TURN AUTISM AROUND
WITH DR. MARY BARBERA

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Genetic Testing and Autism Medication with Psychiatrist Dr. Michael Murray

Hosted by: Dr. Mary Barbera

Mary: Welcome to this episode of the Turn Autism Around podcast. Today I have a very special guest, Dr. Michael Murray, who is our first medical doctor that I get the privilege to interview. I have known Dr. Murray since about 2004 when our sons who both have autism went to the same private ABA school together. But I have also known him for the past five years as Lucas's psychiatrist. And in that role, Dr. Murray has prescribed a medication that has been a true game changer for Lucas and for our family. So I wanted to have him on the show to talk about the role of medications for children with autism; some of the considerations that we should use medications with caution; and also he's going to talk about a genetic test that can be done very simply to make sure that we're not wasting a lot of time with trial and error with different medications. So let's get to this special interview with Dr. Michael Murray.

Welcome to Turn Autism Around podcast for both parents and professionals in the autism world who want to turn things around, be less stressed, and lead happier lives. And now your host, autism mom, behavior analyst, and bestselling author, Dr. Mary Barbera.

Mary: Welcome back to another episode of the Turn Autism Around podcast. I'm your host, Dr. Mary Barbera, and today I have a very special guest, our first medical doctor guest Dr. Michael Murray, who is a child and adolescent psychiatrist and the director of autism services in the Department of Psychiatry, and the medical director for the Autism And Developmental Disorders Clinic for Penn State health in Central PA. His clinic provides care to both children and adults with autism through the lifespan and his staff by a multidisciplinary team, including behavioral analysts. I know there's many listeners out there that are behavior analysts. Dr. Murray's research interests include co-occurring mental health conditions in adolescents and adults with autism and interventions aimed at improving social cognition for adults and adolescents with ASD.

Mary: I met Dr. Michael Murray more than a decade ago, probably in 2004 when our sons were both about the same age, both with autism, attended the same

private school in Pennsylvania. And most recently about five years ago, Dr. Murray became Lucas's psychiatrist. And before we get to welcoming Dr. Murray, I have a disclaimer on my website that my podcasts, my video blogs, my book, all the information, even within my paid online courses is for informational purposes only. And today we're really going to dive into medication use for children with autism and the main medication that helped Lucas. But just because it worked with Lucas doesn't mean it's appropriate for any of your children or clients. So we do want to give the disclaimer that we are not giving any kind of medical advice here, just information to try to get the word out to help kids reach their fullest potential. So I am very pleased to welcome Dr. Michael Murray. Thanks for being here.

Dr. Murray: I'm glad to do it.

Mary: Great. So I'd like to get started. We have about half professionals and parents listen to my podcast every week, and I'd like to get started by describing your fall into the autism world or in your case, maybe the, the world of psychiatry and then how you kind of ended up being more focused on autism.

Dr. Murray: Yes, sure. So I went to medical school knowing that I wanted to do something with children, and particularly aspects of development with children. So, initially I thought that was going to be developmental pediatrics or something like that, but kind of going through a medical school, it really... Child psychiatry was the thing that really grabbed my interest. So I was in my residency as becoming a child psychiatrist, that's a five year residency. So halfway through about, well, probably my second year actually, our son Brennan was born. So I was well on my way to being a child psychiatrist when, you know, we were having our first child and kind of seeing that there were some differences in his development, and kind of trying to understand what his needs were, you know, as they were emerging, it really became clear to me that he had autism.

Dr. Murray: So, you know, kind of the intersection of my professional life and my personal life happened really while I was still training to be a psychiatrist. So obviously I wanted to learn everything I could about autism. So this was... like you said, Mary, you know, Lucas and Brennan are about the same age. So this was the early to mid-nineties when we were, you know, trying to figure this out for Brennan. Uh, gratefully things are changed around here, but back then it was difficult to find people who felt comfortable providing services to people with autism, particularly young children with autism at that point. So it was a real struggle. So, you know, just naturally I tried to do well by my son, it kind of led to me trying to find out everything I could and I kind of submersed myself in autism. And over the years it's just grew and grew and grew to approximately about, I would say 12 years ago, my entire professional life has become caring for people with autism.

