Caroline Tanner, MD, PhD Professor of Neurology, Vice Chair for Clinical Research

In conversation with

Jill Ostrem, MD Professor of Neurology
Division Chief, Movement Disorders and Neuromodulation Center

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Caroline Tanner: I'm Carlie Tanner. I'm Professor in Department of Neurology. And –

Jill Ostrem: I'm Jill Ostrem, also a Professor in Neurology. And we are also both movement disorder specialists. And we're going to talk to each other about being women in neurology. Excellent. Okay.

Caroline Tanner: Thanks for inviting us to do this. Yeah, we're going to try to make it interesting. It'll be fun. Yeah, great.

Jill Ostrem: So Carlie, there's a prompt here for us to use. Let's do it. When did you start your career at UCSF.

Caroline Tanner: I started my career at UCSF in 2014, technically, very end of December 2013, right? And I started at both UCSF and at San Francisco VA, where I became the Director of the Parkinson's Center and joined your division as a movement disorder specialist.

Jill Ostrem: And I remember we were so fortunate to lure you here.

Caroline Tanner: I was very excited, too! It was a wonderful opportunity.

Jill Ostrem: Yeah, infusion of new energy, new projects, new just knowledge. So you've really brought so much when you came to UCSF.

Caroline Tanner: It was really great, because you and your colleagues, and especially you and Dr. Phil Starr working together, had really built the International World Class Division -- focused on surgery for Parkinson's disease, which I don't do. When I came it became very complimentary because I brought epidemiology, experimental therapeutics, and observational biomarker kinds of studies.

Jill Ostrem: It was incredible.

Caroline Tanner: So it was a wonderful merging that meant we could really cover a lot of the whole –

Jill Ostrem: Absolutely. It rounded out the program in such a great way. Yeah, that was lacking before, but a great foundation here. But what we've been able to do together now for the last almost 10 – more than 10 years, almost 11 years!

Caroline Tanner: We should celebrate!

Jill Ostrem: You know, it's been fun.

Caroline Tanner: Yeah, exactly. It's been fun and actually tremendous growth as well, absolutely.

Jill Ostrem: Yeah, no. We're really proud of what we're building here.

Caroline Tanner: Yeah, yeah.

Jill Ostrem: What did you do before you came to UCSF, though, because this has just been one piece of your career.

Caroline Tanner: Yeah. So I before I was at UCSF, I was, immediately before, for maybe 20 years or so, I was at a freestanding nonprofit institute that focused on Parkinson's Disease research, called the Parkinson's Institute, and actually had collaborations at UCSF. It doesn't exist now. But it was here in the Bay area and had a loose affiliation with Stanford for part of its life. I spent a little bit of time there, clinically teaching and seeing patients but I was mostly at the Institute. The thing that was wonderful about the Institute, and the reason I went there, was that it was a place that was focused on Parkinson's research and unified clinical care, clinical research, and basic science research. And while that's a wonderful idea, to actually be able to achieve that in a focused way, it's really, really not so easy. So, it was really fantastic to be able to work there with a really dedicated group of scientists, clinicians, and patient advocates to make this happen. So, I worked there for a long period of time. Before that, I was a faculty member at Rush University in Chicago, and I actually came to California technically because my research was moving me toward being more interested in understanding epidemiology and environmental science and environmental toxicology. And so I came to Berkeley to get a PhD in public health, maintained my appointment at Rush – where I was going back and forth seeing clinical trials patients a couple of weekends a month – and then commuting down to the Parkinson's Institute, where I was seeing patients. My dissertation paper became part of my NIH funded research projects at the Parkinson's Institute. So it was really, you know, kind of an interesting mix of overlap to be able to do that. It was very fortunate.

Jill Ostrem: Yeah, we could probably talk a whole hour about that segment of your life, your journey. So interesting. How you figured that all out.

Caroline Tanner: Yeah, it was a lot of serendipity. Yeah. So you've been at UCSF for quite a long time. How did you end up here?

Jill Ostrem: Well, that's true. I've been here since 2003, and, like you, I also worked at the VA when I first came here. I was right out of fellowship from UCLA. So yeah, my whole career really has been here at UCSF. There hasn't been any reason to go anywhere else.

Carlie Tanner: And were you always interested in sort of focusing on the surgical area of interventions?

