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Programming in Target CI

Presenter: Andrea Overton, AuD

Thank you for joining today's training session from ab. Our topic today is Programming and Target CI. We have some housekeeping items that we need to cover before we begin discussing today's topic. So first I would like to encourage you to download today's resource document that includes a handout where you can take notes, slide content and some resources like the Clinical Tools document and some supporting research articles. A hands on activity will also be available to let you practice the skills that are discussed today.

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

Today we have three learning outcomes that you can see here on this slide that are focused on AB's target CI fitting software.

Here you see the disclosures for today's speaker and our AB hosts.

At ab, we really value your feedback. Because of this, we've created a short survey that will take you under a minute to complete. After today's session, please go ahead and use the QR code or web link to access this short survey. Opening the evaluation now will make it more easily accessible to you at the end of today's webinar.

Now let's talk about how we'll spend our time together. Today we are honored to be able to work with Andrea Overton, the Adult Audiology Supervisor at the University of North Carolina Hospital. We are honored to have Dr. Overton share her experience with you on the topic of programming in Target CI. Now, due to time zone challenges and busy schedules, we've recorded Dr. Overton's part of today's session. However, we have AB staff members hosting and joining us live on today's webinar to answer any questions that you may have and to support you throughout the training.

From the education and training team. You'll hear from me, Laurie Hambrick and Katie Vaden, my colleague who is pictured on the Right.

Now, even though Dr. Overton is not with us live today, as I mentioned, you have other AB staff who are here to support you throughout the training. Today's live training experience provides you with the opportunity to ask questions in real time, receive answers while you're in the training session, learn from other attendees questions, and participate in the training via chats and polls. So there are four reasons why it is beneficial for us to have this live even though Dr. Overton is not able to be with us today. So let's go ahead and get started with Dr. Overton sharing information about AB's target CI fitting software.

Hi, my name is Andrea Overton. I'm a clinical audiologist at the University of North Carolina and I oversee our adult Audiology program as well as our adult cochlear implant program. I'd like to thank the organizers of this series and Audiology Online for the opportunity to learn alongside of y' all today. You so today we're going to be thinking about Target CI fitting software and I think for an initial activation in particular, it's important to really think about our patients and their families and their driving to their initial activation appointment. How do we think that they're feeling?

I think if we look at the options on the screen, if you're able to think about that and type in the chat what you think your patients might be experiencing, that would be great.

Give it a little bit of time. But I agree, I think patients are probably nervous and scared and excited and happy and tired. Maybe they woke up really early in the morning to get to your appointment. But I think all of that is totally valid. CI recipients and their families experience so many emotions on the day of activation and the emotions are going to vary from recipient to recipient and they may even change from moment to moment within the appointment.

Appointment. I think it's also fair to say that you as the programming audiologist may also be experiencing emotions throughout the initial activation. You might be feeling really excited for your patient or you may be feeling a little anxious or uncertain because you don't know what the outcome is going to be or how the patient might respond to that outcome. One thing that I like to do at the start of every activation is to first start by asking the patient and family how they're feeling about the day and then what they remember from the evaluation about what activation day might be like. I think it's a really great opportunity to recap and then readjust expectations if it's needed and it really sets you up for a successful appointment and you're off to a good start before you even touch the equipment or the software.

I think because there are a lot of emotions that are present during the initial activation and there's a lot that has to be accomplished and it can be really helpful for everybody involved to keep the initial activation pretty simple and efficient. We don't want to overload patients with information. Rather we want them to be set up to be successful and feel empowered. So today we're going to walk through the basic programming steps for initial activation and we'll be providing you with information to learn how to create a map for your patient to explain the steps to conduct an initial activation in a time efficient way and identify a resource that will help support clinical management of patients. That are programmed within the Target CI software.

So many of you may already be familiar with the Phonak Target software from Fitting Hearing Aids. And if so, I think you'll find that the Target CI software looks very, very similar and it works in a similar manner as well. So I think the transition between the two will be pretty seamless and easy for you. But Target CI does connect through noaa, and if that's how you manage your patient database, but if not, you can use it in a standalone mode. And in my practice, the database feature is particularly useful because we have several satellite clinics and a fairly large patient database.

