Paul Offit, MD, discusses the importance of pediatric COVID vaccination

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In today's COVID-19 Update, AMA Chief Experience Officer Todd Unger talks with Paul Offit, MD, the director of the Vaccine Education Center and an attending physician in the division of infectious diseases at Children's Hospital of Philadelphia, about pediatric COVID vaccination, mandates and boosters.

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Speaker

- Paul Offit, MD, director, Vaccine Education Center, Children's Hospital of Philadelphia

Transcript

**Unger:** Hello, this is the American Medical Association's COVID-19 Update video and podcast. Today we're discussing pediatric vaccination with Dr. Paul Offit, the director of the Vaccine Education Center and an attending physician in the division of infectious diseases at Children's Hospital of Philadelphia. I'm Todd Unger, AMA's chief experience officer in Chicago. Thanks so much for joining us again, Dr. Offit. The recent authorization of the Pfizer vaccine for five to 11-year-olds came as a relief to a lot of parents, I'm sure, as we head into the winter and another holiday season. Are we just in time? What are we seeing with COVID cases right now, among this group?

**Dr. Offit:** Well, so you know that in the five to 11-year-old age group, which comprises about 28 million children, you know that about 2 million children have been infected, that about 8,300 have been hospitalized, that a third of those who have been hospitalized, have had to go to the intensive care unit. You also know that about a third of those who were hospitalized had no comorbidities that would've put them at higher risk of severe disease and more than a hundred children that age have...
died.

Frankly, the scariest part of this disease occurs in that age group and that's the so-called multisystem inflammatory syndrome of children, or MIS-C, which presents usually, initially, as an asymptomatic infection or mildly symptomatic infection that was just picked up serendipitously. And then the child stops shedding the virus. A month later, they come to the hospital with high fever, pneumonia and then involvement of heart, liver, and kidney, and occasionally have to go to the intensive care unit. That's a five to 13-year-old phenomenon, with a peak at 9 years of age. And so we don't really understand it, about what caused it but it can lead to longer term symptoms. I think when I try and convince parents to get a vaccine in that age group, that's actually the example I use.

**Unger:** And I think maybe it was just kind of a narrative that started with us but a lot of people think that kids in that age group are just not at risk or the outcomes are not serious. What's led to that? How do we counteract that?

**Dr. Offit:** Well certainly, when the virus first came into this country early last year, the mantra and it was true, was children get infected less frequently. And when they're infected, they're infected less severely. That's true. And at the time early last year, children accounted for actually fewer than 3% of cases. Today it's closer to 27%. This variant, the Delta variant, has reached down into that susceptible age group and now you can say that this is certainly a childhood illness and children can be affected so that they have to suffer or be hospitalized or die. If you can prevent this disease safely, then it's a disease worth preventing.

**Unger:** Well, the good news is we do have a new tool in the armament, so to speak, which is the vaccine for this five to 11-year-old age group. But kids in this age group are not going to be fully vaccinated by Thanksgiving. It could be by winter break. As we think about coming up on Thanksgiving here, what's your advice to parents who have kids that are not fully vaccinated or who are not yet eligible for a vaccine?

**Dr. Offit:** Right. So for the five to 11-year-old who would've gotten a single dose but the second dose, which would be given three months later, sort of straddles the Thanksgiving holiday so they would've only had one but not two doses. So, that child's not fully vaccinated. But still, I think that they should still participate in the Thanksgiving holidays, even with grandparents. Just realize they're not fully vaccinated yet. So mask, do the best they can to social distance and then get that second dose when required.
Unger: So in terms of the decision, we obviously need to get parents on board and you've acknowledged that it's difficult to make decisions for millions of children based on data from thousands of children. But you've also said that it's not whether we know everything, it's about whether we know enough. How do physicians reassure patients, parents that we now know enough to recommend vaccinating this group?

