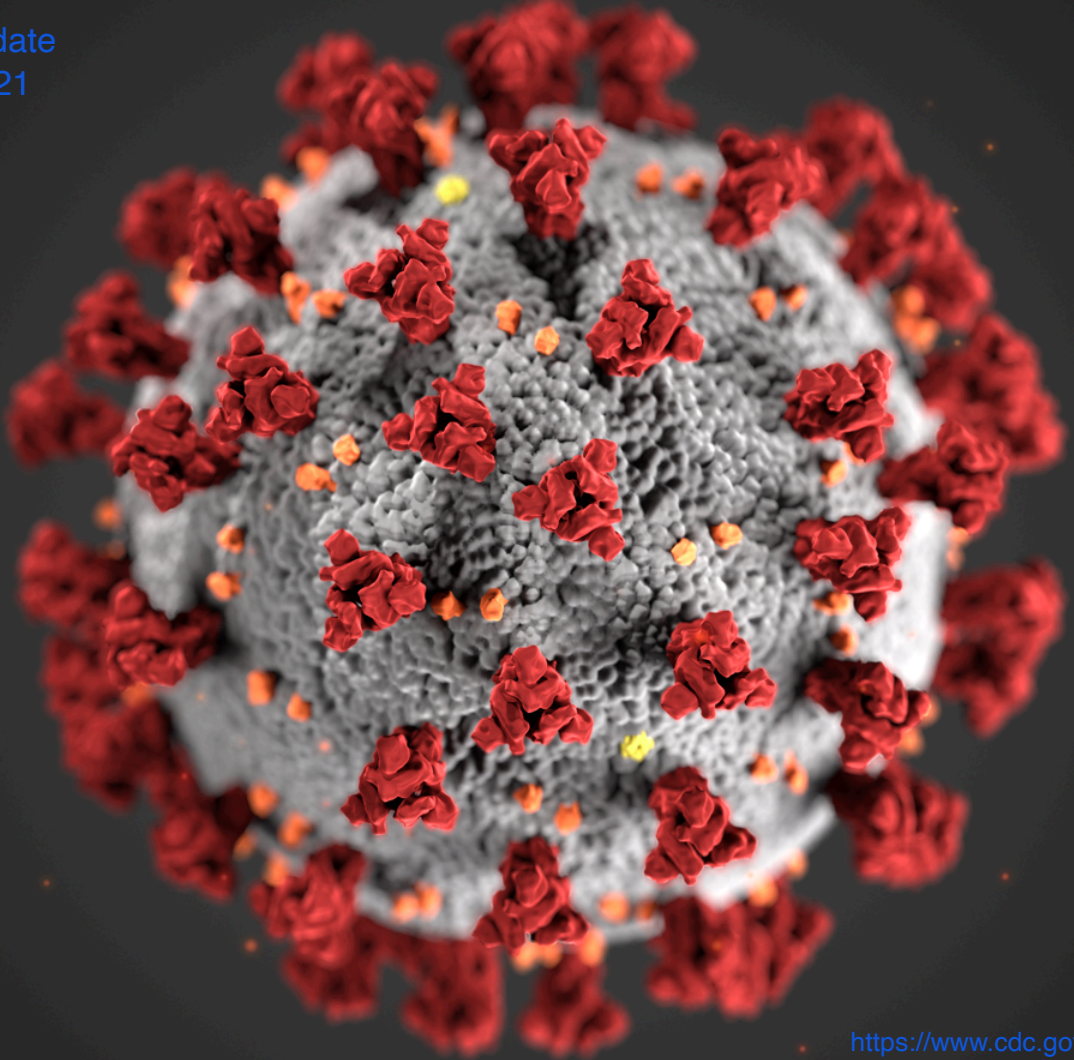
Coronavirus update
August 20, 2021



https://www.cdc.gov/media/subtopic/images.htm

What is known about COVID-19?

- Severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) was first detected in late December 2019 and has spread worldwide
- SARS-CoV-2 belongs to the Order Nidovirales, Family Coronaviridae, Subfamily Orthocoronavirinae, Genus Betacoronavirus, Subgenus Sarbecovirus, Species Severe acute respiratory syndrome-related coronavirus and individuum SARS-CoV-2 with the addition of the strain/sequence, e.g., SARS-CoV-2 Wuhan-Hu-1 as the reference strain
- SARS-CoV-2 is an enveloped, positive sense, single stranded RNA virus with a genome of nearly 30,000 nucleotides
- Coronaviruses are a large family of viruses.
  - Some coronaviruses cause respiratory illness in people, ranging from a mild common cold to severe pneumonia.
  - Other coronaviruses cause illness in animals only. Rarely animal coronaviruses can infect people and these can spread from person to person through close contact.
- COVID-19 is the disease caused by SARS-CoV-2 coronavirus. It's referred to as a novel coronavirus strain as it has not been previously identified in humans. Infection with SARS-CoV-2, the virus that causes COVID-19, can result in a range of illness, from mild symptoms to severe illness and death.
- Due to it being a novel virus there is no herd immunity and there are no specific treatments.
- Some people, such as adults 65 and older or people with certain medical conditions, are more likely than others to become severely ill.
- Long term complications (still in the Horizon).

www.cdc.gov/coronavirus/2019-ncov

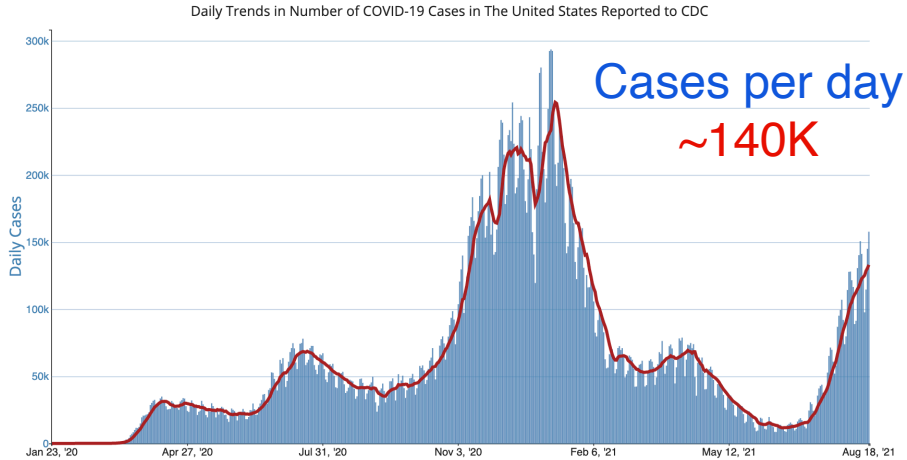
www.nature.com/articles/s41467-020-19883-7

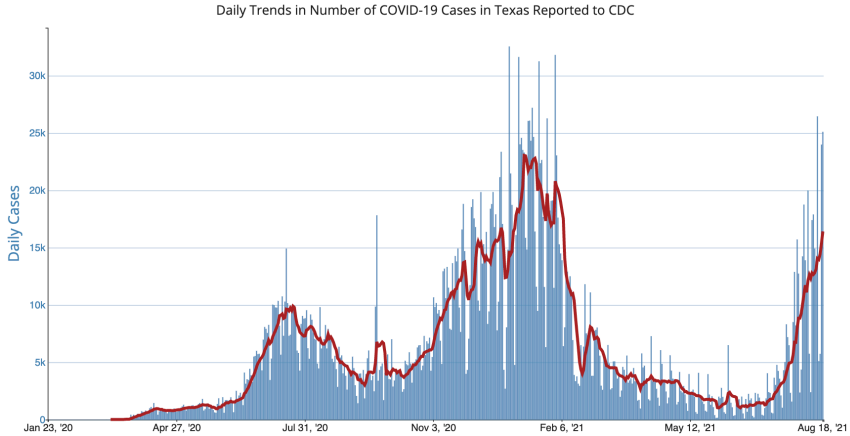
Daily cases

USA

Cases	Deaths
37M	622K
+252K	+1,016

Texas





https://covid.cdc.gov/covid-data-tracker

USA

Hospitalizations

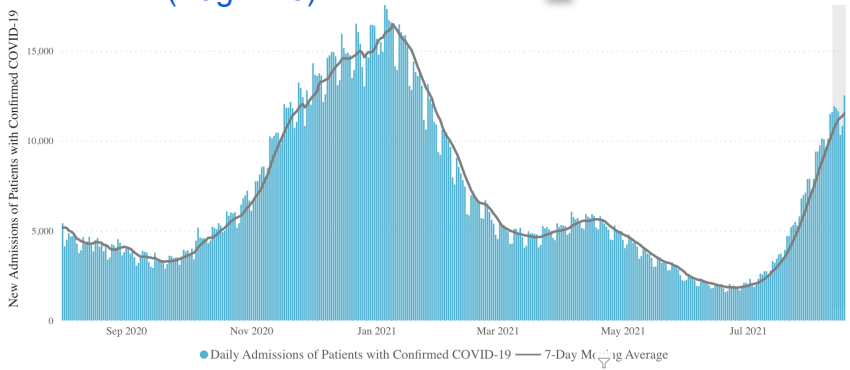
7-day average

10,072

(Aug 4-10)