Jill Ostrem: Well, even as a fellow at UCLA, it was very early for surgical treatments of movement disorders and deep brain stimulation was a technology, a therapy that was kind of coming of age. It really had only been around for maybe 3 or 4 years. Many programs weren't really established heavily into offering DBS. And there was this large clinical trial happening, which was rolling out with the VA Parkinson's centers (the PADRECs), looking at the two brain targets to stimulate and we weren't sure which one was better: the STN or the globus pallidus interna. So this large, randomized multicenter study involved all of these various PADREC centers of excellence, and then also the partnered university sites. So this allowed for a lot of great training as a fellow, and there was a big need for people who are interested in this to start helping with the trial and helping patients in clinic. And so it was a very exciting new time in movement disorders, and I just happened to be in a place where this was being done so I got some experience. And then, when I came to UCSF and the VA, Drs. Phil Starr and Bill Marks was here, they were doing this kind of work early on, and they needed someone else to help. There was just too much work. So, I got involved. I saw lots of patients. I became pretty familiar with this, and I've been able to watch the field grow for the last, whatever, 20 to 25 years now.

Caroline Tanner: Now you've been very important in helping the field grow.

Jill Ostrem: I suppose that's true, too. That is how I kind initially interested. I almost became a stroke, doctor, actually.

Caroline Tanner: What interested you about stroke?

Jill Ostrem: I guess all that there was to do. It was also a very exciting time of interventional radiology, and acute therapies for stroke, which UCLA was very involved in too - And imaging. I just I thought there was a lot we could offer patients. And I liked this as well about movement disorders as well- that there are procedures and many medications we can use to help people.

Caroline Tanner: Speaking of procedures, were you also attracted to the botulinum toxin? There's a really big botox clinic here.

Jill Ostrem: Yeah, that's true. Botulinum toxin injections were also a big part of my fellowship training, and I did enjoy doing those procedures, too. And so when I came to UCSF, the program here was not very rigorous, in terms of the amount of patients that were being treated. There was a small effort here, but one of the things I wanted to do when I came to UCSF was to grow that program as well. There were a lot of billing challenges initially, and those were finally overcome.

And now we have a very big botulinum toxin injection clinic here and at the VA, with multiple new toxins, and other things. So that's exciting, too

Caroline Tanner: And my botulinum toxin story is: when I was at Rush we were, I think, the second movement disorder center in the US to use botulinum toxin in people with spasmodic torticollis. The first was at Columbia, under the direction of Drs. Stanley Fahn, but also Mitch Brin, who was kind of the lead person developing this at the time. I remember going there and observing them and then coming back to Chicago and identifying our very first patient. We injected her with itty-bitty doses. We gave her a total of 50 international units, which is – for people listening -- like a baby dose for that particular indication. And kept her overnight in the hospital.

Jill Ostrem: Just to be careful!

Caroline Tanner: And did vital signs all the time. Every half hour we did vital signs just because we were so afraid! We didn't know if it was going to be systemic or not, right? So that was my first experience.

Jill Ostrem: A true pioneer.

Caroline Tanner: And then, of course, we developed it, and it became approved for treatment.

Jill Ostrem: And were you involved in those early trials?

Caroline Tanner: I was. I was in some of the earlier trials for that.

Jill Ostrem: There was really very little for these people in terms of treatment. I mean *nothing.*

Caroline Tanner: When I started out at Rush, you know, I've always been interested in looking at populations and epidemiology. How I got started in this is, I started pulling the charts of all the people in the clinic who had a diagnosis of spasmodic torticollis – one of the things I did – and contacting them. And you know there was this big list of people that – these are all like paper charts. We called them the blue charts. They were like binders, you know. This is way before the electronic medical record! So I pulled out all these blue charts and looked at what was in them, and then called these people up, and they were like, “Well, nobody had anything for me so I just stopped coming back.” So I was following this protocol that you know, another one of the movement heroes, Dr. Rajid Hassan had developed which was to try to understand pharmacologic mechanisms. This is way back in the dark ages. So we gave injections of physostigmine and scopolamine to people to see if they got better or not, and some of them got sick, of course. It was very interesting. That was one of my projects as a resident. One of my very first research projects was to bring these people in, film them with one of the old fashioned 8mm cameras, before video, right? when we just had an old-fashioned camera. And then I did the editing myself at my kitchen table, cutting and splicing to make the video, and then I presented it at one of my first presentations at AAN - cholinergic mechanisms…

Jill Ostrem: Do you still have it?

