



JANUARY 23, 2022

Vaccine Hucksterism: VAERS and the War on Medical Science

BY ANTHONY DIMAGGIOImage by Ivan Diaz.

If 2020 was the year that broke America's brain with QAnon, "Big Lie" election propaganda, and Covid-19 misinformation, 2021 to 2022 have shown little signs of a return to sanity. On Covid-19, anti-vaxxer misinformation permeates political discourse. Twenty-seven percent of Americans had yet to be "fully" vaccinated by receiving at least two shots by January 2022, and the vast majority of these holdouts – more than 80 percent – said they didn't plan on getting vaccinated. The pandemic continues, despite many Americans talking about it as if it's in the past. Approximately three-in-ten Americans in mid-2021 falsely believed the

pandemic was over. Forty-five percent *acted* as if the pandemic was over, saying in late 2021 that they felt “safe enough to carry out everyday life largely the way it was before the pandemic.” This was up from 36 percent in late August to early September.

Anti-vaxxer disinformation activists are intensifying their attacks on medical efforts to combat the pandemic, utilizing pseudoscience to manipulate public opinion. One example is the perversion of the VAERS database, which is used to drum up opposition to vaccination against Covid-19. VAERS – the Vaccine Adverse Event Reporting System – is a data tool run by both the Centers for Disease Control and Prevention and the Food and Drug Administration. It was created in 1990 to provide citizens with one central location to report their experiences with potential side effects of vaccines. This database has become a key piece of “evidence” used by anti-vaxxers to cultivate public distrust of vaccines.

Anti-Vaxxerism: A Short History

The anti-vaxxer movement is not a new phenomenon. Its modern form was fueled by former physician Andrew Wakefield, who published a paper in 1998 in the medical journal *The Lancet* associating MMR (Measles, Mumps, and Rubella) vaccination with autism. Wakefield’s paper significantly damaged public vaccination efforts. Any scholar with minimal scientific training and working in the natural or social sciences should be able to spot the flaws in this “study.” For one, it was based on a miniscule sample of only 12 participants – of which 8 were described as autistic. This isn’t enough observations to conduct a proper test of whether the “findings” were significant, statistically speaking. Put another way, the claims presented by Wakefield and his co-authors were not authoritative, but anecdotal, because they were not representative of the mass public’s experiences with vaccines. Second, the sample of participants were not randomly selected, but cherry-picked by the authors to make their claim. Third, the results were merely speculative, with no compelling mechanism included in the publication to identify a causal relationship between vaccination and autism. Finally, Wakefield retained what appeared to be a blatant financial conflict of interest that he did not disclose, as he was funded by lawyers who represented the children in the paper, and who were trying to make a personal injury case that vaccination caused autism.

The backlash against Wakefield’s bogus work occurred on multiple fronts. Ten of the 12 co-authors of his paper retracted the claim that their work suggested a causal link between vaccination and autism. *The Lancet* retracted the piece entirely in 2010, implicating Wakefield and his co-authors in selecting cases to fit their hypothesis, and charging them with fraud. Subsequent medical research (see here and here) failed to uncover evidence of a link between MMR vaccination and autism. Wakefield was stripped of his license to practice medicine in his home country, the U.K.

Despite Wakefield's downfall, the anti-vaxxer movement continued to grow in the decades following his paper's publication. I recall the rise of this movement in detail during the 2010s, in part from news reports about unvaccinated parents threatening to unleash Measles on the U.S. public. One of my experiences with anti-vaxxerism traces back to my spouse's concerns immediately after our first son was born (in 2010) that MMR vaccination might be linked to autism. This was right at the time that *The Lancet* retracted the Wakefield "study," and many naturalistically oriented parents were not yet familiar with the anti-vaxxer con masquerading as science. My wife and I decided to get our son vaccinated, although we spread out the shots on a somewhat extended schedule – something we choose not to do with our second child after seeing all the metadata that vaccines were not associated with autism. Our experiences with the anti-vaxxer movement continued during our time living in central Illinois, with many of my wife's white Evangelical friends and acquaintances militantly opposed to vaccination, and subscribing to absurdist homeopathic "treatments" to protect their immune systems by drinking unpasteurized milk, inhaling and ingesting "essential oils," taking vitamins, and administering coffee enemas to "cleanse" themselves. Anti-vaccination often exists along with these and other quack treatments, as seen in the numerous disturbing home remedies against Covid-19, such as ingesting ivermectin, drinking disinfectants, or drinking one's own urine. All of this is another way of saying that the war against vaccines existed years before the rise of Covid-19 vaccines, with anti-vaxxers' attacks on this latest batch of mRNA vaccines being a preexisting opposition in search of a problem.

