COVID-19

Variants of the Virus

Updated Feb. 6, 2023

What You Need to Know

- New variants of SARS-CoV-2, the virus that causes COVID-19, will continue to occur.
- CDC coordinates collaborative partnerships which continue to fuel the largest viral genomic sequencing effort to date.
- The Omicron variant, which emerged in November 2021, has many lineages. New lineages continue to emerge and spread in the United States and globally.
- We have the tools to fight variants. Take steps to protect yourself and others.
- For the most up to date information on current variants, visit CDC's COVID Data Tracker.

Latest Information on Variants

US & Global Variant Data

Definitions & Classifications

CDC's Role in Tracking Variants

Genomic Surveillance

Variants Are Expected

Viruses constantly change through mutation and sometimes these mutations result in a new variant of the virus. Some changes and mutations allow the virus to spread more easily or make it resistant to treatments or vaccines. As the virus spreads, it may change and become harder to stop.

Understanding Variants

How Variants Work

If you think about a virus like a tree growing and branching out, each branch on the tree is slightly different than the others. By comparing the branches, scientists can label them according to the differences. These small differences, or variants, have been studied and identified since the beginning of the pandemic. Some variations allow the virus to spread more easily or make it resistant to treatments or vaccines. Those variants must be monitored more carefully.

What You Need to Know About Variants | View Transcript [138 KB, 1 page]

How the Virus May Change

As a virus spreads, it has a chance to change. As genetic changes happen over time, the virus that causes COVID-19 begins to form genetic lineages. The SARS-CoV-2 virus can be mapped out similar to a family tree. All lineages have names to help scientists talk about them.

SARS-CoV-2 lineages with similar characteristics may affect how fast the virus spreads, the severity of illness it causes, or the effectiveness of treatments against it; some of these may be classified by the World Health Organization (WHO) or the U.S. SARS-CoV-2 Interagency Group (SIG). All lineages currently circulating are classified as part of the Omicron variant.

No matter the variant, a surge in cases can impact healthcare resources.
Even if an infection caused by a particular variant is less likely to cause severe disease compared to other variants, an increase in the total number of cases could cause an increase in hospitalizations, put more strain on healthcare resources, and potentially lead to more deaths.

Variants in the United States

CDC is working with many public health officials and partners to monitor all variants. CDC's COVID Data Tracker publishes estimates of how common variants are at national and regional levels. This data can change over time as more information is available.

Monitoring Variants

CDC uses viral genomic surveillance to quickly identify and track COVID-19 variants, and acts upon these findings to protect the public's health. Some variants spread more easily and quickly than others, which may lead to more cases of COVID-19. For the most up to date information about current variants, visit CDC's COVID Data Tracker.

Over the course of the pandemic, CDC has established multiple pathways to generate and share viral genomic sequence data using publicly accessible databases. These collaborations have been instrumental to fueling the largest viral genomic sequence effort to date.

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