



Respiratory Viruses

Risk Assessment Summary for SARS CoV-2 Sublineage BA.2.86

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CDC is posting updates on respiratory viruses every week; for the latest information, please visit [CDC Respiratory Virus Updates](#).

CDC has detected a new SARS-CoV-2 variant labeled BA.2.86. CDC is continually monitoring for new variants and studying their potential impact on public health.

Background

All viruses, including the virus that causes COVID-19 (SARS-CoV-2), change over time. These viruses with changes are called “variants.” These changes can affect how contagious a virus is, how well it responds to treatment, and how severely it affects people. Last week, a new variant of SARS-CoV-2 called BA.2.86 was detected in samples from people in Denmark and Israel. At least two cases have been identified in the United States. This variant is notable because it has multiple genetic differences from previous versions of SARS-CoV-2.

Current Risk Assessment

Based on what CDC knows now, existing tests used to detect and medications used to treat COVID-19 appear to be effective with this variant. BA.2.86 may be more capable of causing infection in people who have previously had COVID-19 or who have received COVID-19 vaccines. Scientists are evaluating the effectiveness of the forthcoming, updated COVID-19 vaccine. CDC’s current assessment is that this updated vaccine will be effective at reducing severe disease and hospitalization. At this point, there is no evidence that this variant is causing more severe illness. That assessment may change as additional scientific data are developed. CDC will share more as we know more.

Prevention Actions

If licensed/authorized by the FDA and recommended by the CDC, updated vaccines will be available as early as mid-September at your local pharmacy or doctor’s office.

What can you do to protect yourself and others as we learn more?

At this time, we don’t know *how well* this variant spreads, but we know that it spreads *in the same way* as other variants. That means you can still take the following actions to protect yourself and others from infection:

- Get your COVID-19 vaccines, [as recommended](#)
- Stay home if you are sick
- Get tested for COVID-19 if needed
- Seek treatment if you have COVID-19 and are at high risk of getting very sick

- If you choose to wear a mask, wear a high-quality one that fits well over your nose and mouth
- Improve ventilation
- Wash your hands

Scientific Understanding of BA.2.86 as of August 23, 2023

What follows is a scientific assessment of BA.2.86's risk profile based on what CDC knows now.

Human cases: As of August 23, 2023, 9 BA.2.86 variant sequences have been reported globally: Denmark (3); South Africa (2); Israel (1); United States (2) and United Kingdom (1). One of the cases in the United States is in a person detected through [CDC's Traveler-based Genomic Surveillance](#). The identification of these cases in multiple geographies is evidence of international transmission. Notably, the amount of genomic sequencing of SARS-CoV-2 globally has declined substantially from previous years, meaning more variants may emerge and spread undetected for longer periods of time. It is also important to note that the current increase in hospitalizations in the United States is not likely driven by the BA.2.86 variant. This assessment may change as additional data become available.

Severity: It is too soon to know whether this variant might cause more severe illness compared with previous variants. CDC is closely monitoring hospitalization rates to identify any potential early signals that the BA.2.86 variant is causing more severe illness. At this time, locations where this variant have been detected have not experienced increases in transmission indicators (e.g., cases, emergency department visits) or hospitalizations out of proportion to those seen in neighboring locations. However, it is early in the emergence of this variant and too soon to evaluate impacts based on these indicators.

Transmission: With only nine sequences detected, it is too soon to know how transmissible this variant is. Detection across multiple continents suggests some degree of transmissibility. This is notable since scientists have not detected transmission of most other highly diverged lineages, which can arise in immunocompromised persons with prolonged infections.

Wastewater Detection: A U.S. wastewater sample that was collected as part of routine monitoring in the [National Wastewater Surveillance System](#) (NWSS) has preliminarily indicated the presence of the BA.2.86 variant. Scientists are investigating this sample and will continue to closely monitor wastewater for further or more widespread evidence of BA.2.86. NWSS is one of multiple monitoring systems CDC uses to detect variants within the United States, and is meant to be used with other COVID-19 public health data to better understand COVID-19's spread. Learn more about [wastewater monitoring](#) in the United States.

Viral Genomics: BA.2.86 is a newly designated variant of SARS-CoV-2 that has a number of additional mutations compared with previously detected Omicron variants. Specifically, the genetic sequence of BA.2.86 has changes that represent over 30 amino acid differences compared with BA.2, which was the dominant Omicron lineage in early 2022. BA.2.86 also has >35 amino acid changes compared with the more recently circulating XBB.1.5, which was dominant through most of 2023. This number of genetic differences is roughly of the same magnitude as seen between the initial Omicron variant (BA.1) and previous variants, such as Delta (B.1.617.2).

Immune Impacts: The large number of mutations in this variant raises concerns of greater escape from existing immunity from vaccines and previous infections compared with other recent variants. For example, one analysis of mutations suggests the difference may be as large as or greater than that between BA.2 and XBB.1.5, which circulated nearly a year apart. However, virus samples are not yet broadly available for more reliable laboratory testing of antibodies, and it is too soon to know the real-world impacts on immunity. Nearly all the U.S. population has antibodies to SARS-CoV-2 from vaccination, previous infection, or both, and it is likely that these antibodies will continue to provide some protection against severe disease from this variant. This is an area of ongoing scientific investigation.

Therapeutics: Examination of the mutation profile of BA.2.86 suggests that currently available treatments like Paxlovid, Veklury, and Lagevrio will be effective against this variant. Monitoring is ongoing and CDC will update this document as human data on the impact of this variant on therapeutics become available.

Diagnostics (tests): Based on BA.2.86's mutation profile, the anticipated impact on molecular and antigen-based is low.

Last Reviewed: August 23, 2023