Mediated Disinformation: An Embarrassment to Science

Robert Kennedy Jr. and other prominent activists in the "disinformation dozen" operate largely out of social media, seeking to intensify public opposition to vaccination. They and other activists use the VAERS database to further their cause. Their dubious attacks were amplified when *Fox News* began flirting with anti-vaxxer propaganda. Most prominent are primetime hosts Tucker Carlson and Laura Ingraham. My review of the *Nexis Uni* academic database finds that, in 2021, *Fox* ran 19 stories referencing VAERS, most-all these stories in relation to Covid-19 vaccination. Of those stories, 15 of them were from Carlson (10) and Ingraham (5).

Fox programming that referenced VAERS did so in ways that were hostile to vaccination. Drawing on the VAERS database Tucker Carlson drew attention in late April 2021 to thousands of Americans (3,362) who "died after getting the COVID vaccine in the United States...That's an average of roughly 30 people every day" (5/5/2021). He speculated that "almost 4,000 people" died by early May "after getting the COVID vaccines" – while drawing on Department of Health and Human Services reporting that such incidents constituted

“fewer than one percent of vaccine adverse events” (5/5/2021). Speculating again, Carlson asked:

“So what is the real number of people who apparently have been killed or injured by the vaccines?...it’s clear that what is happening now, for whatever reason, is not even close to normal. It is not even close to what we see in previous years with previous vaccines. Most vaccines are not accused of killing large numbers of people...more people, according to VAERS have died after getting the shot in four months during a single vaccination campaign than from all other vaccines combined over more than a decade and a half. Chart that out. It’s a stunning picture” (5/5/2021).

Among the reported sicknesses, Carlson cited VAERS data on “strikingly high rates of myocarditis in young people who have been vaccinated” (6/10/2021).

Carlson’s efforts to stoke fears about Covid-19 grew worse in a short period of time. In June 2021, he announced:

“Between July 1, 1997 and the end of 2013, that’s five and a half years, there were 2,149 deaths reported in the U.S. for all vaccines combined on the VAERS system. Yet in just six months – the last six months – there have been more than 5,160 deaths associated with the COVID vaccines as reported to VAERS. That’s more than double the number of deaths in less than one-tenth the time. What does that mean? How do you explain that? Oh, but those numbers are wrong, said the usual liars with maximum hysteria” (6/11/2021).

Carlson’s comment about pro-vaccine “liars” was some remarkable chutzpah from a tabloidesque pundit whose own lawyers at *Fox News* argue in court that his and other *Fox* programs should not be taken seriously or literally since they are not based in fact and traffic in exaggeration. Still, disinformation actors’ attempts to use VAERS to drum up opposition to vaccination had a measurable effect. Google analytics reveal that public searches for “VAERS” quintupled between January and August 2021. This seems pretty obviously related to attempts to use the database to cultivate anti-vaxxer sentiment, considering the previously low-profile nature of the website before it was politicized during the pandemic.

As a social scientist who has for more than 20 years used empirical research methods and data, I find Tucker Carlson’s news segments to be highly embarrassing. He engages in profound and unfounded speculation and extreme misrepresentations of facts. Like many scoundrels, he pretends that he’s just “asking questions,” while clearly suggesting that vaccines are the cause of an intensifying public health crisis. For scientists – natural or social – this is a big taboo. When you’re doing research and making an argument, you offer a clearly articulated hypothesis that can be potentially confirmed or falsified, rather than dealing in innuendo. Carlson obviously prefers innuendo, because it allows him to gaslight critics who

point out he is stoking anti-vaxxerism. This point is most clear in his continued trafficking in baseless anti-vaccine fearmongering, coupled with his claim that he doesn't oppose vaccination. One can't have it both ways. In the social scientific world, you're either making an argument or you aren't. Carlson seems to think he can do both.

