Welcome everyone to Navigating Neuropsychology, a voyage into the depths of the brain and behavior. I'm John Bellone.

And I'm Ryan Van Patten. Today we have Part II of pediatric epilepsy with Nancy Nussbaum. Be sure to listen to Part I, our previous episode, before getting into this one. Like with other episodes that we've chopped into two, we're going to just jump right back into the conversation with Nancy. So we hope you enjoy it as much as we did. And now we give you Nancy Nussbaum. We've touched on AEDs several times. We know that AEDs are the first line treatment for children with epilepsy. They tend to raise the seizure threshold, making it more difficult for someone to exceed that threshold. Thus, overall they lower the likelihood of a seizure. If you don't mind, briefly run through a few of the common AEDs for us and, to the extent you'd like, you can talk about their efficacy and side effect profiles.
Nancy 01:31
I'll try and talk a little bit about it. I think you'd probably do better having a neurologist on to give you all the details on that [laughs]. There's a lot of them out there. There's a lot of AEDs.

John Bellone 01:42
Just broad strokes for us.

Nancy 01:46
Most, if not all, have some negative cognitive side effects. Mostly associated with processing speed, working memory, and attention. Some, like Topamax, which some people will call "Dopamax," will have additional specific side effects, like problems with word finding and naming. Another one, Keppra, is a great drug for controlling seizures, but it's famous for irritability, especially in children. Sometimes it can be pretty severe; thus, the name "Keppra rage" that goes with it. Some of the older medications like Phenobarbital can be very sedating. While the new medications like Keppra, and Vimgat have less of that effect. The American Epilepsy Society has a really good 2018 publication that gives a summary of all the AEDs available in the U.S., and that's a really good resource for folks. The other thing I'll add is that it's really important to have a careful diagnosis of the seizure type. That's important because certain medications are more efficacious for certain types of seizures. For example, ethosuximide, Valproic Acid, Depakote are usually very effective for treating absence seizures. Whereas other drugs like vigabatrin or Oxcarbazepine, also known as Trileptal, may actually make absence seizures worse.

John Bellone 03:29
As neuropsychologists, we should be aware of the side effect profiles for the specific medication that our patient has, but more generally just understand that most of them come with some side effects. Like you mentioned, processing speed, working memory. Right?

Nancy 03:46
Exactly. Higher doses are more detrimental. The more of them they have to be on, the more detrimental. Trying to take that into account.
To go along those lines of multiple AEDs, multiple meds, after failure of two of the first line AEDs, the probability of being free from seizures with an additional med is actually not that high. Some data even suggested as low as about 4%, and this can be called intractable epilepsy. For those children, I want to maybe talk about some of the alternative interventions - neurosurgery, you talked about vagus nerve stimulation, ketogenic diet, Cannabidiol (CBD). I'd like to get your take on all of these treatment options. But maybe we should start with neurosurgery. Just so I set the stage a bit for our listeners, children with epilepsy undergo neurosurgery either for focal epilepsy where there's an identified part of the brain where the activity is happening, like temporal lobe epilepsy (TLE) is one example, or for epileptic events that begin unilaterally (in one hemisphere) and then spread to the other hemisphere. Nancy, can you talk us through a little bit about these kinds of surgeries? How successful are they? How dangerous? What are important considerations that the surgeon has to make? All this with the awareness that you're not a neurosurgeon, but just your neuropsychological experience with working with surgeons would be helpful.