So it makes it really simple for our patients who are transferring from the pediatric to the adult clinic.

It also utilizes no link wireless, which has been great to have a reliable wireless connection. I think it particularly useful for pediatric patients. It does require that you have Internet, which I think is pretty standard nowadays. And it does have a training mode which is great for when you're working with student clinicians or honestly, even myself, if I want to explore without having a patient in front of me, I think we've all probably been there. And one thing that you may be unaware of is that Target CI actually allows us to easily program recipients remotely and we have the full functionality of the software to do so.

Which, if I had to pick my favorite feature, I think I would be picking that one.

All right, so now let's talk about Target CI and walk through the steps of an initial activation. So we're first going to meet our new patient. His name is Josh N. He has a bilateral severe to profound hearing loss. He was recently implanted in his left ear with an AB cochlear implant. And he is being seen at your cochlear implant center for the initial activation of his sound processor.

He's a little bit nervous about what to expect during the visit, but he's also pretty excited about the prospect of hearing better. He's ready to get started, and so are you. Before I jump into this, I did also want to mention that you will have access to a step by step programming guide that you can use in your clinic that will accompany this session as well.

So the first thing that you'll see when you open Target CI is that there will be a clients and sessions tab which is highlighted here in green. A little bit above that to the right, you're going to see three different options where it says Open session, new session and reports New session is going to start the fitting session. From the very beginning. Open session is going to start the fitting session with settings that are pulled in from the selected session. So in this case, for an initial activation, you would want to select

a new session.

If you are using Noah, you, you would need to create a new patient within your NOAA database first. And then open Target CI and select New Session, which you'll see outlined here on the bottom left in blue. So you'll see where it says New Client. Once you have selected New Client and enter Josh into Noah, you will then see his name populate on the top left of the screen. And then you'll select New Session in blue on the bottom right and that will open Josh's file to begin the programming session.

So next we're going to select Connect, which is going to be highlighted in orange at the very top in the middle of the screen. And that's going to allow us to connect Josh's external equipment to the Noelink Wireless. A pro tip is that you want to charge your batteries in the morning before your appointments so that you have a full charge not only for your activation, but also so the patient doesn't have to worry about charging their batteries throughout the rest of the day.

So once you're connected, you'll notice that in the top middle of the screen that the left device is no longer grayed out and now it populates as blue. So blue for left or red for right. And then you'll notice here that there's an orange exclamation mark that's over the internal device and you will see a pop up that will come up and it says create new implant record.

And then if the headpiece is locked to the internal device so it's on the patient's head, the implant tape type is going to automatically be selected. And if you don't see it automatically populate, you can always click on that exclamation mark to assign the device to the internal. Much like Phonak Target software, the orange exclamations are there to help guide you throughout the software. And something pops up. The clinician may have to choose the electrode type depending on which internal device that the recipient has.

And I do find that it's pretty easy and helpful to enter the serial number and the surgery date and initial fitting date all on this same screen. You don't have to technically enter the serial number, but I think it's just nice to have all of the information tucked into one place. And then after that you'll click Save and and you will see the implant information that's going to populate on your screen under the designated ear. I do think it's important to note that when you put the processor or the cable coil on the patient's head, the microphones will be muted by default. So you can connect to the sound processor.

You can connect to the sound processor without any fear that you're going to be overstimulating the patient at activation. We haven't done any programming yet so far, and the device is not active.

All right, so the first thing that will happen when the device is placed on the patient's head and it's connected is an impedance measurement will be run. And that happens automatically with the advanced bionics software. And a fun fact about that is that AB was actually the first to offer automatic impedance measurements in their software, and they've had it for many, many years. I think if we're talking about impedances, it's important to kind of identify what impedance means and how this might be useful to us in programming cochlear implants. Technically speaking, impedance means the opposition of current flow.

