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AB Connectivity and Linked Two-Ear Solutions

Presenters: Lauren Leclerc, AuD, Carrie Spangler, AuD

Thank you for joining today's training session from ab. The topics we will cover today are linked to your hearing solutions and connectivity. Before we dive into our content, we have some housekeeping items to cover. First, I want to encourage you to download today's resource document that includes a handout where you can take notes the slide content for today, as well as some resources like clinical tools and research.

Here on this slide you can see the risks and benefits for today's course.

On this slide you see the three learning outcomes for this course content.

Here you see the disclosures for today's presenters and our AB hosts. At ab, we really value your feedback. We've created a short survey that will take you under a minute to complete that we would like for you to complete after today's session. Please go ahead and use the QR code or web link that you see here to access this short survey. If you go ahead and open the evaluation now, it will make it easily accessible at the end of today's webinar.

Now let's talk about how we'll spend our time together. Today we are honored to have two audiologists who you see on the left side of your screen, Lauren McClure and Carrie Spangler. They will share their experience with AB's two ear hearing solutions and connectivity options. We also have members of the education and training team. Here we have Katie Vaden who you will see on the right side of your screen and I am Lori Hambrick as shown on your slide and also here with you right now, those of us in education and training are here to answer your questions.

So please type your questions in the Q and A box as they come up throughout today's training.

I'd like to introduce the presenters for today's webinar. Lauren leclair is an audiologist at the University of North Carolina and Carrie Spangler is the lead educational audiologist at Summit County

Educational Service center in Ohio. And as I mentioned before, Katie Vaden and I will be here to answer your questions throughout the training. Based on their busy clinic schedules and our potential time zone challenges, we have pre recorded the presentations from Dr. LeClaire and Dr. Spangler and even though Dr. LeClaire and Dr.— Spangler are not with us live, as I mentioned before, we have AB staff here to answer your questions live. A live training experience also provides you with the opportunity to ask your questions in real time again, type them in the Q and A section that you see on your screen and we'll provide you with answers during today's session.

This live training experience also allows you to learn from other attendees questions and to participate in the training via the Q and A, the chat and the polls. And now let's get started with Dr. LeClaire sharing information about the two ear hearing solutions from AB.

Hello, my name is Lauren LeClair and I am a clinical audiologist at the University of North Carolina and I want to thank Advanced Bionics for allowing me to talk and share my experiences with AB's two ear hearing solutions. AB offers solutions for every individual with hearing loss through its unique partnership with Phonak, allowing patients to benefit from hearing with both ears. The four solutions we will talk about today include a patient with a cochlear implant in one ear and a Phonak cross in the other Bilateral cochlear implants, bimodal recipients, meaning they have a cochlear implant in one ear and a hearing aid in the other, and candidates for an acoustic ear hook and cochlear implant in an all in one device. Today we're going to dive into these four solutions deeper and then take a look at some case studies. Naida and sky are the two advanced bionic sound processors.

They offer a lot of advanced features that take advantage of different technology options which are listed here cosmetically speaking. And looking at the picture of the two sound processors on this slide you will see a curved edge to the rechargeable batteries. I have so many patients that notice that and compare it to the straight rechargeable batteries. The curved nature allows the battery to sit against the

curvature behind the ear which is so nice for comfort. My patients also continuously point out that the integrated Bluetooth in the mobile app is significantly improved compared to the hearing aid they previously had.

I hear that it is easy being in the bluetooth screen. It's quick to pair as it takes less than two minutes and I will say I do the least amount of bluetooth and app troubleshooting with Advanced Bionics. There's no statistics to back that up, just my subjective report. Also, as an audiologist, I appreciate the wireless programming and not needing to grab different cords to connect to the software. Two cochlear implants is truly the gold standard for patients who are candidates in both ears.

The AV system has a host of bilateral benefits. Thank you Dr. LeClaire. I was wondering if you were sharing information about AV's bilateral implant system with your recipients, what would you tell them about bilateral implants? First, I would point out the main two benefits that we all know is we need two ears to hear speech and noise and then two Two ears allow for sound localization. Advanced Bionics offers access to features that use both of the devices together.

The two devices are married, they talk about everything with each other and they share information back and forth. We program them at the same time in the same software and we can match programs and features similar simultaneously. Patients can also stream bilaterally. Now they once had to pick which ear to connect their phone to and now they'll have the ability to stream phone calls or music to both ears directly and they do not have to pick one ear over the other. AB offers seamless Bluetooth streaming and app adjustments.

