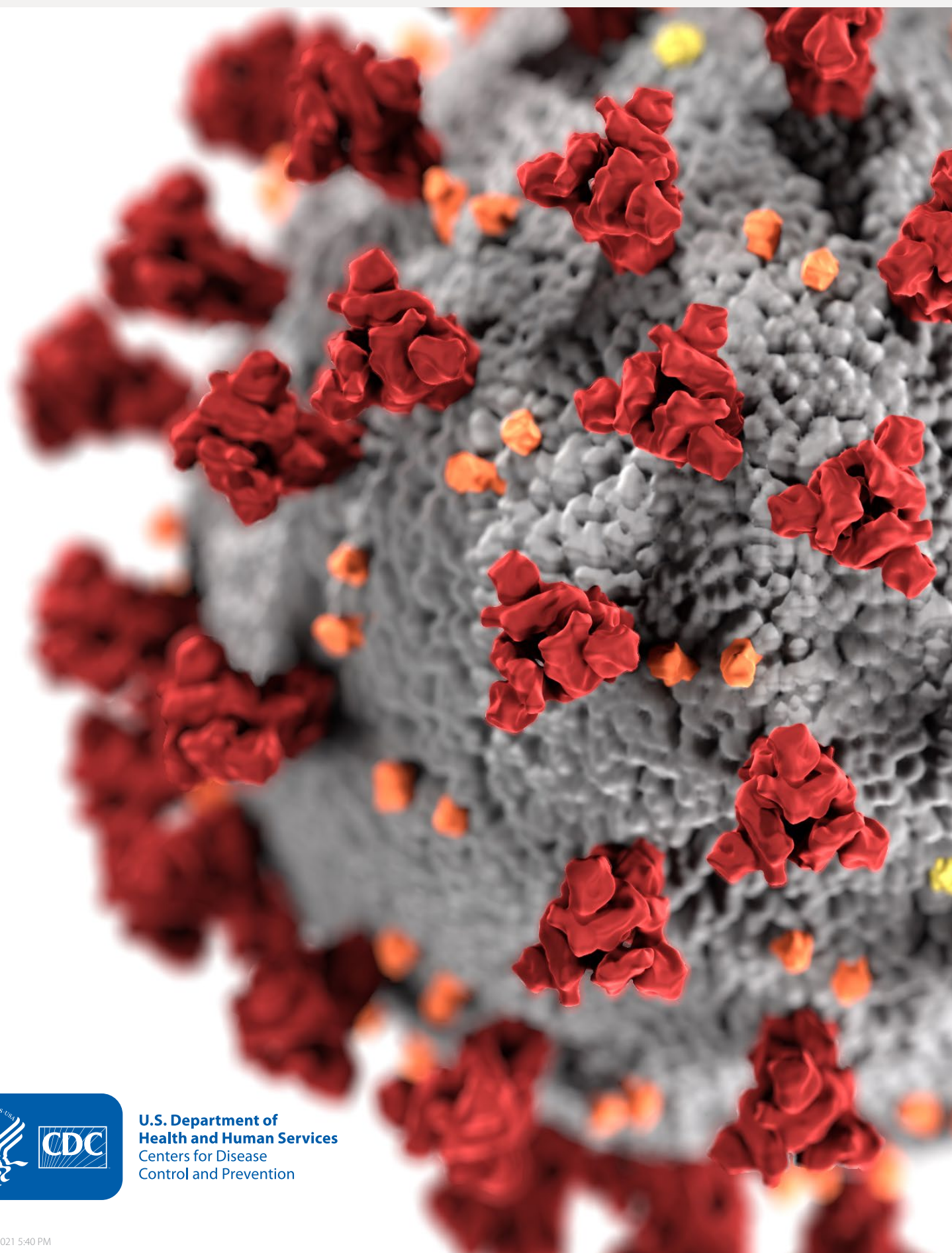


COVID-19 DELTA VARIANT RESOURCE GUIDE | COVID-19 |

Information current as of August 20, 2021



**U.S. Department of
Health and Human Services**
Centers for Disease
Control and Prevention

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What we know about the changing science of the Delta variant*

On July 27, 2021, CDC released [updated guidance](#) on the need for urgently increasing COVID-19 vaccination coverage and a recommendation for everyone in areas of [substantial or high transmission](#) to wear a mask in public indoor places, even if they are fully vaccinated. CDC issued this new guidance due to several concerning developments and newly emerging data signals. First is a reversal in the downward trajectory of cases. In the days leading up to our guidance update, CDC saw a rapid and alarming rise in the COVID case and hospitalization rates around the country.

- In late June, our 7-day moving average of reported cases was around 12,000. On July 27, the 7-day moving average of cases reached over 60,000. This case rate looked more like the rate of cases we had seen before the vaccine was widely available.

Second, new data began to emerge that the Delta variant was more infectious and was leading to increased transmissibility when compared to other variants, even in vaccinated individuals. This includes recently published data from CDC and our public health partners, unpublished surveillance data that will be publicly available in the coming weeks, information included in CDC's updated [Science Brief on COVID-19 Vaccines and Vaccination](#), and ongoing outbreak investigations linked to the Delta variant.

Delta is currently the predominant strain of the virus in the United States. Below is a high-level summary of what CDC scientists have recently learned about the Delta variant. More information will be made available when more data are published or released in other formats.