A second problem with Carlson's segments is that he infers causation when he's really just talking about correlation. The first lesson of an introductory graduate-level statistics class is not to confuse correlation with causation. Just because two things happen simultaneously or near each other, doesn't mean one caused the other. In this case, we're talking about a rise in reported deaths in the VAERS database among people who were vaccinated, compared to previous years. To claim that such observational data demonstrates causality between vaccination and death is pure folly.

To provide one example of the pitfalls of Carlson's behavior, I could point to my own son (now 11 years old), who was diagnosed with autism at the age of 3, right around the time he received numerous childhood vaccines. Had I wanted to claim that vaccination caused his autism, I could have. But there's little reason to take such a claim seriously. Just because these two things happened around the same time doesn't mean one caused the other. It could be a spurious (false) correlation – the term social scientists use to describe this kind of flawed thinking. The problem is that I didn't account for competing explanations for his condition. For example, medical studies have clearly linked autism to family genetics. And when considering evidence that vaccinated kids are no more likely to be diagnosed with autism than the unvaccinated, speculation that my son got it from an MMR vaccine is further undermined.

Moving from my story to hard data, the problem with Carlson's "correlation equals causation" position is that he's totally failed to account for fluctuations over time in the frequency of reporting of alleged side effects from vaccines. It may be that deaths reported in the VAERS database increased significantly (assuming his numbers are accurate) simply because the amount of reporting in the database in general is way up in the Covid-19 era. This is precisely what we find when looking at all the reported incidents on the website over the last two decades. While reports averaged about 13-14,000 a year in the early 2000s, the reported incidents increased to nearly 750,000 in 2021 – an increase of more than 53 times. Is it any surprise with that incredible growth that the number of reported deaths in VAERS, as Carlson tells his viewers, grew so much between the late 1990s and early 2020s? This is a really basic error for a natural or social scientist dealing in medical statistics to make, but apparently not much of a concern for a professional propagandist like Carlson.

As is widely recognized in journalistic accounts, the VAERS database is a potentially useful tool for identifying side effects from vaccines. But it's also susceptible to abuse and

manipulation, as the Carlson example demonstrates. The data is self-reported, so it's difficult to verify, looking at the reported data alone, whether the accounts are real or fabricated.

Additionally, it could be, and is the case, that the large majority of these deaths (80 percent) are among individuals 60 and older, who are already at dramatically heightened risk of death for many reasons compared to the rest of the population. Without controlling for these "other" reasons why people are dying, there is no case to be made that vaccines are causing these deaths.

Furthermore, the sample of Americans in the VAERS database, because it is self-reported, is subject to a basic selection bias problem. As a scholar of public opinion and politics, I've been professionally engaged in statistical analyses of polling data for more than 15 years. And as anyone with a working expertise on polling will tell you, there's a basic problem with the VAERS data because the sample in question is entirely self-selected. That means that it's comprised of people who have an interest in reporting their alleged (and unverified) side effects as potentially being caused by Covid-19 vaccination. These people could be accurately reporting a side effect from vaccination, or they could be misattributing a condition they suffer from to vaccination, or they could be exaggerating or lying entirely about an alleged condition. The possibility that many are liars is hardly an outlandish notion, considering that the public routinely exaggerates and misrepresents all types of responses in surveys, including their economic class status compared to their income, their likelihood of voting, and their level of attentiveness to politics and the news.