Most CI recipients around the world are unilaterally implanted for a number of reasons. We know that bilateral cochlear implantation is the gold standard for bilateral candidates, but can anyone offer some reasons why patients might only choose to be implanted in one ear? Please type your answers into the chat.

Thank you for your answers. Some reasons are that maybe their insurance doesn't fully cover, maybe their surgery was traumatic or they're not medically cleared for another surgery for health reasons. Personally, I find the most common reason is having some amount of usable hearing that they don't want to let go of. I recently went through this decision making process with a patient of mine and she elected to stay unilateral because she reports she does not have difficulties localizing sounds. She sleeps on her right side and doesn't want to go through surgery and learn how to sleep on the other side and she doesn't mind only streaming to one ear.

Through all of that I was sensing that she just simply doesn't want to go through surgery again. And that's okay. We tell them all of their options and the benefits, but we'll ultimately be there to support them regardless. Most unilateral CI users may report being able to hear well in quiet environments, but they struggle in complex listening situations. As audiologists, we know the limitations of only hearing with one ear, but what are some challenges these patients might face?

Please type your answers into the chat.

Thank you for your answers. Some challenges include difficulty hearing in restaurants, repositioning their body to hear with their better ear, and the listening fatigue and exhaustion while having conversations. What we never want is someone to start isolating themselves in social settings.

AB offers the use of a CEI and a cross together, which is unique to advanced bionics. For patients who are unilaterally implanted and cannot benefit from the hearing aid on the contralateral ear, a cross system is a great option. The CROs is compatible with both the NAIDA and the SCCYE cochlear implant sound processors. It works just like a traditional CROs or BICROS system by wirelessly transmitting the microphone input signal from the non implanted ear over towards the cochlear implant. It works the same but the experience is very different.

So why is this option important and who would this help? I have a patient who had a vestibular schwannoma removed with no functional hearing nerve on one side and is a cochlear implant recipient on the other side. We implanted him with Advanced Bionics about a year ago specifically for the cross capabilities. He goes to every home UNC football game and tailgates and he came in last fall after being fit with the cross saying he used to have to turn his body and head to here on his cochlear implant side and was exhausted and felt left out while tailgating. He said that now he feels like he has access to more sounds without needing to turn his head.

This is a challenging environment and the CROs is an excellent solution for him. The use of the cochlear implant and CROs allows unilateral recipients with the best hearing inquiry and noise ability without needing to move their head or their body. It has documented benefits which are listed here, but I most often hear patients say that it's easier to have a conversation in a noisy setting and it takes less work or effort. As an audiologist I appreciate this option for safety concerns being able to hear sounds all around them and knowing that the microphone state is matched across the two ears with across. We know there are benefits with across when the speech is coming towards the non CI ear improvements in quality of life as they do not have to think about where they need to sit or reposition themselves and they don't need to worry about safety as much.

They can walk on the side of the road or next to someone knowing they can hear that a car is driving by them. We are now going to talk about the bimodal solution which has been on the rise over the last two decades due to expanding candidacy criteria and more patients with residual hearing being implanted. A bimodal recipient is a patient who has atable hearing in one ear and a cochlear implant in the other. AB and Phonak have a unique partnership for bimodal recipients that we will talk more about now which exclusively includes the SCY and Naiida generations. So what are some of the benefits of bimodal hearing?

Please type your answers into the chat.

Thank you for your answers. Some benefits are that we are using two ears together, which helps hearing, speech and noise, sound awareness reduces listening fatigue and even allows for improved music appreciation. We had a fourth year a few years ago who was a unilateral cochlear implant recipient. She finally purchased the compatible hearing aid for the other side and noted hearing and surround sound. She said she didn't even realize she couldn't tell where sounds were coming from and what she was missing until she got it back.

And I love that example so who can be fit with a Phonak Link hearing aid? We have patients with a severe to profound hearing loss and have some atable hearing, bimodal cochlear implant recipients or candidates with atable hearing in the contralateral ear and adults and pediatric patients. Hence why we have the Naida line for adults in the Skyline for pediatrics. The Phonak Link hearing aid can be coupled to a slim tube with a dome, even an open dome, a power dome, or it can be coupled to an accustomed ear mold with tubing. This hearing aid can truly be fit to any hearing loss configuration and at any age.

