

# Anti-vaxxers mounting internet campaigns against COVID-19 shots

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- Anecdotal "cause-and-effect" rumors that erroneously tie a person's untimely demise to the fact they recently got a COVID-19 vaccine.
- "Big lie" conspiracy theories that allege the vaccine can cause all manner of major side effects, from infertility to permanently altering your genetics.

Health care workers had braced for stories coming out that tie people's personal health problems and untimely deaths to their recent vaccination, even though there's no evidence linking the two.

For example, vaccine opponents recently pounced on the death of Florida obstetrician/gynecologist Dr. Gregory Michael, 56, who died Jan. 3 after suffering a catastrophic drop in platelets (cell fragments in the bloodstream that control bleeding).

(HealthDay)—People who are hesitant about getting the COVID-19 vaccine don't have to work hard to find internet rumors and theories that will fuel their fears regarding the vaccine's safety.

That's because anti-vaccine groups and individuals are working overtime to promote frightening, false theories about the two COVID-19 vaccines that have now been administered to more than 24 million Americans, infectious disease experts say.

"These kind of rumors have been around ever since Edward Jenner made his [smallpox vaccine](#) in the late 1700s," said Dr. Paul Offit, director of the Vaccine Education Center at the Children's Hospital of Philadelphia. "There was a belief if you got the vaccine, which was derived from cowpox, that you would take on bovine characteristics. You'd get a snout, you'd get a tail, you'd get floppy ears. That was the internet 1802, basically."

There are two major types of disinformation being promulgated about the coronavirus vaccines:

Posts tying Michael's demise to the Pfizer COVID-19 vaccine flooded the internet, despite a lack of clinical evidence linking his death to the vaccination 18 days prior.

It's not the first such instance of a person dying after they get the vaccine, and it won't be the last because coincidences happen every day, Offit said.

"Hank Aaron gets the vaccine. Two weeks later he dies of a stroke. Why? Because he was in his late 80s, and people in their late 80s can die of strokes," Offit said. "The vaccine doesn't make you immortal."

## Separating fact from fiction

Now that millions of people have received the vaccines—including more than 3 million who have completed the full two-dose regimen—experts at the U.S. Centers for Disease Control and Prevention will be able to truly sort out real, rare side effects caused by the vaccine from coincidental illnesses

and deaths, Offit said.

"There's always going to be these temporal associations, always, and you just have to calm yourself down and wait until the CDC says, 'You know something, there is a rare side effect here.' Because they're looking. They're looking every day," Offit said.

Aside from rare cases of anaphylactic shock that occur within a few minutes of receiving the injection, no other dangerous side effects have commonly cropped up in the millions of doses that have been administered, experts said.

The other sort of anti-vaccine rumor, the "big lie," involves highly specific conspiracy theories related to safety and side effects.

Dr. Jill Foster, director of pediatric infectious diseases and immunology at the University of Minnesota Medical School, in Minneapolis, said, "It's almost like the more absurd they make it, the better, because if you can really get someone to believe something that's totally absurd, then look how powerful you are."

One of the most common big lie rumors involves the messenger RNA (mRNA) in the two COVID-19 vaccines somehow rewriting your personal DNA, Offit and Foster noted.

The Pfizer and Moderna vaccines work by delivering mRNA into your cells, prompting them to produce replicas of the "spike protein" that the coronavirus uses to latch onto and infect cells. The [immune system](#) recognizes these proteins as foreign and mounts a response to them, in essence teaching the body how to fight off a future actual COVID-19 infection.

The idea that mRNA could rewrite your DNA is "utterly impossible," Offit said.

Human cells already contain hundreds of thousands of messenger RNA copies, which are used as the blueprints to produce substances essential to life, Offit said.

To be able to rewrite DNA, the mRNA from the

vaccine would first have to be able enter the nucleus of the cell, which it cannot, Offit explained. Even if it managed that, the mRNA would require specific enzymes to translate itself into DNA and then integrate itself into your personal genetics, and those enzymes are not present in the vaccine.

"You have as much chance of having your DNA being altered as getting these vaccines and turning into Spider-Man," Offit said. "I would say those are roughly equal chances."

### Using medical jargon

Another rumor holds that the vaccine can cause infertility because the spike protein it helps create shares some amino acids with synectin, a protein found in the placenta, Foster said.

"All proteins are made up of a chain of amino acids. The spike protein from the [coronavirus](#) and the synectin protein have a tiny little amount of amino acids that are the same," she explained.

"What I say to people, that's like me and you both having a seven in our phone number," Foster continued. "You're never going to guess the rest of the phone number. You could just try dialing seven, you're not going to get either of us. Just because we both have a seven in our phone number, does that mean we have the same phone number or live in the same house?"

Big lie theories work because they contain a certain level of medical jargon—synectin, DNA—that makes them appear plausible, Foster said.

"When people hear something like that that is so specific, they think oh, it must be right then," Foster said. "But just because something sounds really specific doesn't mean it's true."

It makes sense that people are worried about the safety of these vaccines, and that people who don't want to get the vaccine would seek out information that confirms their fears, said Annmarie Munana, a master instructor of nursing at Chamberlain University and a member of Chicago's Scientific COVID-19 Vaccine Work Group.

"There's a lot out there, and no lack of people saying things 24 hours a day, 7 days a week through a million different types of media," Munana said.

### Knowing vaccine recipient matters

A majority of Americans express concern about the vaccines' safety, a new Kaiser Family Foundation poll found:

- 68% say the long-term effects of the vaccines are unknown.
- 59% worry about serious side effects.
- 55% believe the vaccines are not as safe as they are said to be.
- 31% think they might get COVID-19 from the vaccine itself.

The name bestowed upon the vaccine development effort, "Operation Warp Speed," probably plays a role in these fears, Munana said.

"Words matter," Munana said. "I do wonder if we'd named it Operation Safe Vaccine, would that have been different? It's such a little thing, but I think it does make a difference."

In some ways, the best case for the vaccine is being made every day, with every successful vaccination that doesn't result in a dire health emergency, Munana said. Each serves as a positive example.

"I can talk to people and give them specifics about this is how many millions of vaccines we've given and tested and these are the results, but what really changes someone's mind is when they know someone who got the vaccine and did OK," Munana said.

The Kaiser Family Foundation poll bears that out. Knowing someone who has been vaccinated for COVID-19 appears to influence whether you'll be enthusiastic or hesitant about your own shot, pollsters found.

Among those who say they want the vaccine "as soon as possible," about half (52%) knew someone who had been vaccinated, the poll found. On the

other hand, among those who say they'll get it "only if required," only 29% knew someone who had received the vaccine.

Health care workers can help the effort by being straight with people, noting that they might feel a bit crummy for a day following their vaccination as a result of the immune response it creates, Munana said. That way, what might be interpreted as an unintended side effect is instead acknowledged as an unfortunate part of the process.

Foster suggested that folks frightened by rumors about COVID-19 vaccine safety should take a second to catch their breath, then check out what trusted medical societies and groups are saying about those rumors.

"They say when you're angry, you should count to 10," Foster said. "I tell people that when you're scared, you should count to 10 and say to yourself, am I looking for things just to confirm my fear, or am I really looking for truth? What am I doing here? Am I looking for reasons to not take the [vaccine](#) and just get myself all charged up in my fear, or am I really looking for an answer?"

**More information:** The U.S. Centers for Disease Control and Prevention has more about [COVID-19 vaccines](#).

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