The Delta variant causes more infections and spreads faster than early forms SARS-CoV-2

- **The Delta variant is more contagious:** The Delta variant is highly contagious, nearly twice as contagious as previous variants.
- **Some data suggest the Delta variant might cause more severe illness than previous strains in unvaccinated persons.** In two different studies from Canada and Scotland, patients infected with the Delta variant were more likely to be hospitalized than patients infected with Alpha or the original virus strains.
- **Unvaccinated people remain the greatest concern:** Although breakthrough infections happen much less often than infections in unvaccinated people, individuals infected with the Delta variant, including fully vaccinated people with symptomatic breakthrough infections, can transmit it to others. CDC is also continuing to assess data on whether fully vaccinated people with asymptomatic breakthrough infections can transmit. However, the greatest risk of transmission is among unvaccinated people who are much more likely to contract, and therefore transmit the virus.
- **Fully vaccinated people with Delta variant breakthrough infections can spread the virus to others. However, vaccinated people appear to be infectious for a shorter period:** Previous variants typically produced less virus in the body of infected fully vaccinated people (breakthrough infections) than in unvaccinated people. In contrast, the Delta variant seems to produce the same high amount of virus in both unvaccinated and fully vaccinated people. However, like other variants, the amount of virus produced by Delta breakthrough infections in fully vaccinated people also goes down faster than infections in unvaccinated people. This means fully vaccinated people are likely infectious for less time than unvaccinated people.

Vaccines in the US are highly effective, including against the Delta variant

- The COVID-19 vaccines authorized in the United States are highly effective at preventing severe disease and death, including against the Delta variant. But they are not 100% effective and some fully vaccinated people will become infected (called a breakthrough infection) and experience illness. For such people, the vaccine still provides them strong protection against serious illness and death.

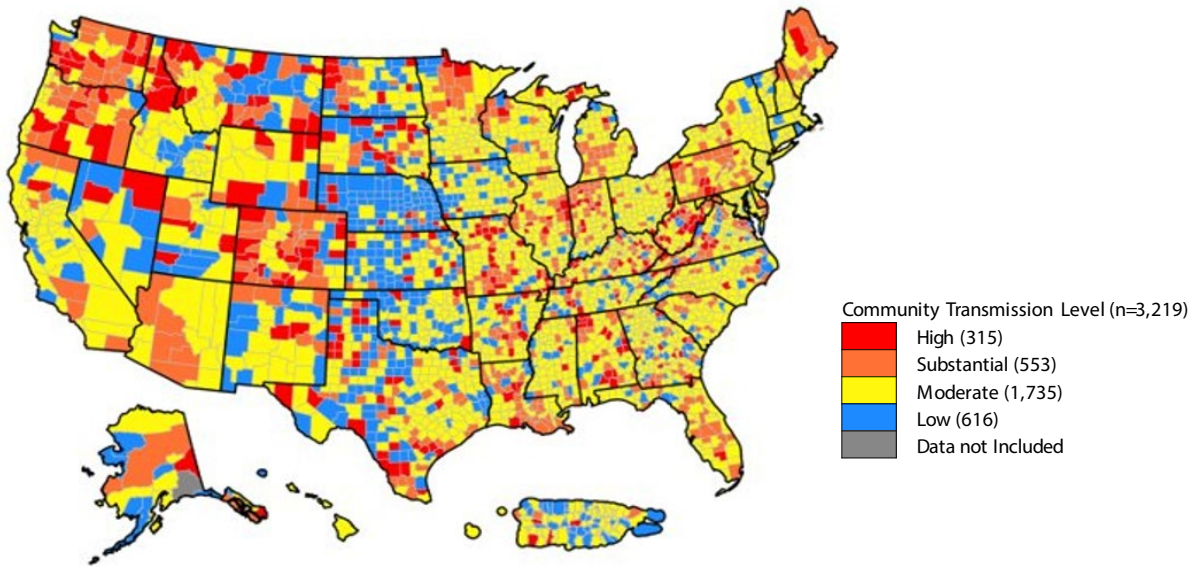
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Given what we know about the Delta variant, vaccine effectiveness, and current vaccine coverage, layered prevention strategies, such as wearing masks, are needed to reduce the transmission of this variant

- At this time, as we build the level of vaccination nationwide, we must also use all the prevention strategies available, including masking indoors in public places, to stop transmission and stop the epidemic.
- Vaccines are playing a crucial role in limiting spread of the virus and minimizing severe disease. Although vaccines are highly effective, they are not perfect and there will be vaccine breakthrough infections. Millions of Americans are vaccinated, and that number is growing. This means that even though the risk of breakthrough infections is low, there will be thousands of fully vaccinated people who become infected and able to infect others, especially with the surging spread of the Delta variant. Low vaccination coverage in many communities is driving the current rapid and large surge in cases associated with the Delta variant, which also increases the chances that even more concerning variants could emerge.

