

# 98% of MIS-C Hospitalizations Were Unvaccinated Pediatric Patients

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*Abstract: Pediatric COVID and MIS-C hospitalizations remain low, especially for those who are vaccinated.*

While pediatric hospitalization rates for COVID-19 remain much lower than adult hospitalization rates for the same conditions, less is known about the differences in hospitalization rates for COVID-vaccinated and unvaccinated pediatric patients. Additionally, we sought to understand whether COVID vaccination was associated with hospitalizations for multi-system inflammatory syndrome in children (MIS-C), a serious condition associated with COVID-19.

When comparing pediatric COVID cases and MIS-C cases over time, we found that MIS-C cases tend to peak after COVID cases peak, as shown in Figure 1.

## Weekly Pediatric COVID-19 and MIS-C Cases

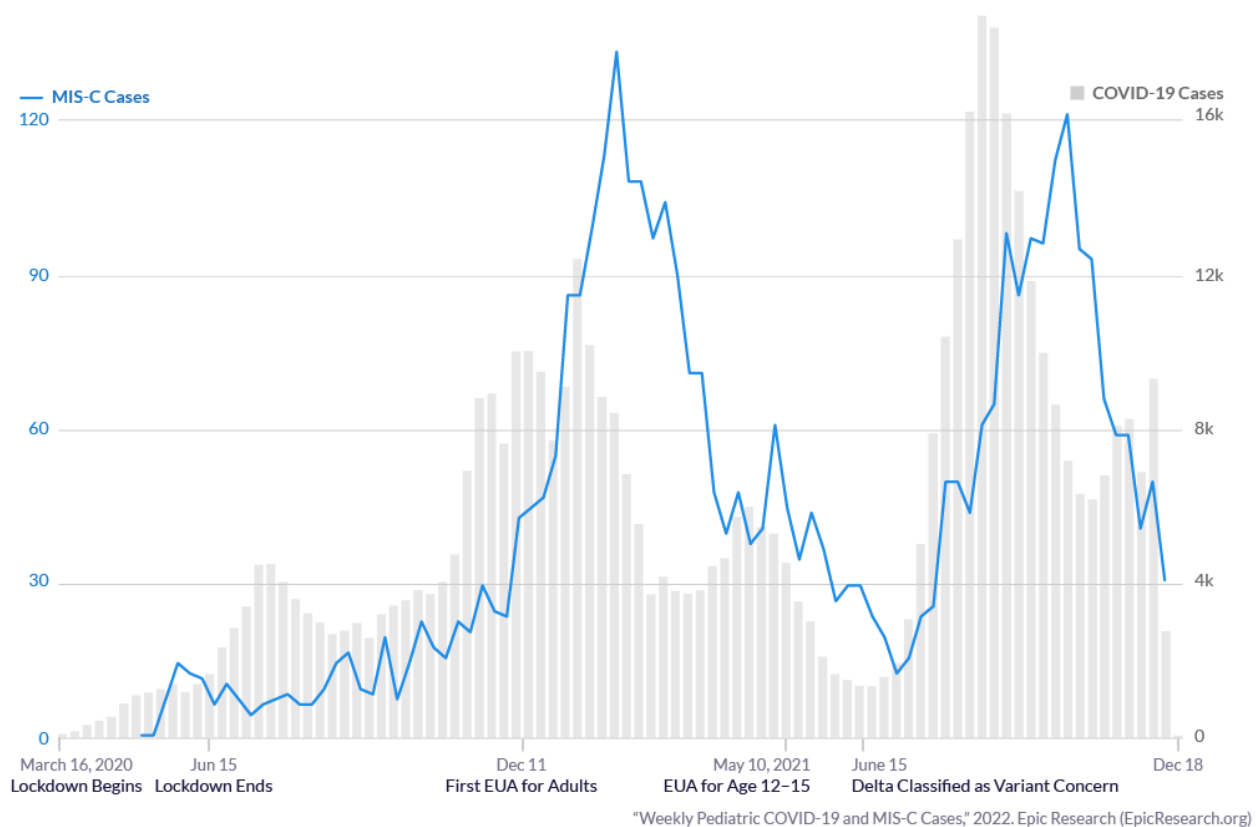
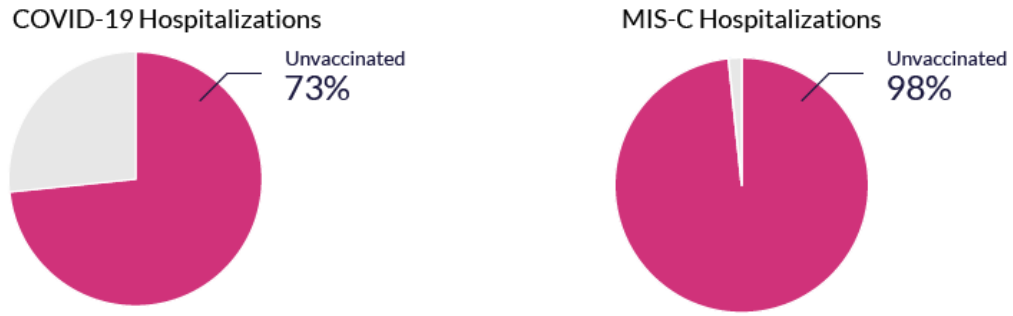