29.6%

from prior week



Deaths

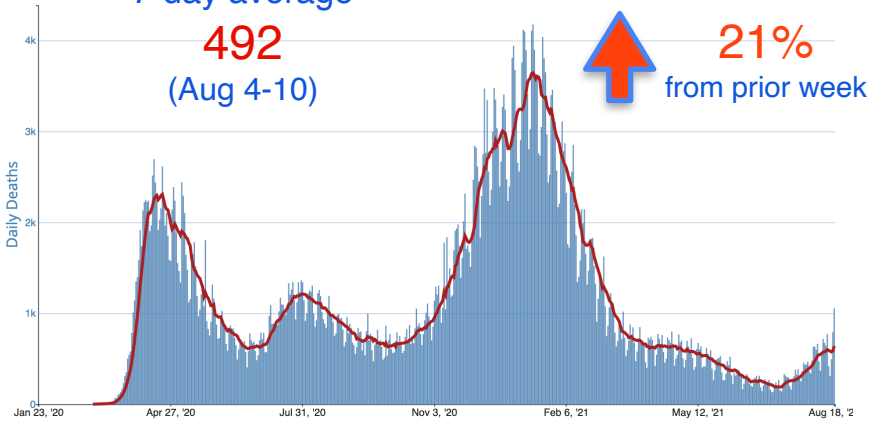
7-day average

492

(Aug 4-10)

21%

from prior week



https://covid.cdc.gov/covid-data-tracker

Texas

Hospitalizations

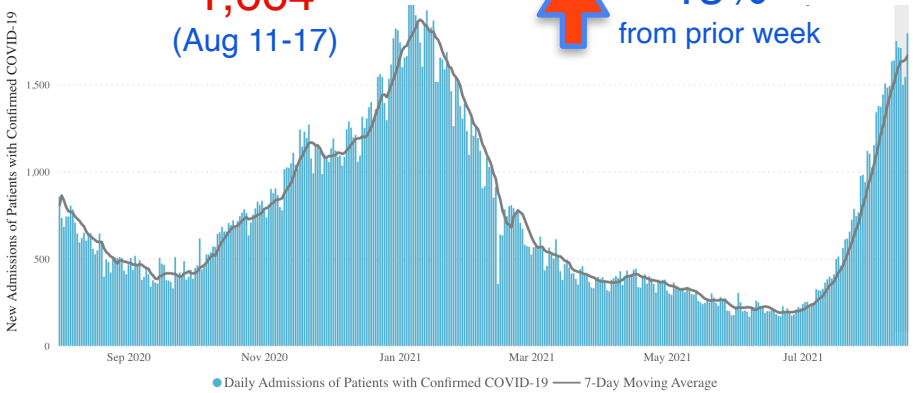
7-day average

1,664

(Aug 11-17)

13%

from prior week



Deaths

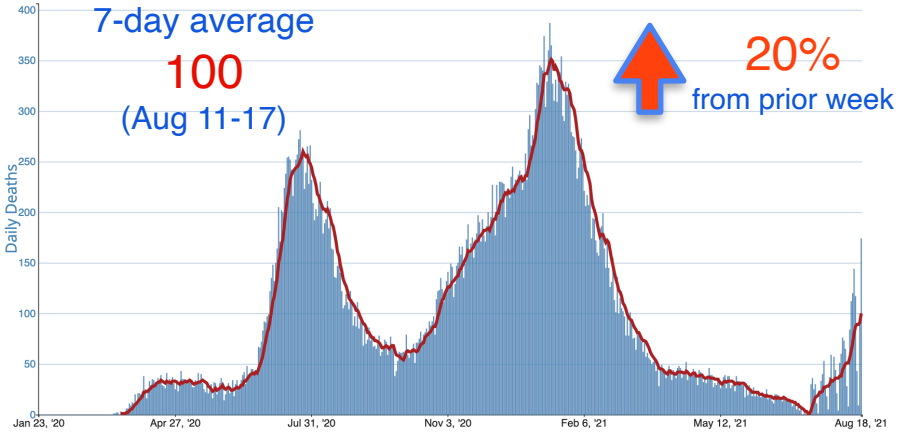
7-day average

100

(Aug 11-17)

20%

from prior week



https://covid.cdc.gov/covid-data-tracker

Children and COVID-19: State-Level Data Report

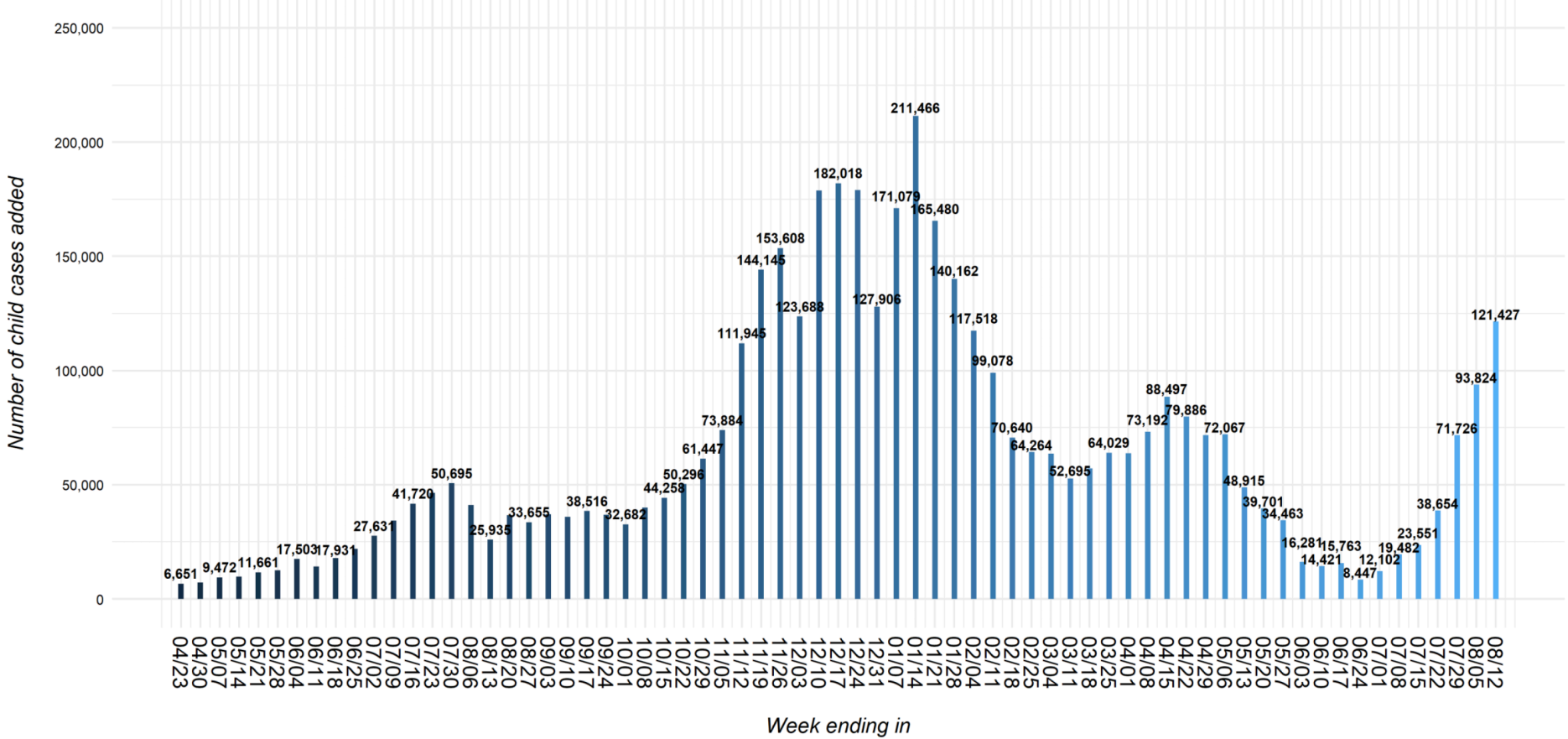
(A joint report from the American Academy of Pediatrics and the Children's Hospital Association)

