

**Opinion**

**Guest Essay**

**The Playbook Used to ‘Prove’ Vaccines Cause Autism**

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Aug. 19, 2025

The health secretary, Robert F. Kennedy Jr., says he wants to understand what causes autism. It’s a perfectly laudable goal and one that scientists have been pursuing for decades. But after announcing a large new federal study on the topic, he made a [shocking choice](https://www.nytimes.com/2025/03/27/health/rfk-jr-autism-vaccines.html) by bringing in the vaccine critic David Geier as a researcher.

In the scientific community, Mr. Geier is [infamous](https://nymag.com/intelligencer/article/anti-vax-vaccine-movement-rfk-jr-david-mark-geier.html) for the deeply [flawed studies](https://www.theatlantic.com/health/archive/2025/07/david-geier-vaccine-safety-shoddy-research/683630/) he conducted with his father, Mark Geier, claiming that vaccines cause autism. Researchers have long called attention to the serious methodological and ethical defects in their work.



David Geier, left, and his father, Mark Geier, in their home laboratory in 2005.

The Geiers once created an illegitimate [review board](https://pmc.ncbi.nlm.nih.gov/articles/PMC1839225/) for their research, composed of themselves, family members and business associates. They also [promoted the drug Lupron](https://www.chicagotribune.com/2009/05/21/miracle-drug-called-junk-science-2/), used for chemical castration and prostate cancer, as a supposed treatment for autism, [charging $5,000 to $6,000](https://www.latimes.com/archives/la-xpm-2009-may-24-na-autism24-story.html) monthly for unproven therapies. As a result, Mark Geier’s medical license was ultimately [revoked or suspended by all 12 states](https://www.latimes.com/business/story/2025-04-01/rfk-jr-puts-anti-vaxxer-in-charge-of-studying-debunked-link-between-vaccines-and-autism) in which he was licensed, and David Geier was fined for practicing medicine without a license.

Because of David Geier’s track record and the fact that Mr. Kennedy has said he believes that [autism is caused by vaccines](https://www.foxnews.com/video/6330950198112), many public health experts think that the upcoming study may echo the same flawed science. We’ve broken down the anti-vaccine research playbook to help you spot the telltale signs of shoddy studies and show why Mr. Geier is such a divisive choice. (Mr. Geier did not respond to The Times's request for comment.)

To start: Vaccine critics like Mr. Kennedy often give the impression that scientists haven’t seriously researched whether vaccines might cause autism.

In a Times Opinion analysis, we can demonstrate that researchers have.



**Studies examining the link between vaccines and autism**

Written by the Geiers

Retracted

Studies that claim to have found a link

Studies that **did not** find a link

1990s

Andrew Wakefield’s M.M.R. study

2000s

2010s

2020s





**Studies examining the link between vaccines and autism**

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Studies that claim to have found a link

Studies that **did not** find a link

1990s

2000s

Study retracted due to deliberate image manipulation.

2010s

2020s

Study that Mr. Kennedy referenced in his Senate hearing.



**Thimerosal studies**

All of the studies suggesting thimerosal causes autism were written by the Geiers.

2010s

2020s



**Studies examining the link between vaccines and autism**

Written by the Geiers

Retracted

Studies that claim to have found a link

Studies that **did not** find a link

1990’s

2000’s

**Aluminum studies**

2010’s

Retracted because of unreliable data.

2020’s

July study that found no connection between aluminum additives and autism.



This controversy started when Andrew Wakefield, a British doctor, **published a study in 1998** that linked the measles, mumps and rubella (M.M.R.) vaccine to autism. He was later found to have falsified data and received funding from lawyers in lawsuits against vaccine manufacturers. [The paper](https://www.nytimes.com/2010/02/03/health/research/03lancet.html) was  retracted, and he was barred from practicing medicine in Britain, but not before [vaccination rates](https://www.nytimes.com/2008/08/22/health/research/22measles.html) began [dropping](https://researchbriefings.files.parliament.uk/documents/CBP-8556/CBP-8556.pdf) and [measles outbreaks began rising again](https://www.pbs.org/newshour/science/how-bad-is-the-measles-comeback-heres-70-years-of-data).

