



COVID-19 and Children

Tennessee Health Disparities Task Force

COVID-19 in the News

- Lots of recent news coverage of COVID-19 and children

Tennessee's Pediatric COVID Cases Are Through The Roof, And Hospitals Are Feeling It

BLAKE FARMER   • AUGUST 23, 2021

CORONAVIRUS

COVID-19 cases among Tennessee children spike as delta variant spreads. What to know.

Molly Weisner Nashville Tennessean

Published 1:19 p.m. CT Aug. 6, 2021 | Updated 7:48 a.m. CT Aug. 17, 2021

Some children's hospitals in Covid-19 hotspots are especially busy



By **Jen Christensen**, CNN

Updated 6:29 AM ET, Wed August 11, 2021

At Tennessee children's hospitals, one surging virus leaves little room for another

COVID-19 is infecting and hospitalizing more Tennessee kids than ever



Students walk down a hallway at West Wilson Middle School in Wilson County on August 5, 2021. The coronavirus is now infecting more young children, and hospitalizing more minors, than at any other time in the pandemic. *Alan Poinzer*

Brett Kelman Nashville Tennessean

Published 6:00 p.m. CT Aug. 17, 2021 | Updated 11:59 a.m. CT Aug. 18, 2021

THE CORONAVIRUS CRISIS

Nearly 94,000 Kids Got COVID-19 Last Week. They Were 15% Of All New Cases

Updated August 10, 2021 - 3:01 PM ET

JOE HERNANDEZ 

The Delta Variant Is Sending More Children to the Hospital. Are They Sicker, Too?

It is not yet clear whether the Delta variant causes more severe disease in children, but its high level of infectiousness is causing a surge of pediatric Covid-19 cases.



Overview

- COVID-19 in Children
- Multisystem Inflammatory Syndrome in Children (MIS-C)
- Downstream Impacts of COVID-19 on Children and Families
- COVID-19 Vaccination in Children
- Recommendations
- Questions



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COVID-19 Data

COVID-19 by Age Group

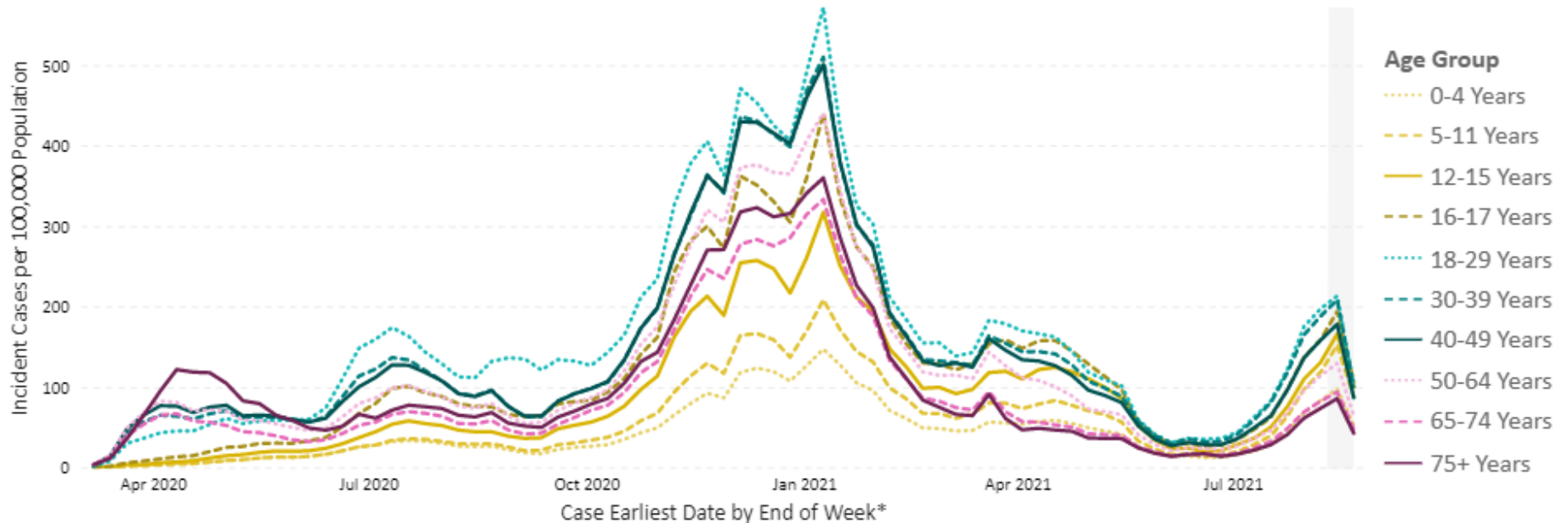
COVID-19 Weekly Cases per 100,000 Population by Age Group, United States



Jurisdiction: US
3/7/2020 8/21/2021

March 01, 2020 - August 21, 2021*

Cases: Sex, Age, Race/Ethnicity | Deaths: Sex, Age, Race/Ethnicity



US: The most recent line level case record was reported during the week ending on Aug 21, 2021. Percentage of cases reporting age by date - 98.80%

US territories are included in case and death counts but not in population counts. Potential two-week delay in case reporting to CDC denoted by gray bars.

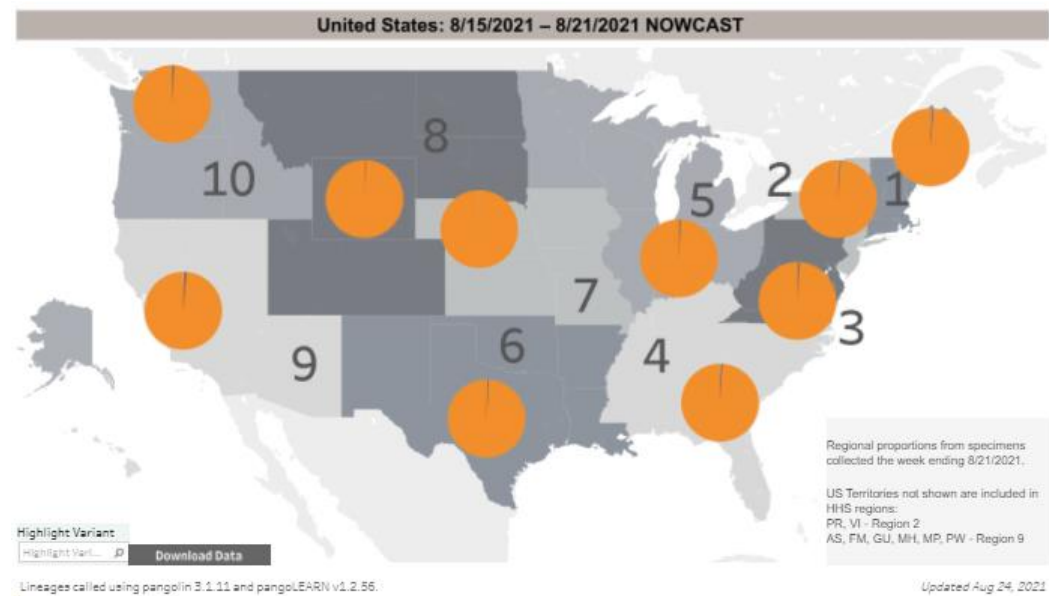
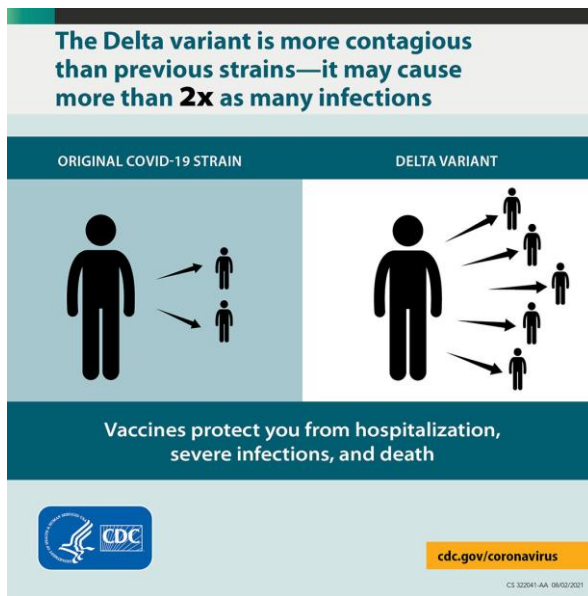
*Case Earliest Date is the earliest of the clinical date (related to illness or specimen collection and chosen by a defined hierarchy) and the Date Received by CDC.