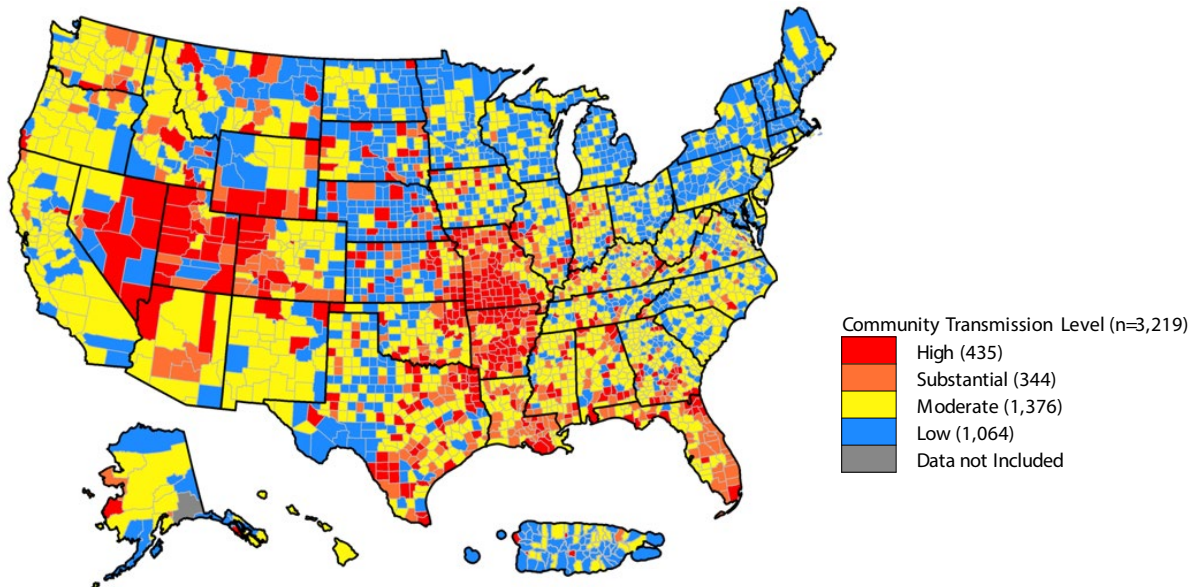
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Level of Community Transmission by County – June 2, 2021



Estimates for 50 states, D.C., and Puerto Rico. For total new cases per 100,000 persons in the past 7 days, High is considered ≥ 100 , Substantial: 50-99.99, Moderate: 10-49.99, Low: 0-9.99. For percentage of Nucleic Acid Amplification Tests (NAATs) that are positive during the past 7 days, High is considered ≥ 10 , Substantial: 8-9.99, Moderate: 5-7.99, Low: 0-4.99. The Valdez-Cordova Census Area in Alaska is not included in the 3219 counties and is represented as gray.

Level of Community Transmission by County – July 6, 2021



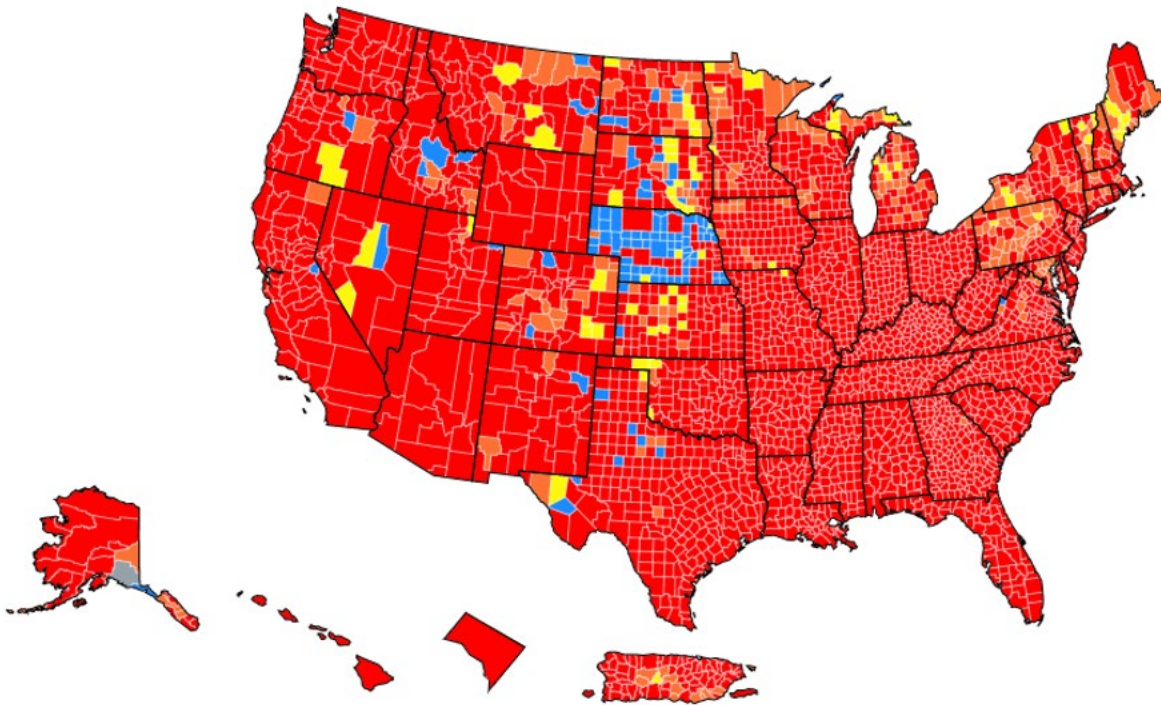
Estimates for 50 states, D.C., and Puerto Rico. For total new cases per 100,000 persons in the past 7 days, High is considered ≥ 100 , Substantial: 50-99.99, Moderate: 10-49.99, Low: 0-9.99. For percentage of Nucleic Acid Amplification Tests (NAATs) that are positive during the past 7 days, High is considered ≥ 10 , Substantial: 8-9.99, Moderate: 5-7.99, Low: 0-4.99. The Valdez-Cordova Census Area in Alaska is not included in the 3219 counties and is represented as gray.