Dr. Offit: Right. So were I the parent of a five to 11-year-old, about to vaccinate them, I would worry about this very, very rare side effect of myocarditis, inflammation of the heart and muscle, which although for the most part is transient and self-resolving and short-lived, still there, no doubt over time, will be a spectrum of illness with that. But I think there are several things that are reassuring. First, while the instance of myocarditis in roughly that sort of 16 and older group is in the sort of one in 50,000 range and for the younger group, the 16 to 17-year-old, is somewhat higher than that, we can be reassured that this study is now in the 12 to 15-year-old, for whom a vaccine has been available now for months, it looks like the instance of myocarditis is less in that age group. That's reassuring. Secondly, the dose that's given to the five to 11-year-old is a third the dose that was given to the 12 to 15-year-old. So I think that's also reassuring. And know that SARS-CoV-2, the virus that causes COVID, can cause myocarditis. It depends on which study you look at but as many as one in 45 people who get SARS-CoV-2 will have evidence, either clinical or subclinical, of myocarditis. And MIS-C, this multisystem inflammatory disease of children, is associated with myocarditis roughly half to 75% of the time. And the myocarditis associated with the viral infection or a myocarditis associated with this MIS-C, this post-infectious phenomenon, is more severe than is the myocarditis associated with a vaccine. So there are never risk free choices. There are just choices to take different risks. And I think here, clearly, the choice is to get a vaccine, which is the less lesser risk.

Unger: And if I heard you say correctly upfront, you said a population of about 28 million in this age group. And did you say 2 million had already had COVID? Did I catch that right?

Dr. Offit: That's right.

Unger: So we're close to one in 10. This is a lot of kids, in this age group, that have gotten COVID. And what you're saying is the risks associated with that, they're higher than getting the vaccine itself, is what you're saying?

Dr. Offit: Right. If you look at this study that was done, the 2,400 child study that was done in the five to 11-year-old age group, there were 1,600 children who got the vaccine, 800 who got placebo. Well, of the 800 who got placebo, 16 got COVID. That's a 2% attack rate. That's 1 in 50. That's not so small. So I think when people think this is not going to affect my child, it very well may affect their child. And now you're moving into a situation where we're moving into winter. This is basically, at its heart, a winter virus. Children are going to be gathering together inside, a largely susceptible, either
unvaccinated or under vaccinated, population. It's a recipe for disaster and I think we need to protect our children now more than ever.

I do think as we move into February, March of next year, with a larger percentage of people who are going to have been vaccinated, and unfortunately, an additional percentage of people who've been naturally infected. And you move into warmer weather, I think we'll see things come down again and maybe stay down for a while. But for right now, I think it's a somewhat dangerous time.

**Unger:** So there are a lot of reasons that parents give for not vaccinating their kids. There's fear of allergic reactions and side effects. And then there are basic fears that kids don't like needles. How have pediatricians traditionally counteracted these fears and what can others who are providing vaccines and vaccine information learn from them?

**Dr. Offit:** I think there was a fellow we had in our group, a number of years ago, who now is at Harvard, and she had a nephew who was about five years old. He was about to go in and get his four to six-year-old shots, which can mean as many as four or five shots at one time. So she explained to him what the purpose of vaccines were, how they worked and what he could expect. So then she goes with him to the doctor's office and she's waiting outside while the child is getting the vaccine. Now she's nervous. The door opens up, her five-year-old nephew walks out. He puts his hands up in the air and he shouts, "I'm immune." That's what you're going for. So I think we need to try and explain to the parent, and to the child, that this makes them superheroes, this makes them Superman. Now the virus or bacteria can just bounce off them. I think we need to do the best we can to do that.

**Unger:** Well, as you know, sometimes, unfortunately, misinformation sticks with people more than the truth, more than the facts and we continue to have a great deal of it out there, circulating around the topic of vaccines. What are the top things that you're hearing from parents, particularly in regard to vaccinating their kids, and how are you addressing that?

**Dr. Offit:** Right. Surprisingly, one of the things I hear from parents is that they're afraid that it'll render their child infertile, that the child then wouldn't be able to ultimately have their own children. This is just one that never dies. It's not true. There's abundant evidence that it isn't true. It was born of the notion that ... The thinking was that if you're making an immune response to the SARS-CoV-2 spike protein, which you're doing when you get a vaccine, then you're also inadvertently making an immune response to a protein that sits on the surface of placental cells, called Syncytin-1. That's not true. Those two proteins are immunologically distinct. And were that true, then remember, we've had more than a hundred million people who've been infected with this virus in this country over the last year and a half. They also have been making an immune response to the SARS-CoV-2 spike protein.

