glassdoor
Find a job that loves you back.
Get more jobs, faster.
Learn More

The Delta Variant: What Scientists Know

The variant is spreading rapidly worldwide and fueling new outbreaks in the U.S., mainly among the unvaccinated.

Hospital workers at a vaccination center in Kent, Washington, on Wednesday. Christopher Lee for The New York Times. Jim Lo Scio/EPA, EFE/Shutterstock

By Emily Anthes
Published July 30, 2021 Updated Oct. 15, 2021

English 中文简体 繁體中文 Español

The spread of the super-contagious Delta variant has prompted new restrictions around the world and spurred dark new warnings from public health officials.

"The Delta variant is more aggressive and much more transmissible than previous variants," said Dr. Rochelle P. Walensky, director of the Centers for Disease Control and Prevention, said at a White House briefing last week. "It is one of the most infectious respiratory viruses we know of and that I have seen in my 20-year career."

An internal C.D.C. document, a copy of which was obtained by The New York Times, said that Delta was as transmissible as chickenpox and "more transmissible than smallpox or the common perception against severe disease and deaths, both unvaccinated people can be infected by, and transmit, Delta, the agency noted. Even fully vaccinated people "can be infected/exhibit the virus but clinically," the document said.

This week, those dire warnings prompted the C.D.C. to change the recommendations it released in May, which had said that fully vaccinated people did not need to wear masks indoors. The agency now says that in virus hot spots, everyone, regardless of vaccination status, should wear masks in indoor public spaces. It also recommended universal masking in schools this fall.

Australian cities facing outbreaks of the variant restricted movement. Israel, which had reported one of the world's largest delayed plans to reopen indoor dining and bars, now faced increasing flights from Britain, where Delta is widespread. On Thursday, Tokyo announced that it would begin requiring proof of vaccination or a recent, negative test in order to dine indoors, in a bid to prevent a fourth wave of infections — a measure prompted, in part, by the Delta variant.

Australians cities facing outbreaks of the variant restricted movement. Israel, which had reported one of the world's largest delayed plans to reopen indoor dining and bars, now faced increasing flights from Britain, where Delta is widespread. On Thursday, Tokyo announced that it would begin requiring proof of vaccination or a recent, negative test in order to dine indoors, in a bid to prevent a fourth wave of infections — a measure prompted, in part, by the Delta variant.

Roughly 60 percent of American adults have been fully vaccinated, and several widely used vaccines in the United States appear to provide good protection against Delta. But children under 12 are still ineligible for shots, and many fully vaccinated people have been highly cautious across the country.

"If you are not vaccinated, please take the Delta variant seriously," Dr. Walensky said at the briefing. "This virus has an extraordinary ability to spread, and it remains in search of the most vulnerable person to infect. Please consider getting vaccinated and take precautions until you do."

Here are answers to some common questions about the Delta variant.

Why are people worried about the Delta variant?

Delta, formally known as B.1.617.2, is believed to be the most transmissible variant yet, spreading more easily than both the original variants of the virus and the Alpha variant first identified in Britain. It is believed to be roughly twice as contagious as the original virus.

People who are infected by Delta may carry 1,000 times more virus, and for a longer period of time, than those infected by previous variants.

Other evidence suggests that the variant may be able to partially evade the antibodies made by the immune system after a coronavirus infection or vaccination. And the variant may also render certain monoclonal antibody treatments less effective, the C.D.C. states.

Delta is also "likely more severe," the agency said in its internal document.

A recent Scotland study, for instance, found that people infected by Delta were roughly twice as likely to be hospitalized as people with those infected with Alpha. Studies in Canada and Singapore have turned up similar findings.

A pediatrician walks past an electronic information board warning of a "variant of concern" in Leicestershire in Britain on Tuesday. Oli Scarff/Agence France-Presse — Getty Images

Does the Delta variant cause different symptoms?

It's not clear yet. "We're hearing for good data," said Dr. Michael Osterholm, director of the Center for Infectious Disease Research and Policy at the University of Minnesota, in June.

In Britain, where the variant is widespread, reports have emerged that Delta may cause different symptoms than other variants do. Researchers conducting the Covid Symptom Study, which asks people with the disease to report their symptoms in an app, have found that the most common symptoms of Covid have changed as the variant has spread through Britain.

The Coronavirus Pandemic: Latest Updates

- Pace says the first U.S. Omicron case is another reason for Americans to get vaccinations and boosters.
- Most new cases in South Africa are now the Omicron variant, officials say.
- The first Omicron case has been detected in the U.S.

"What we've noticed in the last month, we're seeing different sets of symptoms than we were seeing in January," Tim Spector, a genetic epidemiologist at King's College London who leads the study, said.

Headaches, a sore throat and a runny nose are now among the most frequently reported symptoms, Dr. Spector said, with fever, cough and loss of smell less common.

These data, however, have not yet been published in a scientific journal, and some scientists remain unconvinced that the symptom profile has truly changed. The severity of Covid-19 regardless of the variant, can vary widely from one person to another.

"I'd wait for published data before I make a conclusion," Angela Rasmussen, a virologist at the Vaccine and Infectious Disease Organization in Saskatoon, Canada, recently wrote on Twitter. "The fact is Covid is genetically associated with a wide variety of symptoms, so it's hard to say if this is truly unusual or if this is anecdotal."

Even if the data held up, it does not necessarily mean that Delta is more dangerous than previous variants. Changes in the Covid symptom profile could be a result of the fact that the virus is primarily infecting younger people, who are less likely to be hospitalized, or those who may already have some immunity to the virus from a previous infection, for example.