Nancy 05:25
That's a good point. I'm not a surgeon and I'm not going to speak for them, but I do participate in epilepsy conference and we do post-surgical evaluations and see those presented for adults as well. TLE is the most common form of focal or location-related epilepsy. The reason we want to get on top of that is the overall prognosis for people with drug resistant medial temporal lobe epilepsy, includes a high risk for memory and mood difficulties. We talked before about an increase of seizure activity can cause sclerosis that affects function, and surgery is the only cure for epilepsy. There are lots of folks whose epilepsy can be controlled with medication, but it's not cured. There are some individuals, children especially, who will outgrow their epilepsy and not have seizures anymore. But in terms of a cure for ongoing epilepsy, surgery is it. There was a good meta-analysis that came out in the early 2000s and it showed about 2/3 of patients are seizure free in the first two or three years after surgery for mesial TLE. That study showed that the surgical risks included, about a .25% chance of death, 2% chance of serious permanent complications, and 6% chance of transient complications. In comparison with the best medical therapies over a similar period, these therapies yielded about a 5% chance of becoming seizure free. So compared to that 66% chance.

Ryan 07:30
Big difference.

Nancy 07:31
Yeah. Big difference. Those individuals also had a higher risk of death per year from the epilepsy, with a .5% to 1% chance of death from the epilepsy.
John Bellone  07:45
The non-surgical group?

Nancy  07:47
Right, in the non-surgical group.

Ryan  07:49
Those data are very helpful. I appreciate you sharing the results of the meta-analysis.
Even with neurosurgery, it's not monolithic, right?

Nancy  07:59
Right.

Ryan  07:59
Neurosurgeons differ in their approach to surgery, with respect to how aggressive they are with brain tissue removal. There's an advantage of removing more brain tissue in that the child is less likely to experience seizure activity post-surgery due to the removal of the epileptogenic tissue. But the disadvantage is that the more brain tissue you remove, the more likely there will be lasting cognitive and emotional deficits. Can you talk us through your perspective on the surgeon's thought process here between aggressiveness in removal vs. being more conservative?

Nancy  08:41
Well, I certainly can't speak for all surgeons. But our surgeon who was here left not too long ago. He told me "Yeah, we can cure anybody of epilepsy, you just take out enough brain and you're going to cure that epilepsy." But there are bad things that happen with that. But anyway, that why Dell Children's and most epilepsy centers have a team to help with the decision making. You have neurosurgeons and epileptologists, which are pediatric neurologists who specialize in epilepsy. Neuropsychologists, neuroradiologists, MEG scientists, and EEG technicians all meet at epilepsy conferences to discuss the cases. Then, trying to come to some consensus on options and recommendations to present to the patient or to the family. I think another consideration that's important for children - the earlier they have the surgery, the more likely they'll reorganize function, either intra-hemispherically or inter-hemispherically.
Children who are candidates for this. (laughter) Sorry Nancy I was eating. (laughter) I missed lunch and I was trying to...

Oh! You got to get a little bit in there! I hear you!

I was watching John realizing that it was his turn to ask a question as he's trying to scarf it down as quickly as he could. This is going into bloopers reel.

And it happened to be peanut butter too. Peanut butter was the worst thing for me to try to eat.

I was thinking, though, that okay, lip smacking, temporal lobe epilepsy. (laughter)

Alright, start over. So children who are candidates for epilepsy surgery are often cared for by an entire interdisciplinary team: the neurosurgeon, neurologists, neuroradiologists, neuropsychologist, and lots of others. The job of the neurosurgeon is pretty obvious, but how about the neurologists? The neuroradiologist? That might be a little less clear.

The neurologist is often the point person caring for the child. They're taking care of the child. They start having seizures and they start trying to control their seizures with medications. They'll usually go through several medications before they start to get worked up for surgery, and the neurologist is the person directing that, especially the epileptologists. A lot of times they'll go from a pediatric neurologist, then to the epileptologist, the neurologist specializing in epilepsy, and they work them up diagnostically with EEG. They're very involved in EEG monitoring and, in our scenario, a lot of times they're actually in with the surgeon talking about the case as they do the surgery. The neuroradiologist is involved in imaging: the MRI, the SPECT scan, the diagnostic pieces that go into the case from an imaging standpoint.
John Bellone  12:10
How about the neuropsychologist? What's the main role for us on that interdisciplinary team?

