

## Misinformation and Covid19

### Introduction:

in 2019 the World Health Organization declared vaccine hesitancy, driven by misinformation, one of the ten most notable threats to global health.<sup>1</sup> Already, anti-vaccine efforts were causing outbreaks, deaths and harms. In a recent paper, vaccine confidence expert Heidi Larson predicted that misinformation would be a big problem during the next pandemic. The COVID-19 pandemic showed her right.<sup>2</sup>

The anti-vaccine movement is as old as vaccines and has used a variety of tactics to promote misinformation for decades.<sup>3</sup> But it is operating in a new reality, in the wake of the COVID-19 pandemic. COVID-19 killed and harmed millions of people worldwide and upended our society.<sup>4</sup> COVID-19 vaccines are an important part of our route out of the pandemic, so there is extensive public attention focused on the vaccines and their development process.<sup>5</sup> As a larger number of people turned their attention to infectious diseases and vaccines compared to the past, anti-vaccine leaders saw an opportunity to increase their reach and influence. They were ready. The anti-vaccine movement did not change its playbook during the pandemic. It used the same

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<sup>1</sup> World Health Organization, *Ten Threats to Global Health in 2019*, available at: <https://www.who.int/news-room/spotlight/ten-threats-to-global-health-in-2019>

<sup>2</sup> Heidi J. Larson, *The biggest pandemic risk? Viral misinformation*. 562 NATURE, <https://www.nature.com/articles/d41586-018-07034-4>

<sup>3</sup> 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).

<sup>4</sup> 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. GLOBAL HEALTH 1, 1-2 (2021).

<sup>5</sup> See 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. INFO. 1 (2021).

themes and made the same type of claims it has made about other vaccines in relation to COVID-19 vaccines. The supply side has not changed much; it just has access to more demand.

The goal of this article is to demonstrate that. This article will set out the themes that the anti-vaccine movement uses to create fear, uncertainty, and doubt about vaccines, and then demonstrate how the same themes were used to promote misinformation about COVID-19.<sup>6</sup> 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. Although the article is heavily biased towards the United States anti-vaccine movement, the same themes were shared globally, and this article will demonstrate the global influence and spread of these anti-vaccine themes.

The author of the article is a legal academic, but this article is written from her experience combatting misinformation online, rather than from the perspective of her research areas. While I have been following the literature on this for years, my added value is from my efforts in the trenches, from debunking anti-vaccine claims over the past years.

The article will proceed as follows. Part I will set out the anti-vaccine playbook. Part II sets out why this is a moment of vulnerability and a moment of opportunity for the anti-vaccine movement – because people are uncertain and frightened, a time where conspiracy theories flourish; because of politicization; because the pandemic led to focus on vaccines, and to more people getting information online. It will then demonstrate how anti-vaccine activists have taken

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<sup>6</sup> Bryan Pfaffengerger, *The Rhetoric of Dread: Fear, Uncertainty, and Doubt (FUD) in Information Technology Marketing*, 13 KNOWLEDGE, TECH. & POL'Y 78, 78 (2000).

advantage of this period of vulnerability to use the same playbook they used to deter people from vaccinating in the past against COVID-19 vaccines. Part III will describe some of the tactics used and point out that the anti-vaccine movement has not really changed its tactics. I then conclude.

## I. THE ANTI-VACCINE PLAYBOOK, PAST

A complete overview of the anti-vaccine movement is beyond the scope of this article.<sup>7</sup> To give a short overview, while anti-vaccine efforts date back to the first vaccine in the end of the eighteenth and beginning of the nineteenth century, the modern anti-vaccine movement in the United States has been reinvigorated in the 1980s, when a TV show created concerns around pertussis vaccines.<sup>8</sup> It received an additional boost from concerns around autism in the late 1990s and early 2000s, and has maintained a presence since then.<sup>9</sup> If their success in passing legislation is a measure, anti-vaccine groups had a peak of success between 1998-2003, and have been less successful since, though they do have some successes.<sup>10</sup> In the time since, anti-vaccine activists have lost much of their access to mainstream media.<sup>11</sup> To compensate, however, they gained

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<sup>7</sup> 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); Gregory A. Poland and Robert M. Jacobson, *Understanding those who do not Understand: A Brief Review of the Anti-Vaccine Movement*, 19 *VACCINE* 2440 (2001); Eve Dube, Maryline Vivion and Noni E. MacDonald, *Vaccine Hesitancy, Vaccine Refusal and the Anti-vaccine Movement: Influence, Impact and Implications.*, 14 *EXPERT REV. OF VACCINES* 99 (2014); PETER HOTEZ, *VACCINES DID NOT CAUSE RACHEL'S AUTISM* 169-185 (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* 251-255 (2014).

<sup>8</sup> PAUL A. OFFIT, *DEADLY CHOICES: HOW THE ANTI-VACCINE MOVEMENT THREATENS US ALL* 180–85 (2011).

<sup>9</sup> **Id., add pages.**

<sup>10</sup> 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).

<sup>11</sup> **Cite to Bad Advice.**

more access to social media.<sup>12</sup> Several anti-vaccine groups are well-organized and well funded.<sup>13</sup>

The anti-vaccine playbook generally consists of five related themes, adopted and adjusted for the context of COVID-19: diseases are not so bad, vaccines are dangerous, there are alternatives, there is a conspiracy to hide the information and cause harm, and it’s really about civil rights.

This is a longstanding set of claims, not created for COVID-19, as this article will demonstrate.

In essence, the anti-vaccine movement has not changed its pattern or its approach.

**Table 1: Anti-Vaccine Themes, Pre and Post Covid<sup>14</sup>**

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	Look at how many 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.
4) There is a conspiracy to hide the information	CDC is hiding evidence that vaccines cause autism.	CDC is hiding evidence on vaccines risks.

<sup>12</sup> See Renée Diresta, “OF VIRALITY AND VIRUSES: THE ANTI-VACCINE MOVEMENT AND SOCIAL MEDIA”, T4GS SPECIAL REPORTS, (Nov. 8, 2018), <http://www.tech4gs.org/renee-diresta.html>; Dominik Andrzej Stecula, *How Trust in Experts and Media Use Affect Acceptance of Common Anti-Vaccine Claims*, MISINFORMATION REVIEW (Jan. 14, 2020), <https://misinfoforeview.hks.harvard.edu/article/users-of-social-media-more-likely-to-be-misinformed-about-vaccines/>

<sup>13</sup> Imran Ahmed, *Pandemic Profitters: The business of anti-vaxx*, CENTER FOR COUNTERING DIGITAL HATE 1, 7 (2020), [https://252f2edd-1c8b-49f5-9bb2-cb57bb47e4ba.filesusr.com/ugd/f4d9b9\\_00b2ad56fe524d82b271a75e441cd06c.pdf](https://252f2edd-1c8b-49f5-9bb2-cb57bb47e4ba.filesusr.com/ugd/f4d9b9_00b2ad56fe524d82b271a75e441cd06c.pdf)

<sup>14</sup> 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.

5) It's really about civil rights.	“We are not anti-vaccine, we are pro-freedom.”	“We are not anti-vaccine, we are pro-freedom.”
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The first theme is downplaying the harms of the disease. For example, anti-vaccine activists describe measles as a fever and a rash, and not a concern.<sup>15</sup> In reality, measles is one of the more serious rash-containing diseases, with potential complications in every organ system.<sup>16</sup> Between the years of 1987-2000, the rate of death from measles in the United States was 3 per thousand.<sup>17</sup> About 30% of children had a complication, and about 19% were hospitalized.<sup>18</sup> Over 5% had pneumonia.<sup>19</sup> In addition, measles also suppresses or erases immunity to other diseases, leaving the patient vulnerable to harm or death from those diseases.<sup>20</sup>

Anti-vaccine activists also made much of the fact that the poliovirus paralyzes a relatively small percentage of children paralyzed. In a known anti-vaccine book, an anti-vaccine doctor described the disease as “a low-incidence disease”, arguing that most of it “left no residual paralysis at all.”<sup>21</sup> It is true that less than 1% of infections with polio lead to paralysis that is irreversible, which is, of course, “most” of polio infections.<sup>22</sup> However, that is not, actually, a low rate, and at the time leading up to the vaccine it caused tens of thousands of cases of paralysis per year in the

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<sup>15</sup> See The Original Skeptical Raptor, *This Papa is scared of the shmeasles measles*, SKEPTICAL RAPTOR (Oct. 18, 2015), <https://www.skepticalraptor.com/skepticalraptorblog.php/papa-scared-shmeasles-measles/>; Megan Heimer, *To the Parent of the Immunocompromised Child Who Thinks My Kid is a Threat*, (Feb. 9, 2015), [https://dickatlee.com/issues/health/vaccines/pdfs/unvax\\_kid\\_not\\_threat.pdf](https://dickatlee.com/issues/health/vaccines/pdfs/unvax_kid_not_threat.pdf).

<sup>16</sup> Robert T. Perry and Neal A. Halsey, *The Clinical Significance of Measles: A Review*, 189 J. INFECTIOUS DISEASES S4, S5 (2004).

<sup>17</sup> *Id.* at S7.

<sup>18</sup> *Id.*

<sup>19</sup> *Id.*

<sup>20</sup> Michael J. Mina et al., *Measles Virus Infection Diminishes Preexisting Antibodies that Offer Protection from Other Pathogens*, 366 SCIENCE 599, 599-600 (2019); Velislava N. Petrova et al., *Incomplete Genetic Reconstitution of B Cell Pools Contributes to Prolonged Immunosuppression After Measles*, 4 SCIENCE IMMUNOLOGY (2019).

