continu**ed** Conversations: Evidence Based Interventions in Pediatric Occupational Therapy

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Presenter: Patti Sharp, OTD, MS, OTR/L

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Fawn Carson: Welcome, everyone, to Continued Conversations in OccupationalTherapy.com podcasts. Today's topic is evidence-based interventions in pediatric occupational therapy. My name is Fawn Carson and I'm the managing editor of OccupationalTherapy.com and I am with Dr. Patti Sharp. Hi, Patti.

Patti Sharp: Hi, guys.

Fawn Carson: She's an occupational therapist with 17 years of pediatric experience and works in outpatient at Cincinnati Children's Hospital Medical Center. She received her master's in occupational therapy from Washington University in St. Louis in 2001 and her doctorate from Rocky Mountain University of Health Professions in 2012. She previously worked in burns and neurorehabilitation, but now focuses on enhancing care in the developmental world.

Fawn Carson: She is an adjunct instructor at the University of Cincinnati and has a contagious passion for evidence-based practice that she aims to share with students and peers. Patti co-leads the developmental coordination disorder to translating research and clinical knowledge team otherwise known as the DCD TRACK team at Cincinnati Children's. She

is a cognitive orientation to daily occupational performance co-op certified therapists and one of the few certified co-op instructors in the United States.

Fawn Carson: Before I begin, I'd like to go over the learning objectives for today. After this course, participants should be able to describe methodology that leads to a strong systematic review, describe Novak's evidence alert traffic light system, identify key components of Novak and Honan's 2019 systematic review, and then lastly, describe clinical implications of this paper and reflect on personal practice.

Patti Sharp: Great. Awesome. Kind of a mouthful, but it's always simpler than that. Fawn, last time we talked it was the first podcast we recorded together. We talked about functional goal-setting in pediatrics. I thought it was a great conversation. It really got me thinking about the roots of OT and how practice has evolved over time and really got me thinking about really making sure that I was setting functional goals and goals that work client-centered.

Patti Sharp: It helped me reground myself, make sure that I was doing what I intended to do. I had some really good discussions following that with some co-workers and I started a new student. It was a really nice foundation for us to launch from. I don't know if you had any thoughts or if there are any thoughts or takeaways from our listeners.

Fawn Carson: Yeah. We actually had some really great feedback from that first podcast we did together. I wanted to share some of that with you. I thought it was just so timely. The first was someone wrote in, "I really enjoyed this podcast discussion format and learned a lot in terms of reassessing our potential agendas as therapists and instead orienting our goals towards acts that are truly client-initiated and outcomes that are meaningful and desired by our clients."

Patti Sharp: That's great.

Fawn Carson: Then, another great one was, "It was very user-friendly information and examples allowed for self-reflection and carryover in the therapy environment." I thought that really summed up nicely the first podcast and some of the great outcomes out of that. I'm hoping today our discussion stimulates more discussion not only on client-centered practice, but also evidence-based interventions for the best outcomes.

Patti Sharp: Yeah. I hope so. What we're going to launch in today, into today is a little bit intimidating. It's this article that's kind of massive and important. I really want to try to demystify it a little bit and make it hopefully user-friendly. Hopefully, we can help people think about their practice and consider some changes, but it's a lot to untangle here, but I'm really glad

they're liking the discussion format. This is what I want to do. This is I'd love to just discuss OT, not all the time, but I do like discussing it and really just reflecting on, am I feeling good about what I'm doing? Am I really making the changes I want to make with my clients?

Patti Sharp: I really like this for and I'm hoping that we can, after this, hear more from our listeners if this or the previous podcast spark any thoughts or discussions, things that people want to tease out further, I'd love to hear about it.

Fawn Carson: They can email you or they can email me. That would be great.

Patti Sharp: Awesome. Super. Yeah, please do that. Okay. I want to talk about this really important article that we'll get to in a minute, but I wanted to bring it back to evidence-based practice. Evidence-based practice is something that I'm not sure when people started talking about it, but I graduated from OT school in 2001. I know we talked about it, but it was kind of in a theoretical way I think and it was a long time ago.

Fawn Carson: Yeah. I was '94 so actually, '93. Sorry, '93.

Patti Sharp: Yeah. Don't try to make yourself younger, Fawn. But, yeah. We talked about it I think, but then, so I came out with my master's degree all super smart and everything and getting into practice, even bringing up evidence-based practice was like, I don't know, people, it was almost taboo because the people that have been there a while were kind of like, "Oh, whatever, we can't do that for real. It's something that you think we're going to do, but we can't really do. We don't have time for that, blah-blah-blah."

Patti Sharp: I was like, "Oh, okay. Then, let's just, I'll just do what you do and do what's been done." But as I went further and younger students kept coming through, they really started talking about it in a tangible way. Like, "Oh, evidence suggests this." I'm like, "Oh, my gosh. Like you're using it? How are you, where are you getting this magical evidence?"

Patti Sharp: It wasn't until I went back and got my doctorate that I really was able to position it in a way that made sense with my practice and figure it out in a way that I could actually use it. I don't know what your experience with evidence-based practice is but …

Fawn Carson: Right. I was going to say that we, in our defense, Patti, you and I did not have cell phones-

Patti Sharp: We didn’t.