Nancy  12:18
The neuropsychologist provides data to try and establish a baseline to be able to follow the child along. Because sometimes, even though they get worked up for surgery, the family may decide they want to delay it, or the child's doing a little better. So we are able to follow them and we have a baseline to see how their development is coming along. The data is also used to help lateralize and localize the seizure focus to predict risk of postoperative cognitive impairment.

John Bellone  12:50
So if you see more prominent verbal deficits on testing, but visual memory is intact, let's say. That's a way to lateralize it, is that what you mean?

Nancy  12:59
Yeah. Broad strokes. Children tend to have less material specific type memory or material specific memory to the temporal lobe. In other words, you can see visual or verbal memory deficits in a child that has left TLE. But motor findings might lateralize with sensory findings after conducting a sensory perceptual exam (i.e., language abilities vs. visuospatial abilities.) But with kids, it's really complicated because if you have a child who had, say, a large perinatal cerebrovascular accident, a large stroke, around the time of birth affecting the middle cerebral artery in the left side, then they may or may not have really significant language deficits. A lot of times language will have reorganized to the right hemisphere. So instead, you'll see a crowding out effect of the visuospatial deficit. So it is tricky.

John Bellone  14:11
These kids are maybe a little neurologically different from neurotypical kids. Just because of whatever's causing the seizures in the first place.

Nancy  14:20
Right and they're different than adults.
Sure. Right, Ryan and I are looking through that lens and it's different for us.

I think the other thing that I was trying to talk with my trainees about too in these evaluations is that, yeah, we're real interested in all these seizure factors, and we really want to help the surgical team out, but we're psychologists first and so we really want to characterize psychosocial functioning to help understand supports that the child may need.

Yeah, I think that's so important. So, in terms of the timeline of testing, you do pre-surgery, and then what's your typical post-surgery time points?

Depends on the type of surgery. In our laser ablation cases, we'll do a limited battery, usually about six months after an ablation and we'll do another evaluation six months after, so at 12 months after that laser ablation, and then, for resection, we usually wait a year to do any evaluation.

Backing up a little bit. What are some, with regard to the neuropsychological evaluation, generally, what are some primary considerations in terms of the clinical interview? Things that are specific to a pediatric epilepsy case as opposed to a different pediatric case?

In this kind of case, you cover the basics like you normally would. The child's preferred language. Are they monolingual in English or not? Their medical history, developmental history, educational history, psychosocial history. Those are common ones. Epilepsy-related, you really want to know about any regression or lack of progress that the parents have perceived. We'll get input on the semiology, which may have changed from the last time they saw the neurologist. We always want to ask about that.
John Bellone 16:26
Sorry to jump in. But you mean the frequency, the severity, and time of day?

Nancy 16:31
Right. Also, what did the seizure look like when the child had it? Was their lip smacking? Did their head turn to one side or the other? Did they start the seizure by feeling kind of nauseous? Did they lose awareness and consciousness? Did they remember anything from the seizure? All these are big clues to where the seizure might be coming from. Another important one is - when was the most recent seizure? Because if they had it six o'clock that morning and it was a big old generalized tonic chronic seizure, then you might be seeing the effects of that in your test results.

Ryan 17:09
Good to rule that out. They could still be in that post-ictal phase.

Nancy 17:13
Right. Uh huh.

Ryan 17:16
How do you approach the neuropsychological test battery when you're trying to predict cognitive outcomes post-surgery?

Nancy 17:22
Research shows us that if a patient has neuropsychological data that is not well aligned with the proposed surgical resection, there's an increased risk for significant post-surgical neuropsychological impairment. We have this concept called "functional adequacy." Sometimes I think of it as really functional inadequacy, but functional adequacy indicates that the adequacy of the integrity of the ipsilateral temporal lobe, so the same side as where the seizures are coming from determines the nature and extent of memory loss following surgical resection of the mesial temporal lobe. Let's see if I can explain that a little more. There was a study...Chelune - I think that's how you pronounce his name - did back in the 90s and found that patients who underwent left temporal lobectomy had higher preoperative memory performance. They were the more likely to show a verbal memory decline. In other words, you don't want to take out an area of the brain that's doing really well.
In terms of the battery that you would choose, you want something that's going to be repeatable, right? Because the purpose is really to track the change.