It's the measure of the electrode function. So really, the amount of current that returns to a reference electrode, the impedances to us are an indication of the status of the electrode and its ability to deliver current efficiently, which is obviously really important with a cochlear implant. Within the programming software, the impedance measurement is obtained by measuring the amount of the resistance that's between the reference electrode and the case graft. And the case ground in this case is always going to be engaged when making this measurement. You'll be able to access your patient's impedances by selecting the impedance tab along the top ribbon bar.

And. And what's really helpful is that you'll have a record of all of the impedance measurements over time, and they're automatically stored within the target CI software. So you never have to worry about clicking save. They're just always going to be there. And then you can overlie or overlay the impedance measurements at any time for an easy visual comparison over time, which I also really like.

So on this particular screen, you'll actually see the impedance selected in white if you click as you can see on the screen, and it will be under the client tab.

So after impedance measurements, the next step would be electrode conditioning, and that's a unique step available to your advanced bionics recipients. To access this, you would select the down arrow next to start measurement in the top right hand corner of the screen, and then you would select conditioning. Electrode conditioning introduces a low level stimulation to all electrode contacts. And the goal of that is to stabilize impedances before programming. So it's, it's fairly important.

This allows us to eliminate any substance that could be present on the electrode contact itself. So things like a protein deposit, maybe an air bubble or fibrous tissue, etc. And in general, conditioning should be completed at three times. So you want to do it intraoperatively before testing in the or you want to do it before an initial stimulation and then the third is prior to stimulating an electrode that's been turned off for a period of time. So maybe thinking about a patient who's been off the air because maybe they had equipment issues, or maybe you have a patient that electively stopped wearing their device for a longer period of time and now they want to hear with the device and have it reprogrammed.

I thought it might be helpful to also give an overview of what you could possibly see on this screen and what it means to you. So to start, like all great things in audiology, the blue and red are going to denote laterality. So if you see blue, that indicates good impedances for the left side. And then if you see red, that indicates good impedances for the right side. If you see orange, that's going to indicate to you that you have an open circuit and that's going to typically be accompanied with higher values.

If you see purple, it's going to indicate a short circuit and that's typically going to be accompanied with lower values. And then if you see gray, that's going to indicate invalid. So if we're thinking about your activation appointment, you'll actually see two impedance measurements. One which is automatically going to happen when the headpiece is going to be connected to the patient's head and then the second will populate when the electrode is conditioned. And one thing that you'll often note is that when you condition, it's going to lower the impedance levels and it may actually bring any electrodes that may have shown as let's say an example is if they were open or orange, it will typically bring it down to a valid impedance.

So if, in this example, if you were to see orange populate for Josh with your initial measurement when you first connected the device and then you conditioned, you would likely see everything come back down to blue and indicating good impedances.

So now we've completed our impedance measurement and our conditioning. So next up we're going to be moving on to the fitting tab. So to get there, you'll continue to work across the ribbon bar from left to right and you will select fitting, which you'll see highlighted here in blue.

Underneath fitting you'll see a whole bunch of subcategories listed. So you'll see mapping, fine tuning, data logging and then device options. So for right now we're going to stay underneath the mapping tab. And I think it's important to recognize that there is a difference between a map and a program in the software. And the map itself includes the electrical parameters that are created and then customized within the mapping tab.

A program on the other hand, includes the mapping settings, but it's also going to include all of the front end processing features that are created and that's going to be customized under the fine tuning tab. So they're kind of found in two different locations, which for me helps kind of differentiate the two of

them. Many of the electrical parameters of a map can be found on the left hand side of the screen. And so you can select the processing strategy, pulse width, stimulation rate and filter type. And, and for reference, what you see on this screen are the default settings.

They're all highlighted here. So that's going to include high res Optima s as your processing strategy. APW2 is your pulse width, which will automatically control your rate and then the filter type is extended low.

So once you've selected or confirmed your electrical parameters, we're now going to start thinking about our stimulation mode. So of course we know that objective measures, specifically esrt, are an ideal approach for setting upper stimulation levels, but that might not be feasible or accessible to you at an initial activation. So for this session's purposes, we're going to be focusing on behavioral measurement. Do want you to stay tuned though, because you'll learn more about objective measurements in an upcoming session. AB does offer three different ways to measure M levels, so you have the option to use live speech, speech bursts and tone bursts.

