

About Variants of the Virus that Causes COVID-19

Information about the characteristics of these variants is rapidly emerging. Scientists are working to learn more about how easily they spread, whether they could cause more severe illness, and whether currently authorized vaccines will protect people against them.

What we know

Viruses constantly change through mutation, and new variants of a virus are expected to occur over time. Sometimes new variants emerge and disappear. Other times, new variants emerge and persist. Multiple variants of the virus that causes COVID-19 have been documented in the United States and globally during this pandemic.

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. Scientists monitor changes in the virus, including changes to the spikes on the surface of the virus. These studies, including genetic analyses of the virus, are helping scientists understand how changes to the virus might affect how it spreads and what happens to people who are infected with it.

Multiple variants of the virus that causes COVID-19 are circulating globally and within the United States. In collaboration with a SARS-CoV-2 Interagency Group (SIG), [CDC established 3 classifications](#) for the SARS-CoV-2 variants being monitored: Variant of Interest (VOI), Variant of Concern (VOC), and Variant of High Consequence (VOHC).

There are currently five VOCs in the United States:

Global Variant Reports

View a global map showing reports of variants in each country.

B.1.1.7: This variant was first identified in the US in December 2020. It was initially detected in the UK.

B.1.351: This variant was first identified in the US at the end of January 2021. It was initially detected in South Africa in December 2020.

P.1: This variant was first detected in the US in January 2021. P.1 was initially identified in travelers from Brazil, who were tested during routine screening at an airport in Japan, in early January.

B.1.427 and B.1.429: These two variants were first identified in California in February 2021 and were classified as VOCs in March 2021.

These variants seem to spread more easily and quickly than other variants, which may lead to more cases of COVID-19. An increase in the number of cases will put more strain on health care resources, lead to more hospitalizations, and potentially more deaths.

So far, studies suggest that antibodies generated through vaccination with currently authorized vaccines recognize these variants. This is being closely investigated and more studies are underway.

Rigorous and increased compliance with public health mitigation strategies, such as vaccination, physical distancing, use of masks, hand hygiene, and isolation and quarantine, is essential to limit the spread of the virus that causes COVID-19 and protect public health.

What we do not know

Scientists 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 that are currently circulating
- How these variants may affect existing therapies, vaccines, and tests

What it means

Public health officials are studying these variants quickly to learn more about how to control their spread. They want to understand 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
- Change the effectiveness of COVID-19 vaccines

What CDC is doing

CDC is working to monitor the spread of identified variants, characterize emerging viral variants, and expand its ability to find new SARS-CoV-2 variants. CDC is collaborating with EPA to confirm that disinfectants on EPA's [List N: Disinfectants for Coronavirus \(COVID-19\)](#)

inactivate these variant viruses. CDC will provide updates as new information becomes available.