Right. You want it you want to cover all the functional domains: motor, language, memory, executive function, intellectual functioning, language. You want to cover all of those and, as we were talking about before, the psychological functioning of the individual. Depending on where you think seizures might be coming from, you would tailor the battery to the individual. For example, when we were talking about BECTS before, the central temporal spikes, I really like to include a sensory perceptual exam where you do tactile stimulation. You do finger gnosis, finger recognition, and you do fingertip graphesthesia because you're trying to characterize parietal lobe.

That makes sense. How about the feedback? Do you usually provide individual feedback to the child or the family? Or, focus on recommendations to the team members? What's your typical case look like, in terms of feedback?

In pediatrics, well I think it's probably true of most pediatric neuropsychologists, including those who work in epilepsy and myself, very very rarely do I not give feedback on the data to the family. In terms of the child, I offer to give feedback to the child and I'm fairly insistent with adolescents. But I do leave it up to the family and the child to determine that. There are certain circumstances where it's not appropriate or effective to give feedback to the child. For example, I might see a 15 year old where the child is functioning like a two or three year old.

Yeah, sad. Well, why don't we touch upon some of the other common treatments? Like the vagus nerve stimulation? How does that work exactly? How effective, efficacious is it in general?

Wow, that's a really good question because from what I understand, they probably would all roll their eyes at me - the neurologist who program these. But from what I understand the mechanism of action is not well understood. VNS stimulates the vagus nerve. They do surgery. It's kind of like a pacemaker device, usually implanted in the chest. Then the leads
go up to the vagus nerve, which is near the carotid and it can reduce, but usually doesn't completely control, seizures. So sometimes medications can be lowered, but usually not completely stopped.

**Ryan**  21:36
I've done a little bit of reading about the ketogenic diet. Actually, if you don't mind, Nancy, I'll throw out a few facts. You can give me feedback and tell me what I've missed or where I may be wrong. As I understand it, the ketogenic diet is very high in fat and low in carbohydrates and protein. The goal of this diet is to move the person into what we call "ketosis," where their brain is using fat rather than carbs as energy. So moving away from glucose, in terms of energy for the brain. The diet is tough to maintain, but has good efficacy in terms of reducing seizures. Some data that I've seen is that greater than 50% of people on the diet have a greater than 50% improvement in seizure control. And a small proportion, about 10%, experience seizure freedom. In terms of children, some are able to discontinue the diet after several years and actually remain seizure free, but this has to always be done with strict supervision and monitoring. With that in mind, did I miss anything? Is that consistent with your conceptualization of how the ketogenic diet generally works?

**Nancy**  22:54
Yeah, I think you're you gave a really good description. This kind of high fat, low carbohydrate, and low protein diet. My understanding too is that you get these ketones that are formed when the body uses the fat for its source of energy. Normally, of course, it uses carbohydrates, but the ketones provide a more steady energy supply for the brain. Thus, better neurotransmitter modulation and maybe has an antioxidant, anti-inflammatory effect. But my knowledge beyond that is limited.

**John Bellone**  23:35
It does get kind of complicated in terms of, it's pretty restrictive of a diet and...

**Nancy**  23:40
Very restrictive.

**John Bellone**  23:41
Very tough to maintain and there are potentially some downsides too. Maybe we'll cover it in more depth in another episode or something.
We should because some people will claim - this is much more tenuous - but some people claim that, even in healthy individuals, a ketogenic diet improves their cognitive functioning. They feel more alert, etc. But, again, from what I’ve heard the actual empirical literature on that is very shaky currently.

Right and pretty constricted to epilepsy in terms of empirical support.