Fawn Carson: … [inaudible] when we first start, that we could just look up stuff all the time, right?

Patti Sharp: No. They didn’t exist.

Fawn Carson: When we first started. Yes.

Patti Sharp: Yeah. I know.

Fawn Carson: I agree. I actually had an experience where I was doing something that I had been taught by a previous therapist, and I was doing that and I had a student of mine come in and say, "What are you doing? I don't think you should be doing that."

Patti Sharp: I know.

Fawn Carson: I think there definitely was a changing of the guard if that makes sense.

Patti Sharp: Yeah. For sure. I mean, it happened in my professional life. I feel fortunate enough to, I don't know. I don't want to say I'm brave, but I think that's the word I'm going to use where I was like, "Okay. I'm going to embrace this and jump with it and I really want to work on it." Some people really resisted. I get it. It's scary. It's hard. We're exhausted. We give a lot in our job so I get it, but like you said in our defense when I had to do a lit review when I was in school, I had to literally walk to a physical library which is a building where they have books and journals and stuff.

Patti Sharp: I had to, they had a separate computer, and it was this big boxy thing. It had the green writing on it. It was a database that was set into that library, not into other libraries around the world or anywhere even close. I could put in some search terms, the librarian would help me. It would point me to paper journals where I would go find, dig through and I would photocopy the article.

Patti Sharp: Now, being able to just write, when I'm with a patient just put in some search terms and pull up a guideline that someone's written based on all that stuff. I mean, it's massively different in the span of what? 10, 15 years?

Fawn Carson: Absolutely. No doubt.

Patti Sharp: It's awesome. I don't want to say we don't have any excuse to not do it. It's a lot to take on and it's always a little scary to like reflect on your old practice. I think we've talked about this before, Fawn, but you hate looking back and being like, "Oh, my gosh. What was I doing with those clients that I saw when I was a brand new therapist?" Or maybe not even a brand therapist.

Patti Sharp: That was the best evidence we have, no matter how we got it, that is what we knew, whether it was from a textbook or from a mentor or whatever, that is what we knew. It's scary to look back on that and think, "Oh, my gosh. Maybe that wasn't doing anything." But we have to go forward with that. We have to look back. We have to reflect in order to get better.

Patti Sharp: We want to do better. We want to do better for our clients, our families, but also reimbursement is getting trickier. We've got to show that we're doing better. It's time friends to jump on this EVP train.

Fawn Carson: Absolutely.

Patti Sharp: Okay. I want to review what is evidence-based practice specifically? There are three pillars, not just one. The first one is best research evidence. That's what we keep talking about the libraries and the journals and all, but it's not only that, it

does include clinical expertise so that's what you see in your practice, what your mentors have taught you, what you're, just your experience.

Patti Sharp: Then, also the client values and preferences. It's not just research, it's not just what you've been shown, but it's also, can your client tolerate this? Can they realistically put this into their lives? Do they want to? Does it have any value to them?

Patti Sharp: All of those things weight equally into evidence-based practice, and the question what we're trying to answer is, are we doing the right thing for the right child at the right time to optimize intervention outcomes. Do we have the match here? Do we have the right fit between the intervention, the child and their diagnosis at the right point in their recovery or development?

Patti Sharp: That's a big question and I think the first step in answering it is being open to say, "Maybe am I doing the right thing?" Just even questioning. I remember the first time when I was in my, when doing my doctorate, the professor who was teaching the evidence-based practice course, the first slide said something like, "Am I doing what works or is what I'm doing working?"

Patti Sharp: I was like, "Well, yeah. I mean, what are you talking about? Of course, we're therapists. We know all this." Then, I'm like, "Oh, my gosh. Maybe there are things we are doing that don't work." It was just-

Fawn Carson: Don't work. Don't have any evidence-

Patti Sharp: Right.

Fawn Carson: ... to show that it's working, right?

Patti Sharp: Right. Or maybe not efficiently or maybe not long-term, but it just slapped me in the face like, "Oh, my gosh. This is a science and an art and it's evolving all the time. We have to be open to the possibility that there might be a different way. That's not to say what we're doing right now isn't the best we have available, but it might not be, okay? It's just starting with that asking that question and being open to the possibility that maybe something else is out there. That's how I want our listeners to go into this conversation here.

Patti Sharp: I want to jump into this groundbreaking article, at least, in the world of pediatrics. It just came out in the Australian Journal of Occupational Therapy. It's causing waves within the pediatric world. I don't know, Fawn, has it filtered up or down towards adults? Have you heard much about it?

Fawn Carson: Sorry about that. I actually had heard about this more along the lines of running, continuing education. I had heard someone talk about it before, but I have not … I wouldn't say it has been a big buzz word in the adults' care, but I'm sure it is coming. Let's put it that way.

Patti Sharp: Yeah. It definitely applies I think. I mean, it's applicable into the adult world. I think that we could use a similar format in the adult world. In pediatrics, it's something that I feel like as soon as it was published there was a big, "Whoa. Did you hear about that?" Our department head put out a notification. We're all talking about it, but as time goes on, it's kind of, people, it's quiet again and that was my concern.

