit R. Reiss*

The COVID-19 pandemic's impact on our world cannot be overstated. One of its noticeable features was the prominence of misinformation generally, and anti-vaccine misinformation more specifically. This article provides a breakdown of the five major themes of antivaccine misinformation and the way they were used to create fear, uncertainty, and doubt about COVID-19 vaccines. Long before the pandemic, anti-vaccine activists argued using a five-part playbook. They argued that (1) vaccine preventable diseases were not really dangerous, (2) vaccines were dangerous and ineffective, (3) there were alternative treatments that were better than (dangerous and ineffective) vaccines, (4) there was a conspiracy to hide this information, and (5) the real issue is one of civil rights, not science. Their claims were based on misinformation before COVID-19, and anti-vaccine activists continued using the same themes, also based on misinformation, in their response to the COVID-19 pandemic. But the pandemic created a moment of vulnerability that allowed anti-vaccine activists' claims to have broader impact.

By setting out the themes and tactics used by anti-vaccine activists and spelling out the factors that led to the moment of vulnerability during the pandemic, this article aims to arm legal actors—judges, lawyers, and scholars—with tools that would help identify anti-vaccine claims and tactics, and hopes to protect them from being misled.

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I. INTRODUCTION

In November 2021, Federal Judge Terry A. Doughty issued a preliminary injunction against a rule issued by the Centers for Medicaid and Medicare that required healthcare workers to be vaccinated against COVID-19 unless they had a valid medical or religious exemption.¹ The decision did many things, but among other things, it included the following paragraph:

Plaintiff States provided evidence in the Declaration of Dr. Peter A. McCullough that the COVID-19 vaccines do not prevent transmission of the disease among the vaccinated

1. See *State of Louisiana v. Becerra*, 571 F. Supp. 3d 516 (W.D. La., 2021). The stay was eventually overturned by the Supreme Court. *Biden v. Missouri*, 142 S. Ct. 647 (2022).

or mixed vaccinated/unvaccinated populations, and that mandatory COVID-19 vaccines for hospitals do not increase safety for employees or hospital patients. McCullough declared that additional treatment with other drugs and supplements has resulted in an eighty-five percent reduction in hospitalizations and death of high-risk individuals presenting with COVID-19.²

The problem with this paragraph is that it includes several inaccurate sentences from someone who can be fairly characterized as anti-vaccine.³ COVID-19 vaccines do not completely prevent transmission, but they decrease it, and unvaccinated people increase the risk.⁴ Extensive evidence suggests that mandates increase vaccination rates, and an increase in vaccination rates would increase the safety of employees and patients.⁵ The treatments Dr. McCullough apparently refers to (based on references in his other works) are treatments like hydroxychloroquine, which lacks a sound medical basis.⁶ Recently, Dr. McCullough has become part of

2. *Id.* at 539.

3. See *Reviews of Articles by: Peter McCullough*, HEALTH FEEDBACK <https://healthfeedback.org/authors/peter-mccullough/> (last visited Aug. 16, 2022); see also Alicia Ault, *Baylor Gets Restraining Order Against COVID Vaccine Skeptic Doc*, MEDSCAPE (Sept. 16, 2021), <https://www.medscape.com/viewarticle/958916>.

4. David N. Fisman, Afia Amoako & Ashleigh R. Tuite, *Impact of Population Mixing between Vaccinated and Unvaccinated Subpopulations on Infectious Disease Dynamics: Implications for SARS-CoV-2 Transmission*, 194 CAN. MED. ASS'N. J. E573, E573-574 (2022), <https://www.cmaj.ca/content/194/16/E573> (people who are unvaccinated are more likely to infect others); see also Wilfredo F. Garcia-Beltran et al., *mRNA-Based COVID-19 Vaccine Boosters Induce Neutralizing Immunity Against SARS-CoV-2 Omicron Variant*, 185 CELL 457, 457-58 (2022) (This article was added to address a concern that this is no longer true with Omicron. It shows that a two-dose series reduces infectivity, but not a lot, but with a booster there is substantial reduction in infectivity).

5. Kevin G. Volpp and Carolyn C. Cannuscio, *Incentives for Immunity—Strategies for Increasing COVID-19 Vaccine Uptake*, 385 NEW ENG. J. MED. 1, 2 (2021); Dorit R. Reiss & Arthur L. Caplan, *Considerations in Mandating a New COVID-19 Vaccine in the USA for Children and Adults*, 7 J.L. AND BIOSCI. 1, 4 (2020); see generally Alexander Karaivanov et al., *COVID-19 Vaccination Mandates and Vaccine Uptake* (Nat'l Bureau of Econ. Rsch., Working Paper No. 29563, 2021), <https://www.nber.org/papers/w29563>.

6. For Dr. McCullough opinions, see his publications—Peter A. McCullough et al. *Pathophysiological Basis and Rationale for Early Outpatient Treatment of SARS-CoV-2 (COVID-19) Infection*, 134 AM. J. MED., 16 (2021); in January 2022, Dr. McCullough promoted Ivermectin: Art Moore, *Dr. Peter M. McCullough, Official COVID 'Narrative Has Crumbled'*, CLARKCOUNTYTODAY.COM (Jan. 14, 2022), <https://www.clarkcountytoday.com/news/dr-peter-mccullough-official-covid-narrative-has-crumbled/>. These treatments are not evidence-based and not

the anti-vaccine effort, speaking at anti-vaccine rallies and making statements against vaccines.⁷ His claims reflect the common anti-vaccine talking point addressed in this article: vaccines do not work but there are alternatives to them.

Nonetheless, a federal judge quoted this language, one of many examples of anti-vaccine misinformation seeping into judicial decisions.⁸

The anti-vaccine movement is as old as vaccines. The movement has used a variety of tactics to promote misinformation for decades,⁹ but in the wake of the COVID-19 pandemic, it is operating in a new reality. COVID-19 killed and harmed millions of people worldwide and upended our society.¹⁰ COVID-19 vaccines are an important part of our

recommended by expert authorities; see *FDA Cautions Against Use of Hydroxychloroquine or Chloroquine for COVID-19 Outside of the Hospital Setting or a Clinical Trial Due to Risk of Heart Rhythm Problems*, FDA.GOV (Jul. 1, 2020), <https://www.fda.gov/drugs/drug-safety-and-availability/fda-cautions-against-use-hydroxychloroquine-or-chloroquine-covid-19-outside-hospital-setting-or>.

7. One example of Dr. McCullough participation in antivaccine rallies is Daniel Villarreal, *7 Doctors at Anti-Vax Summit Catch COVID-19 Despite Touting Ivermectin ‘Treatment’*, NEWSWEEK (Nov. 23, 2021, 10:37 PM), <https://www.newsweek.com/7-doctors-anti-vax-summit-catch-covid-19-despite-touting-ivermectin-treatment-1652763>. Several of his articles were reviewed and debunked on Health Feedback, *Review of Articles by: Peter McCullough*, *supra* note 3; see also Ault, *supra* note 3.

8. For another recent example, see Justice Thomas stating that COVID-19 vaccines were “developed using cell lines derived from aborted children.” *Dr. A. v. Hochul*, 142 S. Ct. 2569, 2570 (2022) (Thomas, J., dissenting), https://www.supremecourt.gov/orders/courtorders/063022zor_5he6.pdf. While three of the authorized vaccines used in the United States had some link to cell lines descended from abortions from the 1960s and 1970s, the link for the mRNA vaccines is very weak—the cell lines were simply used to test whether the concept works—and there are no such cells in the vaccines. Novavax did not use the cells at all. Kelly Hooper, *Clarence Thomas Cites Claim that Covid Vaccines are ‘Developed Using Cell Lines Derived from Aborted Children,’* POLITICO (June 30, 2022, 12:47 PM), <https://www.politico.com/news/2022/06/30/clarence-thomas-covid-vaccines-dissent-00043483>; less recently, Justice Gorsuch also stated in a dissent that we have treatments for COVID-19, though the treatments available are very limited. *Does v. Mills*, 595 U. S. ____ (2021) (Gorsuch, J., dissenting), https://www.supremecourt.gov/opinions/21pdf/21a90_6j37.pdf.

9. See generally Anna Kata, *Anti-Vaccine Activists, Web 2.0, and the Postmodern Paradigm—An Overview of Tactics and Tropes Used Online By the Anti-Vaccination Movement*, 30 VACCINE 3778, 3781 (2012) (Kata lists a long set of tropes, and addresses four tactics that will be further discussed in Chapter III in this article).

10. Gideon Meyerowitz-Katz et al., *Is the Cure Really Worse than the Disease? The Health Impacts of Lockdowns During COVID-19*, 6 BRIT. MED. J. GLOB. HEALTH 1, 1-3 (2021).

route out of the pandemic, so there is extensive public attention focused on the vaccines and their development process.¹¹ As more people turned their attention to infectious diseases and vaccines, anti-vaccine leaders saw an opportunity to increase their reach and influence.¹² They were ready. The anti-vaccine movement did not change its playbook during the pandemic. It used the same themes and made the same type of claims it has made about other vaccines. The anti-vaccine rhetoric has not changed much; it just reached a greater audience, due to the circumstances.

This article lays out the themes the anti-vaccine movement uses to create fear, uncertainty, and doubt about vaccines, and then demonstrates how the same themes were used to promote misinformation about COVID-19.¹³ It will then examine some of the tactics used in the service of these themes and explain how the circumstances of the COVID-19 pandemic created a large pool of people vulnerable to misinformation. The article does not purport to be an empirical study of anti-vaccine claims making their way into the courts. Rather, its goal is to arm judges subject to such misinformation with the background to identify it. Although I am a legal academic, I write this article based on my experience in the trenches, so to speak, combatting misinformation online and debunking anti-vaccine claims.

Part I sets out the anti-vaccine playbook. Part II describes how this is a moment of vulnerability, that is, it is a moment of opportunity for the anti-vaccine movement. It then

11. See Matthew S. Krantz & Elizabeth J Phillips, *COVID-19 mRNA Vaccine Safety During the First 6 Months of Roll Out in the USA*, 22 THE LANCET 747-48 (2022) (“...safety monitoring of the mRNA COVID-19 vaccines stands out as the most comprehensive of any vaccine in US history.”). Junjiang Li & Philippe Giabbanelli, *Returning to a Normal Life via COVID-19 Vaccines in the United States: A Large-Scale Agent-Based Simulation Study*, 9 JMIR MED. INFORMATICS 1 (2021) (providing a virtual assessment of vaccine impact drawing on the extensive data about the vaccines, as another example of the use the extensive data collected it put to).

12. Talha Burki, *The Online Anti-Vaccine Movement in the Age of COVID-19*, 2 LANCET DIGIT. HEALTH e504, e504 (2020).

13. Bryan Pfaffenberger, *The Rhetoric of Dread: Fear, Uncertainty, and Doubt (FUD) in Information Technology Marketing*, 13 KNOWLEDGE, TECH. & POL’Y 78, 78 (2000) (explaining the use of fear, uncertainty and doubt). About the anti-vaccine movement’s old arguments, see Gregory A. Poland & Robert M. Jacobson, *Understanding those who do not Understand: A Brief Review of the Anti-Vaccine Movement*, 19 VACCINE 2440 (2001).

demonstrates how anti-vaccine activists have taken advantage of this period of vulnerability to use the same playbook they used before the pandemic to deter people from vaccinating against COVID-19. Part III describes some of the tactics employed and suggests the anti-vaccine movement has not really changed the tactics it has always used.

II. THE ANTI-VACCINE PLAYBOOK, PAST

A complete overview of the anti-vaccine movement is beyond the scope of this article.¹⁴ In brief, anti-vaccine efforts date back to the first vaccine at the end of the eighteenth and beginning of the nineteenth century, but the modern anti-vaccine movement in the United States was reinvigorated in the 1980s when a TV show called “Vaccine Roulette” created concerns around pertussis vaccines.¹⁵ It received an additional boost from concerns about autism in the late 1990s and early 2000s and has maintained a presence ever since.¹⁶ Anti-vaccine groups had a peak of success between 1998-2003, but have been less successful since then.¹⁷ After 2003, anti-vaccine activists lost much of their access to mainstream media.¹⁸ To

14. There are other in-depth books about the anti-vaccine movement. See PAUL A. OFFIT, *DEADLY CHOICES: HOW THE ANTI-VACCINE MOVEMENT THREATENS US ALL* 180-85 (2011); Poland and Jacobson, *supra* note 13; Eve Dubé, Maryline Vivion & Noni E. MacDonald, *Vaccine Hesitancy, Vaccine Refusal and the Anti-Vaccine Movement: Influence, Impact and Implications*, 14 *EXPERT REV. OF VACCINES* 99 (2015); PETER J. HOTEZ, *VACCINES DID NOT CAUSE RACHEL'S AUTISM* 169-85 (2018). More broadly about the politics of vaccination see JAMES COLGROVE, *STATE OF IMMUNITY: THE POLITICS OF VACCINATION IN TWENTIETH-CENTURY AMERICA* (2006), and ELENA CONIS, *VACCINE NATION: AMERICA'S CHANGING RELATIONSHIP WITH IMMUNIZATION* 251-55 (2014).

15. OFFIT, *supra* note 14, at 64.

16. *Id.* at 190-206.

17. Denise F. Lillvis et al., *Power and Persuasion in the Vaccine Debates: An Analysis of Political Efforts and Outcomes in the United States, 1998-2012*, 92 *MILBANK Q.* 475, 498 (2014).

18. PAUL A. OFFIT, *BAD ADVICE: OR WHY CELEBRITIES, POLITICIANS AND ACTIVISTS AREN'T YOUR BEST SOURCE OF HEALTH INFORMATION* 203-05 (2019).

compensate, they gained more access to social media.¹⁹ Anti-vaccine groups are well-organized and well-funded.²⁰

The anti-vaccine playbook generally consists of five related themes, adopted and adjusted for the context of COVID-19: (1) diseases are not so bad, (2) vaccines are dangerous, (3) there are alternatives, (4) there is a conspiracy to hide the information and cause harm, and (5) it's really about civil rights. This is a longstanding set of claims, not created for COVID-19, as this article will demonstrate. The anti-vaccine movement has not changed its pattern or its approach:

Table 1: Anti-Vaccine Themes, Pre and Post Covid²¹

Theme	Pre-COVID-19 Example	Post-COVID-19 Example
1) Diseases are not so bad.	Measles is a fever and a rash.	"It's a cold."
2) Vaccines are dangerous and do not work.	Look at how many Vaccine Adverse Event Reporting System ("VAERS") reports!	Look at how many VAERS reports!
3) There are alternative treatments (that "they" are hiding).	Vitamin A cures measles.	Vitamin C, Hydroxychloroquine, and Ivermectin cure COVID-19.