Graphic showing 70 studies that have looked at the link between vaccines and autism, broken down by whether they found a link and by decade of publication. Andrew Wakefield’s study in 1998 is highlighted in orange, with a red X on top marking that it was retracted.

There have been some 70 studies since Mr. Wakefield’s looking for any link between vaccines and autism. Of these, 26 have **linked vaccines to autism** in some way, and 43 found **no connection between vaccines and autism**.

Graphic showing all studies, with the 26 that found a link highlighted in orange and the 43 that did not find a link highlighted in purple.

A whopping two-thirds of studies that claimed to have found a link were written by  **David and Mark Geier**. These studies have been heavily criticized for using deceptive research techniques and flawed data.

In the graphic, the 18 studies that were published by the Geiers and found a link between vaccines and autism are highlighted in orange.

Among the **eight other studies** that found a link, four were  retracted for data manipulation, flawed methods or undisclosed conflicts of interest. Most of the authors have been involved in anti-vaccination campaigns and have had other papers retracted.  
  
One such study that Mr. Kennedy referred to in his Senate confirmation hearing was published in a [WordPress blog disguised as a journal](https://www.chop.edu/vaccine-update-healthcare-professionals/newsletter/growing-trend-deceitful-journals) and was funded by an anti-vaccine organization, among other problems.

In the graphic, eight other studies that found a link between vaccines and autism are highlighted in orange, and four of them have red X’s marking that they were retracted.

Fortunately, independent scientists have conducted more than 40 high-quality studies since 1998 involving over 5.6 million people across seven countries. All found **no connection between vaccines and autism**. These studies were rigorously designed, were reviewed by independent peers and do not contain telltale signs of data manipulation, as the Geier studies do.

The 43 studies that were unable to find a link between vaccines and autism are highlighted in purple.

Vaccine critics target many components of vaccines. As Mr. Wakefield’s M.M.R. vaccine study was proving fraudulent, **thimerosal**, a mercury-containing compound used as a preservative that was largely [removed](https://www.fda.gov/vaccines-blood-biologics/safety-availability-biologics/thimerosal-and-vaccines#action) from childhood vaccines beginning in 1999, became a research focus.

Within the graphic, all of the studies that looked at the role of thimerosal in vaccines are highlighted in green.

By the 2010s, **aluminum additives** in vaccines became a new target. The upcoming government report may go after them, too, since Mr. Kennedy has [called for this ingredient](https://www.bloomberg.com/news/articles/2025-06-18/rfk-jr-weighs-review-of-dozens-of-shots-citing-aluminum-use?srnd=homepage-americas) to be closely examined.  
  
But [a Danish study published in July](https://www.acpjournals.org/doi/10.7326/ANNALS-25-00997) of 1.2 million children over 13 years found no association between aluminum exposure from vaccines and increased risk of 50 disorders, including autism, even among kids who received the highest doses. Mr. Kennedy [attempted](https://www.reuters.com/business/healthcare-pharmaceuticals/medical-journal-rejects-kennedys-call-for-retraction-vaccine-study-2025-08-11/) to have it retracted.

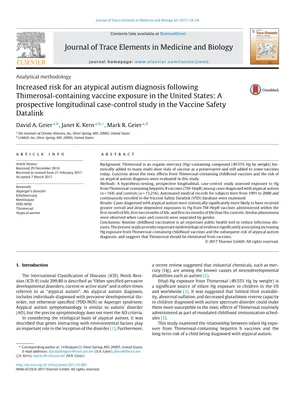
In the graphic, three studies that looked at the role of aluminum additives in vaccines are highlighted in pink. Two of them found a link, but one was retracted. One study published in July did not find a link.

The conclusion from all of the high-quality studies has been the same for decades: Vaccines do not cause autism.

And yet the misinformation persists, kept alive by flawed research and bad-faith arguments. The victims are the very community that Mr. Kennedy claims to want to help. Resources that could go to high-quality studies are diverted because of this junk science. The Autistic Self Advocacy Network has said that it is [“appalled” by the hiring of a “quack”](https://autisticadvocacy.org/2025/03/asan-appalled-by-hiring-of-quack-david-geier-for-hhs-study/) for the government study.