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County Overall Level of Community Transmission– August 18, 2021

	Total to Date	Most Recent Day	7-Day Daily Average	Week-On-Week Change
Cases	37,259,886	157,694	133,056	+14.0%
Confirmed COVID Hospital Admissions	2,587,871	12,530	11,521	+14.2%
Deaths	623,244	1,054	641	+10.8%
Test Positivity	7.7%	N/A	9.7%	-1.4 pct pts

Note: Case and death are as of August 18, 2021; hospital data are as of August 17, 2021; and test positivity data are as of August 16, 2021.



Level of Risk	Low	Moderate	Substantial	High
% of Countries (7/27–8/2/2021)	3.2%	2.0%	8.0%	86.8%
	↓0.9%	↓3.0%	↓5.9%	↑8.8%

Based on new cases per 100,000 persons and % positive tests during the last 7 days

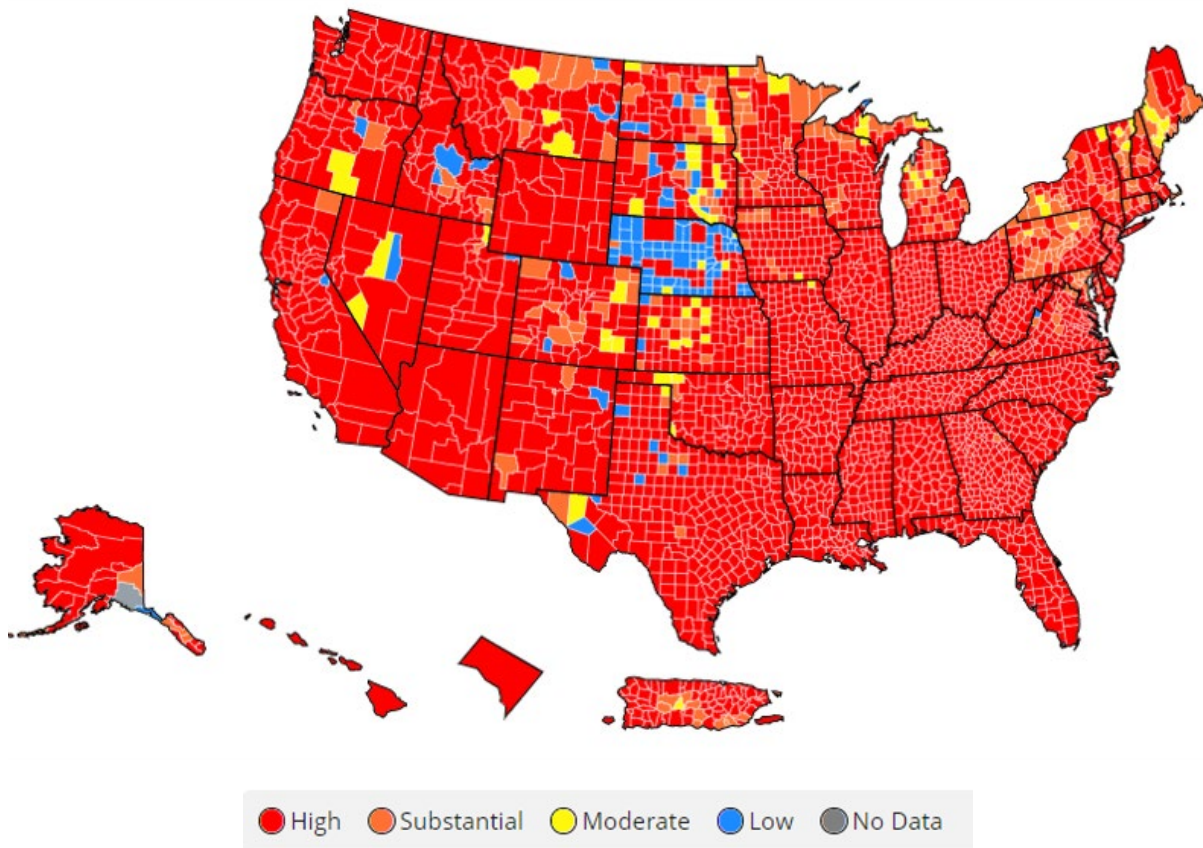
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To stop Delta: CDC Recommends

- Get vaccinated
- Wear masks in public indoor settings in areas of substantial or high transmission
- Wear masks in all K-12 schools

