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- [Johnny] My name is Johnny Sable and I am a clinical specialist for advanced Bionics. Today I am really honored to be hosting the second webinar on the series. Adult auditory rehabilitation, clinical models, feasibility for adult audiologists, and speech-language pathologists. I'm proud to introduce maybe presenters for this session; Dr. Christy Ray and Dr. Kara Vasil. Dr. Christy Ray is an assistant professor in speech-language pathologist in the department of otolaryngology-head and neck surgery at the Ohio State University. Senior masters in PhD enduring in a speech and hearing scientist from the Ohio State University. She currently engages in clinical practice and research with a particular interest in optimizing outcome with adults with cochlear implant.

We also have Dr. Kara Vasil presenting today. She's a research and clinical audiologist at the Ohio State University Wexner Medical Center. She completed her undergraduate degree in speech and hearing sciences from the Ohio State University in 2012 and her doctoral degree in audiology in the Northeast Ohio AuD Consortium in 2016. Her clinical and research interests include; cochlea implants, valuation, programming and adult oral rehabilitation. During the session today, if you experience any technical difficulties at all, you have two opportunities for contact. Number one is a number provided, 1-800-753-2160 or with email at customerexperience@continued.com. Once again, try to remain logged in if you have technical difficulties so that when you call these numbers, they can be addressed accordingly. I will go ahead and.

- All right, thank you for the introduction, Johnny, and thank you everyone for joining us today. This is our second webinar in our four-part series with AB and we're really excited to participate in that with them. And the series is about a multidisciplinary approach to adult oral rehabilitation for CI users. The first 11 all other series was done by Dr. Erin Moberly on our team last month. And it's titled; understanding rehabilitation needs of adults with CIs. So check that one out if you were not able to yet. So today we'll be discussing some clinical models of adult AR and feasibility for both audiologists, like myself and speech-language pathologists like Christy. So an outline of today's presentation. We will begin by defining comprehensive AR as best as we can, then discussing some of the barriers in implementing it. We'll talk about how different members of our team each play a role in providing AR and some current feasible models of oral rehabilitation in various clinical settings. And then we'll get to the age-old question, where do we go from here?

Some of our learner objectives for the presentation are listed here. So after this webinar, we hope that you'll be able to summarize the values and the roles of all the key players in oral rehabilitation programs, identify some perceived and real barriers to implementing it in the various clinical settings and describe some similarities and differences in the models of AR that we discuss. So we'll begin by defining comprehensive AR. And I'd like to start with having you tell us what you think AR is. Essentially, when you're providing oral rehab services and an appointment, what are you actually doing with the patient or their family? And of course, this is going to be really highly dependent on your role on the team, it can be as broad as you want it to be.

So I believe you have a Q and A box at the bottom of your screen. Just enter in your responses if you like. We appreciate your participation. So far, some common ones even things like device instructions, some guidance on providing a computerized auditory training protocol. AR really involves a wide array of different aspects and different postoperative care. So a classic definition of AR is shown here; "any device, procedure, information, interaction, or therapy which lessens the communicative and psychosocial consequences of hearing loss." And broadly as we know it, it's about the reduction of hearing-loss induced deficits of function, activity, participation and overall quality of life.

As we know in Palmer, also origin in the 2005 paper, AR is about way more than just sitting and programming hearing technology. Of course we know that is an integral part of the puzzle though. So we really do need to address the other aspects of the patient's life that are also experiencing some of these hearing-loss-induced deficits. So although we know that AR is about more than just the device, clinicians providing services to adults are often lacking clear guidance on a standard approach to creating an AR program. So we often recommend methods like wearing the CI all weekend hours, listening to audio books, increasing overall time and speech and monitoring that with data logging or with app usage. Whatever that means for the particular patient, attending support groups, et cetera. But most of these are really self-guided rehab methods. In one study, CI users reported that their relationship with their programming audiologists is mainly for addressing these programming these device related concerns. And oftentimes, by the time we do aided testing and the sound dues with or without a bilateral CI or contralateral hearing aid, we program the processor and we pair an instructor council on any assistant technology or accessories. We don't have a lot of time let

alone the training as audiologists to provide much more than a self-guided AR program. So on the right hand side of this slide, you'll see a snapshot of a handout that we use for our CI patients, with a few of these AR methods or resources listed, including some success from Advanced Bionics. But again, many of these resources involve some kind of self-guided navigation by the patient. And we're expecting them to create this individualized plan when they may not be quite sure where to start, which goals are realistic for them, on what timeline. So although many CI users are highly motivated, they often don't independently set benchmarks for their success and how to overcome the obstacles that they will surely face as a part of their CI journey.