Actually, somewhat similarly would be CBD, the cannabis compound without psychoactive effects, in contrast to THC. Similarly, from what I've read, the strongest evidence for CBD as a therapy is in children with epilepsy. Can you talk a little bit about it Nancy?

There may be others, but the only FDA approved CBD-related treatment that I know of, is Epidiolex. From what I have read, it varies. Usually, if it's not Epidiolex, the amount of CBD in the things that you might buy at some head shop somewhere varies a lot. Even in pharmacies that are starting to sell the CBD oil, what's in it is not very well regulated. But Epidiolex did have good efficacy trials for Dravet syndrome and for Lennox-Gastaut. It's usually used, from what I've seen at least in our center here, is that it's usually used in combination with other medications.

Now, I know we've talked mainly in terms of a neuropsychologist's role on a neurosurgery team, or when there is a surgical intervention. But how common is it for pediatric neuropsychologists to also receive referrals for a child who has epilepsy and is not receiving surgery? Is there any difference to how you approach that kind of a case?

In my practice, in a medical center here, it's probably about 50% of children. They're not being referred for surgical reasons, but they're being referred because of cognitive struggles, struggles at school, or maybe psychosocial issues that they're having. Similar to what you would do for any type of referral, you're trying to understand problems with the brain and how they may relate to problems that are seen at school, at home, or with peers, as well as trying to understand how the child learns best, why they may be having behavior problems, and how to help deal with those thinking or behavior problems. Identify psychiatric problems and basically understand what their strengths and weaknesses are and how to work with those.
John Bellone 26:48
It's very similar to the neurosurgery case, it sounds like.

Nancy 26:52
Right, and I'd say I probably spend more time in my report and feedback discussing the brain behavior relationship in regard to the surgical option and possible outcome, prognosis. There's often a lot more data to integrate. You have EEG, MRI, and MEG and functional MRI.

John Bellone 27:12
That's true. They have a larger team. Those kids that are that are in consideration for surgery.

Nancy 27:18
Right.

Ryan 27:18
Just for our listeners, Nancy, you've mentioned MEG a few times. So MEG, magnetoencephalography, is similar to EEG but measures the magnet and the strength of the magnetic field instead of the electricity as we're measuring in EEG. Just wanted to sort of define that for listeners who didn't know. I wanted to dovetail off of something you had mentioned a moment ago about school issues, problems academically for children with epilepsy. According to the CDC, students with epilepsy miss more school than students with other health concerns. They tend to have difficulties in schools such as trouble communicating, they use more special education services, they have activity limitations, they might participate less in extra curricular activities, compared even with students with other medical conditions, not just compared with healthy controls. With that in mind, tell us about academic challenges faced by children and adolescents with epilepsy.

Nancy 28:23
Sure. There's a high incidence of co-morbid neurodevelopmental conditions: ADHD, learning disabilities, autism, and speech/language disorders. As the pediatric neuropsychologist, you're really trying to address all of that and there can be an incredible amount of stigma associated with seizures too. I'm often giving families resources to educate school personnel, making referrals to mental health providers, ideally, who have experienced with epilepsy, but we have insurance limitations that affect that. I'll even give them books to read with the child. The American Psychological
Association has some good books. Just in general about dealing with various stresses and Epilepsy Foundation has a chat room for individuals 13 and older. Those are resources I try and hook them up with.

John Bellone 29:29
That's great. Are there any specific kind of strategies for managing epilepsy and seizures, while the kids are actually in school?

Nancy 29:38
What we try and do here at this multi disciplinary setting, is encourage communication between the nurse practitioners and the school nurse. If the child is a special education student, they may be on the ARD team, (the Admission Review and Dismissal team) or Special Education team at the school, and the nurse can include that as part of their plan at the school there. What we call an IEP with the school of how to handle when they have seizures.

John Bellone 30:14
How about how do you think about driving in adolescence with a history of epilepsy? I know this is a really interesting, but potentially big topic for adolescents.

