COVID vaccine for kids under 5: What to know

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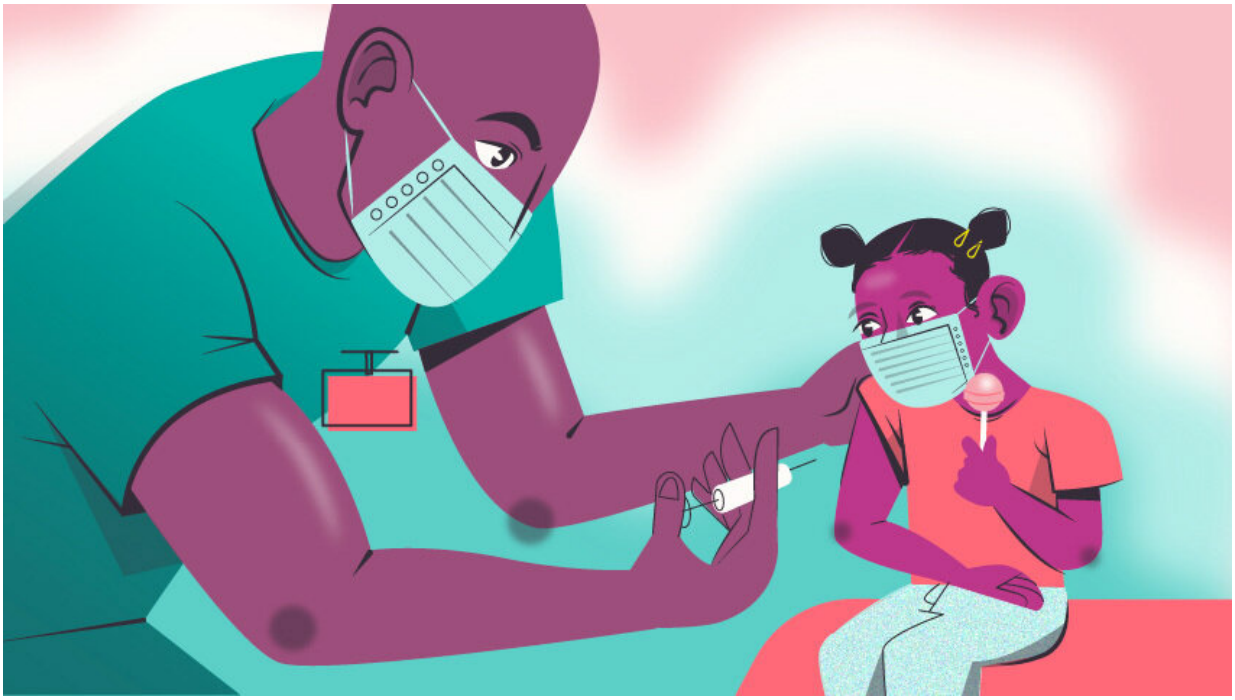

Credit: Justine Ross, Michigan Medicine

Elizabeth Lloyd, M.D., has been closely tracking news about COVID-19 vaccines for children under five. Not only as a pediatric infectious disease expert—but as a mom.

Her son Lucas, two, was born three months after the pandemic began and is among an estimated 18 million children who will soon be eligible

to get vaccinated against the virus for the first time.

For Lloyd's family, not being able to vaccinate Lucas has meant continuing to skip large indoor gatherings, crowds and travel plans even as others resume normal activities and drop safety measures like mask wearing.

But on June 18, the U.S. Centers for Disease Control and Prevention voted to recommend vaccinating all children in the six months-to-under-five age group with one of two separate COVID-19 vaccines manufactured by Moderna and Pfizer-BioNTech.

Among the many reasons parents like Lloyd have eagerly been awaiting the milestone: Young children have limited treatment options for COVID-19. Most treatments that help prevent progression to severe disease in patients with a higher risk of serious illness, such as monoclonal antibodies and the oral antiviral Paxlovid (nirmatrelvir/ritonavir), are only available to those 12 and older.

"Not only has this age group not been eligible for vaccine protection against COVID, but we don't have many therapeutics available to them either. That has made them a very vulnerable population," Lloyd said.

"We've come a long way with vaccines and boosters for all other age groups, with strong evidence proving vaccination plays a key role in reducing spread, hospitalizations and deaths. We need to make sure everyone in our communities, including younger children, are offered the same protection."

And while COVID case numbers are declining, Lloyd notes that getting younger children vaccinated now will help protect the whole family before the next expected spike.

"Starting the vaccine series over the summer means most children would be able to complete either the two or three dose series by the time school resumes in fall when cases are expected to rise again," Lloyd said.

Lloyd helps answer some of parents' top questions below.

What's the difference between the two COVID vaccines for kids under 5?

Moderna's two-dose vaccine for children six months to six years old is a quarter dose of its primary vaccine for adults. Meanwhile, Pfizer's three-dose vaccine for six months to under age five is one tenth the dose given to those 12 and over.

Moderna reports its two-dose vaccine series was about 51% effective against infection from the omicron variant in children under two and about 37% effective among 2- to 5-year-old kids. Pfizer has reported an 80% efficacy rate in its three-dose vaccine series at a time when omicron was dominant.

No safety concerns have come up in either trial and there have been no cases of myocarditis, a rare type of heart inflammation that has been associated with COVID vaccines for adolescents and young adults, but that is more likely to occur after a viral infection, including COVID itself.

Side effects reported for both Pfizer and Moderna kids' vaccines have also appeared comparable to those experienced in older age groups, with potential swelling and pain at the injection site, temporary elevated temperatures, fatigue which may lead to drowsiness and irritability for a day or two for younger kids.