- As of August 12, over 4.41 million children have tested positive for COVID-19 since the onset of the pandemic. Over 121,000 cases were added the past week, a continuing substantial increase. After declining in early summer, child cases have steadily increased since the beginning of July.
- Over two weeks, 7/29/21-8/12/21, there was a 5% increase in the cumulated number of child COVID-19 cases. Children represented 18.0% (121,427/674,990) of the weekly reported cases
- Among states reporting, children ranged from 1.6%-3.5% of their total cumulated hospitalizations, and 0.2%-1.9% of all their child COVID-19 cases resulted in hospitalization
- the number of confirmed and suspected pediatric COVID-19 hospitalizations to 1,902 on Saturday, according to data from the U.S. Department of Health and Human Services.

- TX: Age distribution reported for only 3% of confirmed cases (80,313/2,759,325), resulting in an undercount of child cases; TX is excluded from some figures from report

https://www.aap.org/en/pages/2019-novel-coronavirus-covid-19-infections/children-and-covid-19-state-level-data-report/

Fig 6. United States: Number of Child COVID-19 Cases Added in Past Week*



https://www.aap.org/en/pages/2019-novel-coronavirus-covid-19-infections/children-and-covid-19-state-level-data-report/

Children and COVID-19: USA

United States | 0 - 17 Years

48,999
Total Admissions
Aug 01, 2020 - Aug 17, 2021

307
Current 7-Day Average
Aug 11, 2021 - Aug 17, 2021

249
Prior 7-Day Average
Aug 04, 2021 - Aug 10, 2021

307
Peak 7-Day Average
Aug 11, 2021 - Aug 17, 2021

+23.5%
Percent change from prior 7-day avg. of Aug 04, 2021 - Aug 10, 2021

https://covid.cdc.gov/covid-data-tracker

Appendix Table 3B: Child COVID-19 Case Data Available on 8/12/21*

Children's Hospital Association | American Academy of Pediatrics — Dedicated to the Health of All Children®

Click location name to view original data source

Location	Age range	Child population, 2019	Cumulative child cases	Percent children of total cases	Cumulative total cases (all ages)	Cases per 100,000 children
Montana	0-19	254,416	19,057	16.0%	119,123	7490.5
Nebraska~	0-19	760,272	35,425	15.8%	224,206	4659.5
Nevada	0-19	688,997	52,713	14.3%	368,625	7650.7
New Hampshire	0-19	291,038	18,672	18.2%	102,353	6415.7
New Jersey	0-17	1,938,578	115,609	12.5%	921,914	5963.6
New Mexico	0-19	531,712	40,132	18.5%	216,494	7547.7
North Carolina	0-17	2,300,715	142,159	13.0%	1,094,886	6178.9
North Dakota	0-19	200,777	20,083	17.8%	112,894	10002.6
NYC	0-17	1,726,900	94,023	11.5%	816,369	5444.6
Ohio	0-19	2,886,873	159,910	13.9%	1,149,318	5539.2
Oklahoma	0-17	952,238	68,783	13.7%	500,311	7223.3
Oregon	0-19	965,480	39,650	16.9%	234,393	4106.8
Pennsylvania	0-19	2,801,187	186,006	15.0%	1,243,932	6640.3
Puerto Rico□	0-19	594,011	22,631	14.6%	154,566	3809.9
Rhode Island○	0-18	220,525	23,053	15.7%	146,797	10453.7
South Carolina	0-20	1,314,988	127,098	19.5%	651,787	9665.4
South Dakota	0-19	240,567	20,515	16.2%	126,454	8527.8
Tennessee	0-20	1,762,659	176,623	19.0%	931,107	10020.3
Texas^	0-19	8,210,585	5,607	7.0%	80,313	--
Utah	0-14	774,764	48,946	11.1%	442,245	6317.5
Vermont	0-19	134,415	5,907	22.8%	25,883	4394.6
Virginia	0-19	2,087,426	116,076	16.2%	715,556	5560.7
Washington	0-19	1,840,306	90,679	18.1%	500,434	4927.4
West Virginia△	0-19	402,473	28,195	16.7%	168,733	7005.5
Wisconsin	0-19	1,422,095	116,768	16.7%	701,110	8211.0
Wyoming#	0-18	140,694	8,268	14.7%	56,187	5876.6

Texas reported age for only 3% of total confirmed cases; Cases per 100,000 children omitted for Texas; Data for Texas in this report is limited to the case count for which age is provided; As of 7/22/21, TX stopped updating demographic case data

https://www.aap.org/en/pages/2019-novel-coronavirus-covid-19-infections/children-and-covid-19-state-level-data-report/

Appendix Table 6B: Child Mortality Data Available on 8/12/21*

COVID-19-Associated Deaths and Children

Location	Age range	Cumulative child deaths	Cumulative total deaths (all ages)	Percent children of total deaths	Percent of child cases resulting in death^
Mississippi	0-17	4	7,730	0.05%	0.01%
Missouri	0-17	5	10,002	0.05%	0.01%
Nebraska○	0-19	4	2,259	0.18%	0.01%
Nevada	0-19	6	6,096	0.10%	0.01%
New Hampshire	0-19	0	1,393	0.00%	0.00%
New Jersey	0-17	7	23,952	0.03%	0.01%
North Carolina	0-17	3	13,790	0.02%	0.00%
North Dakota	0-19	1	1,545	0.06%	0.00%
NYC	0-17	29	33,618	0.09%	0.03%
Ohio~	0-19	7	20,580	0.03%	0.00%
Oklahoma	0-17	3	7,594	0.04%	0.00%
Oregon	0-19	3	2,920	0.10%	0.01%
Pennsylvania	0-19	16	27,941	0.06%	0.01%
Puerto Rico	0-19	4	2,643	0.15%	0.02%
South Dakota	0-19	0	2,051	0.00%	0.00%
Tennessee	0-20	13	12,892	0.10%	0.01%
Texas#	0-19	59	52,370	0.11%	--
Vermont	0-19	0	264	0.00%	0.00%
Virginia□	0-19	9	11,583	0.08%	0.01%
Washington‡	0-19	10	6,204	0.16%	0.01%
Wisconsin	0-19	3	8,314	0.04%	0.00%
Wyoming	0-18	0	793	0.00%	0.00%

 # Percent of child cases resulting in death omitted for Texas; Data for Texas in this report is limited to the case count for which age is provided

https://www.aap.org/en/pages/2019-novel-coronavirus-covid-19-infections/children-and-covid-19-state-level-data-report/

Why are only a small portion (<5%) of child COVID-19 cases included for Texas?

