

Covid vaccine hesitancy could doom future vaccines

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Jasu Hu for Vox

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Will America continue to turn away from vaccines?

Covid-19 vaccines helped stem the pandemic, but public skepticism about them could doom future vaccines.

By [Yasmin Tayag](#) Updated Nov 22, 2022, 6:52am EST

The Covid-19 vaccines were perhaps the greatest medical achievement of the 21st century. Completed in [record time](#) and [extraordinarily safe](#), they built on 30 years of research into mRNA technology to deliver a tool that in its first year alone prevented an estimated [19.8 million deaths worldwide](#), and even more infections and hospitalizations. The vaccines, unlike masking and social distancing, required virtually no sacrifice from Americans: Just one or two shots protected people from the worst outcomes of the disease with few side effects. And as more people were vaccinated, society began to rebound from Covid, too.

Yet, tens of millions of Americans in the middle of the worst pandemic in a century took a look at the greatest scientific achievement of the modern age and said, in effect, “Thanks but no thanks.” While 68 percent of Americans got both initial doses of the vaccine, fewer than 50 percent went on to beboosted once, according to the CDC; an even smaller share has received a second booster. The failure to convince enough of the public to take up a tool developed specifically to prevent severe disease and death has blunted its ability to do just that.

It didn’t take long before some political leaders — mostly conservative — began openly espousing anti-vaccine views, to the applause of many of their constituents. Soon enough, legislators began raising anti-vaccine bills in states calling for changes such as bans on vaccine mandates and the dismantling of childhood immunization requirements. Partisanship has further hobbled this fall’s dismal booster campaign, which has only reached an estimated 8.6 percent of Americans over the age of 18: According to a September survey from the Kaiser Family Foundation, 20 percent of Republicans have said they will “definitely not” get the booster, and a further 38 percent aren’t even eligible because they never received enough previous doses.

“This fall’s dismal booster campaign has only reached an estimated 8.6 percent of Americans over 18”

The human toll of anti-Covid-vaccine sentiment is enormous. Hundreds of thousands of Americans have died from Covid-19 who would likely otherwise be alive had they chosen to be fully vaccinated, according to an analysis in May. But while those lives are lost, the growing reach of vaccine hesitancy — rooted in factors ranging from understandable safety concerns to deep mistrust in the government — will not end with Covid.

Precisely because of the highly public discourse around the Covid-19 vaccines — which have been ferociously debated like no shot in modern memory — the small but vocal minority that oppose them, and the prevalence of hard-to-stamp-out disinformation and misinformation, the public is paying more attention to vaccines in general. Instead of leading to greater appreciation of our best weapons against infectious disease, it is possible, even likely, that the hesitation and fatigue generated by Covid vaccines may spill over into vaccines for other diseases.

“It may be happening and we can’t see it yet because it’s nuanced and just starting, but we should be conscious that it’s got some potential,” Bruce Gellin, chief of global public health strategy at the Rockefeller Foundation’s Pandemic Prevention Institute, told me.

If that comes to pass, low death rates for vaccine-preventable diseases such as measles and polio, the product of decades-long vaccination campaigns, will begin to creep upward.

Why Americans reject vaccines

Vaccine hesitancy has existed for as long as vaccines have, but Covid-19 has magnified its impact and spread. Prior to the pandemic, up to a third of Americans were already opting out of some recommended vaccines while consenting to others and often designing vaccine schedules of their own for their children, Jennifer Reich, a University of Colorado, Denver sociologist who studies vaccine hesitancy, told me. That's in part because Americans tend to view vaccines in the same way they do consumer products, like a dietary supplement or over-the-counter drug — meaning they believe it's up to them to decide whether to use or not, based on their perception of its risks and benefits, rather than relying on expert or government recommendations.