<sup>21</sup> SUZANNE HUMPHRIES AND ROMAN BYSTRIANYK, *DISSOLVING ILLUSIONS: DISEASE, VACCINES, AND THE FORGOTTEN HISTORY*, 212-213 (2013).

<sup>22</sup> Man Mohan Mehndiratta, Prachi Mehndiratta, and Renuka Pande, *Poliomyelitis: historical facts, epidemiology, and current challenges in eradication*, 4 NEUROHOSPITALIST 223, 223 (2014).

United States and over a thousand deaths.<sup>23</sup> Since no one could know if their child would be the one struck, the disease caused substantial and understandable fear.<sup>24</sup>

By presenting preventable diseases as “routine childhood diseases,” and downplaying their risks, anti-vaccine activists can argue that vaccines are not so important, not necessary.<sup>25</sup> In reality, vaccines prevent extensive harms and deaths.<sup>26</sup> For example, a 2014 study suggested that just between 1994-2013 in the United States “vaccination will prevent an estimated 322 million illnesses, 21 million hospitalizations, and 732,000 deaths,...” and extensive costs.<sup>27</sup>

The second pre-COVID-19 theme is that vaccines are bad. In addition with downplaying the risks of diseases, anti-vaccine activists routinely present vaccines as highly dangerous, and claim – falsely - that vaccines cause harms like autism, food allergies, and SIDS.<sup>28</sup> Anti-vaccine activists go as far as claiming that the current generation of children is “the sickest generation”, and blaming that on vaccines.<sup>29</sup> In reality, routine vaccines have very low risks.<sup>30</sup>

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<sup>23</sup> 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 tbl 1 (2007).

<sup>24</sup> Daniel J. Wilson, *A Crippling Fear: Experiencing Polio in the Era of FDR*, 72 BULL. HIST. MED. 464, 464 (1998).

<sup>25</sup> [https://childrenshealthdefense.org/wp-content/uploads/Herd-Immunity-and-Compulsory-Vaccination\\_Does-the-Theory-Justify-the-Law.pdf](https://childrenshealthdefense.org/wp-content/uploads/Herd-Immunity-and-Compulsory-Vaccination_Does-the-Theory-Justify-the-Law.pdf) p. 4.

<sup>26</sup> 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, 2156–59 tbls.1–2 (2007).

<sup>27</sup> 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, 352–55 (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.”)

<sup>28</sup> 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, 888 (2015). For a recent discussion of problematic claims of vaccines harms and the evidence against them, see Frank DeStefano, Heather Monk Bodenstab, Paul A. Offit, *Principal Controversies in Vaccine Safety in the United States*, 69 CLINICAL INFECTIOUS DISEASES 726, <https://academic.oup.com/cid/article/69/4/726/5316263>

<sup>29</sup> *Is Today’s Generation of Children “the Sickest Generation”?*, SCIENCE BASED MEDICINE (last visited Feb. 24, 2022), <https://sciencebasedmedicine.org/is-marianne-williamson-correct-that-todays-generation-of-children-is-the-sickest-generation/>; “The Control Group”: A Litigation-driven Antivaccine Survey of the Unvaccinated, RESPECTFUL INSOLENNCE, (Feb. 24, 2022), <https://respectfulinsolence.com/2021/02/26/control-group-a-litigation-driven-antivaccine-survey-of-the-unvaccinated/>

<sup>30</sup> 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. 771 (2020), [https://9dbe8151-9304-4a03-b9a5-21e2dff85422.filesusr.com/ugd/c3e54a\\_e1c980fb53dd48a2bfd5ef98b833ff02.pdf](https://9dbe8151-9304-4a03-b9a5-21e2dff85422.filesusr.com/ugd/c3e54a_e1c980fb53dd48a2bfd5ef98b833ff02.pdf)

Another example of this theme – chosen not coincidentally – is misuse of Vaccine Adverse Events Reports 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 done so since long before the pandemic. The organization’s “quick facts” for hepatitis B vaccine, for example, says that

as of May 31, 2019, there have been more than 91,474 adverse events reported to the federal Vaccine Adverse Events Reporting System (VAERS) in connection with Hepatitis B and Hepatitis B containing vaccines. Approximately 50% of those serious Hepatitis B vaccine-related adverse events occurred in children under 3 years old, with approximately 1,663 deaths occurring in children under three years of age. Of the vaccine-related adverse events reported to VAERS there were 2,142 related deaths, 13,990 hospitalizations, and 3,387 related disabilities. 21,112 of the adverse events were associated with Hepatitis B vaccine alone (not combined with other vaccines).

The problem is that this use is highly misleading. As the VAERS site itself explains, anyone can file a report to VAERS, and the reports cannot be used to determine causation.<sup>31</sup> In other words, there is no real basis to assume or suggest that the reports show harms caused by the vaccine, not without further investigation, and counting the numbers of reports by themselves is meaningless.<sup>32</sup> We will see the same kind of misuse of VAERS in the COVID-19 related misinformation.

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<sup>31</sup>About VAERS, VACCINE ADVERSE EVENT REPORTING SYSTEM (last visited Feb. 24, 2022), <https://vaers.hhs.gov/about.html>

<sup>32</sup> Tom T. Shimabukuro et al., *Safety Monitoring in the Vaccine Adverse Events Reporting System (VAERS)*, 33 VACCINE 4398, 4399 (2015).

A third theme by anti-vaccine activists is to allege that there is a cure or treatment for a harm, but “they” – some undefined, nefarious entity – is hiding it. For example, anti-vaccine activists argue, incorrectly, that vitamin A and vitamin C completely prevent measles harms.<sup>33</sup> They argue that vitamin C cures whooping cough, again, with no good evidence.<sup>34</sup> They argue that screening for cervical cancer is a better choice than HPV vaccines for preventing it, even though 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).<sup>35</sup> Here, too, we will see similar claims related to COVID-19.

A fourth theme we see is the use of conspiracy theories to justify rejection of their claims by the majority of experts. To explain the lack of evidence for their claims of vaccines harms, and for their claims of low harms from disease, anti-vaccine groups argue that there is a grand conspiracy to hide information, even at the cost of causing harm. Anti-vaccine groups are very open in claiming this - as in this article, referring to things that predated the pandemic, anti-vaccine activists argue for a long-standing global conspiracy to shape the media reporting on vaccines.<sup>36</sup> The argument can vary in its focus, pivoting from the pharmaceutical companies, the medical establishment, or the government are behind the conspiracy, but the existence of that conspiracy is a constant theme.<sup>37</sup> To give two examples, in 2005, anti-vaccine activists argued,

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<sup>33</sup> Robert F. Kennedy, Jr., A Dozen Facts About Measles That You Won't Learn From MSPharmaedia, CHILDREN'S HEALTH DEFENSE (May 2, 2019), <https://childrenshealthdefense.org/news/a-dozen-facts-about-measles-that-you-wont-learn-from-mspharmedia/> While Vitamin A can reduce

<sup>34</sup> Suzanne Humphries, Sodium Ascorbate Treatment of Whooping Cough, Orthomolecular Medicine News Service (Apr. 6, 2018), <http://orthomolecular.org/resources/omns/v14n13.shtml>  
<https://thefamilythathealstogether.com/whooping-cough-treatment-vitamin-c-protocol/>

<sup>35</sup> <https://pubmed.ncbi.nlm.nih.gov/7762711/>

<sup>36</sup> 'Anti-vax' labelling and the Mainstream Media: Who is Coordinating This?, CHILDREN'S HEALTH DEFENSE, (July 16, 2020), <https://childrenshealthdefense.org/news/anti-vax-labelling-and-the-mainstream-media-who-is-coordinating-this/>

<sup>37</sup> Anna Kata, *A PostModern Pandora's Box: Anti-Vaccination Misinformation on the Internet*, 28 VACCINE 1709, 1712-1713 (2009).



incorrectly, that a scientific meeting to discuss evidence on whether thimerosal-containing vaccines were related to autism was a conspiracy.<sup>38</sup> And in 2014, the anti-vaccine movement argued, again falsely, that a statement of a CDC scientist also showed that there was evidence that vaccines cause autism, and that the CDC hid it.<sup>39</sup> The scientist himself said, in a statement, that the result that troubled him about a specific MMR study did not show a “true association”, and other studies found no link between MMR and autism.<sup>40</sup> But the conspiracy theory became part of the anti-vaccine lore.

Finally, a long standing 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.<sup>41</sup> The anti-vaccine organization the National Vaccine Information Center – used here because it is one of the older anti-vaccine organizations – has published articles claiming that the issue was one of rights (though the articles also always included misinformation about vaccines) since at least the 1990s.<sup>42</sup> Similar claims were raised by

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<sup>38</sup>David Gorski, *Salon.com Flushes Its Credibility Down the Toilet*, RESPECTFUL INSOLENT (June 17, 2005), <http://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, 12:40 pm) <https://www.forbes.com/sites/emilywillingham/2014/02/22/is-the-cdc-hiding-data-about-mercury-vaccines-and-autism/?sh=c76895113639>; David Gorski, *Acid Flashbacks to Antivaccine Conspiracy Theories From Nine Years Ago*, RESPECTFUL INSOLENT (Feb. 26, 2014), <https://respectfulinsolence.com/2014/02/26/acid-flashbacks-to-antivaccine-conspiracy-theories-from-nine-years-ago/>

<sup>39</sup> Alice Park, *Whistleblower Claims CDC Covered Up Data Showing Vaccine-Autism Link*, TIME: HEALTH MEDICINE (Aug. 28, 2014, 5:13 pm), <https://time.com/3208886/whistleblower-claims-cdc-covered-up-data-showing-vaccine-autism-link/>; David Gorski, *The Central Conspiracy Theory of the Antivaccine Movement*, RESPECTFUL INSOLENT (Aug. 25, 2014), <https://respectfulinsolence.com/2014/08/25/the-central-conspiracy-theory-of-the-antivaccine-movement/>; *A Look Back at the So Called “CDC Whistleblower” and How Vaxxed is Misleading*, LEFT BRAIN RIGHT BRAIN: AUTISM NEWS SCIENCE AND OPINION (last visited Feb. 24, 2022), <https://leftbrainrightbrain.co.uk/2017/02/10/a-look-back-at-the-so-called-cdc-whistleblower-story-and-how-vaxxed-is-misleading/>

<sup>40</sup>*A Look at the “Garbage Can Quote” in Full Context*, LEFT BRAIN RIGHT BRAIN: AUTISM NEWS SCIENCE AND OPINION (last visited Feb. 24, 2022), <https://leftbrainrightbrain.co.uk/2016/01/06/a-look-at-the-garbage-can-quote-in-full-context/>

<sup>41</sup> Kata, *supra* note ##, at 1712.