Dr. Murray: So that is what I do clinically. That's what I teach about. That is what I do my research. And so, you know, my entire professional life now is about autism. And thank you for that nice introduction. You kind of summarized some of my professional interests, so some people have a sense of what we do. And you know, and that's how, I guess, yeah, we got reconnected about five years ago when we were able to start working with Lucas

Mary: Yeah. In which I really didn't even know I wanted a psychiatrist at that point. He, Lucas was having problem behaviors, aggression and self-injurious behavior related to having headaches and having a startle when he gets startled. If a fire alarm would ring, he would have self-injurious behavior where he'd bite his knuckle or hit his head. And, or even just a little startle, like somebody walked past, his desk and accidentally kicked a metal trashcan near him. So it was just a really hyper startle. And so I didn't know if it was a seizur; I didn't know, you know. And then if he could get a headache, he'd be screaming, saying head hurts, banging his head. And even though I'm a nurse and a behavior analyst, my husband's a physician, you know, just trying to get to the bottom of why he was aggressive when startled...

Mary: So I got a neurologist, I got on your waiting list as an neurologist, we ruled out seizures. It took, I don't know if you know this or knew at the time, but your waiting list was like 18 months. I kind of forgot I was even on the waiting list. And so then they called and they're like, Lucas can... And by that point, and it was kinda like I had Lucas on Risperidone and had him on just a bunch of different things.

Mary: And over the years we tried different things for different symptoms, and I didn't keep good records back then so I didn't really know what they were used for, what the dosage was, how much he weighed, what the side effects were, why we stopped it, why we started it. It was like this maze of like 10 meds that I had used from various doctors. No psychiatrists, I don't think, I don't think he ever went to a psychiatrist before you. But since we had met at the private school years before and we have, I have some friends that their kids go to CEO. So I was like, you know what, maybe I'll try a psychiatrist. But I was really, like, hesitant to come to a psychiatrist because of kind of what was floating through my head. Like a psychiatrist is just gonna order Abilify or Risperdal or some of the standard drugs, and this is like a startle and a headache, and like I don't want him on like some psychotropic drug all day everyday, 24/7, because he's having this sporadically.

Mary: Anyway, to make a long story short, you helped tremendously. And one of the drugs that really helped him ended up to be prescribed by you but ended up to be a cardiac drug. But before we get into what that medicine is and why, how you got started even prescribing that, let's talk about... There seems to be a lot

of confusion and controversy over treating kids with autism with medication in general. What are the symptoms and issues that kids and adults with autism take medicine to treat? What in your experience has been the common issues and the common things that medications are prescribed for?

Dr. Murray: Yeah, so there are two medications that have FDA approval for treating conditions related to autism. So there's no medication for the core symptoms of autism. I think that's really important to understand. We have not evolved our understanding of the causes or the pathophysiology of autism to the point to direct medications to target those core symptoms. So everything that I will talk about for the remainder of our time together is talking about the issues that kind of circle around autism. Like, so some of the things that kind of go along with it or are means of dampening some of those core symptoms to allow other treatments to become more effective.

Dr. Murray: So like behavior analysis, right? So sometimes you are having someone in such a state that they're not able to learn effectively and really kind of creating an internal sense of calmness or relaxation so that the behavioral strategies or, you know, trying to teach new skills has a more chance, a better chance of being successful.

Dr. Murray: But the two medications you mentioned are Aripiprazole or Abilify, and Risperidone or Risperdal, and they both have indications for treating severe mood irritability to severe aggression and severe self-injury, but they would not be the pattern that you were describing for Lucas. Right? It'd be the pattern of having very frequently every day to a degree of really concerning levels for safety of this individual or those around them. So if you're thinking about those medications, we would be really looking for frequent occurrence of these behaviors across settings to a high degree of intensity. Because as you also mentioned, they do have side effects which are concerning, so it's really needing to a very careful cost risk benefit ratio and trying to make sure that there's enough potential benefit to justify the risks that you are gonna take on by utilizing these medications.

Dr. Murray: However, because there's only two that had this FDA approval, doesn't mean that we don't use other ones and can use them quite effectively. So I think it's important for professionals listening and for families who are listening is just because someone has autism doesn't mean that they can't have any of the other things that we could all suffer from as well. Like depression, like anxiety, you know, like ADHD, right? So people with autism have those things and in some cases they have them more commonly than people who don't have autism. So, you know, those are the things that we're frequently monitoring folks for. You know, as people age there's much more likelihood of developing depression. It's much more likely to have them developing anxiety. So we want to make sure

that we are looking at those things. Are they developing to a degree of severity that really maybe a medication can be helpful for them?

Dr. Murray: And then, you know, there are, like we were just talking about a minute ago, it's really kind of thinking about things that may be interfering with other types of treatments. So if you have a really effective behavior strategy or you feel like you're, you know, you've kind of gotten to a certain degree and now you're plateauing and now, you know what can, what can we do to try and keep the progress going? Also sometimes we think about, you know, situational anxiety, right? So is the anxiety progressing to the point in a demand situation where, you know, new skills or new environments would be... you know, the person is being exposed to those that, you know, the anxiety is rising to the level that's really interfering with them, continuing to participate in learning and persisting through that. So sometimes we're looking for medications that are just meant to augment the other treatments that are making the other treatments more likely to be successful.