This “personal management of health” model, described in Reich's 2016 book, *Calling the Shots: Why Parents Reject Vaccines*, explains why so many people feel they are better equipped than experts to make choices about vaccines for themselves and their children. The decision not to get vaccinated is shaped by a host of factors, including exposure to misinformation and disinformation, geography, religion, and political leanings. That's not new, but “the pandemic just sort of exacerbated problems that were already in existence,” said Reich.

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During the pandemic, Americans essentially had a “crash course” on vaccines, as Waleed Javaid, director of infection prevention and control at Mount Sinai Downtown in New York City, put it. This had mixed effects. On one hand, Americans gained a greater understanding of how vaccines work and where they come from, just as they did with viruses and variants. On the other hand, many struggled to grasp the complexities of a medical intervention that, after all, requires putting something in your body to prevent a disease, not cure one already present. “If you understand a little but not a lot or all of it, then you run the risk of misunderstanding several factors,” which could lead to hesitancy, Javaid said.

As Americans paid more attention to vaccines, many naturally had more questions, but finding the right answers was often difficult, while finding the wrong one was often all too easy. The timing of the vaccine rollout, eligibility requirements, and dosing schedule — mostly multiple shots spaced weeks apart, with boosters to follow — were fairly complex to begin with. Public disagreements between health officials on timing and eligibility only added to the confusion. Shortcomings in the public health messaging around the shots created unrealistic expectations about what vaccines are usually meant to do.

Covid-19 vaccine campaigns, for example, often didn't emphasize that the main goal of vaccination is to prevent severe illness and death, not guarantee protection against infection. The breakthrough cases that followed eroded support for the shots, even as the lower hospitalization rates and avoided deaths that could be attributed to the vaccines were overlooked. Since it was never made clear that vaccine-generated immunity was always

expected to fade, booster campaigns were set up to fail. These drawbacks, together with more pernicious misinformation and disinformation, led to confusion, frustration, mistrust, and, in a significant part of the population, rejection.

That rejection inevitably became politicized, though not at first. Operation Warp Speed, the government project that led the development of the Covid-19 vaccines in record time, was completed under then-President Donald Trump, who was more than happy to brag about it. But as the vaccines were released under President Joe Biden and increasingly mandated by employers and the government, some Republican leaders capitalized on existing vaccine hesitancy among their constituents by spreading misinformation insinuating that the vaccines were unsafe, while arguing that mandates curtailed personal liberties. Vaccination hesitancy, or wariness of the policies mandating vaccines, became a separate issue from the vaccines themselves, said the Rockefeller Foundation's Gellin.

Messaging against vaccines and mandates resonated with Republican voters. A Pew Research survey released in October showed that 58 percent of Republicans or Republican-leaning voters were fully vaccinated, compared to 85 percent of Democrats or Democratic-leaning voters. Another study, released in September, showed that the number of excess deaths (those exceeding pre-pandemic levels) was higher among registered Republicans than Democrats after the introduction of the Covid-19 vaccines.

“The Covid vaccine has certainly engendered more skepticism and hesitancy than any other vaccines that we’ve rolled out in the past couple of decades,” Jesse Hackell, president of the New York state chapter 3 of the American Academy of Pediatrics, told me.

“Vaccine campaigns didn’t emphasize that the main goal of vaccination is to prevent severe illness and death, not guarantee protection against infection”

The result has been a pushback against the very policies that have most successfully guaranteed vaccine uptake in the past: mandates. Fifteen states ban or limit private employers from having Covid-19 vaccination mandates, and one — Montana — has banned mandates for state employees as well, though the law is currently being challenged in the courts. According to the National Conference of State Legislatures (NCSL), 374 bills relating to vaccine requirements were introduced at the state level in 2022. Many call for bans on vaccine mandates or reduced childhood immunization requirements. Given that the vast majority of recommended vaccines go to children, that could have major impacts on public health.

The threat of vaccine rejection spillover

This summer, polio — an entirely vaccine-preventable disease long conquered in the US — made an alarming reappearance in New York. Flu season is well underway, and could be especially dangerous for those who are unvaccinated.