So that brings us to the question, how do we really define success with the CI? Of course it's different for every patient. This here is a word cloud. Dr. Moberly presented it in the first webinar of our series. And last November, we hosted a luncheon for our past adult CI research participants and their significant others, and asked them broadly speaking, how they would define success with their CI. They texted in their responses. Many of you know how a word cloud works, but these larger words shown here were the most commonly submitted answers. So things like communication, understanding. But then you see a lot of smaller words here as well, where our CI users are delving into their daily activities and their social participation a bit more. Like speaking with their grandchildren, talking on the phone and some broader aspects that might relate to their quality of life. Are they happy? Are they comfortable? Do they have more energy throughout the day? Of course many of you terms in one way or another, do refer back to their speech recognition abilities, but many of them are a lot more nuanced than that. And it would serve us well to be able to measure and treat some of those specific things effectively. So another slide from Dr. Moberly's first webinar of the series.

We know that AR really involves a wide array of patient abilities and domains like those listed in the word cloud. And we can look at those concerns and those aspects of the patient's life in some broader categories like these listed here. And we know that all of these abilities and domains do affect the patient's life in one way or another, and do relate to their communication abilities. We just don't know how to measure them and treat them effectively. So that's what we're aiming to do with AR. So what exactly are we aiming to treat? If we go back to Boothroyd's definition of oral rehabilitation, the classic definition, we can see that he specifically talks about the following four domains; function, activity, participation, and quality

of life. And these categories line up really well with the International Classification of Functioning or the ICF framework, which was developed by the World Health Organization to move healthcare toward a more holistic and patient-centered care and away from that traditional medical model. So I'll go through each of these four domains and talk about each one a bit more. Function is strictly a patient's hearing capacity. This is one of the more objectively understood and measured outcomes. And really the chief complaint coming into our office is hearing loss.

So these outcomes could include; aided thresholds in the sound booth with their amplification or their CI, structural and temporal resolution, their dynamic range, as well as some of their cognitive functions like their working memory or their processing speed, which we also can measure with some of our assessments. Secondly, we're also really interested in the activity domain or how a patient makes use of that function, that hearing capacity in the real world. So to do this, we can measure speech recognition ability, environmental sound recognition ability, how our patients are really engaging in spoken language communication as an SLP as well. Thirdly, participation takes these activities one step further to see how they're making use of these abilities in their daily life. How are they socially interacting with others? Participating in employment, in church, in whatever other activities might make up their day to day life. And arguably most importantly, the fourth domain here is their quality of life. So this really reflects the CI users' self-assessment of their current life experiences. This would include; enjoyment, purpose, meaning, independence. All of these things make up the broader domain of quality of life. And they're certainly influenced by the previous three domains of function, activity and participation.

But quality of life is not completely determined by those domains. And a good sense of enjoyment or purpose or meaning in life is going to include varying degrees of involvement of the three domains for any given person. So when we use the four domains to break down our patient care and the need for a comprehensive approach to AR, we can see that we're shifting more towards the biopsychosocial model here on the right hand side. Traditionally, we focus our efforts on the chief complaint, hearing loss, like the biomedical model does. And we really define our intervention success by that metric. And by that, aided testing the sound booth. And then we expect the downstream effects to occur in all of these other domains that are affected by hearing loss in these deficits. But the model we're really aiming for is what we would call a

patient-centered care model, where we can focus on the downstream effects a bit more directly. So we know that our CI users have multiple factors that are leading them to seek treatment. When counseling our patients, and creating a treatment plan, we know that outcomes for CI users can vary widely and success can be measured in different ways. So treating our outcomes as binary is not really effective here. Like the biomedical model traditionally does. We all know implanting a patient is not rhythm of hearing-loss and communication difficulties. And there's really a continuum of performance and improvement. Often without a very distinct end goal in sight.

So if we are developing an intervention model for AR is going to start with the question, what is our intervention aiming to treat? And like Dr. Moberly discussed in our first webinar, our team argues is that we can branch out from only treating hearing loss and include all four of the domains that we discussed. Function, activity, participation, quality of life. And Boothroyd really outlines how oral rehab can holistically address each one of these components. And these four components go beyond one type of provider's particular skillset and knowledge. So we'll take a closer look at each one of them. We have a sensory management, instruction, perceptual training and counseling. And to illustrate that a little bit better, I'll go into the survey that our team conducted. With the help of ACIA, we sent out a survey to clinicians who work with adults who were CIs. So these are some of the results to help illustrate the breadth of AR. As you can see on the left hand side, 42% of our respondents were audiologists, 24% were SLPs, 19% were MDs and some were dual-certified or didn't specify what their role was. The work setting also vary pretty widely, and you can see that on the right hand side.