Dr. Murray: Obviously, anytime you're looking at medication, you want to do a very careful analysis of what you think that potential benefit is versus the potential risk of being exposed to that medication. And I love working with behavior analysts because you can always, you know, say, okay, let's think about what this is going to look like behaviorally. So this is what I think is going to be happening in the brain with me utilizing this medication or in the body. And you know, so we think about what this is happening internally, what's it gonna look like externally, right? So what do we expect to go away, right? Are there interfering behaviors, are there challenging behaviors or vice versa? What are skills that we think are going to progress more rapidly or start to emerge?

Dr. Murray: So kind of looking at a very kind of, you know, having clear operant definitions of behaviors that you expect to change as a result of the medication exposure and then working with them to, okay, how's the data going to look? How often are you going to collect the data? I think also kind of working with the psychiatrist also can be really helpful, you know, and asking me what is the expected window of activation for this drug? Right? So if the meds are not expected to work for four to six weeks, taking data in week two isn't really informative. I mean, unless you need the data for something else, if you're looking at it for just looking at efficacy of medication, it's too soon. Right? So you know, if you've got good baseline data then you need to wait until week four. So, you know, I think it's just kind of having that dialogue between the behavior analysts and the psychiatrists is really important and I think impactful, and each of them doing a better job.

Mary: Yeah, I think that's a great explanation. And I think as a registered nurse, I think one of the things that people don't understand, and a lot of behavior analysts

and teachers and people that are professionals but not medical professionals, is that each medication has a half life and those sorts of things. So, so it's like how quickly they get absorbed in the body, how long they stay, how long they work, short acting versus longer acting. And like you said, some drugs really to reach their therapeutic dose and to be like working is sometimes weeks. And that's, that's really hard. And sometimes it's very short acting drugs that... so it's not just a matter of I give my child a pill and then 10 minutes later things are better.

Dr. Murray: Right, I mean, there are some medications that do work within hours to days, but that unfortunately is the exception rather than the rule. Right? So most of the medications that we're looking at affecting the brain and affecting mood, affecting behavior, they take time because they're all working at receptors within the brain and you need to modulate those receptors gradually over time. Cause if you modulate them too quickly, then you can create pretty significant side effects in and of themselves. So it is all kind of, you know, being careful about what we're doing. You know, so we, you know, using the, you know, looking at the brain, you always want to be extremely cautious about how you're modulating that.

Mary: Plus like you're talking about modulation, like starting with a low dose, making sure there's no side effects going up on the dose and, and it's really titrating that dose to see how much the child needs because just because somebody's a hundred pounds or 200 pounds, they can react differently. So that's, that's the other thing is like, now I know and I know, you know, every time I come to see you Dr. Murray, I bring our calendar with the data, which you know, I talk about in my three step guide, I have a free three step guide at marybarbera.com/join. And I talk about keeping data. So if we're switching from, you know, Prozac, whatever milligram to Prozac, a higher milligram, then that goes on the data and that goes on the calendar. And then that's part of the record because in the past, even when I was a behavior analyst and a nurse, before I had my kind of my calendar system, I'd be like, yeah, we tried that, I don't know what dosage, how many pounds he was, what we started at four, why we stopped it. But you know, that's where even on your end is like to have parents keep good data about the medications that have been tried. I'm sure it's really helpful.

Dr. Murray: Yeah, no, it's all those things that you just pointed out are extraordinarily helpful. Right. And you know, once again having data to support, you know, like let's use the, let's use your Prozac example. So 10 milligrams of Prozac and we saw an array of challenging behaviors at this, you know, increase it to 20 milligrams, you know, really kind of, is that rate of behavior changing as would be expected or not? That's such valuable information because we're all human, right? And if you happen to have a bad morning, you know, with your child before going to clinic, where are you going to talk about? That bad morning. Right?

Dr. Murray: And you know, what could be whipped out is three weeks of really great behavior because it just so happened at the day of the visit it was a really challenging day and you're gonna, you know, and everyone right is you know, recall bias, right? We just recall what's most standing out in our mind and we tend to focus on things that really stress us, you know, all of us do that. So kind of having that data as you're suggesting it, having it, you know, ongoing and over time is really, really helpful.

