

## FAQs

# COVID-19 Variants

One year after scientists first identified the virus that causes COVID-19, several [variations of the virus, which](#) appear to spread more easily and quickly, have emerged. Reports about new variants of the coronavirus across the world have raised many questions for scientists and the world's leading public health experts. Are these variants more contagious? Are they more dangerous? Will the current vaccines protect against these variations of the virus? Here are some of the most frequently asked questions about the emerging COVID-19 variants and what we know now.

### Q: Is it normal for a virus to mutate?

**A:** Yes. All [viruses mutate](#), and new variants of a virus are expected over time. Sometimes new variants emerge and disappear. Other times, those variants remain. A mutation is a change in an organism's genetic material. When a virus moves from host to host, not every copy is identical. These small mutations accumulate as the virus is passed on and copied.

[SARS-CoV-2](#), the virus that causes COVID-19, is a type of [coronavirus](#), a large family of viruses. Coronaviruses are named for the crown-like spikes on their surfaces. All of the variants have mutations to the spike protein that the virus uses to gain entry to and infect human cells. These proteins help the virus attach to human cells in the nose and other areas and invade the body, causing illness with COVID-19.

New variants of the virus have been [documented in the United States](#) and globally during this pandemic and are common. For example, scientists at The Ohio State University Wexner Medical Center and College of Medicine have discovered variants in Ohio, one of which has become a dominant strain across the Midwest.

Scientists monitor changes in the virus, including changes to the spikes on the surface of the virus. These studies help scientists understand how changes to the virus might affect how it spreads and impacts those who are infected.

### Q: Are any of the variants causing concern?

**A:** During the past few months, several variants [have caused concern in the international scientific community](#). Among those are a strain that is driving a surge of hospitalizations and deaths in the United Kingdom, as well as variations in South Africa and Brazil.

- **In the United Kingdom (UK), a variant called [B.1.1.7](#)** has an unusually large number of mutations. This variant appears to spread more easily and quickly than typical variants. There are currently two theories about what might make this strain more transmissible. One is that this virus is "stickier," meaning it is better at adhering to your cells. Another theory is that this variant causes more virus particles in noses and throats, which means more virus could be expelled when people talk, cough, or sneeze. This variant was first detected in September 2020 and has since been detected in numerous countries around the world, including the [United States](#).
- **In South Africa, another variant called [B.1.351](#)** shares some mutations with the variant detected in the UK. This variant, originally detected in early October, was detected in the United States in South Carolina in late January.
- **In Brazil, a variant called [P.1](#)** contains a set of additional mutations that may affect its ability to be recognized by antibodies. It also has been detected in the United States.

Scientists and public health officials are working [to learn more about these variants](#), and more studies are needed to understand:

- How widely these new variants have spread.
- How the disease caused by these new variants differs from the disease caused by other variants.
- Whether the variants spread more easily from person to person, cause milder or more severe disease in people, are detected by currently available viral tests, respond to medicines currently being used to treat people for COVID-19, or change the effectiveness of COVID-19 vaccines.

**Q: Are these variants more contagious?**

**A:** While leading public health experts continue research, these variants appear to spread more easily and quickly than other variants, which may lead to a rise in COVID-19 cases.

"Although virus variations are normal, and most do not impact the behavior of a virus, this variation is notable because it appears to be more contagious than other variants of the coronavirus," Dr. Bruce Vanderhoff, Chief Medical Officer for the Ohio Department of Health, said about the UK variant, which has led to increased hospitalizations and deaths. "Fortunately, this variant doesn't appear to impact those who are already immune, but it worries us because a more contagious variant could lead to more people getting sick, more people being hospitalized, and more people dying."

**Q: Are these variants more dangerous?**

**A:** We are still learning about some of these new variants. Typically, viruses evolve to become more contagious, to spread more easily, and less commonly become more dangerous. Nevertheless, as some of the variants become more transmissible, it follows that more people will become sick, possibly resulting in a higher death toll. The more people become infected, the more people could become seriously ill, further straining health systems that are already taxed from COVID-19.