So we had those in academic medical centers like our own. And hospital systems making up the majority of respondents. But you can see, we also had some university clinics and some other healthcare facilities represented here. So in that survey, we posed the question, which services do you consider within the scope of AR? Again, a really broad question. Kind of like the one I posed earlier. And the respondents could check-mark however many of these they like. There are various choices which you can see here and we color-coded them to correspond with one of those four components of AR. So you can see that the orange and the red bars here had the highest responses. So those are perceptual training and counseling. But instruction and sensory management are also well-represented here in all of the many things that go under the umbrella of oral rehabilitation. So we'll break down each of the four. Firstly,

we have sensory management. So it's effect really spreads much farther than we might initially realize. So for further-reaching effects like participation and quality of life, we don't really know when working with patients. Because again, we don't traditionally measure it. For speech recognition, additional factors need to be taken into consideration. So we have poor performers like Dr. Moberly described. Oftentimes due to factors other than the traditionally looked at demographics and hearing sensitivity.

So on the right hand side, these are some of the results from our survey of what that sensory management aspects might include. And you can see 61% responded that it involves fitting a hearing-assisted technology. And the device programming was 49%. And of course, surgical placement of the device by the surgeon. The second component is perceptual training. So this really targets the activity domain and the enhancement of that CI users' perceptual skills. So this would include actions like auditory training, either one on one with the clinician or on the computer, or with some other activity at home or working with a loved one. On the right side, you'll see a table with both bottom-up and top-down tasks included. And you can see a few examples of each. Each patient's bottom-up and top-down skills really interact differently to help them navigate listening environment. And understanding these individual differences in our patients can really assist us in creating an individualized treatment plan for them. So we want to see improvement on the particular task, of course, whether bottom-up or top-down. But we also want to see that that improvement is generalized into their real-world communication abilities.

And you can see at the bottom here, patient-guide to speech perception. Excuse me. And clinician-guided can both makeup perceptual training. The next component is counseling, which I'm sure we're all very familiar with. So this is a really integral part of the patient's care plan long before they are implanted, and also long after. We really want to assess patient's expectations of their CI from the get go and make sure that those are realistic and we know what their specific goals are, how they envision that CI integrating into their daily life. Both for them and for their regular communication partners. And we really wanna foster high motivation in the whole group. Anyone who's affected by that cochlear implantation of the patient. So helping them to make informed decisions about their care plan and follow up. This can all fall under that counseling domain. And you can see on the right hand side here, this can be quite broad anywhere from talking about hearing anatomy and physiology to auditory skill

development, talking about normal hearing, how to read their audiogram. So it can be quite broad, but it's absolutely an integral part of the process. And lastly, here we have instruction. And this really goes hand-in-hand with the counseling domain. And I'd say that instruction also compliments sensory management quite well.

So if a patient can't use their device optimally, if we're not instructing them properly or sufficiently on how to do things like charge their battery or use their remotes or use a remote accessory, how do we know that our efforts addressing the sensory management are really working once they're out of our office? So this can also include a range of abilities but the aim here is really to optimize auditory sensitivity, help the patient know when to use particular settings or accessories. And you can see here that our survey respondents agreed that this involves using specific features of the device or of the technology. So when we look at comprehensive AR in this way, and we're addressing everything from function to their functions and pass on the patient's activity, their participation and their overall quality of life, we can see that really any patient would benefit from AR.

One thing we can definitely count on with CI users, is a whole range of variability in their performance and in their satisfaction with their CI journey. And we know that patients challenges don't all sound purely from auditory sensitivity. So that sharing loss is causing other deficits in their life that need to be addressed and measured. Getting a CI involves a whole host of new skills and brand plasticity for each and every patient and comprehensive AR can really be tailored to those needs. We just need to know exactly what those needs are and how they're affecting each individually patient in order to determine benefit. And in the process of creating this comprehensive AR program, we know that each one of us on the care team do confront some barriers. And so I will hand it over to Christy here to talk about these barriers a bit further.