Caroline Tanner: I doubt it. It's got to be degraded by now.

Jill Ostrem: That would be so incredible.

Jill Ostrem: Yeah, it would be, something like that. Wow, so you really started in dystonia, in your career.

Caroline Tanner: Dystonia and Parkinsonism. I was really lucky because I worked with my mentor, and the reason I went into neurology was Dr. Harold Kawans, who unfortunately passed away in his early sixties, so, you know, was around for just a little while. But he was one of the pioneers in movement disorders. He was one of the first people to give levodopa to people with Parkinson's disease, and he also treated medical students – especially female medical students – like human beings, which is the other part of mentoring that is so important.

Jill Ostrem: We're supposed talk about that, maybe, as part of the Women in Neurology…

Caroline Tanner: So yeah, yeah, so yeah, maybe we shouldn't do too much of the science.

Jill Ostrem: Oh please, go on.

Caroline Tanner: So he also involved us in other kinds of research. I did Parkinson's research. I did dystonia research. I did Tourette's research.

Jill Ostrem: It was everything!

Caroline Tanner: At that point, nobody was sub-subspecialized. Right? If you were movement, you did everything, right? So that was fun, right? I mean, it was tremendous fun. We had video rounds once a week where we showed our cases. I remember Dr. Chris Goetz, who's a little bit my senior, but we were, you know, close colleagues, lobbying Harold to please buy us a video camera when they first came out. You know, please, could we? Because we could see how much better it was than these movies we were trying to do, right? So we got a video camera. And then we started having video rounds, and we would just sit and like review and argue. And, you know, try to understand the phenomenology. It was so much fun.

Jill Ostrem: Yeah. Oh, my goodness, I know you have so much to share, like we just have to box this up this somehow. We have to figure out how to get all this on record more than just for this little interview thing we're doing here. It's incredible. And so what does it feel like now to have... witnessed the field, you know, go from days where you didn't even have a video camera, when we had very little treatments. Really, you know, it was all about the phenomenology, and trying to understand the mechanism of the disease a little bit, but with kind of simple options in terms of tools that could be used … to now, when we have all this going on. I just got out of that lecture

today, right? Right? I mean, we could barely, go through the hot topics in Movement disorders in an hour. It was just too much, you know. So what does it feel like?

Caroline Tanner: Yeah. So on the one hand, I feel happy and proud that we are as far as we are. On the other hand, I wish we were farther, frankly. Because while we have better treatments, we don't have cures, and we don't have prevention. You know the public health perspective has been really important for me, and preventing disease is, you know, what I would love us to be able to do so.

Jill Ostrem: There's no focus on that, really in a major way, yet.

Caroline Tanner: I mean, I think we're closer in terms of possibilities, and a lot of my more recent work has been helping to focus on that. But it's hard to know. You know, how much of that will be possible or able to be implemented.

Jill Ostrem: Yeah, for sure, it's not the way our health system is set up. And that's not really how a revenue stream is generated – by prevention – as much as we would like, you know. In the end it will save money and be better. But it's not. Well, I know that's where your passion is now, and what you really want to help move the needle on. I'm so impressed, and you inspire me. And I think about everything you've already done. And you're still going at the big picture and trying to move the needle. Yeah.

Caroline Tanner: And how about you? I mean, looking at the amazing advances that have happened in the surgical treatment of movement disorders. It's really profound over the last couple of decades that you've been involved in this right?

Jill Ostrem: I think, you know, similar sentiment to you. I think that there's a lot we've accomplished, broken down some barriers– this idea that you can use energy and electrical stimulation to change circuits in the brain. It's still kind of hard for some people to get their head around and think about doing something like that if they could benefit. But it's more normalized, I think, and the power of it has been demonstrated over and over. So it's still rather technical to get this therapy to people. Very few people who could benefit still get this therapy. And so that's on my mind. Now, you know, because I appreciate that people who have access to good healthcare live in a city or an area where they have access to a good DBS Center, you know, that can be a possibility. But so many people, can't even have access to levodopa. Still, too. There's so much disparities in terms of issues with healthcare. But I just think that the more we work with the new technology and the companies, and there's so many young people interested in the space now DBS become a tool for better understanding of neuroscience. We're going to get even more sophisticated ways to bring this to patients that won't be quite as complicated, and we can optimize the therapy in a more streamlined way, which will be great because it's still rather labor intensive to get the best outcomes in patients with this therapy.