Last Updated: Aug 23, 2021

Source: CDC COVID-19 Case Line-Level Data, 2019 US Census, HHS Protect; Visualization: Data, Analytics & Visualization Task Force and CDC CPR DEO Situational Awareness Public Health Science Team

Delta Variant

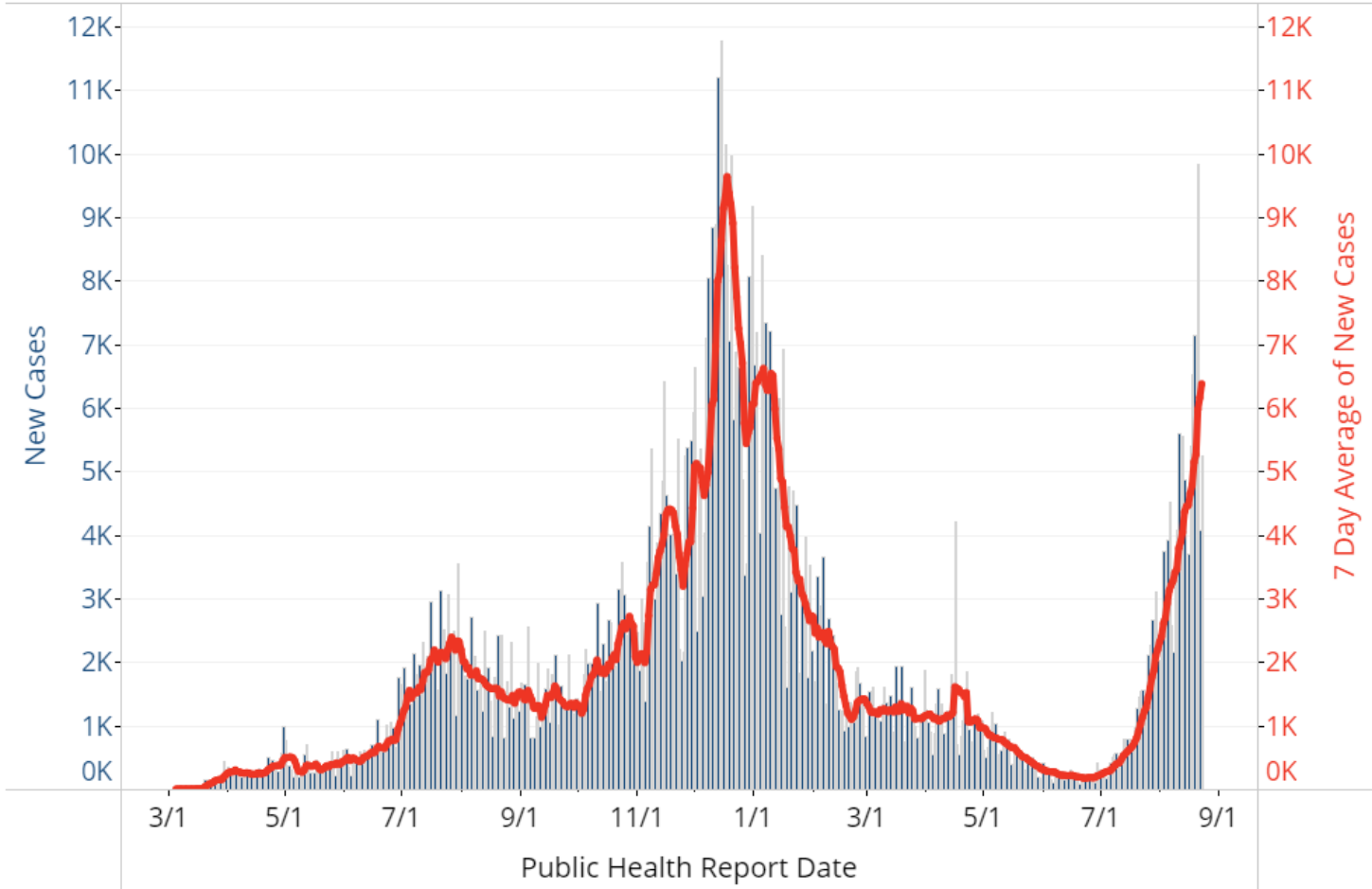
- The Delta variant is more contagious
- Some data suggest the Delta variant might cause more severe illness in unvaccinated persons
- Unvaccinated people remain the greatest concern
- Fully vaccinated people with Delta variant breakthrough infections can spread the virus to others; however, they appear to be infectious for a shorter period



Tennessee COVID-19 Cases

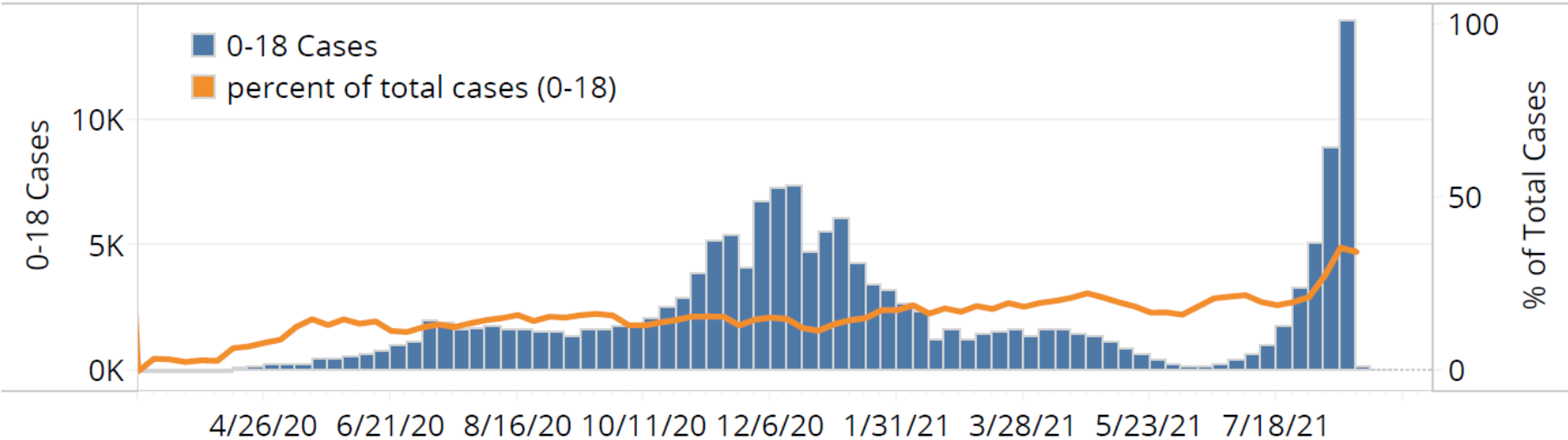
Select a Region

(All)

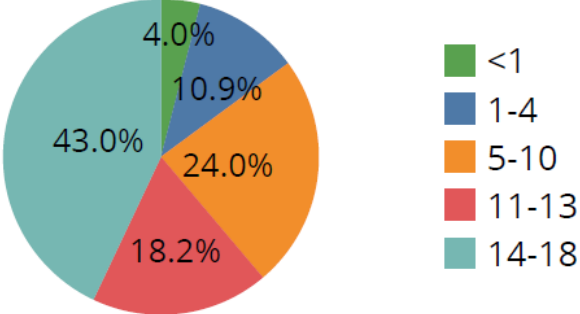


Pediatric COVID-19 Cases

- **The week of 8/15/2021, there were 13,912 child cases**
 - **More than 1 in 3 new cases were among children 0-18 (35.6%)**



Age Group (yrs)	Cases	% Total
0-18	164,614	16.5%
19-64	697,731	69.9%
65+	133,992	13.4%



Pediatric Hospitalizations (HRTS data)

- Currently, ~2% of Tennessee COVID-19 hospitalizations are among children (0-17 years)