19. See RENÉE DIRESTA, OF VIRALITY AND VIRUSES: THE ANTI-VACCINE MOVEMENT AND SOCIAL MEDIA (2018), <https://nautilus.org/napsnet/napsnet-special-reports/of-virality-and-viruses-the-anti-vaccine-movement-and-social-media/>; Dominik Andrzej Stecula, Ozan Kuru & Kathleen Hall Jamieson, *How Trust in Experts and Media Use Affect Acceptance of Common Anti-Vaccine Claims*, MISINFORMATION REV. (Jan. 14, 2020), <https://misinforeview.hks.harvard.edu/article/users-of-social-media-more-likely-to-be-misinformed-about-vaccines/>.

20. CTR. FOR COUNTERING DIGITAL HATE, PANDEMIC PROFITERS: THE BUSINESS OF ANTI-VAXX 7 (2020), https://252f2edd-1c8b-49f5-9bb2cb57bb47e4ba.filesusr.com/ugd/f4d9b9_00b2ad56fe524d82b271a75e441cd06c.pdf (reporting on the profit and organization of a variety of anti-vaccine groups, complete with their income and salaries).

21. The examples in the table will be discussed further below, together with additional examples. To keep the table short, only one example was provided for each.

A. Diseases are Not So Bad

The first theme downplays the harms of disease. For example, anti-vaccine activists describe measles as a mere fever and a rash.²² In reality, measles is one of the more serious rash-inducing diseases, with potential complications in every organ system.²³ Between the years 1987-2000, the death rate from measles in the United States was three per one thousand.²⁴ Thirty percent of the patients had a complication, and about nineteen percent were hospitalized.²⁵ Over five percent had pneumonia.²⁶ Of those reported cases, nearly 9 percent had pneumonia and twenty-six percent were hospitalized. In addition, measles also suppresses or erases immunity to other diseases, leaving the patient vulnerable to harm or death from those diseases.²⁷

Anti-vaccine activists also made much of the fact that the poliovirus paralyzes a relatively small percentage of children. One anti-vaccine doctor described the disease as “a low-incidence disease,” arguing that most of it “left no residual paralysis at all.”²⁸ While less than one percent of polio infections lead to paralysis,²⁹ in the years leading up to the vaccine, polio caused an annual average of over 15,000 cases of paralysis per year in the United States and nearly two

22. See *This Papa is not Scared of the Measles Vaccine*, SKEPTICAL RAPTOR (Oct. 18, 2015), <https://www.skepticalraptor.com/skepticalraptorblog.php/papa-scared-shmeasles-measles/>; *To the Parent of the Immunocompromised Child Who Thinks My Kid is a Threat*, MEGAN HEIMER (Feb. 9, 2015), https://dickatlee.com/issues/health/vaccines/pdfs/unvax_kid_not_threat.pdf.

23. Robert T. Perry & Neal A. Halsey, *The Clinical Significance of Measles: A Review*, 189 J. INFECTIOUS DISEASES 4, 5 (2004).

24. *Id.* at S7 tbl. 2.

25. *Id.*

26. *Id.*

27. Michael J. Mina et al., *Measles Virus Infection Diminishes Preexisting Antibodies that Offer Protection from Other Pathogens*, 366 SCIENCE 599, 599-600 (2019); see Velislava N. Petrova et al., *Incomplete Genetic Reconstitution of B Cell Pools Contributes to Prolonged Immunosuppression After Measles*, 4 SCI. IMMUNOLOGY 1. 1 (2019).

28. SUZANNE HUMPHRIES & ROMAN BYSTRIANYK, *DISSOLVING ILLUSIONS: DISEASE, VACCINES, AND THE FORGOTTEN HISTORY*, 224 (2013).

29. Man Mohan Mehndiratta, Prachi Mehndiratta, & Renuka Pande, *Poliomyelitis: Historical Facts, Epidemiology, and Current Challenges in Eradication*, 4 NEUROHOSPITALIST 223, 225 (2014).

thousand deaths.³⁰ The disease caused substantial and understandable fear. No one could know if their child would be the one to be left paralyzed.³¹

By presenting preventable diseases as “routine childhood diseases,” and downplaying their risks, anti-vaccine activists argue that vaccines are not so important, not necessary.³² In reality, vaccines prevent extensive harm and death.³³ For example, a 2014 study suggested that between 1994-2013 in the United States “vaccination will prevent an estimated 322 million illnesses, 21 million hospitalizations, and 732,000 deaths” in addition to minimizing the extensive cost of treatment.³⁴

B. Vaccines Are Dangerous and Do not Work

The second pre-COVID-19 theme is that vaccines are bad and do not work. In addition to downplaying the risks of diseases, anti-vaccine activists routinely present vaccines as highly dangerous, and falsely claim that vaccines cause harms like autism, food allergies, and Sudden Infant Death Syndrome.³⁵ Anti-vaccine activists go as far as claiming that the current generation of children is “the sickest generation,”

30. Sandra W. Roush & Trudy V. Murphy, *Historical Comparisons of Morbidity and Mortality for Vaccine-Preventable Diseases in the United States*, 298 J. AM. MED. ASS'N 2155, 2156-57 (2007).

31. Daniel J. Wilson, *A Crippling Fear: Experiencing Polio in the Era of FDR*, 72 BULL. HIST. MED. 464, 464 (1998).

32. Mary Holland & Chase E. Zachary, *Herd Immunity and Compulsory Childhood Vaccination: Does the Theory Justify the Law?*, 93 OR. L. REV. 1, 4 (2014). Nancy Hokkanen, *Measles and Morals, Then (Davey & Goliath) and Now (Rights & Pharma)*, AGE OF AUTISM (May 16, 2017), <https://www.ageofautism.com/2017/05/measles-and-morals-then-davey-goliath-and-now-rights-pharma.html>.

33. See Roush & Murphy, *supra* note 30, at 2156-60.

34. Cynthia G. Whitney et al., *Benefits from Immunization During the Vaccines for Children Program Era—United States, 1994-2013*, 63 MORBIDITY & MORTALITY WKLY. REP. 352, 352-54 (2014) (Financially, vaccines in these years will result in “net savings of \$295 billion in direct costs and \$1.38 trillion in total society costs.”).

35. Dorit R. Reiss & Lois A. Weithorn, *Responding to the Childhood Vaccination Crisis: Legal Frameworks and Tools in the Context of Parental Vaccine Refusal*, 63 BUFF. L. REV. 881, 886-88, 940 (2015); see generally Frank DeStefano, Heather Monk Bodenstab & Paul A. Offit, *Principal Controversies in Vaccine Safety in the United States*, 69 CLINICAL INFECTIOUS DISEASES 726 (2019), <https://academic.oup.com/cid/article/69/4/726/5316263> (discussing problematic claims of vaccines harms and the evidence against them).

placing the blame on vaccines.³⁶ Routine vaccines have exceptionally low risks.³⁷

Another example of this theme is misuse of Vaccine Adverse Event Reporting System (VAERS) data by anti-vaccine activists. The anti-vaccine organization National Vaccine Information Center uses VAERS reports in each of its descriptions of routine childhood vaccines and has been doing so since long before the pandemic. The organization's "quick facts" for hepatitis B vaccine misleadingly state:³⁸

[A]s of June 30, 2022, there have been more than 100,389 adverse events reported to the federal Vaccine Adverse Events Reporting System (VAERS) in connection with Hepatitis B and Hepatitis B containing vaccines. Approximately fifty percent of those serious Hepatitis B vaccine-related adverse events occurred in children under 3 years old, with approximately 1,697 deaths occurring in children under three years of age. Of the vaccine-related adverse events reported to VAERS there were 2,307 related deaths, 15,640 hospitalizations, and 3,663 related disabilities. 22,798 of the adverse events were associated with Hepatitis B vaccine alone (not combined with other vaccines).³⁹

By listing those numbers without context, NVIC provides the impression that these numbers reflect the vaccines' risks, that these events are caused by the vaccine. That is misleading. As the VAERS site itself explains, anyone can file a report to VAERS, and the reports cannot be used to

36. David Gorski, *Is Today's Generation of Children "the Sickest Generation"?*, SCI. BASED MED. (Aug. 5, 2019), <https://sciencebasedmedicine.org/is-marianne-williamson-correct-that-todays-generation-of-children-is-the-sickest-generation/>; David Gorski, "The Control Group": A Litigation-Driven Anti-vaccine Survey of the Unvaccinated, RESPECTFUL INSOLENT (Feb. 26, 2021), <https://respectfulinsolence.com/2021/02/26/control-group-a-litigation-driven-antivaccine-survey-of-the-unvaccinated/>.

37. See generally Lois A. Weithorn & Dorit R. Reiss, *Providing Adolescence with Independent and Confidential Access to Childhood Vaccines: A Proposal to Lower the Age of Consent*, 52 CONN. L. REV. 886-88 (2020), https://9dbe8151-9304-4a03-b9a521e2dff85422.filesusr.com/ugd/c3e54a_e1c980fb53dd48a2bfd5-ef98b833ff02.pdf.

38. National Vaccine Information Center, *Hepatitis B Quick Facts*, (updated Aug. 14, 2022), <https://www.nvic.org/disease-vaccine/hepatitis-b/quick-facts> (last visited Sept. 8, 2022).

39. *Id.*

determine causation.⁴⁰ In other words, there is no factual basis to assume or suggest that the reports accurately show harms caused by the vaccine.⁴¹ We will see the same kind of misuse of VAERS in the COVID-19 related misinformation.

C. There Are Alternative Treatments (and “they” are hiding them)

A third theme by anti-vaccine activists is to allege that there is a cure or treatment for a harm, but some undefined, nefarious entity (“they”) is hiding it. For example, anti-vaccine activists incorrectly claim vitamin A completely prevent measles-related harms,⁴² and vitamin C cures whooping cough.⁴³ Anti-vaccine proponents also argue cervical cancer screening is a better preventative than human papillomavirus (“HPV”) vaccines, despite the fact many victims of cervical cancer have a history of appropriate screening, and there are no good routine screening options for many HPV cancers (like anal, penial, throat and mouth).⁴⁴ Here too, we will see similar claims related to COVID-19.

D. It’s a Conspiracy

A fourth theme we see is the prevalence of conspiracy theories to justify why most experts reject anti-vaccine claims. Anti-vaccine groups openly claim there is a grand conspiracy to hide information. For example, in an article predating the

40. *About VAERS*, VACCINE ADVERSE EVENT REPORTING SYSTEM, <https://vaers.hhs.gov/about.html> (last visited Aug. 4, 2022).

41. Tom T. Shimabukuro et al., *Safety Monitoring in the Vaccine Adverse Events Reporting System (VAERS)*, 33 VACCINE 4398, 4399 (2015).

42. Robert F. Kennedy, Jr., *A Dozen Facts About Measles That You Won’t Learn From MSPharmedia*, CHILDREN’S HEALTH DEF. (May 2, 2019), <https://childrenshealthdefense.org/news/a-dozen-facts-about-measles-that-you-wont-learn-from-mspharmedia/>; see also Johan Christiaan Bester, *Measles and Measles Vaccination: A Review*, 170 J. AM. MED. ASSN. PEDIATRICS 1209, 1211 (2016) (noting that Vitamin A can reduce measles mortality, but not completely prevent it, and is not a substitute to vaccines that prevent the disease).

43. Suzanne Humphries, *Sodium Ascorbate Treatment of Whooping Cough*, ORTHOMOLECULAR MED. NEWS SERV. (Apr. 6, 2018), <http://orthomolecular.org/resources/omns/v14n13.shtml>; see also Jaclyn Harwell, *The Vitamin C Protocol—Whooping Cough Treatment*, THE FAM. THAT HEALS TOGETHER (Dec. 15, 2017), <https://thefamilythathealstogether.com/whooping-cough-treatment-vitamin-c-protocol/>.

44. Dwight T. Janerich et al., *The Screening Histories of Women with Invasive Cervical Cancer, Connecticut*, 85 AM. J. PUB. HEALTH 791, 791-92 (1995), <https://pubmed.ncbi.nlm.nih.gov/7762711/>.

pandemic, anti-vaccine activists argued there is a long-standing global conspiracy to shape the media reporting on vaccines.⁴⁵ The argument varies in its focus, pivoting from holding the pharmaceutical companies, the medical establishment, or the government responsible for the conspiracy, but the existence of some conspiracy is a constant theme.⁴⁶ To give two examples, in 2005, anti-vaccine activists incorrectly stated that a scientific meeting to discuss whether thimerosal-containing vaccines were related to autism was a conspiracy.⁴⁷ Similarly in 2014, the anti-vaccine movement falsely claimed that a CDC scientist's statement proved there was evidence that vaccines cause autism, and that the CDC had hidden it.⁴⁸ The scientist had actually said that the results of a specific measles-mumps-rubella ("MMR") study did not show any "true association."⁴⁹ Other studies have also found

45. 'Anti-vax' Labelling and the Mainstream Media: Who is Coordinating This?, CHILD'S HEALTH DEF. (July 16, 2020), <https://childrenshealthdefense.org/news/anti-vax-labelling-and-the-mainstream-media-who-is-coordinating-this/>.

46. Anna Kata, *A Postmodern Pandora's Box: Anti-Vaccination Misinformation on the Internet*, 28 VACCINE 1709, 1712-13 (2009).

47. David Gorski, *Salon.com Flushes Its Credibility Down the Toilet*, RESPECTFUL INSOLENCES (June 17, 2005), <https://oracknows.blogspot.com/2005/06/saloncom-flushes-its-credibility-down.html>; Emily Willingham, *Is the CDC Hiding Data About Mercury, Vaccines, and Autism?*, FORBES (Feb. 22, 2014, 3:40 PM), <https://www.forbes.com/sites/emilywillingham/2014/02/22/is-the-cdc-hiding-data-about-mercury-vaccines-and-autism/?sh=c76895113639>; see also David Gorski, *Acid Flashbacks to Antivaccine Conspiracy Theories From Nine Years Ago*, RESPECTFUL INSOLENCES (Feb. 26, 2014), <https://respectfulinsolence.com/2014/02/26/acid-flashbacks-to-antivaccine-conspiracy-theories-from-nine-years-ago/>.