If I'm vaccinated, do I need to worry about getting sick?

Although there is not yet good data on how all of the vaccines fare against Delta, two dozen of several widely used shots, including those made by Pfizer-BioNTech, Moderna and AstraZeneca, appear to retain most of their effectiveness against the Delta variant, research suggests.

Delta may cause more frequent breakthrough infections, or infections in people who have been vaccinated, than other variants. However, those infections tend to be mild or asymptomatic. The vaccines prevent more than 90 percent of severe disease, the C.D.C. document notes.

"Being fully vaccinated gives you a high degree of protection against infection, and an even higher degree of protection against severe illness, hospitalization and death," Dr. Walensky said at last week's briefing. "That is what these vaccines were designed for."

A man is given the Covid-19 vaccine in Chelsea, Mass. Jonathan Cohen/Associated Press — AP Photo

According to one recent study, the Pfizer-BioNTech vaccine was 88 percent effective at protecting against symptomatic disease caused by Delta, nearly matching its 93 percent effectiveness against the Alpha variant and 95 percent against the original version of the virus. But a single dose of the vaccine was just 33 percent effective against Delta, the study found.

"Fully immunized individuals should do well with this new phase of the pandemic," said Dr. Paul Offit, a vaccine expert and chief of Tropical Medicine at Baylor College of Medicine, said in an interview last month. "However, the protection offered by a single dose appears less, and of course if you are not at all vaccinated, consider yourself at high risk."

Data on Johnson & Johnson's single-shot vaccine have been more mixed and scant. A South Africa study, for example, reported that results from a small trial suggested that its vaccine retained most of its effectiveness against Delta.

The Coronavirus Pandemic: Key Things to Know

The Omicron variant. The variant first spread in Gauteng, a densely populated region in South Africa, and has since been detected in at least 63 other countries. It is more transmissible than other variants, but it may be less dangerous. Clearly all of the infections were caused by the Delta variant, sequencing suggests. On average, they contained the same amount of virus as unvaccinated people, researchers found.

Tracking Omicron and Other Coronavirus Threats

See which countries have reported cases of the Omicron variant.

United States

Canada

Mexico

United Kingdom

Germany

Netherlands

Denmark

Belgium

France

Spain

Portugal

Italy

Greece

Israel

Turkey

Russia

Kazakhstan

China

South Korea

Japan

Taiwan

Hong Kong

Thailand

Vietnam

Philippines

Australia

New Zealand

Nigeria

Ghana

Cameroon

Ethiopia

Kenya

Uganda

Tanzania

Zambia

Botswana

Eswatini

Lesotho

Mozambique

Malawi

Zimbabwe

Namibia

Angola

Rwanda

Cases in South Africa

Cases in Gauteng

A new C.D.C. study, published on Friday, documented a Covid-19 outbreak among people who attended summer events or large public gatherings in Barnstable County, Mo. Among the 469 cases associated with the outbreak, 74 percent occurred among people who had been fully vaccinated. Clearly all of the infections were caused by the Delta variant, sequencing suggests. On average, they contained roughly the same amount of virus as unvaccinated people, researchers found.

Will Delta return us to last year's pandemic peak?

After a long and steady decline, cases are on the rise again in the United States, likely fueled by Delta. Roughly 75,000 new infections were reported each day, up from about 12,000 a day a little over a month ago.

But case numbers remain far below last winter's peak, and experts do not expect them to rise that high again. "I think we are not going to see another big, national surge in the United States, because we have enough vaccination to prevent that," Dr. Osterholm said last month.

However, Delta is driving outbreaks in areas where vaccination rates are low.

"In places where there's still a lot of susceptibility in the virus, it is still very, very dangerous," said Dr. Ashish Jha, who will become dean of an infectious disease epidemiologist at the University of North Carolina, said in June. "But even in those states, and certainly nationally, we're actually not getting back to the numbers we were seeing last winter."

And because many of the most vulnerable Americans — including older adults and those with chronic health conditions — have been vaccinated, hospitalizations rates are increasing more slowly than the number of total infections.

What can I do?

Get vaccinated. If you're already vaccinated, encourage your family, friends and neighbors to get vaccinated.

Vaccination is likely to slow the spread of all the variants and reduce the odds that even more dangerous variants emerge.

"I encourage people who are vaccinated to trust in the vaccines but also recognize that they are contributing to the overall transmission risks," Sandra Papesca, an infectious disease epidemiologist at George Mason University, said last month. "So it's really about ensuring herd, national and global immunity."

Face masks, which remains a particularly important tool for those who are ineligible for or do not have access to vaccines, can provide additional protection. The C.D.C. now recommends that people who are fully vaccinated wear masks in crowded settings in public indoor spaces in areas of the country in which cases are surging; if they have compromised immune systems; or if they live with people who are ill or have an elderly or infants who may be susceptible to the virus.

"We are fighting the same virus, but a virus that's become fitter and better adapted to transmitting among us humans," Dr. Michael Ryan, executive director of the W.H.O. health emergencies program, said at a news briefing on Friday. "That's the changed. But the fundamentals of how we control this virus haven't changed."

the way in which we fight the virus hasn't changed. And vaccines and all of the other measures still remain hugely effective if applied in a comprehensive fair, equitable, and rapid manner."

ADVERTISEMENT

© 2021 The New York Times Company NYTCo Contact Us Accessibility Work with us Advertise T Brand Studio Your Ad Choices Privacy Policy Terms of Service Terms of Sale Site Map Help Subscriptions