

The Lead in Peds

Transcript: Season 1, Episode 2 – Hidden Struggles: The Reality of Pediatric Addiction

Guest: Dr. Sivabalaji Kaliyamurthy

Dr. Nathan Kuppermann (00:00):

Drug addiction, especially in children, is sinister when it makes its way into the emergency department. It can present as depression or suicide among other symptoms. Fortunately, at Children's National, we have one of the only pediatric addiction programs in the country, and today, we're going to talk about the lifesaving work they do. I'm Dr. Nate Kuppermann. I'm the chair of Pediatrics and the chief academic officer here at Children's National in Washington, DC. In 2023, the National Institute of Drug Abuse documented that 10% of eighth graders, 20% of 10th graders and 30% of 12th graders had problems with illicit drug use. I've seen these kids for more than 30 years as an emergency medicine physician, and today, we're going to explore how we care for them.

(00:44):

I have with me Dr. Kaliyamurthy, the director of our addiction program. Welcome and thank you for being here.

Dr. Sivabalaji Kaliyamurthy (00:52):

Thanks, Dr. Kuppermann.

Dr. Nathan Kuppermann (00:53):

Your background is quite robust. You have very serious training to prepare you for running this clinic. I know you trained in psychiatry, both pediatric and the adult side, and then you did specialties in addiction medicine. And so by definition, you really are a national expert on this issue and one of the leading people here in our region. So it's a really big and busy role on a very important topic. So we're going to dive deep into this and I'm going to want to get all of your insight, but before we do, I do want to just briefly talk about something else, which is very important to me and that's basketball. And I know that you're a basketball player like I am and what I just would like to get from you is I'm a point guard and I think you're a shooting guard and I just want to hear from you, which position do you think is more important and why would that be?

Dr. Sivabalaji Kaliyamurthy (01:47):

That's a tricky question because I grew up, meaning if I was not a physician, I would've tried very hard to get into the NBA, and at some point, after I stopped growing at six feet, I gave up on that aspiration of mine, but I still think ... I mean, I grew up wanting to be like Kobe or it was always Jordan. So shooting guards are always going to be, I think, the most crucial element to any team, so there it is. Shooting guards for the win.

Dr. Nathan Kuppermann (02:19):

Well, let me just interject something really quickly here, because first of all, you're talking about my team. I was raised, I was a Laker and I was going to be a guard for the Lakers. So you know what? This is another commonality we have is that, in another life, we might have been the starting guards for the Lakers and I, as the point guard, would just be making you look good and setting you up. So there we are, but we are in this current life as opposed to that life and so let's get back to the serious topic at hand around substance use disorder and we're really going to talk about substance use disorders in children and the impact it's had and is having in our country.

(02:57):

So let's start just with a global perspective on this and why don't you give us a little bit of background about how substance use disorder has evolved over time in children.

Dr. Sivabalaji Kaliamurthy (03:08):

So we have data, so programs like monitoring the future, the CDC's Youth Risk Behavior Survey have been tracking trends in substance use in kids. And I ask this questions to my pediatric residents who work with me all the time, do they think that substance use has gone up or gone down in kids? And inexplicably, they always say it's gone up and the reason for that is we are seeing more kids presenting to the hospital with substance use disorders. But when we look at the prevalence of substance use in the country from 1975 until now, which is when we have data available, it's actually at an all-time low or even the same levels for most of the common substances kids use. This includes alcohol, nicotine and cannabis.

(03:54):

So there is that discrepancy between the number of kids who are actually using substances, but the number of kids we're seeing with substance use disorders have gone up in this time.

Dr. Nathan Kuppermann (04:04):

One thing that you just briefly alluded to I'd like to get a handle on is, how have the substances changed over time? That is, what substances were children using two decades ago versus now?

Dr. Sivabalaji Kaliamurthy (04:16):

When you look at the most common substances kids use or anyone experiments with, which is somewhat of a normative behavior for the developmental age, it's always alcohol and nicotine and cannabis. But what we have noticed over the last decade at least is that the potency of these substances have significantly gone up, right? Like for cannabis, we measure the potency based on the amount of THC. On average, it used to be 2 to 5% and now it's 20 to 25%. The nicotine that the kids vape, they're very different, far more potent than the cigarettes that kids used to experiment with before.