<sup>42</sup> Here are two articles from the 1990s: Barbara Loe Fisher, *The Moral Right to Conscientious, Philosophical and Personal Belief Exemption to Vaccination*, NVIC (remarks from May 2, 1997), available at: <https://www.nvic.org/informed-consent.aspx>; Barbara Loe Fisher, *When it Happens to You or Your Child, the Risks are 100%*, NVIC (June 1996), available at <https://www.nvic.org/nvic->

more recent anti-vaccine organizations.<sup>43</sup> Although vaccine mandates do implicate personal freedoms, the claims of violations of rights are not independent from anti-vaccine misinformation, whether the misinformation is used to justify claims of rights (it's discrimination because the vaccines are dangerous and remaining unvaccinated is an equal choice, or because unvaccinated children are not a risk to others) or whether the claims of rights are used to support and make listeners more recipients to misinformation ("it's about freedom, and look, my child's autism is actually from vaccines" (made up quote to illustrate)).

These examples provided are United States centered, but neither these diseases nor the anti-vaccine misinformation are limited to the United States, and in the age of the internet claims travel and similar themes are used elsewhere. In two recent example, during the second decade of the second millennium, Europe saw large measles outbreaks, largely driven by the same kind of anti-vaccine misinformation mentioned here, with tens of deaths.<sup>44</sup> In 2019, Samoa saw a measles outbreak, driven by low vaccination rates influenced both by a tragic incident in which children died after nurses injected a wrong vial instead of MMR and by anti-vaccine

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[archives/newsletter/vaccinereactionjune1996.aspx](https://www.nvic.org/archives/newsletter/vaccinereactionjune1996.aspx) (presenting opposition to a vaccine mandates as based on their "violation of their civil, religious and human right to informed consent to vaccination"). See also Barbara Loe Fisher, *In the Wake of Vaccines*, NVIC (As published in Mothering Magazine, Issue 126, September/October 2004) available at: <https://www.nvic.org/informed-consent/In-the-Wake-of-Vaccines---English.aspx> On NVIC's origins, see Paul Offit, *Deadly Choices: How the Anti-Vaccine Movement Threatens Us All*, 8, 57-71 (2011)

<sup>43</sup> David Gorski, *Robert F. Kennedy, Jr. Hosts a Trainwreck of an Antivaccine Forum in Harlem*, SCIENCE BASED MEDICINE (Oct. 21, 2019), available at <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), <https://www.politico.com/story/2019/09/18/california-anti-vaccine-civil-rights-1500976>)

<sup>44</sup> Paloma Carrillo-Santistevé and Pier Luigi Lopalco, *Measles Still Spreads in Europe: Who is Responsible for the Failure to Vaccinate?* 18 CLINICAL MICROBIOLOGY AND INFECTION, 50, 52 (2012).

disinformation.<sup>45</sup> Over eighty people died, most unvaccinated, young children, and 5,000 were sick with measles in a country with a population of 200,000.<sup>46</sup>

## II. ANTI-VACCINE MISINFORMATION AND COVID19

In December 2019, China reported cases of pneumonia, starting – though no one knew it – what would be the COVID-19 pandemic.<sup>47</sup> The first COVID-19 case was announced in the United States on January 20, 2020.<sup>48</sup> By the beginning of 2022, over five million people have died worldwide – and that is almost certainly an undercount – and many more were harmed.<sup>49</sup> In the United States, deaths number in the hundreds of thousands, harms in the millions.<sup>50</sup> The pandemic also upended and disrupted the economic well-being of individuals and countries, in

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<sup>45</sup> Doninik 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, Tasmiah Nuzhath and Brian Colwell, *Combating Vaccine Hesitancy and Other 21<sup>st</sup> Century Social Determinants in the Global Fight Against Measles*, 41 CURRENT OP. VIROLOGY, 1, 1-2 (2020).

<sup>46</sup> Wawrzuta et al., *id.* at 481.

<sup>47</sup> Michelle L. Holshue, *First Case of 2019 Novel Coronavirus in the United States*, 382 NEW ENGLAND J. MED. 929, 929 (2020).

<sup>48</sup> *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. Jonathan Pekar et al., *Timing the SARS-CoV-2 Index Case in Hubei Province*, 372 SCI. 412, 412-414 (2021), available at: <https://www.science.org/doi/10.1126/science.abf8003>

<sup>49</sup> Elissa M. Abrams et al., *The COVID-19 Pandemic: Adverse Effects on the Social Determinants of Health in Children and Families*, 128 ANNALS OF ALLERGY, ATHSMA & IMMUNOLOGY, 19, 19-20 (2022)

<sup>50</sup> *Id.*; 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 (2022), available at: <https://link.springer.com/article/10.1186/s12889-021-12469-y>

the United States and abroad.<sup>51</sup> In the United States, effects were unequal and felt worst by the most vulnerable.<sup>52</sup>

From early in the pandemic, the anti-vaccine movement started preparing.<sup>53</sup> The anti-vaccine talk show *The Highwire* with Del Bigtree started covering the pandemic as early as January 2020.<sup>54</sup> 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.<sup>55</sup> Coleman is not a very big player, but he has more of an influence than it seems because he sells signs used across anti-vaccine protests, and his comments reflected the way the movement acted. 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.<sup>56</sup>

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<sup>51</sup> In the United States, see Swaroop Gowdra Shanthakumar, Anand Seetharam, and Arti Ramesh, *Understanding the Socio-Economic Disruption in the United States during COVID-19 Early Days*, CORNELL UNIVERSITY: COVID-19 E-PRINT (April 11, 2020), available at: <https://arxiv.org/abs/2004.05451> Globally, see Kalim Siddiqui, *The Impact of COVID-19 on the Global Economy*, THE WORLD FINANCIAL REVIEW 26-29 (May-June 2020),

[https://www.researchgate.net/profile/Kalim-Siddiqui/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](https://www.researchgate.net/profile/Kalim-Siddiqui/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) and *Global Economic Effects of COVID-19*, CONGRESSIONAL RESEARCH SERVICE (Nov. 10, 2021), <https://sgp.fas.org/crs/row/R46270.pdf>

<sup>52</sup> Abrams et al., *supra* note ##, at 20-23.

<sup>53</sup> 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 (2021) <https://www.ncbi.nlm.nih.gov/labs/pmc/articles/PMC8083299/>

<sup>54</sup> Tara C. Smith and Dorit Rubinstein Reiss, *Digging the Rabbit Hole, COVID-19 Edition: Anti-Vaccine Themes and the Discourse Around COVID-19*. 22 MICROBES INFECT. 608, 608-609 (2020).

<sup>55</sup> Tara Haelle, *This is the Moment the Anti-Vaccine Movement Has Been Waiting for*, NEW YORK TIMES (Aug. 31, 2021), <https://www.nytimes.com/2021/08/31/opinion/anti-vaccine-movement.html>.

<sup>56</sup> Lyn Redwood, *The Dengvaxia Disaster Was Twenty Years in the Making – What Will Happen with a Rushed COVID-19 Vaccine?* CHILDREN'S HEALTH DEFENSE (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, from that month: *Gates and Company's COVID-19 Vaccine Boosterism Ignores Significant SARS Coronavirus Vaccine Risks Known for Over a Decade*, CHILDREN'S HEALTH DEFENSE (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/>

Although they have not changed their approach, anti-vaccine activists changed their focus – using the same arguments they used against other preventable diseases against COVID-19 vaccines, as the rest of this section will address.

They were right to see this as a moment of opportunity.

## II.a What Made the COVID-19 Pandemic a Moment of Opportunity ~~to~~ for the Anti-vaccine Movement?

A number of real things converged to make people more vulnerable to anti-vaccine misinformation. First, and maybe most important, COVID-19 affected everyone's life, and was a widespread crisis.<sup>57</sup> The effect was not equally distributed; psychological distress differed by age, race, and income bracket, among other things.<sup>58</sup> Cases and fatalities also differed by age, race and income.<sup>59</sup> Profession also mattered – for example, healthcare workers were under tremendous stress during the pandemic.<sup>60</sup> But the data strongly shows widespread negative impact even in the United States. The pandemic certainly had a dramatic impact elsewhere, too,

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<sup>57</sup> Joshua Breslau et al., *A longitudinal study of psychological distress in the United States before and during the COVID-19 pandemic*, 143 PREVENTIVE MED. (2021), <https://www.sciencedirect.com/science/article/pii/S0091743520303935>. Eric Robinson and 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 HEALTH PSYCHOLOGY 570, 570-575 (2021).