Caroline Tanner: So you know, one of the other things we've both been really interested in disparities and how to address that. And you know one way that I've tried to be able to do that in

recent times, but even in the past, but increasingly possible, is by doing home-based interventions and home-based clinical trials, and I know you've done some work in home-based ways of trying to actually make that kind of treatment more accessible to people, even if they are more remote from a medical center.

Jill Ostrem: Yeah, right. There are certain features now that allow for patients to make adjustments to their DBS settings, and they don't need to come into the clinic. And also, we'll see remote programming grow. That'll be good. But we need a better understanding of what people are experiencing outside of the clinic, being able to measure when they're having a side effect from something, or when their medications aren't working, or when they're having dyskinesia, which can happen in Parkinson's disease. We see people in clinic for just a short window of time. But really we'd like to be able to know what's going on throughout their whole day, and have that information in a in a digestible way to then influence the therapies. So we still have a lot of work to do to make that all possible. But we can all see that the technology is here with all the wearables and other things that have now been widely distributed and used for other purposes. So we were excited about harnessing that and use it for movement disorders.

Caroline Tanner: Yeah, yeah, one of the things that I'm really excited that we've been able to do recently is, we've been able to conduct a completely home-based clinical trial, and it focuses on prevention, but in a very specific kind of way, which is preventing one of the really bad things that can happen to people with Parkinson's associated with a poor prognosis, which is fractures. And yeah, most people who have Parkinson's do not get treated for fractures. So you know, neurologists don't think about it, and they have a lot of other medicines, and they don't want to do it. So here we're testing whether you know, a single injection that can be delivered at home, and infusion can prevent fractures and other populations. It's effective for up to 10 years. So if we can give people, you know, one home-based infusion and prevent fractures for years into the future. That would be really important for well-being, prognosis, quality of life, for people with Parkinson's and people who care about them, you know.

Jill Ostrem: Yeah, leveraging these therapies that already exist, but elevating the way in which they should be used. And just the way that you conducted this trial is so revolutionary, to not have to see patients in a clinical setting ever! The largest enrolling clinical trial in Parkinson's ever – which is just wrapping up.

Caroline Tanner: Yeah, just wrapping up. We've already randomized more than 2,500 people, we've screened probably twice that many, almost, to determine eligibility or not. So it's really amazing. And it's all been remote by telemedicine.

Jill Ostrem: And what other trials will we be able to do next? Now that you've been able to show this and demonstrate this is possible.

Caroline Tanner: Yeah. And that is one of the other things we're working on is, are there ways? Another big, important theme along the lines of prevention is identifying people earlier prior to the time when Parkinson's is truly manifest and diagnosed, when we know that there's already been

a lot of loss of central nervous system nerve cells. So we'd like to get back before that. And we're starting to come up with ways to be able to do that, looking at symptoms, things like loss of sense of smell, or acting out your dreams. Or maybe some simple biomarker tests that can help us find people who may be headed towards Parkinson's, and then come up with ways to intervene, to slow, or maybe even stop that progression. So that's the dream. It's like something I wanted all my career right?

Jill Ostrem: That has to be done remotely or it would never work.

Caroline Tanner: Exactly, because it's whole large populations of people.

Jill Ostrem: To screen so many people.

Caroline Tanner: Yeah, yeah, so that's one of the exciting things. I think we're also supposed to talk about our life as women in medicine.

Jill Ostrem: Okay - Sorry, we might be a little off topic.

Caroline Tanner: Or not. We're just having a good time. So that's what matters. Mentors, teachers? Future. Okay, yeah, I think we're doing pretty good.

Jill Ostrem: What accomplishment are you most proud of, Dr. Tanner?