Patti Sharp: That's why I came to you, and I said, "I think we should talk about this in a podcast." Because it is so important. It covers so much material that we have to talk about it. We have to discuss it and consider what we're going to do with it, otherwise, it's just going to fade away. We can't let it because this is so important.

Patti Sharp: The article is called Effectiveness of Pediatric Occupational Therapy for Children with Disabilities, a Systematic Review. That's everything. It's basically, I mean, it's everything. It's all of pediatric OT, like not just for cerebral palsy or for autism.

It's all of pediatric OT. These ladies took on this article. I mean, just huge undertaking, but it's really exciting.

Patti Sharp: They're basically asking the question I just brought up. Is what we're doing effective? Are we having the outcomes that we want to have? A systematic review just sort to review what the definition of that is, is a summary of the results available in carefully designed healthcare studies. What it does is provide a high level of evidence on the effectiveness of healthcare interventions.

Patti Sharp: It's basically looking at all the papers, all the good papers written on specific interventions, compiling them together to come up with some really solid recommendations. It's not just one study or one person's study or one group study, it is all the information that's currently available on that specific topic compiled together. It gives this really nice weighty tangible to-do at the end of it.

Patti Sharp: Iona Novak and Ingrid Honan, they are professor, they are doctors of occupational therapy. I believe they have their PhDs as well. They're brilliant. They are occupational therapists in Australia. They work at a place called the Cerebral Palsy Alliance Research Institute, this amazing group of researchers that have done a ton of work in cerebral palsy at the University of Sydney.

Patti Sharp: They're fabulous. I've met Iona before. She's bubbly and delightful and just a pediatric OT. Then, she writes something like this and you're like, "Oh, my gosh. How does your brain work? It's amazing." What they did is they followed this really rigorous methodology to create this systematic review of all pediatric occupational therapy interventions.

Patti Sharp: They did it following a couple different tenets that are really important in doing a systematic review. Every part of it they did with intention and with specific methodology. First of all, they did their searching for the papers using the Cochrane terms. Using the Cochrane Database and using suggested medical terms for what they were looking for in order to pull everything they possibly could from the medical literature.

Patti Sharp: They've got those terms listed. They do this so that it could be repeated. It could be so another author comes along that's like, "Well, I don't know if you got everything." They could do it again. Okay? Then, from that, from all those search terms, they ended up with over 3000 articles. In order to weed those down into what was applicable, they used the PRISMA Methodology. PRISMA stands for preferred reporting items for systematic reviews and meta-analyses. You probably don't know what it's called, I didn't, at least, but you've seen it before. If you've ever read a systematic review and you've got that flow chart where it starts with the number of articles that they initially gathered, and it weeds down into a smaller number, and then they use exclusion

criteria and inclusion criteria and they end up with a smaller number. That's PRISMA.

Patti Sharp: What that does is bring it down to a number of papers that they can actually read. Novak and Honan search the literature for all systematic reviews and randomized control trials in pediatric OT over the years between 1935 and 2016, and they came up with over 3000 citations and weeded it down into 129 papers.

Patti Sharp: To go from those 129 papers into something that we can actually use, they independently read each paper and graded them using something called GRADE format. GRADE format stands for grading of recommendations, assessment, development, and evaluation. Again, this is a transparent system for grading the quality of evidence.

Patti Sharp: We could look up the GRADE system, look at how they rated each paper and it's based on the definitiveness of the conclusion of the paper. They base that on how nicely controlled the study was, how many subjects they had, the effect size, all of that, to show how strong the paper is. I want to jump into effect size a little bit just to remind everybody because if effect size is something important to look at when we're looking at a paper.

Patti Sharp: Effect size is not just does it work, but how well does something work. Effect size is on a scale of 0 to 1, something closer to 1 like let's say 0.9. An effect size of 0.9 would mean that 90 out of 100 people responded positively to the intervention so that will be pretty big effect size. On the other hand, 0.1 would be about 10 out of 100 responded positively.

Patti Sharp: You have to look at that more in comparison to other similar interventions so 0.9 is really good compared to 0.1 but 0.1 is really good compared to point 0.0001 so that's effect size and we'll address that a little bit later. But, again, effect size looks at, not just if something works, but how well it works so after they gathered all the papers using Cochrane terms then they weeded it down using the PRISMA methodology, then they graded all those papers using the GRADE formatting, and from there, they were able to compile them into some really usable recommendations using the evidence alert traffic light system.

Patti Sharp: Now, this is a system developed by Iona Novak in 2012. She did it to make evidence-based practice more accessible to therapists. Fawn, I don't know if you remember of like the Oxford grading system for papers. It used to have like a level one was a systematic review. Then, there was like a 4A and a 4B and like it was that's what we had before this traffic alert system. It was useful, but I had to always lookup. Like, "Is one better than five or is five better than one?"

Patti Sharp: She translated it into green light, yellow light, red light, which I think it's just so peasy. It's adorable and it's so useful. Green means go. If it's a green light intervention it means it's good. There's strong evidence to support use of it. If it's a yellow light intervention it's with measure. We're going to proceed with measure or with caution. You can have yellow light positive meaning, yeah, we probably should keep doing this or we should probably do this, there's some good evidence.