Any spillover of hesitancy into these diseases may eventually appear in their vaccination rates, but there isn't enough information yet to know for certain, experts told me. "Part of the problem is that we don't have good metrics" for vaccine hesitancy, said Gellin. A useful, albeit flawed, indicator for vaccine hesitancy among parents is the CDC data on childhood vaccine exemptions, though it includes many other reasons why families opt out of vaccines, such as inaccessibility and inconvenience. The proportion of American children with exemptions in the most recent school year — 2.2 percent, which the CDC described as "low" — does not differ significantly from last year's data.

Interpreting future data on recent vaccination rates will be complicated by the fact that routine vaccinations declined during the pandemic in part because of school closures, lockdowns, and overwhelmed health care systems, which made it harder for parents to access vaccines and weakened the force of school mandates. In the 2021-22 school year, the CDC recorded a drop in childhood vaccination coverage of 1 percent compared to the previous year.

The situation is far worse in the developing world, where the World Health Organization and UNICEF report that the dip in the global childhood diphtheria, tetanus, and pertussis vaccination (DTP3) rate recorded between 2019 and 2022 is the largest seen in 30 years.

Even if the numbers haven't yet caught up, plenty of anecdotal evidence points toward an acceleration of existing vaccine hesitancy during the pandemic. Georges C. Benjamin, executive director of the American Public Health Association, told me that "we're definitely seeing some effects," such as parents refusing to give a child multiple vaccines on a single visit, though he noted that such concerns also existed pre-Covid.

More parents are saying they aren't necessarily mistrustful of the vaccines but of the experts touting them, Rupali Limaye, an associate scientist at Johns Hopkins University who studies vaccine acceptance, told me. Parents continue to express the sentiment that diseases such as Covid, chickenpox, or the flu are "not that bad" and don't warrant getting a vaccine, Hackell added.

"Parents continue to say some diseases are "not that bad" and don't warrant getting a vaccine"

One key area to watch for evidence of spreading vaccine hesitancy will be uptake of the flu vaccine, which is one of the few vaccines that, like Covid-19, is recommended for nearly everyone other than newborns. So far, surveys about flu vaccine intentions do not suggest any significant changes. According to recent polling from the National Foundation for Infectious Diseases, the proportion of adults who plan to get the flu shot this year is 49 percent, consistent with the roughly 50 percent of people who do so each year.

This year's flu season is predicted to be particularly rough, given trends in the Southern hemisphere and low immunity resulting from decreased exposure to flu viruses during the pandemic. Public health officials are urging people to get their flu shots, but they are working against vaccine fatigue, Javaid said. "It's almost like an 'I give up' kind of situation." On the flip side, people "who became supportive of Covid vaccines may now be seeking out flu vaccines even if it wasn't a priority in the past," said Reich. "It may work in the other direction."

Recent polling suggests politically motivated vaccine hesitancy has already spilled over from Covid-19 into the flu vaccine. In October, Grid News found that nearly half of Democrats but only 22 percent of Republicans had gotten the flu shot so far this year. This polarization of flu vaccine attitudes had already existed before the pandemic, but since then, the gap between Democrats and Republicans has grown even wider.

The return of once-conquered diseases

One sign of where we could be headed is the Disneyland measles outbreak of 2014: Measles may not have seemed like a serious threat; in 2000, it had been declared "eliminated" from the US — meaning an absence for more than a year of continuous transmission within the country — after a highly successful immunization campaign. But unvaccinated pockets of the population remained vulnerable to measles carried by travelers from foreign countries where the disease was still circulating. Exemption rates in California had been increasing before the measles outbreak at Disneyland in December 2014, likely incited by a traveler.

Over the next two months, it spread to seven states, Canada, and Mexico, and resulted in 147 cases. That year, the US counted a total of 667 measles cases, which at the time was the highest number recorded in 20 years. That record was broken in 2019, when outbreaks in under-vaccinated communities in Washington state, New York, and New Jersey led to a national count of 1,274 across a total of 31 states.