Finally, it's also possible that many of the people reporting to VAERS should not be taken seriously because they're completely out of their minds. Many in the database offer all types of absurdist claims linking Covid vaccines to conditions that have nothing to do with the shot. Looking at the VAERS database for "symptoms" reported throughout 2021 and early 2022, I saw individuals making many outlandish reports, with efforts to link vaccination to the following:

* Depression (2,063 people), dementia (254), deafness (1,400), crying (920), Crohn's disease (173), confusion (5,612), anxiety (8,181), spontaneous abortion (1,128), eating disorder (407), genital herpes (122), oral herpes (1,330), paranoia (139), hiccups (219), HIV (200), laziness (43), nightmares (482), nodules (1,310), menopause (131), seasonal allergies (169), suicidal thoughts/behavior (318), urinary tract infection (1,740), varicose veins (18), Covid-19 itself (33,362), and post-acute Covid-19/long Covid (277).

There was even a guy who claimed that Covid vaccination made him a homosexual.

On the problem of misreporting, medical experts have combed through the death reports, and find there is no compelling or established link between the vast majority of deaths and

vaccination.

It's one thing to recognize exaggerations and bogus claims in a low-stakes public opinion poll that overestimates one's class status, how much they vote, or consume the news. It's quite another to consider such self-reports as a serious source for making public health policy. Individuals reporting cases in the VAERS database are not representative of the entire population of those who are vaccinated. And without a scientific comparison of samples that are representative of the entire population of vaccinated and unvaccinated Americans, it's difficult to make arguments in relation to Covid-19 vaccines allegedly causing a rising number of deaths.

The Medical Evidence on Vaccines

We don't have to speculate on whether Tucker Carlson and other anti-vaxxers are right or not. There is a lot of scientific evidence that has been accumulated on the Covid-19 vaccines showing that they are safe and that serious side effects appear in a very small number of people. This is in contrast to Covid-19 itself, which causes serious side effects in much larger numbers, including about one in ten children and one in two adults contracting Covid who reportedly suffer from various "long-Covid" symptoms.

The major government scientific bodies responsible for assessing Covid vaccines express no concerns that the vaccines are hazardous to public health, or that they're linked to rapidly rising deaths. The VAERS website notes that its reports do not prove, suggest, or even imply a causal link between vaccination and increased likelihood of death or other serious side effects. Epidemiologists widely consider the website more of a "starting point" in looking for vaccine side effects, rather than a definitive source for demonstrating risks. The CDC unequivocally states that vaccines "are safe and effective," recommending that "everyone ages 5 years and older get vaccinated as soon as possible to protect against COVID-19 and its potentially severe complications." The CDC notes the scientific review of the vaccines was "the most intense safety monitoring program in U.S. history."

Looking at available statistics, we see the number of deaths among those who were reportedly vaccinated was 4,863 as of May 24, 2021, representing just 0.0017 percent of the 285 million people who've been vaccinated. And again, just because these individuals died doesn't mean they died from the vaccine. Furthermore, reporting demonstrates that the vast majority of hospitalizations and deaths from Covid-19 are among the unvaccinated, speaking to the very real and deadly risks associated with *not* getting vaccinated. It's difficult to discount the importance of these statistics as the U.S. approaches one million dead from Covid-19.

What about less severe and mild side effects from vaccination? Among the vaccinated, a large majority – three-quarters – report experiencing no side effects at all. Reports about specific side effects are deeply exaggerated. Despite concerns about heart problems and vaccination, recent research finds this condition appears among those receiving a Covid-19 vaccine in .00006 percent of cases. One medical study concludes that, among nearly 5 million cases examined, vaccinated Americans were *less* likely to suffer from Myocarditis (heart inflammation) compared to the unvaccinated. The CDC reports that those who contract Covid-19 are 16 times more likely to suffer from Myocarditis than those who didn't contract the virus. The CDC also concludes that other illnesses, including Guillain-Barré Syndrome, or GBS (an autoimmune disorder), Thrombosis (blood clots), and Anaphylaxis (a severe allergic reaction) are all incredibly rare, appearing in .0000169 percent (GBS), .000003 percent (Thrombosis), and .000005 percent (Anaphylaxis) of vaccinated individuals. As Danny Altmann, an immunology professor at Imperial College London summarizes, the results of “very large, peer-reviewed studies” suggest that “the overwhelming statistical case is that myocarditis, pericarditis [heart swelling], blood clots, strokes or heart attacks and death is massively skewed to those who are unvaccinated and become infected.”