- [Christy] Alright, thank you. So you have this far in the series. We've summarize what a comprehensive AR approach might mean and why it broadly aligns with best practice and patient-centered care that's based on patient needs. So to be clear, I don't think that hearing health professionals need to be convinced of this and that a best-practice would be the patient-center care model where we're really looking at all of the patient's needs. I've not encountered anyone who argues that adults with hearing loss, who struggle with

communication, could benefit from individualized comprehensive rehab. And the survey responses that Kara showed earlier, supports that as well. A majority of those responses to what to you consider within the scope of AR were related to perceptual training, counseling, instruction, and really went beyond sensory management. However, like Kara said, this is easier said than done. We know this as clinicians. So we asked the same response, found that to identify the barriers that they face. These will probably be familiar to you. And here are the responses that we got. When we look at this happy responses, we can categorize them into these four areas.

One being reimbursement and cost efficiency, another being patient accessibility, or patient-drive to complete the AR. The lack evidence and the lack of a clear standard, and lastly, overall professional awareness and training to provide the AR. So if we look at this first one in a little bit more detail. It's services, not being consistently reimbursed, we know that time is money. So we can look here at the CMS fee schedule to kind of understand that a little bit better. When we look at these CPT Codes related to AR, the audiology codes are limited to evaluation only that's at 92626. AR therapy or rehabilitation intervention codes here, actually aren't covered at all by Medicare. The 9230 and the 9233, which is not paid by CMS. SLPs have the code 92507, which is a general speech pathology therapy code that we can use with all kinds of populations.

But we can use that code to work and provide this rehab with billable time. I believe Cigna does look for SLPs to use that AR-specific code that 92630 or 33. Other medicare and many of the other insurance providers, the 92507 is covered when we're doing AR as an SLP. In this option, including an SLP really eases the financial burden on audiologists' time. And the potential out of pocket costs that clinics would otherwise need to charge patients to feasibly offer comprehensive AR like it's been defined. So patient accessibility and interest is the next most frequently cited response here. Some specific comments related to this include; time, the patient's time, patient's travel constraints, patient costs, and then patient misunderstanding. Some people said they don't recognize the value. One particular comment that I liked and kind of resonated with me is, they think they had surgery to fix their hearing. To fix their hearing or curing hearing loss. And then all those other downstream effects will be solved by fixing the hearing loss. And I think that these last two comments really speak to our broad narrative and

how we communicate with patients. So the barrier of time, you know, maybe that's because they don't understand the value.

These patients are... They've been through a process of hearing loss, they've had their cochlear implant evaluation, they thought about getting a cochlear implant. They're going through this process. It's not small. It's not insignificant. They're having surgery. Not insignificant. So perhaps this burden of time that they all would theoretically put on a patient, would go away, would be eased if patients really understood the value. This is a package deal. This is a part of the CI journey. So that's kind of one way maybe we can tackle that. Travel can be an issue. We'll review how other clinics have addressed this later in the talk with telepractice or care coordination.

But we shouldn't necessarily assume it is an issue. Again, similar to the time they go through this process and if AR is a part of this process and they are motivated to improve their communication. Improve things beyond detection and hearing. The travel maybe something that more patients are willing to do than we might know. Certainly yes, it could be an issue. And it does need to be addressed and it could be a barrier. But I think we can also address billing and reimbursement if the cost can be ameliorated with no out-of-pocket costs by including an SLP or having some billable time built in. But I think the underlying theme here is how we view and talk about the CI journey with patients. And a lot of that is going to be driven by our existing models and vice versa. So how we talk about it is gonna be related to like what we can offer. And potentially what we can offer is gonna be driven by how we think about AR and what we wanna accomplish with AR.

There isn't specific research that I could find that specifically looked at drivers or barriers to patient uptake of AR if you will, or patient buy-in for AR. But there is quite a bit that you can find about exploring what drives people to get a CI or move from a hearing aid to a CI. And I think a lot of this can actually relate to AR as well. This figure here is recently published from Ear Sciences Institute Australia. And they got input from a range of CI professionals, CI candidates, recipients, and family to better understand the factors that influence decision making. Within that, we're able to get information about the relative importance of all of these factors, which I think is great, it's neat, it's interesting. So two of the client-driven factors that you can see in the right hand side there are hearing difficulties. And the way that they define

that in the paper was based on the responses. They included social effects of hearing loss, emotional, communication.

Basically those broader impacts of hearing loss, they defined here as hearing difficulties. The second one there that's client driven is goals and support. So that included their desire, their motivation, their family support what their specific goals were at that. That tended to be a driver for CI uptake. And although these were client driven, these were factors that were identified to be internal for the individual, the patient. Clinicians could impact this if we put these things in the foreground. So putting these things in the foreground means that we're assessing them. So their goals or motivation and desires, the social-emotional communication impact of their hearing loss. And also talking with patients about them. So we assist them and we incorporate them into AR from the get go. We can do this through CI.

