Flu, RSV, and COVID: The Pediatric 'Tripledemic'

— Allergist Zachary Rubin, MD, discusses the "staggering" uptick in cases, hospitalizations

by Emily Hutto, Associate Video Producer
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In this video, Jeremy Faust, MD, editor-in-chief of MedPage Today*, sits down with Zachary Rubin, MD, to discuss the "tripledemic" of flu, respiratory syncytial virus (RSV), and COVID that has led to a wave of pediatric hospitalizations in the past few weeks. Rubin is with Oak Brook Allergists in Illinois.*

The following is a transcript of their remarks:

Faust: I am Jeremy Faust. This is *MedPage Today*. I'm joined today by Dr. Zachary Rubin. We're doing a session on pediatric care in crisis, addressing influenza, RSV, and COVID -- the 'tripledemic.'

Zach, let me see if I got this right, you live outside of Chicago -- I didn't know exactly where you were, but now I know that. Double board-certified pediatric allergist/immunologist outside of Chicago. And this I definitely know, extremely active in terms of getting good information out there, fighting misinformation. You're on TikTok big time, you're on Instagram, Twitter, YouTube. This is actually the first time we've ever actually spoken, so it's great to actually talk to you. Thanks for joining us.

Rubin: It's nice to finally talk with you. Thanks for having me.

Faust: No problem. Well, how's it going out there?

Rubin: You know, there's a lot of sick kids right now. We're just dealing in my practice with a lot of chronic cough, more so than at any point in the pandemic. When kids were at home, they weren't in school or they were masking up and physically distant and were doing a lot of testing; asthma wasn't a really good control. And now that's all just out the window, and it's back to this issue of kids getting sick. They're either getting flu, RSV, COVID, and they're just chronically coughing over the last several months.

Faust: Okay. I have a list of questions, but I knew this would happen off-script from the beginning.

Asthma was a thing that really blew me away during COVID. Everyone thought that, okay, the kid goes home, they live in maybe an old building or a project or something like that, the parents are smoking and [the smoke] is on the clothes, and that's where they get asthma. It's the home environment. Kids went home, and what happened to asthma?

Rubin: Asthma actually didn't go anywhere. I mean, the ER [emergency room] rates of asthma were plummeting 80% at one point from one of the studies I was looking at. We just weren't seeing it.

One of the most common triggers of asthma exacerbations is actually viral infections -- young kids getting sick. So when kids weren't getting sick and they were staying home, they were actually doing pretty well. They weren't showing up as much in the clinic or in the ER or in the hospital and so, asthma by itself wasn't really significantly increasing the risk of ending up in the hospital if you had COVID, even for adults too, surprisingly.

There's a lot of different reasons for that, but now we're at the point where people aren't wearing masks, they're gathering around in enclosed spaces and places that may have poor ventilation, and they're exposing themselves to all sorts of germs again, and it gets into, I think, the first issue, which is immunity debt. Right?

Faust: Yeah. We'll come to that in a second.

That was my experience too. We shut down, we stayed at home, we masked up, everything but COVID in terms of respiratory illnesses went away, a lot of triggers went away for asthma and for other problems as well, but that was a biggie. But now we've loosened up over time and we've seen old pathogens come back.

Now you have this idea of this 'tripledemic.' Three things: influenza, RSV, respiratory syncytial virus, and we still have COVID. Can you tell me at what point you started to notice, 'Wow, we've got everything.' And how is that impacting the care in hospitals and clinics and, just in general, in the medical system?

Rubin: Right. So this was really starting as early as September in some places -- we were starting to see a rise in RSV cases. Then in my area -- I had never seen influenza in October -- we were seeing cases in October in Illinois. Usually influenza starts in the south and it moves its way up. We were just seeing this all over the place a couple of months earlier than the typical flu season.

Actually, RSV was starting to rise last spring into the summer. There was this kind of slow rise of cases and then it just skyrocketed over the last couple of months.

Faust: It's really weird from a data perspective that usually RSV is kind of like a winter virus, and then we have this weird spring/summer surge, and the numbers are staggering. I was looking at it on the CDC website; the cumulative hospitalization rate for RSV for babies [ages] 0-6 months -- so these are your teeny tinys -- was 1,500 per 100,000-population. That's one in 65 kids under the age of 6 months getting hospitalized for RSV.

Now, I know a lot of these are what we call apnea checks or respiratory checks, they're not necessarily because they're so sick, but because they're so fragile. Does that number ring true?

Rubin: That is staggering to see that, I didn't even think about it to that level because usually it's a little bit lower in most other RSV seasons.

Faust: Oh yeah.