Ibuprofen or acetaminophen can reduce pain and fever and some children may also like a cool, damp cloth placed at the injection site to help with discomfort, Lloyd says.

Until now, Pfizer was currently the only company to offer a primary vaccine and booster for children ages five and over. But the U.S. Food and Drug Administration recently authorized Moderna's vaccine for ages six to 17 as well.

Why the delay on developing a COVID vaccine for children under 5?

In December 2021, Pfizer reported that a two-dose series of their vaccine tested in ages six months to under five wasn't highly effective in protecting against a COVID-19 infection and that they were evaluating a third dose for the age group. Efficacy was stronger for the six- to 24-month-old population, but less so for the two-to-under-five-year-old trial group.

However, as the omicron variant emerged and the winter surge escalated, leading to dramatic jumps in cases, there was an increased sense of urgency in ensuring younger children had protection against COVID.

In February 2022, some parents' hopes were raised when Pfizer appeared to be poised to ask the FDA to authorize the first two doses of the COVID vaccine they'd developed for the under-five group, with a plan to eventually offer a third dose when that data was complete.

"The thinking appeared to be that some protection was better than none, at a time when numbers were climbing and exposure risk was high," Lloyd said.

However, the FDA ultimately decided to wait until data was available on the third dose of the vaccine to see if it offered a higher degree of protection and increased efficacy.

In May, Pfizer reported positive news—the vaccine did indeed demonstrate a strong immune response and high efficacy in this age group following the third dose.

"It's important for parents to understand that this pause had nothing to do with safety. We know the vaccine is safe," Lloyd said. "But everyone involved wants to make sure it's also effective in fighting the virus."

"As doctors, we are eager to have vaccines available to young kids, but there's a balance between getting them vaccinated as quickly as possible and making sure the end product is truly providing the best protection," she added. "The goal is to determine the right dosing for this age group that minimizes side effect risks while maximizing protection."

How are COVID variants impacting vaccine effectiveness?

When it comes to the race between vaccine development and COVID mutations, the virus is hard to beat—by the time a vaccine is found safe, effective and is ready to roll out, a new variant may have already emerged. This was seen when the delta variant stormed through in fall with omicron following shortly after.

Experts theorize that COVID vaccines were less effective against omicron, reflected in infection rates in both vaccinated adults and children in the ages 5-11 age group. Some research suggests that the vaccine's effectiveness may have dropped for younger kids in December and January during the omicron-led surge.

However, vaccines continue to be credited for significant declines in hospitalizations and deaths, with vaccinated people much less likely to experience severe sickness from an infection than those who are unvaccinated. Some research also indicates that vaccinated people who get infected with the virus may have lower viral loads and may be less likely to spread COVID to others.

But there have been promising developments, with Moderna's new "bivalent" vaccine candidate—which targets two different antigens and which may be available later this summer—showing signs of potentially better targeting omicron compared to its original vaccine.

"The vaccine process takes time because there are all of these steps to make sure by the time they're being offered on a broader scale to the public, they're safe and effective," Lloyd said. "Meanwhile, COVID keeps coming up with new variants, which will impact vaccine efficacy, as vaccines were generally created based on original COVID strains."

"But the bottom line is we know that vaccine protection remains a critical tool in consistently preventing severe sickness from COVID."

Advice for parents weighing the decision to vaccinate children under 5 years old

With COVID case numbers declining and spring and summer weather taking more people outside, some families may not see it as an urgent time to vaccinate younger children against the virus.

But parents should consider several factors in making the decision to vaccinate, Lloyd says.

New variants continue to emerge with experts anticipating more

fluctuations in COVID infections over coming months, including potential spikes when school resumes in fall.

Families should not only consider a specific child's risk of severe disease , but also the risk of those who they are in close contact with, including family and older relatives. Other questions to think about: What level of exposure risk children have (i.e. are they in daycare or frequently participating in activities that put them in close proximity to others who may be sick in indoor settings?) What levels of COVID-19 are circulating in a specific community?

"Every family is different and must consider their personal and community risks in making decisions about vaccination," Lloyd said. "We should all be mindful that younger children are still vulnerable to getting sick, especially if cases begin to rise again. And it's not always easy to get toddlers to adhere to measures like mask wearing."

There are other challenges that come with COVID sickness too. For Lloyd, COVID exposures in her son's childcare center has meant exposed and unvaccinated children must quarantine for at least a week, which also stresses families who often need to miss work or find last minute childcare. Vaccination may eliminate the need to keep children home after such exposures as well as the need to cancel family and travel plans.

While children's risk of severe COVID remains low, they can still acquire and transmit the virus to others. A small percentage of children also require hospitalization after COVID and face rare but life-threatening risks such as multi-system inflammatory syndrome, or MIS-C.

During the omicron surge, COVID-19–associated hospitalization rates in children aged 5–11 years were nearly twice as high among unvaccinated

as among vaccinated children, according to the Centers for Disease Control and Prevention. About a third of hospitalized children had no underlying medical conditions while nearly a fifth were admitted to an intensive care unit. Children with diabetes and obesity were more likely to experience severe COVID-19.

Doctors are also seeing some kids experience debilitating symptoms months after a COVID infection.

"Preventing all symptomatic disease would be the ideal, but when it comes down to it, what's most important is keeping people out of the hospital and preventing long-term complications," Lloyd said.

"Vaccinating kids is still an important part of the equation when it comes to fighting the pandemic."

But when in doubt, she says, ask your doctor.

"If parents have any questions or are struggling to make these decisions, they should talk to their doctors," Lloyd said. "Their child's health provider is always the best resource to discuss their specific situation and concerns in order to make the best decision for their family."

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