We can start the process as well as sought CI where they are. Interestingly, when they were rating the importance of these factors and they identified some of these drivers that needed to be improved, and the clients rated the goals and support significantly higher than the professionals. I think that emphasizes the importance of identifying the core needs of patients and managing their expectations. What would do they expect out of this intervention? Like that comment that I showed before from the survey, you know, patients think they're getting a CI to fix their hearing loss. So we need to manage what's to be expected of that intervention throughout the whole CI journey. The barriers identified here; uncertainty, beliefs and fears that included a negative effect of word of mouth. And also in misunderstanding. Patients misunderstanding of the process. How a CI works out, what the outcomes are to be expected. And again, I think as clinicians, we can influence this. So if we're looking at our narrative, our thought process, how we communicate with patients about what AR is, and we take that into the context of this, and the barriers, there's potentially a lot that we can overcome by shifting our mindset. Shifting the way we talk about the CI journey beyond the CI.

All right. The next barrier identified here was lack of evidence-based AR practices. Barrier probably relates to our lack of a clear clinical standard as well, for providing AR to adults in particular. That relationship probably goes both ways. So again, the evidence doesn't necessarily support a clear standard. But the way it's studied is also inconsistent and possibly in part due to inconsistent standards in the way we practice, and the outcome measures we

use in the components and how we define AR and in the professions that are included in both the clinical practice and the research. So we do have supporting evidence broadly for many of the components of AR. When we start putting the pieces together, there's certainly information that can guide our clinical decision making.

This table here just kind of breaks down some examples of references that support some of the facets of these various components that Kara outlined earlier. And that's just honestly, just a sampling and some relevant ones. Or particularly relevant ones. So if we can piece these things together, we're talking about evidence-supported clinical practice and decision making. Which really is common in so much of medicine. If we're looking for a cookbook, though we do not have that. But the beauty of this is really the ability to individually approach patient care to the individual person sitting in front of us in the clinic. So I guess I would argue that we do have evidence. It just takes a little bit of work to put it together and to utilize it to provide individualized care. Perhaps the focus on really our service delivery of adult AR broadly versus searching for a cookbook or searching for specific techniques that are definitely gonna work and is gonna impact this particular outcome that I use in clinic. Yeah, those are gonna be harder to find, but we can use our clinical decision-making skills. Just like referrals for CI candidacy. There is a barrier there as well. The estimate of CI uptake globally is less than 10%. So certainly consistency in outcomes of interest and components of AR would help to move the field forward. But as clinicians, we can take what we do know, what is known, and we can support and optimize outcomes of adults using this information. So do we need more evidence?

Yeah, it would be great to have as much supporting evidence as we can possibly get. But we know a lot. I think we know more than we think we know. So given what we know about the broad needs of adults with CIs and the barriers mentioned previously, this identified barrier-provider awareness and training is probably essential to creating a standard narrative for a comprehensive and interprofessional approach. So one of the things that falls into this category is reporting. So the respondents of the survey who were providers of CI healthcare providers, unable to get consistent referrals from other providers and no place that provides near my facility. So we've gotta kinda think about like, why is that? And I think it may reflect a need for increased provider awareness of the potential roles of themselves and of other

professionals, as well as some additional training to enhance the skillset for this particular population. This is excluding surgeon, sorry, Dr. Moberly.

But the audiology skillset here, clearly knowledge, experience, highly skilled in evaluation of hearing disorders, hearing technology, troubleshooting, collaborating with patients to create buy-in multidisciplinary care. And you know, the experts in hearing. We have auditory-verbal therapist as well. A lot of SLPs are trained in auditory-verbal therapy and certified, and they have a great skillset. They're pediatric specialist, well trained and experienced with aspects of hearing loss. And then we have a group of SLPs who are potential providers here for adults with hearing loss. They're skilled with adults in general, but not necessarily specific to hearing loss. The SLP core skillset includes developing plans of care and intervention, plans around specific deficits, really to improve communication.