48. Alice Park, *Whistleblower Claims CDC Covered Up Data Showing Vaccine-Autism Link*, TIME (Aug. 28, 2014, 5:13 pm), <https://time.com/3208886/whistleblower-claims-cdc-covered-up-data-showing-vaccine-autism-link/>; see also David Gorski, *The Central Conspiracy Theory of the Anti-Vaccine Movement*, RESPECTFUL INSOLENCES (Aug. 25, 2014), <https://respectfulinsolence.com/2014/08/25/the-central-conspiracy-theory-of-the-antivaccine-movement/>; see also *A Look Back at the So Called "CDC Whistleblower" and How Vaxxed is Misleading*, LEFT BRAIN RIGHT BRAIN, <https://leftbrainrightbrain.co.uk/2017/02/10/a-look-back-at-the-so-called-cdc-whistleblower-story-and-how-vaxxed-is-misleading/> (last visited Feb. 24, 2022).

49. Matt Carey, *A Look at the "Garbage Can Quote" in Full Context*, LEFT BRAIN RIGHT BRAIN, <https://leftbrainrightbrain.co.uk/2016/01/06/a-look-at-the-garbage-can-quote-in-full-context/> (last visited Feb. 24, 2022).

no link between MMR and autism.⁵⁰ But the conspiracy theory became part of the anti-vaccine lore.

E. It's About Civil Rights

A fifth, longstanding theme from anti-vaccine groups is that their fight is not against vaccines, but for civil rights—even though the claim for rights is often intertwined, in the same articles and sources, with misinformation about vaccines.⁵¹ The anti-vaccine organization the National Vaccine Information Center has been publishing articles claiming that the issue is one of rights since at least the 1990s.⁵² Similar

50. See B. Taylor et al., *Autism and Measles, Mumps, and Rubella Vaccine: No Epidemiological Evidence for a Causal Association*, 353 LANCET 2026, 2029 (1999); E. Fombonne & S. Chakrabarti, *No Evidence for a New Variant of Measles-Mumps-Rubella-Induced Autism*, 108 PEDIATRICS E58 (2001); James A. Kaye et al., *Mumps, Measles, and Rubella Vaccine and the Incidence of Autism Recorded by General Practitioners: A Time Trend Analysis*, 322 BMJ 460 (2001); Annamari M. .kel. . . et al., *Neurologic Disorders After Measles-Mumps-Rubella Vaccination*, 110 PEDIATRICS 957 (2002); E. Fombonne et al., *Pervasive Developmental Disorders in Montreal, Quebec, Canada: Prevalence and Links With Immunizations*, 118 PEDIATRICS e139 (2006); Anjali Jain et al., *Autism Occurrence by MMR Vaccine Status Among US Children With Older Siblings With and Without Autism*, 313 J. AM. MED. ASSOC. 1534 (2015); Anders Hviid et al., *Measles, Mumps, Rubella Vaccination and Autism: A Nationwide Cohort Study*, 170 ANN. INTERN. MED. 513, 513-15 (2019).

51. Kata, *supra* note 46, at 1712. In a speech before a group of UN representative, anti-vaccine Attorney Mary Holland, a member of the Children's Health Defense, opened by discussing human rights, but wove in arguments about the Nuremberg code, alleging that vaccines are a science experiment, and that they cause deaths and harms. Mary Holland, *Professor Mary Holland on Vaccination Policies and Human Rights: United Nations 25th International Health and Environment Conference*, AGE OF AUTISM (Apr. 29, 2016), <https://www.ageofautism.com/2016/04/professor-mary-holland-et-al-speaking-the-world-information-transfer-un-health-and-environment-confe.html>. In an amicus curiae submitted in support of *Garner v. Biden*, a petition for certiorari before the Supreme Court, anti-vaccine attorney Mary Holland opens her discussion by arguing the case is about “one of the most fundamental rights of all Americans” (*id.* at 2) but then pivots to arguments about the vaccines that draw directly on the anti-vaccine creed, arguing that they caused thousands of deaths (*id.* at 4) and that there were not real trials about them (*id.* at 8). https://www.supremecourt.gov/DocketPDF/21/21-1511/229360/20220705114132_178_CHD%20Amicus%20Brief-%20for%202012-1511.pdf.

52. See Barbara Loe Fisher, *The Moral Right to Conscientious, Philosophical and Personal Belief Exemption to Vaccination*, NAT'L VACCINE INFO. CTR., <https://www.nvic.org/informed-consent.aspx> (last visited Aug. 7, 2022); Barbara Loe Fisher, *Measles Vaccine Experiments on Minority Children Turn Deadly*, NAT'L VACCINE INFO. CTR. (June 1, 1996), <https://www.nvic.org/nvic-archives/newsletter/vaccinereactionjune1996.aspx> (presenting opposition to a vaccine mandates as based on their “violation of their civil, religious and human

claims were raised by more recent anti-vaccine organizations.⁵³ Although vaccine mandates do implicate personal freedoms, the claims of violations of rights are not independent from anti-vaccine misinformation. In some cases, the misinformation is used to justify claims of rights (for example, they claim people have the right to remain unvaccinated, or that unvaccinated individuals pose no threat to others) and in others, the claims of rights are used to support and make listeners more receptive to misinformation (e.g., “it’s about freedom, and look, my child’s autism is actually from vaccines.”).

Anti-vaccine misinformation is not limited to the United States. In the age of the internet, misinformation travels and similar themes are used elsewhere. In two recent examples, in the 2010s, Europe saw major outbreaks of measles, largely driven by the same kind of anti-vaccine misinformation described above, with tens of deaths.⁵⁴ In 2019, Samoa also saw a measles outbreak, driven by anti-vaccine disinformation and low vaccination rates in the wake of a tragic incident in which children died after nurses injected a wrong vial instead of MMR.⁵⁵ 5,000 people were sick with measles in a country

right to informed consent to vaccination”); see also Barbara Loe Fisher, *In the Wake of Vaccines*, NAT’L VACCINE INFO. CTR. (Feb. 1, 2022), <https://www.nvic.org/news-media-reports/in-the-wake-of-vaccines>. On NVIC’s origins, see OFFIT, *supra* note 14, at 57-71.

53. David Gorski, *Robert F. Kennedy, Jr. Hosts a Trainwreck of an Antivaccine Forum in Harlem*, SCI. BASED MED. (Oct. 21, 2019), <https://sciencebasedmedicine.org/robert-f-kennedy-jr-s-harlem-vaccine-forum-a-disastrous-antivaccine-forum/> (quoting anti-vaccine activists claiming that the question of vaccine mandates was one of rights); Mackenzie Mays, *Anti-Vaccine Protesters are Likening Themselves to Civil Rights Activists*, POLITICO (Sept. 18, 2019, 5:01 AM), <https://www.politico.com/story/2019/09/18/california-anti-vaccine-civil-rights-1500976>.

54. Paloma Carrillo-Santistevé & Pier L. Lopalco, *Measles Still Spreads in Europe: Who is Responsible for the Failure to Vaccinate?*, 18 CLINICAL MICROBIOLOGY AND INFECTION 50, 52 (2012). EUROPEAN CTR. FOR DISEASE PREVENTION AND CONTROL, MEASLES: ANNUAL EPIDEMIOLOGICAL REPORT FOR 2018 (2020), <https://www.ecdc.europa.eu/sites/default/files/documents/measles-annual-epidemiological-report-2018.pdf> (noting in 2018, there were thirty-seven reported measles deaths in Europe, for a rate of 2:1000, but specific number changes by year).

55. Dominik Wawrzuta et al., *What Arguments Against COVID-19 Vaccines Run on Facebook in Poland: Content Analysis of Comments*, 9 VACCINES 481, 481 (2021); Peter J. Hotez et al., *Combating Vaccine Hesitancy and Other 21st Century Social Determinants in the Global Fight Against Measles*, 41 CURRENT OP. VIROLOGY, 1, 3 (2020).

with a population of 200,000; over eighty people died—most were unvaccinated and young children.⁵⁶

II. ANTI-VACCINE MISINFORMATION AND COVID-19

In December 2019, China began reporting on cases of pneumonia.⁵⁷ Although no one knew it, it was the beginning of the COVID-19 pandemic.⁵⁸ The first COVID-19 case was announced in the United States on January 21, 2020.⁵⁹ At the beginning of 2022, over five million people had died worldwide—almost certainly an underestimation⁶⁰—and many more were harmed.⁶¹ The United States reported one million COVID-19 deaths in early May 2022.⁶² Millions were harmed.⁶³ The pandemic upended and disrupted the economic well-being of individuals and countries; in the United States

56. *Id.* at 481.

57. Marco Ciotti et al., *The COVID-19 Pandemic*, 57 CRITICAL REVIEWS IN CLINICAL LAB'Y. SCI., 365, 365-66 (2020), <https://doi.org/10.1080/10408363.2020.1783198>.

58. Michelle L. Holshue et al., *First Case of 2019 Novel Coronavirus in the United States*, 382 NEW ENG. J. MED. 929, 929 (2020).

59. *Id.* Though spread from China to other countries, including the United States, may have started earlier, it was likely not much earlier, likely not earlier than December 2019.

60. Daniel M. Weinberger et al., *Estimation of Excess Deaths Associated with the COVID-19 Pandemic in the United States, March to May 2020*, 180 J. AM. MED. ASSOC. INTERN. MED. 1336, 1336-38 (2020), DOI 10.1001/jamainternmed.2020.3391.

61. Elissa M. Abrams et al., *The COVID-19 Pandemic: Adverse Effects on the Social Determinants of Health in Children and Families*, 128 ANN. OF ALLERGY, ASTHMA & IMMUNOLOGY, 19, 19-20 (2022).

62. Elizabeth Chuck & Corky Siemaszko, *COVID's Toll in the U.S. Reaches a Once Unfathomable Number: 1 Million Deaths*, NBC NEWS (May 4, 2022, 1:33PM), <https://www.nbcnews.com/news/us-news/covids-toll-us-reaches-1-million-deaths-unfathomable-number-rcna22105>.

63. Sadiya S. Khan et al., *Association Between County-Level Risk Groups and COVID-19 Outcomes in the United States: a Socioecological Study*, 22 BMC PUB. HEALTH 1, 3 (2022), <https://link.springer.com/article/10.1186/s12889-021-12469-y> (giving a summary of the widespread numbers of cases and deaths and then a deeper analysis of how they varied between countries).

and abroad.⁶⁴ The socioeconomic effects have been one-sided and felt the worst by the most vulnerable.⁶⁵

From early in the pandemic, the anti-vaccine movement started preparing.⁶⁶ The anti-vaccine talk show “The Highwire” with Del Bigtree started covering the pandemic as early as January 2020.⁶⁷ Del Bigtree is a former producer on popular medicine shows like *The Doctors* or *Dr. Phil* turned anti-vaccine activist, and his show, *The Highwire*, has become a focal point for anti-vaccine activists, many of whom watch it.⁶⁸ Other anti-vaccine groups were also ready. In March 2020, anti-vaccine activist Joshua Coleman set out a blueprint of how to take advantage of the pandemic and the focus on vaccines.⁶⁹ Coleman is not a very big player, but he has more of an influence than it seems because he sells the signs used in anti-vaccine protests.⁷⁰ His comments, in my view, reflect the

64. In the United States, see Swaroop Gowdra Shanthakumar, Anand Seetharam, & Arti Ramesh, *Understanding the Socio-Economic Disruption in the United States during COVID-19 Early Days*, CORNELL U.: COVID-19 E-PRINT (Apr. 11, 2020), <https://arxiv.org/abs/2004.05451>. Globally, see Kalim Siddiqui, *The Impact of COVID-19 on the Global Economy*, 2020 WORLD FIN. REV. 26-29, https://www.researchgate.net/profile/KalimSiddiqui/publication/341757096_2020_The_Impact_of_Covid-19_on_the_Global_Economy_WFR_May_June/links/5ed249c192851c9c5e667265/2020-The-Impact-of-Covid-19-on-the-Global-Economy-WFR-May-June.pdf; JAMES K. JACKSON ET AL., CONG. RSCH. SERV., R46270, *GLOBAL ECONOMIC EFFECTS OF COVID-19* (2021), <https://sgp.fas.org/crs/row/R46270.pdf>.

65. Abrams et al., *supra* note 61, at 20-23.

66. Seth C. Kalichman et al., *Faster than Warp Speed: Early Attention to COVID-19 by Anti-Vaccine Groups on Facebook*, 2021 J. PUB. HEALTH 1, 7, <https://www.ncbi.nlm.nih.gov/labs/pmc/articles/PMC8083299/>.

67. Tara C. Smith & Dorit R. Reiss, *Digging the Rabbit Hole, COVID-19 Edition: Anti-Vaccine Themes and the Discourse Around COVID-19*, 22 MICROBES INFECTION. 608, 608 (2020).

68. Patrick A. Coleman, *Where Del Bigtree’s Anti-Vaccine Conspiracy Theories Come From*, FATHERLY (Apr. 30, 2019, 1:23 PM), <https://www.fatherly.com/love-money/del-bigtree-anti-vaccine-conspiracy-theory-parents/>; see also Jackie Kucinich, *Top Anti-Vaxxer Says He Learned All He Needs to Know from Being a Producer on ‘Dr. Phil’ and ‘The Doctors’*, DAILY BEAST (Apr. 24, 2019, 7:04 PM), <https://www.thedailybeast.com/anti-vaxxer-del-bigtree-got-his-start-on-the-tv-show-the-doctors>.

69. Tara Haelle, *This is the Moment the Anti-Vaccine Movement Has Been Waiting for*, N.Y. TIMES (Aug. 31, 2021), <https://www.nytimes.com/2021/08/31/opinion/anti-vaccine-movement.html>.

70. *Id.*; on Coleman’s signs activism, see also Rachel Bluth, *‘My Body My Choice’: How Vaccine Foes Co-Opted the Abortion Rallying Cry*, NPR (July 4, 2022, 5:01 AM), <https://www.npr.org/sections/health-shots/2022/07/04/1109367458/my-body-my-choice-vaccines>. Both these sources refer to Coleman use of signs; other than that, media depiction of vaccine protests often involves pictures of

way the movement has reacted to COVID-19. The large anti-vaccine group Children's Health Defense started working to create fear, uncertainty, and doubt about COVID-19 vaccines at least as early as April 2020, long before there was any vaccine.⁷¹ Children's Health Defense is Robert F. Kennedy Jr.'s anti-vaccine organization, which has been active for several years pre-pandemic but has grown in prominence and funding during the COVID-19 pandemic.⁷²

Although the approach has not changed, anti-vaccine activists have changed their focus now to COVID-19, using many of the same arguments they used against other preventable diseases. They were right to see this as a moment of opportunity.