A hearing aid is not significantly different than the average hearing aid. You program and verify it the same. The functionality is the same. Bluetooth and app functions are the same. The only difference is that it is compatible with the AV cochlear implant and they link together, meaning the Link hearing aid and the CI communicate.

As you can imagine, this significantly helps in noisy situations when both devices are working together to find the speech versus the noise, making it ideal for bimodal candidates. As an audiologist, I also appreciate this option as I can program both in the same software together. I can match programs and noise reduction settings. You can even save the devices at the same time. Before exiting the software, you might be wondering, does a patient have to use the Link hearing aid with their AV sound processor?

Well, no, but let's take a look at the way the capabilities change with different bimodal systems in this first column, the cochlear implant with any hearing aid in the contralateral ear. Patients will get the benefit of hearing in both ears, but they will need to pick which ear they stream or connect their phone to.

If the contralateral hearing aid is a Phonak device, say a Phonak Audeo infiniosphere, for example, they will get the added benefits of autosense technology, bimodally shared accessories and remote programming possibilities.

But with the Link hearing aid as the bimodal solution with the CI. You can see all the added advantages of using the Link hearing aid even over other Phonak devices. The CI and the hearing aid are working in tandem as a system for better hearing in a variety of listening environments. The recipient has the added convenience of streaming to both ears via Bluetooth or accessories and controlling both devices from one app. I have a bimodal Advanced Bionics patient who has a link hearing aid and is an engineer.

He's very tech savvy. He works from home and uses his cochlear implant and link hearing aid to stream all of his work meetings directly to both devices. A few months after his activation he asked me if we could turn off the external microphones while he is streaming his work meetings as he only wants to hear the meetings and nothing in the environment. I'd also like to add that safety concerns were discussed but I disabled use of the external microphones only while streaming and he is very happy that way. This entire situation would not have been possible without the AB and link hearing aid solution.

The fitting formula for the hearing aid is different. It's called the Adaptive Phonak Digital bimodal fitting formula for sure I will be referencing to it as the bimodal fitting formula. Our conventional formulas like

NAL and DSL actually do not align. The acoustic and electric signal processing frequency responses are shifted from the middle frequency towards the lower frequencies and the compression ratio in kneepoints and the slow acting dual loop automatic gain control are also set to match the processor. We will talk more about these features here next, but this bimodal fitting formula ensures that the hearing aid is complementing the cochlear implant and not competing with it.

Let's take a look at the frequency response first. Here you will see the prescriptive targets for two different hearing losses. A steeply sloping loss on the left in red and a flat audiogram on the right in blue. The top figures show the targets using the Adaptive Phonak digital fitting formula and the bottom figures show the bimodal fitting formula. You can see that there isn't a huge difference between the two formulas with the flat audiogram, but we're more interested in looking at that sloping configuration on the left because that is more typical of our cochlear implants patients, we're going to zoom in on that sloping hearing loss.

For the sloping hearing loss, the bimodal fitting formula on the right is giving much more gain below 1000 Hz as it is identifying a cochlear dead region above 1000 Hz. Most patients don't need the hearing aid to amplify those higher frequencies because they will be receiving that input from their cochlear implant in the other ear. So the bimodal fitting formula is going to cut off amplification in that region. The bimodal fitting formula identifies a cochlear dead region when there is a high frequency hearing loss greater than 85 dB with a slope greater than 35 decibels per octave or the thresholds are poorer than 100 decibels.

A study took place in 2013 looking at experienced bimodal recipients who were tested using AZ, bio, sentences and noise with a variety of fitting formulas including the program that they were accustomed to, which is labeled as own. On the bar graph you can see the best performance listed as bimodal benefit in percentage is when recipients were tested with the bimodal fitting formula, which is interesting

because it's better than when the 10 test was conducted to identify cochlear dead regions. As audiologists this is helpful because this study shows us that the fitting formula is sufficient in identifying these cochlear dead regions without us not needing to do the extra testing. We like efficiency backed up with data, But we always want to know do the results hold up. A study in 2021 tested speech intelligibility in quiet and in noise in 11 participants fit with a Phonak Naida Link hearing aid fit to three different formulas.

So NAL NL1 targets to the bimodal fitting formula and the third one is with their incoming program which is labeled as old hearing aid in the box plot. Looking at the scores in all three listening conditions we see that the Naida Link hearing aid with the bimodal prescription yielded significantly better speech intelligibility than the subject's own hearing aids in quiet and in the two noise conditions and was significantly better than when fit to NAL NL1 in both noise conditions.