Patti Sharp: Yellow light negative is on the other hand like, there's some evidence showing it's not super effective but it's not enough to make it red light. Then, red light is there is evidence that shows that this does not work or that there may be harm caused by the intervention so that means stop. I love the system. It's very easy to use. We've started using just the lingo in our facility, which is like, "Oh, that's a red light intervention, why are we doing it? Or, yeah, that's green light. We should be doing that more."

Patti Sharp: It's really nice way to just position it into practice. Why do we need to talk about all that? It's a lot of details, but my point is is that they did this paper which is going to bring up some controversial things with a ton of rigor. There's a very transparent process in doing a systematic review. It's not just I'm going to gather the papers I like and summarize them. There's a transparent process that can be repeatable, which makes it scientific.

Patti Sharp: It means that they've done all the heavy lifting which is nice, and if people want to challenge it, which they may, then they can redo it using the same methodology, which is just really nice. It just makes this a really solid trustworthy paper. It makes it so that we can, we should feel comfortable using these recommendations.

Patti Sharp: What do we do with new evidence? Before I jump into the details about the paper, I kind of wanted to bring up every time I hear something new that challenges something that I think I know, I get a little, my feathers get a little ruffled. I'm like, "Wait. Hold on." Not even just in relation to OT, but like, "Oh, you should be taking this vitamin." "Wait a second. I thought …" I get all defensive.

Patti Sharp: There is an OT at Tufts University, she does a lot of work in school-based therapy. I've never met her, but I read a lot of her stuff. Her name is Peggy Morris. She put it this way, "With new evidence, we can do three things. We can choose to only use research-based findings so just look at the research. We can choose to ignore the findings and just do what we've been doing or we can choose to use research findings judiciously."

Patti Sharp: Basically, we can just say, "Oh, that's what the literature says. Let's drop everything else." We can ignore it because it's challenging and difficult to change practice and reflect like we've talked about or we can talk about it like we're doing today. We can talk about it, talk about it with other therapists, try it out, just really try to incorporate it into our practice, but I mean I know my experience with anything new, anything, a new fact or whatever, I get a little ruffled because I want to feel like I'm always doing the right thing.

Patti Sharp: I don't know if you, what is your experience?

Fawn Carson: Yeah. I think it can be scary too. Am I, do I know what I'm doing?

Patti Sharp: Right.

Fawn Carson: Exactly. I think all of this pushes us … It can be a little scary, but anything that pushes us into a new territory helps us grow. I think all of this is a good thing.

Patti Sharp: Yeah. We just owe it to our patients and I don't like to feel like I'm faking it, right? I feel like when I was younger therapists sometimes fake it till you make it, you just go forward and you're just like, "Okay. I'm going to do this because I don't quite get it, but I'm going to do it because

I've been told to do it." There's a point at which you kind of got to turn from that and really analyze and question what you're doing and hopefully, you can find information on it and learn from other people, learn from literature, but there's a point at which you really have to just reflect.

Fawn Carson: Plus, it's at our fingertips-

Patti Sharp: I know.

Fawn Carson: ... which it wasn't before so we sometimes did have to fake it till we make it because we would have to wait till after work, right?

Patti Sharp: Right.

Fawn Carson: To go find information versus looking at it so I definitely think this is the time.

Patti Sharp: It's been made more and more palatable. Red light, green light, yellow light it's great. It's great, but I get it like I love podcast and I listen to this one called Science Versus which is amazing. There was one that I was listening to last week and I was on exercise. I'm like, "Why are you questioning exercise?" Exercise is good for everything, right? Well, guess what it's not good for Fawn? Guess what?

Fawn Carson: It's-

Patti Sharp: It's not good for losing weight. Exercise does not, there's not a good correlation between exercise and weight loss, which I was like, "What?" That's something that you bring to my brain and I'm like, "Hold on." But then, you look at the science behind it and this podcast has citations for every podcast they do and it's fabulous. It's like, "Oh, my gosh."

Patti Sharp: Not that I'm going to stop exercising because they should talk about all the other things that are great for it, but it's just something that in our culture we know that you work out so you can eat, right? But no.

Fawn Carson: That was my plan.

Patti Sharp: Right? Sorry.

Fawn Carson: Darn.

Patti Sharp: Apparently, you can't outrun your diet or whatever they said, but that's just an example of how I get defensive. I'm really, I want to work hard at just trying to be open to new information to make my practice better and other ... I try to coach students on this a little bit just because they'll get to it later, but I have to deal with it day to day where someone who came to see me five years ago comes back and they're like, "Well, I really liked what we were doing before and I have to be like, 'We thought that was getting you where you wanted to go faster, but newer research is showing it's not so I want to try this newer method.'"

Patti Sharp: It feels a little uncomfortable to say, "Maybe what we did back then wasn't the best." But there's no other way around it. I mean, the alternative is just keep on doing what we're doing knowing that it might not be the best. I think we have to look at it.

Fawn Carson: Interesting. I hadn't thought about that. Yeah, having people come back.

Patti Sharp: Oh, yeah. Yeah. I mean, I don't know if that happens in adults, but like developmental pediatrics so if like kids who came in for let's say like sensory regulation issues way back when and they're … We dealt with that in a way that was very bottom up. We did a lot of obstacle courses and things that

really didn't have anything to do with what their problems were.