<sup>58</sup> Breslau et al., *id.*

<sup>59</sup> Nichole Sams et al., *Understanding Psychological Distress and Protective Factors Amongst Older Adults During the COVID-19 Pandemic*, 29 AM. J. GERIATRIC PSYCHIATRY 881, 885-891 (2021), <https://reader.elsevier.com/reader/sd/pii/S1064748121002633?token=C880BF8B25AF7C4D3A17CF365A82B3C7B00EE1A40065B8E7C3D5B1AC68EAA1D8DD613EA4AEB17C72135DF0033D55F424&originRegion=us-east-1&originCreation=20220129211930>

<sup>60</sup> 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). D Garros, W Austin, P Dodek, *How can I survive this: coping during the COVID-19 pandemic*, CHEST (2020), <https://doi.org/10.1016/j.chest.2020.11.012>

with, for example, many low and middle income countries suffering economic declines and drop in employment.<sup>61</sup> There are also strong indications of global distress.<sup>62</sup>

This can explain 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.<sup>63</sup> The fear and uncertainty surrounding COVID-19 makes people more vulnerable to conspiracy theories, and the anti-vaccine ideology is strongly based on conspiracy theories. But that is not the only thing affecting this. During COVID-19, as in other countries, many states in the United States issued stay-at-home orders, requiring people who were not essential workers to stay home, and imposing school closures.<sup>64</sup> 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).<sup>65</sup> As COVID-19 vaccines emerged as a large part of the path out of the pandemic, people naturally focused on them. Attention to vaccines from people spending time online means they are going to look for information online – and anti-vaccine groups have strong presence there, and their information is easy to find.<sup>66</sup> People seek, people find it, and fear and uncertainty increase the percentage of those drawn to it.

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<sup>61</sup> Dennis Egger et al., *Falling living standards during the COVID-19 crisis: Quantitative evidence from nine developing countries*, 7 SCI. ADVANCES 997, 997-8 (2021), <https://www.science.org/doi/10.1126/sciadv.abe0997>

<sup>62</sup> Amanda P. Clinton, *Scaling Up to Address Global Trauma, Loss and Grief Associated with COVID-19*, AMERICAN PSYCHOLOGICAL ASSOCIATION (Dec. 9, 2020), <https://www.apa.org/international/global-insights/global-trauma>

<sup>63</sup> See, e.g., JAN-WILLEM VAN PROOIJEN, *THE PSYCHOLOGY OF CONSPIRACY THEORIES*, 21-27 (2018).

<sup>64</sup> Lindsay F. Wiley, *Democratizing the Law of Social Distancing*, 19 YALE J. OF HEALTH POL'Y, L., & ETHICS 50, 71-75 (2020).

<sup>65</sup> Nisha Chanana, *Employee Engagement Practices During COVID-19 Lockdown*, 21 J. PUB. AFF. 2-3 (2020), <https://onlinelibrary.wiley.com/doi/epdf/10.1002/pa.2508>

<sup>66</sup> Robert M. Wolfe & Lisa K. Sharp, *Vaccination or Immunization? The Impact of Search Terms on the Internet*, 10 J. OF HEALTH COMMUN 537 (2005); Robert M. Wolfe et al., *Content and design attributes of antivaccination web sites*, 287 JAMA 3245 (2002); More recently: Federico Germani, Nikola Biller-Andorno, *The anti-vaccination*

This is not the only thing going on. Several developments made vaccines – and vaccines mandates, but also vaccines generally – a political hot button issue in the United States, with vaccine uptake different among those belonging to different parties.<sup>67</sup> Politicization began before the pandemic, when battles around vaccines mandates split along party lines, with Democrats voting for stronger mandates and Republicans voting against them.<sup>68</sup> But the pandemic turbo-charged this development. First, even before the pandemic there was a growing overlap and interaction between QAnon and the anti-vaccine movement, and that only grew during the pandemic.<sup>69</sup> Second, President Trump, 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.<sup>70</sup> 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 public health is misleading people.<sup>71</sup> This fit comfortably with the claims of anti-vaccine groups,

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*infodemic on social media: A behavioral analysis*, PLOS ONE 16(3) (2021), <https://doi.org/10.1371/journal.pone.0247642>

<sup>67</sup> Tony Bolsen and Risa Palm, *Politicization and COVID-19 Vaccine Resistance in the United States*. 188 PROGRESS IN MOLECULAR BIOLOGY AND TRANSLATIONAL SCI. 81 (Nov. 10, 2021), <https://www.ncbi.nlm.nih.gov/labs/pmc/articles/PMC8577882/>; Cope, Somin and Stremitzer, p. 7, 48-49 (forthcoming). John Kerr, Costas Panagopoulos, and Sander van der Linden, *Political Polarization on COVID-19 Pandemic Response in the United States*, 179 PERSONALITY AND INDIVIDUAL DIFFERENCES, 110892 (2021) <https://www.sciencedirect.com/science/article/pii/S0191886921002671>

<sup>68</sup> Dorit R. Reiss, *Laws Prohibiting Vaccines Mandates*, (forthcoming).

<sup>69</sup> Tim Dickinson, *How the Anti-Vaxxers Got Red Pilled*, ROLLING STONE (February 10, 2021) available at: <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 126-133 (2021).

<sup>70</sup> Sarah E. Gollust, Rebekah H. Nagler and Erika Franklin Fowler, *The Emergency of COVID-19 in the US: A Public Health and Political Communication Crisis*. 45 J. Health Pol. Pol& L. 967, 968 (2020).

<sup>71</sup> Geoff Brumfield, Tamara Keith, *President Trump's New COVID-19 Adviser is Making Public Health Experts Nervous*, NPR (September 4, 2020) available at: <https://www.npr.org/sections/health-shots/2020/09/04/909348915/president-trumps-new-covid-19-advisor-is-making-public-health-experts-nervous>

which, as part II.b will describe, were saying the same, lending their claims credence and predisposing people to listen to them on other things, like vaccines.

Possibly responding to their viewers increasing belief in this kind of claims, Fox news pivoted to echoing claims downplaying the pandemic, creating even less belief among their viewers in points made by public health, and predisposing them even more to believe anti-vaccine misinformation.<sup>72</sup> This was exacerbated when highly visible Fox News figures started echoing what was, pretty clearly, anti-vaccine misinformation. Host Tucker Carlson has already toyed with anti-vaccine misinformation in 2017, hosting anti-vaccine activist Robert F. Kennedy Jr. who shared several incorrect claims with viewers.<sup>73</sup> But in 2021 he started airing claims that come directly from the anti-vaccine playbook. First, he claimed that vaccines caused deaths and harms based on Vaccine adverse Events Reporting system – reports that are not verified.<sup>74</sup> Carlson also featured prominently people who were clearly and openly anti-vaccine, like Alex Berenson and Robert F. Kennedy.<sup>75</sup> Other Fox News figures also repeated anti-vaccine claims.<sup>76</sup>

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<sup>72</sup> Erfei Zhao et al., *Media Trust and Infection Mitigating Behaviours During the COVID-19 Pandemic in the USA*, 5 *BMJ GLOB. HEALTH.* E003323 (2020), <https://gh.bmj.com/content/5/10/e003323>

<sup>73</sup> Dorit R. Reiss, *Robert F. Kennedy Jr. and Vaccines – Why Real Journalists Don't Interview Him*, Daily Kos (April 23, 2017), <https://www.dailykos.com/stories/2017/4/23/1655582/-Robert-F-Kennedy-Jr-and-vaccines-why-real-journalists-don-t-interview-him>

<sup>74</sup> 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/>; Aaron Blake, *Tucker Carlson's Worst Vaccine Segment Yet*, WASHINGTON POST (May 6, 2021), <https://www.washingtonpost.com/politics/2021/05/06/tucker-carlsons-worst-vaccine-segment-yet/>

<sup>75</sup> Berenson: Aaron Blake, *The Dangerous Game Tucker Carlson is Playing on Vaccines*, Washington Post (March 16, 2021), available at: <https://www.washingtonpost.com/politics/2021/03/16/dangerous-game-tucker-carlson-is-playing-vaccines/> On Berenson, see: Derek Thompson, *The Pandemic's Wrongest Man*, The Atlantic (April 1, 2021) available at: <https://www.theatlantic.com/ideas/archive/2021/04/pandemics-wrongest-man/618475/> Hosting Kennedy: Jake Lahut and Aria Bendix, *Tucker Carlson Airs COVID-19 Conspiracy Ridden Segment with RFK Jr.*, BUSINESS INSIDER (Nov. 16, 2021), <https://www.businessinsider.com/tucker-carlson-air-covid-conspiracy-interview-with-rfk-jr-2021-11> On Kennedy's anti-vaccine activism: Michelle R. Smith, *How a Kennedy Built an Anti-Vaccine Juggernaut Amid COVID-19*, AP NEWS (December 15, 2021), <https://apnews.com/article/how-rfk-jr-built-anti-vaccine-juggernaut-amid-covid-4997be1bcf591fe8b7f1f90d16c9321>

<sup>76</sup> John Culhane, *Fox News Could be Sued if Its Anti-Vax Statements Caused People to Die*. SLATE (July 23, 2021), available at: <https://slate.com/news-and-politics/2021/07/fox-news-tucker-carlson-vaccine-lawsuit.html> This article is 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.



This gave anti-vaccine claims much broader reach than they have 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 or legislatures have taken the mantle of resisting vaccines mandates, often repeating anti-vaccine claims in an effort to support measures to limit vaccines mandates, amplifying the claims.<sup>77</sup>

This has a cost; since the unvaccinated are much more likely to be hospitalized and die from COVID-19, and since vaccine uptake is lower among conservatives, in the United States we are, painfully, seeing more deaths and harms in counties that lean Republican.<sup>78</sup>

Together, all of 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 this, and used its usual tactics to reach a broader audience. The supply side – anti-vaccine behavior – has not changed. The demand, however, increased dramatically.