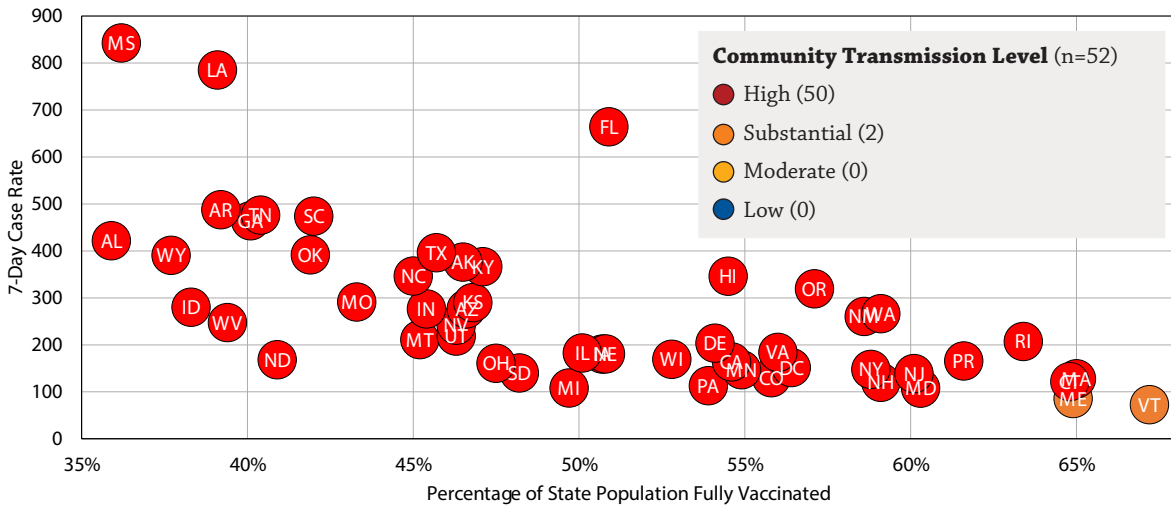
August 18, 2021

95% of counties in the U.S. have substantial or high transmission



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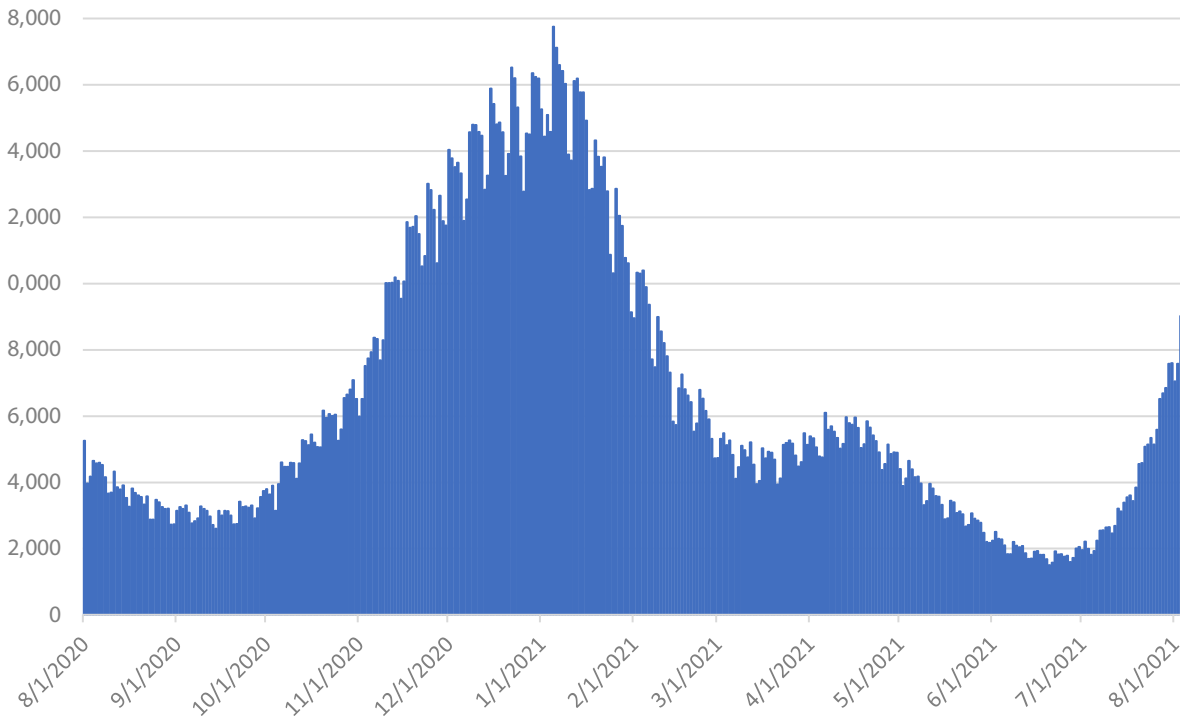
COVID-19 Case Rate (7-day rate per 100,000) versus Percent of State Population Fully Vaccinated, August 18, 2021



https://covid.cdc.gov/covid-data-tracker/#cases_community and <https://covid.cdc.gov/covid-data-tracker/#vaccinations>