So the SLP is communication-based. Their skills and experience, that's facilitating learning and working toward improvement of specific goals based on assessments, finding deficits and figuring out ways to help the patient learn a skill, relearn a skill. Or compensate for lack of a skill. We can optimize communication ability, whether it be a different population or specific to adults with hearing loss. So including an SLP can add value in these ways. Although awareness and some additional training is certainly called for. So I guess to summarize the barriers before, when we utilize best available evidence, what we know about the patient population, what we know about the individual patient sitting in front of us, and our knowledge and skills as professionals, we have a lot of tools to make solid clinical decisions and to provide oral rehabilitation to patients.

We can work in a multidisciplinary way to really utilize the complimentary skills of each other as professionals, and then best meet the needs of adults with cochlear implants. I'm gonna ask real quick. I just wanna get a gauge of the audience. How many people are audiologists? You can click the thumbs up if you see a thumbs up. Just gonna click the thumbs up. Okay. And if you're an SLP, can you click the thumbs up now? I guess I should have said click the thumbs down so I can compare, but that would have seemed rude. Okay. Anybody else in a different profession related to AR? Yeah, it looks like it's an almost even split. Like we doubled when we added the SLP. Great. That's awesome. Okay. Yeah. Somebody mentioned that they're an audiologist and an AVT, which is great. And I did not mention that. Each of the deaf with AVT

training. Great. Alright. I wanna briefly go through, you know, we've kind of set this up to show that the various professionals here. Again, going back to the survey, after we asked the respondents to determine which components they would consider within the scope of AR, we asked, who provides it, who provides which component.

So you can see here, the top is really sensory management. It would fall under that category. Nobody's doing surgery other than the surgeons, which is a good thing. And then really this is heavy, heavy on audiology. And I think this is what we would expect. And structurally we start to see it branch out where the audiology and speech-pathologists are working together. And then the orange here is perceptual training. Now we're getting more responses that that's falling up to an SLP or being done together with an audiologist. And then the counseling is really spread out here as well. That that can be a component provided by an audiologist or an SLP or both. And I think the supplementary skills of all the professions, including the AVT audiologists, including the teacher of the deaf, do you think we can come together?

The SLPs can also bill. I don't want to say that the only value of the SLP is that we can bill and audiology can't. But that is a real barrier. And it is something that the SLP can help overcome. And when we come together, this can become feasible. I wanna show you a few real models that exist across the country. There is an adult cochlear implant, auditory rehab focus group that exists. This came from an usher, special interest group on AR. There were some conversations going on about, you know, adult in particular, and CIs in particular. So we kind of formed a focus group. So we could put our heads together and figure out what's going on at other centers. How are people handling this or that barrier? Is this a barrier for you? Why and why not? And it's honestly been really great. If anybody in this talk is interested in it, by the way, reach out to me and we can add you to the focus group.

Usually we talk about once a month or once every two months. You can catch up. But this is just an overview of the various settings and clinics that are represented in that focus group currently. So we have some VAs in the university hospitals and university clinics. If you look at the AR team, had to that middle column there. Most of the teams are multidisciplinary providing this interprofessional practice, AR. There were two sites that did not have an SLP on their team. And those were both from VAs. So interestingly, the VA has these adult faced SLPs within them. However, the SLP really weren't aware that, you know, this is something that they

could take their skillset to with some additional training and hearing loss, hearing devices. And I didn't know that, I mean, I was originally an adult-focused SLP. Adult medical SLP. And the opportunity kind of just fell into my lap. And I realized, okay, we can apply our skillset. I needed some extra training, I needed to learn about CIs, I needed to learn about more about hearing loss. Refresh some of those basic things that I learned, and then more specifically, you know, auditory processing, information processing and all the things that go along with this particular patient population.

But I had an underlying knowledge of aging, cognition, communication. And so I guess I call to all SLPs that, you know, this is actually something you can do. Again, the survey respondents, so we can see that people are providing AR. Their SLPs are responding. And when we sent this out, it was specific to; if you work with adults with CIs, fill out this survey. This is a real model at Ohio state. So this is actually what the patient journey looks like. We have a team with a surgeon, audiologists, SLPs, and this is our standard practice. Patients come in for a CI eval, they get that done with the audiologist, they get medical exam from the surgeon, and then they come back one more time before surgery. And at that time they can choose the device that they're going to get based on the input from the surgeon and the audiologist. And at that time, the SLP does a communication eval as well.