Patti Sharp: The kids enjoyed it. They had fun. I could talk about how all this will make things better. They come back now that same kid who I saw 5 years ago or 10 years ago, whatever it might be and they've got their other child and they're like, "Oh, I really would like you to do that again." I'm going to have to have that talk to say, "Well, that's what we thought back then, science has changed and we're learning more and more and I'd like to try this and we'll see how it goes. We can always go back to trying something else, if you don't like it just let me know."

Patti Sharp: I think families have been really receptive to that. I haven't had anybody be like, "Oh, well, I really want to stew on how, what you did back then was not great." No one's perceiving it that way. I just jump right into it because it's going to look different than what I did back then.

Fawn Carson: It's better than treating them the old way and then them finding out later or the child doesn't get better so-

Patti Sharp: Exactly or I know I mean, I think the worst part is like if I go on doing the old way, I know in the back of my head it's not the best, and then I feel [crosstalk]

Fawn Carson: Right.

Patti Sharp: I don't like that feeling. Okay. Well, let's jump into this article a little bit more. I have for our listeners, I had to wrap my brain around this article. It's not super long, but there's a gazillion citations in it. They did a really good job of breaking it down in certain ways, but it wasn't enough for my brain. I had to break it down further so I made a spreadsheet that is a lot of information. The listeners will have access to it. It may be helpful to them, it may not, but it's there just because I needed to look at everything in a little bit more detail.

Patti Sharp: So, if the listeners want to pause and print that, you're welcome to it, or use it in any way going forward, feel free. But just jumping into the study itself so like I said they weeded it down from over 3000 studies down to 129. 75 of those were systematic reviews and 54 of those were randomized controlled trials. From that, they were able to pull 22 diagnostic groups.

Patti Sharp: Of course, there's more diagnoses than that, but, in general, they're 22 diagnostic groups. The main ones were fairly consistent with what we see in pediatrics, but, again, they were working with what was published. There's a lot published on different diagnoses that maybe not as prevalent in the population, but they are in the literature.

Patti Sharp: The main ones that they found information on were autism spectrum disorder, cerebral palsy, attention deficit hyperactivity disorder, and developmental coordination disorder or GCD. Those are the main ones and then 35% of the papers were on other diagnoses, which are all listed in the paper.

Patti Sharp: With those 22 diagnostic groups, they found papers using 52 different intervention types. I think in my spreadsheet, I teased it apart a little bit more just because it made more sense to me that way. There are some interventions that are overlapping, but not quite the same. I split those up, but there's 52 different intervention groups in the paper, and they not only specify them into different intervention groups, but they mark them as either bottom-up or top-down.

Patti Sharp: We've talked about this before, Fawn, but bottom-up interventions are those that are aiming at that, if you're thinking of the ICF model, the International Classification of Functioning Disability, their interventions that are aiming at changing the body structures and functions level. They're things that are trying to strengthen, improve balance, improve proprioception, any of those really little measurable things, those are bottom-up interventions. The hope is that if you improve those components that your function will improve as a result.

Patti Sharp: Top-down interventions are those that are directed at the activities level of the ICF model. Asking the client, "What cannot you do? What can't you do? What are you having trouble with?" Working directly on those things. So, intervening at your ball skills or at your ADL's or at your driving. Any of those, just your functional skills. That's the difference between top-down and bottom-up.

Patti Sharp: They acknowledge that a lot of these studies did not have a huge comparison. There are some randomized control trials, but there's not a lot of pediatric studies that have a no-intervention group because of ethical concerns about denying treatment to kids, which I get. But the stronger studies used a waitlist as a comparison which I thought was smart, just kids that are, can't get treatment yet, they used as a comparison to the treatment group.

Patti Sharp: Then, they were able to identify a bunch of different outcomes from these interventions and they identified them or they assigned them an ICF level as well. They had outcomes that were directed at body structures and functions, so like maybe improving your strengths, outcomes that were directed at improving activities. Improving basketball skills, improving ADL's and the other levels of the ICF model as well.

Patti Sharp: They took every paper and really, it's almost like they tagged their like, I keep thinking of like social media context, but they like hashtag did in a bunch of different ways. Then, we're able to see where those tags lined up. You could look at this paper in terms of what interventions are red light, green light, yellow light for a diagnostic group or for what specific interventions were red light, green light, yellow light or which led to a specific outcome or which top-down or bottom-up was more red light or green light. There's so many ways you can look at the literature or at the paper.

Fawn Carson: Such an undertaking.

Patti Sharp: I know.

Fawn Carson: I was going to say.

Patti Sharp: I know. I mean, it's mind-blowing to me and they … I just look at this thing that's sitting here on my desk and I'm like, they were just like, "Oh, here you go." I'm sure it didn't feel like that to them, but that's why I'm like, "It's just right here. This is everything."

Fawn Carson: You guys will so appreciate what Patti did with the spreadsheet after you see this article.

Patti Sharp: I couldn't, and just so people who are listening, like I had to delay this podcast by a week because I had to write that spreadsheet. I couldn't figure it out. I was even trying to like 3D graph it. Fawn, I was really trying.