Rubin: That's almost double from that number. Yeah, that is astounding. You know, like you said, a lot of the times because they're younger and they're a little bit more fragile, one of the issues that's different in pediatric care compared to adult care is that younger kids tend to do pretty well. They do pretty well for a very long time, and then when they get really sick, they crump. They can get really sick and require a lot of high-level acuity care, and that's where things can get really scary. For adult patients, they kind of hang around and slowly decline over time.

So parents will see their children really kind of doing well for a while, but when they look like they're not acting well, everything goes off and fires off and they've got to go see and talk to their pediatrician or go into an urgent care or ER when they're just really not acting like themselves. That's when things get concerning.

RSV, as you were mentioning, is a type of virus that can cause apneic episodes where babies just stop breathing, or they're not breathing quite as well, and they can change color, and that can be rather scary at that age. You just don't know what's going on.

Faust: The hospitalization numbers for RSV are off the charts; they're staggering. Do you have a sense of how sick they are? I say that not to downplay it; we have these little babies and even if occasionally one of them really needs an intervention, that is worth hospitalizing 50 of them for. But how sick are these kids, and is it for the most part a lot of scare? I mean, it's a big scare, but they're doing okay and they're getting discharged.

Because with COVID, I feel like those hospitalizations were pretty scary and had some pretty crazy outcomes. I mean, obviously we've had over 1,000 pediatric deaths from COVID in this country, and who knows how many more contributory. With RSV, I'm just wondering, do you have a sense of how well the kids do?

Rubin: Yeah, so in terms of pediatric mortality, as far as I know, it's not extremely high. That's a good thing, right? We always worry about mortality with kids. That's not extremely high compared to other seasons as far as I know. But we know that severe cases of RSV are happening enough that kids are getting oxygen, and that increases the risk of longer-term effects.

RSV and rhinovirus are respiratory viruses that increase the risk of developing asthma later in life, especially if you have multiple wheezing episodes before the age of 3, that's concerning for long-term effects. That's what I worry about mostly as an outpatient allergist is seeing these kids, and what do I do with them when they're chronically coughing? That's one of the things that's affecting a lot of kids right now, more so than necessarily the mortality issues or kids ending up on ventilators. That's not quite happening as often.

One of the things that secondarily is happening, and we're just starting to get reports of -- we see this in Europe and I just got a health advisory alert in Colorado -- is the secondary bacterial infections with strep A. In fact, we're seeing more invasive group A strep now in young kids, where 19 children in the U.K. alone have passed away since

September due to just invasive group A strep. Normally we see strep throat, strep pharyngitis, we see scarlet fever, we see impetigo caused by group A strep, but these invasive numbers are four to five times higher in the U.K. this year compared to pre-pandemic years. Now in Colorado...there have been 11 cases since November 1st in Colorado alone when they normally get one or maybe two a month, so that's concerning.

Faust: That's really scary because in my practice, and I don't see a lot of kids but I used to, and I see some kids in the emergency department, one of the places that I work, group A strep can be nothing. I mean, we were even taught kind of like with inner ear infections, 'Ah, not every one of these kids really needs antibiotics. They probably do okay without it' because really the feared cardiac implications aren't really too common, and the kidney thing won't matter anyway whether you're on antibiotics or not.

And so to me, I look at group A strep with kids and I'm always like 'No big deal if the kid looks good.' I offer the antibiotics to parents and then we talk about it. But with this, it's like 'Uh-uh, different ballgame.' It really might change the practice pattern.

Rubin: Oh, absolutely. One of the biggest problems is, as you know, we're having a shortage of antibiotics in the United States. In the U.K. they have that same kind of shortage as well due to supply chain issues, increased demand, and they're having to use alternative antibiotics to try to combat this issue. They've even so far as thought about, and I don't think it's been confirmed, but they were thinking about health officials in the U.K. were saying 'Well, maybe we need to give prophylactic antibiotics to school-aged kids.' I mean, that's bad because that could increase the risk of drug-resistant organisms. There's not a lot of high-quality evidence to suggest that that's even helpful.

But when you see those numbers increasing for something like that, a lot of it I think has to do with the fact that we have a lot more viral infections going around, we have secondary bacterial infections that result...and then there's this question of, has COVID caused a dysregulated immune system? There's more and more laboratory evidence to suggest that there's T-cell dysregulation and dendritic cell dysregulation, in some papers. But there's not a lot of types of tests that I can use as a clinician, as a clinical immunologist, to really order that, to prove that right now. But it is a bit of a concern.

Faust: Yeah. I sort of take the view, and it's not exactly evidence-based, but the idea that SARS-CoV-2 -- and I hate this virus, it's awful -- but it's not a different virus than any other virus we've seen in the past, it's just worse in many ways. I think that

probably a lot of viruses do that, it's just that this is the most contagious bad one we've had in memory.