During that eval, we'll go into this more in the next webinar, like in detail. But it's getting an idea of; one, how do we think that they're gonna do? What do we think that their outcome of the CI is gonna be based on multiple factors that we can use to help guide our knowledge of that. And then also counseling patients so that they understand and really getting an idea of what are your goals? What do you wanna do? What do you want the CI to do for you? How does your hearing loss affect you? Okay, now let's talk through those. And then we revisit that again about a month after they're activated. So they've had some experiences with the CI. And then we can develop a plan, provide intervention. That varies. So in here in this chart, it shows that we provide AR therapy from one month to six months. It's individualized based on people's needs, based on their ability to travel, you know, how often we see them. It varies patient to patient. But in general, this is kind of what that looks like. And then after six months, we'll see people as needed.

We'll see people, you know, who before we implemented this model who are years out, but still struggling with communication. And so we'll get them started then. Then lastly after all that said, let's summarize where we can go from here. It's probably obvious at this point that there we're pushing to really change our narrative and our thinking about AR for adults with CIs and with hearing loss. The terminology and narrative where we need to reflect our broad objectives. So Dr. Moberly talked about how our objectives may need to be broadened beyond speech recognition and our traditional audiometric measures. But doing this could really improve buy-in and it could shift this comprehensive approach to being the standard versus an add-on or an exception, or once a patient is not doing as well as we hoped, now we'll take this comprehensive approach.

We want to see that shift toward being standard care. And I think that the question we're asking ourselves is, what are we treating? I think the answer is, communication or something broader beyond hearing itself. Although if you ask patients when they come in, the standard question that I ask, like, what do you want to be able to do with your CI? They'll say hear. I want to be able to hear. Almost 100% of the time. And then you probe them, like why? For what? What do you want to be able to hear? And then that's even starts opening up their minds to the thought that, oh yeah, it's not just hearing. There are these broader impacts of this hearing loss. And we can get into those specifics with them. You know, there's certainly a push for this in the field. And I don't think it's new. But we aren't seeing it play out in real life. As we talked, back in 2007, So this really isn't new. And then it's been talked about long before that as well. He suggested a change in terminology, which I kind of like, it goes along with this shifting the narrative.

So instead of saying, we're doing a hearing aid evaluation, saying is a functional communication assessment. We'll talk more about what a functional communication assessment actually looks like. Things that can be included in that assessment in the next webinar. But the idea is to take the focus off the product, place the focus on the end goal of communication. And this is just this 2007 Viewpoint paper in The Hearing Journal. I just love the title. It's really succinct. Instead of hearing evaluation, let's assess functional communication ability. Yes. Particularly he says hearing aids, and this can be applied to CIs as well. Hearing aids may or may not be one component of an overall rehabilitation plan, but a rehabilitation plan is not a component of a hearing aid fitting. So I guess substitute hearing aid

fitting with, you know, sensory management piece of AR. The current tendency to supplement hearing aid fitting for the additional therapy is misguided.

That goes back to this comprehensive approach being a standard and not an add-on, not an exception. Instead, hearing aids should supplement the global plan of communication treatment. And I think that's beautiful. So where do we go from here? Again, think beyond hearing loss. Work collaboratively and creatively, 'cause those barriers are there. We wanna fill some gaps. We wanna overcome these barriers, particular to our given setting. And then stay connected and supported. So if you wanna join that focus group, I think it's nice to hear from other professionals how this is being implemented. Those barriers are not small, but this is feasible. And then there are tons of future research directions here as well. So some of those who are working at Ohio state and we hope to contribute to that, you know, more and more and more so that we can get rid of that lack of evidence barrier that currently exists. There are some references there. Does anyone have any questions?

- [Valerie] Thank you, Kara and Christie. This is Valerie LaBelle from advanced Bionics. I'm the senior rehabilitation program manager. And I wanna thank our audience for joining us today. If you have questions and I see them coming in, please type those into the chat box. We have not only Christie and Kara available, but the whole The Ohio State University CI team available here to answer your questions. The first question I see is from Mary and she's asking, would you send the complete citation for your survey?

- [Christy] Yes, they were writing that up now to be an asset perspective paper. I mean, it hasn't been accepted but we're in the process of writing it up in a manuscript. I've seen you guys have access to these files as well.

- [Valerie] Yes. So if you would like access to these slides, remember to download that presentation handout, which will have the slide information from the slides. Great. Thank you, Christy. Another question from the audience, in the survey, did you find that counseling on the expectations, for example, using patient goal setting pre implant was a regular practice?

- [Christy] Yeah, it was reported. Let me get the exact percentage. We did break the counseling down into as many components as we possibly could without being overwhelming. Yeah, I

guess it's not listed there, is it? It's really small on my screen though. I'll have to get back to you on that. I'm not sure about the exact. I have a spreadsheet and I would gladly get back to you on that.