Live speech is simply the acoustic stimulation from the selected microphone source and will apply all active electrodes. Speech bursts will stimulate four consecutive electrodes together and typically that's going to be 1 to 4, 5 to 8, 9 to 12, and then 13 to 16. This can be a really useful tool and it can be more efficient than stimulating individual channels. It's a valid representation of the spectral characteristics of complex speech and environmental sounds compared to stimulating only one channel at a time. So certainly a very valid option.

And then tone bursts will present biphasic pulses to a single electrode contact. This can be useful for troubleshooting and also loudness balancing. Now to actually stimulate in live speech, tone bursts or speech bursts, you have several different options. You can either click S to stimulate on your keyboard or. Or you can click the play button next to the stimulation mode.

You will be able to really visually see which stimulation mode you are in based off of what's happening on your screen. So when you're using speech bursts, you will see four channels that are highlighted, and then four bars will populate in time with the stimulation. And with tone bursts, you'll see that with only one versus live speech, where all active channels will have bars that will populate with speech.

I do think it's important to note that regardless of the stimulus type, the stimulus should be turned off and on during the loudness judgment process. So the reason for this is that you want to help avoid any neural adaptation or neural fatigue that could potentially happen from any prolonged stimulation that might then inhibit the recipient from making an accurate loudness judgment. So it's important to stimulate. If you're doing speech bursts, you would stimulate. Turn it on, turn it off, Wait a few moments, Turn it on, turn it off.

So that the patient has an opportunity to really gauge what that loudness is. Another thing that I like to do before I start mapping is to give the patient an idea of what's coming so that we're on the same page. So I usually let them know something along the lines of, we're going to make a series of measurements that require some feedback from you. You're going to hear a number of beeps, and I'd like you to focus on the volume and tell me how loud the sounds are. Once we've made these measurements, then we will turn the device on and you will hear with it for the first time.

I will give you plenty of notice before doing so, because I really want to be sure that we've set the stage appropriately for the patient and they're not thinking during this measurement time that this is the only thing they're going to hear with the cochlear implant.

All right, so when we are behaviorally measuring M levels with advanced bionics, it's important that you are measuring to a most comfortable loudness level. So if you're looking at the screen, you can see the advanced bionics loudness chart, and that's going to be a level six. You can describe that to your

patients as what you're looking for is a volume that you could listen to for a long time without any discomfort. I do think it's important when you're behaviorally mapping that you raise the stimulus until the patient reaches the loud but comfortable level. So a 7 out of 10.

Remember, we're looking for a 6 out of 10, but I want to find a 7 out of 10 so that I can really determine the range that's still considered most comfortable for that patient. So just like anything in life, there can be a range of what's considered comfortable. And we want to ensure that we are setting each channel in the exact, exact same way for the most optimal settings. One consideration for behaviorally measuring M levels is that you always want to be using the manufacturer specific loudness scale. So each company has a slightly different philosophy on where maximum levels should be set.

And you want to ensure that you're programming correctly for that specific device. So if you don't have this specific loudness scale in your clinic, you should reach out to your local AV representative to have one for every programming office.

All right? So, as you can see on this slide, we're measuring our M levels, and in this case, we're using speech bursts across the array. One thing that I find particularly useful in my practice is to orient myself to a map for every patient. So an initial activation or not. And I like to make sure that all of the mapping parameters and front end features are exactly what I anticipate them to be and that the stimulation levels are within a reasonable range.

And that allows me to ensure that I have a good understanding of what I'm looking at, what I could expect to see, and that I have an appropriate game plan for the appointment, so I can feel really confident in addressing the patient's needs. So if we're thinking about this specific patient, when looking at this particular slide, you can see that the M levels, which are denoted here with the downward arrows, are roughly between 120 and 135 charge units. They've been measured on all 16 channels, and that all 16 channels are active. This tells me that Josh has appropriate loudness, growth and

auditory percept across the array. And if one of these was not active, then you would see that that particular channel has been grayed out and turned off.