Dr. Murray: Just one thing I would add to what you were suggesting about, you know, weight and time and you know, is also combinations of drugs, too, because you try one drug, but there's these other two that are along for the ride and it seemed like it didn't go well, but these two are gone. Now, you know, it's a whole new story potentially. So kind of keeping track of what drugs may be gone, you know, and it can be anything, antibiotics, supplements, right? Vitamins, everything, right? So we really want to be mindful of potential interactions with medications because something is seemingly benign as, I don't know, zinc supplementation could overthrow the absorption of its other medication and that make it, oh, it didn't really work well because of the zinc supplementation. It really didn't get absorbed as you would expect and to have it work, you would actually need a higher dose because of the zinc supplementation. So all that information is incredibly valuable for medical providers as they are trying to really make well informed decisions. Um, it won't give you good advice as to what makes sense to potentially think about.

Mary: Yeah, I think that's great. And I did do a video blog a few months ago, I think it's called something like should you medicate children with autism? And I, in that video blog, I talk about Lucas's journey with medications. Like he took a multivitamin for instance, and he would get irritable within 20 minutes of me administering the multivitamin. It turned out that there was copper in there. And then I, with more research, figured out that the copper to zinc ratio is affected in some kids. And so then we started zinc supplementation and got rid of anything with copper in it and his mood and everything. So it could be something benign. I'm glad you mentioned multivitamins. It doesn't have to be these, you know, hardcore psychotropic meds. It can just be a supplement or something that you think is, is, could do, no harm can be harmful.

Mary: And one of the recommendations in that video blog is also that if you are not a medical professional treating a child with autism, you should not be saying that kid needs meds or you need to up those doses. And you know, because it's complicated as you, as you and I both know, it is very complicated and it's not just a matter of get that kid on medication, he's out of control. Because if you don't have a good behavioral program, I remember when Lucas was diagnosed, the developmental pediatrician at children's Hospital in Philadelphia said to us, we asked about medicaid, you know, do you medicaid? And he said, we do use

medications, but his advice, which I think you would agree with is after a good behavioral program is in place first, ideally for a three year old with a new diagnosis, you know, get the behavioral program in place, get instructional control, see how it goes, and then we can treat symptoms. But let's not, you know, just put medication on board to further complicate the situation. Especially before you even know what positive reinforcement is.

Dr. Murray: Exactly. Exactly. Medication should never be a stand alone treatment for someone with autism. It should always be a part of the package of treatments that an individual is receiving.

Mary: Yes. Okay. So let's get back to when I came to, when I brought Lucas to see you, and this was when he was 18, and I was a little weary because I thought you were just gonna recommend something that, you know... I had seen multiple doctors. I had crossed state lines, I had gone to a number of physicians and I felt like I was just on a, you know, spinning my wheels. So I got there, explained the whole thing and you know, he gets startled, he gets headaches, he has self-injurious behavior, he has aggression, by this point he's over 200 pounds. So aggression is very scary. He's 18 years old or nearly 18. So I was really relieved cause you called like a couple of months before or after he turned 18 and I'm like, please don't tell me he just sees children. I've been on those wait lists now he's an adult!

Mary: So I was very happy that you saw adults too. But anyway, I come to you, I explained the whole situation. I was exhausted by even telling you the stories and, and then you're like, okay, is that it? I'm like, yeah, I'm like, you know, waiting and, yeah. And you said, okay, I think I know what the problem is. And I was like looking at you like, you know what the treatment should be. Like I was just like, I have been to like 14 doctors in the past, you know, five years and like no one has ever really even helped me or said they could help me. So you said that it sounds like it was an autonomic nervous system dysfunction, like a fight or flight reaction. And this made total sense because as a child and even throughout my life I've had a problem with veining with, with a basic vasovagal response and veining.

Mary: So I actually, when I'm stressed or in pain, I have a chance of going out flight, like passing out flight mode. Whereas Lucas you explained that he gets stressed or in pain or startled and he actually goes into fight mode. It's just like I'm thinking like when you go to see a really scary movie and you just can't stand it, like you might squeeze the person's hand next to you, like that's like a fight mode, or you get blood drawn, you know, and you might squeeze a person's hand. Like, cause you just can't stand the pain. That's kind of the fight mode and... I'm just trying to explain it because I think it's really important.

Mary: So anyway, I was like, that makes total sense because I have the flight mode and that sounds like what my data is showing with the, with the headaches and the pain. And that's when he really, 90% of these incidences of startle or a self-injurious or aggression are related to startle or pain. So then I was like, okay, is there a treatment? And you said yes there is. It's actually propranolol, which is Inderal, which is a cardiac med, a beta blocker. So how did you come across this? I mean, not many psychiatrists and trust me, I've told a number of people that have kids that are, you know, having pain or startle are highly aggressive sporadically. I've told them about Inderal and there's not much research on it. And so how did you kind of stumble upon this as a treatment and is it, are you using it a lot now?