Concerns with infertility from Covid-19 vaccination are also baseless. The American Academy of Pediatrics states such concerns are “unfounded” and have been “scientifically disproven”:

“There is no evidence that the vaccine can lead to loss of fertility...no loss of fertility has been reported among trial participants or among the millions who have received the vaccines since their authorization, and no signs of infertility appeared in animal studies... Similarly, there is no evidence that the Covid-19 vaccine affects puberty.”

The American College of Obstetricians and Gynecologists recommends women get vaccinated against Covid-19, stating that “Leading medical organizations have repeatedly affirmed that the Covid-19 vaccines have no impact on fertility.”

Finally, the CDC provides comprehensive assessments that vaccine side effects are mostly mild. Their data look at the percent of recipients who report “any” experience with various developments, and for different age groups (5 to 11, 12-15, 18 to 55, and 55+). Those effects include the following: redness (4 to 19 percent of vaccine recipients); swelling (5 to 15 percent); pain at injection site (two-thirds to 86 percent); fever (0-20 percent); fatigue (34 to 66 percent); headache (22 to 65 percent); chills (5 to 42 percent); vomiting (less than 1 to 3 percent); Diarrhea (5 to 11 percent); muscle pain (9 to 37 percent), and joint pain (3 to 22 percent).

The Consequences of Disinformation

The nation has a longstanding problem with bad faith actors muddying the water on the benefits of vaccination. Manipulation of the VAERS database is simply the latest part of this movement. Tens of millions of Americans have fallen into consuming and accepting Covid vaccine misinformation. Kaiser Family Foundation polling from late 2021 finds that two-thirds of parents of children 5 to 11 years old are worried “vaccines might negatively impact children’s fertility later on” in life. Of the more than quarter of the population in late 2021 who were unvaccinated, the biggest reasons cited for not getting the shot were that they “didn’t trust the federal government” (34 percent) and were “worried about the vaccine’s side effects” (34 percent). These responses suggest the public was suffering from a combination of medical confusion and misinformation on the one hand, and from rampant conspiratorialism on the other.

Kaiser Family Foundation polling from late 2021 finds millions of Americans were confused, misinformed, and conspiratorial on numerous fronts. Thirty-nine percent of Americans agreed (22 percent) or were unsure (17 percent) about whether “pregnant women should not get the COVID-19 vaccine”; 35 percent agreed (18 percent) or were unsure (17 percent) whether “deaths due to the COVID-19 vaccine are being intentionally hidden by the government”; 31 percent agreed (8 percent) or were unsure (23 percent) that “the COVID-19 vaccines have been shown to cause infertility”; 24 percent agreed (14 percent) or were unsure (10 percent) about whether “you can get COVID-19 from the vaccine”; 24 percent agreed (7 percent) or were unsure (17 percent) about whether or not “the COVID-19 vaccines contain a microchip”; and 21 percent agreed (8 percent) or were unsure (13 percent) about whether “the COVID-19 vaccines can change your DNA.” In total, almost eight in ten Americans accepted or were unsure about “at least one” of these misinformation points related to Covid-19 and vaccination.

Anti-vaccine sentiment can be traced to numerous factors, as I’ve shown in my research. One source that fuels the problem is the rise of echo chambers on social media – particularly among Republicans who rely on these platforms for their information – and where anti-vaxxer misinformation often spreads unchecked. My research also finds that other factors include education, race and religion (both working together), partisanship, media consumption, and age, with more highly educated individuals, Democrats, older Americans (60+), and *MSNBC* viewers more likely to be vaccinated, and white Evangelicals less likely to be vaccinated.

I won’t pretend to know how the U.S. will get past the incredible roadblocks standing in its way that fuel anti-vaccine sentiment. The problem, as the data suggest, is multifaceted, with many factors contributing to anti-vaxxerism. The evidence suggests that misinformation and confusion are rampant in the U.S., with more than a quarter of the population refusing vaccination, and anywhere from a fifth to two-thirds falling into misinformed views about

vaccines. Until this misinformation is rolled back, and so long as tens of millions of refuse vaccination, it's difficult to imagine an end to Covid-19 in the immediate future.

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