Generally speaking, most M levels with a stable map for advanced bionics will fall between about 150 and 250 charge units. But I say that as a general guide, of course, use your clinical judgment and recognize that that's an average. And in this specific case, it's important to recognize that this is an initial activation. So it's going to. It may take Josh a little bit of time to reach that underneath the graph with your M and T levels you'll see which are both denoted by downward and upward facing arrows.

You'll see a table listing out specific values for each channel. You'll be able to see the M level, T level, electrode clipping status and impedance values. So it's a really quick visual for you to be able to see a whole lot of information all in one place.

So now that we know how to measure M levels, we don't want to ignore our T levels. We are going to follow the recommendation to be set at 10%. This is something that the software is automatically going to do for you and it's easily visualized on the mapping screen because you can see the T levels are going to be the upward facing arrows. And because they have a border versus being filled in like your M levels, you can visually tell that they are locked versus individually measured. That can be a really nice visual indication to you that your T levels are locked to 10%.

Once you've finished measuring your M levels, you'll then want to verify comfort in live speech. And you'll want to be sure to set your stimulation mode back to live speech before doing that. That's going to be the bottom middle of the screen that you with the animation. Otherwise, a patient, if you accidentally leave it on speech burst or tone burst, they're going to hear beeps associated with those speech or tone bursts instead of the intended live speech, which is not what you want at the initial activation. And when you're actually turning it on for the first time in live speech, as you just saw, you'll see stimulation on all of those channels and it's denoted by those blue bars that you saw going up and down.

One thing that I like to do right before I activate the patient is to let them know that we're all done with the measurements and that we are now ready to turn the device on if needed. It's a great opportunity to take the time to once again revisit realistic expectations if we have to. And then I usually tell the patient kind of a game plan of what we're going to do. So something along the lines of we're about to turn the device on. When we first turn it on, we are all going to be quiet in the room for a few moments.

And then I'm going to count to 10 slowly so you know what you're listening for. And then after that I typically will incorporate the patient's family into the mix because presumably they're the most important voices for the patient to hear. So I think it can be really helpful and impactful to include the family. After a patient has had a few moments with the device on, we then will talk a little bit about the quality and the volume. I like to always reassure patients that the sound quality is not the focus of the activation appointment.

It's important, but it's not our primary goal on day one. Our primary goal is to find a level that's comfortable to listen to because it's important for the recipient to be wearing the Device consistently, ideally 10 or more hours a day, every day. And we want to really establish that good practice early, early on. After we've gone live, we're ensuring that it's comfortable for the patient. We then think about adding progressive levels because the patient will likely desire more volume over time. In the advanced bionics software, you can do that by looking in the bottom left hand corner of the screen and it's going to fall under the global device options.

And you have three options for your progressive levels. You can set it at an increase of 5 charge units, an increase of 10 charge units, or it can be off if you do not want progressive levels. So if you're thinking, what is a progressive level outside of what it sounds like? Well, it's going to be providing incrementally increasing simulation levels to a map. And this is really useful.

I think, in the early stages when a patient is acclimating to their cochlear implant, some things that can be helpful to know about progressive levels are that they can be turned on and off globally. For maps, there will always be four that are created. So it's based off of your baseline map. So you actually end up with five maps altogether, but four of them are your progressive levels. You can visually see it on your screen because you'll see a gray progressive level marker.

You can see it on this screen here, and it's going to be able to visually show you where those progressive levels will be set. You can also increase as the patient, you can increase or decrease your progressive levels within each program. You can do that using your AB remote app on a patient's smartphone, or you can use the multifunction button on the processor that they can reach up and just touch their ear.

So for the purposes of our case study with Josh, we determined we do want to add progressive levels. And you can see this highlighted on the bottom left hand corner of the screen. And in just a moment in blue, the progressive levels will allow Josh to gradually increase his stimulation over time as he's adapting to this implant stimulation. So that can really give Josh some confidence to adjust the level of stimulation on his own and know that even when it's first powered on, the progressive levels are always going to start at his preferred level setting. And so I think that can give him some confidence and certainly set a patient at ease that it will be comfortable in how they left it.