Dr. Murray: Sure. So, yeah, so you did a great job of describing, you know, what that, what that is. So you probably, we've been working together with Lucas about five years now, I think?

Mary: Yeah. He'll be 23 in the next couple of weeks.

Dr. Murray: Wow. Oh my gosh. Where'd the time go? But probably two years before that I was at a conference for something called the International Society for Autism Research, SAR as everyone calls it. So you know, researchers from around the world, you know, come every year and this past year was just in Montreal, which is great, great meeting. But I went to this presentation by David Beversdorf. So he is a psychiatrist and a radiologist, so an interesting combination. And he works in University of Missouri and he works with people with autism. And he is, and I went to him because he is, I'm also interested in social cognition, which is one of my research areas and interested in social cognition adolescence, which is my particular area that I'm very interested in.

Dr. Murray: So I went to his presentation and at the very end of it, he just kind of said, and we're doing some really interesting work with propranolol, and it seems to be improving social cognition, but I don't have time to talk to you about it and you know, but if you have anyone who you know, is kind of struggles with, you know, intermittent, high degree depression or, you know, this is something you should be thinking about. And he kind of ran out of time and kind of was... So I've stalked him like at the end and like, I need to understand this more. So, you know, [inaudible] is a great guy and we've gotten to know each other over the years since then. But yeah, so we went out and you know, I think we grabbed a beer and he was telling me about this and he started to explain about this autonomic dysregulation that people with autism are particularly vulnerable to.

Dr. Murray: And you know, so the autonomic unit is part of our nervous system that works automatically without us even thinking about it. So, you know, it's what regulates your heart rate and is what regulates, you know, your skin

temperature, how fast your breathing, muscle tension. There's all your stress responses are, you know, mediated through this system and there are two branches to it. So there's the parasympathetic and sympathetic. So the parasympathetic branch, that's of larger system is meant to kind of keep our bodies from the rest and relaxed state. And for a number of years there had been, you know, into literature and the research suggesting that people with autism don't have enough parasympathetic activity and therefore they get upset too easily. And there are certainly people who do fit that pattern. And then there are people who definitely have an underactive parasympathetic system and that is the mechanism to treat for them.

Dr. Murray: However, you know, what people are missing is, but there's a really important subset of folks who have the sympathetic over arousal. So the sympathetic is what you just described, the fight or flight response, right? So what is your stress response to it? He was talking about how they get triggered too easily, too strongly, and they don't habituate; meaning as you were just describing, you know, we kind of get that initial stress response, but then we can kind of bring ourselves back down to centered and calm ourselves down. He goes, that doesn't happen. They stay in that heightened state and then it's just one insult after another until they just tip. And then they are really kind of losing control. And he goes, and it's, as he was talking about this, I'm like, just seem to describe so many of the patients I was struggling with to figure out how to support them and how to help them. Right.

Dr. Murray: As you are describing people who have these very intermittent, challenging behaviors, but when they happen, they're very intense and very frightening and yeah, but you know, at the same time, you know, having our traditional trip isn't really helping the, trying to help with their parasympathetic, but that's not helping. We're missing these guys, he said, and you know, so he's a great speaker. He's one of these renaissance researchers. So he like does imaging studies. He does mouse models. He does clinical trials. I mean he's, he's just a really...

Mary: What's his name?

Dr. Murray: David Beversdorf and I'll send you a link to one of his talks for people who are super, like, want to get deep into this.

Mary: So, and Dr. Murray, I asked him to send us some links to some more information for, I mean hopefully we'll have physicians, psychiatrists, neurologists listening to the podcast as well as interested parents and behavior analysts and teachers. And we will link this talk by David as well as some other links to some PDFs about propranolol and hopefully that is going to help get the word out, but continue. So, you know, this is... Yeah.

Mary: So when Lucas was 18, I remember you describing this this autonomic nerve and I was a neuro nurse too, so like that made complete sense. I'm like, this makes complete sense and I, and I can't believe that they're treating him with a cardiac drug and, okay. So, yeah, we did. We had to up his dose quite a bit from when we started. And then we also tried, because he was on three times a day, this Inderal at the same time, he's trying to transition to workplaces and he's still in school and nobody can give him his midday dose.