## **II.b The Anti-Vaccine Playbook and COVID-19**

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<sup>77</sup> Reiss, Laws Prohibiting mandates, *supra*. Abigail Censky and Katarina Sostaric, *Republicans Are Changing State Laws to Try to Get Out of Federal Vaccine Mandates*, NPR (Nov. 22, 2021), <https://www.npr.org/2021/11/22/1057427047/republicans-are-changing-state-laws-to-try-and-get-out-of-federal-vaccine-mandat>

<sup>78</sup> Don Albrecht, *Vaccination, Politics and COVID-19 Impacts*, 22 BMC PUB. HEALTH 96 (2022), <https://bmcpublihealth.biomedcentral.com/articles/10.1186/s12889-021-12432-x> Daniel Wood, Geoff Brufiel *Pro-Trump Counties Now Have Far Higher COVID Death Rates. Misinformation is to Blame*. NPR (Dec. 5, 2021), available at: <https://www.npr.org/sections/health-shots/2021/12/05/1059828993/data-vaccine-misinformation-trump-counties-covid-death-rate>

This section will demonstrate that 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 used about previous vaccines.

As for the pre-pandemic playbook, although this analysis will focus on United States anti-vaccine organizations, it's important to remember that anti-vaccine misinformation travels – both ways. The themes created in the United States reach abroad,<sup>79</sup> and misinformers from abroad – like Dr. Michael Yeadon from the UK<sup>80</sup> or Jessica Rose from Canada or Israel<sup>81</sup> – influence the United States.

As part I sets out, the five themes are that the diseases are not as bad as public health actors present them, that the vaccines are bad, that there are alternative to vaccines, that claims to the contrary are the result of a conspiracy, and that 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.<sup>82</sup> Anti-vaccine activists also used the rhetorical gambit of describing

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<sup>79</sup> Sander van der Linden, Jon Roozenbeek and Josh Compton, *Inoculating Against Fake News About COVID-19*, 11 *Frontiers in Psychology* (2020) available at: <https://www.frontiersin.org/article/10.3389/fpsyg.2020.566790>; Paul Adepoju, *Africa is Waging a War on COVID Anti-Vaxxers*, 27 *Nature Medicine* 1122, 1123 (2021).

<sup>80</sup> Steve Stecklow and Andrew Macaskill, *The Ex-Pfizer Scientist Who Became an Anti-Vax Hero*. Reuters (March 18, 2021) available at:

<sup>81</sup> Orac, *2021: The Year Weaponization of VAERS Went Mainstream*, *Respectful Insolence* (Dec. 27, 2021) available at: <https://respectfulinsolence.com/2021/12/27/2021-the-year-the-weaponization-of-vaers-went-mainstream/>

<sup>82</sup> Tara C. Smith and Dorit Rubinstein Reiss, *Digging the Rabbit Hole, COVID-19 Edition: Anti-Vaccine Themes and the Discourse Around COVID-19*. 22 *Microbes Infect.* 608, 608-609. <https://www.sciencedirect.com/science/article/pii/S1286457920302021?via%3Dihub>

COVID-19 as a “cold”. Perhaps the most blatant example is anti-vaccine activists Del Bigtree, who told his followers, in June 2020, that “it’s a common cold for 99.74% 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 20% 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!<sup>83</sup>

Accompanying that – and another theme that runs through anti-vaccine claims – was the view that COVID-19 is only a risk to those with comorbidities, and a sub-theme was the fact 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 65—not just because you’re over the age of 65, 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. And I want to talk about this for one minute as we close this down. That 0.26% are the most sick among us, and I have nothing against you. Go ahead and bubble wrap your house. Lock yourself in your basement. Go and do what’s necessary.

But here’s the problem. 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. You were eating that all the time. You probably were drinking a lot of alcoholic beverages and really liked to party and enjoyed your cigarettes and said to yourself, “You know what? It’s more about the quality of my life right now. I don’t care if I live to be 100 years old. I want to enjoy my life right now. I like the finer things in life. I like good rich food. I like smoking a cigarette once in a while. I like to drink my drinks.” And you know what? Good on you! That’s the United States of America. No problem, that, some of my best friends think like that. It’s great, and they’re fun to hang out with. 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

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<sup>83</sup> Orac, ‘*We need to Catch that Cold!*’: *Antivaxxers and COVID-19 Deniers vs. Public Health*, Respectful Insolence (June 29, 2020) available at: <https://respectfulinsolence.com/2020/06/29/antivaxxers-covid-19-deniers-public-health/>

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. You decided that the moment mattered, and now you find yourself pharmaceutical-dependent, which is really what that 0.26% is, and that's OK too. Thank God there's drugs out there! There's drugs that allow you to eat the Philly cheesesteak even though your body knows it hates it, but, go ahead, take the Prilosec. What difference does it make? Drug yourself! Drug yourself! Get through the day! Don't exercise! Maybe just attach an electrode and see if a little electricity to the stomach will give you the abs you want.

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.

This is, of course, problematic, in multiple ways. 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.<sup>84</sup> A disease that killed over five million people worldwide, hundreds of thousands in the United States is not a cold, and that does not even count COVID-19 long-term harms, not all of which may be known yet.<sup>85</sup> COVID-19 also had real disparities across racial groups, reflecting a history of racial disparities in socio-economic conditions in the United States, rather than choices.<sup>86</sup> On a similar theme, many comorbidities are more the result of the social determinants of health in the United States than any clear choice.<sup>87</sup>

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<sup>84</sup> Jared Ortaliza et al., *COVID-19 Preventable Mortality and Leading Cause of Death Ranking*, HEALTH SYSTEM TRACKER (December 10, 2021) <https://www.healthsystemtracker.org/brief/covid19-and-other-leading-causes-of-death-in-the-us/>

<sup>85</sup> E.g., Michael Marshall, *The Lasting Misery of Coronavirus Long-Haulers*, 585 NATURE 339 (2020); Constantino Iadecola, Joseph Anrather and Hoorman Kamel, *Effects of COVID-19 on the Nervous System*. 183 CELL 16, 16-19 (2020).

<sup>86</sup> Katherine Mackey et al., *Racial and Ethnic Disparities in COVID-19-Related Infections, Hospitalizations and Deaths*, 174 ANNALS OF INTERNAL MED. 362, 362-365 (2021). Govind Persad, *Allocating Medicine Fairly in an Unfair Pnadmeic*, 2021 U. ILL. L. REV. 1085, 1086-1087 (2021).

<sup>87</sup> 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. HEATLH POL'Y, L. ETHICS 123, 126-128 (2020)

While Mr. Bigtree’s claims were extreme, they echo claims made by other anti-vaccine activists and picked up by mainstream media. The antivaccine organization Children’s Health Defense also argued that the risks of COVID-19 were small to anyone but the elderly and ill (implying those groups matter less) during 2020.<sup>88</sup> 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 from COVID-19, and the death rate in the population as a whole is likely lower than 1%, but that does not capture a full picture.<sup>89</sup> First, a death rate of 1:500 or even 1:1000 – let alone 1: 100 – is a high death rate in modern times; measles, the most serious of the rash childhood diseases, kills about one in a thousand in developed countries, and that is a high number.<sup>90</sup> Our medical treatment is good enough today that people do not die very often from a preventable disease. Further, that does not capture the rate of non-fatal harms, and those are high with COVID-19.<sup>91</sup> The percentage of unvaccinated patients hospitalized can be above 30% in some groups (though certainly not all groups), and there are real racial disparities there.<sup>92</sup> The disease can affect many

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<sup>88</sup>H. Ealy et al., *COVID-19... Have You Heard? There is Good News*, CHILDREN’S HEALTH DEFENSE (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?*, CHILDREN’S HEALTH DEFENSE (July 2, 2020), <https://childrenshealthdefense.org/news/are-children-really-recovering-99-9584-of-the-time-from-covid-19/>

<sup>89</sup> 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 and Jude Joffe-Block, *Survival Rates for COVID-19 Misrepresented in Posts*, AP NEWS (July 23, 2021) <https://apnews.com/article/fact-checking-970830023526>

<sup>90</sup> *Complications of Measles*, CENTERS FOR DISEASE CONTROL AND PREVENTION (Nov. 5, 2020) <https://www.cdc.gov/measles/symptoms/complications.html>

<sup>91</sup> *Id.*

<sup>92</sup> 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) and *Disparities in COVID-19 Associated Hospitalizations*, CENTER FOR DISEASE CONTROL AND PREVENTION (Mar. 1, 2020), <https://www.cdc.gov/coronavirus/2019-ncov/community/health-equity/racial-ethnic-disparities/disparities-hospitalization.html>. Vaccinated patients are a lot less likely to be hospitalized. León TM, Dorabawila V, Nelson L, 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 MORBIDITY & MORTALITY WKLY. REP. 125 (2022).

DOI: <http://dx.doi.org/10.15585/mmwr.mm7104e1>; 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 MORBIDITY & MORTALITY WKLY. REP. 139 (2022), DOI: <http://dx.doi.org/10.15585/mmwr.mm7104e3>

systems, and can have long-term complications (with different degrees of severity) in over 20% of patients or more, and we still do not know the extent of the harm.<sup>93</sup>

Other ways to downplay the disease – on a similar theme – was to claim case numbers are manipulated by misuse of PCR testing, and this claim, too, is untrue.<sup>94</sup>

## **Playbook Theme 2: COVID-19 Vaccines Are Dangerous**

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. At the extreme, anti-vaccine groups have claimed that people who have not actually died died from COVID-19 vaccines.<sup>95</sup> Less extremely, anti-vaccine groups have attributed to COVID-19 vaccines deaths with no evidence – for example, the anti-vaccine groups blamed Hank Aaron’s death on vaccines.<sup>96</sup>

A major anti-vaccine argument throughout the pandemic was misrepresentation of Vaccine Adverse Events Reporting System (VAERS) reports as showing actual vaccines harms.<sup>97</sup>

VAERS is a passive reporting system into which anyone can report anything, and which is used

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<sup>93</sup> Amor D. Desai et al., *Long-term Complications of COVID-19*, 322 AM. J. PHYSIOL CELL PHYSIOL C1, C1-C5 (2022).

