

# COVID-19 cases and hospitalizations surge among children

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It's a tough time to be a parent. And it has been for nearly two years. Schools are threatening to close again (or already have) due to high COVID-19 volume. And pediatric case rates and hospitalizations are

soaring—particularly among children under 5, who are too young to be vaccinated.

But there has been some good news about COVID-19 and kids—particularly when it comes to vaccination. Recently, a [report from the Centers for Disease Control and Prevention](#) (CDC) said that two doses of the Pfizer-BioNTech vaccine are highly protective against MIS-C (multisystem inflammatory syndrome in [children](#)), a rare but often serious condition that can cause organ inflammation in kids weeks after a COVID-19 infection.

Plus, two additional studies released by the CDC late last year offered reassurances about [vaccine safety](#) and efficacy in young children. [One report](#) demonstrated that serious problems in children five to 11 who received the Pfizer vaccine were extremely rare. The other [examined hundreds of pediatric hospitalizations in six cities](#) last summer, finding that nearly all of the seriously ill children were not fully vaccinated.

Even so, vaccination rates remain low in young children, which medical experts say is part of the reason for the recent, steep uptick in pediatric cases. As of January 13, nationally only about 18 percent of children ages five to 11 and 54 percent of kids ages 12 to 17 are fully vaccinated, according to [data from the CDC](#).

"Thus, the rise in cases and hospitalizations is not surprising," says Marietta Vázquez, MD, a Yale Medicine pediatric infectious diseases specialist.

"If you consider that part of this pediatric population wasn't eligible for vaccination until recently and that immunization rates in young children remain low—and you factor in variants that are much more communicable—this increase makes sense," Dr. Vázquez says.

While COVID-19 continues to generally be less severe in children compared to the elderly, that doesn't mean kids don't get sick, she adds. "We still don't fully understand COVID in the setting of co-infections. There are a lot of children with respiratory infections and asthma and other conditions that can land them in the hospital," she says. "What I am seeing at Yale is similar to what is happening around the country. It's very worrisome to me as a pediatrician, as an infectious disease physician, but particularly as a mother."

Below, Dr. Vázquez and fellow Yale Medicine pediatric infectious diseases specialist Thomas Murray, MD, Ph.D., discuss the importance of vaccination in children.

## **How many kids with COVID-19 are hospitalized?**

There were more than 580,000 new COVID-19 cases among children during the week ending Jan. 6, 2022—a 78 percent increase compared to the previous week, according to the American Academy of Pediatrics.

For the week ending Jan. 2, an average of 672 children were admitted to hospitals every day, which is the highest such number at any point during the pandemic, the CDC reports.

A similar trajectory is occurring at Yale New Haven Children's Hospital, says Dr. Murray.

"We've seen a significant increase in hospitalizations since December. Although we don't know for sure if Omicron accounts for all cases, it's highly likely to be the majority of them," Dr. Murray says. "To put things in perspective, prior to December, the highest number we've had of kids hospitalized with COVID in one month was 22. This December, we had 46 kids."

As of Jan. 12, Yale was already up to more than 60 pediatric COVID admissions for the month, Dr. Murray says.

"It's definitely a trend of kids younger than 11 being hospitalized, and the majority are not vaccinated," he says.

Sometimes patients are admitted for a different medical problem and COVID-19 is an incidental finding, but Dr. Murray says that roughly 65 percent of the COVID-19 patients at Yale New Haven Children's Hospital were admitted because of something related to their infection.

## **Upper respiratory tract COVID symptoms in kids**

Dr. Murray says many of the pediatric COVID-19 patients, especially the youngest ones, are exhibiting significant upper respiratory symptoms. This falls in line with Omicron, which appears to affect the upper airways (nose, throat, windpipe) more than the lungs, compared to previous variants.

While lung infections can cause breathing troubles, upper respiratory infections can be problematic in young children because their airways are narrower and it doesn't take as much inflammation to clog them.

"Younger children are coming in with barky, croup-like coughs," Dr. Murray says. "Babies and [young children](#) breathe through their nose—so if it's clogged up, it's a problem for them."

Fortunately, most children do well with supportive care, Dr. Murray says. "Sometimes they need supplemental oxygen. And for children over 12, we have new COVID-19 therapies becoming available," he says.