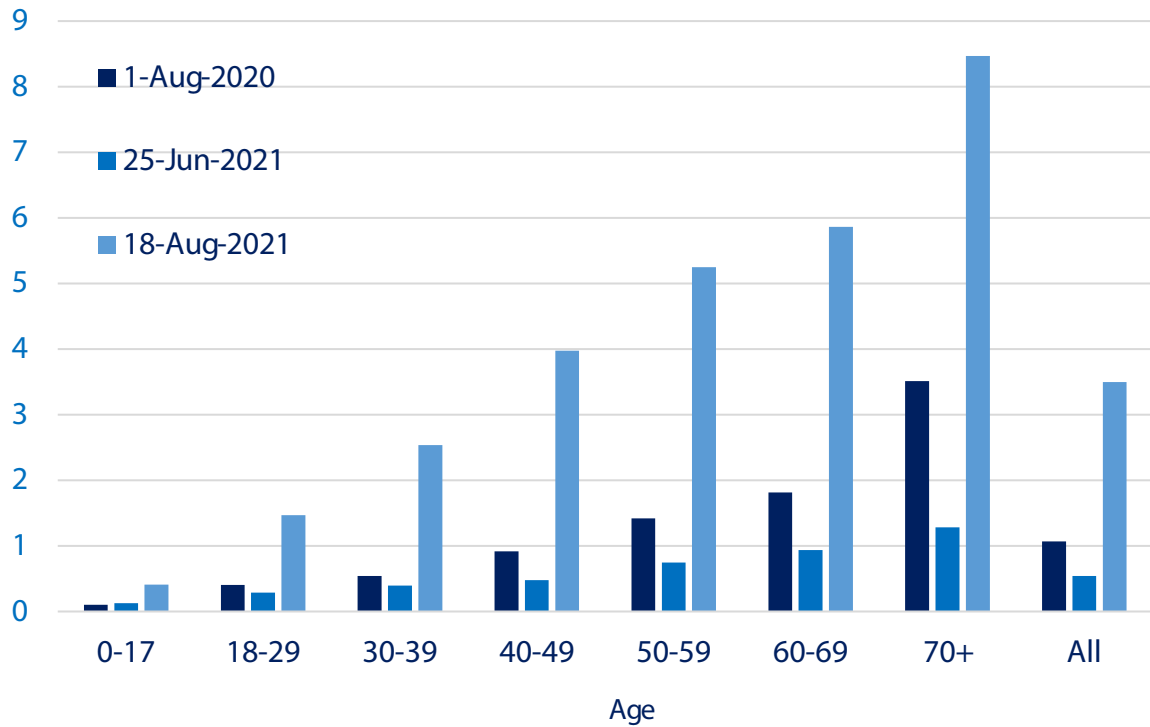
Note: some case rates may be underestimated because of lags in reporting.

Confirmed COVID-19 Hospital Admissions (as of August 18, 2021)



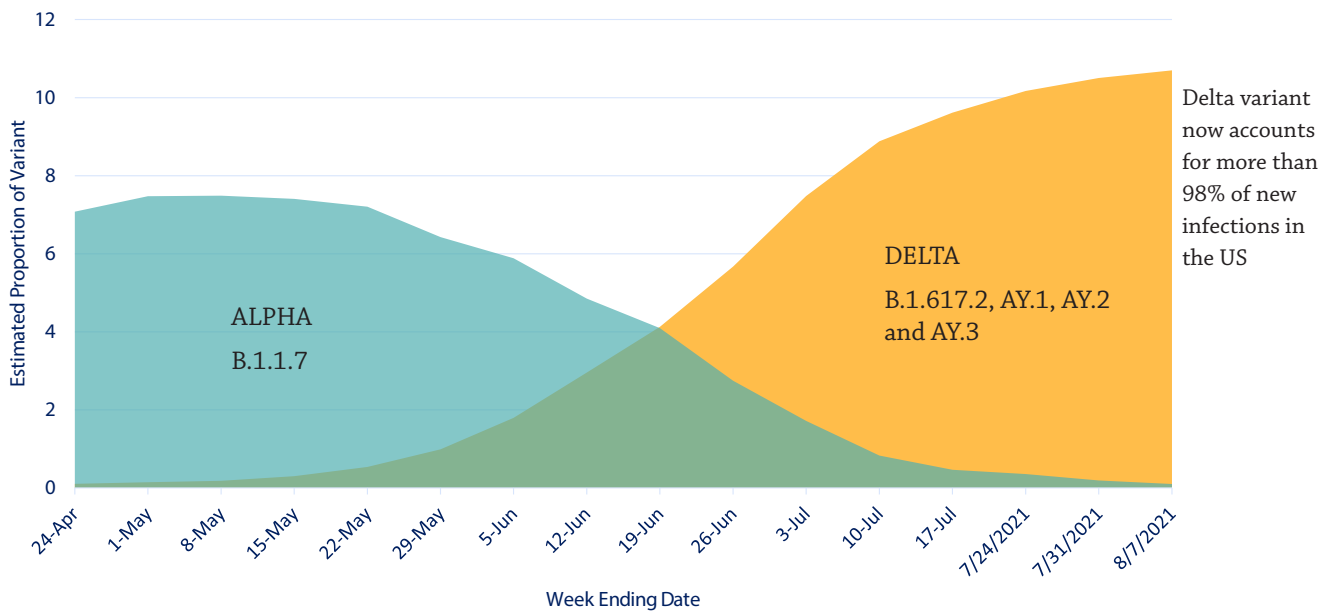
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Confirmed COVID-19 Hospital Admissions (rate per 100,000)



- 52 jurisdictions report an increase in new hospital admissions with confirmed COVID-19, since June 25, 2021.
- Admission counts are currently highest in older age groups. However, since June 25, 2021, persons aged 40–49 years have had the largest increase in new admissions (+835%), followed by persons aged 50–59 years (+703%).

US Estimated Proportions of Alpha and Delta Variants



Data collected for two-week time periods between April 24, 2021, and August 7, 2021

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What changed from May 2021 when CDC said vaccinated people did not need to mask?