Caroline Tanner: What accomplishment I'm most proud of…. I'm proud that prevention is starting to be part of our vocabulary. Scientifically, that's probably the thing I'm most proud of. The other thing I'm most proud of is all the people I've been able to, you might say mentor. But I mean, really, it's much more been to *collaborate* with people who I've known from early points in their career all the way through. One of the wonderful things about our field of movement disorders is that it is a very collaborative and basically a really supportive field. And it always has been. I mean, when I came in there wasn't a movement disorders field. There wasn't a Movement Disorders Society.

Jill Ostrem: Yeah, it hadn't been named yet.

Caroline Tanner: Yeah, it hadn't been named yet! And then my mentors were small little group of people who kind of *excited* my generation, who then excited the *next* generation, and it went like that. But as a result, I think things have always been very welcoming and kind of collegial and supportive. I could go to people who are part of the movement disorder world like Dr. Stan Fahn, but he was never my true mentor. I never worked for him, but he could advise me just like my institution.

Jill Ostrem: Welcome you and talk to you, share ideas. Yeah, it still exists. It's a huge field now. But it does still exist.

Caroline Tanner: It's the tone that was set by those very early founders. And it's just persisted. Yeah, it's a wonderful thing.

Jill Ostrem: So the accomplishment you're most proud of is that you've been able to continue that sense of collaborative spirit and welcoming?

Caroline Tanner: Yeah.

Jill Ostrem: Throughout the people you've interacted with, to promote that?

Caroline Tanner: Right. Both in the US and internationally. It's important that it's an *international* collaborative group and not just within the US. It really is truly collaborative. Our major society is international. And I think that's the perspective that people have as well.

Jill Ostrem: Yeah, I agree. Well, that's good.

Caroline Tanner: And how about you?

Jill Ostrem: I'm most proud of the accomplishment of just building the center, building the division, growing a successful, healthy team that enjoys working together still. And it's still growing. So yeah, I didn't really ever imagine myself being a team-builder, you know, as like part of my career. I was a neurologist. But that is what I morphed into. And I think that is what I'm the most proud of, just the way that we've been able to grow and create a division that was very small initially, but now is doing some really incredible things. Probably one of the top training centers anywhere for fellowship, and we are attracting incredible talent. And I'm just really proud of all of our junior faculty who are now moving into more mid-level faculty positions. I think we are involved in some of the most exciting aspects of the field now, and I could never have imagined that. So it is all about the team. And you know, I've spent a lot of time thinking about that and trying to nurture the team and the system. It's just fun to kind of sit back a little bit sometimes, and see what is going on, you know, and just not have to worry so much about the day-to-day things, because things are working pretty much on their own now, so that that would probably be the thing I'm the most proud of.

Caroline Tanner: It's something definitely to be proud of, and it's so exciting to see the junior faculty now be become internationally recognized.

Jill Ostrem: Just try to continue to connect the dots and make – you know: "Hey? Do you know so-and-so?" and then the magic just happens sometimes. So we're very lucky to be at UCSF, \ with the leadership of Andy and everyone else, too. I don't take that for granted. And I think women in neurology sometimes have had to work harder to get to where we are. It's definitely true. But I don't feel like that's something I even think about anymore. You know, I'm just, I just do my thing.

Caroline Tanner: So yeah, I think this is a, this is a fantastic place to be. And yeah, it is, thanks to Andy and leadership. In general. It is such a supportive environment. It really is possible to

work without feeling there are barriers. I think I'm still aware of there being barriers when we step out of our environment, which is a truly special one. There are definitely still people who don't see women as being as capable as men right pretty much at any point or in any arena. So I think that that still happens, but it's somewhat a little less, it certainly was a common experience early in my career.

Jill Ostrem: Yeah, in mine, too, I think much more your generation. But those early experiences, they stay with you. And you know we've talked about that, like everything feels … everything's fine and safe, but we still have like a sense of like, “Oh, yeah, well, maybe we're not.” But you know, it's like this old, old trauma of just stuff that we had to put aside, and just continue to try to do the work, and, like, you know, just go at it and not let all those things pull you down.

Caroline Tanner: When I was thinking we were going to be doing this talk, I was thinking about some of my early experiences, and one that I remember that sticks out is, I had a professor in medical school who gave a lecture in front of our class. And I can still visualize this. He had two pathology trays with brains on them. One was a small brain and one was a large brain – one was a primate brain. He held them up. And he said about the big brain, “This is a man's brain.” And then the small brain, he said, “And this is a woman's brain.” And that was like supposed to be levity. Right? It was like, you know, something he always did to kind of make the students relax and laugh. And how funny! haha! Right?