- A: Texas Department of State Health Services reports overall confirmed cases but only a small fraction are included in the age distribution. Other sources for child COVID-19 cases are not included in the report but outline much higher numbers (eg, Texas Public Schools COVID-19 Data).

https://www.aap.org/en/pages/2019-novel-coronavirus-covid-19-infections/children-and-covid-19-state-level-data-report/

Children and COVID-19: State-Level Data

Texas

Texas | 0 - 17 Years

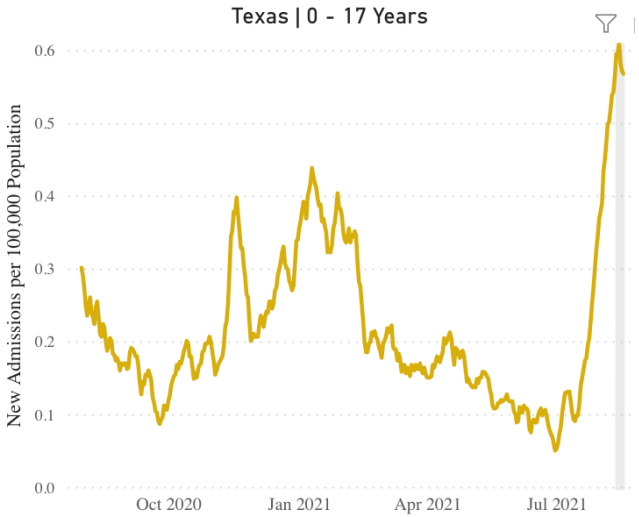
6,193
Total Admissions
Aug 01, 2020 - Aug 17, 2021

42
Current 7-Day Average
Aug 11, 2021 - Aug 17, 2021

40
Prior 7-Day Average
Aug 04, 2021 - Aug 10, 2021

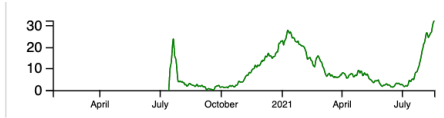
45
Peak 7-Day Average
Aug 08, 2021 - Aug 14, 2021

+4.6%
Percent change from prior 7-day avg. of Aug 04, 2021 - Aug 10, 2021

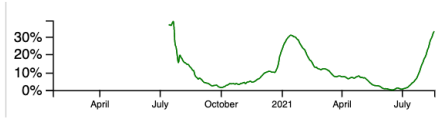


Fort Bend

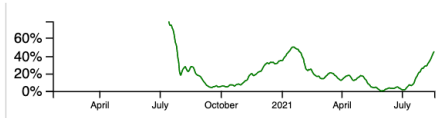
New Hospital Admissions (COVID)
201
(27.32 per 100 beds)
↑ 27.22 % change
Data through Wed Aug 18 2021



Percent Beds Used (COVID)
29.75
↑ 6.67 % change
Data through Wed Aug 18 2021



Percent ICU Beds Used (COVID)
41.05
↑ 9.76 % change
Data through Wed Aug 18 2021



https://www.aap.org/en/pages/2019-novel-coronavirus-covid-19-infections/children-and-covid-19-state-level-data-report/

Multisystem Inflammatory Syndrome in Children (MIS-C) Clinical presentation

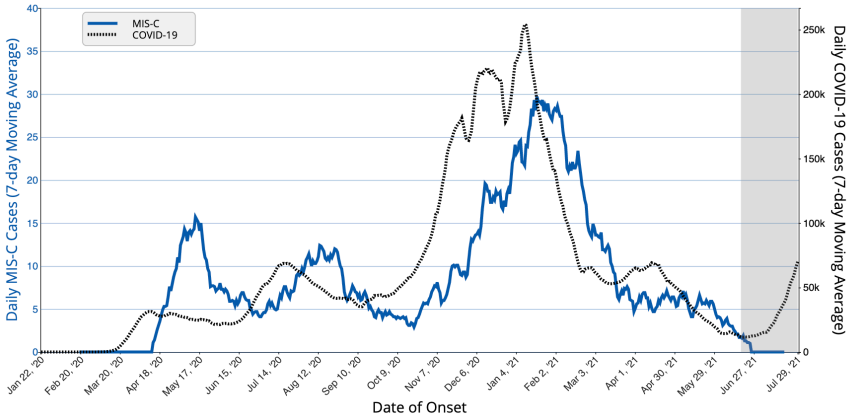
- Patients with MIS-C usually present with persistent fever, abdominal pain, vomiting, diarrhea, skin rash, mucocutaneous lesions and, in severe cases, with hypotension and shock.
- They have elevated laboratory markers of inflammation (e.g., CRP, ferritin), and in a majority of patients laboratory markers of damage to the heart (e.g., troponin; B-type natriuretic peptide (BNP) or proBNP). Some patients develop myocarditis, cardiac dysfunction, and acute kidney injury.
- Not all children will have the same signs and symptoms, and some children may have symptoms not listed here.
- MIS-C may begin weeks after a child is infected with SARS-CoV-2. The child may have been infected from an asymptomatic contact and, in some cases, the child and their caregivers may not even know they had been infected.

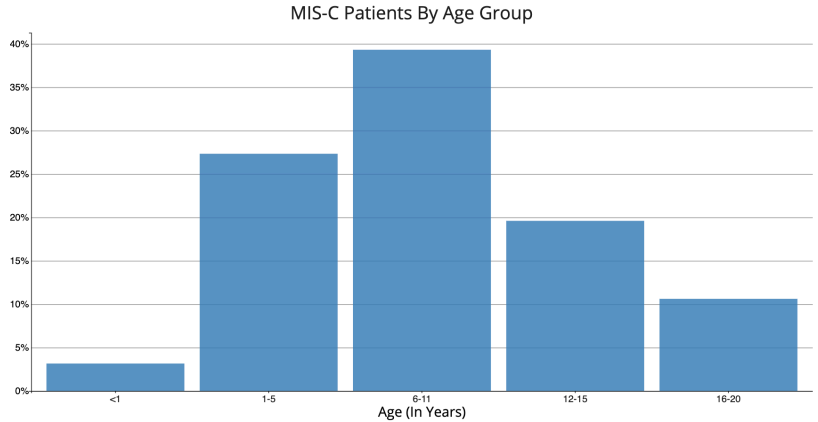
https://covid.cdc.gov/covid-data-tracker

Multisystem Inflammatory Syndrome in Children (MIS-C)

Last updated with cases reported to CDC on or before July 30, 2021*

TOTAL MIS-C PATIENTS MEETING CASE DEFINITION*	TOTAL MIS-C DEATHS MEETING CASE DEFINITION
4,404	37





- MIS-C can occur weeks after COVID-19 and even if the child or family did not know the child had COVID-19.
- The median age of patients with MIS-C was 9 years. Half of children with MIS-C were between the ages of 5 and 13 years.
- 63% of the reported patients with race/ethnicity information available occurred in children who are Hispanic/Latino (1,280 patients) or Black, Non-Hispanic (1,077 patients).
- 99% of patients had a positive test result for SARS CoV-2, the virus that causes COVID-19. The remaining 1% of patients had contact with someone with COVID-19.
- 60% of reported patients were male.

https://covid.cdc.gov/covid-data-tracker

What is known about COVID-19?

- Mutations in the COVID-19 virus over time are expected, and can cause variant strains of COVID-19 to emerge.
- Variant strains of COVID-19 have been identified in the United Kingdom, South Africa, Brazil, India and Peru, and have since been identified in many other countries around the world. These strains are known as variants of concern, as they appear to spread more easily than other COVID-19 strains.
- Studies are ongoing to determine the effectiveness of the currently authorized vaccines against these variants.