**Q: If I catch COVID-19, will I know if I have the new variant?**

**A:** If you test positive for the coronavirus, the standard [PCR diagnostic test](#) can't definitively determine if you have the variant or the original strain. The only way to know for sure which variant is circulating is to use [gene sequencing technology](#), but that technology is not used to alert individuals of their status. While some public health and university laboratories are using genomic surveillance to track the prevalence of variants in a community, the United States doesn't yet have a large-scale, nationwide system for checking coronavirus genomes for new mutations.

**Q: How can we protect ourselves from getting any of these COVID-19 variants?**

**A:** New virus variants that spread more easily could lead to future spikes in COVID-19 cases. It is important to remain vigilant in taking precautions to control the spread. The variants [spread the same way the original strain has been spreading](#) from person to person during close contact. [Preventative measures for slowing the spread of COVID-19](#) will also help prevent the spread of all variants. Don't let your guard down.

- Wear masks that cover the mouth and nose anytime you're around people outside of your household. For the best protection choose:
  - Non-medical disposable masks.
  - Masks that fit snugly around the nose and chin with no large gaps around the sides of the face.
  - Masks made with tightly woven fabric.
  - Masks made with breathable fabric such as cotton.
  - Masks with two or three layers.
  - Masks with inner filter pockets.
- Stay at least 6 feet apart from others and avoid crowded spaces as much as possible.
- Ventilate indoor spaces.
- Wash hands often.
- Choose to receive the [vaccine](#) when eligible.

**Q: If I've already had COVID-19, can I still get the new strain?**

**A:** Individuals who have had COVID-19 have some natural immunity to help fight off a second infection, but it is unknown [how long that protection lasts](#). Researchers continue to study if the variants have mutations that allow the virus to avoid natural antibodies and reinfect someone who has already had the virus.

**Q: Will the current COVID-19 vaccines work against the new variants?**

**A:** The effect of the vaccine against these variants is being studied by scientists and public health experts. Scientists believe — from looking at the mutations in the spike protein of this new variant — the antibodies induced by the vaccine should still protect against the virus.

Dr. Anthony Fauci, the top U.S. infectious-disease expert, said in several published news media reports that even if the vaccines aren't as effective on the new variants, they will still provide some protection. He added that the vaccines can be altered to address changes in the virus if necessary.

Pfizer and BioNTech announced that their vaccine works against the South African and U.K. variants, with a laboratory study finding that these coronavirus mutations had only small impacts on the effectiveness of antibodies generated by the company's COVID-19 vaccine. [Moderna officials](#) said its vaccine will protect against two known variants of the COVID-19 virus, and it plans to start clinical trials of a booster shot that would offer protection against the strain from South Africa, which may cause immunity to wane more quickly. Pfizer-BioNTech is also working on a booster shot amid the rise of COVID-19 variants. Further reviews of findings are pending.

**Q: Will this be similar to flu shots and require vaccination every year as the strains change?**

**A:** Scientists are researching these variants to determine that answer. Influenza (flu) viruses change often, which is why doctors recommend that you get a flu shot every year. The flu seems to mutate at a faster rate than SARS-CoV-2 (the virus that causes COVID-19), and it seems to handle more mutations in its genes, which makes it more likely to evolve resistance to preexisting antibodies. It is uncertain how an active protein in SARS-CoV-2 can tolerate mutations, so it's difficult to predict if it will behave like influenza.

*Sources: Ohio Department of Health, Centers for Disease Control and Prevention, World Health Organization, Johns Hopkins University, The Ohio State University*

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For additional information, visit [coronavirus.ohio.gov](https://coronavirus.ohio.gov).

For answers to your COVID-19 questions, call 1-833-4-ASK-ODH (1-833-427-5634).

**Your mental health is just as important as your physical health. If you or a loved one are experiencing anxiety related to the coronavirus pandemic, help is available 24 hours a day, seven days a week. Call the COVID-19 CareLine at 1-800-720-9616.**