So if that's true, what's happened to the birth rate over this period of time? And the answer is it stayed the same. So it's just not true. It was based on a false notion. And you try the best you can but you're right. It's really hard to unscare people. Once you scare them, it's hard to unring the bell. No matter
how often you try and get good information out there, some things are made to stick. And some of this misinformation is made to stick.

Unger: Well, unfortunately too, the anti-vax movement, it's strong, it's well coordinated and we've seen it's devastating impact with about 100,000 lives lost due to COVID, even after vaccines were available. The AMA has been working to elevate physician voices. And in fact, you had a little cameo role in our science and storytelling video that we did with our sections this past week. How do you make sure physician voices are heard at this critical time, above all the rest of the noise?

Dr. Offit: It's hard. We are drawn to conspiracy theories, I think in many ways because they're reassuring. A pandemic, in a sense, is chaos. It's not clear where it started. And certainly at the beginning, it wasn't clear exactly how it was spread. Masking versus not masking. Can I walk into a grocery store? Can I get it if I touch a piece of fruit that other people have touched? There was so much uncertainty initially. Hydroxychloroquine was approved through emergency use authorization. Convalescent plasma, things that didn't work. And I think what the conspiracy theorists do is they provide order out of chaos. They say, "Look, here's how it started. The lab in Wuhan. Tony Fauci was behind it. The NIH was behind it. World Health Organization was behind it. Bill Gates was behind it."

There's these evil doers behind the curtain that you don't see. "Masking is dangerous. There's healing microbes in the water so you can go to the beaches. So don't wear a mask. Vaccines are dangerous. Vaccines don't work. Vaccines can give you the disease. And so don't mask, don't social distance. Still go to the beach." And it was just done by these evil doers, they're creating COVID statistics that are incorrect. And that's all in many ways seductive because it's sort of what you want to hear and it's wrong. It's completely wrong. And science ultimately will also create order out of chaos. It also will create its own narrative. And when that happens, then that will be a correct narrative. Polio is no different. If you look back at polio in the early 1900s, nobody knew what caused it.

And there were all these crazy notions of how it was caused. All these crazy notions of how it was cured. And that was very seductive, in many ways, until we then found out what virus caused it, how to prevent it. And then everything settled out and we virtually eliminated that virus from this country. We did eliminate it by the late 70s. So I just think it's these competing narratives, and the conspiracy theory narrative, amazingly enough, thrives in part because it does create order out of chaos. You could make the same argument, actually, for Andrew Wakefield, claiming that the measles, mumps, rubella vaccine caused autism. Autism, at some level, is chaotic. We don't have a clear cause or causes. We certainly don't have a cure. He provided both. "Here's the cause. Here are these evil doers, pharmaceutical companies. MMR vaccine caused it. If you want to avoid getting autism, just avoid getting that vaccine." And it was, in many ways, seductive, even though it was wrong and did a lot of harm. That's what you're up against. It's hard. It's hard to fight that.

Unger: Well, one of the tools that we've been seeing out there that has increased vaccination rates are our vaccine mandates. You've been a vocal person about mandates as being a way that we can
push that vaccination rate forward. Do you think that the COVID vaccine should join the list of immunizations that are mandated by schools?

**Dr. Offit:** Yes. Does this virus fall into the same category as other viruses for which we have mandates? Of course. Right now, we're in the midst of a massive pandemic. More than 700 children have died. Yes. In a better world, you shouldn't need mandates. In a better world, parents look at the data and get this vaccine every time. We don't live in that world, there's a lot of misinformation out there that causes parents to make bad decisions for themselves and their children. And so sometimes you just have to compel people to do the right thing by mandating a vaccine.