Fawn Carson: It's a monster, but it is so landmark like Patti said. It's a landmark article for OT.

Patti Sharp: I really think that you'll be able to hopefully, use the paper or my spreadsheet to just be like, "Okay. For this diagnosis when I want this outcome, does this intervention work?" You can get an answer which is mind-blowing to me.

Fawn Carson: You get the answer, but even if you're still kind of skeptical and want to read more their reference lists is amazing.

Patti Sharp: It's fantastic. It's awesome, and this is just the start. This is a start of like, "Let's go. Let's find out all these things."

Fawn Carson: There are going to be so many more papers that come out of this paper.

Patti Sharp: I know. I'm excited. Okay. When I'm looking at this, what do I want to use it for? I need to look at what questions do I want to know. I can look at the paper in a different, in a couple of

different ways and hopefully my spreadsheet will be useful to you, guys, if not, that's fine. I like it.

Patti Sharp: Okay. I'm just going to jump right into the conclusions. There's not a ton of discussion in the paper because there's a lot of discussion in each paper that's included in this paper. You can refer back to any of these original papers, any of the original 129 for a lot more discussion.

Patti Sharp: They had some main takeaways. One of the main takeaways from this paper is that there are 40 pediatric OT interventions that have strong positive evidence for use. 40 green light interventions, that's great. I just want to run through them. I'm trying not to take a ton of time, but all right.

Patti Sharp: These are green light interventions. Behavioral intervention using ABA or applied behavior analysis for children with autism, behavior intervention using triple P for children with behavior disorders, and triple P is something I had to look up. It's this really nice parent coaching system. I'll have definitions in the spreadsheet as well. Using behavioral intervention with token economies and contracts for children with brain injury, using bimanual training for children with hemiplegic CP, cerebral palsy, coaching for parents of children at risk of disability to promote development.

Patti Sharp: So, maybe those that have some impairments, but aren't quite disabled, promoting development for those. Coaching for parents of children with autism to promote function and behavior, something called caps cognitive intervention for children with brain injury to improve long-term executive function, have the definition of that in the spreadsheet. Cog-Fun intervention for children with attention deficit disorder to improve executive function. I did look that up and it looks great. It's kind of a metacognitive planning strategy for kids with ADHD.

Patti Sharp: Co-Op for children with GCD for functional motor task performance and Co-Op is something that I'm super passionate about. It's a great, as a problem-solving strategy system to help kids solve their own or make progress on their own goals. It's great. You guys can ask me about that. Constraint induced movement therapy for children with cerebral palsy to improve hand function, constraint induced movement therapy plus by manual therapy for children with CP to improve hand function, so constraint induced movement therapy for those don't know is constraint of the unaffected or good arm with a cast or splint to promote function of the affected or hemiplegic arm.

Patti Sharp: Then, bimanual training is selecting and working on activities that require the use of both hands and both of those are found to be effective. Context focused intervention for children with CP for functional motor task performance, so focusing doing task intervention in the context the task should be completed in. Ditto handheld devices for children with burns to provide procedural distraction in self-management education. I believe that's a specific device kind of like a little tablet type thing for distraction.

Patti Sharp: Early intervention using ABA for children with autism, early intervention using developmental care for preterm infants, family-centered care for children with brain injury or CP to improve function, parent education on feeding interventions for children with disability to improve feeding competency and growth, physiological feeding intervention for children with disability, goal-directed training for children with CP, goal-directed training for children DCD, handwriting task-specific practice for children with DCD, home programming for children with CP, home programming for children with intellectual disability to improve functional task performance.

Patti Sharp: Joint attention for children with autism spectrum disorder for social interactions, mental health intervention for children with autism, mental health interventions for children with developmental delay, mental health interventions for children with mental health disorders, occupational therapy after Botox injections for kids with CP, Kinesio tape for children with CP to improve hand function, pain management for children with chronic pain secondary to physical disabilities, parent education using mindfulness for parents of children with autism and to reduce parental stress.

Patti Sharp: Parent education using problem solving for parents of children with autism parent, education for children with disabilities to promote parenting confidence, parent education for children with behavior disorders to improve parent well-being, PECS or picture exchange communication system for children with autism to promote communication, positioning in the NICU or neonatal intensive care unit for preterm infants to promote normal movement development, pressure care for children with cerebral palsy using mattresses and cushions, social skills training mediated by peers for children with autism, treadmill training for children with Down syndrome to accelerate the onset of independent walking, and weight loss using a family education and activity program called Mighty Moves for Children with Obesity.

Patti Sharp: That's great. It gives us a lot of things that we are doing well that we should keep doing or that we should try. There's a lot of things in there that I wasn't familiar with that I'm going to have to look into. I'd like you to look at the same. I was really excited about those. There are obviously more yellow light positive and yellow light negative interventions that you can look at in the paper. There's a lot of really good yellow light positive interventions that I think just need a little bit more research. Then, there's a couple of red light that we'll talk about in a minute.

Patti Sharp: From that, it gives us some really nice support for some really specific interventions which is really exciting. The second thing that came out of this article is the importance of the parent partnership. I think, in general, OTs are really good at embracing the principles of family-centered care where the parent is the decision-maker and the expert in knowing their child and the therapist is just, is a resource and a coach, but this gives us really valuable support for that ongoing and really points out the importance of it.