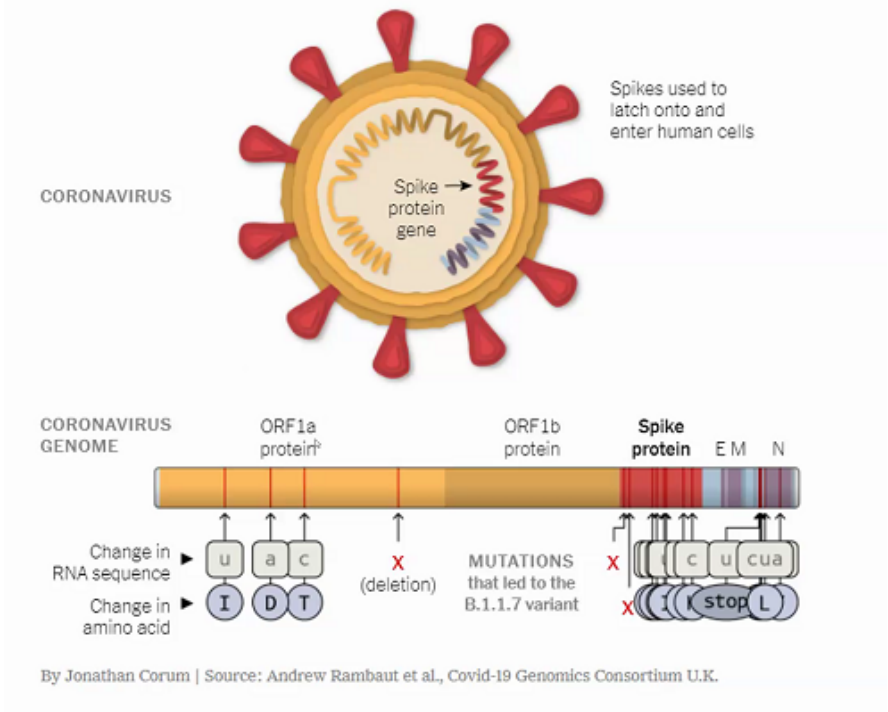
www.cdc.gov/coronavirus/2019-ncov

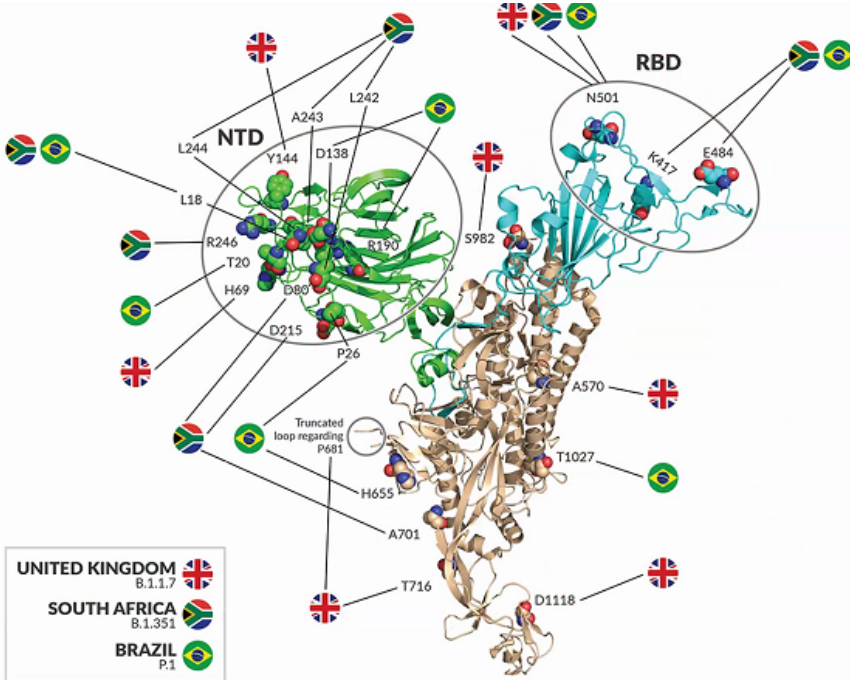
SARS-CoV-2 Variant Classifications

- Definitions:
  - Variant of Interest
    - A variant with specific genetic markers that have been associated with changes to receptor binding, reduced neutralization by antibodies generated against previous infection or vaccination, reduced efficacy of treatments, potential diagnostic impact, or predicted increase in transmissibility or disease severity.
    - Eta (B.1.525), Lota (B.1.526), Kappa (B.1.617.1)
  - Variant of Concern
    - A variant for which there is evidence of an increase in transmissibility, more severe disease (e.g., increased hospitalizations or deaths), significant reduction in neutralization by antibodies generated during previous infection or vaccination, reduced effectiveness of treatments or vaccines, or diagnostic detection failures.
    - Alpha (B.1.1.7), Beta (B.1.351, B.1.351.2, B.1.351.3), Delta (B.1.617.2, AY.1, AY.2, AY.3), and Gamma (P.1, P.1.1, P.1.2)
  - Variant of High Consequence:
    - A variant of high consequence has clear evidence that prevention measures or medical countermeasures (MCMs) have significantly reduced effectiveness relative to previously circulating variants
    - To date, no variants of high consequence have been identified in the United States