- [Valerie] Great, thank you, Christy. There's another question here. In your opinion, what is the benefit of beginning that AR discussion pre implant? I think you spoke to a lot of it in the presentation, but maybe you can further comment.

- [Christy] Yeah, I'll talk on that a little bit. And then if Kara and anyone else has anything to add. So one, if we're talking about patients don't understand the value of AR and just getting patient buy-in for AR. So I think we as professionals, you know, we are like, this approach has been to optimize your outcomes. We have supporting evidence of that, especially given your individual profile, you know, what we can expect. And really understanding their goals, their wants, their needs. Even their current hearing aid use. I had a patient this week who is gonna get a cochlear implant. And he came in for a pre eval and he had his hearing aids on. But I asked him, I said, do you wear your hearing aids all the time?

He goes, no, I just pulled them out of a drawer to come here today. So that opens up the gate to really set up. Expectations like why we care about you wearing it. Not only your CI after you get it, why that's going to be super important. Start wearing your hearing aids now. And we might as well start AR actually right now. And that does happen too. I'll give people some specific things based on assessment, based on their goals and what they report to me, but just some specific things to start practicing. They don't have to wait for their CI to be turned on. Most of them don't have great hearing obviously, but they're aided to a degree and that perceptual learning piece, we can start, you know, even pre operative.

But I think the big piece is getting to know their goals. Having them actually get to know their goals is another thing. You know, people come in, they've gotten lots of hearing tests. They've had their hearing aids for the most part. They're familiar with hearing loss. They're familiar with the process of hearing loss and treating hearing loss. The CI piece is new, it's a surgery. But they're not exactly clear on what they wanna get out of it. It's very broad like, oh yeah, I can't hear. Or I can't enjoy myself in social situations. And we can really narrow that down and get some very specific goals. You know, it might be a certain person in their life that they wanna be

able to communicate with better. Certain setting in their life. And we gotta make sure one, they're realistic expectations. And then we have to also set their expectations for what that journey to meet that goal might look like. And it's not just getting a CI.

- Yeah, I completely agree. And just to chime in from the audiology perspective, I'll speak, you know, for our whole team, is that we really include these AR appointments, both the preop evaluation and postop visits as a standard part of our process. So rather than looking at AR as a last resort for CI users who are really struggling, it's just something that's already built in. Logistically, we try to coordinate those appointments on the same day as our audiology appointments. And when we really built it in from the beginning and we really stress the importance of that in this holistic comprehensive approach. I think that the patients respond really well to that and are motivated to keep with it.

- [Christy] I'm just going to this slide here. So it depends on the patient, honestly. So they may have travel restrictions like barriers to themselves. So the ability to travel. They may have other individual factors actually that determine what they need. So if a patient doesn't have a computer, if the patient doesn't have a significant other or a person who they can practice listening with, or I'm not confident that they're showing that they can independently carry out a plan at home, that I would wanna see them until it gets them to that point that we have something they can do independently at home. And I also wanna check in every so often to look for progress so we can modify what we're recommending. So it's never weekly, honestly. It's definitely in line with the audiology appointments. So I definitely am like, when you're here anyway with the audiologist, I wanna see you. And then in between there, I might see them one or two times in between there. The auditory training piece, that perceptual training piece, I'm doing that with them, but it's really to model and to find exactly what they need to be doing on their own and then recommending it, and making sure that they can do it.

- [Valerie] Okay, great. Thank you so much, Christy. To the audience, if you have any other questions, go ahead and type those in the chat box. I'm not seeing any other questions come through. So if there's any closing comments as we wait to see if there's any last questions. Any closing comments from the OSU CI team?

- [Christy] Yeah, I saw a few comments come in when I mentioned the focus group, and it looks like some people are interested in that, which is great. So I'll reach out to those people. You can also email me. Can we type my contact? Can I just type it in here to this box?

- [Valerie] You know what Christie? If you can advance to the very last slide, would you like your email contact to show? Is that how you would like people to contact you?

- [Christy] Yep. There it is. Yeah, so I'll gladly reach out and we can add you to that focus group.

- [Valerie] That's great. Thank you so much. With that, I don't see any more questions. So thank you, Christy and Kara. That was a fabulous presentation. I hope that our audience, we wanna thank you for taking time and thank you to Audiology Online for assisting us with this presentation and webinars today. We want to remind the audience to join us for webinars three and four. If you haven't signed up, please visit the Audiology Online site to see the next two webinars that are coming up. Our next webinar will be in August and we hope to see you there. Thank you so much. And everyone have a great day.