(04:51):

So that's a big change now. It's not the same drugs anymore that parents might have used or experimented with than they were high schoolers. Even though it's still nicotine and cannabis, the potency has significantly changed.

Dr. Nathan Kuppermann (05:06):

I know we're behind the adult world that is there has historically been more illicit use of drugs in adults, and therefore, they're ahead of us in treatments and research in this area. Do you want to just talk about what are the latest advances, particularly as it pertains to children?

Dr. Sivabalaji Kaliamurthy (05:23):

There's always a discrepancy on the data and the research that's been done. And one of the reasons for that is we think of addiction as a chronic illness that often begins in childhood, but many people did not develop an addiction until they reached adulthood, even though they might have started using drugs before they were 18. So a lot of research was focused on prevention in that age group and we didn't really focus on treatment because we didn't have the same number of population. So more recently what has happened is that the number of kids who are coming in who meet criteria for an addiction has gone up, right? And also in the last few years, we've seen overdose rates go up in kids.

(06:01):

So most of the treatment options that we are implementing now, it's based on literature from adults, and at the same time, we are looking at how do we help the kids who are now addicted even before they turned 18. And we are starting off with trying to replicate treatment models that worked in adults to see if it works with children, but as we know, children need more tailored intervention that simply don't have the same robust evidence basis that we have for adults.

Dr. Nathan Kuppermann (06:28):

So let me ask you sort of a philosophical question. Do you think our society has prioritized substance use disorder, drug addiction in children sufficiently? Do you think we're on track now to make the necessary progress that we need to make?

Dr. Sivabalaji Kaliamurthy (06:46):

This is a very deep question and I don't know how much I'm an expert on societal values at this point, but historically, I think we've always worked on prevention and abstinence-based models. And what I can say is, right now, we have prioritized treatment for kids and we can see that, at Children's National, the addiction program didn't exist until three years ago. And since I started here, I've had tremendous support from the hospital and the community to do the work that I've been doing in terms of helping these kids who are really struggling. So I think, from a societal perspective, historically, it was more focused towards prevention and now I think we have moved towards treatment and helping these kids and there's a lot of interest for sure.

Dr. Nathan Kuppermann (07:34):

That's one of the things that I love about this institution really, focusing on the high priorities of healthcare in children and this certainly is one. Now I do have to say, of course, as you know, I'm the chief academic officer, so one of my main goals and interests here is to raise the bar on research at the whole institution. So let me direct that question around substance use disorder. Can

you talk about research that's being done in the field in general and where do you think the highest impact is going to be in research in this area in the coming five years?

Dr. Sivabalaji Kaliamurthy (08:06):

So there's been a lot of focus recently on helping the kids who have opioid use disorder specifically, especially given the rise in opioid overdose deaths that we saw in the last couple of years and most of this was attributed to fentanyl. So we're trying to learn more about kids who struggle with opioid use and how do we effectively help them, because like I said, this is a chronic condition that starts in childhood and we are trying to really set them up for success for the rest of their lives. So when I think of interventions, it looks like, "What are some medications that we can use? How applicable are medications we use in adults and in terms of translating that into helping kids with opioid use? And how effective are overdose prevention strategies for kids because kids do live in an environment that is very different when we think about from adult substance users?"

(09:00):

So a lot of the research right now has been focused on how do we effectively intervene and also how do we effectively keep them engaged in treatment given the chronicity and the ups and downs involved in this process, but also one important thing to think about is engagement, right? Kids don't often present saying, "Hey, I have a problem with substance use and I need help." It is a process of sorts where we try to engage them in treatment, we try to change their motivation in terms of accelerating them through the stages of change from pre-contemplative to contemplative and action and planning. So a lot of the current research is focused on treatment engagement and providing them with the best treatment and then retaining them in treatment. And that is where the field is heading in.

(09:49):

And not every substance is the same. I can anecdotally tell you that kids who struggle with fentanyl are the ones who are coming to the clinic saying, "I need help," versus the kids who really struggle with cannabis use don't see that as a problem. And it's often their parents who are trying to really bring them into the clinic. And this is going to be the focus of research and the direction that we will be heading in the next five years or so.

Dr. Nathan Kuppermann (10:14):

What I'd like to do is really kind of hone in on the clinic that we have here at Children's National. Can you just give me a little history of why was it opened, when was it opened and just kind of walk us through what happens in the clinic and how do we connect kids to care and the other important tasks that we do in that clinic.