We're going to briefly look at aligning the AGC automatic gain control between the hearing aid and the cochlear implant in bimodal recipients. There was a study conducted in the in the Netherlands that looked at aligning the automatic gain control and presenting target speech from the front with computer talker noise towards the hearing aid side, the cochlear implant side and then on both sides together. They found that patients not only performed better with the slower AGC compared to traditional compression found in a hearing aid, but they also subjectively preferred the sound quality. Aligned AGC improves speech understanding and noise by up to 2dB over the standard Phonak AGC, meaning recipients can receive up to a 30% improvement in speech understanding.

We have a polling question for you. What are the three parameters aligned with the bimodal fitting formula? Please check all that apply. The options include automatic gain control output, SPL frequency response, compression ratio, knee point, and then induction coil sensitivity.

Thank you for your answers. The correct answers are A, C and D. For our fourth solution we have the AB Acoustic ear Hook solution. This solution is the integration of acoustic and electric sound processing within the same device. You can see in the picture. It is the Cochlear implant sound processor with an acoustic ear hook and a receiver attached.

It is designed for recipients with aidable low frequency hearing or residual hearing after cochlear implantation. More features for the acoustic ear hook option are listed here, but you'll notice that it also utilizes the bimodal fitting formula that we discussed earlier for bimodal patients. This is going to provide amplification in the low frequencies and also keep that acoustic and electric alignment of the device. The acoustic ear hook also has different receiver lengths and works similarly to a RIC receiver with an ear hook and attaches to a Phonak dome or a slim tube ear mold, whichever you prefer. There is no differences with streaming as patients will be able to do that the same.

There is always the possibility that residual hearing will decline over time though. If this is the case for a recipient with an acoustic ear hook, we would simply replace the acoustic ear hook with a pen tool and place a T mic or a standard ear hook on the end in the software. Under acoustic parameters you would simply switch acoustic ear hook to T mic or standard ear hook. It is changed the same way physically and in the software. If you were to change a power dome to a custom ear mold for a BTE device, it is really that easy.

So in a summary, we went through the four hearing solutions for every candidate with hearing loss that Advanced Bionics offers. These include unilateral cochlear implant recipients with a cross bilateral cochlear implant recipients, bimodal recipients, and recipients with an acoustic ear hook. It is so nice having options for our cochlear implant candidates and it's always interesting to see what patients end up pursuing if they're candidates for multiple solutions. With that said, let's bring these solutions to real life with a few case studies.

Let's take a look at Debbie. She has a significant bilateral sensorineural hearing loss and has worn Phonak hearing aids practically all her life. She has done well with her hearing AIDS until the last six months when she noticed a significant decline in communicating while at work, which is a noisy and popular kitchen. She is reluctant to pursue cochlear implantation as she is fearful of losing the remaining hearing she has, but knows she needs to hear for work. Knowing all of this, what solution would you recommend for Debbie?

Please type your answers into the chat.

Thank you for your answers. I see two potential solutions for Debbie. First, I want to point out that Debbie is already used to Phonak hearing aids, but I'm also seeing quite a bit of low frequency hearing on her audiogram, so depending on how well that is preserved after surgery, Debbie could be a candidate for the acoustic ear hook option. The first solution that we could recommend for Debbie is that she could pursue the Naida Link bimodal solution with the hearing aid on the right side and potentially the acoustic ear hook on the left if she only wanted to move forward with unilateral cochlear implantation. The second option or second solution we could recommend is bilateral cochlear implantation with use of bilateral acoustic ear hooks with the flexibility to use the devices as traditional cochlear implants.

If her hearing declines over time, she has a few options that she could pursue.

Now we have Lucas, who is a three year old with bilateral profound sensorineural hearing loss. He has worn hearing aids consistently and has been to speech therapy but is not making progress with auditory and speech development. His parents ideally want spoken language for Lucas and for him to attend a mainstream school. What solution would you recommend for Lucas? Please type your answers into the chat.

Thank you for your answers. Lucas is a great candidate for bilateral cochlear implants. He has a profound sensorineural hearing loss and hearing aids are not helping him. Depending on whether his family and cochlear implant team decide to implant him simultaneously or sequentially, he may or may not continue to benefit from the bimodal solution, knowing hearing aids have not been helping him. You'll also notice here that since he is three, we would recommend Sky Over Naida for him since that is the pediatric line.