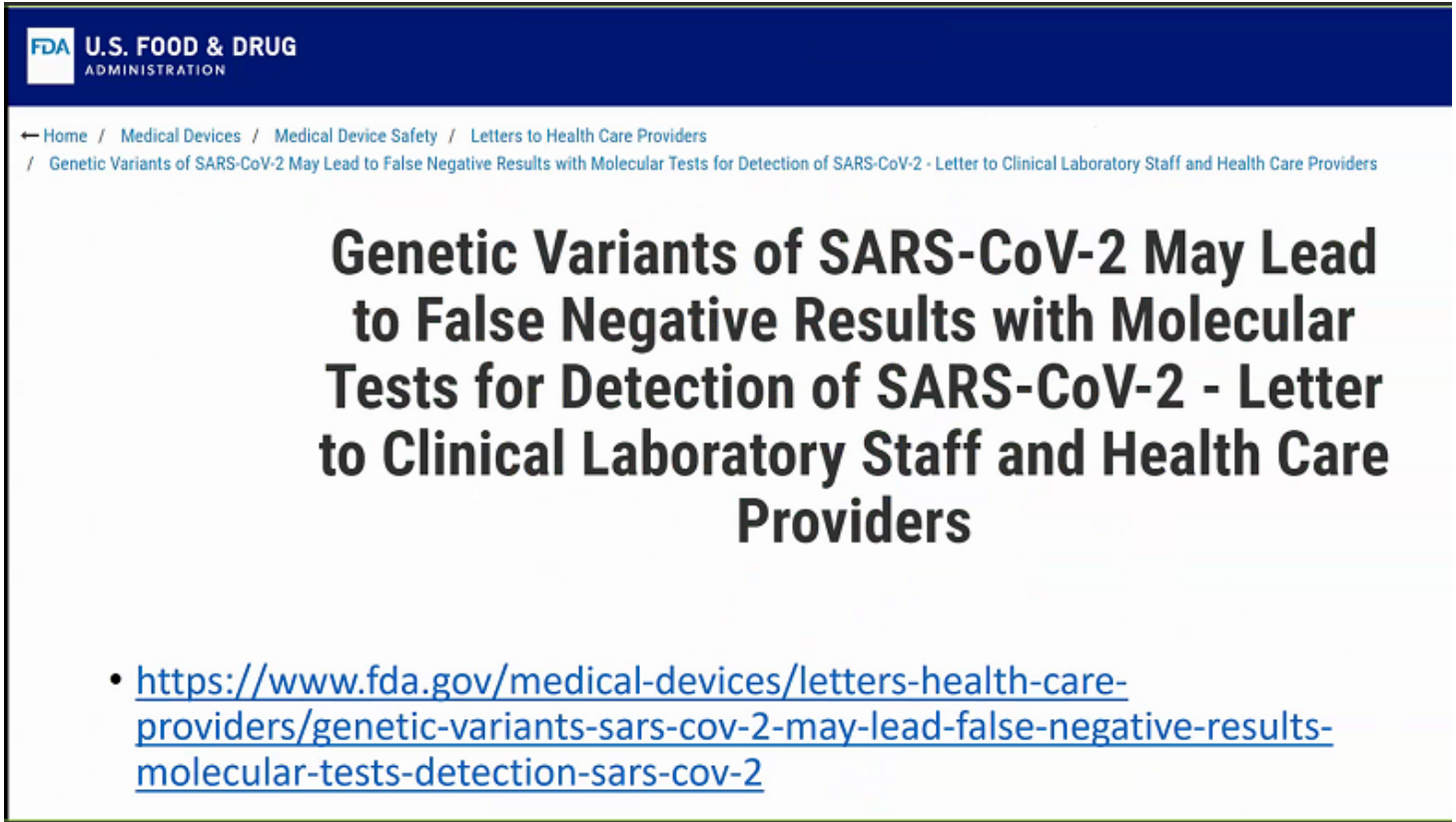
www.cdc.gov/coronavirus/2019-ncov

Variants of concern





Variants of concern



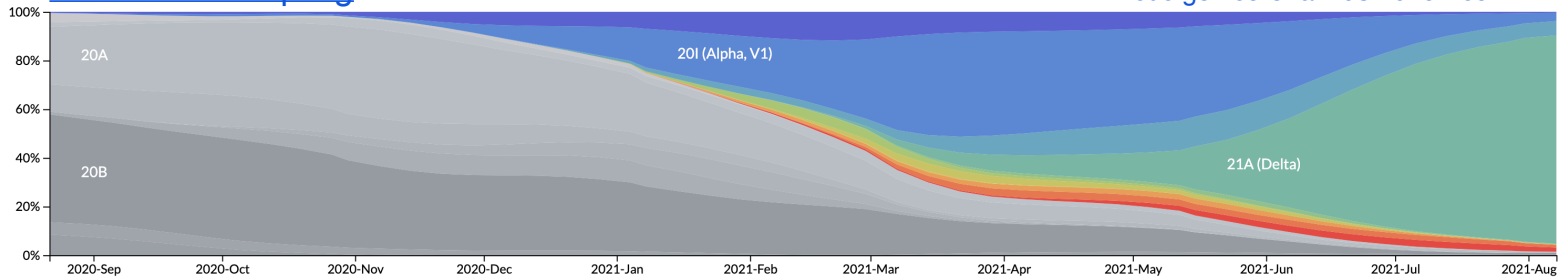
Delta variant

- Spike Protein Substitutions: T19R, (V70F*), T95I, G142D, E156-, F157-, R158G, (A222V*), (W258L*), (K417N*), **L452R**, T478K, D614G, P681R, D950N
- The L452R substitution has been shown to cause a significant reduction in susceptibility to bamlanivimab and a modest decrease in susceptibility to the combination of bamlanivimab and etesevimab.
- First Identified: India
- USA National Proportion: 94.8%
- Attributes:
  - Increased transmissibility
  - Potential reduction in neutralization by some EUA monoclonal antibody treatments
  - Potential reduction in neutralization by post-vaccination sera

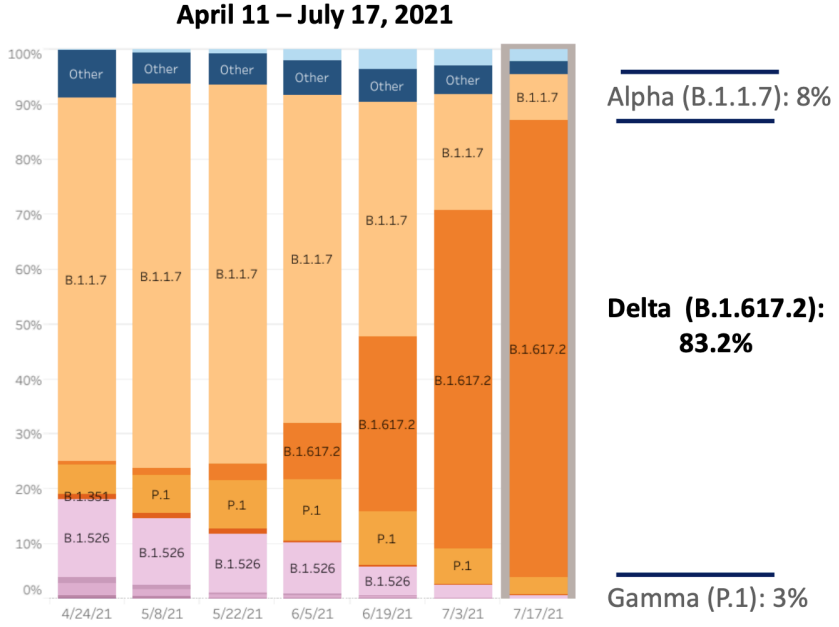
The Delta variant causes more infections and spreads faster than earlier forms of the virus that causes COVID-19. It might cause more severe illness than previous strains in unvaccinated people

Global subsampling

www.cdc.gov/coronavirus/2019-ncov



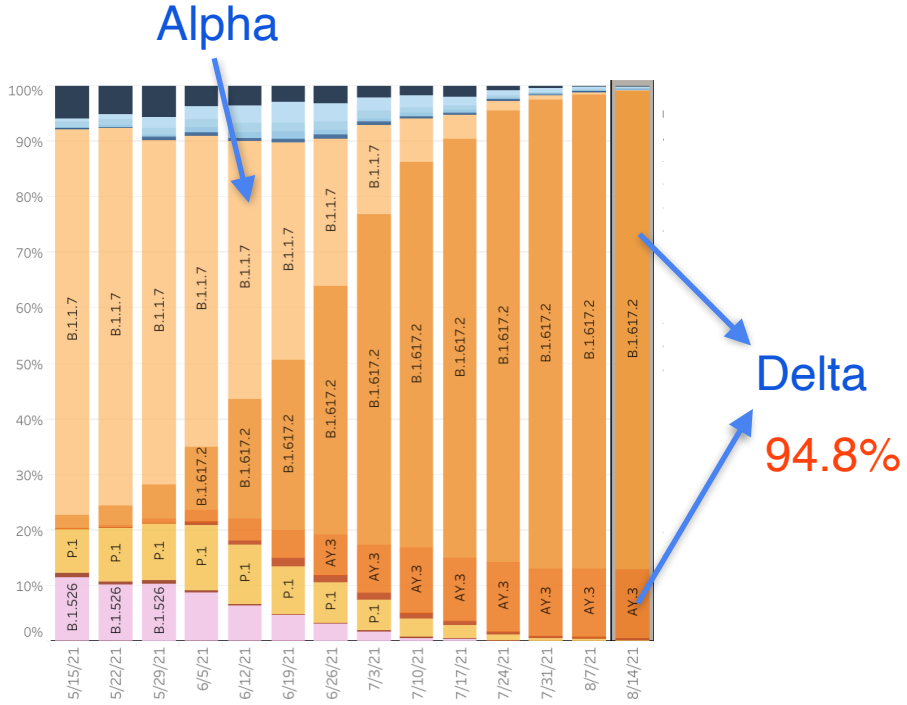
Delta variant in USA



Alpha (B.1.1.7): 8%

Delta (B.1.617.2): 83.2%

Gamma (P.1): 3%



www.cdc.gov/coronavirus/2019-ncov

What is known about COVID-19 Delta variant?

- The Delta variant causes more infections and spreads faster than earlier forms of the virus that causes COVID-19. It might cause more severe illness than previous strains in unvaccinated people.
  - Vaccines continue to be highly effective at preventing hospitalization and death, including against this variant.
  - Fully vaccinated people with breakthrough infections from this variant appear to be infectious for a shorter period.
  - Get vaccinated and wear masks indoors in public spaces to reduce the spread of this variant.

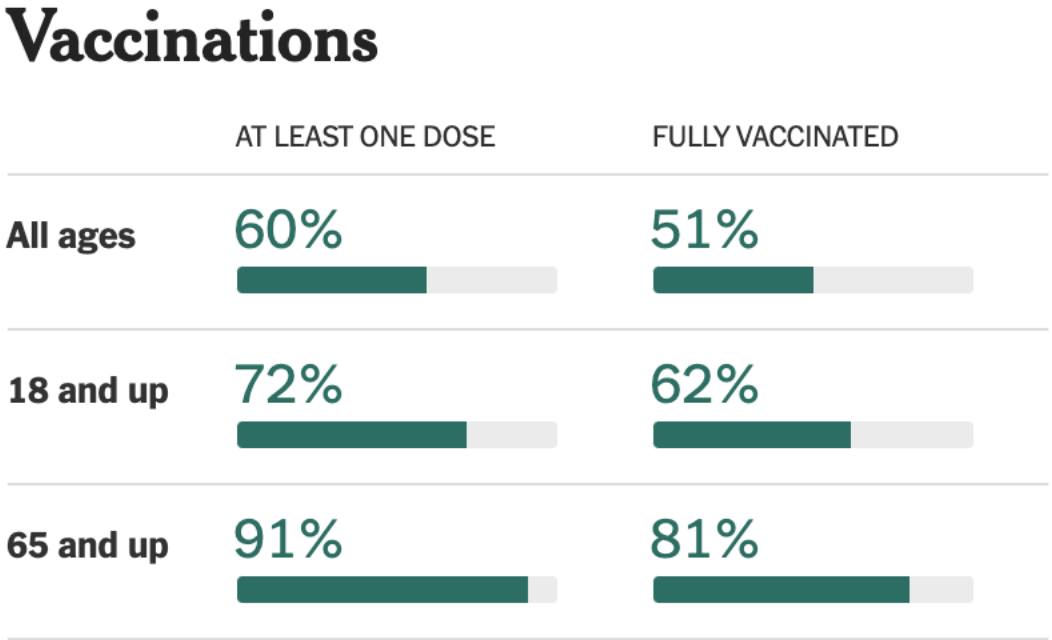
www.cdc.gov/coronavirus/2019-ncov

COVID-19 vaccination

- All COVID-19 vaccines available in the U.S. have been shown to be very effective.
- Three vaccines have received Emergency Use Authorization from the Food and Drug Administration from companies named Pfizer, Moderna, and Janssen (Johnson & Johnson, or J&J).
- All three COVID-19 vaccines are safe and highly effective against serious illness, hospitalization, and death.
- The Pfizer and Moderna vaccines require 2 doses given at least 3-4 weeks apart. People should get both doses to be fully vaccinated in order to be effective.
- Johnson & Johnson (J&J) is only 1 dose.