Dr. Sivabalaji Kaliamurthy (10:35):

So I moved to DC in 2021 and that was due to family reasons and I was really looking for ... I finished my training in child psychiatry and addiction psychiatry at that time and I was looking to start a career for myself in this region. And when I reached out to the chair of Psychiatry, Dr. Robb, at Children's National, she was very keen to support my vision for what I wanted to do.

My understanding at that time was a lot of treatment for substance use at Children's was happening in silos. It was happening within the Department of Psychiatry, the Division of Adolescent Medicine and Hospital Medicine and Emergency Medicine. I was really trying to figure out, "How can I create a medical home of sorts for these kids who are struggling with a chronic condition?"

(11:23):

And I also have a part-time position at Howard University, which they have the academic center for addiction, medicine and addiction psychiatry in the region. So we're really able to put our expertise in children and with addiction together by creating collaborations between these two institutions and building out this clinic. That's how the clinic started and how we thought about collaboration. In terms of day-to-day activities, we are really focused on increasing evidence-based treatment that we provide at Children's, whether it be medications added to our formularies, tools for our clinicians built into our EMRs. Also, we're working on engagement.

(12:07):

There are concepts like open access in adults where adults can walk into a clinic and get treatment the same day and we're trying to respond with, "What does that look like for kids? Can we build out a similar model for kids?"

Dr. Nathan Kuppermann (12:19):

Of course, I think what everyone wants to know is how successful are our treatments and interventions and specifically what are our short and long-term outcomes of these interventions for children with substance use disorders?

Dr. Sivabalaji Kaliamurthy (12:34):

We've been studying that exact question because what we are leading the way here and data doesn't exist for the questions you just asked, Nate, in pediatrics especially. So what we have done is looking at outcomes, especially for opioid use because a lot of our kids ... I can tell you 70% of the patients I see are in the clinic because they're struggling with opioid use disorder and we offer them evidence-based intervention and in an outpatient basis for sure. And what we have noticed is that when we get the patients into our clinic and we start them on medications to help their symptoms and connect them with therapy and other services, they tend to do well.

(13:20):

We have about 60% of our patients retained at a three-month interval and that retention seems to, based on preliminary data we have, stick at six months as well. And we are looking to see if this data will be consistent when they hit the one-year interval, but most of our patients haven't reached that one-year interval yet. To simplify it, the treatments are as successful as any treatment for any other chronic condition and there is no reason to think that otherwise.

Dr. Nathan Kuppermann (13:49):

One of the things that I think about for a lot of pediatric subspecialty care, there's not enough of us. It's true for pediatric emergency physicians, pediatric endocrinologists, pediatric addiction medicine specialists like you. So the question is, how do you get your expertise out to the community and what is the role of the general pediatrician or the primary care practitioner in helping diagnose and treat and helping with recovery because there are not probably enough of these clinics we run at Children's National around the country?

Dr. Sivabalaji Kaliamurthy (14:21):

Of course, and I think our primary care colleagues do an amazing job and they are the ones who are in the frontline essentially. Because what I often think about is substance use is so stigmatized that nobody wants to really talk about it, even the people struggling with it. And when I have the ability to influence the decisions that the patient can make with their pediatrician, that I think is the most beneficial thing that I can do for the patient because they already have a great relationship with their pediatrician. And oftentimes, it's a very trusting relationship that they're able to share a lot of their struggles with the pediatrician.

(14:56):

So what we have been doing is we have ... Since we started the clinic, we are a primary teaching site. We have pediatric residents who rotate with us during their adolescent medicine blocks and we also train our child and adolescent psychiatry fellows. And we've had, over the last two years, a lot of them come through and give us really good feedback on how it has impacted their careers. We also reach out to our primary care colleagues a lot within children's and outside children's in the DMV region. We offer lunch-and-learn programs, which is like a CME program that community-based pediatricians can attend and really work with them on increasing their screening, what can they do in terms of brief interventions and how they can effectively connect their patients who need additional help to our clinic.

(15:42):

It is a work in progress. We do really want to focus on intervening in an evidence-based manner in the primary care setting because that is where most of our patients are going to first access care outside of the emergency room, I would say.