Nancy 30:25
Right, it's tough. Kids want to be able to drive and we have to look at each individual case. You have to look state by state and the Epilepsy Foundation has a good online resource for legal guidelines by state. In Texas, it's having three months of seizure freedom. The Texas Medical Association has additional guidelines that talk about additional factors you need to take into consideration in terms of medication etc. It really depends on the individual case, but one of the things that you're always looking for or that you often see with individuals who have epilepsy is that they have slow processing speed and may have trouble processing quickly enough in driving situations. They may have visual spatial impairment. They may have severe executive dysfunction. All of those things. You are trying to evaluate those too.

John Bellone 31:28
Yes, it's not it's not just the fear of having a seizure. It's also some of the cognitive consequences of having epilepsy.
It's a good distinction to make.

Fortunately, in Austin, there's a program here at one of the hospitals that does driving assessments. Real-time driving assessments where they have occupational therapists and several other people involved in seeing if the person is safe to drive.

Another big topic that we can boil down to just talk about briefly is the family. We've been talking about children with epilepsy, but of course, they are embedded within this context of a family unit system. It's very important for the child to have support not just from parents, but then potentially others as well. With such a burdensome illness, having that structure can play a huge role in the child's quality of life. Can you talk about how you interact with parents and other family members to encourage supportive environment?

I think the first step is education, helping them understand their child's epilepsy and the effect their child's epilepsy is having on them. It just makes me think of a family, a mom I talked to today. Her daughter is 10 years old and has had seizures for a while now. She has tuberous sclerosis so she has multiple epileptic foci in the brain. At this point, she's not really a good surgical candidate. In any case, we did her neuropsych eval and she's functioning really more like a four to five year old. So mom said getting the feedback on her daughter - where she's at and what her strengths and weaknesses are, were really helpful because she can help educate the rest of the family about why the child is having trouble following instructions and remembering what to do and paying attention during conversations. I think that's really important for families. So education is probably the first, and one of the things I often refer families to is the Epilepsy Foundation, which is just epilepsy.com.

Great, easy to remember.

Great. Well, all of the information - discussing facts and conceptual issues around pediatric epilepsy has been incredibly helpful. Nancy, we certainly thank you. This is where most interviews would end. But we would like to ask you a couple of bonus questions.
Ryan 34:17
[laughs] We smuggle in that term “bonus question” to make it sound a little bit better. So these are questions that don’t refer specifically to pediatric epilepsy. They’re broader about the field of neuropsychology. Our first that I’ll pose to you is if you could improve one thing about the field of neuropsychology, what would it be?

Nancy 34:37
Oh, okay! So I get to get my magic wand out, right!?  

Ryan 34:42
It's like the magical question that therapists often ask “if you could wake up tomorrow, and something about your life was better, what would it be?” This is kind of like that, but for neuropsychology.

Nancy 34:55
I do that with my kids too. I ask them "if you had three wishes, anything you wanted in the whole world, what would you wish for?"

Ryan 35:01
That's how we should frame this! "If you had a genie…"

John Bellone 35:05
We are the NavNeuro genies. [laughs]
[laughs] Let me get out my neuropsych genie! The one thing that I would do is increase the diversity of our field as of today. We absolutely have to increase our diversity as a profession, in order to fulfill the mission to serve the public. If listeners are interested in that area, I'd encourage them to check out the AACN Relevance 2050 Initiative. I'm going to give them a plug.

Absolutely. That'd be great.

That's a good place to find out about that.

We're also we're planning on, hopefully in the near future, getting someone from Relevance 2050 to talk more specifically about what that entails. So stay tuned for that one. The second question that we have is what is one bit of advice you wish someone had told you when you were in training, or that someone maybe did tell you that really made a difference? We're just looking for an actionable step that trainees can take that they may not have thought of that would really help improve their training and performance.

Okay, so I'm going to be very practical here. For most of us, the bane of our existence is report writing.

Yep!

Would you agree?
I would agree!