- CDC issued updated guidance for fully vaccinated people on July 27, 2021 recommending that people who are vaccinated or unvaccinated and live in an area with [substantial or high transmission](#) of COVID-19, as well as their family and community, will be better protected by wearing a mask when in indoor public places.
- This change was due to several concerning developments and newly emerging patterns.
 - » New domestic data began to emerge that the Delta variant was more infectious and was leading to increased transmissibility, including transmissibility in some fully vaccinated people who experienced breakthrough infections. In addition, through CDC's long-standing partnerships with public health agencies in other countries, CDC was made aware of additional patterns of increased transmissibility with the Delta variant, and of laboratory markers of increased viral load in those infected. Some of these data have recently published and can be found in the reference page of this document. CDC will release additional data as it becomes available.
 - » CDC saw a rapid and alarming rise in the COVID case rate around the country.
 - In late June 2021, our 7-day moving average of daily reported cases was below 12,000. On July 27, 2021, the 7-day moving average of daily reported cases surpassed 60,000 and was trending upward. This case rate looked more like the rate of cases we had seen before the vaccine was widely available, with cases primarily surging in areas with low vaccination coverage. It was also much higher than the daily case count average of about 37,000 that was reported in May 2021 when CDC revised the guidance for fully vaccinated individuals.
 - » New hospital admissions were steadily increasing nationally, with evidence of healthcare system strain in several states.
 - Nationally, new hospital admissions reached a 7-day daily average of 5,505 on July 27, 2021 exceeding the summer 2020 peak of 5,126.
- Even with the new information of increased transmissibility in those who are vaccinated, the majority of transmission, hospitalizations, and deaths related to COVID-19 are among the unvaccinated.

How is spread different with the Delta variant?

- Vaccinated people are still less likely to contract COVID-19 and if they do, are protected from severe outcomes (severe disease, hospitalization, and death). However, data indicate that they can spread the virus to others and likely spread it as easily as unvaccinated people who are infected.
- People infected with Delta are about two times more infectious to others than people infected with prior strains.
 - » These data come from several sources, some of which are published and some which are forthcoming:
 - Information publicly posted by the U.K. ([Investigation of SARS-CoV-2 variants of concern: technical briefings - GOV.UK \(www.gov.uk\)](#))
 - Papers that are currently undergoing peer-review and are posted on pre-print servers
 - Data shared by partner countries that CDC expects to be published shortly.
 - Outbreak investigations, like the one in Barnstable County, Massachusetts
 - Additional information can be found in the reference page of this document
- Early data suggest that vaccinated people are infectious for a shorter period of time.

What are the data supporting the updated guidance for fully vaccinated people?

- When CDC updated the [guidance for fully vaccinated people](#), there was a mix of publicly available and not yet published data. Public health agencies are often tasked with making important and critical decisions for quick action, even when data are not fully published or finalized for release.

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- The reference document in this resource provides a compilation of studies available to date.
- A science brief on the new guidance can be found here [Science Brief: COVID-19 Vaccines and Vaccination \(cdc.gov\)](#)
- Transmission data found in the COVID Data Tracker: <https://covid.cdc.gov/covid-data-tracker/#datatracker-home>.

What is the possibility of breakthrough infection after vaccination with the Delta variant?

- Breakthrough infections are expected. COVID-19 vaccines are effective at preventing most infections. But, like most vaccines, they are not 100% effective.
- Fully vaccinated people with a breakthrough infection are less likely to develop serious illness than those who are unvaccinated and get COVID-19.
- Even when fully vaccinated people develop symptoms, they tend to be less severe symptoms. This means they are much less likely to be hospitalized or die than people who are not vaccinated.
- People who get vaccine breakthrough infections can be contagious.
- CDC is collecting data on vaccine breakthrough infections and closely monitors the safety and effectiveness of all Food and Drug Administration (FDA)-authorized COVID-19 vaccines. As the number of people who are fully vaccinated goes up, the number of breakthrough infections will also increase.
- New CDC data from multiple studies, all with data in the context of the Delta variant, make very clear that vaccine-induced protection against SARS-CoV-2 infection does begin to decrease over time, and in association with the dominance of the Delta variant, we are starting to see evidence of reduced protection against mild and moderate disease in certain populations.
- While we are seeing evidence of reduced protection against mild and moderate disease, protection against hospitalization and severe outcomes seems to be holding well.
- Looking at all the data available, we are concerned that this protection against severe disease, hospitalization, and death could diminish in the months ahead, especially among those who were vaccinated during the earlier phases of the vaccination rollout.

How is CDC ensuring that we know the prevalence and severity of breakthrough infections?

- CDC has multiple surveillance systems and on-going research studies to monitor the performance of vaccines in preventing infection, disease, hospitalization, and death. CDC also collects data on breakthrough infections through outbreak investigations. Examples of CDC’s systems for monitoring performance of vaccines are listed in the table below.