A. Why Was the COVID-19 Pandemic a Moment of Opportunity for the Anti-Vaccine Movement?

Several things converged to make people more vulnerable to anti-vaccine misinformation. First, and maybe most importantly, COVID-19 was a widespread crisis affecting everyone's daily life.⁷³ The effect was not equally distributed;

Coleman's signs. Here are a few examples: Nicholas Bogel-Burroughs, *The Antivaccination Activists Are Growing Force at Virus Protests*, N.Y. TIMES (Mar. 26, 2021), <https://www.nytimes.com/2020/05/02/us/anti-vaxxers-coronavirus-protests.html> (third image); Liz Szabo, *How Anti-Vaccine Activists are Using COVID-19 to Boost Their Movement*, SPECTRUM NEWS (Apr. 28, 2020), <https://www.spectrumnews.org/opinion/how-anti-vaccine-activists-are-using-covid-19-to-boost-their-movement/>; Saja Hindi, *Colorado Republicans Filibuster as Vaccine Bill Hearing Approaches*, THE DENVER POST (June 5, 2020), <https://www.denverpost.com/2020/06/05/vaccine-bill-colorado-legislature/>.

71. Lyn Redwood, *The Dengvaxia Disaster Was Twenty Years in the Making—What Will Happen with a Rushed COVID-19 Vaccine?*, CHILD'S HEALTH DEF. (Apr. 23, 2020), <https://childrenshealthdefense.org/news/government-corruption/the-dengvaxia-disaster-was-twenty-years-in-the-making-what-will-happen-with-a-rushed-covid-19-vaccine/>. See also, *Gates and Company's COVID-19 Vaccine Boosterism Ignores Significant SARS Coronavirus Vaccine Risks Known for Over a Decade*, CHILD'S HEALTH DEF. (Apr. 15, 2020), <https://childrenshealthdefense.org/news/gates-and-companys-covid-19-vaccine-boosterism-ignores-significant-sars-coronavirus-vaccine-risks-known-for-over-a-decade/>.

72. Michelle R. Smith, *How a Kennedy Built an Anti-Vaccine Juggernaut amid COVID-19*, AP (Dec. 15, 2021), <https://apnews.com/article/how-rfk-jr-built-anti-vaccine-juggernaut-amid-covid> 4997be1bcf591fe8b7f1f90d16c9321e.

73. See generally Joshua Breslau et al., *A Longitudinal Study of Psychological Distress in the United States Before and During the COVID-19 Pandemic*, 143 PREVENTIVE MED. 1 (2021), <https://www.sciencedirect.com/science/article/pii/S0091743520303935> (showing a dramatic increase in

psychological distress differed by age, race, and income bracket, among other things.⁷⁴ Cases and fatalities also differed by age, race, and income.⁷⁵ Profession also mattered—for example, healthcare workers were under tremendous stress during the pandemic.⁷⁶ The data strongly shows widespread negative impacts, especially among socially disadvantaged groups like people of color and low-income earners.⁷⁷ The pandemic certainly had a dramatic impact elsewhere too. For example, many low and middle-income countries suffered economic declines and drops in employment.⁷⁸ There are also strong indications of global distress.⁷⁹

This explains the vulnerability to anti-vaccine misinformation in several ways. The literature on the psychology of conspiracy theories teaches us that people are more likely to believe in conspiracy theories in times of fear and uncertainty.⁸⁰ The fear and uncertainty surrounding COVID-19 has made people more vulnerable to conspiracy theories, and the anti-vaccine ideology is strongly based on conspiracy theories. But that is not all. During COVID-19 many states in the United States issued stay-at-home orders,

psychological distress during the pandemic); *see also* Eric Robinson & Michael Daly, *Explaining the Rise and Fall of Psychological Distress During the COVID-19 Crisis in the United States: Longitudinal Evidence from the Understanding America Study*, 26 BRITISH J. HEALTH PSYCH. 570, 571-75 (2020).

74. Breslau et al., *supra* note 73 (looking at factors explaining who was at heightened risk for the widespread psychological distress during the pandemic—with risk factors including age under sixty, prior mental health issues, low income bracket).

75. Katherine Mackey et. al, *Racial and Ethnic Disparities in COVID-19 Related Infections, Hospitalizations, and Deaths*, 174 ANN. INTERN. MED. 362 (2020) DOI <https://doi.org/10.7326/M20-6306>.

76. Blanaid Gavin et al., *Caring for the Psychological Well-Being of Healthcare Professionals in the Covid-19 Pandemic Crisis*, 113 IR. MED. J. P51, P51 (2020); Daniel Garros, Wendy Austin &, Peter Dodek, *How Can I Survive This? Coping during the Coronavirus Disease 2019 Pandemic*, 159 CHEST 1484, 1484 (2021) DOI <https://doi.org/10.1016/j.chest.2020.11.012>.

77. Jonathan Purtle, *COVID-19 and Mental Health Equity in the United States*, 55 SOC. PSYCHIATRY & PSYCHIATRIC EPIDEMIOLOGY 969, 969-70 (2020).

78. Dennis Egger et al., *Falling Living Standards During the COVID-19 Crisis: Quantitative Evidence From Nine Developing Countries*, 7 SCI. ADVANCES 997, 997-98 (2021) <https://www.science.org/doi/10.1126/sciadv.abe0997>.

79. Amanda B. Clinton, *Scaling Up to Address Global Trauma, Loss and Grief Associated with COVID-19*, AM. PSYCH. ASS'N. (Dec. 9, 2020), <https://www.apa.org/international/global-insights/global-trauma>.

80. *See, e.g.*, JAN-WILLEM VAN PROOIJEN, *THE PSYCHOLOGY OF CONSPIRACY THEORIES*, 21-27 (2018).

requiring people who were not essential workers to stay home, and imposing school closures.⁸¹ People were stuck at home and some of them, unable to work, had extra time. Even people who would not previously spend large stretches of time online may have found themselves spending more time on the internet, as work meetings moved online and work could only be done virtually (for those not deemed essential workers).⁸² COVID-19 vaccines emerged as the way out of the pandemic, and people naturally focused on them. Given all the attention on vaccines, people naturally went looking for information about them online. Anti-vaccine groups have strong, easily accessible presence on the internet⁸³ People sought out information on vaccines, and found anti-vaccine misinformation instead, with fear and uncertainty serving to draw in more individuals.⁸⁴

Several other developments made vaccines and vaccine mandates a political hot button issue in the United States, with vaccine rates generally corresponding to party affiliation.⁸⁵ Politicization began before the pandemic, when battles around vaccine mandates split along party lines, with Democrats voting for stronger mandates and Republicans

81. Lindsay F. Wiley, *Democratizing the Law of Social Distancing*, 19 YALE J. HEALTH POL'Y, L., & ETHICS 50, 71-75 (2020).

82. Nisha Chanana, *Employee Engagement Practices During COVID-19 Lockdown*, 21 J. PUB. AFF.S 2-3 (2020), <https://onlinelibrary.wiley.com/doi/epdf/10.1002/pa.2508> (documenting more employees working from home and spending time online).

83. See Robert M. Wolfe & Lisa K. Sharp, *Vaccination or Immunization? The Impact of Search Terms on the Internet*, 10 J. HEALTH COMM'N. 537, 538 (2005); Robert M. Wolfe et al., *Content and design attributes of Antivaccination Web Sites*, 287 JAMA 3245 (2002); Federico Germani, & Nikola Biller-Andorno, *The Anti-vaccination Infodemic on Social Media: A Behavioral Analysis*, 2021 PLOS ONE 16(3), <https://doi.org/10.1371/journal.pone.0247642>.

84. Wolfe & Sharp, *supra* note 83.

85. Tony Bolsen & Risa Palm, *Politicization and COVID-19 Vaccine Resistance in the U.S.*, 188 PROGRESS MOLECULAR BIO. AND TRANSLATIONAL SCI. 81 (2021), <https://www.ncbi.nlm.nih.gov/labs/pmc/articles/PMC8577882/>; Kevin L. Cope, Ilya Somin, & Alexander Stremitzer, *Vaccine Passports as a Constitutional Right*, VA. PUB. LAW AND LEGAL THEORY RSCH. PAPER NO. 2021-37, 7, 48-49 (2021). John Kerr, Costas Panagopoulos, & Sander van der Linden, *Political Polarization on COVID-19 Pandemic Response in the United States*, 179 PERSONALITY AND INDIVIDUAL DIFFERENCES 1 (2021) <https://www.sciencedirect.com/science/article/pii/S0191886921002671>.

voting against them.⁸⁶ But the pandemic turbo-charged this development.⁸⁷ First, even before the pandemic there was a growing overlap and interaction between the political conspiracy theory group QAnon and the anti-vaccine movement, and that only grew during the pandemic.⁸⁸

Second, President Trump, who was and may still be highly influential among parts of the Republican base, politicized the pandemic as early as February 2020, and openly opposed public health measures to combat it, including masks and business closures.⁸⁹ While President Trump did not, at the time, promote anti-vaccine misinformation, by downplaying the pandemic—and later appointing COVID-19 minimizer Scott Atlas, who repeatedly downplayed the pandemic, to head the COVID-19 taskforce—he lent credibility to the view that the pandemic is misrepresented, and that public health officials are misleading people.⁹⁰ Anti-vaccine groups were generally saying the same, lending their claims credence and predisposing people to listen to them on other things, like vaccines.

Possibly responding to their viewer-base, Fox News pivoted to echoing claims downplaying the pandemic, influencing viewers to be less trustful of public health officials and predisposing them even more to believe anti-vaccine

86. Dorit R. Reiss, *Laws Prohibiting Vaccine Mandates: An Overview*, 23 N.C. J. L. & Tech. 788-95 (2022), <https://ncjolt.org/articles/volume-23/volume-23-issue-4/laws-prohibiting-vaccine-mandates-an-overview/>.

87. *Id.* at 798-99.

88. Tim Dickinson, *How the Anti-Vaxxers Got Red-Pilled*, ROLLING STONE (Feb. 10, 2021, 8:30 AM), <https://www.rollingstone.com/culture/culture-features/qanon-anti-vax-covid-vaccine-conspiracy-theory-1125197/>; MIKE ROTHSCHILD, *THE STORM IS UPON US: HOW QANON BECAME A MOVEMENT, CULT, AND CONSPIRACY THEORY OF EVERYTHING* 126-33 (2021) (addressing the growing overlap between QAnon views and “anti-pharmaceutical circles,” which include the anti-vaccine movement, and referring to MMS, a treatment popular among anti-vaccine activists).

89. Sarah E. Gollust, Rebekah H. Nagler & Erika Franklin Fowler, *The Emergency of COVID-19 in the US: A Public Health and Political Communication Crisis*, 45 J. HEALTH POL. POL'Y & L. 967, 972 (2020); Robert A. Hahn, *Estimating the COVID-Related Deaths Attributable to President Trump's Early Pronouncements About Masks*, 51 INT'L JOURNAL OF HEALTH SERVICES 14 (2021), 10.1177/0020731420960345.

90. Geoff Brumfiel & Tamara Keith, *President Trump's New COVID-19 Adviser is Making Public Health Experts Nervous*, NPR (Sept. 4, 2020, 8:59 AM), <https://www.npr.org/sections/health-shots/2020/09/04/909348915/president-trumps-new-covid-19-advisor-is-making-public-health-experts-nervous>.

misinformation.⁹¹ This was exacerbated when highly visible Fox News figures started echoing anti-vaccine misinformation. For example, Tucker Carlson had already toyed with anti-vaccine misinformation in 2017, hosting anti-vaccine activist Robert F. Kennedy Jr. who shared several incorrect claims with viewers.⁹² In 2021, he started airing claims that came directly from the anti-vaccine playbook.⁹³ First, he claimed that vaccines caused death and harm citing the Vaccine Adverse Events Reporting System.⁹⁴ Carlson also gave prominence to people who were clearly and openly anti-vaccine, like Alex Berenson and Robert F. Kennedy.⁹⁵ Other Fox News figures also repeated anti-vaccine claims – to give one example, Laura Ingraham allowed anti-vaccine Doctor Peter McCullough to claim the vaccine is a bad idea.⁹⁶

91. Erfei Zhao et al., *Media Trust and Infection Mitigating Behaviours During the COVID-19 Pandemic in the USA*, 5 *BMJ GLOB. HEALTH.* 1 (2020) <https://gh.bmj.com/content/5/10/e003323>.

92. Dorit R. Reiss, *Robert F. Kennedy Jr. and Vaccines—Why Real Journalists Don't Interview Him*, *DAILY KOS* (Apr. 23, 2017, 12:09 PM), <https://www.dailykos.com/stories/2017/4/23/1655582/-Robert-F-Kennedy-Jr-and-vaccines-why-real-journalists-don-t-interview-him>.

93. Bill McCarthy, *Tucker Carlson's Misleading Claim About Deaths After COVID-19 Vaccine*, *POLITIFACT* (May 6, 2021), <https://www.politifact.com/factchecks/2021/may/06/tucker-carlson/tucker-carlsons-misleading-claim-about-deaths-afte/>.

94. *Id.*; Aaron Blake, *Tucker Carlson's Worst Vaccine Segment Yet*, *WASH. POST* (May 6, 2021, 9:55 AM), <https://www.washingtonpost.com/politics/2021/05/06/tucker-carlsons-worst-vaccine-segment-yet/>.

95. Aaron Blake, *The Dangerous Game Tucker Carlson is Playing on Vaccines*, *WASH. POST* (Mar. 16, 2021, 12:31 AM), <https://www.washingtonpost.com/politics/2021/03/16/dangerous-game-tucker-carlson-is-playing-vaccines/>; see also Derek Thompson, *The Pandemic's Wrongest Man*, *ATLANTIC* (Apr. 1, 2021), <https://www.theatlantic.com/ideas/archive/2021/04/pandemics-wrongest-man/618475/> (discussing Berenson's anti-vaccine activism); Jake Lahut & Aria Bendix, *Tucker Carlson Airs COVID-19 Conspiracy Ridden Segment with RFK Jr.*, *BUS. INSIDER* (Nov. 16, 2021, 11:54 AM), <https://www.businessinsider.com/tucker-carlson-air-covid-conspiracy-interview-with-rfk-jr-2021-11> (hosting Kennedy); see also Michelle R. Smith, *How a Kennedy Built an Anti-Vaccine Juggernaut Amid COVID-19*, *AP NEWS* (Dec. 15, 2021), <https://apnews.com/article/coronavirus-pandemic-business-health-pandemics-race-and-ethnicity-d140be878b1ef0c5a5cce3cfde71e69c> (discussing Kennedy's anti-vaccine activism).