Dr. Nathan Kuppermann (15:57):

I actually want to extend it even a little bit further outside of the medical realm and what would be your recommendations for communities, for schools and for parents and caregivers around this topic of substance use disorder in children? And one side note that I just want to also comment on is we know that a lifesaving measure for children that are acutely intoxicated with opiates is intranasal Narcan that is now available. This has been, for me in my experience in the emergency department seeing children, it's been a lifesaver. So could you just comment again about recommendations and thoughts about the community, schools, care providers and the distribution of Narcan?

Dr. Sivabalaji Kaliamurthy (16:43):

When we think of substance use and the chronicity of the condition and how it starts, for us to be really effective, we really need to work at the community level because I have no expectations that our kids are just going to walk into the hospital and ask for help. So how can we really foster that relationship with communities? And what we have been doing is working with our prevention centers and other colleagues in school-based health centers so that we are really reaching out to the schools to help them identify kids who are struggling. And there's a lot of misinformation, unfortunately, even among the community and adults in the community, so we are often focused on providing them accurate informations.

[\(17:24\)](#):

And we also want to make sure that we are not stigmatizing seeking care for substance use. So our outreach overall has been around education, making sure everyone has access to evidence-based information and how can we really reduce harm associated with substance use. And talking about naloxone or Narcan, that intranasal spray, I think that has been a gamechanger and overall in terms of fighting the opioid overdose epidemics for adults and for kids. But unfortunately, we are still lagging behind in the ability of kids to access naloxone, so we have definitely increased naloxone access among kids. But if I was to think between 2019 to 2023, there was a 600% increase in naloxone access among kids, but during the same time, there was a threefold increase in overdose deaths among kids.

[\(18:22\)](#):

So even though we've done a good job, it hasn't simply been enough. And we are continuing to push on those efforts. I know you must be aware, Nate, that we just recently started universal screening for substance use in our own emergency room and we do dispense naloxone for at-risk kids in our emergency room.

Dr. Nathan Kuppermann ([18:42](#)):

We really have to destigmatize. This is a medical condition like many others that really need aggressive treatment and awareness and really destigmatization, which we are doing well here. So where do we go from here, and specifically, what are the next steps at our clinic here at Children's National? What are we going to be doing that's unique and very forward-thinking over the coming years?

Dr. Sivabalaji Kaliamurthy ([19:05](#)):

I want to talk about two projects that we are underway right now or maybe three because I have a lot of interesting projects going on. At least, I find it interesting. So the first thing is, of course, increasing education and access to information for our house staff and other faculty members because we have a huge organization and I want to make sure at any point, if someone meets a kid that's really struggling, they know where to go for regional resources and what to do that we have within Children's.

[\(19:35\)](#):

So we do have an intranet webpage that we built out, which I keep it live and updated every week or so so that the information on there is live. And we implemented what is called a badge buddy. So these are little QR codes that go onto your badge and anyone with a smartphone can scan that QR code and access the webpage. And it's been three months since we launched this web page. We've had about 190 visits at this point and each person stays on for approximately two minutes or so. So we are hoping to build out that resource for the hospital itself.

(20:13):

The second project I wanted to focus on is our collaboration with DC Health. And we have been working on hiring nurse practitioners who can see patients and increase access to care and we've also been interested in hiring and training peer recovery support specialists. So we know that peers are people with lived experience who are in recovery and they've been very effective in the adult world in really helping patients engage and connect with care. But this hasn't really been done with adolescents and families at this point, so we are piloting a project where we are training up peer recovery support specialists to work with our youth in the emergency room and that we hope is really going to help in that engagement and treatment retention that we spoke about overall.

(21:09):

And then finally, the next frontier for us is cannabis. We have been seeing an increase in number of kids coming to the hospital for cannabis-related reasons, and for adults and for kids, we don't have effective treatments. And that is an unfortunate thing given the increased number of people seeking help. So we are going to be focusing on helping people who use cannabis and are addicted to cannabis. So these are the three most exciting things that I can think about of the many other things that we're doing.

Dr. Nathan Kuppermann (21:39):

I would be remiss if I didn't ask you about some other forms of addiction. And as you know, there's addiction to social media, there's gaming addiction, there's a lot of other addictions that children experience. Would like to know your thoughts about that and whether we're treating those at our clinic here. As you know, just I think in the last week or the last couple of weeks, the country of Australia has banned social media use from children younger than 16. Pretty radical measure, but there's pretty wide acknowledgement that social media can have some very deleterious effects on the pediatric brain. So just like your thoughts about these other forms of addiction and what we're doing here about those.