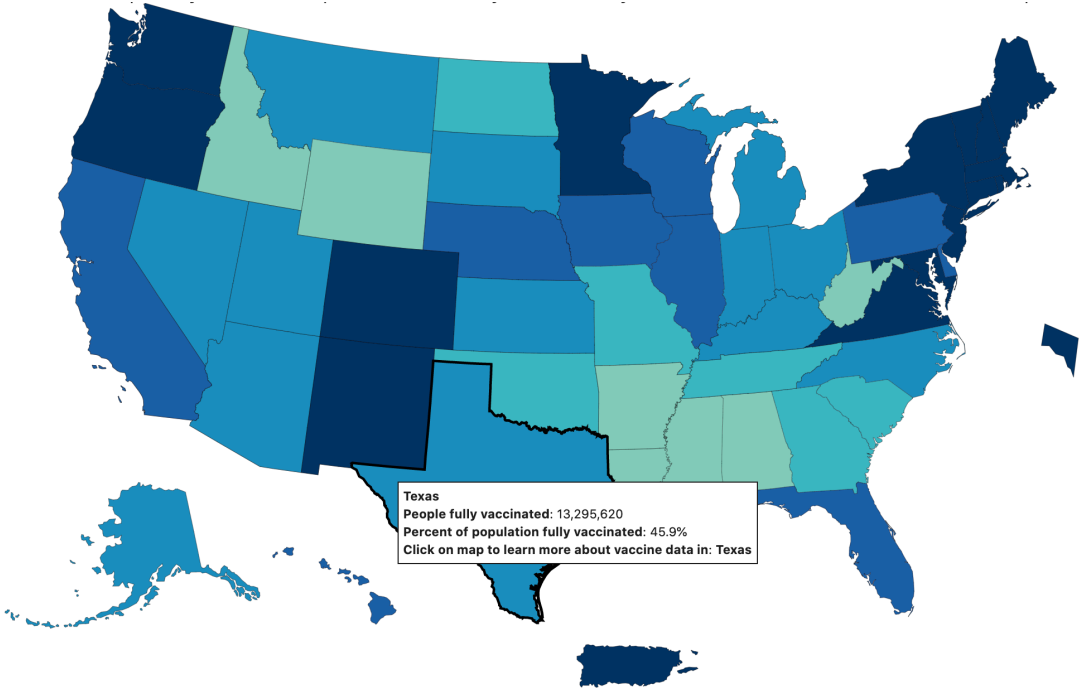
www.cdc.gov/coronavirus/2019-ncov

COVID-19 vaccination



www.cdc.gov/coronavirus/2019-ncov

Texas Percent of People Fully Vaccinated Reported to the CDC



45.9%

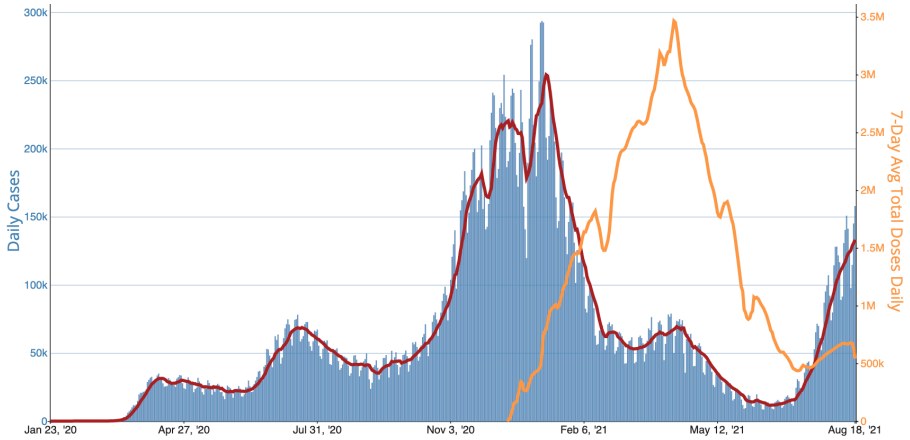
(Aug 20, 2021)

www.cdc.gov/coronavirus/2019-ncov

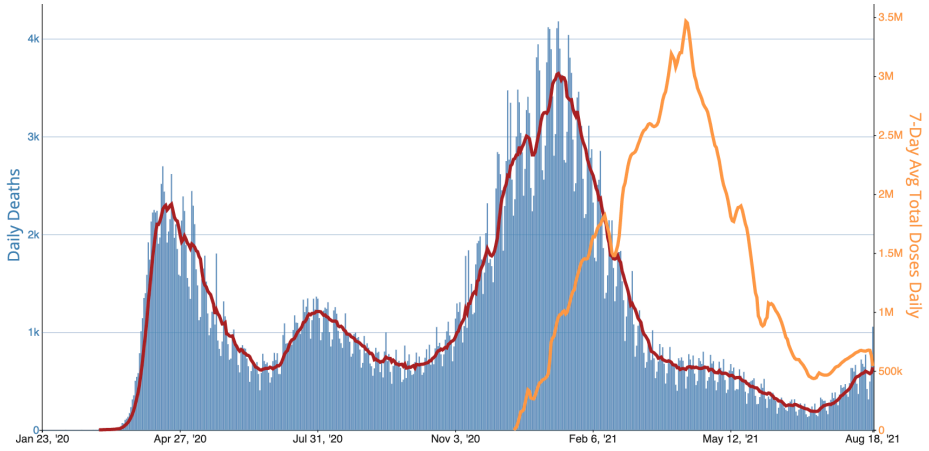
Represents the number of people who have received the second dose in a two-dose COVID-19 vaccine series or one dose of the single-shot Johnson and Johnson's Janssen COVID-19 vaccine

Vaccines impact (USA)

Daily Cases



Daily Deaths



https://covid.cdc.gov/covid-data-tracker

COVID-19 vaccination side effects

- Serious side effects from vaccines, including the COVID-19 vaccine, are rare.
- It is possible that some people may have side effects, which are normal signs that your body is building protection.
- These side effects may affect your ability to do daily activities, but they should go away in a few days.
- The most common side effects are minor and include:
  - Tiredness
  - Headache
  - Pain at the injection site
  - Muscle and/or joint pain
  - Chills
  - Nausea and/or vomiting
  - Fever

www.cdc.gov/coronavirus/2019-ncov
www.cdc.gov/vaccines/acip/meetings/slides-2021-07-22.html

COVID-19 vaccination allergic reacciones

- You should **not** get the COVID-19 vaccines if you have a history of severe allergic reaction (also called “anaphylaxis”) to any ingredient in the vaccine.