We now have Patrick, who has a severe to profound sensorineural hearing loss in the left ear and a profound sensorineural hearing loss in the right ear. He wears Phonak hearing aids and notes that his hearing has significantly declined over the last six months, especially on that right side. Even with his hearing aids. He is an accountant and is struggling to hear at work and in noisy settings and no longer wants to go out. What solution would you recommend for Patrick.

Type your answers into the chat please.

Thank you for your answers. For Patrick, I also see two potential options for him. He could be a great bimodal candidate or potentially a cross candidate. He could implant his right ear with the cochlear implant and use the Link hearing aid in the left as the bimodal solution. Or if he's not gaining benefit from a hearing aid in the left ear anymore, for example, he could use a cross with his cochlear implant.

In either case, Advanced Bionics offers a two ear solution for Patrick.

Thank you for your time. I appreciate Dr. LeClaire sharing her experience with AB's two ear hearing solutions. Now we'll have Dr. Spangler provide information on connectivity options available for ab recipients with Marvel. Hi everyone, my name is Dr. Carrie Spangler and I just wanted to share a little bit about me before we get started on today's presentation. I am a deaf and hard of hearing educational audiologist.

I have over 27 years of experience working with children in the school setting and just a couple of other fun facts about me. I am a mom and a wife and I actually have a podcast and a blog about getting a cochlear implant. So today you'll hear a little bit more about wireless connectivity as an overview and I will be also sharing a little bit about my own personal experiences. You.

To get started today we are going to be sharing a little bit about wireless connectivity with Marvel CI and also with lyncm. And throughout this presentation you'll see how AB and Phonak recipients can connect to a number of different devices at the same same time. Personally as a recipient I wear the Marvel device on my left ear cochlear implant and I have the Link hearing aid on my right side and I also use Roger, which we will be sharing about today as well.

So we have a couple of questions for you to think about as you think about the cochlear implant recipients that you get to work with on a daily basis.

If you were a recipient and you were a retiree, what kind of devices may you want to connect to? If you were a working adult, what kind of devices would you like to connect to wirelessly? As a school age child, what would you like to connect to? And also as a child and maybe as a parent, what would you like to have connectivity to? For those of you who have joined us live today, if you could type in the chat some of your thoughts and your answers, I would appreciate it and we will go through them in a second.

Thank you all for all of those incredible answers that you had to share with me today. And I just thought we would review a couple of the highlights. So as a retiree, you may want to connect to a laptop to do FaceTime with your family members who might not live close to you. You might want to connect to the TV when you're watching your favorite program. As a working adult, you may need to get connected to a virtual call on Zoom or Meet.

So whatever teams, whatever you connect to, you might need to connect to a TV as well or your phone or you just want to stream a movie. As a school age child, you may need to get connected to different devices within the classroom environment and maybe devices such as gaming or a TV or a tablet as well. And for a young child, devices such as Roger and being able to connect to the AB remote app as a parent would be important ways to connect to the different devices.

So Advanced Bionics sound processors are compatible with many different types of wireless signals such as Bluetooth Low Energy, Bluetooth Classic, Roger and Airstream. And we're going to review each of these things in detail today. You.

Let's start with Bluetooth connectivity.

With Bluetooth you will see that for the ultimate ease of use with Advanced Bionics and Phonak, you can use Bluetooth to stream directly to any device wirelessly without having any other connect connections that you have to worry about. So you don't have to worry about a streamer or any other devices that need to connect to the patient's cochlear implant or hearing aid. So that is one way that someone can connect.

Let's watch a quick video about Bluetooth connectivity.

Yes, I can see here on Performance Tracker exactly where you're talking.

Hello and good evening. This is your daily news flash.

Foreign.

I hope that video showed you a little bit more about Bluetooth connectivity as the I'm going to explain a couple of different things about the different types of Bluetooth. The 1 Bluetooth Low Energy is really what the name implies. It has very low energy consumption. So this is really something that audiologists may use or fitters may use when they're connecting to AB apps and Noah Link Wireless. So this is not taking up much energy and kind of goes to sleep until it's being used.

Then we have Bluetooth Classic which is designed to have that continuous two way communication. So for example, if you are talking on the phone or streaming video, this allows that Bluetooth streaming to come from any type of device on the screen. You're going to see what it might look like for your patients when they are connected to their phone device. And as you can see on the screen right now, you'll see that Linda is locked is connected to her phone. And when you connect to one device, if they have two devices, they will automatically connect to both devices.