The interesting thing to me is if you look at a state like Mississippi, which has actually a pretty low rate of COVID-19 vaccination and as a consequence has a higher rate of disease, they are the answer to the question what state in the union has the highest rate of vaccination among its school children at 99%? That's Mississippi because they're one of only two states that never had philosophical religious exemptions to vaccines. They and West Virginia. These are two states that are very high on the list of childhood vaccination rates, not states necessarily known for their public health achievements.

**Unger:** Well, I'm grateful for vaccine mandates at school because that saved my daughter's senior year at college. So, that is working. And now as we look forward to next school year, say August 2022, do you think that the COVID vaccine is going to be on the required immunization list and if not, why wouldn't it be?

**Dr. Offit:** I think it should be. We're going to have to have a highly vaccinated population, a highly protected population, as long as this virus circulates in the world, which I imagine is going to be at least years, if not decades. We still give a polio vaccine every year in this country, even though we haven't had polio in this country since the 1970s. Why? Because polio still exists in Afghanistan, still exists in Pakistan. Here this virus is going to be circulating in the world for a while. So if you let your guard down, and just again bring in generations of children who are unvaccinated and just increase the percentage of the population that's unprotected, I think you just keep us at a higher risk unnecessarily.

**Unger:** Well, turning the subject to boosters. They're not yet authorized for kids but they are authorized for many adults. Two out of every three vaccinated people are eligible, according to some estimates. You've called the rush to get boosted "booster mania," and believe that it could be harmful to our overall efforts to reach unvaccinated kids and adults. Why is that?

**Dr. Offit:** I think we need to make it clear, in our messaging, what the goal of this vaccine is. The goal as it was originally stated, which I think was a fair and reasonable goal, was to protect against serious illness, meaning to protect against the kind of illness that causes people to have to either go to a doctor or go to a hospital or go to an ICU. Protect against serious illness. Well, these vaccines do that. They do that because they create immunological memory cells, memory B cells. And all the
studies that have been done, frankly, looking at people who are naturally infected or vaccinated, it shows that memory B cells still persist at relatively high frequency up until the present time. And that is consistent with the epidemiological studies that show the protection against serious illness has persisted up to this time.

But what we did with this vaccine, I think, and this virus, is we've had some communication struggles. I think the biggest communication struggle was born of an outbreak of this virus in Provincetown, Massachusetts around July Fourth. Thousands of men get together to celebrate July Fourth in Provincetown. 79% of them are vaccinated. 346 of those who are vaccinated get COVID. Of those 346, four are hospitalized, for a hospitalization rate of 1.2%. That's good. That's a vaccine that's working well. Unfortunately, to describe those people who, despite being vaccinated, had an asymptomatic or mildly symptomatic infection, we use the term breakthrough illness. That's not a breakthrough. That's what you want the vaccine to do. You want the vaccine to protect you against serious illness and that outbreak showed you that it did.

But instead of carrying that story as the positive story that it should have been, we carried it as, "Oh my God, even if you're vaccinated, you can develop an asymptomatic or mildly symptomatic infection," which is true of virtually all mucosal vaccines, whether it's rotavirus, whooping cough, influenza. Those vaccines aren't very good at preventing asymptomatic infection or mildly symptomatic infection but they keep you out of the hospital and keep you from dying. That's the reasonable goal for any vaccine.

And I think it's been confusing. So regarding the booster dose, now we've sort of shifted to what happens, over time, is neutralizing antibodies decline. True. What happens over time is protection against infection, i.e., asymptomatic or mildly symptomatic infection, declines over time. True. And so we need to prevent that by giving a booster dose. Well, that's true this isn't going to be the end of it because neutralizing antibodies, even after a third dose, will begin to decline and you'll also see an increase in infection rate. We just have to define what it is we want from these vaccines.

I think that if the goal is protection against serious illness, which I think is a reasonable goal here, the only group in humans clearly have been shown, I think, just in terms of studies, that benefit from a third dose, as compared to two doses, are people over 70 years of age. I think that's true there. I don't think it hurts us to do this. The one thing that does bother me in this, and you could see it in the discussions at the ACIP, and you could see it in the discussions with the FDA's vaccine advisory committee, was the number 18. That's what really people didn't like. That's where there was pushback because the 18 to 29-year-old is at increased risk of myocarditis. Now it's a rare risk but it's real.