Patti Sharp: They point out that there are papers indicating that intervention provided by a parent is as effective as a clinician which is impressive, but also just goes to show us that our job is kind of this consultant and coach. It's not necessarily to be doing the actual hands-on every day. That happens at home with the family and this paper shows the importance of that.

Patti Sharp: Then, there's just ton of the papers talked about so much support for not only involving the parent, but teaching them, coaching them, training them, and then providing counseling and support in order to provide better outcomes for them and for the child because the child is a person within a family and we need the whole family to function in order for them to have good outcomes.

Patti Sharp: Then, the biggest thing that I think came from this paper was that they found that top-down interventions aimed at improving function of an activities level provided bigger gains overall. They compared the bottom-up interventions to the top-down interventions. Top-down interventions had an effect size of 0.89, so meaning that 89 out of 100 children responded positively to top-down interventions that was directed at the activity that they're actually doing, as compared to bottom-up interventions had an effect size of 0.12, meaning that only 12 out of 100 kids had a positive effect an impact from bottom-up interventions.

Patti Sharp: That's kind of a big blow to our medical model that we find so comfortable.

Fawn Carson: That is a pretty staggering amount.

Patti Sharp: It is. It's huge.

Fawn Carson: Wow.

Patti Sharp: It's huge. Yeah. Does that say, "Don't do bottom-up?" No. Of course, not. It doesn't. We have to do bottom-up. We have to, especially in rehab, every setting is different. Burns in rehab I feel like you have to do a lot of bottom-up. You can't get anywhere without it, but, in general, when our job is to improve participation in activities, we don't need to work on the bottom there. It's just not getting us where we want to go.

Fawn Carson: It's not the root of what we do.

Patti Sharp: It's not. It's not. We're not exercise therapists. We are occupational therapists. We want people to engage in occupations in roles in life, and looking at those top-down approaches that were green light, they found that they had a couple commonalities. One, those green light interventions begin with a child school, like that commenter said who wrote the nice comment about our last podcast that really reflect and we get out of our agenda and onto the child's agenda.

Patti Sharp: These green light interventions practice real-life activities in natural environments. They use intense practice and repetitions in therapy and at home. They use a just-right challenge to enable success under self-generated problem-solving strategies. We're working to have the child solve their own problem at the point where they can have some success, but they are still challenged. That's what those green light interventions do.

Patti Sharp: Now, that's great, right? It's exciting. Let's go. Let's do all these top-down, but the issue is some of OT's most classic and firmly rooted interventions don't fall into this category. Some of the steadfast like things that we think of as OT were found to be red light interventions. Those include neurodevelopmental theory, and DDT, and sensory integration, SI.

Patti Sharp: Now, I'm not at all saying that those, these are red light for everything, but they were found to be red light interventions for a couple different outcomes. NTC and SI both originated in an era of medicine when intervention was aimed at remediating the body and structural deficits thinking that we would get function if we improved everything below it, right? If we improved our movement patterns and if we controlled tone and if we integrated the sensory system that a function would evolve.

Patti Sharp: That's where science was at that time. Now, since then these approaches have been modified kind of, they've morphed to include some functional goals and some top-down components, but then adherence to anything that is like a true SI or true NDT is kind of lost. How people interpret it and what they do is really widely varied. It's hard to say what really NDT and SI are if they've evolved so much.

Patti Sharp: The evidence points that these bottom-up interventions do not lead to lasting functional change, but because of how they've been morphed and used differently, it's really hard to recommend that they be discontinued. I'm sure they shouldn't be. There's components that have led to so many different things that are really valuable, but if we're going to do them I feel like we really need to clarify what is MDT and what is not?

Patti Sharp: If you're doing NDT type facilitation at the beginning of your session, and then you're working on … I don't know, putting on a shirt or something, are you getting better at putting on the shirt from the NDT or are you getting better at it from the task-specific intervention? I know we all like to talk about what we have in common and we don't like to split terms and we don't like to step on toes and stuff.

Patti Sharp: When I first started working on DCD, there was a lot of touchy area between coordination, sensory-driven coordination activities versus our task-specific interventions, and the sensory side was saying, "Well, we do that. We, of course, we do work on functional skills, of course, we do this." But then why is it sensory?

Patti Sharp: If we feel like these are really worthwhile, and I'm not, and they very well maybe, I feel like we just need to define what is SI and what is that doing specifically or what is NDT? How much NDT are you doing off your session and what is that portion of your session leading to? If we'd considered like medication under, let's find what's all the same.

Patti Sharp: Would we consider an antibiotic in the same group as a vitamin? Because we can't. They're completely different things, but if we're both like, "Oh, well, they're both kind of the same." Then, we don't know what's doing what. We can't study the vitamin versus the antibiotic, right?

Patti Sharp: I think if we're feeling defensive, we feel like these really work, and I've seen clinicians do magical work with both of these philosophies, then I think they need to define it and really look at it in terms of that, kind of an isolation. I know we don't like to look at things in silos either, but if we're going to know if it works, I think we kind of, we have to.