Mary: And so we tried long acting in Inderal three separate times and it was like he wasn't even on it. It, he just went berserk. So now he's on four times a day Inderal, which, I mean, it sounds like a like a lot, but literally everyone who knows Lucas, like Inderal has like really saved us from a lot of issues. Because when you get a 200 pound person who is aggressive, who has autism, you know, it doesn't end well. Like there's not a lot of people that will care for somebody that can hurt people. And there's not places, like, even if I wanted him to live outside the home, I mean, he still lives with us. But even if I, I mean with aggression and stuff, it's really hard to find anybody that's willing to enable to care for him. So it's really life or death to find out a good treatment when you have a highly aggressive or self-injurious kid.

Dr. Murray: Yeah, no, I, I think the safety issues are, you know, for any parent it's first and foremost on your mind. And unfortunately, you know, we, there's really tragic stories in the news about how, you know, an individual with autism is exhibiting aggressive behaviors. First responders who are called to help them in that situation, aren't understanding their needs and misinterpreting behaviors that they're displaying. And like you said, that they can end quite tragically. So, having a sense of being able to support someone in their most challenging moments so that they can utilize other coping mechanisms or verbalize what they need or, you know, have the opportunity to have their body, not betray them. Right. So that they can tolerate that alarm going off without their body feeling like, you know, that they're, you know, really about to die. You know, that's just what it feels like to them.

Mary: And you've also gone on to treat other individuals with autism that don't have that fight or flight but do have like anxiety and social issues and like a different profile. So it's not just for the fight or flight kids, although with Lucas it has been a real godsent.

Dr. Murray: Yeah. So definitely it's very helpful in those safety issues. But that's great bringing that up, Mary, I appreciate that. So, one of the things that's also really, really helpful for is anxiety in individuals with autism. And one of the things you want to do when you evaluating all anxiety in individual with autism is really how the understanding of what is driving that anxiety. So if the person's able to talk to you about it, that's great. But even for individuals who don't have great or

adequate verbal skills to kind of talk about that. And even people you know who don't have autism, talking about anxiety can be really, really difficult. But you know, what you want to understand is, is this anxiety about the future or is it anxiety about the present?

Dr. Murray: So what I mean by that is, are you someone who is worrying about if, you know, I'm going to get sick, what about this test that's coming up? Is there going to be a storm? Right? Those kinds of things -- future thoughts, right? Those are things that are very kind of traditional anxiety. They tend to be kind of driven by low levels of Serotonin for most individuals, traditional medications aimed at anxiety, like serotonergic drugs for instance. You were mentioning Prozac can be helpful. However many, many, many people with autism don't have that kind of anxiety, they have anxiety about the present, meaning, you know, what's going to happen, is there going to be... how many people are going to be there? Is it going to be too noisy? You know, was the expectation, is it, you know, are they not gonna have the, you know, the food that I'm really looking forward to? You know, am I not going to be able to predict this environment in a reliable way that's gonna allow me to feel comfortable there? So that not able to adjust to the variations in the environment and our environments are constantly changing. Right.

Dr. Murray: So, and that tends to be the, my experience has been that's kind of anxiety that people with autism experience more frequently or more strongly. That seems to be the one that was really the barrier. But the resistant to going to a place not because they're worried that something's going to happen there. It's where I can't predict this environment. I don't know what the expectations are there. The propranolol can also, or a beta blockers. So this larger class of medications are beta blockers. You know, I just tend to use propranolol a lot because that is the most widely study in individuals with intellectual and developmental challenges, and the literature for autism is starting to come out very nicely. So you know, that's just my first go to, but...

Mary: I remember when the, when you put Luca... When you prescribed it for Lucas, you had, you said you had 40 individuals and all of your patients have autism. You are like almost exclusively autism now, but you had 40 back five years ago that were being treated and now you have many more people that you're treating with propranolol, right?

Dr. Murray: Right. So, yeah, so it's, you know, so like you said to begin to show that this isn't the answer for everyone, right? It is, it is a useful tool for many, many people with autism.

Mary: Yeah. Okay. So the other thing I wanted to get the word out about is a, metabolic pharmacological test that you recommended. I don't know if I'm describing it

right, but the test that we did, which I described in my video blog on, should you medicate children with autism was from genomind.com, but I found that that was really, especially with my background in the healthcare profession and being a BCBA, it's like more people need to know about this. More physicians, more general pediatricians, more psychiatrists. I've recommended it to a number of people who, you know, one of my friends had a typically developing teenager that tried to commit suicide, ended up on a cocktail of meds. You know, like it doesn't, it's not just for people with autism, but it does provide I think, a lot of knowledge because, so can you talk more about that test briefly and tell people what that is?