But when I think about that now, it's just remarkable, but that was the climate we lived in every day, right, where it was okay to do that. Nobody's talked about it, was just there.

Jill Ostrem: Yeah, it was just out there. And you had to like just move through it right? Because there was no one to talk to about it. You know, it’s only now, now you can share. But yeah, I guess many people were probably not able to make it through that right?

Caroline Tanner: It’s really hard for people.

Jill Ostrem: Yeah, they just said, “No, no, thanks. You know, it's too much.” So what do you think it was about you that that allowed you to overcome all that early adversity?

Caroline Tanner: I’m tough.

Jill Ostrem: I know! You are tough. You also don't have to sleep.

Caroline Tanner: That's true.

Jill Ostrem: You don't get sick very much.

Caroline Tanner: Not sleeping. That helps.

Jill Ostrem: And a certain ambition, right?

Caroline Tanner: I mean, you have to decide, “This is what I want to do, and I'm going to do it,” and then just keep going. I always said, “If you hit an obstacle, you just back up and like, go around it, right?”

Jill Ostrem: And well, that is, yeah, somehow, you learn that. And you continue to do that still today.

Caroline Tanner: Find ways to do it. Yeah, exactly.

Jill Ostrem: And then you had some great mentors early on who respected you and gave you opportunity. Without that, you know ….

Caroline Tanner: Absolutely. That’s the luck and the serendipity. Yeah, it's being able to have those opportunities, which, you know, in a different world, in a different setting, if I hadn't had those, who knows what would happen right? But you know, yeah, it's always going to be everybody right. People who allowed you to be able to do what you want.

Jill Ostrem: That's right. Yeah. And that's what we like to do now.

Caroline Tanner: Exactly! That's why we like to do it so much, I think, is passing it on, and how important it is, and how exciting it is to see exactly the other people grow, and you know, blossom, and make important contributions to help.

Jill Ostrem: Yeah, I love that. That's good.

Caroline Tanner: Do you have anything else we're supposed to talk about? Advice! Advice. What would I give to myself at the start of my career? Okay. Kind of what I did. I mean, you know?

Jill Ostrem: Yeah, just do it again.

Caroline Tanner: *Just keep doing it*. Just stay strong. Don't let people beat you down. Keep your eye on what it is you want to do and figure out ways to go for it.

Jill Ostrem: And find the collaborators, right?

Caroline Tanner: Yeah, find those you like to work with. That you trust that, you enjoy. That's been another theme for me, working with people I'd like to work with. Not just, you know, this is a person that you *should* work with for some reason. And yeah, it's been fortunate to be able to do that, you know, to be able to really choose your colleagues and choose your collaborators and find people.

Jill Ostrem: And let go of the things that aren't working. Right?

Caroline Tanner: Yeah, yeah, exactly. There's always plenty of more things to do right? Yeah, right?

Jill Ostrem: There's so much work.

Caroline Tanner: Yeah, there's always plenty more things to do. And not make a fuss, not make a big fuss about "Oh, that's not a nice person." Just like kind of say, "This is where I can keep going."

Jill Ostrem: Yeah, I agree. Yeah. And find your allies, right? So when you're having a rough go, you've got someone to be in it with you.

Caroline Tanner: Find your allies. That's right. That's right. I mean, I think that's really important is, you know, have friends, hopefully, senior people who can help, but also colleagues who can be there for you, so that if it is a rough time you feel that support, I think that's really important.

Jill Ostrem: To pull you through**.** And also maybe, you know, be kind to yourself. Just thinking about all that we try to do at the same time as having a job right? Careers. It's the family life and everything, like it's a lot. For men, too! But you know it's okay, you know, like, just don't be too hard on yourself, I think. I was pretty worried that I wasn't gonna have a good career or my kids weren't gonna be okay or whatever. But I mean, you know, you just have to enjoy the journey a little bit.

Caroline Tanner: Exactly.