Dr. Sivabalaji Kaliamurthy (22:22):

Yeah, I was so happy to hear about the law that Australia passed on this matter. So I'm glad you brought that up and I'm hoping ... I think it's needed. I'm not an absolutist saying we should absolutely ban, but I think some level of measure and control is needed over how our young ones access internet. In terms of our own clinic, we do have patients and kids, especially the younger kids and families come in who are specifically struggling with behavioral addiction specifically to video games or social media. It's often not well-defined. If I was to look at a substance use disorder, there's a very specific way in which symptoms present and it's very well described in the

literature and we can track, but internet-based disorders, videogaming disorders, these are not yet fully well-defined phenomenons that we are seeing.

(23:18):

We often focus on increasing positive behaviors or strength-based behaviors and we know that many of the harms from these media come from interruptions to sleep or changes to other behaviors that they will be doing if not for screentime. So we do have a small number of kids, but growing number of kids who seek out our help and we are slowly but surely figuring out ways to also effectively intervene and help them lead healthy lives.

Dr. Nathan Kuppermann (23:50):

I'd like to get your thoughts of what could be done again at the community level, the school level to really help avoid these addictions in children. We're talking about from substance use to other addictions. What are your thoughts on that? And I just want to also for you to briefly mention, I know a very commonly used substance that doesn't typically fall in the substance use space is e-cigarettes. So if you could just talk about this at a community level really with a focus on prevention now rather than treatment, that would be great.

Dr. Sivabalaji Kaliamurthy (24:24):

Yeah. So in terms of prevention, we have robust research. We've been doing a fairly decent job with prevention of substance use as we know from the significant decline in alcohol use and overall substance use in our kids, right? But it's really that influx of high-potency products that are coming into the market now that has really changed the game in the last few years. And I always encourage communities to take an active role, continue to do the work that they're doing in prevention. And talking about e-cigarettes, e-cigarettes have been around since early 2000s, but they really took off in popularity around 2016 when Juul really came into the market. And we saw significant rise in kids who found the appeal in an electronic product and got really addicted also due to the high-potency nature of the nicotine that was in these devices.

(25:18):

And as a community, we responded to that. We responded and our governments passed legislations banning sale of certain products. And this worked because we did ... I mean, kids continue to use e-cigarettes, of course, and I think the numbers are like 2 million kids a year or something like that, but that's a significant decline from the heights of the issue back in 2018-2019. So I think from a prevention strategy, we continue to need to do the work and invest in prevention work that we've already been doing, but also actively look at emerging threats and focus on policies that will prevent kids getting their hands on these high potency products especially. And that is really going to be helpful as a community when we think about preventing substance use disorders in this population.

Dr. Nathan Kuppermann (26:06):

Really that, it seems to really focus the importance of advocacy work from the communities and parents and whatnot, and of course, help of our legislators to then take this advocacy into action with, as you're just saying, as you identified around the potency of e-cigarettes and tobacco in

general, how we've made progress in that and that greatly has seems to have been as a result of both community advocacy and legislative actions. You think there's similar approaches that we can take to the other substances that we've discussed today?

Dr. Sivabalaji Kaliamurthy (26:42):

Absolutely, I think so. I think especially with the high-potency cannabis products the kids are using, I think we can take examples of how successful efforts were for the e-cigarettes for nicotine and apply that to the cannabis products. But I think the challenge is people still don't realize how significantly more potent cannabis has become. So that's what we need to focus on at a community level in terms of prevention.

Dr. Nathan Kuppermann (27:09):

We know that there's a lot of children who have particularly substance use disorder around cannabis as you've been describing. That's really been on the serious uptick here in the United States. It's one thing when a child knows they have a problem and are actively interested in seeking treatment and whatnot, but frequently, the circumstances that the child doesn't either recognize they have a problem or doesn't really want to change, but the parents, appropriately, they're really trying to get their children into therapy because they're concerned about it. How do you address this with parents and children because I'm sure you face this not only with cannabis but with other substances as well?

Dr. Sivabalaji Kaliamurthy (27:55):

Yeah, this is a big challenge and more particularly for cannabis because it doesn't matter how many times kids hear that it's harmful from a medical provider or from their parents because everyone else is telling them it's legal, it's safe. I've had kids tell me it's a kid's drug and that they're not even worried about it while they clearly have problems. So we take a framework here where we are focused on treatment engagement without looking at the outcomes first, "So how can I get the patient and the kid and the parents into the clinic?" And we really try to ally ourselves with the parents to decrease any harms associated with cannabis use. So we start off with trying to better understand the patterns of behavior. And if the kid doesn't want to come, I often have just parents showing up for appointments and we continue working around behavioral plans that they can intervene, use at home.