Unfortunately, it can be hard to differentiate good science from bad. Mr. Kennedy has acknowledged how easy it is to manipulate vaccine studies. In a recent interview, he said that “statistics don’t lie, but statisticians do” and that “epidemiological studies are very easy to manipulate.” He went on to describe exactly the kinds of techniques that David Geier has used in his research.

To show how Mr. Geier makes his research look credible, we’re highlighting tactics he has employed on multiple occasions, using a [2017 paper on thimerosal](https://www.sciencedirect.com/science/article/abs/pii/S0946672X16304400?via%3Dihub) as our example. We picked it because it uses one of the databases that experts suspect will be relied on in the government report, the Vaccine Safety Datalink, to which Mr. Geier has been previously barred from having access.



This study looked at whether there was a higher risk of autism among kids who got hepatitis B vaccines containing thimerosal.

The first page of a scientific journal paper, titled “Increased Risk for an Atypical Autism Diagnosis Following Thimerosal-Containing Vaccine Exposure in the United States: A Prospective Longitudinal Case-Control Study in the Vaccine Safety Datalink.” Sections of the text with the word “thimerosal” are highlighted.

The first red flag is in the title: The authors looked only at children with atypical autism, a former diagnosis for people who didn’t meet standard autism criteria.  
  
In proper scientific research, the authors would provide a reason that vaccines might affect this form of autism and not autism more broadly. The authors provide no such rationale. Without one, this looks like what researchers call fishing or p-hacking — the testing of multiple outcomes until you find one that shows a link by chance.

A zoom in on the first page of the study, with the phrase “atypical autism diagnosis” highlighted.

The next problem is much more egregious. In a study like this, you should have two groups: people with the condition (cases) and similar people without it (controls) from the same period, so that researchers can spot what’s different between them. But here, the authors define their cases as children with atypical autism born from 1991 to 1998, while the control group includes kids born only in 1991 and 1992.

The second page of the study, zooming in on the section describing how the cases and controls were chosen. For the cases, the phrase “born from 1991 to 1998” is highlighted, and for the controls, the phrase “born from 1991 to 1992” is highlighted.

This is deceptive, given what changed during this period.  
  
The hepatitis B vaccine was added to the list of recommended childhood vaccines in 1991, and significantly broader new autism diagnostic criteria were published [in 1994](https://pmc.ncbi.nlm.nih.gov/articles/PMC8531066/), meaning more people could be diagnosed with atypical autism. Comparing children from before and after those changes can create the illusion of a connection.

A line chart showing the hepatitis B vaccination rate for children 19 to 35 months old from 1991 to 1998. Hepatitis B was added to the childhood vaccine schedule in 1991, so there’s no rate shown for that year. In 1992 the rate was a little under 10 percent and rose to above 80 percent by 1996. In 1994 the autism diagnostic criteria were broadened.

Mr. Geier acknowledged another major problem with the study: They didn’t take into account confounders — outside factors that can create the appearance of a connection between two things. For example, health care access: Children who see doctors regularly are more likely both to get vaccines and to have developmental concerns noticed and diagnosed. You have to account for that.

Another page of the study, zooming in on the discussion section. Part of a sentence is highlighted: “Among the potential limitations of the present study, it was possible that unknown biases or confounders could be present.”

The researchers dismiss the need to include confounders, claiming that other studies using the same data set found that they had no effect.  
  
But many known confounders for vaccines and autism should have been taken into account, including health care access, socioeconomic status, parental age, family history of autism, birth weight and environmental exposures. Without controlling for any of these factors, the study can’t actually tell us anything.

The same paragraph, this time with the phrase “This seems unlikely” highlighted.

Even worse, all of the studies they cite as justification for ignoring confounders are their own. This is a pattern for the Geiers.  
  
While some personal citing is normal, relying solely on your own work to prove your argument suggests that there’s not much evidence in your corner.

The citations section of the paper, with 11 of the 43 citations highlighted, indicating that they were published by the Geiers. Four of their citations are circled, to show that they were the studies that the Geiers used to justify ignoring potential confounding factors.

And though the overall list of references might look scholarly, it’s riddled with problems.  
  