Statewide Number of COVID-19 Hospitalized Pediatric Patients

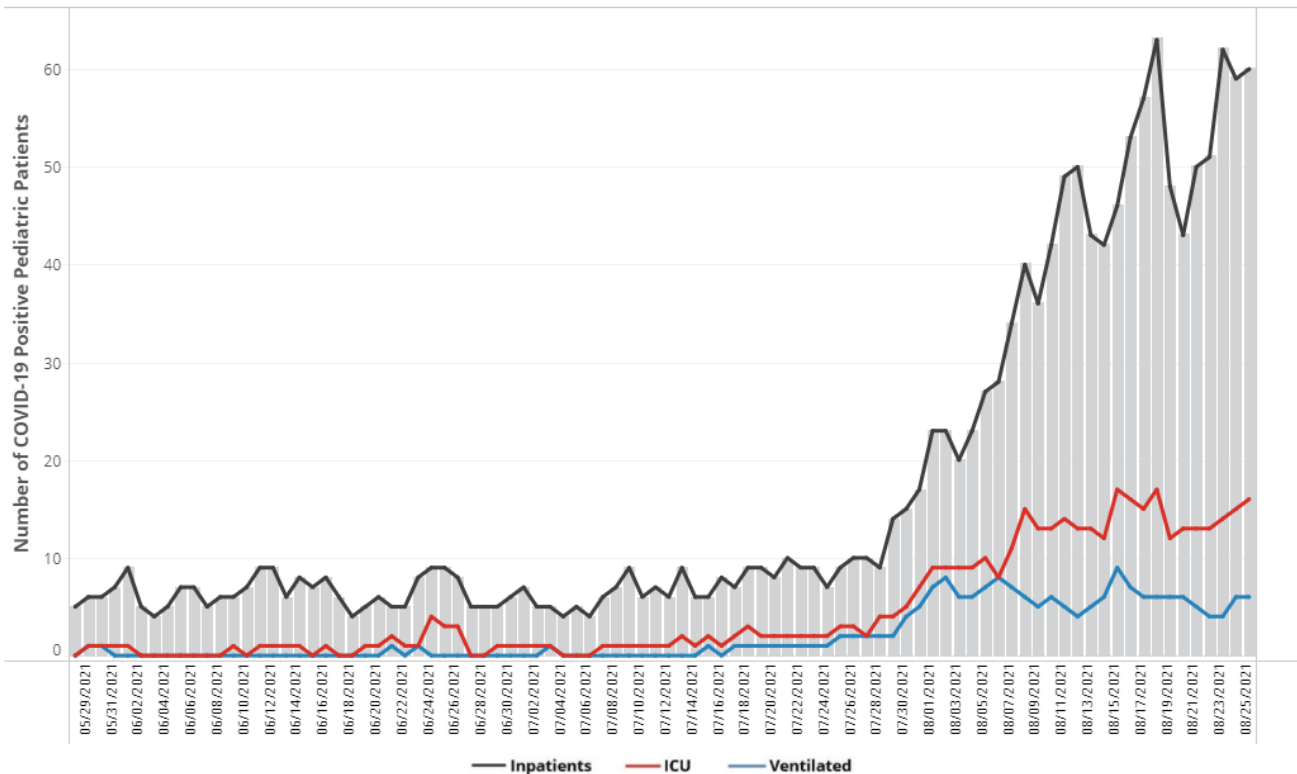
This pediatric hospitalization data reflects those 0-17 years of age.

About

Positive Cases

Pending Cases

Data as of August 25, 2021



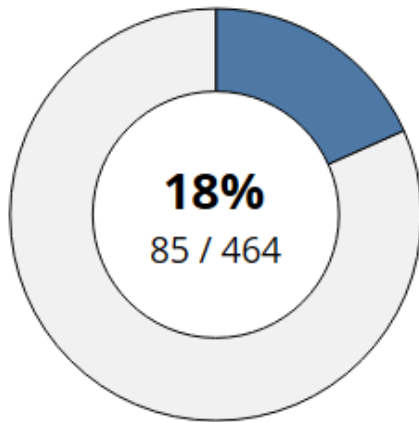
Pediatric Hospital Capacity

Tennessee COVID-19 Hospital Pediatric Resource Status



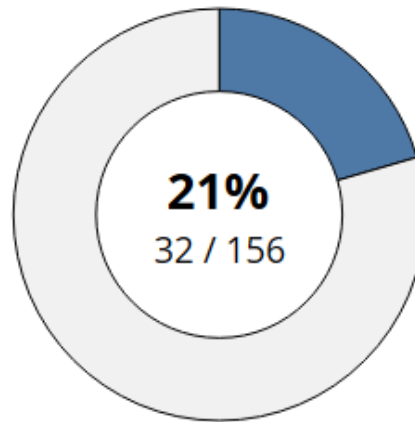
Data as of
August 25,
2021

About



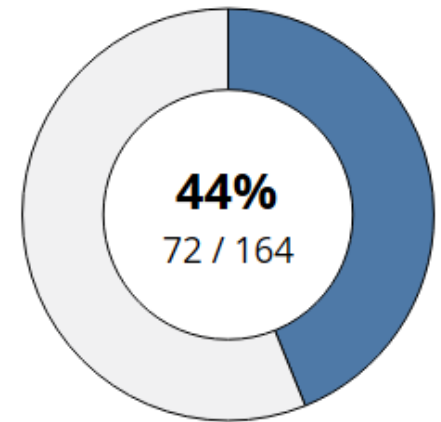
Available Floor Beds: Pediatric

The range of Available Floor Beds: Pediatric is **4%** to **38%**



Available ICU Beds: Pediatric

The range of Available ICU Beds: Pediatric is **0%** to **46%**



Available Pediatric Ventilators

The range of Available Pediatric Ventilators is **31%** to **86%**

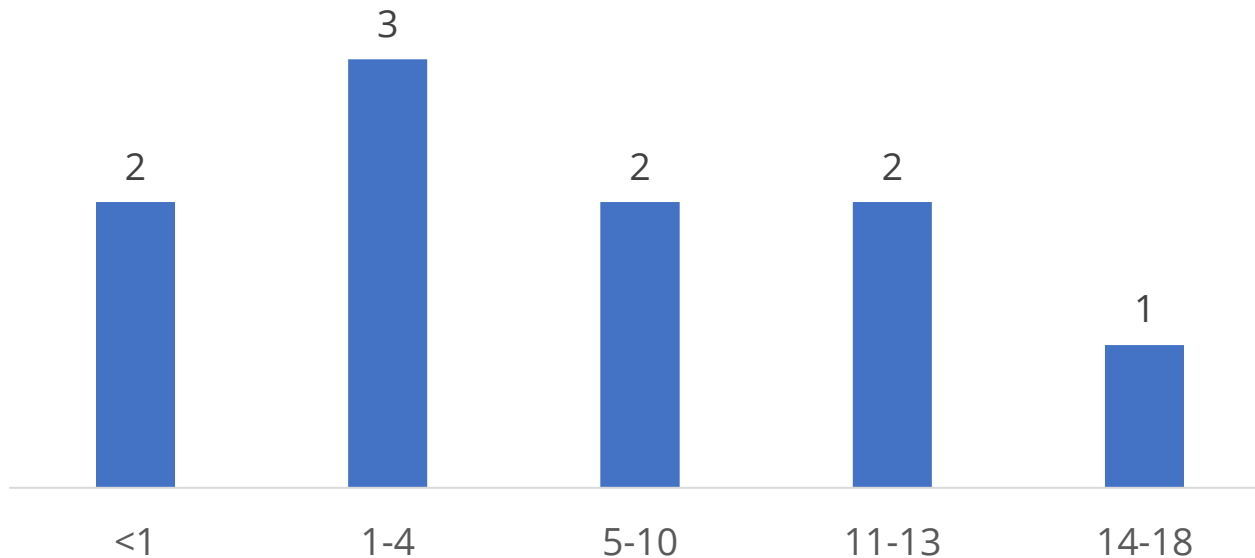
Pediatric available resource capacity ranges vary across the state, by HCC Region