Patti Sharp: Then, also, we just need to be aware that there are also some really nice well supported top-down alternatives to these bottom-up approaches that we should, at least, try using them as alternatives. I don't know, Fawn, what do you think? I mean, you went to OT School, you know that NDT and SI and all those things that … I mean, those are … Some people think of those as OT.

Fawn Carson: I agree and I think that, I like how you talk about making sure that we don't use universal terms that we really define what we're doing because we need to be able to move the research further and we can't if everything is getting muddled. I totally agree with what you're saying. Let's get out there and show then. Let's try to figure out, what are the best interventions? Let's start having people do research around that.

Fawn Carson: Because if we don't, what's going to happen is other disciplines are going to come in and they're going to either beat us to the punch with doing some of this stuff or they're going to critique what we're doing.

Patti Sharp: They should.

Fawn Carson: If you can't show … Yes. If we can't show evidence then we're going to be in trouble. I agree wholeheartedly.

Patti Sharp: Yeah. We're not all researchers. I don't know the last thing about grants and all that kind of stuff, but at Cincinnati Children's, we're starting to move towards practice-based evidence. Gathering evidence just from our daily practice and we're trying to shape our documentation so we can pull out information on what we're doing, not in SOAP note format, but in like, we're calling it fit documentation.

Patti Sharp: When we're looking at the intervention, its frequency of the intervention, intensity of it, so how much wraps, all that timing. How much time are you spending on each thing and topic? What is the specific intervention? Gathering that information and just tracking it over time should give us information on, "Oh, if you're using 45 minutes of your session on preparatory activities and your outcomes are this, that will give us more information." We just have to be owned up to, I am doing this.

Patti Sharp: The people that are really into SI and NDT I, share it, share your magic hands. If we can keep, if we're going to show other people what we're doing and really define it, then there should be a way, we should be able to show it. If not, then that doesn't undervalue what you're doing. It just may be more of, it might be more of a therapeutic use of self or maybe the conversations you're having as you're doing these interventions that are more bottom-up.

Patti Sharp: It just needs to be open to the possibilities. From the article, they had a couple of prompts going forward, things that we should move towards as we're going forward. One, parent involvement. It's clear that it's important that parents are involved, but in what way? In what role? How often? That should be looked at.

Patti Sharp: Two, they want us to move towards some head-to-head comparisons of interventions. I think we avoid that because we don't want to be like get all touchy like your intervention is better than mine and [crosstalk] personal. We need to compare. We need to say like, "Is Co-Op better than neuro-motor testing for this specific population, for this outcome?" I think we need time to do that. There's no winner. It's just the winner is the patient in the end.

Patti Sharp: They want us to do dosing comparison. I just said the fit documentation I think people should move towards some of that practice-based evidence, gathering evidence in your daily practice. Then, they brought up the point that there's not a whole lot of participation interventions. It's interesting. I never really thought about it, but we have a lot of interventions for improving activities.

Patti Sharp: We know that our whole goal is to get improved participation, but there's not intervention specifically aimed at getting people to participate more. I know this would be really sticky. I'm glad there are smart people that will do this instead of me. There's so many components to getting participation, context, and social, and emotional, and money, and blah-blah-blah but that's something that we need to go for if that's really our primary intent is.

Patti Sharp: What do I want our listeners to do? Number one, I want you guys to read the article, pull out my spreadsheet if it helps you, if it doesn't make your own spreadsheet. There's so much information, but it's there. There's really nice graphics. There's this beautiful bubble chart that highlights the green light, yellow light, and red light interventions.

Patti Sharp: There's a really nice graphic that shows the top-down versus the bottom-up and how those weigh out. I want you to read it. Then, when you can, get comfortable, and consider your own personal practice. Are your goals truly functional and client-centered? Are you working for what your client wants to work for? If you're doing some bottom-up activities, are those, can those bottom-up gains be linked to, for what?

Patti Sharp: If it's really important to work on finger endurance or dexterity, can you link it to a, for coloring or for buttoning, and does the child want to color or button? Make sure you can link it to a, for what. If you're doing something red light and you do see gains, look at, gather information on frequency, intensity, timing, and type, and just look at it. Is it that intervention that's getting your client where they want to go or is it something else?

Patti Sharp: Is your intervention repeatable by another therapist or a parent? Can you teach someone and expect that they can do the same thing? That's great if you can, let's gather data on that. Then, I just want you guys to really consider trying something new. I'm going to look up some of these new things that I haven't heard of, try some of the green light interventions and maybe try holding off on something that is yellow light negative or red light negative.

Patti Sharp: If you don't feel good about letting it go permanently, you don't have to. Maybe for one session or part of one session. Just see what happens. Gather evidence, but biggest thing is I just want you to be open to looking at what we're doing. It's time to look at and say, "Is what we're doing working? What can we do to make it work better?" That's it.

Fawn Carson: Wow, Patti. That was great information. I hope that everyone does indeed read the article and look at all the great resources that Patti provides with this podcast. Again, Patti and I would love if you reach out to us to continue this conversation, maybe we can have another podcast to look a little bit more deeply into some of this topic. I hope you join us again on another continued conversation. Thanks, again, everyone.