The reemergence of paralytic polio in July in Rockland County, New York — the first US case since 2013 — is another preview of what may happen if vaccination rates slide. The virus was detected in a young, unvaccinated Orthodox Jewish man, who presented with muscle weakness and paralysis. In Rockland County, Orthodox Jewish communities tend to have lower vaccination rates.

Polio has since been detected in the wastewater in counties downstate from Rockland as well as in New York City, prompting New York Gov. Kathy Hochul in September to declare a state of emergency. Patricia Ruppert, the health commissioner for Rockland County, told me that the continued low childhood vaccination rates in her jurisdiction can largely be attributed to worsening vaccine hesitancy engendered by a pandemic-related uptick in vaccine safety concerns, political polarization, and low access to the vaccines.

“The reemergence of paralytic polio in July is a preview of what may happen if vaccination rates slide”

Now, several bills opposing children’s vaccine requirements being considered in state legislatures could lead to further decreases in vaccination coverage. Hackell is doubtful they will succeed because only a “small minority” of people support them, but he acknowledges that such demands are new territory. “You would not have heard that five years ago,” he said.

Daniel Salmon, a vaccinologist who studies vaccine decision-making at Johns Hopkins University, told me, “My strong suspicion is that we’re going to see really big drops in vaccine coverage across the board.” And when that happens, outbreaks may occur in a predictable pattern, based on the global prevalence of the virus: Measles, which is common, will be the first to reemerge — Salmon calls it “the canary in the coal mine” — likely followed by pertussis. “It’s a really scary prospect,” he said.

Dismantling childhood vaccine requirements would not only lead to more illness and death but likely worsen inequities in vaccine access, too. Childhood requirements, introduced in earnest in the 1960s and implemented through the 1980s, aimed to make vaccines more accessible to low-income children, who tended to have lower immunization rates than wealthier ones. The federal [Childhood Immunization Initiative](#), launched in 1977, put millions of dollars in funding behind efforts to increase childhood vaccination rates and establish a system to administer vaccines. It led to the development of school vaccination requirements in all 50 states.

But if those policies are dissolved, free vaccines, paid for and offered to states by the federal [Vaccines for Kids program](#), will become less accessible to families who rely on them, said Reich. Parents will no longer be able to assume that their children are safe from infectious disease at school. And just as before, those without regular health care access or insurance will be most at risk. It won’t happen in every state, but it certainly can happen, she added, “should vaccines continue to be politicized the way they have been.”

The politicization of vaccines in America is particularly unsettling because the country is split roughly in half. Vaccination can stop community viral spread only if a population reaches the herd immunity threshold for that virus. “You need 50 percent plus a hair to win, or the Electoral College. In vaccines, that’s a huge loss,” said Salmon. “If we have only 50 percent of people vaccinated, we’re screwed.”

“I worry that it will be dead children”

Political polarization on vaccines hasn’t always fallen along the same party lines. For a long time, vaccine hesitancy and anti-vaccine views were closely associated with a certain kind of Democrat — “crunchy granola purists,” as [Mother Jones](#) put it, who were hypervigilant about

avoiding toxins and GMOs and tended to live in wealthy white enclaves such as Boulder, Colorado, and Marin County, California. But the pandemic, and the tense political milieu in which it unfolded, triggered a shift in the demographics of vaccine hesitancy.

“Dismantling childhood vaccine requirements would likely worsen inequities in vaccine access”

In Marin County, once the bastion of the anti-vaccine movement, Covid-19 vaccination rates are now among the highest in the country. Local attitudes to vaccination changed over the pandemic, and “it kind of became the cool thing to do to get vaccinated,” one physician told the New York Times. Public health campaigns addressing parents’ fears around vaccination, plus memories of the 2014 measles outbreak at Disneyland, which spread to Marin, swayed local opinion. The association of anti-vaccine views with conservatism also shifted attitudes in the heavily Democratic county. Marin was able to “signal a change in cultural values and norms within their community, and my impression is that a lot of that happened because they were having local conversations” about the reasons behind hesitancy, said Reich.