Pediatric Deaths

- 10 deaths among children 0-18 years
 - Child case fatality rate 0-18: 0.006%
 - Adult case fatality rate 19-64: 0.4%
- 7/10 indicated underlying conditions

COVID-19 Deaths by Pediatric Age Group





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MIS-C

MIS-C

- Multisystem inflammatory syndrome (MIS) is a rare but serious condition associated with COVID-19 in which different body parts become inflamed
- MIS-C case definition includes people who are <21 years old
- MIS-C Incidence:
 - MIS-C occurs in about 0.03% of SARS-CoV-2 infections (1 case of MIS-C per 3,200 SARS-CoV-2 infections in persons <21 years)
 - Higher among Black, Hispanic/Latino, Asian/Pacific Islander and younger persons
- MIS-C Mortality: 1.2% (95% CI: 0.1%-1.7%)
 - Case fatality ratio decreased over time (<6/29/20: 2.4%, 6/29/20-11/6/20: 1.6%, 11/7/20-3/17/21: 0.7%)
 - Highest number and likelihood of death among persons 16-20 years

<https://www.cdc.gov/mis/about.html>

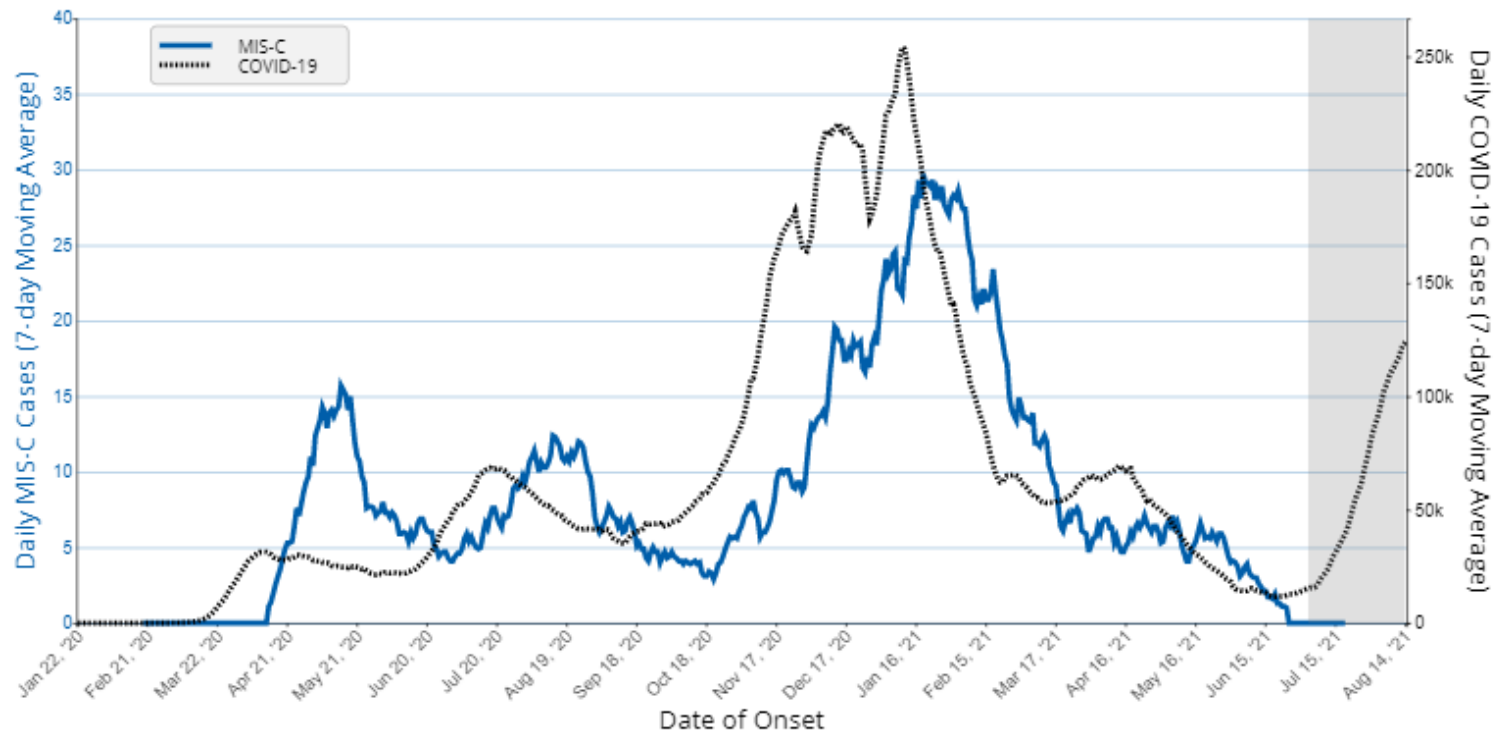
Payne AB, Gilani Z, Godfred-Cato S, et al. Incidence of Multisystem Inflammatory Syndrome in Children Among US Persons Infected With SARS-CoV-2. *JAMA Netw Open*. 2021;4(6):e2116420. doi:10.1001/jamanetworkopen.2021.16420

Bowen A, Miller AD, Zambrano LD, et al. Demographic and Clinical Factors Associated With Death Among Persons <21 Years Old With Multisystem Inflammatory Syndrome in Children—United States, February 2020–March 2021. *Open Forum Infectious Diseases*. 2021;8(8). doi:10.1093/ofid/ofab388



MIS-C and COVID-19 Cases

Daily MIS-C Cases and COVID-19 Cases Reported to CDC (7-Day Moving Average)



Reported MIS-C Cases by Jurisdiction

Health Department-Reported Cases of Multisystem Inflammatory Syndrome in Children (MIS-C) in the United States

Last updated with cases reported to CDC on or before August 15, 2021*

TOTAL MIS-C PATIENTS MEETING CASE DEFINITION*

4,404

TOTAL MIS-C DEATHS MEETING CASE DEFINITION

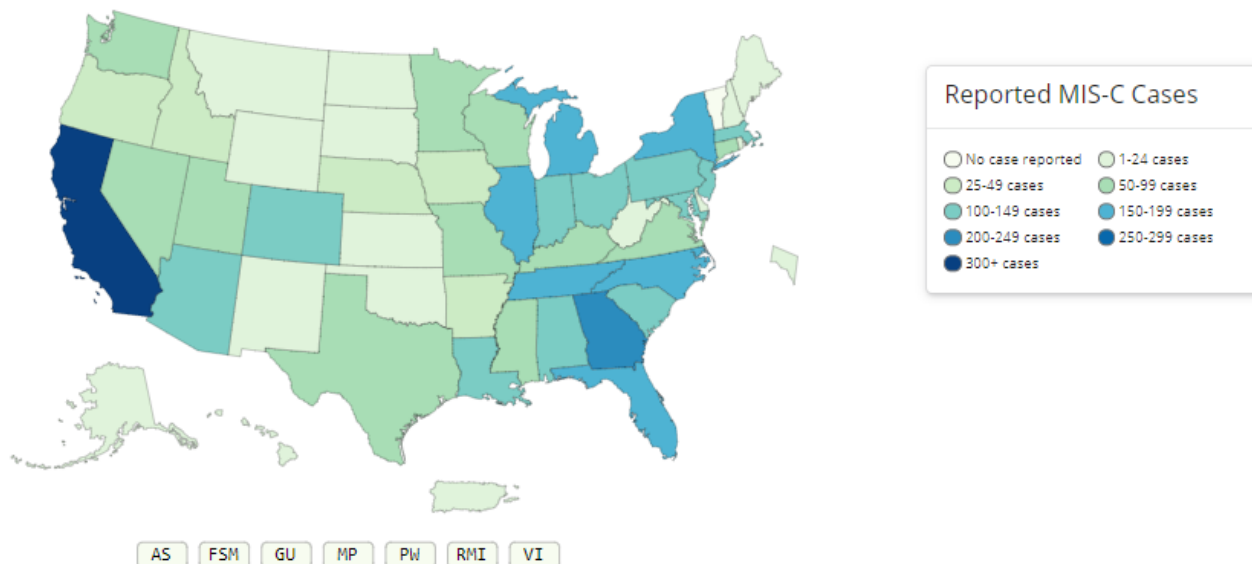
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*Additional patients are under investigation. After review of additional clinical data, patients may be excluded if there are alternative diagnoses that explained their illness.