So the paired hearing devices, whether two cochlear implants or a cochlear implant and a hearing aid, they're going to communicate with each other and will connect wirelessly to both paired devices while they are paired to the phone or any other tablet or any device like that.

Thank you for sharing, Dr. Spangler, about AB's Bluetooth. And I have a question for you actually as a bimodal AB recipient, how have you used Bluetooth or found Bluetooth to be helpful when you're living your life? Thanks for that question, Katie. I would say when I was able to upgrade to the Marvel devices and get my link hearing aid, that was the upgrade that I appreciated the most was the Bluetooth connectivity. Not having to have any type of neck loop or receiver that I needed to connect to my devices.

It was very seamless. So as a recipient, I use Bluetooth every single day to connect to my phone in the car. I'm connected to this, my Bluetooth devices right now as we're talking on the computer. So it is a two way transfer. I can speak and the microphone is being picked up as well as hear exactly what you

are saying.

So those are a couple of examples of how I use Bluetooth connectivity. That's great. I think we hear from so many recipients how helpful Bluetooth is in their everyday environment. I'm thrilled to hear how you use it and that this technology helps you in your everyday life. And I think other recipients definitely want that as well.

So before we move on, let's have a quick knowledge check and a quick poll for you all to participate in.

So Louise has bilateral sound processors. She loves to stay in touch with her grandkids using FaceTime on her iPad and she wants to be able to hear her grandkids in both ears so that she doesn't miss any of the things they have to tell her. When she is pairing her CIs to Bluetooth on her iPad, what does she need to pair to A, both hearing instrument or excuse me, A one hearing instrument, B both hearing instruments or C she doesn't need to pair at all. So take a moment, think about your answer.

Which of the options would you choose?

All right, if you said A, you would be correct. Great job. So Louise, when she wants to Hear her grandkids needs to pair to the instrument that is her primary Bluetooth device. And that's what you as her audiologist have selected in Target CI. And once she's paired to one hearing instrument, then she'll be able to hear the Bluetooth signal in both ears.

All right, Dr. Spangler, I'll hand it back to you to cover Roger.

Thank you. I just have a question for all of you right now. Have you ever fit Roger technology on your patients, whether they have hearing aids or cochlear implants? And do your patients love Roger as much as I do?

Advanced Bionics and Roger Direct combine the best of both worlds to offer a performance in every type of situation. So hearing aids and cochlear implants have wonderful technology. However, we live in a very noisy world. And in that noisy world, sometimes the hearing aids and cochlear implants are not able to overcome all of that intensity of that background noise. Or you may be at a very large distance from someone that is speaking and your device may not pick up at that distance.

So what is the solution? One solution is Roger Abe processors are compatible directly with Roger Direct. So that means that there's no extra equipment that is needed to be attached to the processor or the hearing aid to access Roger. And it is actually the first ear level cochlear implant. Roger is actually able to be ear level in the cochlear implant and it's first of its kind.

So it's integrated directly in through Roger Direct. And the cochlear impress cochlear implant processor is activated that way.

Another thing, these are some of the microphones that are compatible with the Roger Direct receivers. On the screen here you'll see a couple of different options that are available, such as the Roger in microphone. And what this allows the person to do is to hand off that microphone to whoever is speaking and be able to hear that person as they are directly sitting next to them. As an educational audiologist, I am in the schools all of the time and I am able to use what is called a Roger touch screen, which isn't pictured on this screen. However, it does the similar signal to noise ratio.

And I also use Roger on at home in my home environment when I'm in the car or listening to the tv.

Who doesn't like to go to the beach and be around water? Roger also is able to be compatible with the waterproof battery that is available through Advanced Bionics as well. So whether you're at the beach or in experiencing a support or sports in which you might be getting a little bit sweaty or working in the yard. This is another option that is available for both parents and adults. In order to have that option to

have Roger direct into their cochlear implants.

Here's another opportunity for a quick check in to make sure we're all on the same page. So what are some advantages of using Roger for children? So you have a few choices. Is an advantage A the installation of Roger receivers for home and school all in the same device or is it B the ability to use Roger and waterproof batteries simultaneously? C. A fully integrated connectivity solutions without external receivers to take on and off when you're using Roger or is it D?

All of the above. So everyone take a moment, think about your answer.