And it's associated primarily in boys and men, and primarily after the second dose. Why the second dose? Because that's a booster dose. That's when you get a higher level of neutralizing antibodies. And the other things, the other chemokines or cytokines that seem to be likely associated with this
transient myocarditis. The third dose has a threefold greater immune response for Pfizer's vaccine than that second dose. So do I think that there could be then more myocarditis? Yes. And so then the question becomes is that 18 to 29-year-old clearly benefit from that third dose? And I just don't think we've communicated this well. And now, with sort of having many states simply saying, "We're going to do this for everybody over 18." We've just kind of bypassed the process, I think, through the FDA or CDC, to be able to allow the public to hear why it is that some of us are reticent about this.

Unger: Does it make you wonder? One of the key things we learned is that probably 50% of this can be around communication. Sometimes I think that has just played such an enormous role.

Dr. Offit: At least 50%. I think when President Biden ... and I think everybody's intention is good here. I think we're all trying to do the right thing but I think when President Biden showed up in mid-August and said, "We're going to have a booster dose for everybody over 16," what he did, inadvertently, was he just sent out the notion that you weren't fully protected with two doses. And then, in a week, the CDC had a meeting and had a slide that said, "You are fully vaccinated at two doses." And it's just been really, I think, confusing for people.

Unger: Well, last question, we've got this big group, another 28 million people that are now eligible for the vaccine with the latest authorization, is there a magic number here that we need to get to for us to be able to finally move beyond this pandemic? And is that attainable in the coming months?

Dr. Offit: I think it was attainable at the beginning. I think the number is probably to the low to mid 90% rates, for population immunity, meaning people who are either naturally infected or vaccinated or both because those are overlapping groups. We're probably at about 80% right now. The five to 11-year-old represents 28%. 28 million people is roughly a little less than 10% of the population. So sure, I think that if all parents decided to vaccinate those children, that would certainly contribute to herd immunity but that's not an argument I would ever make for a parent, which is that you're vaccinating your child to protect others. You're vaccinating your child to protect your child.

But again, there's a solid 60 million people who aren't vaccinated. Many of them are adults. And what upsets me is that that should be the issue. I think Rochelle Walensky, the director of the CDC, said it best. She said, "We're not going to boost our way out of this pandemic." That's right. We need to vaccinate the unvaccinated more so than boosting the vaccinated. I can tell you at the intensive care units at our hospital or the adult hospital next door ... people are in the intensive care unit not because they haven't gotten their third dose, they are there because they haven't gotten any doses.

Unger: Is that number, you said it's kind of a number above 90%, is that bigger than we thought it was going to be? I, for some reason, remember a smaller number than that, when we first went into this.

Dr. Offit: I think Delta changed that number. The Contagious Index, the R-naught of Delta, is much
higher than the original variant that came into this country, the D614G variant and the alpha variant, the second variant. So this third variant, the Delta variant, I think, has changed that. There's actually a formula for this. It's R-naught minus one over R-naught divided by vaccine efficacy. So if you have an R-naught and the R-naught of Delta is expected to be between five and nine, it's obviously a mutable number because it depends where you live, because obviously I'm going to spread more to other people if I live in New York City than if I live in rural Montana. But you know, five minus one over five is 0.8 and then if you divide that by the vaccine efficacy, and this is generous to say 90%, because it really should be protection against contagious. 0.8 divided by 0.9 is 0.9. And so I think that's the lowest number.

We're getting there. I really do think we're getting there. And I think, when we were giving 3.5 to 4 million doses a day, many months ago, if we'd stayed on that course, we'd be there now. We could look in the rear view at some level of this pandemic now but we just refused, a critical percentage of this population, refused to be vaccinated.

**Unger:** Well, Dr. Offit, thank you so much for joining us today. Your perspective, always just so interesting and important. That's it for today's COVID-19 Update video and podcast. We'll be back soon with another segment. In the meantime, for resources on COVID-19, visit ama-assn.org/COVID-19. Our next episode, Monday, November 29. In the meantime, have a safe and healthy holiday.

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