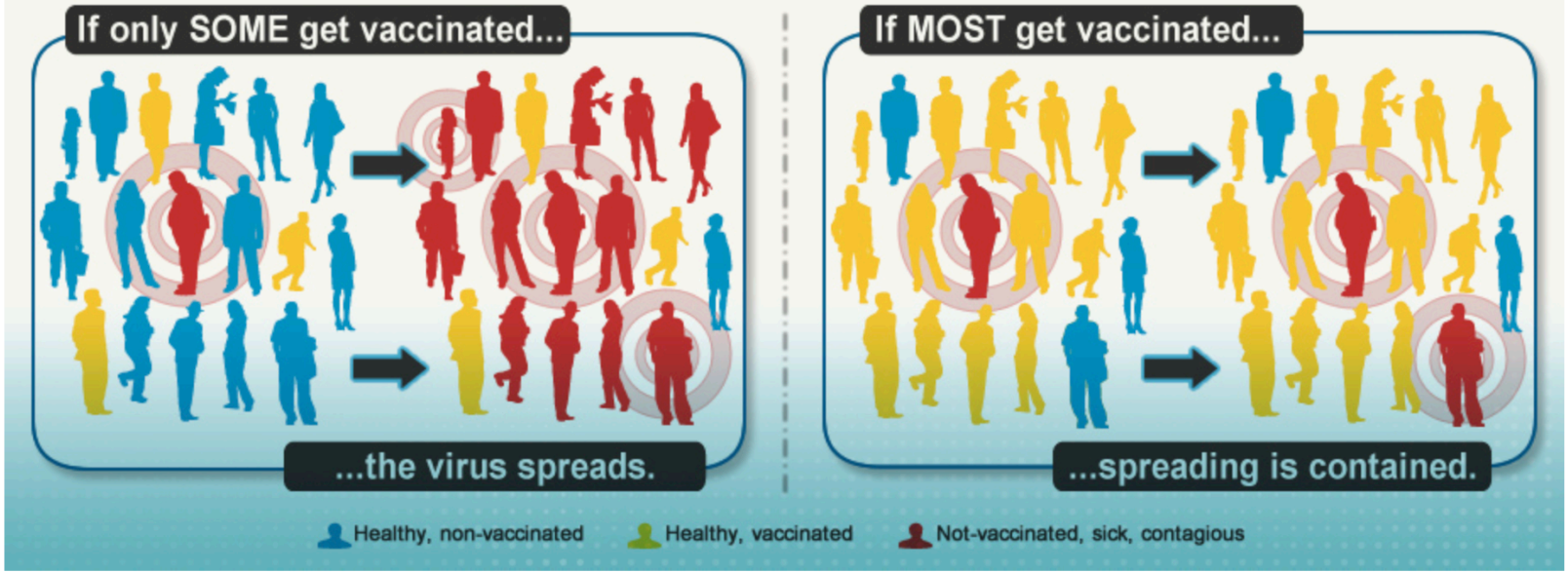
- The vaccines do not contain eggs, gelatin, preservatives, or latex. The ingredient lists can be found at:
  - Pfizer: https://www.fda.gov/media/144414/download
  - Moderna: https://www.fda.gov/media/144638/download
  - Janssen (Johnson & Johnson): https://www.fda.gov/media/146305/download

COVID-19 vaccination for children

- The Pfizer vaccine is authorized for people ages 12 and older.
- The Moderna and Johnson & Johnson vaccines are authorized for people ages 18 and older.
- Younger children and adolescents should not get the COVID-19 vaccine right now.
- The Food and Drug Administration has indicated to Pfizer-BioNTech and Moderna are expanding the size of their clinical trials for children ages 5 to 11. https://www.nytimes.com/2021/07/26/us/politics/fda-covid-vaccine-trials-children.html
- More than four million American children and adolescents have tested positive for the virus since the onset of the pandemic, the American Academy of Pediatrics reported last week. Of those, at least 346 have died.

Herd immunity to SARS-CoV-2

- The herd immunity threshold is the minimum proportion of the population that must be immune to an infectious disease, usually due to vaccination, for the incidence of the disease to remain stable or decrease



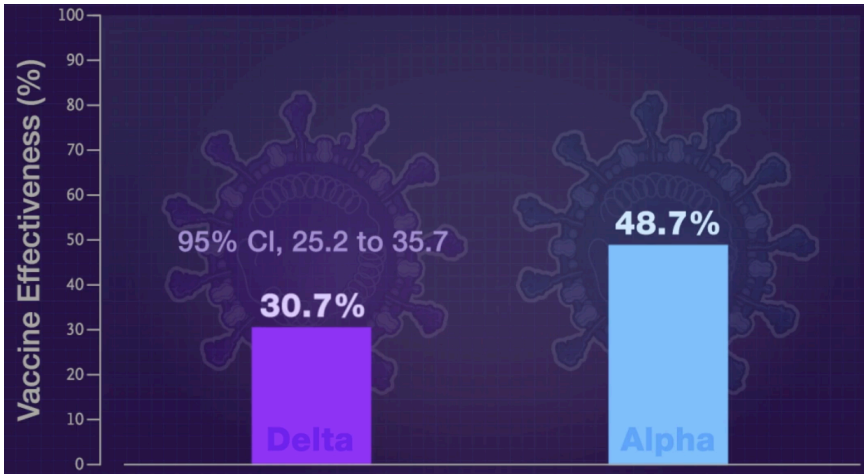
https://www.cdc.gov/vaccines/vac-gen/whatifstop.htm

- The herd immunity threshold for measles, one of the most infectious diseases, is about 94%. For SARS-CoV-2 variants of concern, such as B.1.1.7 (Alpha), the threshold is about 80% and it may be higher for newly emerging variants like B.1.617.2 (Delta)

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8315197/

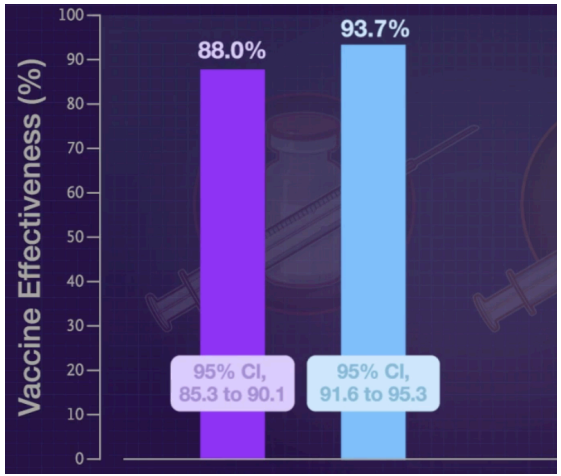
Effectiveness of Covid-19 Vaccines against the B.1.617.2 (Delta) Variant

Pfizer (dose 1)



Delta Alpha

Pfizer (dose 2)



Delta Alpha

Image adapted from:
https://www.nejm.org/doi/10.1056/NEJMoa2108891

August 12, 2021

COVID-19 vaccination booster

- It is normal for viruses to change as they spread, and for new variants to appear.
- So far, studies suggest that the vaccines provide protection from the known variants (like the Delta variant).
- Even when a vaccinated person gets infected with COVID-19, they are very protected against severe disease and death.
- Last week the CDC recommended a booster for moderately to severely immunocompromised people, this means people with compromised immune systems who already got two doses of the Pfizer or Moderna vaccines can now get a third shot to boost their protection from COVID-19.
  https://www.npr.org/sections/health-shots/2021/08/14/1027597108/6-things-to-know-if-youre-immunocompromised-and-considering-a-3rd-shot
- US authorities have developed a plan to begin offering booster shots this fall to all Americans, after concluding that a third shot is needed to fight off waning immunity.
  - “We are prepared to offer booster shots for all Americans beginning the week of September 20 and starting 8 months after an individual’s second dose. At that time, the individuals who were fully vaccinated earliest in the vaccination rollout, including many health care providers, nursing home residents, and other seniors, will likely be eligible for a booster. We would also begin efforts to deliver booster shots directly to residents of long-term care facilities at that time, given the distribution of vaccines to this population early in the vaccine rollout and the continued increased risk that COVID-19 poses to them”.
    https://www.cdc.gov/media/releases/2021/s0818-covid-19-booster-shots.html

How to prevent COVID-19

- Wear a mask that covers your mouth and nose.
- Avoid close contact with others. Stay at least 6 feet (about 2 arm lengths) from other people.
- Avoid crowds and poorly ventilated spaces.
- Wash hands often with soap and water.
- Use an alcohol-based hand sanitizer with at least 60% alcohol if soap and water are not available.
- Avoid touching your eyes, nose, and mouth with unwashed hands.
- Clean and disinfect frequently touched surfaces daily.
- Get a COVID-19 vaccine.

https://www.cdc.gov/coronavirus/2019-ncov/vaccines/index.html

https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/disinfecting-your-home.html