Maybe second to that is administrative duties. But anyway, report writing. There may be some folks out there who just love spending hours writing reports, but I'm not one of them. I know most of my colleagues don't relish that chore, either. Most of us enjoy kind of digging into the neuropsych data and integrating it with the medical and the developmental, the problem solving and detective work that we do, but report writing is really not so fun. Especially, early in training and careers when the process can take many hours when you're learning that. Early in my career, I wish I had better guidance on the nuts and bolts of report writing and feedback on how to improve my efficiency. If you can find a supervisor or mentor to help you with this, it really could take a lot of pain and suffering out of the early part of your career.

Are you referring potentially to dictation software or general ways to improve efficiency?

Right. I think several thoughts that I would have is dictation software is definitely one; I use dragon and I have for years. I really have learned to use that early. Actually, I learned the old fashioned way of dictating early when they had the little cassette tapes. People don't even know what those are anymore.

Cassette tapes? [laughs]

Right! So learning dictation. Learning a process by which you go through the data, go through the history, and go through the process of report writing in an efficient manner. I think would be really helpful for people to have. There are other resources too - like I saw at AACN in June. I'll give them another plug that they're going to have a workshop on pediatric neuropsych report writing. There are journal articles out there. I think Jacobus Donders has published. I know at least an article or maybe a book on report writing.
Ryan 38:44
A book. Yep, he has.

John Bellone 38:45
We're talking with him soon. That's incredible advice for trainees. I also want to finish up by asking what advice you might have for early career professionals. Specifically, the healthcare landscape is changing rapidly. We want neuropsychology to remain relevant and useful. Once we're established, as neuropsychologists, do you have an idea of what are the best steps we can take to ensure that we're providing cutting-edge scientific and clinical services for the next 10, 20, 30 years?

Ryan 39:19
I think some of it is common sense, which is keep up with your continuing education. Don’t don’t get lazy about that. The other that I feel passionately about is get board-certified. I think more and more job settings are going to require board-certification. Some of the data is the earlier you do it, the more successful you'll be at doing it. So get in there early and do it if you can. I think another thing I’d recommend is seek out training in diversity. For example, here in Texas, it's required for licensure that we get at least three hours of diversity CEs. Many of the conferences offer workshops in this area. NAN does and AACN. I think look for opportunities to work with or at least understand multidisciplinary teams. As I think healthcare will be moving in a more integrated direction for patient care. And then finally, look to the future. Seek out opportunities to get exposed to new models of assessment. Like you mentioned, the telemedicine. Another one that I see on the horizon that I think is going to get bigger and bigger is ecological momentary assessment, using like smartphone technology.

John Bellone 40:46
All really, really great advice. If you do have some more time, I know you’ve already been generous and if you don't have time, that's fine. But we do have a few professional questions?

Nancy 40:56
Yeah! Sure. Go ahead.
John Bellone 40:58
Great. Well, feel free to cut us off when you need to. [laughs] In addition to your clinical and scientific work, you are also the sitting president of the American Board of Clinical Neuropsychology, right?

Nancy 41:11
Well, no. Happily, I am the past president of ABCN. And so I just ended my term on February 20. I probably can tell you the hour and minute when it ended. [laughs] No, it was great to have been president of ABCN and I have continuing involvement. It's also great to hand off that baton.

John Bellone 41:39
I bet. So I'm really curious. First of all, I'm actually going to be taking my ABPP written exam in a couple of months. So maybe I can get some insider information from you when we finish the recording. [laughs]

Nancy 41:51
[laughs] I don't know about that! but good for you...I'll give you a pat on the back. That's about it.

Ryan 41:58
Stop trying to cheat. [laughs]

John Bellone 42:01
We are really interested in ABCN in general. We haven't really covered it in depth yet on NavNeuro so if you can give us like a little overview of the American Board of Clinical Neuropsychology, and then just your role as President. We're very interested.