Figure 1. Weekly rates of COVID-19 and MIS-C infections in pediatric populations.

We evaluated COVID hospitalizations for 5- to 20-year-olds and MIS-C hospitalizations for 0- to 20-year-olds in 2021 after the vaccine became available for pediatric patients. Overall, COVID hospitalization rates for pediatric patients remained low, with just 2% of admissions being for COVID. Of the 699 pediatric hospitalizations for COVID, 513 (73%) were for unvaccinated patients. Of the 1,499 pediatric hospitalizations for MIS-C, 1,474 (98%) were for unvaccinated patients.

## Pediatric COVID-19 and MIS-C Hospitalizations by Vaccination Status



"Pediatric COVID-19 and MIS-C Hospitalizations by Vaccination Status," 2022. EpicResearch.org

Figure 2: COVID-19 and MIS-C hospitalizations for pediatric patients by vaccination status. The gray area represents the proportion of hospitalized patients who were vaccinated, while the maroon area represents the proportion of hospitalized patients who were unvaccinated.

These data suggest that in addition to the known decrease in likelihood to be hospitalized for COVID when vaccinated<sup>1</sup>, COVID vaccination might also play a role in decreasing the likelihood of developing MIS-C.

*These data come from Cosmos, a HIPAA-defined Limited Data Set of more than 126 million patients from 156 Epic organizations including 889 hospitals and 19,420 clinics, serving patients in all 50 states.*

### References

1. The Centers for Disease Control and Prevention. COVID-19 Vaccines Work. <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/effectiveness/work.html>. Accessed on January 10, 2021.

### Data Definitions

Term	Definition
<b>Pediatric patient</b>	Patients 0 – 20 years of age.
<b>Fully vaccinated</b>	Patients are considered “fully vaccinated” against COVID if at least 30 days have passed since dose two of mRNA or dose one of J&J. Patients with a complete mRNA vaccine series are included if they had at least 21 days (Pfizer) or 28 days (Moderna) between administrations.
<b>MIS-C case</b>	Patients with a problem list, encounter diagnosis, or final billing diagnosis mapped to ICD-10-CM code M35.81
<b>MIS-C hospitalization</b>	Hospital admission with a diagnosis of ICD-10-CM code M35.81
<b>COVID-19 case</b>	Patients with a problem list, encounter diagnosis, or final billing diagnosis mapped to ICD-10-CM code U07.1 or SNOMED-CT 840539006, or a positive SARS-CoV-2 PCR lab result.
<b>COVID-19 hospitalization</b>	A hospital admission during which the patient had a COVID-19 diagnosis or a hospital admission with any respiratory diagnosis that happened within 14 days following the patient’s COVID-19 start date. Respiratory Diagnosis Codes: J00-J99 (ICD-10-CM).