Outcome monitored	Population monitored	Monitoring system
Infection	Long-term care facility residents	NHSN
Symptomatic illness	Healthcare providers and frontline workers	HEROES
Hospitalization and deaths	Hospitalized adults	IVY
Hospitalization and deaths	Hospitalized people (all ages)	COVID-NET
Hospitalization and deaths	Hospitalized people (all ages)	VISION

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- One important system that CDC uses to track breakthrough infections is called COVID-NET (the Coronavirus Disease 2019 [COVID-19]-Associated Hospitalization Surveillance Network). This population-based surveillance system collects reports of lab-confirmed COVID-19-related hospitalizations in 99 counties in 14 states. COVID-NET covers approximately 10% of the U.S. population. Information on COVID-NET vaccine breakthrough data will be published as it becomes available.
- When the United States began widespread COVID-19 vaccination, CDC put in place a system where state health departments could report COVID-19 breakthrough infections to CDC. After collecting data on thousands of infections, CDC changed the reporting system (on May 1, 2021) to improve data quality on breakthrough infections. CDC transitioned from monitoring all reported vaccine breakthrough infections to focus on those among people who are hospitalized or die. This shift helped maximize the quality of the data collected on infections of greatest clinical and public health importance. Currently, 49 states are reporting data, which helps provide a picture of the data from around the country.
- By monitoring breakthrough infections that result in hospitalization or death, CDC can focus on identifying:
 - » Unusual patterns, such as trends in age or sex
 - » The specific types or brands of vaccine involved
 - » Underlying health conditions in these persons
 - » Which SARS-CoV-2 variants are observed in persons who are hospitalized or who die
 - » Demographic cohorts (e.g., essential workers, health care workers, elderly)
- Additional information on breakthrough infections will be updated and can be found at the following link <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/effectiveness/why-measure-effectiveness/breakthrough-cases.html>

What is the likelihood that the Delta variant could be transmitted by vaccinated individuals?

- Vaccinated people are still less likely to contract COVID-19 and if they do, are protected from severe outcomes (severe disease, hospitalization, and death). However, data indicate that they can spread the virus to others and likely spread it as easily as unvaccinated people who are infected.
- Previous variants typically produced less virus in the body of infected fully vaccinated people (breakthrough infections) than in unvaccinated people.
- In contrast, the Delta variant seems to produce the same high amount of virus in both unvaccinated and fully vaccinated people.
- However, like other variants, the amount of virus produced by Delta breakthrough infections in fully vaccinated people also goes down faster than infections in unvaccinated people. This means fully vaccinated people are likely infectious for less time than unvaccinated people.

Do we need boosters?

- On August 18, 2021, The Administration announced the development of a plan to begin administering booster shots in the fall of 2021 subject to FDA conducting an independent evaluation and determination of the safety and effectiveness of a third dose of the Pfizer and Moderna mRNA vaccines and CDC's Advisory Committee on Immunization Practices (ACIP) issuing booster dose recommendations based on a thorough review of the evidence.
- As of August 13, 2021, an additional of COVID-19 vaccine is [recommended](#) for people with moderately to severely compromised immune systems after an initial two-dose vaccine series.
 - » Emerging data suggest some people with moderately to severely compromised immune systems do not always build the same level of immunity compared to people who are not immunocompromised. In addition, in small studies, fully vaccinated immunocompromised

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people have accounted for a large proportion of hospitalized breakthrough cases (40-44%). Immunocompromised people who are infected with SARS CoV-2 are also more likely to transmit the virus to household contacts.

- » While people who are immunocompromised make up about 3% of the U.S. adult population, they are especially vulnerable to COVID-19 because they are more at risk of serious, prolonged illness. Included in CDC's recommendation are people with a range of conditions, such as recipients of organ or stem cell transplants, people with advance or untreated HIV infection, active recipients of treatment for cancer, people who are taking some medications that weaken the immune system, and others. A [full list of conditions](#) can be found on CDC's website.
- While vaccination is likely to increase protection in this population, even after vaccination, people who are immunocompromised should continue to follow [current](#) prevention measures (including wearing [a mask](#), [staying 6 feet apart from others](#) they do not live with, and avoiding crowds and poorly ventilated indoor spaces) to protect themselves and those around them against COVID-19 until advised otherwise by their healthcare provider.

What is the difference between “viral load” and infectiousness?

- For COVID-19, the viral load is the amount of virus detected in a nasal swab. When infection is diagnosed, this information can be used to make informed predictions about how infectious someone is, that is, how likely they are to transmit to others. Higher viral loads generally correlate with higher degrees of infectiousness.

With the Delta variant, are asymptomatic vaccinated cases just as infectious as unvaccinated cases, or is it only symptomatic vaccinated cases who have similar viral loads to unvaccinated cases?

- Among unvaccinated people who get infected, current data suggests that those who remain asymptomatic make up about 30-40% of all infections. They tend to have lower viral burden but are still infectious to others.
- At this time, we do not yet know what fraction of Delta variant infections in unvaccinated and in vaccinated people occur and never cause symptoms.
- CDC is investigating that question with cluster investigations and special studies. Regardless, all people need to be aware that infection with SARS-CoV-2, the virus that causes COVID-19, can cause you to be infectious to others when you feel otherwise well and don't have symptoms.

What can Members of Congress do to help protect their constituents?

- With the Delta variant, getting vaccinated is more urgent than ever.
- As trusted voices in their communities, Members of Congress can reinforce:
 - » The importance of all people who are eligible getting vaccinated as soon as possible to protect themselves and their loved ones from higher risk for hospitalization or death.
 - » In areas with substantial and high transmission, everyone (including fully vaccinated people) should wear a mask in public indoor settings to help prevent spread of Delta and protect others.
- Vaccinations and adherence to infection control measures can stop the spread of this virus.
- As Members consider future legislation, long-term sustainable funding for public infrastructure helps CDC, as well as our state and local partners, be more prepared for future pandemics. Click [here](#) to see how COVID supplemental funding has been provided to states and jurisdictions.

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