96. John Culhane, *Fox News Could be Sued if Its Anti-Vax Statements Caused People to Die*, *SLATE* (July 23, 2021, 10:40 AM), <https://slate.com/news-and-politics/2021/07/fox-news-tucker-carlson-vaccine-lawsuit.html>. This article is

This gave the anti-vaccine movement a much broader reach than it had in the past, feeding into anti-vaccine sentiment and reinforcing the link between rightwing political views and belief in anti-vaccine claims. Further, Republican governors and legislators have taken the mantle of resisting vaccine mandates, often repeating anti-vaccine claims to support measures to limit vaccine mandates and amplifying the claims.⁹⁷

All this has a cost. The unvaccinated are more likely than the vaccinated to be hospitalized and die from COVID-19, and given that vaccination rates are lower among conservatives in the United States, we are painfully seeing more deaths and harms in counties that lean Republican.⁹⁸

Together, all these developments have increased the reach of anti-vaccine misinformation. None of them are directly the result of anti-vaccine efforts, but the anti-vaccine movement opportunistically took advantage of the situation and used its usual tactics to reach a broader audience. The anti-vaccine behavior has not changed. The vulnerability to it, however, increased dramatically.

B. The Anti-Vaccine Playbook and COVID-19

The anti-vaccine movement used the same playbook—the same set of five themes—to create fear, uncertainty, and doubt about COVID-19 vaccines as it has used about previous vaccines.⁹⁹

cited for the examples of anti-vaccine statements it contains, not for the legal analysis; I am not sure I agree with it on that.

97. Reiss, *supra* note 86, at 800-01, 806; Abigail Censky & Katarina Sostaric, *Republicans Are Changing State Laws to Try to Get Out of Federal Vaccine Mandates*, NPR (Nov. 22, 2021, 10:01 AM), <https://www.npr.org/2021/11/22/1057427047/republicans-are-changing-state-laws-to-try-and-get-out-of-federal-vaccine-mandate>.

98. Don Albrecht, *Vaccination, Politics and COVID-19 Impacts*, 22 BMC PUB. HEALTH 96 (2022), <https://bmcpubhealth.biomedcentral.com/articles/10.1186/s12889-021-12432-x>; Daniel Wood & Geoff Brumfiel, *Pro-Trump Counties Now Have Far Higher COVID Death Rates. Misinformation is to Blame*, NPR (Dec. 5, 2021, 10:27 AM), <https://www.npr.org/sections/health-shots/2021/12/05/1059828993/data-vaccine-misinformation-trump-counties-covid-death-rate>.

99. Note that this article is focused on the United States, but anti-vaccine misinformation is global and travels. Just as the themes created in the United States reach abroad, mis-informers abroad—like Dr. Michael Yeadon from the UK or Jessica Rose from Canada or Israel—influence the United States. Reuters Fact Check, *Fact Check-VAERS data does not suggest COVID-19 vaccines killed 150,000 people, as analysis claims*, REUTERS (Oct. 4, 2021, 3:56 AM),

To reiterate, the five anti-vaccination themes are: (1) the diseases are not as bad as public health actors present, (2) the vaccines are bad, (3) there are alternatives to vaccines, (4) claims to the contrary are the result of a conspiracy, and (5) the issue is one of civil rights, not misinformation. Let's discuss each in turn.

Playbook Theme 1: COVID-19 is not dangerous

Anti-vaccine groups downplayed COVID-19 in several ways. First, as early as January 30, 2020, and certainly by March, anti-vaccine groups were claiming that the deaths and harms of the pandemic were inflated.¹⁰⁰ Anti-vaccine activists described COVID-19 as a "cold."¹⁰¹ Perhaps the most blatant example is anti-vaccine activist Del Bigtree, who told his followers in June 2020 that "it's a common cold for ninety-nine-point seventy-four percent of us" and called on them to "catch that cold," saying:

So here's what we do. Let's go outside. Let's take off our masks. We're not on drugs, and we don't need to be on drugs. Let's catch this cold! Whether or not it's just the twenty percent of us and maybe we're not even in that category, let's give it a college try to catch this cold, so that we can protect the pharmaceutical-dependent amongst us!¹⁰²

Accompanying that (pursuant to another theme that runs through anti-vaccine claims) was the view that COVID-19 is

<https://www.reuters.com/article/factcheck-coronavirus-usa/fact-check-vaers-data-does-not-suggest-covid-19-vaccines-killed-150000-people-as-analysis-claims-idUSL1N2R00KP>; for some discussion of these mis-informers, see Sander van der Linden, Jon Roozenbeek & Josh Compton, *Inoculating Against Fake News About COVID-19*, 11 FRONTIERS IN PSYCH. 1 (2020), <https://www.frontiersin.org/article/10.3389/fpsyg.2020.566790>; Paul Adepoju, *Africa is Waging a War on COVID Anti-Vaxxers*, 27 NATURE MED. 1122, 1123 (2021); David Gorski, *2021: The Year Weaponization of VAERS Went Mainstream*, RESPECTFUL INSOLENCES (Dec. 27, 2021), <https://respectfulinsolence.com/2021/12/27/2021-the-year-the-weaponization-of-vaers-went-mainstream/>.

100. Tara C. Smith & Dorit R. Reiss, *Digging the Rabbit Hole, COVID-19 Edition: Anti-Vaccine Themes and the Discourse Around COVID-19*, 22 MICROBES & INFECTION 608, 608-09 (2020), <https://www.sciencedirect.com/science/article/pii/S1286457920302021?via%3Dihub>.

101. David Gorski, *'We need to Catch that Cold!': Antivaxxers and COVID-19 Deniers vs. Public Health*, RESPECTFUL INSOLENCES (June 29, 2020), <https://respectfulinsolence.com/2020/06/29/antivaxxers-covid-19-deniers-public-health/>.

102. *Id.*

only a risk to those with comorbidities, as well as the sub-theme that the comorbidities are their own fault. Bigtree said:

What is the group that is really at risk? Let's be honest about this and say something that might get me some trouble here, but let's be honest. That group is very well known. It's people over the age of sixty-five—not just because you're over the age of sixty-five, but you're sick with other diseases. You have heart disease. You have COPD. You have diabetes. You have issues, many of those issues coming from the fact that you didn't treat your body very well while you were on this planet . . .

When you were my age, you were most likely eating food and fast food and Doritos and drinking Coca-Cola, which you'll never find in my home . . . And you know what? Good on you! That's the United States of America . . . That's perfectly OK . . .

But here's what's not OK. When you reach that point in your life where now your arteries are starting to clog up, your body is shutting down, and the alcohol is eating up your liver, and you have diabetes, or you have multiple COPD, you have asthma, you can't breathe, all the cigarette smoking has finally caught up with you, you have heart disease because of the way you decided to live your life in the moment, here's what you are now. You are pharmaceutical-dependent. You did that to yourself, not me . . .

Come on! Grow up! You made choices! And now that you're pharmaceutically dependent, here's what you don't get to do. You don't get to say I have to take a drug to protect you. That's what this is. You don't get to say I have to wear a mask and suck in my own CO₂ to protect you. You don't get to say I have to lock myself in a basement and destroy my career and take away my own ability to feed children because you are pharmaceutical dependent. You lived your life. You made your choice.¹⁰³

While the risks of COVID-19 are higher with age and comorbidities, they exist for the young and healthy too and was a leading cause of deaths across all age groups in 2021.¹⁰⁴ A

103. *Id.*

104. Krutika Amin et al., *COVID-19 Mortality Preventable by Vaccines*, PETERSON-KFF (Apr. 21, 2022), <https://www.healthsystemtracker.org/brief/covid19-and-other-leading-causes-of-death-in-the-us/>. On children, see Seth Flaxman et al., *COVID-19 is a Leading Cause of Death in Children and Young*

disease that killed over five million people worldwide, and hundreds of thousands in the United States, is not a cold.¹⁰⁵ This is not to mention the long-term effects of COVID-19, not all of which may yet be known.¹⁰⁶ COVID-19 also had real disparities across racial groups, reflecting a history of racial disparities in socioeconomic conditions in the United States, rather than choices.¹⁰⁷ On a similar theme, many comorbidities are more the result of the social determinants of health in the United States than any clear choice.¹⁰⁸

While Mr. Bigtree's claims were extreme, they echo claims made by other anti-vaccine activists and were picked up by mainstream media. The anti-vaccine organization Children's Health Defense also argued that the risks of COVID-19 were minimal to anyone but the elderly and ill (implying those groups matter less) during 2020.¹⁰⁹ Part of the issue is that, as with many examples of misinformation, there is a grain of truth in the claims. Many people will have a mild case of COVID-19, and the death rate in the population is likely lower

People Ages 0-19 Years in the United States, 11 FRONTIERS IN PSYCH. 1 (2020) <https://doi.org/10.1101/2022.05.23.22275458>.

105. David Adam, *The Pandemic's True Death Toll: Millions More than Official Counts*, NATURE (Jan 31, 2022), <https://www.nature.com/articles/d41586-022-00104-8>.

106. See, e.g., Michael Marshall, *The Lasting Misery of Coronavirus Long-Haulers*, NATURE (Sept. 14, 2020), <https://www.nature.com/articles/d41586-020-02598-6>; Constantino Iadecola, Joseph Anrather & Hooman Kamel, *Effects of COVID-19 on the Nervous System*, 183 CELL 16, 16-19 (2020).

107. Katherine Mackey et al., *Racial and Ethnic Disparities in COVID-19-Related Infections, Hospitalizations, and Deaths*, 2020 ANNALS OF INTERNAL MED. 1, 3-4; Govind Persad, *Allocating Medicine Fairly in an Unfair Pandemic*, 2021 U. ILL. L. REV. 1085, 1086-87 (2021).

108. Emily A. Benfer et al., *Health Justice Strategies to Combat the Pandemic: Eliminating Discrimination, Poverty, and Health Disparities During and After COVID-19*, 19 YALE J. HEALTH POL'Y, L. & ETHICS 123, 126-28 (2020). ("Past infectious disease epidemics in the United States and governmental responses to them made it highly predictable that people living in poverty and people of color would bear the brunt of the coronavirus pandemic due to discrimination and other forms of subordination that limit equal access to resources in the realms of health care, housing, and employment.")

109. H. Ealy et al., *COVID ... Have You Heard? There is Good News*, CHILD'S HEALTH DEF. (July 14, 2020), <https://childrenshealthdefense.org/news/covid-19have-you-heard-there-is-good-news/>; H. Ealy et al., *Are Children Really Recovering 99.9584% of the Time From COVID-19?*, CHILD'S HEALTH DEF. (July 2, 2020), <https://childrenshealthdefense.org/news/are-children-really-recovering-99-9584-of-the-time-from-covid-19/>.

than one percent; yet, this does not capture the full picture.¹¹⁰ First, a death rate of one in five hundred, or one in one hundred, is a high death rate; measles, the most serious of the childhood diseases, kills about one in a thousand in developed countries, and that is a high number.¹¹¹

Medical science is good enough today that people do not die very often from preventable diseases. Further, the data does not capture the rate of non-fatal harms, and those are high with COVID-19.¹¹² The percentage of unvaccinated patients hospitalized can exceed thirty percent in some groups (though certainly not all groups), and there are real racial disparities.¹¹³ The disease can affect many systems and can have long-term complications (with differing degrees of severity) in over twenty percent of patients or more, and we still do not know the extent of the harm.¹¹⁴ Indeed, another way to downplay the disease was to claim case numbers are

110. Vanessa Ruffes, *Verify: Yes, COVID-19 Has a 99% Survival Rate But Numbers Don't Tell the Whole Story*, WCNC (May 18, 2021, 10:11 PM), <https://www.wcnc.com/article/news/verify/verify-covid-19-survivability-rate/275-a4cda9a3-4a33-49f2-8977-6d2b5265d8a8>; Arijeta Lajka & Jude Joffe-Block, *Survival Rates for COVID-19 Misrepresented in Posts*, AP NEWS (July 23, 2021), <https://apnews.com/article/fact-checking-970830023526>.

111. *Complications of Measles*, CTRS. FOR DISEASE CONTROL & PREVENTION (Nov. 5, 2020), <https://www.cdc.gov/measles/symptoms/complications.html>.

112. *Id.* For COVID-19's harms, see Jennifer Couzin-Frankel, *The Long Haul: Some COVID-19 Survivors are Still Sick Months Later. Doctors want to learn why and what they can do.* SCI. (July 31, 2020), <https://www.science.org/content/article/brain-fog-heart-damage-covid-19-s-lingering-problems-alarm-scientists>.

113. Ebony G. Price-Haywood et al., *Hospitalization and Mortality Among Black Patients and White Patients with COVID-19*, 382 N. ENG. J. MED. 2534, 2534-36 (2020); see generally *What is Health Equity?*, CTRS. FOR DISEASE CONTROL & PREVENTION (July 1, 2022), <https://www.cdc.gov/coronavirus/2019-ncov/community/health-equity/racial-ethnic-disparities/disparities-hospitalization.html>; see also Tomás M. León et al., *COVID-19 Cases and Hospitalizations by COVID-19 Vaccination Status and Previous COVID-19 Diagnosis—California and New York, May–November 2021*, 71 MMWR 125 (2022) <https://dx.doi.org/10.15585/mmwr.mm7104e1> (noting that vaccinated patients are a lot less likely to be hospitalized); Mark G. Thompson et al., *Effectiveness of a Third Dose of mRNA Vaccines Against COVID-19—Associated Emergency Department and Urgent Care Encounters and Hospitalizations Among Adults During Periods of Delta and Omicron Variant Predominance—VISION Network, 10 States, August 2021–January 2022*, 71 MMWR 139 (2022), https://www.cdc.gov/mmwr/volumes/71/wr/mm7104e3.htm?s_cid=mm7104e3_w.

114. Amar D. Desai et al., *Long-term Complications of COVID-19*, 322 AM. J. PHYSIOLOGY CELL PHYSIOLOGY C1, C1-C5 (2022).

manipulated by misuse of PCR testing, and this claim, too, is untrue.¹¹⁵

Playbook Theme 2: COVID-19 Vaccines Are Dangerous and Ineffective

Unsurprisingly, this is where the anti-vaccine movement focused much of its efforts, and there are far too many claims of this vein to explore all. To keep this section short, I will focus on claims vaccines are dangerous, rather than that they are ineffective.