Meanwhile, other respiratory infections are occurring in kids, including flu and RSV (respiratory syncytial virus), a common virus that causes

cold-like symptoms in children.

"We saw a large increase in RSV last spring, whereas we typically see it in the winter. Cases have started to decline, but we are still treating kids with it, and we are definitely seeing a return of influenza," Dr. Murray says.

Dr. Vázquez says she is concerned about children becoming infected with multiple viruses. In fact, the term "flurona" has been much discussed lately.

"If someone is infected with influenza or another [respiratory infection](#), they are at risk for more severe disease if they get another infection on top of the one they already had," Dr. Vázquez says. "And this happens to be a season of high rates of RSV and COVID-19. There's isn't a vaccine for RSV yet, but we do have vaccines for influenza and COVID-19."

## **MIS-C concerns remain**

One of the most worrying—and least understood—elements of coronavirus in kids has been MIS-C, a condition that remains rare yet can be lethal. MIS-C typically occurs weeks after a COVID-19 infection and can affect children who had mild or asymptomatic cases.

Researchers still can't pinpoint what causes MIS-C but know that it makes the immune system overreact to SARS-CoV-2 (the virus that causes COVID-19). MIS-C can lead to inflammation of organs, including the brain, lungs, heart, and kidneys.

So, it may have been encouraging for parents and medical professionals to see a recent CDC study showing that two doses of the Pfizer vaccine were estimated to be 91 percent effective in preventing MIS-C in 12- to 18-year-olds.

At Yale, MIS-C cases have been fairly steady, with one to five cases a month, Dr. Murray says. For the most part, children with the condition recover, but it's yet another reason to consider vaccination, Dr. Vázquez says.

"When I approach the topic of vaccination safety, I think it's important to compare risk from the disease with risk of vaccination," she says.

"Millions and millions of COVID vaccines have been administered to individuals of all ages around the world—many with autoimmune diseases, cancer, and other issues—and we have simply not seen severe complications."

## **Keep perspective when considering vaccination**

With Pfizer boosters recently approved for 12- to 15-year-olds, some parents who vaccinated their 5- to 11-year-olds recently might worry that their children aren't protected enough, especially against Omicron.

Dr. Murray says that while it is true that two doses might not necessarily fully protect someone against infection, it does reduce the risk of infection, and offers significant protection from severe disease and hospitalization.

"The vaccines have a very strong safety profile from a risk-benefit analysis. Given how contagious this new variant is, it's important that people who are eligible for vaccination and/or boosters get them," he says.

Dr. Vázquez agrees. "In a worst-case scenario, even if your vaccinated child gets infected, all of the data shows that it will most likely be a mild illness," she says.

And the fact remains that plenty of children are now being hospitalized,

Dr. Murray says. "We therefore need to do everything we can to prevent that, and vaccination is our number one weapon," he says. "Another thing to remember is that when we have kids hospitalized with COVID, that takes away from our care of other children in the hospital. Our hospital is prepared and has the ability to handle it, but it has produced a strain on the health care system at large. It affects everybody."

## **Vaccination can protect our youngest ones from COVID-19**

Pfizer and Moderna are both conducting studies of their vaccines in children ages six months to four years, with Pfizer saying it plans to apply for an emergency use authorization (EUA) for this age group in the first half of this year.

In the meantime, the best way to protect those who can't yet be vaccinated is by doing what Dr. Vázquez calls "cocooning."

"This is where we protect our most susceptible individuals who cannot be vaccinated because of an illness, or in this case, because we don't have yet have a vaccine license for this age, by having everyone around them—siblings, mothers, and fathers—get vaccinated," she says. "For younger children, we know a lot about social distancing, handwashing, and masking. We also now know that cloth masks are not as protective. If you can get a child to do it, it's a good idea to have them wear two surgical masks."

Dr. Murray agrees that the best way to protect children who are too young for vaccination, as well as to keep high-risk adults safe, is for everyone who is eligible to get vaccinated and/or boosted.

"No vaccine is perfect, but the COVID-19 vaccines are very good at

preventing hospitalization," he says. "The majority of our hospitalized kids are there because they weren't eligible for the vaccine or they didn't get it."

Provided by Yale University

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