MIS-C Cases by Jurisdiction

Since reporting began in 2020, 52 U.S. jurisdictions (including 49 states, New York City, Puerto Rico, and Washington, DC) have reported at least one MIS-C case to CDC. Because the small number of patients reported in some jurisdictions, this report includes case ranges instead of exact case counts from individual jurisdictions to protect the privacy of patients and their families.

Reported MIS-C Case Ranges by Jurisdiction, on or before August 15, 2021*



The logo consists of a red square with the letters 'TN' in white, serif font. Below the red square is a thin blue horizontal bar.

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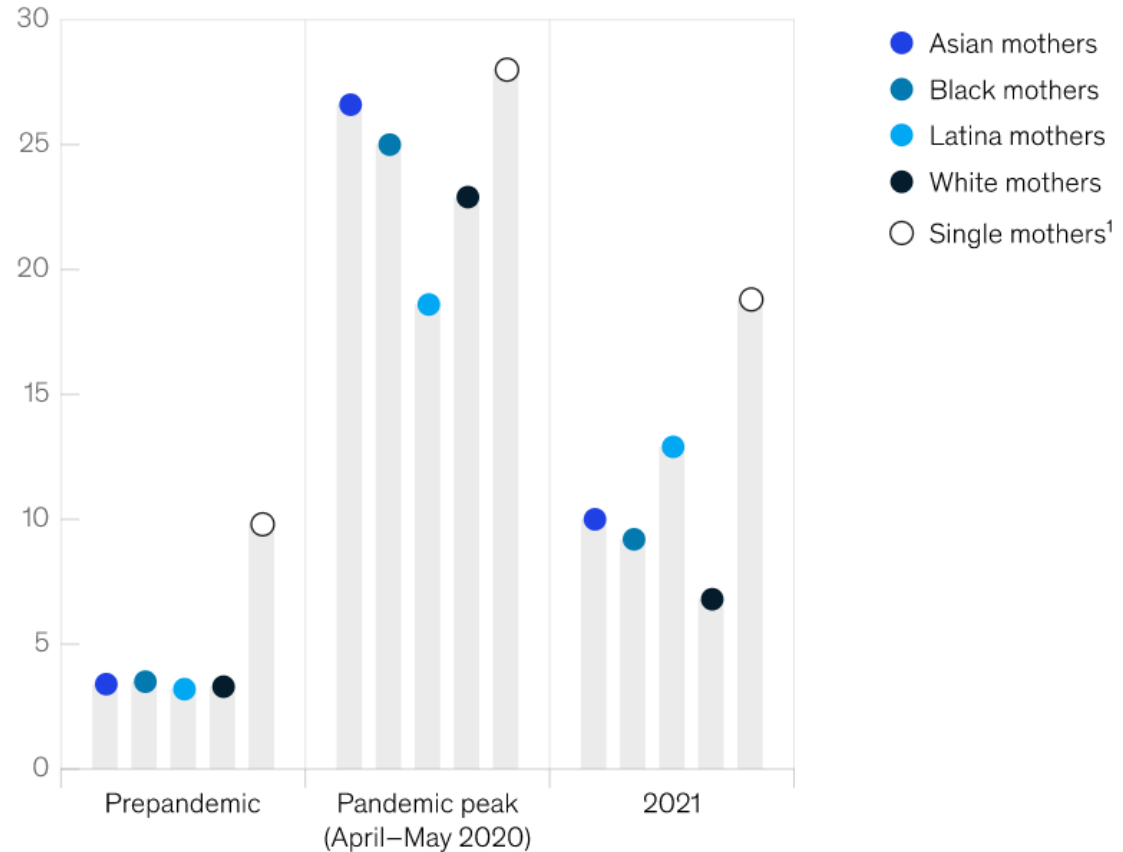
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Downstream Impacts

Financial Impact

The unemployment crisis in the United States has been particularly acute for single mothers and mothers of color.

Unemployment rate
for US mothers, %



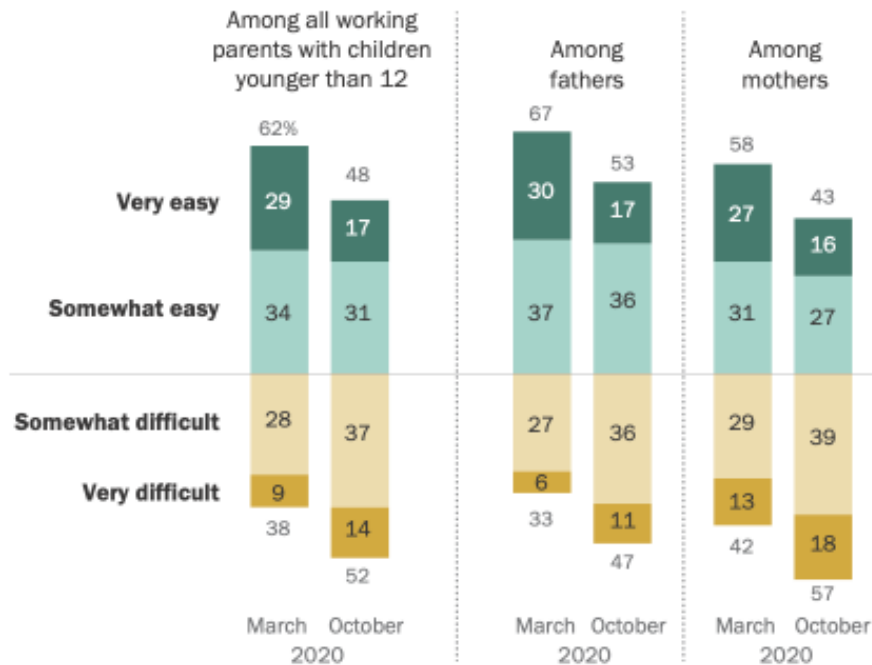
¹Single-mother category draws from other groups of mothers.

Source: Current Population Survey, US Census Bureau and US Bureau of Labor Statistics, microdata through February 2021, census.gov; Women in the Workplace, LeanIn.Org and McKinsey, 2020

Child Care Impact

As the pandemic has gone on, more working parents say handling child care has been difficult

Among employed parents with children under 12 at home, % saying it has been ___ to handle child care responsibilities during the coronavirus outbreak



Note: Share of respondents who didn't offer an answer not shown. Figures may not add to subtotals due to rounding. March numbers based on employed adults; October numbers based on employed adults with one job or one of multiple jobs that they consider primary. Source: Survey of U.S. adults conducted Oct. 13-19, 2020.

PEW RESEARCH CENTER



Nathalie Lees



Preventive Health Impact



Fewer childhood vaccines have been given during the COVID-19 pandemic*

To avoid outbreaks of vaccine-preventable diseases and keep children protected, **vaccinations and well-child visits are essential**

*Compared with January-April, 2019

CDC.GOV

bit.ly/MMWR5820

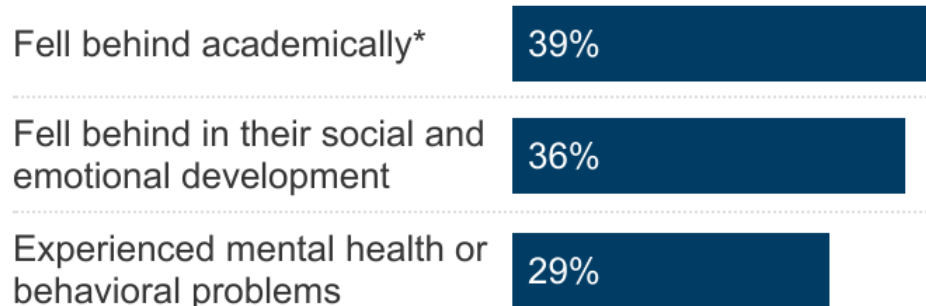
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Academic and Mental Health Impact

Figure 1

About Four In Ten Parents Say Their Child Fell Behind Academically Due To The Pandemic, About Three In Ten Say Their Child Experienced Mental Health Or Behavioral Problems

Percent of parents who say that, as a result of the pandemic, at least one of their children...