Dr. Murray: Sure. So, uh, so the test is generally what we call pharmacogenomic testing. So it is looking at someone's individual DNA to predict how they may react to medication and how they may metabolize medications. So there's two different things that we're looking at. So the science has kind of evolved to the point that we have a good understanding of certain genes that code for certain receptors. For instance you know, we've been using Prozac today. So let's just keep talking about Prozac. So Prozac is an SSRI. We know that it's meant to interact with a serotonergic transporter in the brain. We know what the gene is that codes for that. We also know that there are variations of that gene; what we call the long and the short form of the genes.

Dr. Murray: So if you have the long form of the gene that's beneficial for having a good response to the medication. If you have a short form or that gene, it's not likely that you're going to have a good response to medication. So you get a copy of the gene from each parent, right? So people have long form, long form from both parents. They're likely to have a very nice response to medication. People have a long form and the short form one, you know, one parent gave him the long form, one kind of gave him the short, then maybe not great, but still some response. If you have a short form and a short form from both parents, very unlikely that you're going to have a strong response. Right? And then you just saved yourself months of trying a drug that is not likely to be of super benefit and you just move on to other classes of medications that are more likely to be beneficial.

Dr. Murray: So it saves a lot of time and he creates a lot, you know, a lot more efficiency. But then kind of what we were talking about, the metabolics just important to understand. So every medication gets metabolized by our livers. So when we take it in, it needs to go through a liver once and it kind of goes and gets turned from the inactive form to the active form. That's the first stage of the metabolism. Then it kind of circulates through our body and kind of, you know, goes to the brain or wherever it's supposed to go. And then on its way out it gets metabolized again. It's sent out, you know, through, um, you know, our urine and other stuff. So, yeah. So, but then kind of understanding those pathways just

look like is if you have a really fast pathway drugs would be going out of your body more quickly than you expect. If you have slow pathway, they're gonna go more slowly. And knowing those two things is really important to understand how you may need to dose the medication. So, yeah, having a fast pathway means that you may need to go up on the medication in order to get the desired effect, whereas having a slow pathway where you need to go low on the desk so that you avoid side effects.

Mary: Yeah. So a couple things just in Layman's terms. So when you recommended this drug test, it was a swab test, so it was noninvasive, just getting some swab out of Lucas's mouth. And then sending that away, and then every, so then the report comes and it's pretty much all the medications anybody could be on; not just kids with autism. So it's the anti-psychotics, but it's the old anti-psychotics and the newer anti-psychotic. So in terms of what Lucas is, the test showed, it showed that he actually was good, then it rates them in a red zone, like not good; yellow zone maybe; and Green Zone meaning good. So the older anti-psychotics like Valium and lithium are... not Valium, Lithium and Haldol were older anti-psychotics. He was in the Green Zone. But the Abilify and the Resperdal were in the red zone.

Mary: And that's probably why we had so many problems. But it's not just psychotic, it's psychotropic drugs, it's seizure medications, pain medications, over the counter medications, cardiac medications. So this is basically Lucas's response to all medications and surprise... Well, not surprisingly, but Inderal, which Lucas, we all agree has been a really good med for him, was in the yellow zone because he was a rapid metabolizer, and that's why he didn't do well with long acting, and that's why we have to give it to him four times a day. But if it's going to keep him calm and have one aggression in two yearswhich we could kind of attribute to other things, then it's great, you know, then we can, so we can use that test.

Mary: If, God forbid he develops seizures or something, then we can go back to that test and say instead of just trial and error. Because the other point I wanted to make is you're like, it saves time. Our kids can't tell you that they're side effects usually, right. The kids with severe language problems like Lucas, so he can't say like, my mouth is dry or I'm getting ringing in my ears or, or whatever. So it's like, it's, I think it's really important. But the other thing I wanted to mention was you said that because our insurance covered it, otherwise it would be like $4,000. So you want to make sure that your insurance covers these things and that it needs to be ordered by a physician, too. Right?

Dr. Murray: It needs to be ordered by a physician. Insurance carriers are starting to recognize the value of this because in the long run it does save them money. So they're getting better about covering. They're getting better about covering, especially as a one time thing. And that's the other thing. It only needs to be done once

because Lucas' DNA will always be his DNA, it's never going to change. So you know, this information is good for that person's remainder of their life. Certain companies like Gentle Mind and Gene Site are two of the most common ones. They're very good about when new gene discoveries are made, rerunning a person's sample to update that information. So they, you know, and then we get information like we just want to update you on your patient about these four new genes that we've discovered and here are results. So yeah, discoveries keep happening.

Mary: Yeah. So it's Gentle Mind and Gene Site.

Dr. Murray: Yeah, those are the the two most common around here.