Jill Ostrem: And you know, listen to your body. Like if you're feeling tired, or whatever is going on like, make sure you're prioritizing your own health. I think I should have done that a little bit more. But I didn't know any better. But yeah, I think about that as early advice.

Caroline Tanner: True for all of us. It just reminded me of an experience with a male colleague early on in my career, who I really enjoyed, kind of my same generation. And we were at a meeting, and I said something about some past meeting we had had, and he said, "Oh, I didn't go to that because my child was born during that time. Do you think people would think poorly of me for that?" So even as much as things have changed for women, they've changed tremendously for men, too! Because now our you know, our colleagues kind of take equal weight for family and child care.

Jill Ostrem: I agree.

Caroline Tanner: You know, for a man to say "My first child was born. And do you think they think poorly of me for missing something?"

Jill Ostrem: It's on his mind, and that's striking. But that was something I thought about all the time, you know. In fact, I only got a vacation when I had a baby! Like that was the break I got,

because I *had to.* I was having a baby. Okay, that was a little bit too much, you know. And I remember, you know, bringing my little kids to meetings and, trying to nurse them in the short break, and maybe I wouldn't even tell people I had my kid there because I didn't want them to wonder if I wasn't like fully “on” -there was just a lot of separation.

And now I try to tell people, please. Let's know the whole part of you, right? Let's know your children. We can work it out. Let's be flexible. So I think the culture is better now.

Caroline Tanner: It's better now. The Parkinson's Study Group was another important part of my career, and, you know, started experimental therapeutics, and we had annual meetings. And one of the really novel things about the PSG (Parkinson’s Study Group) was that we did bring our children. And we had this study we started which was called DataTop. Yep, and we had “Data Tots!”

Jill Ostrem: [laughter] No way. I have not heard that.

Caroline Tanner: And we had childcare. At the meeting, starting from the very beginning, my daughter learned to walk at a Parkinson’s Study Group meeting. She took her first steps.

Jill Ostrem: Data Tots. Yeah, we don't have that lingo anymore, but we can think of something for us. Yeah, we used to, at all of our annual holiday parties we would try to make announcements about how many kids we, you know, the new members of “the family” we had had as a team. But now I can't even keep up, even having all the kids to the holiday parties.

Caroline Tanner: There are so many! You’d have to get a big picture to get everybody all together.

Jill Ostrem: We used to get all the kids to the holiday parties, but now it's impossible. We would need a very big space.

Caroline Tanner: Yeah. So I think maybe we've covered most of what we need to do here. “Did you have any advice for women who are just starting their careers in neurology?” I guess that's the last bit we haven't addressed.

Jill Ostrem: I think it's sort of the same that we've been talking about, right, where you want to do something that matters. You want to work with people that you enjoy. You want to have some connection to people that are a little more senior, so they can help you navigate the field, and, you know, make connections which are important. And take care of yourself, you know. I think those would be my overview kind of themes.

Caroline Tanner: It's interesting that both of us are talking about people we are. What we're saying is, you know, find good mentors. Take care of yourself, and I would add, *become* a mentor –

Jill Ostrem: Even if you’re junior.

Caroline Tanner: -- because I think that that also is such an important learning experience, and it makes it such important connections [as] your mentees become your colleagues, sometimes your closest colleagues. So I think those are the things we're really emphasizing, obviously, in the service of the science. And I guess the other thing I would say is, listen to your patients. And we haven't talked much about that.

Jill Ostrem: Right, yeah.

Caroline Tanner: But we both are clinicians, and to me that's always the driver of what I do in research is back to the clinic. Seeing people who have the disease, who still aren't able to be, you know, completely cured, and that is the energy that drives wanting to keep your research going, but also to keep it focused and the urgency of it.

Jill Ostrem. Right. Yes, because these people are relying on us. You know, they need us. But you can only do the good work if you take care of yourself, too. But yeah, it goes back to like, do something that matters.

Caroline Tanner: Yeah, exactly.

Jill Ostrem. Yeah. And then, have it matter to you for the patient's sake.

Caroline Tanner: Exactly. And follow your heart, do something that really matters to you. That is your passion, and it will work out.

Jill Ostrem. I think that's right, because it will motivate you, and people will see that in you, and they'll believe in you, too then.

All right, we did it!

Caroline Tanner: We did it. Hopefully, some of that was useful.