NOTE: *Asked of parents or guardians of children ages 5 to 17. See topline for full question wording.

SOURCE: KFF COVID-19 Vaccine Monitor: Parents And The Pandemic (Jul. 15-Aug. 2, 2021).

**KFF COVID-19
Vaccine Monitor**



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Vaccine Update

COVID-19 Vaccines for Children and Teens

- **CDC recommends everyone 12 years and older should get a COVID-19 vaccination to help protect against COVID-19**
- Although fewer children have been infected with COVID-19 compared to adults, children can:
 - Be infected with the virus that causes COVID-19
 - Get sick from COVID-19
 - Spread COVID-19 to others
- Possible side effects:

On the arm where you got the shot:



- Pain
- Redness
- Swelling

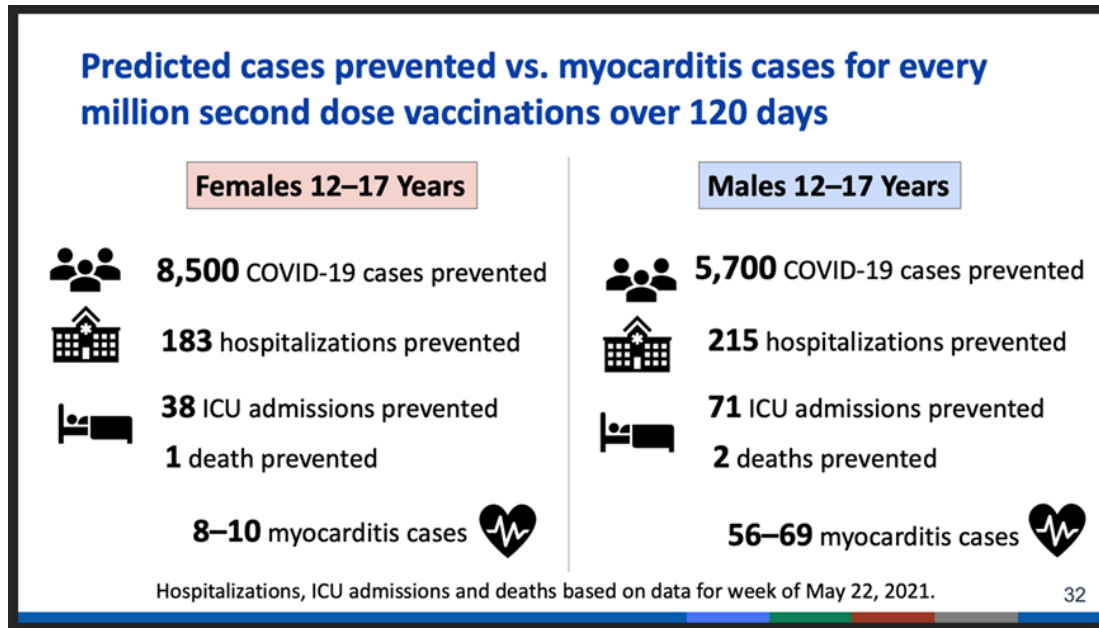
Throughout the rest of your body:



- Tiredness
- Headache
- Muscle pain
- Chills
- Fever
- Nausea

Vaccine Safety

- Rare reports of heart inflammation (myocarditis) after 2nd dose of COVID-19 vaccination among males 12-17
 - 63 cases per 1,000,000 second doses
- Benefits of COVID-19 vaccination outweigh known and potential risks
 - Preliminary results: Young males infected with COVID-19 up to **6x** more likely to develop myocarditis as those who receive the vaccine



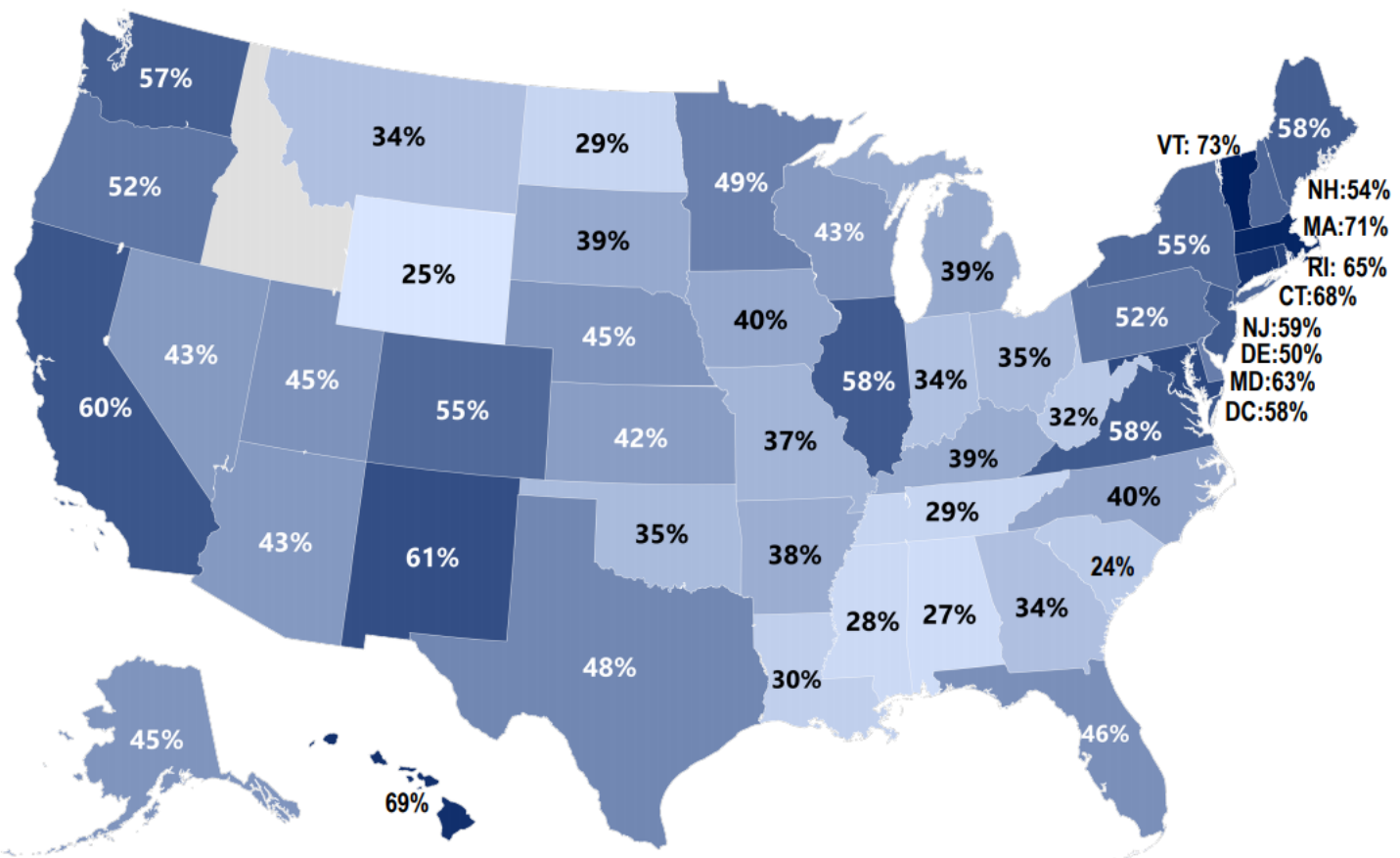
<https://www.cdc.gov/coronavirus/2019-ncov/vaccines/safety/myocarditis.html>
<https://www.cdc.gov/mmwr/volumes/70/wr/mm7027e2.htm>
<https://www.medrxiv.org/content/10.1101/2021.07.23.21260998v1>

Barda N, Dagan N, Ben-Shlomo Y, et al. Safety of the BNT162b2 mRNA Covid-19 Vaccine in a Nationwide Setting. New England Journal of Medicine. 2021;0(0):null. doi:10.1056/NEJMoa2110475

Adolescent Vaccination (12-17 year olds)