All right, great job. All of you have selected D which is correct. All of these are advantages of Roger technology. I'll hand it back over to you, Dr. Spangler to continue talking about AV connectivity solutions.

Perfect. We are going to move on to Airstream technology.

On your screen right now you will see the Airstream technology that is a proprietary Phonak or Sonova and it gives you high quality stereo audio signals. So what this really allows your patients to do is to connect to a TV connector and to a partner mic through this streaming protocol.

Let's talk a little bit more about the TV connector. The TV connector is just a simple way for your patients to plug and play and be able to interface with their TV or other audio devices. And one of the nice things about this is that there's an unlimited number of people can be connected to the TV connector. And so if you have two people in your family that happen to be using different devices by Sonova, they will all be able to connect into that TV connector.

Another great device for your patient toolbox would be the Phonak partner mic. And similar to Roger, but in a little different way, the partner mic will again be able to improve that signal to noise ratio over shorter distances. And it's really made for a more moderate noisy situation. So it's perfect for situations such as driving in the car or one on one conversation that might be in an environment that has a moderate noise level that the patient might be experiencing. Regardless, it's very easy to use and most of the patients are able to figure it out pretty easily.

Let's do a little knowledge check with all of you. Right now you have a patient that is bimodal and simplest. So they don't like to have anything extra to connect to. But and the husband also uses Phonak hearing aids. They would like to stream both the cochlear implants and the hearing aids, all four devices, to the tv.

What would be the simplest option for them? Should they A purchase a Bluetooth television, B, should they get Roger transmitters, C, should they get the Phonak TV connector? Or D, should they use telecoil? I'll give you a second to think about that.

For all of you that chose C, C is the correct answer. The Phonak TV connector can stream to an unlimited number of compatible devices.

Let's talk a little bit about binaural voice stream technology features on your screen. You're going to see a couple of examples of how Binaural Voice Stream technology, or bvst, can provide audio streaming between hearing instruments. It allows bilateral, meaning two hearing aids or two cochlear implants or bimodal recipients having a hearing aid and a cochlear implant to get the signal to both devices at the same time. And while doing that, when they change the program on one device, it's automatically going to change the program or the volume on the other device. So for example, it may let someone who is talking on the phone be able to hear the phone call into both of their devices.

And it also helps in noisier situations to focus on conversations.

Thanks Dr. Spangler. You shared a lot of great information about connectivity solutions. And one of the most valuable things that I like to hear is about your clinical experience because I think there's almost nothing that can replace hearing about how you use the technology and what it means for you and for the children that you work with. So you've talked about Phonak Roger and the TV connector and Airstream technology as well as Binaural voice stream technology. Could you share a little bit about how you use Phonak Roger technology or how you use it with the kids that you work with or even share about Binaural voice stream technology?

Sure. I would love to share a couple of personal case scenarios that I have one of them with Roger Roger I have actually been using since it came out in I think 2013. So I have been a longtime Roger user and I always have my Roger microphone with me. From a work perspective, I might go into a meeting and I think everything is going to be okay and there's not going to be a lot of noise going on and I can hear fine with my cochlear implant or hearing aid and the next thing you know, a heating ventilating system clicks on in the background or the person who is supposed to be using a microphone for the whole room, doesn't use it. So to be able to have Roger handy all of the time for me is a really beneficial way for me to make sure that I'm not going to miss out on anything that is happening through work.

Kids in the schools, most of my kids utilize some sort of Roger configuration. And when the teacher is talking and the classrooms are not soundproof environment, our kids are automatically getting that teacher's voice or their peers voice directly into their technology. So it really lessens the amount of effort they have to put into listening throughout the day as well as getting that clear signal throughout the day as well. Thank you so much for sharing. I really appreciate that.

And I'll hand it back over to you to talk about the Phonak remote control. All right, thank you, Kayte. So here on this screen you will see the Phonak remote control. This would be a great option for your patients who may not be savvy on the phone with downloading an app, but want an easy way to adjust their volume and their program settings. So it's very much a simple way for patients to have control over their devices in different situations.

Let's talk about a couple of other digital solutions that are available through Sonova and Advanced Bionics. And on your screen you're going to see a whole a lot of different bubbles pop up for you.

All right, so there are some different apps that can really help your patients throughout the day. And the one of the apps is the app that will allow a patient to adjust their volume, their programs and other settings through their phone. So they download the app and then they are able to pull it up and see lots of different settings from their devices through this type of app.