(28:52):

We make sure we are treating any co-occurring mental health conditions that might improve cannabis use. The goal is really, we don't want to stigmatize seeking help, which is something I tell all our parents is we will help them when they become ready to get help, but how do we make sure that we are decreasing any harms that can happen from cannabis use from now until we get to that point when they're ready to get help? And there's a lot of effective behavioral strategies that parents can use that we often connect them with when they come to our clinic.

Dr. Nathan Kuppermann (29:25):

And what you're highlighting and what I know is substance use disorder is part of a greater disorder around behavioral health and we have to address both of those in order to address the substance use issue. Is that a fair statement, Siva?

Dr. Sivabalaji Kaliamurthy (29:45):

Absolutely. One in two kids with substance use disorders have a co-occurring diagnosable mental health condition, so it's like 50%, and we cannot do an effective job without taking that into account and figuring out how to effectively manage the co-occurring disorders.

Dr. Nathan Kuppermann (30:02):

It's interesting, going back to the very start of our discussion, it really leads back to my roots in the emergency department where, again, it's that only smaller subset of children who are coming in with overt overdoses that I have to treat emergently and resuscitate. The bigger percentage are children who are depressed, who have other things and you find out they have coexistence substance use disorders. So just really attesting to what you're saying and what you see in your world and what I see in mine. So really fascinating and important.

(30:39):

So given that we see this coexistence of behavioral health disorder with substance use disorder, again, going back to my research-oriented brain thinking about what are the research implications for that and research ... I mean, there's research around probably specific medical interventions that can be done around substance use disorder and research around specific issues in behavioral health. And, Siva, are there things in the forefront that addresses both of these together in the research realm?

Dr. Sivabalaji Kaliamurthy (31:18):

It's a big challenge for us in terms of trying to address cannabis use disorder and the cannabis use disorder with co-occurring mental health conditions, especially the serious and severe ones like bipolar disorder and schizophrenia. And essentially, it's the holy grail right now because we don't have any effective FDA-approved medications for cannabis use disorder. And this is very different from alcohol, opioids or nicotine where we have so many medications that we can use. And then the question then becomes, when someone struggling with cannabis and co-occurring psychosis or hallucinations and they're having a diagnosis of bipolar disorder and schizophrenia, those conditions are challenging to treat to begin with. And then you have this co-occurring cannabis use, which makes it even more challenging.

(32:09):

We are, unfortunately right now, at least not doing a good job, but most of the research that's happening is focused on addressing those challenges that we are facing right now. And that is one of the directions that we will also be taking in the future on how we can effectively treat cannabis use and also the cannabis use co-occurring with very severe mental health conditions.

Dr. Nathan Kuppermann (32:34):

So, Siva, we're both parents, we both work on the frontlines. Looking to the future, what are your biggest hopes and fears around this topic of substance use disorder in children?

Dr. Sivabalaji Kaliamurthy (32:45):

Well, I would say I'm a lot more of an optimist and more hopeful. I don't know if I'm fearful just yet because my kids are still very, very young, but there's a lot of people doing a lot of work. The interests in pediatric addictions have significantly gone up in the last few years. I've often had many trainees who are going into this field talk to me asking for advice. So I'm very hopeful, that as a specialty and as healthcare providers, we are on track to adequately respond and simultaneously work on prevention efforts. So I would say I'm a lot more hopeful of things to come and less fearful at this point.

Dr. Nathan Kuppermann (33:30):

I really want to thank you, Siva, for joining us today and really enlightening our audience about the importance of this problem and what we're doing here at Children's National and also nationally on the lead in pediatrics, which is our show today. And for our listeners, I want to just encourage those that, this season, we're covering a number of topics, both research and clinical topics that we do here at Children's National that would be of interest to you. In addition to today's session, we've had a session describing the broad range of pediatric cardiology topics. We'll be speaking to endocrinologists about growth and we have a lot more in store.

(34:20):

Please subscribe to our show wherever you get your podcasts and learn about what we're doing to raise the bar of care for all children here at Children's National and around the world.