Received At Least 1 Dose  as of 8.18.21
25% 73%

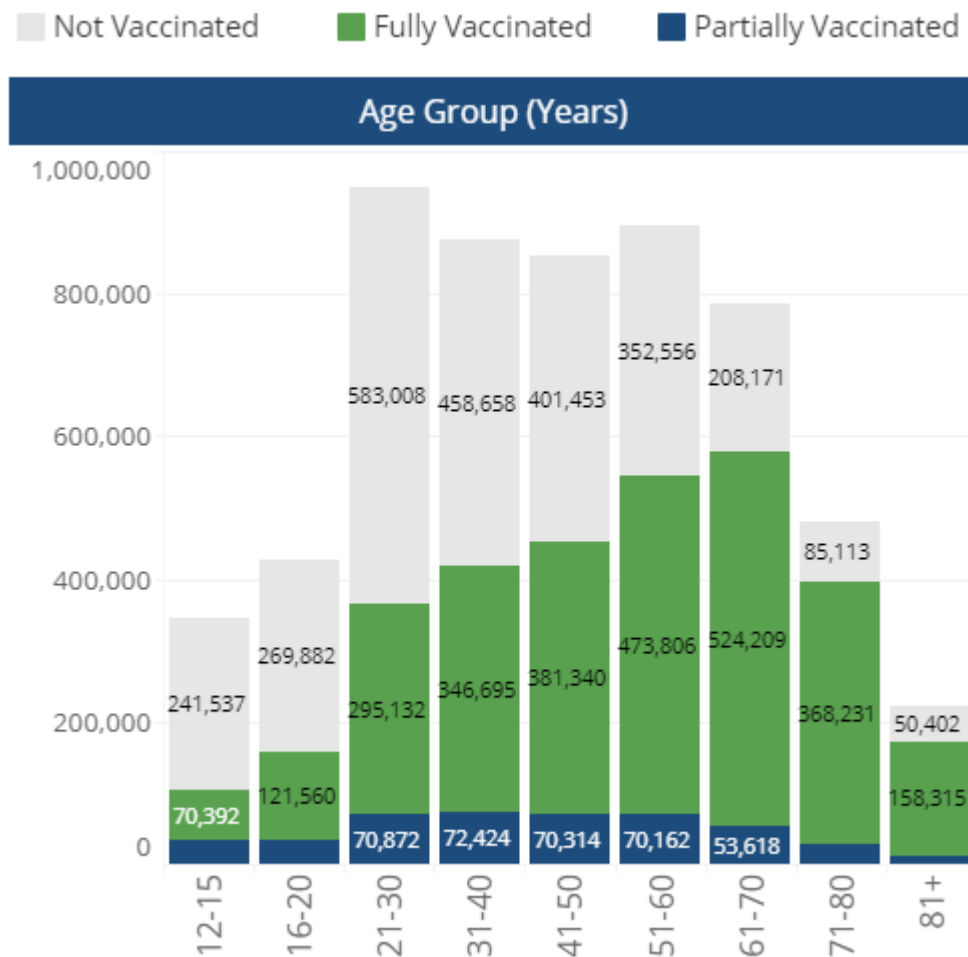
Proportion of US Children Ages 12 through 17 Who Received At Least One Dose of the COVID-19 Vaccine by State of Residence



Source: AAP analysis of data series titled 'COVID -19 Vaccinations in the United States, Jurisdiction'. CDC COVID -19 Data Tracker (URL: <https://data.cdc.gov/Vaccinations/COVID-19-Vaccinations-in-the-United-States-Jurisdiction/uns-k-b7fc>). Idaho information not available. Check state's web sites for additional or more recent information

Pediatric Vaccination in Tennessee

- Ages <12
 - 100% not vaccinated
- Ages 12-15:
 - 20% fully vaccinated
 - 10% partially vaccinated
 - 70% not vaccinated
- Ages 16-20:
 - 29% fully vaccinated
 - 8% partially vaccinated
 - 63% not vaccinated



Acceptability of Adolescent COVID-19 Vaccination

- In April 2021, 52% of unvaccinated adolescents aged 13-17 and 56% of parents of unvaccinated adolescents 12-17 reported intent for adolescent COVID-19 vaccination

FIGURE 1. Factors that would increase adolescent COVID-19 vaccination intent according to U.S. parents and guardians (parents) of unvaccinated adolescents aged 12–17 years and unvaccinated adolescents aged 13–17 years who did not indicate definite intent to receive the vaccine* — United States, April 15–23, 2021

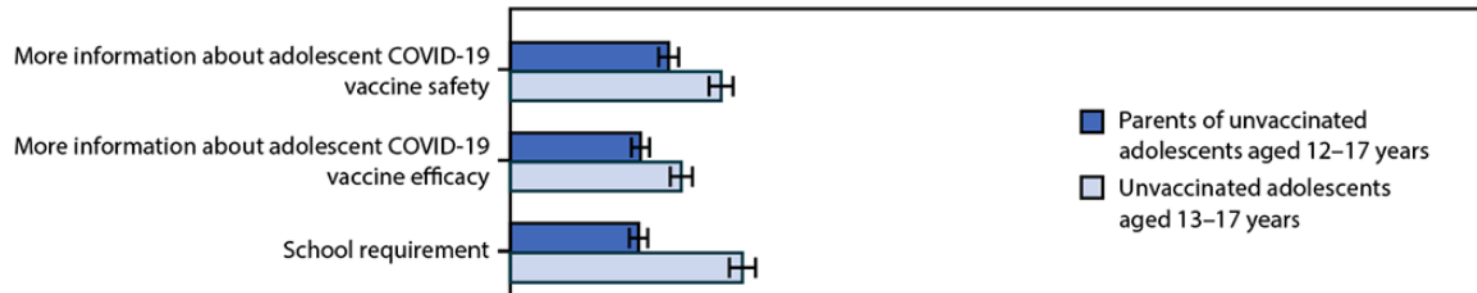
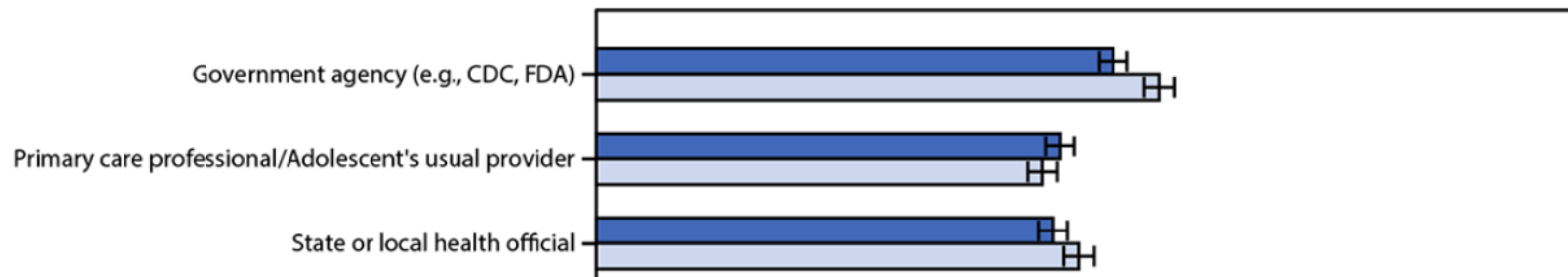


FIGURE 2. Trusted COVID-19 vaccine information sources according to U.S. parents and guardians (parents) of adolescents aged 12–17 years and adolescents aged 13–17 years* — United States, April 15–23, 2021



FDA Approval of COVID-19 Vaccine

FDA NEWS RELEASE

FDA Approves First COVID-19 Vaccine

Approval Signifies Key Achievement for Public Health

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For Immediate Release: August 23, 2021

Español

Today, the U.S. Food and Drug Administration approved the first COVID-19 vaccine. The vaccine has been known as the Pfizer-BioNTech COVID-19 Vaccine, and will now be marketed as Comirnaty (koe-mir'-na-tee), for the prevention of COVID-19 disease in

TN

Pediatric COVID-19 Vaccine Approval Update

- In July 2021, Pfizer and Moderna were urged by FDA to expand their trials for children 5-11
 - Larger sample will enable trial to detect rare side effects
 - Unclear amount of follow-up time requested
- Milestones to watch for:
 - Stop accepting new participants in trials
 - Submit application for EUA
- Dr. Fauci: “...you could conceivably get an emergency use authorization in mid- to late fall for individuals 5-11.” (8/23/21)