Nancy 42:18
My role as president was really to try and keep all the balls in the air as we worked on our mission. This is often very confusing for folks, but there is the American Board of Professional Psychology. That's the big umbrella. Under that umbrella, are a number of
different boards and the American Board of Clinical Neuropsychology is one of those boards. The ABPP mission is to serve the public by promoting the provision of quality psychological services, in our case neuropsychological services, through the examination and certification of clinical neuropsychologists. I think promoting and protecting the profession of neuropsychology are wonderful byproducts of that main mission. In my role, I tried to stay focused on our primary mission, which is really to serve the public through that board certification process.

John Bellone 43:18
So I'm curious, because you have the role of leadership, what advice you might have for trainees and early career professionals who are interested in moving into leadership positions within our field? What would you say to them?

Nancy 43:30
We want you! [laughs] I would say we want to you...please step up. The first step is to get involved and then keep expressing your interest in contributing. For example, once a person gets boarded, one of the ways they can get involved is to become a practice sample examiner. So they review practice samples, and we have a process to train people to do that. Make sure we have good inter-rater reliability on that. With all the professional organizations, AACN, National Academy and Neuropsychology, INS - all of those have ways for people to get involved for students and trainees to get involved as well as early career folks. Just get involved and be one of those worker bees, like I was. I was an oral examiner for ABCN and that is how I eventually got on the board and then eventually got arm twisted into being president.

Ryan 44:38
[laughs] That's usually how it happens, right? Nancy, what advice do you have specifically for women in neuropsychology? Whether that be just general career success, but then also leadership? Along those lines.

Nancy 44:54
I'm not sure my advice is just specific to women. But here it goes. So first, life is short and careers are long. Have some have some fun along the way, whatever that means for you. I just think that's so important. We can get burned out so easily. Regarding the careers are long part, this may be a little more specific to women, but I think men experience it too is
that, you can do it all. You can you can teach. You can get involved in national organizations. You can get boarded. You can get involved in leadership organizations in your particular setting that you're in, but maybe not have it all at the same time. That, I think, again, leads to a lot of burnout. Another big one that was important for me, was to seek out good mentors along the way, and then aspire to be a good mentor. Pass it along. Finally, if your path is not working out, or if you're just interested in another path, find some support to find a new path. I did that when I became interested in focusing on epilepsy about 10 years ago and it really led to a great deal of career satisfaction for me.

Ryan  46:21
Right. So don't feel pigeonholed into one specific area or path just because you started out there. Part of the great thing about being a clinical neuropsychologist is the flexibility that we have in our broad training. We can do a lot of different things. Even if you already have your degree, you're licensed, you're boarded, it doesn't mean you can't make a shift or a transition that'll be beneficial to you later on.

Nancy  46:44
Right, I think it's so important to keep an open mind about that, and then to ask for help. I talked to a lot of folks when I was thinking about making this change because not only did I switch to epilepsy, but I switched from a small group practice to a big institutional setting. So I felt like I needed a little guidance on how to make that shift and that was really helpful for me.

John Bellone  47:12
Anything we didn't ask you that you wanted to talk about or anything we didn't quite cover?

Nancy  47:17
No, I think I think y'all do a really great job of coming up with these ideas for what to ask about. I think it makes a lot of sense to me and hopefully it gives people some insight.

Ryan  47:31
Great. Well, thank you so much Nancy. We really appreciate your time and wisdom.
This will be the official end. [laughs]

We're not going to try to smuggle in some more questions.

[laughs] All right, guys. Well, thanks for having me.

All right, take care.

Thanks so much.

All right, you take care. Bye bye.

Okay, that does it for a conversation with Nancy. We hope that you enjoyed it and that we provided good comprehensive information and coverage of this really interesting topic. In the next few weeks and few months, we have upcoming content around topics, such as a pediatric TBI, report writing in neuropsychology, leadership, and supervision. We're looking forward to those and we hope you enjoy them. And, as always, join us next time as we continue to navigate the brain and behavior.

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