Another app that is connected to all of the devices as well is allows the audiologist to participate and the patient to participate in programming appointments in the comfort of their own home through remote programming. And again, this is an app that is downloaded and they can connect to their devices and participate seamlessly through the remote programming.

And another app that will allow the patient, once they've been mapped and they're on their hearing journey of learning to listen with their cochlear implants is to have a listening app that allows them to take an active role in their hearing journey and actually track their progress over time so they can log in and they can do some different listening brain activities in order to build that auditory listening through the cochlear implant and really advance through listening in quiet all the way up to noisy type situations. So it is again a great tool.

Here is a picture of a screen of a phone that will give you an idea of what it may look like. If a patient is using Bluetooth or Roger or Airstream and they want to control the balance of their environment a little bit more. So you'll see on the bottom there's a little slider for balance. So it will make the surrounding or your environment more more strong or more evident for hearing. Or if you slide it to the other side where the mic is, it will actually zoom in more on the TV or the Roger microphone or whatever device they want to be streaming more directly to.

Personally I use this balance quite a bit when I am watching TV and if I'm watching TV by myself I might make that mic a little bit stronger because I know no one is to be talking to me. But if I'm watching TV with someone else who might happen to be in the room, I may my I will make that mic a little less stronger so that I'm able to still communicate with someone else that might be in the room with me.

Just to kind of wrap up that wireless connection activities and be it knowing what you can connect to in many different environments. So our patients recipient can connect to smartphones, they can connect to tv, they can connect to tablets and many more. So they can stream from any Bluetooth device including the iOS and Android phones, laptops and computers. The other thing to think about, they can stream to both ears at the same time for that optimal listening. And they can also have the voice stream technology where they can control from one side and it's going to control to the other side.

And the other wonderful thing about the wireless connectivity is that you can be hands free and you don't have to hold the phone up to your ear because it acts as both the microphone for your own voice and also to be able to listen through both technologies.

Thank you so much for sharing all that you have today Dr. Spangler. And just to wrap up if you are there any final thoughts or things that you'd like to share from your own personal or clinical experience using AB connecting solutions, I think one of the that I didn't mention too much about was the being able to have the voice or the connectivity to both sides at the same time and you know when my phone

rings and to be able to push a button and answer the phone and then knowing that it's going to go to both sides, that is very helpful for me. The other thing that I think is helpful as well is when I'm watching tv. We talked about having the app to be able to make the surrounding sound softer or more stronger as the mic. The other thing that I like is that on my cochlear implant I can use the control button to make it stronger or weaker as well.

So there's lots of different ways to access connectivity wirelessly, whether it's through your phone or actually through the device itself. Fantastic. Thank you again for sharing. We can't thank you enough for sharing about the technology, but also all the ways that you find it useful. And for those of you who are joining us for the entire webinar series on AB products and solutions, you'll know that from last week we reviewed a research paper from Vanderbilt about understanding patient preferences and NCI device selection.

And this research has shown that one of the primary factors that influences a patient's choice for a cochlear implant is really the audiologist recommendations. So what you and how you counsel the patient makes a big impact on which device they choose. Also, the technology built within the processor is one of the primary factors that drive cochlear implant choice, and enhanced patient education could improve the decision and confidence and the retention of device use, as well as how the patient retains the information. So all three of these things are important when counseling a patient on device selection. And so our question for you all is really to think about how you counsel patients on connectivity and all the options that are available.

If you're in the live webinar with us this week, you can type your answer into the Q and A or you can just think about in your own counseling to yourself how you counsel patients on device choice. We'll give you a few minutes to think about that.

We know there are so many connectivity solutions, so we hope that that's something that you counsel patients on and tell patients about when they're thinking about a cochlear implant and which system is going to work best for their lifestyle. I would like to wrap up today by first thanking all of you for taking the time to learn more about ab. I would also like to say how much I appreciate Dr. Leclair and Dr. Spangler for taking time to share their experiences. Before you leave today's session, please use the QR code or web link to complete a very short survey. As I mentioned before, we really value your feedback and this survey should take you less than a minute to complete.

I hope you have found today's training beneficial and I look forward to seeing you at future AB trainings. If you are interested in additional virtual trainings from ab. You can sign up for other introductory trainings using this link or review the courses from Advanced Bionics in Audiology online. Thank you again. And don't forget that your regional team is available to provide support to you as you continue to learn more about AB and provide support to your AB recipients.