<sup>94</sup> 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 FACT CHECK (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/>

<sup>95</sup> Dorit Rubinstein 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/>

<sup>96</sup> Rick Rojas and Denise Grady, *Fact Check: Hank Aaron’s Death Was Not Related to COVID-19*, NY TIMES <https://www.nytimes.com/2021/01/31/us/hank-aaron-death-covid-vaccine.html>

<sup>97</sup> Shayla Love and 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>

to generate safety signals – to warn if there’s an unusual pattern that may suggest a vaccine risk.<sup>98</sup> 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.<sup>99</sup> But anti-vaccine activists use VAERS numbers to – falsely - claim high levels of vaccines harms from COVID-19 vaccines.<sup>100</sup> As mentioned above, this is a tactic used before COVID-19 and continued – and it’s highly effective.

Other claims abound. Anti-vaccine activists have – wrongly—claimed COVID-19 vaccines alter the recipient’s DNA,<sup>101</sup> cause infertility,<sup>102</sup> cause miscarriages,<sup>103</sup> and more. Implied in these claims is the claim that risks are hidden. In reality, when risks are discovered, they are front page news and agencies take action. For example, when J&J’s COVID-19 vaccines were linked to blood clots, agencies put the vaccine on halt until it was investigated,<sup>104</sup> and later recommended mRNA vaccines over the J&J vaccine – even though the harms, though very serious, were

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<sup>98</sup> Tom T. Shimabukuro et al., *Safety Monitoring in the Vaccine Adverse Event Reporting System*, 33 VACCINE 4398, 4398-4400 (2015).

<sup>99</sup> *Id.* at 4401-03.

<sup>100</sup> Love and Merlan, *supra* note ##.

<sup>101</sup> *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>

<sup>102</sup> Catalina Jaramillo, *No Evidence Vaccines Impact Fertility*, FACTCHECK.ORG (Aug. 16, 2021),

<https://www.factcheck.org/2021/02/sci-check-no-evidence-vaccines-impact-fertility/>; David Gorski, *It was Inevitable that Antivaxxers 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/>

<sup>103</sup> Vivian Lam, *Fact-Check: COVID-10 vaccination does not bring increased risk of miscarriage*, AUSTIN AMERICAN STATESMAN: POLITIFACT (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. Shimabukuro et al. *Preliminary Findings of mRNA COVID-19 Vaccine Safety in Pregnant People*. 384 N. ENG. J. MED. 2273, 2274-2275 (2021).

<sup>104</sup> <https://www.theguardian.com/us-news/2021/apr/23/johnson-and-johnson-covid-vaccine-cdc-warning-label>

rare.<sup>105</sup> Similarly, rare cases of myocarditis from mRNA vaccines were tracked – and publicized – from early on.<sup>106</sup>

Anti-vaccine activists also present the very real 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 liability of manufacturers, distributors and administrators of countermeasures against the COVID-19 pandemic.<sup>107</sup> The declaration almost completely immunizes these actors from regular tort liability, and would include vaccines.<sup>108</sup> The immunity comes with a compensation program, but that program is hard to use, and requires a high level of proof.<sup>109</sup> I have expressed my views before that the program is too limited, and that the rare cases of serious vaccines harms deserve generous, fast compensation.<sup>110</sup> A recent article in National Geographic did a thorough job highlighting the program’s limits and issues, too.<sup>111</sup> But that does not make the anti-vaccine claims true. There is extensive and growing evidence that COVID-19 vaccines are extremely

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<sup>105</sup> 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/>

<sup>106</sup> 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/>

<sup>107</sup> *Declaration Under the Public Readiness and Emergency Preparedness Act for Medical Countermeasures*, FEDERAL REGISTER (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 N. ENGL. J. MED. e34 (2021).

<sup>108</sup> I addressed this in a lay-friendly fashion here: <https://www.skepticalraptor.com/skepticalraptorblog.php/legal-review-of-covid-19-vaccine-liability-explanation-of-issues/>

<sup>109</sup> Tassel et al., *supra note* ##, e34.

<sup>110</sup> Dorit Rubinstein Reiss, *Congress Should Enact No-Facult 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/>  
<https://www.barrons.com/articles/serious-vaccine-side-effects-rare-compensation-51631817255?tesla=y>

<sup>111</sup> Tara Haelle, *Why is it so Hard to Compensate People for Serious Vaccine Side Effects?* Nat. Geo. (March 11, 2022) available at: <https://www.nationalgeographic.com/science/article/why-is-it-so-hard-to-compensate-people-for-serious-vaccine-side-effects>



safe, based on monitoring of millions of people.<sup>112</sup> The vaccines may not be as effective as initially hoped, but they substantially reduce rates of cases, hospitalizations and deaths from COVID-19.<sup>113</sup>

### **Playbook Theme 3: There are alternatives to Vaccines**

While arguing against COVID-19 vaccines, anti-vaccine activists have argued that there are alternatives. The alternatives they highlight are not, however, products approved or recommended to treat COVID-19, like Pfizer’s pill Paxlovid or monoclonal antibodies.<sup>114</sup> Instead, anti-vaccine groups promote treatments that, at best, have no good evidence for effectiveness against COVID-19, and at worse, have evidence suggesting that they do not work. Early in the pandemic, anti-vaccine activist Larry Cook – owner of the (since closed) anti-vaccine group Stop Mandatory Vaccine – promoted – and sold – vitamins as a cure or preventive

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<sup>112</sup> Nicola P. Klein et al., *Surveillance for Adverse Events After COVID-19 mRNA Vaccination*, 326 JAMA 1390 (2021); Kimberly G. Blumenthal, Neelam A. Phadke, and David W. Bates, *Safety Surveillance of COVID-19 mRNA Vaccines Through the Vaccine Safety Datalink*, 326 JAMA 1375 (2021). More generally, see *Safety of COVID-19 Vaccines* CENTERS FOR DISEASE CONTROL AND PREVENTION (Mar. 14, 2022) <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/safety/safety-of-vaccines.html>

<sup>113</sup> *Rates of laboratory-confirmed COVID-19 hospitalizations by vaccination status*, CENTERS FOR DISEASE CONTROL AND PREVENTION (updated daily) <https://covid.cdc.gov/covid-data-tracker/#covidnet-hospitalizations-vaccination>; Tomás M. Leon et al., *COVID-19 Cases and Hospitalizations by COVID-19 Vaccination Status and Previous COVID-19 Diagnosis – California and New York, May–November 2021*, CENTERS FOR DISEASE CONTROL AND PREVENTION (Jan. 28, 2022) <https://www.cdc.gov/mmwr/volumes/71/wr/mm7104e1.htm>

<sup>114</sup> *Coronavirus (COVID-19) Update: FDA Authorizes First Oral Antiviral Treatment for COVID-19*, U.S. FOOD & DRUG ADMINISTRATION (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 ADMINISTRATION (Jan. 27, 2021) [https://www.fda.gov/consumers/consumer-updates/know-your-treatment-options-covid-19#:~:text=The%20FDA%20has%20approved%20the,Emergency%20Use%20Authorization%20\(EUA\)%20](https://www.fda.gov/consumers/consumer-updates/know-your-treatment-options-covid-19#:~:text=The%20FDA%20has%20approved%20the,Emergency%20Use%20Authorization%20(EUA)%20)

against covid-19.<sup>115</sup> Other groups promoted Miracle Mineral Supplement, MMS, which is, essentially industrial strength bleach.<sup>116</sup>

But the most widespread claims focused on products that legitimate doctors and scientists raised as potential treatments for COVID-19, but that ended up not having data to support them.

Hydroxychloroquine was initially thought to have the potential to help COVID-19 by suppressing the body's immune response – by preventing the body's immune system from overreacting to the virus and causing additional harm, and at first, there was what looked like promising early data for it.<sup>117</sup> Alas, the promise did not pan out: more extensive data found that it has no effectiveness against COVID-19.<sup>118</sup>

Ivermectin, too, had initial promising results in cells, but later data did not find real support for its use to treat COVID-19,<sup>119</sup> and worse, several of the studies that did suggest it works turned out to be either highly flawed or outright fraudulent.<sup>120</sup>

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<sup>115</sup> Brandy Zadrozny, *In Facebook Groups, Coronavirus Misinformation Thrives Despite Broader Crackdown*, NBC NEWS (Mar. 6, 2020) <https://www.nbcnews.com/tech/social-media/facebook-groups-coronavirus-misinformation-thrives-despite-broader-crackdown-n1151466>

<sup>116</sup> 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/> 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*, U.S. FOOD & DRUG ADMINISTRATION (Aug. 12, 2019) <https://www.fda.gov/news-events/press-announcements/fda-warns-consumers-about-dangerous-and-potentially-life-threatening-side-effects-miracle-mineral>

<sup>117</sup> Zelyn Lee et al., *The Rise and Fall of Hydroxychloroquine for the Treatment and Prevention of COVID-19*, 104 AM. J. TROP. MED. HYG 35, 35-37 (2021). David Gorski, *Hydroxychloroquine and the Price of Abandoning of Science-and Evidence-Based Medicine*, SCI. BASED MED. (April 27, 2020) <https://sciencebasedmedicine.org/hydroxychloroquine-ebm-sbm/>

<sup>118</sup> Lee et al., *id.* at 35-36.