Anti-vaccine groups aggressively claim that COVID-19 vaccines are potentially lethal. At the most extreme, anti-vaccine groups have claimed people who were still alive died due to COVID-19 vaccines.¹¹⁶ Less extremely, anti-vaccine groups blamed COVID-19 vaccines for deaths in vaccinated people, even when there was no evidence that the vaccines caused the death—for example, the anti-vaccine groups blamed American professional baseball player Hank Aaron's death on vaccines.¹¹⁷ In fact, anti-vaccine activist Robert F. Kennedy Jr. doubled down and argued that not blaming vaccines for these deaths (in spite of the lack of evidence) is inappropriate.¹¹⁸ Anti-vaccine groups have also alleged that COVID-19 vaccines kill more than they prevent deaths.¹¹⁹

115. David Gorski, *There is No COVID-19 'Casedemic.' The Pandemic is Real and Deadly.* SCI. BASED MED. (Nov. 23, 2020), <https://sciencebasedmedicine.org/no-covid-19-casedemic/>. Even more extreme versions claim that the virus that causes COVID-19 has never been isolated, but most large anti-vaccine organizations have not used that claim. *See Fact Check: SARS-CoV-2 Has Been Isolated and its Complete Genome Has Been Sequenced*, REUTERS (Mar. 30, 2021, 11:56 AM), <https://www.reuters.com/article/factcheck-covid-rna/fact-check-sars-cov-2-has-been-isolated-and-its-complete-genome-has-been-sequenced-idUSL1N2LS27P>; *see also* Malia Jones, *Has the Coronavirus been Isolated?*, DEAR PANDEMIC (May 19, 2021), <https://dearpandemic.org/has-coronavirus-been-isolated/>.

116. Dorit R. Reiss, *COVID-19 Vaccine Misinformation and the Anti-Vaccine Movement*, BILL OF HEALTH (Jan. 20, 2021), <https://blog.petrieflom.law.harvard.edu/2021/01/20/covid-19-vaccine-misinformation-anti-vaccine-movement/>.

117. Rick Rojas & Denise Grady, *Never Mind the Skeptics, Officials say: Hank Aaron's Death has Nothing to do with the Covid-19 Vaccine*, N.Y. TIMES (Jan. 31, 2021), <https://www.nytimes.com/2021/01/31/us/hank-aaron-death-covid-vaccine.html>.

118. Robert F. Kennedy, Jr., *Death by Coincidence?*, DEFENDER (Jan. 14, 2021), <https://childrenshealthdefense.org/defender/death-by-coincidence/>.

119. Steve Kirsch, Jessica Rose & Mathew Crawford, *Estimating the Number of COVID Vaccine Deaths in America*, STEVEKIRSCH.COM (Dec. 21, 2021),

A major anti-vaccine argument throughout the pandemic was the misrepresentation of Vaccine Adverse Event Reporting System (VAERS) reports as showing actual vaccine harms.¹²⁰ VAERS is a passive reporting system into which anyone can report anything, and which is used to generate safety signals—to warn if there’s an unusual pattern that may suggest a vaccine risk.¹²¹ Since anyone can report an issue, and since any event after vaccine can be reported, VAERS reports cannot be taken as facts—they are not investigated prior to reporting, only after—and cannot be taken to show causation.¹²² But anti-vaccine activists use VAERS numbers to falsely claim high rates of harm resulting from COVID-19 vaccination.¹²³ As mentioned above, this was a tactic used long before COVID-19 and it’s highly effective.

Other claims abound. Anti-vaccine activists have claimed COVID-19 vaccines alter the recipient’s DNA,¹²⁴ cause infertility,¹²⁵ cause miscarriages,¹²⁶ and more. The implication

<https://www.skirsch.com/covid/Deaths.pdf>; *New UK Government Data Shows the COVID Vaccines Kill More People Than They Save*, STEVEKIRSCH.COM (May 5, 2022), <https://stevekirsch.substack.com/p/uk-government-data-shows-nobody-should?s=w>. For Fact Check, see *Fact Check—COVID-19 Vaccines Do Not Kill More People than They Save; FDA Experts Did Not Make This False Claim*, REUTERS (Sept. 23, 2021, 6:33 AM), <https://www.reuters.com/article/factcheck-coronavirus-usa/fact-check-covid-19-vaccines-do-not-kill-more-people-than-they-save-fda-experts-did-not-make-this-false-claim-idUSL1N2QP18K>.

120. Shayla Love & Anna Merlan, *Anti-Vaxxers Misuse Federal Data to Falsely Claim COVID Vaccines Are Dangerous*, VICE NEWS (Feb. 3, 2021), <https://www.vice.com/en/article/qjpm7/anti-vaxxers-misuse-federal-data-to-falsely-claim-covid-vaccines-are-dangerous>.

121. Shimabukuro et al., *supra* note 41, at 4399-400.

122. *Id.* at 4401-03.

123. Love & Merlan, *supra* note 120.

124. *Fact check: COVID-19 Vaccines Won’t Alter Recipient DNA; Frontline Workers have Suffered Directly from the Virus*, REUTERS (Dec. 18, 2020, 12:19 PM), <https://www.reuters.com/article/uk-factcheck-viral-post/fact-check-covid-19-vaccines-wont-alter-recipient-dna-frontline-workers-have-suffered-directly-from-the-virus-idUSKBN28S2V1>.

125. Catalina Jaramillo, *No Evidence Vaccines Impact Fertility*, FACTCHECK.ORG (Aug. 16, 2021), <https://www.factcheck.org/2021/02/scicheck-no-evidence-vaccines-impact-fertility/>; David Gorski, *It was Inevitable that Anti-Vaxxers Would Claim That COVID-19 Vaccines Make Females Infertile*, SCI. BASED MED. (Dec. 14, 2020), <https://sciencebasedmedicine.org/it-was-inevitable-that-antivaxxers-would-claim-that-covid-19-vaccines-make-females-infertile/>.

126. Vivian Lam, *Fact-Check: COVID-10 Vaccination Does not Bring Increased Risk of Miscarriage*, AUSTIN AM. STATESMAN (Nov. 16, 2021, 7:00 AM), <https://www.statesman.com/story/news/politics/politifact/2021/11/16/fact-check-covid-19-vaccination-doesnt-increase-risk-miscarriages/8623320002/>; see Tom T.

here is that risks are hidden. But the opposite is true. When complications arose, they made the front-page news, and health agencies acted quickly.¹²⁷ For example, when evidence linked Johnson & Johnson's vaccines to blood clots, vaccine production was halted until further investigation could be done.¹²⁸ Later, mRNA vaccines were recommended over the Johnson & Johnson vaccine.¹²⁹ Similarly, cases of myocarditis from mRNA vaccines were tracked and publicized from early on.¹³⁰

Anti-vaccine activists also present liability limits on COVID-19 vaccines as evidence that vaccines are unsafe. In March 2020, the Secretary of Health and Human Services issued a Public Readiness and Emergency Preparedness Act declaration limiting the liability of manufacturers, distributors, and administrators.¹³¹ The declaration almost completely immunizes these actors from regular tort liability, and would include vaccines.¹³² The immunity comes with a government-run, government-paid compensation program, but that program is hard to use, and requires a high level of

Shimabukuro et al., *Preliminary Findings of mRNA COVID-19 Vaccine Safety in Pregnant Persons*, 384 *NEW ENG. J. MED.* 2273, 2274-75 (2021).

127. Jessica Glenza, *US Lifts Pause on Johnson & Johnson Vaccine After Advisers Say Benefits Outweigh Risk*, *GUARDIAN* (Apr. 23, 2021, 7:55 PM), <https://www.theguardian.com/us-news/2021/apr/23/johnson-and-johnson-covid-vaccine-cdc-warning-label>.

128. *Id.*

129. Helen Branswell, *CDC Advisory Panel, Concerned About Rare Side Effects Tied to J&J Vaccine, Gives Preferential Nod to mRNA Shots*, *STAT NEWS* (Dec. 16, 2021), <https://www.statnews.com/2021/12/16/cdc-advisory-panel-concerned-about-rare-side-effects-tied-to-jj-vaccine-gives-preferential-nod-to-mrna-shots/>.

130. Andrew Joseph, *U.S. Health Officials Report Higher-Than-Expected Heart Inflammation Cases Following Covid-19 Vaccination*, *STAT NEWS* (June 10, 2021), <https://www.statnews.com/2021/06/10/officials-higher-than-expected-heart-inflammation-cases-covid-19-vaccination/>.

131. Declaration Under the Public Readiness and Emergency Preparedness Act for Medical Countermeasures Against Covid-19, 85 Fed. Reg. 15198, 15198 (Mar. 17, 2020), <https://www.federalregister.gov/documents/2020/03/17/2020-05484/declaration-under-the-public-readiness-and-emergency-preparedness-act-for-medical-countermeasures>; Katharine Van Tassel et al., *COVID-19 Vaccine Injuries—Preventing Inequities in Compensation*, 384 *NEW ENG. J. MED.* e34 (2021).

132. Dorit R. Reiss, *Legal review of Covid-19 vaccine liability – Explanation of Issues*, *SKEPTICAL RAPTOR* (Aug. 23, 2021), <https://www.skepticalraptor.com/skepticalraptorblog.php/legal-review-of-covid-19-vaccine-liability-explanation-of-issues/>.

proof.¹³³ I have expressed my views before that the program is too limited, and that rare cases of serious vaccines harm deserve generous and fast compensation.¹³⁴ A recent article in *National Geographic* did a thorough job of highlighting the program's limits and issues.¹³⁵ But that does not make anti-vaccine claims true. There is extensive and growing evidence that COVID-19 vaccines are generally safe, based on monitoring millions of vaccinated people.¹³⁶ The vaccines may not be as effective as initially hoped, but they reduce rates of cases, hospitalizations, and deaths from COVID-19.¹³⁷

Playbook Theme 3: There are alternatives to Vaccines

While arguing against COVID-19 vaccines, anti-vaccine activists have argued that there are alternatives. However, the alternatives they highlight are not approved or recommended to treat COVID-19.¹³⁸ Instead, anti-vaccine

133. Tassel et al., *supra* note 131, at e34.

134. Dorit R. Reiss, *Congress Should Enact No-Fault Compensation for COVID-19 Vaccine Injuries*, BILL OF HEALTH (Jan. 5, 2021), <https://blog.petrieflom.law.harvard.edu/2021/01/05/covid-vaccine-injury-compensation/>; Arthur L. Caplan & Dorit R. Reiss, *Serious Vaccine Side Effects are Rare. Compensation for Those Injuries Shouldn't Be*, BARRON'S (Sept. 17, 2021), <https://www.barrons.com/articles/serious-vaccine-side-effects-rare-compensation-51631817255?tesla=y>.

135. Tara Haelle, *Why is it so Hard to Compensate People for Serious Vaccine Side Effects?*, NAT. GEO. (Mar. 11, 2022), <https://www.nationalgeographic.com/science/article/why-is-it-so-hard-to-compensate-people-for-serious-vaccine-side-effects> (problems with the program include a short statute of limitation—one year—a very demanding standard for showing causation, and very limited compensation).

136. Nicola P. Klein et al., *Surveillance for Adverse Events After COVID-19 mRNA Vaccination*, 326 JAMA 1390, 1391 (2021); Kimberly G. Blumenthal, Neelam A. Phadke, & David W. Bates, *Safety Surveillance of COVID-19 mRNA Vaccines Through the Vaccine Safety Datalink*, 326 JAMA 1375 (2021); see generally *Safety of COVID-19 Vaccines*, CTR. FOR DISEASE CONTROL & PREVENTION, <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/safety/safety-of-vaccines.html> (last updated Aug. 1, 2022).

137. *Rates of Laboratory-Confirmed COVID-19 Hospitalizations by Vaccination Status*, CTR. FOR DISEASE CONTROL & PREVENTION, <https://covid.cdc.gov/covid-data-tracker/#covidnet-hospitalizations-vaccination> (last visited Aug. 18, 2022); León et al., *supra* note 113.

138. *Coronavirus (COVID-19) Update: FDA Authorizes First Oral Antiviral Treatment for COVID-19*, U.S. FOOD & DRUG ADMIN. (Dec. 22, 2021), <https://www.fda.gov/news-events/press-announcements/coronavirus-covid-19-update-fda-authorizes-first-oral-antiviral-treatment-covid-19>; *Know Your Treatment Options for COVID-19*, U.S. FOOD & DRUG ADMIN. (Jan. 27, 2021), <https://www.fda.gov/news-events/press-announcements/coronavirus-covid-19-update-fda-authorizes-first-oral-antiviral-treatment-covid-19>.

groups promote treatments that, at best, lack evidence for effectiveness against COVID-19, and at worse, demonstrate that they do not work.¹³⁹ Early in the pandemic, anti-vaccine activist Larry Cook—owner of the (since disbanded) anti-vaccine group “Stop Mandatory Vaccines”—promoted and sold vitamins as a cure or preventive against COVID-19.¹⁴⁰ Other groups promoted Miracle Mineral Supplement, which is essentially industrial strength bleach.¹⁴¹

The most widespread claims focused on products that doctors and scientists raised as potential treatments for COVID-19, but that ended up being ineffective. For example, hydroxychloroquine was initially thought to have the potential to help COVID-19 by suppressing the body’s immune response from overreacting to the virus and causing additional harm.¹⁴² Early data looked promising.¹⁴³ Over time, more extensive studies found it is entirely ineffective against COVID-19.¹⁴⁴ Ivermectin, too, had initial promising results in cells, but later data did not find real support for its use to treat COVID-19,¹⁴⁵

139. Geoff Brumfiel, *What a Bottle of Ivermectin Reveals about the Shadowy World of COVID Telemedicine*, NPR (Feb. 9, 2022), <https://www.npr.org/sections/health-shots/2022/02/09/1079183523/what-a-bottle-of-ivermectin-reveals-about-the-shadowy-world-of-covid-telemedicine>.

140. Brandy Zadrozny, *In Facebook Groups, Coronavirus Misinformation Thrives Despite Broader Crackdown*, NBC NEWS (Mar. 6, 2020, 7:02 AM), <https://www.nbcnews.com/tech/social-media/facebook-groups-coronavirus-misinformation-thrives-despite-broader-crackdown-n1151466>.

141. Saranac Hale Spencer, *Fake Coronavirus Cures, Part 1: MMS is Industrial Bleach*, FACTCHECK.ORG (Feb. 11, 2020), <https://www.factcheck.org/2020/02/fake-coronavirus-cures-part-1-mms-is-industrial-bleach/>. The FDA has previously warned against selling and drinking MMS which has previously been touted by anti-vaccine activists as a magic cure for issues ranging from cancer to autism. *FDA Warns Consumers About the Dangerous and Potentially Life Threatening Side Effects of Miracle Mineral Solution*, U.S. FOOD & DRUG ADMIN. (Aug. 12, 2019), <https://www.fda.gov/news-events/press-announcements/fda-warns-consumers-about-dangerous-and-potentially-life-threatening-side-effects-miracle-mineral>.

142. Zelyn Lee et al., *The Rise and Fall of Hydroxychloroquine for the Treatment and Prevention of COVID-19*, 104 AM. J. TROP. MED. & HYGIENE 35, 35 (2021).