ClinicalTrials.gov Identifier: NCT04816643

[Recruitment Status](#) ⓘ : Recruiting

[First Posted](#) ⓘ : March 25, 2021

[Last Update Posted](#) ⓘ : August 17, 2021

See [Contacts and Locations](#)

ClinicalTrials.gov Identifier: NCT04796896

[Recruitment Status](#) ⓘ : Recruiting

[First Posted](#) ⓘ : March 15, 2021

[Last Update Posted](#) ⓘ : August 23, 2021

See [Contacts and Locations](#)

<https://clinicaltrials.gov/ct2/show/NCT04816643>

<https://clinicaltrials.gov/ct2/show/NCT04796896>

<https://www.npr.org/2021/08/23/1030430529/dr-fauci-weighs-in-on-the-fdas-approval-of-the-pfizer-vaccine>



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**How do we move
forward?**

CDC Recommendations

- Students benefit from in-person learning, and safely returning to in-person instruction in the fall 2021 is a priority.
- Vaccination is the leading public health prevention strategy to end the COVID-19 pandemic. Promoting vaccination can help schools safely return to in-person learning as well as extracurricular activities and sports.
- Due to the circulating and highly contagious Delta variant, **CDC recommends universal indoor masking by all students (age 2 and older), staff, teachers, and visitors to K-12 schools, regardless of vaccination status.**

To get kids back in-person safely, schools should monitor



Community Transmission Vaccination Coverage Testing Outbreaks

to help prevent the spread of COVID-19

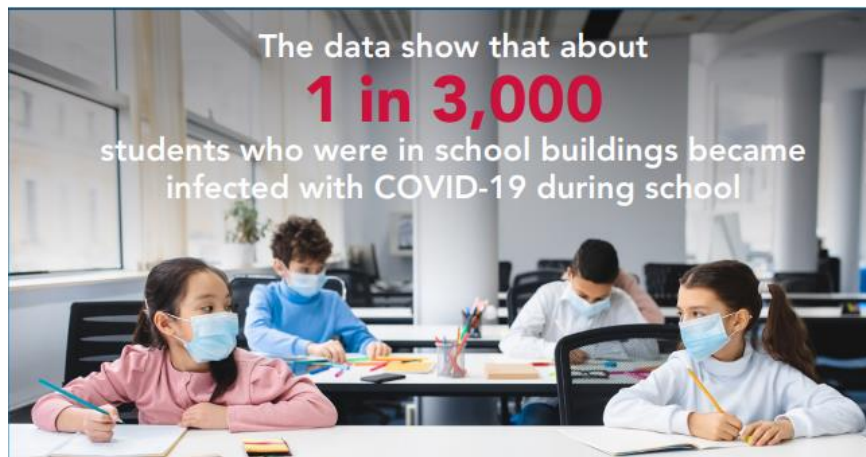


[cdc.gov/coronavirus](https://www.cdc.gov/coronavirus)

CS25431A 07/06/2021

Lessons from North Carolina

- Study Setting: All North Carolina elementary, middle and high schools, March-June 2021
 - 100 local school districts
 - 1.2 million students
 - 160k staff
- Protocol:
 - Full, in-person instruction
 - Masking
 - Minimal physical distancing

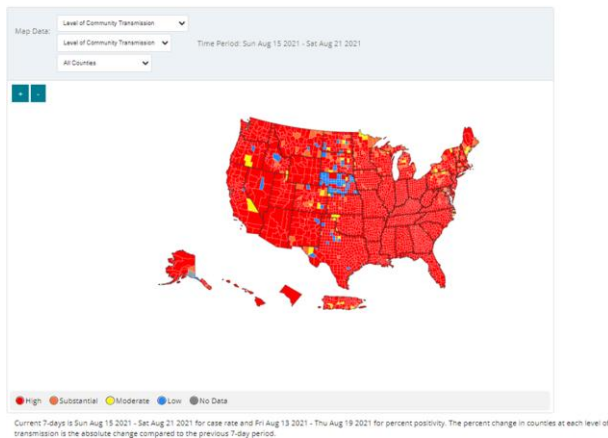


Conclusions:

- **“Wearing masks correctly is the most effective strategy to prevent within-school transmission of COVID-19 when vaccination is unavailable or not enough people are vaccinated”**
- No difference in transmission by distancing maintained when students, teachers, and staff were masked, even on buses

Families and COVID-19: Things to Think About

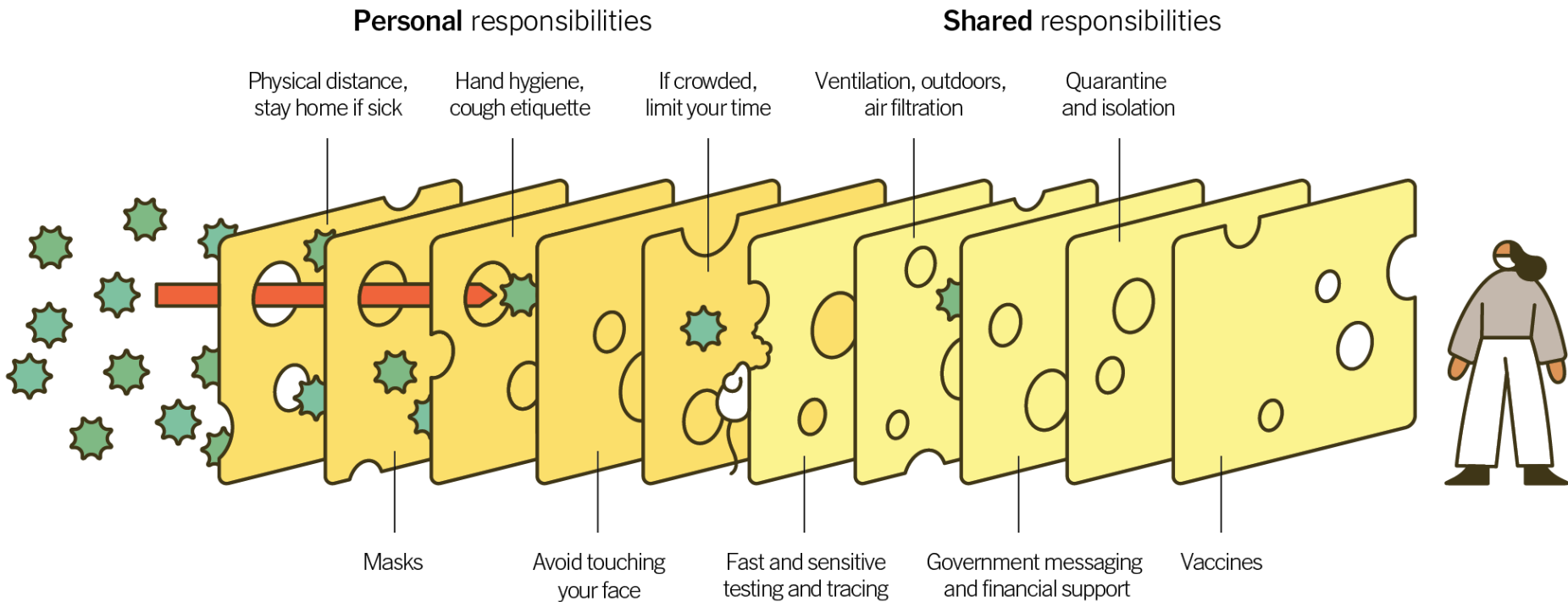
- What is your family's vaccination status?
- Do you have family members with medical conditions or a weakened immune system?
- Where is your family going?
- What are the number of COVID-19 cases and fully vaccinated people in your community or the community you are visiting?
 - CDC Data Tracker



Swiss Cheese Model of Defense

Multiple Layers Improve Success

The Swiss Cheese Respiratory Pandemic Defense recognizes that no single intervention is perfect at preventing the spread of the coronavirus. Each intervention (layer) has holes.



Source: Adapted from Ian M. Mackay (virologydownunder.com) and James T. Reason. Illustration by Rose Wong

Acknowledgements

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Questions?
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