<sup>119</sup> Maria Popp et al., *Ivermectin for Preventing and Treating COVID-19*, Cochrane Database of Systematic Reviews 2021, Issue 7. Art. No.: CD015017. DOI: 10.1002/14651858.CD015017.pub2. Accessed 31 January 2022.

<sup>120</sup> Gideon Meyerowitz-Katz, 'Science is Flawed': COVID-19, Ivermectin and Beyond, MEDICAL NEWS TODAY (Dec. 11, 2021) <https://www.medicalnewstoday.com/articles/science-is-flawed-covid-19-ivermectin-and-beyond> And see for details: <https://respectfulinsolence.com/2021/10/18/ivermectin-is-the-new-hydroxychloroquine-take-7/> <https://respectfulinsolence.com/2021/09/08/ivermectin-is-the-new-hydroxychloroquine-take-6-more-fraud/>

Nonetheless, anti-vaccine activists continue to argue for both treatments. In an article by the anti-vaccine organization, Children’s Health Defense, from October 2021 about Nebraska’s Attorney General’s decision to allow doctors to prescribe HCQ and Ivermectin for COVID-19, the author said:

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.<sup>121</sup>

In spite of the data, the author is clearly suggesting both medications can be used for COVID-19. They are certainly not alone. Anti-vaccine groups promote these treatments, especially ivermectin, as life-saving.<sup>122</sup>

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

#### **Playbook Theme 4: There’s a conspiracy: They are Coming for You**

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<sup>121</sup> 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,’* CHILDREN’S HEALTH DEFENSE (Oct. 18, 2021) <https://childrenshealthdefense.org/defender/nebraska-ag-doug-peterson-legal-opinion-ivermectin-hcq-covid/>

<sup>122</sup> Pien Huang, *How Ivermectin became the New Focus of the Anti-Vaccine Movement*, NPR (Sept. 19, 2021) <https://www.npr.org/sections/health-shots/2021/09/19/1038369557/ivermectin-anti-vaccine-movement-culture-wars>  
Ben Collins and Brandy Zadrozny, *Clamoring for Ivermectin, Some Turn to a pro-Trump Telemedicine Website*, NBC NEWS (Aug.26, 2021) <https://www.nbcnews.com/tech/tech-news/ivermectin-demand-drives-trump-telemedicine-website-rcna1791>

From early on, anti-vaccine activists claimed that COVID-19 was a conspiracy to harm people. Del Bigtree made the claim on his show.<sup>123</sup> 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.”<sup>124</sup> 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. Other articles by the group suggested that the idea of indemnifying manufacturers for liability is part of a conspiracy,<sup>125</sup> and that vaccines passports are part of a plan to “facilitate our transition to [Bill Gates’] surveillance society.”<sup>126</sup>

Although not initiated by the regular anti-vaccine groups, nothing shows the importance of conspiracy theories to the movement like the term “Plandemic”.<sup>127</sup> 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).<sup>128</sup> On May 4, 2020 a film with the same name was released online. The film featured Judy Mikovitz, who has long been an anti-vaccine activist.<sup>129</sup> Mikovitz has participated in anti-vaccine rallies in the past – for example, in 2016,<sup>130</sup> and multiple times in

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<sup>123</sup> Smith and Reiss, *supra note* ##.

<sup>124</sup> Vera Sharav, *Coronavirus Provides Dictators and Oligarchs with a Dream Come True*, CHILDREN’S HEALTH DEFENSE (April 9, 2020) <https://childrenshealthdefense.org/news/coronavirus-provides-dictators-and-oligarchs-with-a-dream-come-true/>

<sup>125</sup> *Here’s why Bill Gates wants indemnity... Are you willing to take the risk?* CHILDREN’S HEALTH DEFENSE (April 11, 2020) <https://childrenshealthdefense.org/news/heres-why-bill-gates-wants-indemnity-are-you-willing-to-take-the-risk/>

<sup>126</sup> Robert F. Kennedy, Jr., *Yes, Bill Gates Said That. Here’s the Proof.*, CHILDREN’S HEALTH DEFENSE (Dec. 11, 2020) <https://childrenshealthdefense.org/defender/yes-bill-gates-said-that/>

<sup>127</sup> Matthew D. Kearney, Shawn C. Chiang, Philip M. Massey, *The Twitter Origins and Evolution of the COVID-19 “plandemic” Conspiracy Theory*, MISINFORMATION REVIEW (Oct. 9, 2020) <https://misinforeview.hks.harvard.edu/article/the-twitter-origins-and-evolution-of-the-covid-19-plandemic-conspiracy-theory/>

<sup>128</sup> *Id.*

<sup>129</sup> David Gorski, *Plandemic: Judy Mikovitz and the Mother of All COVID-19 Conspiracy Theories*, SCI. BASED MED. (May 8, 2020) <https://sciencebasedmedicine.org/plandemic-judy-mikovitz-covid-19/>.

<sup>130</sup> See <https://vaccinefreedomutah.com/?paged=2>

2017.<sup>131</sup> In 2019 she testified in vaccine court in support of the extreme claim that the vaccine a boy received as an infant caused his cancer at the age of thirteen, and her testimony was found non-credible.<sup>132</sup> 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.<sup>133</sup> *Plandemic* was a conspiracy theory through and through, and went viral.<sup>134</sup>

### **Playbook Theme 5: It's about Civil Rights**

The most recent example of claiming that the issue is really 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 Holocaust.<sup>135</sup>

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.”<sup>136</sup> On May 3,

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<sup>131</sup> *Revolution for Truth Organizes Rally in Washington DC for March 31*, BENZINGA (Mar. 28, 2017) <https://www.benzinga.com/pressreleases/17/03/p9226695/revolution-for-truth-organizes-rally-in-washington-dc-on-march-31>; see <https://www.texasrighttoknow.com/stop-forced-vaccines> (same symposi

<sup>132</sup> Dorit Rubinstein Reiss, *Vaccines did not cause cancer in the son of Dr. Theresa Deisher*, THE SKEPTICAL RAPTOR (Aug. 4, 2019) <https://www.skepticalraptor.com/skepticalraptorblog.php/vaccines-cause-cancer-son-theresa-deisher/>

<sup>133</sup> Gorski, *supra* note 129. Gorski documents the other problematic claims in the movie and explains why they're incorrect.

<sup>134</sup> *Id.* Kearney et al., *supra* note 127.

<sup>135</sup> Tim Marchman, *At DC Rally, Anti-Vaxxers Claim the Legacy of Slavery and the Holocaust (Again and Again and Again)*, VICE (Jan. 25, 2022) <https://www.vice.com/en/article/qjbzkd/at-dc-rally-antivaxxers-claim-the-legacy-of-slavery-and-the-holocaust-again-and-again-and-again>

<sup>136</sup> Smith and Reiss, *supra* note ##.

2020 an anti-vaccine panel – summarized on the Children’s Health Defense’s website – alleged that the pandemic threatened civil liberties multiple times.<sup>137</sup>

The public health measures taken during the COVID-19 pandemic certainly implicated civil rights.<sup>138</sup> But the combination of the claim and anti-vaccine misinformation in each of these cases suggests that civil rights claims are used to mask opposition to vaccine. The civil right the speakers stand for is one, and one only: the freedom not to vaccinate. Unsurprisingly, actual civil rights activists have, in the past, criticized this cooption of the civil right theme for anti-vaccine efforts.<sup>139</sup>

### **Pulling it together:**

This section documented that 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 hidden, and blaming 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.

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<sup>137</sup>*The Truth About Vaccines 2020—Vaccine Roundtable Part 2, Video and Transcript*, CHILDREN’S HEALTH DEFENSE (May 14, 2020) <https://childrenshealthdefense.org/news/the-truth-about-vaccines-2020-vaccine-roundtable-part-2-video-and-transcript/>

<sup>138</sup> Lindsay F. Wiley and 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/>

<sup>139</sup> Mackenzie Mays, *Anti-vaccine Protesters are Likening Themselves to Civil Right Activists*, POLITICO (Sept. 9, 2019), <https://www.politico.com/story/2019/09/18/california-anti-vaccine-civil-rights-1500976> Erin Schumaker, *Anti-vaccine Leaders Targeting Minority Becomes Growing Concer at NYC Forum*, ABC NEWS (Nov. 10, 2019) <https://abcnews.go.com/Health/rfk-jrs-york-city-vaccine-forum-highlights-concerns/story?id=66158336> Will Stone, *An Anti-Vaccine Film Targeted to Black Americans Spreads False Information*, NPR (June 8, 2021) <https://www.npr.org/sections/health-shots/2021/06/08/1004214189/anti-vaccine-film-targeted-to-black-americans-spreads-false-information>

The arguments the anti-vaccine movement used did not change. But in a new environment, in a moment of vulnerability, the supply 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 online to great effect.<sup>140</sup> But most of their tactics were the same as pre-pandemic.

In a 2011 article, anthropologist Anna Kata set out a list of tactics and tropes used by the anti-vaccine movement.<sup>141</sup> Kata listed four tactics: skewing the science (rejecting science that go against anti-vaccine positions while embracing bad studies that support them), shifting hypotheses (moving the targets on claims of vaccines harms when the evidence goes against the previous claims), censorship (suppressing dissenting opinions) and attacking the opposition via personal insults and lawsuits.<sup>142</sup> With some differences, all but one of these tactics can be seen during the COVID-19 era. In addition, as before COVID-19, anti-vaccine activists make heavy use of anecdotes over data to scare people off vaccines.<sup>143</sup>

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<sup>140</sup> *The Anti-Vaxx Industry*, CENTER FOR COUNTERING DIGITAL HATE (last visited Mar. 18, 2022) <https://www.counterhate.com/anti-vaxx-industry>; Dan Milmo, *Anti-vaxxers making 'at least \$2.5m' a year from publishing on Substack*, THE 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> Smith, *supra* note ##; Michelle R. Smith, *How a Kennedy built an anti-vaccine juggernaut amid COVID-19*, AP NEWS (Dec. 15, 2021) <https://apnews.com/article/how-rfk-jr-built-anti-vaccine-juggernaut-amid-covid-4997be1bcf591fe8b7f1f90d16c9321e>

<sup>141</sup> 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, 3780-81 (2012).