Mr. Geier cites this study, for instance, as suggesting that mercury is a known cause of autism and that thimerosal is a significant source of mercury exposure in children. But that study looked at a different, highly toxic form of mercury found in fish, not the type contained in thimerosal.

A zoom in on the second citation, a paper titled “Neurobehavioral Effects of Developmental Toxicity.”

Mr. Geier also discredits multiple high-quality studies that found no association between thimerosal and autism by arguing that several critical reviews have found methodological flaws in those studies.

A zoom in, with five of the citations highlighted, none of them by the Geiers. All are high-quality studies that found no link between thimerosal and autism and that the Geiers discredited.

Those critical reviews? They were published by the Geiers. The second study highlighted here, focused on supposed conflicts of interest in autism research, was initially retracted for having too many errors and — ironically enough — for failing to disclose the authors’ conflicts of interest.

A zoom in, with the next two citations highlighted, both by the Geiers, which they used to discredit the high-quality studies.

The Geiers repeated this sort of shoddy science in paper after paper for years. Though the research is flawed, the reason studies like theirs resonate with people is that they offer a simple (though incorrect) answer to why autism diagnoses have increased significantly in recent years. In the United States roughly [one in 31 children had an autism diagnosis](https://www.cdc.gov/autism/data-research/index.html) in 2022, up from one in 150 in 2000.

The [best evidence](https://pmc.ncbi.nlm.nih.gov/articles/PMC9310578/) suggests that most of this rise is due to improved awareness, more standardized diagnostic tools, expanded access to screening and changes by the American Psychiatric Association that broadened diagnostic criteria for autism and combined several conditions under the umbrella of autism spectrum disorder.

Essentially, medicine is getting better at identifying autism cases that were always there and more generous in applying the diagnostic label.

A landmark Swedish study illustrates how much of the apparent increase is because of improved detection. Researchers followed twins born from 1993 to 2002, estimating both autism diagnoses and autistic traits in the children. While diagnoses steadily increased, the prevalence of autistic traits remained relatively stable, suggesting that improved diagnostic practices explain much of the rise in autism rates.

**A Swedish study illuminated the difference between autism as a diagnosis and autism as a condition**

1993

1994

1995

1996

1997

1998

1999

2000

2001

2002

1 in 400

1 in 200

1 in 133

Birth year

**Autism diagnosis rate**

Source: [Lundstrom et al., The BMJ (2015)](https://www.bmj.com/content/350/bmj.h1961)

There are some biological factors that might have contributed to a genuine rise in autism: People are having children at older ages, and [both maternal and paternal age have been associated with a higher risk of autism](https://pmc.ncbi.nlm.nih.gov/articles/PMC7396152/) — though the biological reasons for this still aren’t fully understood.

For mothers, age-related changes in immune system function may play a role; for fathers, the link may be due to genetic mutations that become more common with age. Still, research consistently shows that these factors may explain only a modest fraction of the sudden rise in diagnoses. Data shows most autism risk is determined before birth, through genetic factors and prenatal development.

We absolutely need more research into what drives autism, but if the upcoming government study uses the same kind of manipulation Mr. Geier and others previously employed to show a link between vaccines and autism, we can expect devastating consequences. This will be just the latest in a series of efforts from Mr. Kennedy — from [firing vaccine advisers](https://www.nytimes.com/2025/06/09/health/rfk-jr-cdc-vaccine-panel.html) to [canceling millions of dollars in vaccine-related research](https://www.nytimes.com/2025/08/18/opinion/mrna-vaccines.html) grants to promising an [overhaul of the system that handles vaccine injury claims](https://www.propublica.org/article/rfk-childhood-vaccines-vicp) — that threaten the future of vaccines in the United States.

Every dollar spent relitigating the disproven vaccine-autism link is a dollar stolen from research that could actually help people with autism — studies on support services, educational interventions, employment programs and other factors behind autism. This is the cruelest irony: that those who claim to champion people with autism are denying them real research while undermining one of public health’s greatest achievements. Now you know the anti-vaccine playbook — and how not to fall for it.

Jess Steier is the chief executive of Vital Statistics Consulting, which uses data science to inform evidence-based health programs and policies, and the founder of Unbiased Science. She is also the executive director of the Center for Unbiased Science and Health.