143. *Id.*; David Gorski, *Hydroxychloroquine and the Price of Abandoning of Science and Evidence-Based Medicine*, SCI. BASED MED. (Apr. 27, 2020), <https://sciencebasedmedicine.org/hydroxychloroquine-ebm-sbm/>.

144. Lee et al., *supra* note 142, at 35-36.

145. Maria Popp et al., *Ivermectin for Preventing and Treating COVID-19*, COCHRANE LIBR., at 12.

and worse, several of the studies that found ivermectin works turned out to be either highly flawed or outright fraudulent.¹⁴⁶

Nonetheless, anti-vaccine activists continue to argue for both treatments. The anti-vaccine organization Children's Health Defense in October 2021 commented on the Nebraska Attorney General's decision to allow doctors to prescribe hydroxychloroquine and ivermectin for COVID-19:

Few subjects have been more controversial than ivermectin and hydroxychloroquine—two long-established, inexpensive medications widely and successfully used in many parts of the world for the prevention and treatment of COVID.

By contrast, the use of both medications against COVID has been largely suppressed in the U.S, where doctors have been threatened and punished for prescribing them.¹⁴⁷

Anti-vaccine groups commonly promote these treatments, especially ivermectin, as lifesaving.¹⁴⁸

The story told by anti-vaccine groups—here, as with measles—is that there are cheap, effective treatments for the diseases, and therefore those allegedly dangerous vaccines are not really needed. Worse, they claim real treatments are being suppressed to allow for promotion of vaccines.

146. Gideon Meyerowitz-Katz, *'Science is Flawed': COVID-19, Ivermectin and Beyond*, MED. NEWS TODAY (Dec. 11, 2021), <https://www.medicalnewstoday.com/articles/science-is-flawed-covid-19-ivermectin-and-beyond>; see also David Gorski, *Ivermectin is the New Hydroxychloroquine, Take 7: Are There Positive Studies That Aren't Fraudulent?*, RESPECTFUL INSOLENT (Oct. 18, 2021), <https://respectfulinsolence.com/2021/10/18/ivermectin-is-the-new-hydroxychloroquine-take-7/>; see also David Gorski, *Ivermectin is the New Hydroxychloroquine, Take 6: More Fraud?*, RESPECTFUL INSOLENT (Sept. 8, 2021), <https://respectfulinsolence.com/2021/09/08/ivermectin-is-the-new-hydroxychloroquine-take-6-more-fraud/>.

147. Megan Redshaw, *Groundbreaking: Nebraska AG Says Doctors Can Legally Prescribe Ivermectin, HCQ for COVID, Calls Out FDA, CDC, Fauci, Media for 'Fueling Confusion and Misinformation*, CHILD'S HEALTH DEF. (Oct. 18, 2021), <https://childrenshealthdefense.org/defender/nebraska-ag-doug-peterson-legal-opinion-ivermectin-hcq-covid/>.

148. Pien Huang, *How Ivermectin Became the New Focus of the Anti-Vaccine Movement*, NPR (Sept. 19, 2021, 9:00 AM), <https://www.npr.org/sections/health-shots/2021/09/19/1038369557/ivermectin-anti-vaccine-movement-culture-wars>; Ben Collins & Brandy Zadrozny, *Clamoring for Ivermectin, Some Turn to a Pro-Trump Telemedicine Website*, NBC NEWS (Aug. 27, 2021, 10:21 AM), <https://www.nbcnews.com/tech/tech-news/ivermectin-demand-drives-trump-telemedicine-website-rcna1791>.

Playbook Theme 4: There's a Conspiracy: They are Coming for You

From early on, anti-vaccine activists claimed that COVID-19 was a conspiracy to harm people. Del Bigtree made the claim on his show.¹⁴⁹ On April 9, 2020, Children's Health Defense featured an article claiming that a pandemic and a call for mass vaccination are a strategy that "has been repeated whenever governments needed to distract the public from its failures."¹⁵⁰ The article described a vast conspiracy by experts, governments, media, and, of course, Bill Gates to mislead the public, hide lack of readiness, and impose restrictions.¹⁵¹ Other articles by the group suggested that the idea of indemnifying manufacturers for liability is part of a conspiracy,¹⁵² and that vaccine passports are part of a plan to "facilitate our transition to [Bill Gate's] surveillance society."¹⁵³

Although not initiated by the regular anti-vaccine groups, nothing shows the importance of conspiracy theories to the movement like the term "Plandemic."¹⁵⁴ The term predated the movie of the same name, used to argue that the pandemic was either a hoax (no real virus) or man-made (the virus as a bioweapon).¹⁵⁵ On May 4, 2020, a film with the same name was

149. Smith & Reiss, *supra* note 67.

150. Vera Sharav, *Coronavirus Provides Dictators and Oligarchs with a Dream Come True*, CHILD'S HEALTH DEF. (Apr. 9, 2020), <https://childrenshealthdefense.org/news/coronavirus-provides-dictators-and-oligarchs-with-a-dream-come-true/>.

151. *Id.*

152. *Here's Why Bill Gates Wants Indemnity ... Are You Willing to Take the Risk?*, CHILD'S HEALTH DEF. (Apr. 11, 2020), <https://childrenshealthdefense.org/news/heres-why-bill-gates-wants-indemnity-are-you-willing-to-take-the-risk/>.

153. Robert F. Kennedy, Jr., *Yes, Bill Gates Said That. Here's the Proof.*, CHILD'S HEALTH DEF. (Dec. 11, 2020), <https://childrenshealthdefense.org/defender/yes-bill-gates-said-that/>.

154. Matthew D. Kearney, Shawn C. Chiang, & Philip M. Massey, *The Twitter Origins and Evolution of the COVID-19 "Plandemic" Conspiracy Theory*, MISINFORMATION REV. (Oct. 9, 2020), <https://misinforeview.hks.harvard.edu/article/the-twitter-origins-and-evolution-of-the-covid-19-plandemic-conspiracy-theory/>.

155. *Id.* ("Prior to May 4th, 'plandemic' was a frequently used social media term and hashtag associated with several popular conspiracy theories, the general gist of most being that the pandemic was fake (i.e., virus does not exist) or human-made.").

released online.¹⁵⁶ The film featured Judy Mikovits, who has long been an anti-vaccine activist.¹⁵⁷ Mikovits has participated in anti-vaccine rallies in the past (in 2016,¹⁵⁸ and multiple times in 2017¹⁵⁹). In 2019, she testified in support of the extreme claim that the vaccine a boy received as an infant caused his cancer at the age of thirteen.¹⁶⁰ Her testimony was found to be non-credible.¹⁶¹ In short, even before the pandemic she had solid anti-vaccine credentials. In the movie *Plandemic* she offered an extreme conspiracy theory about the pandemic blaming Dr. Anthony Fauci from the National Institutes of Health of both wrongdoing in relation to HIV research and of engineering the pandemic.¹⁶² *Plandemic* was a viral conspiracy theory through and through.¹⁶³

Playbook Theme 5: It's about Civil Rights

The most recent example of claiming that the issue is about civil rights—while repeatedly spouting anti-vaccine tropes—was a rally in Washington DC called “Defeat the Mandates,” in which anti-vaccine activists claimed that the issue is about freedom and repeatedly invoked slavery and the

156. David Gorski, *Plandemic: Judy Mikovits and the Mother of all COVID-19 Conspiracy Theories*, SCI. BASED MED. (May 8, 2020), <https://sciencebasedmedicine.org/plandemic-judy-mikovits-covid-19/>.

157. *Id.*

158. In this video, Dr. Mikovits is speaking in the anti-vaccine conference, Autism One. AUTISM ONE, <https://www.facebook.com/199957646696501/posts/10-min-dr-judy-mikovits-video-will-be-one-of-the-most-excellent-and-important-vi/1499102610115325/> (last visited Sept. 11, 2022). A discussion of AutismOne can be found in David Gorski, *Autism One: The Yearly Anti-vaccine Autism 'Biomed' Quackfest Begins*, SCI. BASED MED. (May 24, 2010), <https://sciencebasedmedicine.org/autismone-the-yearly-autism-antivaccine-quackfest-begins/>.

159. *Revolution for Truth Organizes Rally in Washington DC on March 31*, BENZINGA (Mar. 28, 2017, 4:13 PM), <https://www.benzinga.com/pressreleases/17/03/p9226695/revolution-for-truth-organizes-rally-in-washington-dc-on-march-31>; see also *Stop Forced Vaccinations*, TEX. RIGHT TO KNOW (last visited Aug. 14, 2022), <https://www.texasrighttoknow.com/stop-forced-vaccines>.

160. Dorit R. Reiss, *Vaccines did not Cause Cancer in the Son of Dr. Theresa Deisher*, SKEPTICAL RAPTOR (Aug. 4, 2019), <https://www.skepticalraptor.com/skepticalraptorblog.php/vaccines-cause-cancer-son-theresa-deisher/>.

161. *Id.*

162. Gorski, *supra* note 156 (documenting the other problematic claims in the movie and explaining why they are incorrect).

163. Kearney et al., *supra* note 154.

Holocaust.¹⁶⁴ But these claims figured from early in the pandemic. On March 26, 2020, anti-vaccine activist Del Bigtree described the pandemic as “government moving in on civil liberties.”¹⁶⁵ On May 3, 2020, an anti-vaccine panel—summarized on the Children’s Health Defense’s website—alleged multiple times that the pandemic threatened civil liberties.¹⁶⁶

The public health measures taken during the COVID-19 pandemic certainly implicated civil rights.¹⁶⁷ But the combination of the claim of civil rights violations and anti-vaccine misinformation in each of these cases suggests that civil rights claims were used to mask opposition to vaccines. The civil right the speakers stand for is one, and one only: the freedom not to vaccinate. Unsurprisingly, actual civil rights activists have criticized this co-opting of the civil rights theme for anti-vaccine efforts.¹⁶⁸

Pulling it together

During the COVID-19 pandemic, anti-vaccine activists followed the same playbook they used before the pandemic. They tried to create fear and doubt about vaccines by downplaying the disease, presenting the vaccines as bad, alleging there were alternatives to vaccines that were being

164. Tim Marchman, *At DC Rally, Anti-Vaxxers Claim the Legacy of Slavery and the Holocaust (Again and Again and Again)*, VICE (Jan. 25, 2022, 1:55 PM), <https://www.vice.com/en/article/qjbzkd/at-dc-rally-antivaxxers-claim-the-legacy-of-slavery-and-the-holocaust-again-and-again-and-again>.

165. Smith & Reiss, *supra* note 67.

166. *The Truth About Vaccines 2020—Vaccine Roundtable Part 2, Video and Transcript*, CHILD’S HEALTH DEF. (May 14, 2020), <https://childrenshealthdefense.org/news/the-truth-about-vaccines-2020-vaccine-roundtable-part-2-video-and-transcript/>.

167. Lindsay F. Wiley & Stephen I. Vladeck, *Coronavirus, Civil Liberties, and the Courts: The Case Against “Suspending” Judicial Review*, 2020 HARV. L. REV. F. 179 (2020), <https://harvardlawreview.org/2020/07/coronavirus-civil-liberties-and-the-courts/> (discussing the effects measures limiting liberty—like business closures—can have on individual rights, and the way the courts did and should handle it).

168. Mays, *supra* note 53; *see also* Erin Schumaker, *Anti-vaccine Leaders Targeting Minority Becomes Growing Concern at NYC Forum*, ABC NEWS (Nov. 10, 2019, 4:52 AM), <https://abcnews.go.com/Health/rfk-jrs-york-city-vaccine-forum-highlights-concerns/story?id=66158336>; *see also* Will Stone, *An Anti-Vaccine Film Targeted to Black Americans Spreads False Information*, NPR (June 8, 2021, 6:00 AM), <https://www.npr.org/sections/health-shots/2021/06/08/1004214189/anti-vaccine-film-targeted-to-black-americans-spreads-false-information>.

hidden, and citing a grand conspiracy for the fact that experts and mainstream media rejected their claims. They also claimed that they were standing for civil rights, not against vaccines, while promoting anti-vaccine misinformation. The arguments the anti-vaccine movement uses have not changed. But in a new environment, in a moment of vulnerability, the demand side was very different, and the anti-vaccine movement moved from the fringe to achieve a much broader impact.

III. ANTI-VACCINE TACTICS: SAME OLD, SAME OLD

Anti-vaccine activists became richer and used the internet to great effect.¹⁶⁹ But most of their tactics were the same as they had been pre-pandemic. In a 2011 article, anthropologist Anna Kata set out a list of tactics and tropes used by the anti-vaccine movement.¹⁷⁰ Kata listed four tactics: (1) skewing the science (rejecting science that goes against anti-vaccine positions while embracing bad studies supporting their view), (2) shifting hypotheses (moving the targets on claims of vaccine harms when the evidence goes against the previous claims), (3) censorship (suppressing dissenting opinions), and (4) attacking the opposition via personal insults and lawsuits.¹⁷¹ With some differences, all but one of these tactics has been visible during COVID-19 (anti-vaccine groups, as the following paragraphs will show, skewed the science, shifted hypotheses, and attacked the opposition, but they did not suppress dissenting opinions as strongly because their focus was on getting more attention – and engagement helps there). Additionally, just as with anti-vaccine rhetoric prior to COVID-19, anti-vaccine activists make heavy use of data-inspired anecdotes to scare people away from vaccines.¹⁷²

169. See *The Anti-Vaxx Industry*, CTR. FOR COUNTERING DIGIT. HATE, <https://www.counterhate.com/anti-vaxx-industry> (last visited Aug. 20, 2022); Dan Milmo, *Anti-vaxxers Making 'at Least \$2.5m' a Year from Publishing on Substack*, GUARDIAN (Jan. 27, 2022, 5:00 AM), <https://www.theguardian.com/technology/2022/jan/27/anti-vaxxers-making-at-least-25m-a-year-from-publishing-on-substack>; see also Smith, *supra* note 72.

170. Kata, *supra* note 9, at 3780-82.

171. *Id.* at 3781-83.

172. Ashley Shelby & Karen Ernst, *Story and Science: How Providers and Parents Can Utilize Storytelling to Combat Anti-Vaccine Misinformation*, 9 HUM VACCINES & IMMUNOTHERAPEUTICS, 1795, 1796 (2013).

To skew the science, anti-vaccine activists built up their own experts, many of whom lack relevant qualifications. In the early days of the pandemic, a colleague and I described anti-vaccine activist Del Bigtree's efforts to do so:

Bigtree consistently picks experts and data he likes rather than looking at a full picture. For example, on January 30 he brought in a scientist without expertise in virology or epidemiology—James Lyons Weiler—to talk to the origins of coronavirus, followed by a doctor sympathetic to the anti-vaccine cause, David Browstein. On March 26, Bigtree quoted several experts in various fields who agreed with his views that governments overreact to COVID19—ignoring the many experts who disagree. ...