Mary: Those are the testing services that do that. You run these swabs. Okay, cool. All right, so we're getting to towards the end. So one of my goals for the podcast is to give strategies to parents and professionals to be less stressed and lead happier lives. And I know as a parent yourself of a son with autism as well as treating, you know, all these patients over the years and having the opportunity to meet a wide variety of parents, are there any top two or three things that you think would be strategies to help parents and professionals be less stressed?

Dr. Murray: So I think one of the things I'm going to suggest that's going to seem counterintuitive because it's probably going to be more stressful at first, but really starting to think about the future is important, and planning ahead. So I'm sure you agree with me, Mary, that it seems like just like yesterday our boys were, you know, those, you know, young little kids at that school and now, you know, they're young men and you know, the time goes by really quickly and you know, and I certainly understand that sometimes things are at a point where you're just thinking about how you're going to get through this week, nevermind what's coming up in the next few years.

Dr. Murray: But when you have those opportunities where things are calmer and things seem to be going reasonably well, or you feel like you got a handle on it for the moment, think about what be coming down the road. Because, you know, autism is a developmental disorder, right? We all change as we develop through our lifespans. We know people with autism struggle with development. So there's going to be struggles just like through the rest of us. But we need to think about what that next stage might be for them. So spending some time thinking about what might be coming down the road is helpful. And I think the people who I think kind of weather the storms the best are the ones who kind of thought about the storm coming. So I think just my counterintuitive is, you know, kind of think about when things might not be so... that might be a little bit more rocky than it is right now is number one.

Dr. Murray: Number two is celebrate every success, you know, so, one of the things that everyone who loves someone with autism understands that their successes are not through the traditional ones. So it's not going to be, you know, winning the award at school perhaps, or it's not going to be thrilling sports performance perhaps. Right. It may be that they said, you know, a word for the first time. Right. And that, you know, that's a huge thing and that you and I, I feel sometimes parents kind of hold themselves back from celebrating those huge wins because it's not the traditional win, but you know, we should shout stop that from the rooftop. That's, yeah, that's amazing. Right? Even more amazing than winning the championships. So definitely celebrate those moments.

Dr. Murray: And the third one is everyone needs a break. So, you know, it's important to invest in yourself and invest in your relationships outside of your relationship with your child with autism. So really, you know, and it's not a luxury, you know, a lot of times, like I don't have that luxury right now. I feel selfish doing that. You know, and I kind of tell people sometimes, I'm prescribing this as part of your son's treatment that you need to take a weekend away that you know, that it's, that you need to recharge your batteries so that you can kind of get back in there and be the support that he or she needs. And you know, sometimes our children need a break from us. Right. So opportunities are starting to get older. So really kind of whatever that break may look like, even if it's a couple hours in the afternoon, you know, take that time for yourself, doing something that allows you to have that sense of identity outside of being a parent of someone with autism because it's really important that we have balance in our lives.

Mary: Yeah, I think that's great. So how can parents, professionals, physicians, how can they learn more from you? And I know you have like a whole plan for more research in this area and how can they keep in touch and see where we go from here?

Dr. Murray: Sure. So I think just a couple of things. So one of the initiatives I'm involved in for the state of Pennsylvania is something called a ASERT, which stands for Autism Service Education Resources and Training. So I do a lot of work there. So that website is PAautism.org. So a lot of our educational and outreach materials go up on that website. My research efforts are on the Penn State autism hub. So if you just go on the main Penn State website, PSU.edu and just search bar go 'autism' thought hub will come up and then, you know, kind of link out to not just me, but other really interesting investigators across the university and there's some really very cool things being done across the university. So I highly recommend that as well.

Mary: Great. Great. So I really appreciate your time today. I think I've been wanting to spread the word about, you know, that psychiatry with autism is more than just the couple of medications that are FDA approved for children with autism and

that, you know, we need to look at each individual and really start striving to get each individual to reach his or her potential.

Mary: So I've really enjoyed this talk. I know you're a big proponent of multidisciplinary team approach and a great doctor for our kids and adults with autism. So thank you so much. And really you can go on my website to get some of the links that Dr. Murray has provided and you can go right to the show notes at marybarbara.com/podcast. There's also a free online workshop you can attend if you're a parent or professional, and that gives you more information about my online courses. So that is at marybarbara.com/workshop. Thank you again, Dr. Murry, and I hope that you all tune in next week for another episode of the Turn Autism Around podcast.

Dr. Murray: Thank you.

Thanks for listening to the Turn Autism Around podcast with Dr. Mary Barbera. For more information, visit marybarbera.com.