The old adage that 'What doesn't kill you makes you stronger' is absolutely false. Probably, getting sick a bunch of times isn't good for your immune system because it's sort of always going. I think we're learning a lot about a lot of viruses by what we're learning from COVID, including things like long COVID or dysregulated immune [system]. We'll see. But I tend to think that COVID is probably not special, it's just worse in a lot of ways.

Rubin: Right.

Faust: I'm curious what you think. Now, we finally get to this immune debt question. I want to be very careful about defining this idea.

So the way I think about this issue is that for 2 years, we didn't have flu, we really didn't have RSV for 2020. We had a little bit of it in 2021, we had a weird spring surge in 2022, but really if you just do the numbers, we've had a lot fewer kids getting respiratory viruses since the beginning of the pandemic, other than COVID, than we normally would.

Now come the fall of 2022 and kind of masks are out and everyone's behaving fairly normally. Now, we're paying the piper. Is that how you understand immunity debt, like we're catching up? Or is it like immunity debt with interest, that someone has said, 'Oh, it's not only that. It's that and worse.'

Rubin: I think it's more of the 'It's that and worse.' I don't like the term 'immunity gap' because what happened was in 2021, there was a paper that was published out of France that coined that term. It wasn't something that when I did my fellowship in clinical immunology that we talked about immunity gap. It's not something that we know about, it's a made-up term.

When you look at that paper, they talk about this idea that there's actually a worsened immune response because kids weren't trained to have early-onset infections, that somehow we've weakened kids' immune systems by wearing masks and by being physically distant -- that that was a bad thing. Unfortunately, a lot of people have taken that concept and said 'Well, we should never mask. We should have never done that to begin with. It was a really bad idea.'

I think it should really be recoined. The term should be coined 'exposure gap' if you're going to try to get closer to that, but that even doesn't explain the whole picture. Because when you look at places like Texas, you look at places like Florida, they didn't really have these prolonged mask mandates and shut things down. They still have surges in these respiratory viruses, right? You look at Sweden and they had a terrible RSV season a year ago, and they never had lockdowns, they didn't really have hard mask mandates. So, they were having all these problems a year ago with RSV. They were even telling families that 'If you have an older child at home, keep them at home if you've got an infant, because we're that worried about RSV.'

So the idea that masking and physical distancing is the sole contributing factor to this doesn't make any sense to me. I do think people coming together in these large crowds, not masking up, and there's a couple other things too, we're testing more than we ever have and the vaccination rates are lower. COVID vaccine rates are not that great in the United States. Booster rates are abysmal, especially with the updated bivalent booster. Influenza vaccine rates are also lower depending on the age and pregnancy status. It's like 5%-10% lower now compared to the previous years.

So, you've got a more susceptible pool of individuals from gathering, and then there's this question of people who have had multiple infections of COVID -- has that played a role in being able to fight off infections? There's just so many more people right now that I see in my personal practice, and you hear about, who are just chronically feeling sick more than usual. People who were previously healthy are just nonstop coughing, coughing, coughing, coughing right now.

Faust: Yeah. I also want people to understand that this sort of break that we had from things other than COVID was a very good thing. That was not a bad thing. I think it is expected that there's some catch-up phenomenon here.

But if you think about it, it's the 4-year-olds, the 3-year-olds who would've been exposed to this thing when they were 0 or [age] 1, or the [ages] 3 and 2 who would've been 0 or 1, and in my view, I don't want anyone hospitalized, but I'd much rather have this 3- or 4-year-old hospitalized today with RSV than have that same kid have gotten hospitalized with RSV at 0. In a way, it's like the vaccine is time. Let the kid be older when they get RSV. And by the way, when you get RSV it doesn't -- correct me if I'm wrong, Zach -- you can still get it again in the future, but your risk, your antibodies, your titers, and protection against severe disease are quite long-lasting. Is that right?

Rubin: Right. You are susceptible to reinfection multiple, multiple times. People get RSV all the time, but as you say, you need to be exposed to it in order to have that memory cell response that's much more long-lasting. That's true too with any other respiratory virus.

But I agree with you that it's better to delay those infections for a few years so that you're not really, really sick when you're younger. We'll see over time, it's gonna take a long time to figure this out, but I do think this delayed infection may reduce the risk of developing chronic problems later on.

Faust: Yeah, because these kids are less fragile. The same thing is true, by the way, of in fall of 2020 when they said 'Oh, you can't get the COVID rate to zero.' And it's like 'No, we can't, but we can delay until the vaccine comes out.'

Rubin: Right. Exactly.

Faust: Wouldn't that be good?

Rubin: Yeah. I mean, we definitely did save a lot of lives. We did save hospitalizations through [COVID] vaccination and just trying to do the best we could to slow the spread.

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