

It's impossible to determine your personal COVID-19 risks and frustrating to try, but you can still take action

May 17 2022, by Malia Jones



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"How risky is being indoors with our 10-year-old granddaughter without masks? We have plans to have birthday tea together. Are we safe?"

That question, from a woman named Debby in California, is just one of hundreds I've received from concerned people who are worried about COVID-19. [I'm an epidemiologist](#) and one of the women behind [Dear Pandemic](#), a science communication project that has delivered practical pandemic advice on social media since the beginning of the pandemic.

How risky is swim team? How risky is it to go to my orthodontist appointment? How risky is going to the [grocery store](#) with a mask on if no one else is wearing one and my father is an organ transplant recipient? How risky is it to have a wedding with 200 people, indoors, and the reception hall has a vaulted ceiling? And on and on.

These questions are [hard to answer](#), and even when we try, the answers are unsatisfying.

So in early April 2022, when Anthony Fauci, the president's chief medical advisor, told Americans that from here on out, each of us is going to have to [do our own personal risk assessment](#), I put my head down on my desk.

Individualized [risk assessment](#) is not a reasonable ask, even for someone who does risk assessment for a living, let alone for the rest of us. It's impossible to evaluate our own risk for any given situation, and the impossibility of the task can make us feel like giving up entirely. So instead of doing that, I suggest focusing on risk reduction. Reframing in this way brings us back to the realm of what we can control and to the tried and true evidence-based strategies: wearing masks, getting vaccinated and boosted, avoiding indoor crowds and improving ventilation.

A cascade of unknowable variables

In my experience, nonscientists and epidemiologists use the word "risk"

to mean different things. To most people, risk means a quality—something like danger or vulnerability.

When epidemiologists and other scientists use the word risk, though, we're talking about a math problem. [Risk is the probability of a particular outcome](#), in a particular population at a particular time. To give a simple example, the chances that a coin flip will be heads is 1 in 2.

As public health researchers, we often offer risk information in this format: The probability that an unvaccinated person will die of COVID-19 if they catch it is about [1 in 200](#). As many as [1 in 8 people with COVID-19](#) will have symptoms persisting for weeks or months after recovering.

To embark on your personal risk assessment, as Fauci casually suggested, you first have to decide what outcome you're talking about. People often aren't very specific when they consider risk in a qualitative sense; they tend to lump a lot of different risks together. But risk is not a general concept. It's always the risk of a specific outcome.

Let's think about Debby. First, there's the risk that she will be exposed to COVID-19 during tea; this depends on her granddaughter. Where does she live? How many kids at her school have COVID-19 this week? Will she take a rapid test before she comes over? These factors all influence the granddaughter's risk of exposing Debby to COVID-19, but I don't know any of them and likely neither does Debby. Given the lack of systematic testing, I have no idea how many people in my own community have COVID-19 right now. At this point, our best guess at community rates is [literally in the toilet](#)—monitoring sewage for the coronavirus.

If I assume that Debby's granddaughter does have COVID-19 on the appointed day, I can start thinking about Debby's downstream risks:

whether she'll get COVID-19 from her granddaughter; the chances that she'll be hospitalized and that she'll die; and the probability that she'll have [long COVID](#). I can also consider the risk that Debby will catch COVID-19 and then give it to others, perpetuating an outbreak. If she gets sick, the whole hierarchy of risks comes into play for everyone Debby sees after she is infected.

Finally, there are competing risks. If Debby decides to skip the party, there may be risks to her own or her granddaughter's mental health or their relationship. Many skipped celebrations in many families could negatively affect the economy. People could lose business; they could lose their jobs.

Each of these probabilities is influenced by a cascade of fickle conditions. Some of the factors that shape risks are in your control. For example, I decided to get vaccinated and boosted. Therefore, [I'm less likely to end up in the hospital and to die if I get COVID-19](#). But some risks are not in your control—age, other health conditions, gender, race and the behavior of the people all around you. And many, many of the [risk factors](#) are simply unknowns. We'll never be able to accurately evaluate the whole volatile landscape of risk for a particular situation and come up with a number.

Taking charge of what you can

There will never be a situation where I can say to Debby: The risk is 1 in 20. And even if I could, I'm not sure it would be helpful. Most people have a very hard time understanding probabilities they encounter every day, such as [the chance that it will rain](#).

The statistical risk of a particular outcome doesn't address Debby's underlying question: Are we safe?

Nothing is entirely safe. If you want my professional opinion on whether it's safe to walk down the sidewalk, I will have to say no. Bad things happen. I know someone who tore a tendon in her hand while putting a fitted sheet on a bed last week.

It's much more practical to ask: What can I do to reduce the risk?

Focusing on actions that reduce risk frees us from obsessing over unanswerable questions with useless answers so we can focus on what is within our control. I will never know precisely how risky Debby's tea is, but I [do know how to make the risks smaller](#).

I suspect the question folks are really asking is: How can I manage the risks? I like this question better because it has an answer: You should do what you can. If it's reasonable to wear a mask, wear one. Yes, even if it isn't required. If it's reasonable to do an at-home antigen test before you see your vulnerable grandparents, do that. [Get vaccinated and boosted](#). [Tell your friends and family](#) that you did, and why. Choose outdoor gatherings. Open a window.

Constantly assessing and reassessing risks has given many people decision fatigue. I feel that too. But you don't need to recalibrate risks of everything, every day, for every variant, because the strategies to reduce risk remain the same. Reducing risk—even if it's just a little bit—is better than doing nothing.

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Citation: It's impossible to determine your personal COVID-19 risks and frustrating to try, but

you can still take action (2022, May 17) retrieved 26 April 2024 from
<https://medicalxpress.com/news/2022-05-impossible-personal-covid-frustrating-action.html>

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