<sup>142</sup> *Id.* at 3781-83.

<sup>143</sup> Ashley Shelby and Karen Ernst, *Story and science: how providers and parents can utilize storytelling to combat anti-vaccine misinformation*. 9 HUMAN VACCINES & IMMUNOTHERAPEUTICS, 1795, 1796 (2013).

To skew the science, anti-vaccine activists built up their own experts, many without relevant qualifications. In the early days of the pandemic we described anti-vaccine activist Del Bigtree's efforts to do that thus:

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."<sup>144</sup>

Since we wrote the article, other experts have come to the forefront in anti-vaccine circles. For example, in the time since Mr. Bigtree has repeatedly interviewed Dr. Geert Vanden Bossche, who has become popular in anti-vaccine circles after claiming COVID-19 vaccines are dangerous.<sup>145</sup> Another popular voice is Dr. Robert Malone, who claimed to have invented mRNA.<sup>146</sup> These are not the only new experts, but they show the idea: draw on experts that say

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<sup>144</sup> Smith and Reiss, *supra* note 54 (footnotes omitted).

<sup>145</sup> 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> <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-vanden-bossches-dubious-viral-open-letter-warning-against-mass-covid-19-vaccination/>

<sup>146</sup> Tom Bartlet, *The Vaccine Scientist Spreading Vaccine Misinformation*, THE ATLANTIC (Aug. 12, 2021) <https://www.theatlantic.com/science/archive/2021/08/robert-malone-vaccine-inventor-vaccine-skeptic/619734/> <https://www.politifact.com/article/2022/jan/06/who-robert-malone-joe-rogans-guest-was-vaccine-sci/>



what the anti-vaccine groups want to hear, ignore experts who disagree, even if more qualified or numerous.

In addition, as in the past, anti-vaccine activists use dubious studies to support their claims. The anti-vaccine acceptance of the less strong science supporting hydroxychloroquine and Ivermectin over the better studies showing they do not work was discussed above. Another example is a study used by anti-vaccine activists to allege COVID-19 vaccines do not work. The study alleged that a review of sixty-eight countries and 2947 counties in the United States found a negative correlation between vaccines rates and COVID-19 cases – implying that vaccines increase, rather than decrease, infection.<sup>147</sup> The authors 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<sup>148</sup>). But the article was taken up by anti-vaccine sites. The paper was highly problematic. Among the problems, it did not provide criteria for choosing the countries and omitted some obvious candidates with high vaccines rates, like the UK, Germany, and France, suggesting cherry picking of countries; it ignored differences in testing rates and the capacity of the health system to find and report, which could strongly affect rates of cases found; and it did not account for the potential complexity in comparing different countries on a topic like this.<sup>149</sup> All of these problems make this analysis non-reliable, but it was widely shared on anti-vaccine sites.

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<sup>147</sup> 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).

<sup>148</sup> David Gorski, *Ecological fallacy: When a scientist (inadvertently, I hope) uses a favorite antivax form of study*, RESPECTFUL INSOLENCE (Oct. 13, 2021) <https://respectfulinsolence.com/2021/10/13/ecological-fallacy-covid-19-vaccination/>

<sup>149</sup> *Id.*; *COVID infection rates are NOT unrelated to vaccines – debunking research*, The Skeptical Raptor (Dec. 6, 2021) <https://www.skepticalraptor.com/skepticalraptorblog.php/covid-infection-rates-are-not-unrelated-to-vaccines-debunking-research/>

Shifting hypotheses is also common. Anti-vaccine activists move fast. Until the FDA approved the first COVID-19 vaccine, Pfizer’s vaccine, on August 23, 2021 the anti-vaccine narrative focused on the vaccines being “experimental”.<sup>150</sup> Once the vaccine was approved, the anti-vaccine discussion pivoted to claiming the vaccine approved was not available in the United States, so the vaccine available in the United States – even though it was, as FDA explained, functionally interchangeable – was still experimental.<sup>151</sup> Simultaneously, and in contrast, anti-vaccine activists also petitioned FDA to withdraw the Emergency Use Authorization to other COVID-19 vaccines.<sup>152</sup>

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 neverending stream of claims.

The one tactic anti-vaccine activists no longer use – or at least, not as openly – is censorship, because, removed from several platforms and seeking to expand their reach, they are alleging they are, censored, while still having multiple forums.<sup>153</sup>

On the other hand, anti-vaccine activists certainly target opponents. Extensive efforts were made by the anti-vaccine movement to attack Dr. Anthony Fauci and other public health officials during the pandemic.<sup>154</sup>

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<sup>150</sup>Dorit R. Reiss, Arthur Caplan, *Experimental? It Doesn’t Mean What You Think It Means*, Den. L. Rev. (Oct. 7, 2021) <https://www.denverlawreview.org/dlr-online-article/experimental-it-doesnt-mean-what-you-think-it-means>

<sup>151</sup> Dorit Rubinstein Reiss, *Vaccine licensing primes – correcting vaccine misinformation*, THE SKEPTICAL RAPTOR (Sept. 25, 2021) <https://www.skepticalraptor.com/skepticalraptorblog.php/vaccine-licensing-primer-correcting-anti-vaccine-misinformation/>

<sup>152</sup> Viridiana Ordonez, *FDA rejects ICAN petition to revoke EUAs issued for COVID vaccines*, THE SKEPTICAL RAPTOR (Nov. 3, 2021) <https://www.skepticalraptor.com/skepticalraptorblog.php/fda-rejects-ican-petition-to-revoke-of-euas-issued-for-covid-vaccines/>

<sup>153</sup> Dan Milmo, *supra* note ##

<sup>154</sup> Michelle M. Mello, Jeremy A. Greene and 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 UNIVERSITY: HUB (Feb. 25, 2021) <https://hub.jhu.edu/2021/02/25/bloomberg-we-stand-by-public-health/>; Kim Krisberg, *Threatened, harassed, doxed:*

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 mom alleges was injured from her Pfizer vaccine during the trial, but whose doctors diagnosed with conversion disorder.<sup>155</sup> Another heavily promoted story was of a woman called Shawn Skelton, who shared several video of herself shaking uncontrollably, and whose doctors, too, attributed the condition to stress, though she blamed COVID-19 vaccines.<sup>156</sup> This is not to doubt the suffering of these two people, which seems very real; but there is no real evidence to support the link to vaccines, and wrongly blaming vaccines would not help these people handle the issue, 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.<sup>157</sup> 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.<sup>158</sup>

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*Public health workers forge on—Security teams protecting health officers*, THE NATION’S HEALTH (Oct. 2021) <http://www.thenationshealth.org/content/51/8/1.1>

<sup>155</sup> 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>

<sup>156</sup> *Vera Files Fact Check: Videos of shaking woman ‘after COVID-19 vaccination’ misleading*, VERA FILES (Jan. 28, 2021) <https://verafiles.org/articles/vera-files-fact-check-videos-shaking-woman-after-covid-19-vaccine>

<sup>157</sup> Dorit Rubinstein Reiss, *COVID-19 Vaccines 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/>

<sup>158</sup> Diane Funke, *Fact-check: Did a Tennessee nurse develop Bell’s Palsy after getting the coronavirus vaccine?* Austin American-Statesmen (Dec. 31, 2020) <https://www.statesman.com/story/news/politics/2020/12/31/did-nurse-develop-bells-palsy-after-getting-covid-19-vaccine/4095565001/>

Use of unsupported, often non-credible anecdotes is usual in the anti-vaccine movement.<sup>159</sup>

## CONCLUSION:

Anti-vaccine activism is as old as vaccines.<sup>160</sup> 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.

Can this be reversed? Can the genie be put back in the bag? Maybe. On one hand, with a strong enough reality, anti-vaccine claims cannot keep 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 writing this, 80% of the United States population over five has received at least one dose of COVID-19 vaccines, and that may be enough to help reduce deaths and harms to levels that are not highly visible and do not risk overwhelming the already stretched healthcare system.<sup>161</sup> Cases are going down in the

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<sup>159</sup> Michael Davidson, *Vaccination as a cause of autism-myths and controversies*. 19 DIALOGUES IN CLINICAL NEUROSCIENCE, 403, 403-405 (2017).

<sup>160</sup> PAUL A. OFFIT, DEADLY CHOICES: HOW THE ANTI-VACCINE MOVEMENT THREATENS US ALL 108-119 (2010).

<sup>161</sup> *COVID Data Tracker*, CENTERS FOR DISEASE CONTROL AND Prevention (updated daily) <https://covid.cdc.gov/covid-data-tracker/#datatracker-home>

United States, though that could – as previous waves taught us – change.<sup>162</sup> 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, to less efforts to fix the harm misinformation caused, to people becoming entrenched in anti-vaccine views. That could harm us, going forward, in multiple ways. It could mean that come next pandemic, large segments of the population will be primed to believe anti-vaccine misinformation. It could also mean – and we are seeing some of that – that some states may roll back laws like school immunization requirements, creating a risk of return of preventable childhood vaccines.

We have our work cut out to help people climb out of the anti-vaccine rabbit hole.

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<sup>162</sup>Kaitlin Sullivan, *'An optimistic trend': Covi cases are falling, but U.S. isn't out of the woods yet*, NBC NEWS (Jan. 22, 2022) <https://www.nbcnews.com/health/health-news/omicron-wave-covid-cases-finally-peaked-us-rcna13103>