On April 9 Bigtree brought in bioinformatics scientist Knut Wittkowski (who claimed, among other things, that deaths in the United States won't surpass 24,000; as of October 20 the United States saw over 220,000 confirmed COVID-19 fatalities). Wittkowski is not an infectious diseases expert, as demonstrated in a highly-publicized interview where he declared the pandemic "over" and claimed he didn't understand why we were trying to "flatten the curve." The claim of inflated death numbers was repeated on April 30, when he interviewed two doctors who own a chain of urgent care centers and who claimed that the death rate of the disease was very low—claims so misleading that the American College of Emergency Physicians (ACEP) and American Academy of Emergency Medicine (AAEM) issued a joint statement condemning these doctors' "reckless and untested musings."¹⁷³

Since the article, other experts have come to the forefront in anti-vaccine circles. For example, Mr. Bigtree has repeatedly interviewed Dr. Geert Vanden Bossche, who has become popular in anti-vaccine circles after claiming COVID-19 vaccines are dangerous.¹⁷⁴ Another popular voice is Dr.

173. Smith & Reiss, *supra* note 67, at 609-10.

174. Renee Hunter, *A Coming Covid Catastrophe by Geert Vanden Bossche via the Highwire with Del Bigtree*, YOUTUBE (Mar. 20, 2021), <https://www.youtube.com/watch?v=fkSZj-rzBWI>; *see also* Geert Vanden Bossche (@GVDBossche), TWITTER (Nov. 19, 2021, 12:03 AM), <https://twitter.com/gvdbossche/status/1461605981910188034?lang=en>. On Dr. van Bossche claims, *see* David Gorski, *Countering Geert Vanden Bossche's Dubious Viral Open Letter Warning Against Mass COVID-19 Vaccination*, SCI. BASED MED. (Mar. 18, 2021), <https://sciencebasedmedicine.org/countering-geert->

Robert Malone, who claims to have invented mRNA.¹⁷⁵ The general trend among anti-vaccine supporters remains: draw on experts who espouse what anti-vaccine groups want to hear while ignoring experts who disagree, even if the dissenting voices are more qualified.

In addition, as in the past, anti-vaccine activists use dubious studies to support their claims. The anti-vaccine supporters continue to support hydroxychloroquine and ivermectin despite studies showing they do not work.¹⁷⁶ In another case, anti-vaccine activists have touted a 2021 study alleging a review of sixty-eight countries and 2,947 counties in the United States found a negative correlation between vaccine rates and COVID-19 cases to allege COVID-19 vaccines do not work.¹⁷⁷ The authors of the article were not known in anti-vaccine circles, and there is no reason to think they are especially anti-vaccine (one has other publications about vaccines, and the other is a high school student).¹⁷⁸ But the article was taken up by anti-vaccine sites.¹⁷⁹ The paper was methodologically problematic in that it did not provide the criteria for choosing the countries and omitted some obvious candidates with high vaccine rates, like the UK, Germany, and France.¹⁸⁰ It ignored differences in testing rates and the

vanden-bosches-dubious-viral-open-letter-warning-against-mass-covid-19-vaccination/.

175. Tom Bartlett, *The Vaccine Scientist Spreading Vaccine Misinformation*, ATLANTIC (Aug. 23, 2021, 3:00 PM), <https://www.theatlantic.com/science/archive/2021/08/robert-malone-vaccine-inventor-vaccine-skeptic/619734/>; see also, Bill McCarthy, *Who Is Robert Malone? Joe Rogan's Guest Was a Vaccine Scientist, Became an Anti-Vaccine Darling*, POLITIFACT (Jan. 6, 2022), <https://www.politifact.com/article/2022/jan/06/who-robert-malone-joe-roigans-guest-was-vaccine-sci/>.

176. Meyerowitz-Katz, *supra* note 146; see also, Lee et al., *supra* note 142.

177. S.V. Subramanian & Akhil Kumar, *Increases in COVID-19 are Unrelated to Levels of Vaccination Across 68 Countries and 2947 Counties in the United States*, 36 EUR. J. EPIDEMIOLOGY 1237 (2021).

178. David Gorski, *Ecological fallacy: When a Scientist (Inadvertently, I hope) Uses a Favorite Antivax Form of Study*, RESPECTFUL INSOLENCIE (Oct. 13, 2021), <https://respectfulinsolence.com/2021/10/13/ecological-fallacy-covid-19-vaccination/>.

179. For example, Children's Health Defense cited it: Megan Redshaw, *Fully Vaccinated Countries Had Highest Number of New COVID Cases, Study Shows*, Children's Health Defense (Oct. 7, 2021), <https://childrenshealthdefense.org/defender/fully-vaccinated-countries-highest-number-new-covid-cases/>.

180. Michael Simpson, *COVID Infection Rates Are NOT Unrelated to Vaccines – Debunking Research*, SKEPTICAL RAPTOR (Dec. 6, 2021),

capacity of the health system to find and report, which could strongly affect rates of cases found.¹⁸¹ Further, it did not account for the potential complexity in comparisons across different countries.¹⁸² Despite these methodological problems, the article was widely shared on anti-vaccine sites.¹⁸³

Shifting claims is also common. Until the FDA approved the first COVID-19 vaccine (Pfizer) on August 23, 2021, the anti-vaccine narrative focused on the experimental nature of vaccines.¹⁸⁴ Once the vaccine was approved however, the anti-vaccine discussion pivoted to claim the approved vaccine was not available in the United States.¹⁸⁵ The vaccine available in the United States, anti-vaccine supporters claimed, was still experimental, even though, as the FDA explained, it was functionally interchangeable.¹⁸⁶ Simultaneously, anti-vaccine activists also petitioned the FDA to withdraw the Emergency Use Authorization to other COVID-19 vaccines.¹⁸⁷

<https://www.skepticalraptor.com/skepticalraptorblog.php/covid-infection-rates-are-not-unrelated-to-vaccines-debunking-research/>.

181. *Id.*

182. *Id.*

183. Iria Carballo-Carbajal, *Claims that a Harvard Study Showed COVID-19 Vaccines are Ineffective Misrepresent the Authors' Conclusions, Fail to Account for the Study's Limitations*, HEALTH FEEDBACK (Oct. 17, 2021), <https://healthfeedback.org/claimreview/claims-that-a-harvard-study-showed-covid-19-vaccines-are-ineffective-misrepresent-the-conclusions-from-the-authors-fail-to-account-for-the-studys-limitations/> (“the study alone received more than 20,000 interactions on Facebook and more than 6,000 on Instagram, Reddit, and Twitter. The video itself received more than 216,000 views on YouTube. In addition, the study received further engagement through outlets like The Blaze, The Defender, and the Foundation for Economic Education (FEE), and websites opposing vaccination.”).

184. Dorit R. Reiss & Arthur Caplan, *Experimental? It Doesn't Mean What You Think It Means*, DENV. L. REV. (Oct. 7, 2021), <https://www.denverlawreview.org/dlr-online-article/experimental-it-doesnt-mean-what-you-think-it-means>.

185. According to a fact check, that is not true. This article cites the anti-vaccine claim and responds to it: Daniel Funke, *Fact Check: Pfizer's FDA-Approved Vaccine is Available in the US*, USA TODAY (Oct. 20, 2021), <https://www.usatoday.com/story/news/factcheck/2021/10/20/fact-check-comirnaty-pfizers-fda-approved-vaccine-available-us/8538861002/>.

186. Dorit R. Reiss, *Vaccine Licensing Primer – Correcting Anti-Vaccine Misinformation*, SKEPTICAL RAPTOR (Sept. 25, 2021), <https://www.skepticalraptor.com/skepticalraptorblog.php/vaccine-licensing-primer-correcting-anti-vaccine-misinformation/>.

187. Viridiana Ordonez, *FDA rejects ICAN Petition to Revoke EUAs Issued for COVID Vaccines*, SKEPTICAL RAPTOR (Nov. 3, 2021), <https://www.skepticalraptor.com/skepticalraptorblog.php/fda-rejects-ican-petition-to-revoke-of-euas-issued-for-covid-vaccines/>.

On safety, anti-vaccine claims come fast and furious, with activists pivoting from VAERS, to changes to DNA, to pregnancy, to myocarditis, forcing fact-checkers to deal with a never-ending stream of claims.

The one tactic anti-vaccine activists no longer use—or at least, not as openly—is censorship. As several platforms removed anti-vaccine leaders, and as they seek to expand their reach, anti-vaccine leaders are now, instead, alleging they are censored and are seeking more attention while still having multiple forums.¹⁸⁸

On the other hand, anti-vaccine activists openly target opponents. Extensive efforts were made by the anti-vaccine movement to attack Dr. Anthony Fauci and other public health officials during the pandemic.¹⁸⁹

Finally, anti-vaccine activists have used anecdotes extensively during the pandemic, as in the past. Anti-vaccine activists promoted stories of people alleging they were harmed by COVID-19 vaccines. The anecdotes suffered from the problem anecdotes often suffer from—even when the harms are real, often there is no good evidence linking the alleged harm to vaccines. These stories include, for example, the story of a young girl, Maddie De Garay, whose mother alleges was injured from the trial Pfizer vaccine, but whose doctors diagnosed her with conversion disorder.¹⁹⁰ Another heavily promoted story was of a woman called Shawn Skelton, who shared several videos of herself shaking uncontrollably, and whose doctors attributed to stress (although she blamed COVID-19 vaccines).¹⁹¹ This is not to doubt the suffering of

188. Milmo, *supra* note 169.

189. Michelle M. Mello, Jeremy A. Greene & Joshua M. Sharfstein, *Attacks on Public Health Officials During COVID-19*, 324 JAMA 741, 741 (2020). See also Katie Pearce, *Leading Health Officials Share Accounts of Harassment and Other Struggles As They Respond to COVID-19*, JOHNS HOPKINS UNIV. (Feb. 25, 2021), <https://hub.jhu.edu/2021/02/25/bloomberg-we-stand-by-public-health/>; Kim Krisberg, *Threatened, harassed, doxed: Public health workers forge on—Security teams protecting health officers*, NATION'S HEALTH (Oct. 2021), <http://www.thenationshealth.org/content/51/8/1.1/>.

190. Stephanie Giang-Puanon, *Mom details 12-year-old daughter's extreme reactions to COVID vaccine, says she's now in a wheelchair*, FOX NEWS (July 2, 2021), <https://www.foxnews.com/media/ohio-woman-daughter-covid-vaccine-reaction-wheelchair>.

191. Vera Files, *Vera Files Fact Check: Videos of Shaking Woman 'After COVID-19 Vaccination' Misleading*, VERA FILES (Jan. 28, 2021, 10:52 PM),

these two people, which seems very real; but there is no evidence to support the link between their suffering and the vaccines. Wrongly blaming vaccines does not help these people handle their own issues, and can mislead others.

Other stories shared widely were even more problematic. In one popular video a woman who identified herself as nurse Khalilah Mitchell from Tennessee claimed she received the COVID-19 vaccine and it gave her Bell's Palsy.¹⁹² But no nurse named Khalilah Mitchell received a vaccine in Tennessee, and in fact, there is no record of a licensed nurse with that name in the state.¹⁹³ Use of unsupported, often non-credible anecdotes is typical in the anti-vaccine movement.¹⁹⁴

IV. CONCLUSION

Anti-vaccine activism is as old as vaccines.¹⁹⁵ In the years leading up to the COVID-19 pandemic anti-vaccine activists consistently used a playbook consisting of interrelated themes to try and scare people off vaccinating. Yet they remained a fringe movement. The COVID-19 pandemic offered them a moment of opportunity, a chance to use the same methods practiced and perfected over decades to capture a new, suddenly vulnerable audience and break from the fringe to large swathes of the population. They took the opportunity. Even then, they could not have achieved much themselves, but highly visible figures helped popularize anti-vaccine claims. At this point, anti-vaccine claims are even entering the courts.

Can this be reversed? Maybe. On the one hand, anti-vaccine claims do not hold, if enough people die or suffer, people turn to vaccines. But if we are lucky, COVID-19 will not get to that level. As of July 10, 2022, almost eighty percent

<https://verafiles.org/articles/vera-files-fact-check-videos-shaking-woman-after-covid-19-va>.

192. Dorit R. Reiss, *COVID-19 Vaccine Misinformation and the Anti-Vaccine Movement*, BILL OF HEALTH (Jan. 20, 2021), <https://blog.petrieflom.law.harvard.edu/2021/01/20/covid-19-vaccine-misinformation-anti-vaccine-movement/>.

193. Diane Funke, *Fact-Check: Did a Tennessee Nurse Develop Bell's Palsy After Getting the Coronavirus Vaccine?*, AUSTIN AM. STATESMAN (Dec. 31, 2020, 10:00 AM), <https://www.statesman.com/story/news/politics/2020/12/31/did-nurse-develop-bells-palsy-after-getting-covid-19-vaccine/4095565001/>.

194. Michael Davidson, *Vaccination as a Cause of Autism—Myths and Controversies*, 19 DIALOGUES IN CLINICAL NEUROSCIENCE 403, 403-05 (2017).

195. OFFIT, *supra* note 14, at 108-19.

of the United States population has received at least one dose of COVID-19 vaccines, and that may be enough to help reduce death and harm to levels that are not highly visible and do not risk overwhelming the already stretched healthcare system.¹⁹⁶ The number of COVID-19 cases are decreasing in the United States, although that could change, as previous variants of the virus have taught us.¹⁹⁷ That is good news in the short term, because it may help save lives, prevent harm, and give people a chance to start fixing the damage the pandemic inflicted. But it can lead to complacency and to fewer efforts to fix harmful misinformation. It could mean that come the next pandemic, large segments of the population will be primed to believe anti-vaccine misinformation. It could also mean some states may roll back laws like school immunization requirements, creating a risk of return of preventable childhood illnesses.

196. *COVID Data Tracker*, CTRS. FOR DISEASE CONTROL & PREVENTION, <https://covid.cdc.gov/covid-data-tracker/#datatracker-home> (last visited Aug. 20, 2022).

197. Kaitlin Sullivan, *'An Optimistic Trend': Covidcases Are Falling, But U.S. isn't Out of the Woods Yet*, NBC NEWS (Jan. 22, 2022, 6:22 AM), <https://www.nbcnews.com/health/health-news/omicron-wave-covid-cases-finally-peaked-us-rcna13103>.