Centers for Disease Control and Prevention

Respiratory Viruses

Update on SARS CoV-2 Variant 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 is tracking a new SARS-CoV-2 variant called BA.2.86 and working to better understand its potential impact on public health. This update follows CDC's initial risk assessment summary on August 23, 2023.

The updated COVID-19 vaccine will be available in mid-September. Learn ways to keep you and your loved ones safe as we head into the fall season.

What's New?

- CDC continues to track the presence of the BA.2.86 variant.
- Since CDC's initial risk assessment, this variant has been identified in additional countries from both human and wastewater specimens.
- The variant has been identified in at least four states in the United States in samples from either people or wastewater.
- This variant is currently being studied in the laboratory to help understand how the immune system may interact with this virus.
- The current increases in cases and hospitalizations in the United States are likely being driven by infections with XBB lineage viruses, not the new BA.2.86 variant.

Background

Viruses, including the virus that causes COVID-19 (SARS-CoV-2), change over time. SARS-CoV-2 viruses with significant genetic changes are called "variants." A new variant that is very different than previous variants could behave differently, with potential changes in contagiousness or how well it responds to treatment. Over the last few weeks, a new variant called BA.2.86 has been detected in a small number of samples from infected people and waste (sewer) water in several countries, including the United States. This variant is notable because it has multiple genetic differences compared to previous versions of SARS-CoV-2 and it has been detected in several locations within a short amount of time.

Current Risk Assessment

Based on current information, existing tests used to detect and medications used to treat COVID-19 continue to be effective with this variant. Scientists are evaluating how previous immunity from vaccinations or past infections protect against this new variant. Tests of how well antibodies block the virus from infecting cells give us one measure of how well one part of the immune system might handle BA.2.86. Along with antibodies, other parts of the immune system have important roles in protecting people from the most severe outcomes of COVID-19. These other parts of the immune system have been less affected by viral evolution and are not predicted to have decreased activity against BA.2.86.

CDC's current assessment is that the updated COVID-19 vaccine, which will be available in mid-September, will likely be effective at reducing severe disease and hospitalization. Immune responses generated from prior infection also help protect against severe outcomes of COVID-19. There is currently no evidence that this variant is causing more severe illness. That assessment may change as additional scientific data are developed. CDC remains committed to releasing updates on trends and observations of this variant.

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 you are sick
- 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 30, 2023

What follows is a scientific assessment of BA.2.86's public health risk profile based on what CDC knows now. It builds on CDC's initial August 23, 2023, assessment. The assessments presented here may change as additional data become available.

BA.2.86 has continued to be detected sporadically in various countries. After first being identified in Israel, it has now been detected in human or wastewater samples in Canada, Denmark, the United States, the United Kingdom, South Africa, Sweden, Norway, Switzerland, and Thailand. Genomic sequencing for SARS-CoV-2 has fallen in much of the world, and there is a delay between specimen collection and genomic sequencing. Because of both factors, it is likely that this variant is present in additional countries.

Within the United States, three different genomic monitoring systems have detected this variant: National Genomic Surveillance (human samples), Traveler Genomic Surveillance (human samples), and National Wastewater Surveillance (wastewater samples). BA.2.86 comprises less than 1% of the circulating SARS-CoV-2 over the past two weeks in the United States.

CDC and other laboratories are working to better understand and study this variant. CDC epidemiologists are also closely tracking the geographic spread of this variant relative to overall circulation of SARS-CoV-2.

Human cases: As of August 30, 2023, 24 BA.2.86 variant sequences have been reported from human specimens globally: Denmark (10), Sweden (4), South Africa (2), Portugal (2), Canada (1), Israel (1), United Kingdom (1), and the United States, including (1) in a person detected through CDC's Traveler-based Genomic Surveillance (currently described as a Virginia case) and (2) others that were identified through CDC's US National Genomic Surveillance (Michigan and Ohio). The cases identified in the United States are likely due to multiple introductions, and identification of these cases in multiple countries is evidence of international spead. It is also important to note that, at this time, the increase in hospitalizations in the United States is likely driven by XBB lineage viruses, not BA.2.86. The XBB lineage viruses are similar to the formulation of the 2023-2024 COVID-19 vaccine, which will be available in mid-September.

Severity: The assessment as to the severity of illness associated with BA.2.86 is unchanged. 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: The assessment as to the transmissibility of BA.2.86 is unchanged. With only a limited number of 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 broad international spread of many other highly diverged lineages, which can arise in immunocompromised persons with prolonged infections.

Wastewater Detection: U.S. wastewater samples from Ohio and New York City, including collection through the National Wastewater Surveillance System (NWSS), have indicated the presence of the BA.2.86 variant. Scientists are investigating these samples 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 the spread of COVID-19.

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: Approximately 97% of the U.S. population has antibodies to SARS-CoV-2 from vaccination, previous infection, or both (hybrid immunity). Immune responses to vaccines and infections are complex and involve both humoral (antibodies) and cellular immunity. It is likely that the humoral and cellular immune responses will continue to provide protection against severe disease from this variant. Laboratories are currently working on measuring antibody neutralization of BA.2.86 as well as other immune responses. This is an area of ongoing scientific investigation.

Therapeutics: The assessment as to the impact of BA.2.86 on currently approved or authorized therapeutics is unchanged. Examination of the mutation profile of BA.2.86 suggests that currently available treatments like nirmatrelvir-ritonavir (Paxlovid), remdesivir (Veklury), and molnupiravir (Lagevrio) will be effective against this variant. This assessment is from the SARS-CoV-2 Interagency Group (SIG), which comprises experts from multiple United States government agencies. Monitoring is ongoing, and CDC will update this document as additional data on the impact of this variant on therapeutics become available.

Diagnostics (tests): The assessment as to the impact of BA.2.86 on the effectiveness of existing diagnostic tests is unchanged. Based on the SIG's assessment of the mutation profile of BA.2.86, the anticipated impact on molecular and antigen-based diagnostics is low.

Last Reviewed: August 30, 2023

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