All of the experts I spoke to said that improving communication about vaccines is critical for countering hesitancy and skepticism. Complete transparency — in real time — is needed so that people can manage their expectations of what vaccines can do, and just as importantly, what they cannot do. Those led to believe, incorrectly, that vaccination was supposed to protect them from getting Covid and would allow them to stop wearing masks lost confidence in the vaccine when breakthrough cases occurred and masking recommendations persisted. People felt betrayed, said Reich, by the fact that vaccines didn’t make the disease go away, as they did for polio, measles, or smallpox, even though respiratory viruses such as SARS-CoV-2, the virus that causes Covid-19, are rarely eliminated through vaccination. (Witness the persistence of influenza year after year, despite the fact that there has been a flu shot since the 1940s.)

Of course, even the best messages are worthless if they cannot reach their intended audience. Training the health care providers who administer vaccines to communicate with patients is paramount, as they are among the most trusted sources of vaccine information. Another popular strategy is to use “trusted messengers” — respected community members who can range from celebrities to hairstylists — to target communities that are harder to reach. It is one of the main techniques used by PolioPlus, Rotary International’s polio eradication effort, said Carol Pandak, the program’s director. In Pakistan, for example, committees of religious leaders advocate for vaccination at Friday prayers; a similar effort is ongoing in vaccine-hesitant religious and ethnic communities in New York.

Greater transparency around the development of vaccines could also foster more trust. To the public, which lacked insight into the tremendous scientific hurdles that were surmounted to create the vaccines, the vaccines seemed to appear out of nowhere, using technologies that few people knew about. “It was like, voila, this thing showed up that nobody had heard of,” said Gellin. “mRNA sounded frightening to some people.”

With stakes as high as they are now, it cannot hurt to put more resources toward improving vaccine communication. But even the most effective public health messages are deployed into media and social media ecosystems that can be difficult to navigate and even harder, if not impossible, to control. There is no guarantee that a person researching vaccine safety will come across the factual information public health experts want them to access, or that they will be able to differentiate it from misinformation. And the sheer wealth of information about vaccines, factual or not, can lead even the most well-meaning individuals to develop vaccine fatigue.

““If taking the word of a physician [who has] seen kids badly damaged from these diseases, is not enough, what will be enough?””

What happened after the 2014 Disneyland outbreak offers some hope. In response, California passed a bill that went into effect in 2016 removing all personal belief exemptions from childhood vaccine requirements. Vaccination rates rose: The number of kindergartners who received all of the required vaccines increased by 2.3 percentage points between the 2014-15 and 2017-18 school years, for a total of 95.1 percent of children vaccinated, and the rate of kindergartners who weren't up to date on required vaccines dropped from 9.84 percent in 2013 to 4.87 percent in 2017.

The effect of the bill mirrored the high vaccination rates in Mississippi and West Virginia, which, prior to the passing of the California bill, had been the only two states with no nonmedical exemptions, religious or philosophical, for childhood vaccines. New York and Maine have since followed suit. According to the most recent CDC data available, these five states have among the highest childhood vaccination rates and lowest exemption rates across the country.

The hope, though, is that it will not take an outbreak of disease — or worse — to convince the hesitant that vaccination is critical. “If taking the word of a physician like myself, who has seen and treated these diseases, and seen kids badly damaged from these diseases, is not enough, what will be enough?” said Hackell, “Unfortunately, I worry that it will be dead children.”

Correction, November 22, 4 pm: A previous version of this story used an incorrect title for Jesse Hackell. He is the president of the New York state chapter 3 of the American Academy of Pediatrics.

Yasmin Tayag is a staff writer for the Atlantic who covers science, health, and the future of food.

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