Other things from a programming standpoint about progressive levels is that as the audiologist, when a patient comes back in for their follow up, the target CI software will prompt you to use the settings that the recipient has been using. And so you will get an indicator within the software to show you what they've been listening to.

So we're now feeling comfortable with Josh's map. So we're going to move on and we're going to select the Fine Tune Fine Tuning tab now. So it's going to be moving across the ribbon bar. And this is where

you can confirm your settings and features within the AutoSense program and adjust it as desired. So on day one, I don't tend to make too many changes on this page, but as a patient adjusts to their device, this is where you really have the ability to adjust those front end features and then add additional programs if, if needed.

So you can adjust things like your input dynamic range, your idr, you can adjust clear voice, soft voice, streaming settings. You have a lot of different options available to you. I do think it's important to note for this particular case and initial activation, that for a patient who's been recently activated, if you are using progressive levels, all of those programs are going to be using AutoSense OS 3.0. It's just going to be slightly elevated M levels in each subsequent map. So all of the features that you have will remain active.

So you don't actually have to think about what each of the features are per map. It's just going to stay the same, which I think is a nice feature.

So once we're feeling confident about our front end settings, we will next select Device Options. And notice that once again, you're going to be utilizing those ribbon bars and you're always going from left to right, so you can see that highlighted in blue. And then once we're in Device Options, this is going to open up a lot of flexibility for you to customize the device's behavior for your patient's specific needs. So the default settings will typically utilize a standard behavior for the processor. So in this case, for Josh, this means that with a short press on his processor, the button will change progressive levels for him.

If progressive levels, for instance, were not set, then that multi function button would control the volume of the device. I also on this page, really love the feature of printing reports for patients, which you can see on the left side. It will say services and then reports. I really like that because patients can then leave with written documentation that I can get in the moment of what each press of that device does. It saves me time and ensures accuracy that I haven't accidentally relayed something incorrectly.

And it provides patients with something tangible to bring home and reference. It's easy and it's efficient. It's definitely something that I utilize on a very regular basis.

So next we're going to move along the bottom ribbon bar, so we're moving from manual controls to Bluetooth so that we can manage Josh's Bluetooth settings.

So another feature that I really like about this is that you can change the patient's Bluetooth name to whatever makes sense for them. So in this case, as you can see on the screen, we just labeled it Josh's CI. I think personalizing a patient's Bluetooth name, you know, maybe that sounds silly, but I think making any connectivity a little bit easier for a patient and their family is hugely important. In a world where technology can sometimes feel a little bit overwhelming and maybe deter patients. I think having the ability to make it easier is a win that we absolutely should take when pairing Bluetooth.

This name is what's going to populate in the list of discoverable devices. So it just makes it really simple and easy for a patient to find.

After we've done that, we're next going to move along to signals and alerts so that we can manage the patient's internal alarms.

So once we're in signals and alerts, it's going to. This tab is going to allow us to demonstrate and personalize the alerts for patients. So I think it's a really great tool for an initial activation because it can familiarize your patient with what sounds the device is going to make. When you make a change in volume or you change your program, I think, or your battery's running low, you've got some, some nice flexibility there, and it ensures that the patient is comfortable and has had some practice with what you're, what you're referencing.

So then next to signals and alerts, you're going to see indicator lights, startup, and then data logging tabs, all of which are going to further allow customization of the settings. One of the features I really like is the flexibility to delay the startup and the startup Melody for the recipient. So if you're thinking about a new recipient, they're probably struggling in the very beginning to figure out how do I put the processor on my ear, how do I orient it, how do I get the headpiece on? And so it may take a little bit of time and practice. So if you are able to delay that startup a little bit, it gives the patient a little bit more time to practice putting the device on their head before it actually activates.

And for a new recipient, that can be really helpful because it gives them confidence to know that the device is working because they can hear the startup melody begin. So it's a little thing. You don't have to add it, but I think it's. It's kind of a nice feature that's tucked into the software.

All right, so now we are done with confirming and double checking all of our settings. So we are now going to save and close the session. It is really important on this page that you ensure that all of the boxes are checked so you'll see them underneath Closed session under Hearing Instruments and Accessories and Database. That's going to be really important that all of those boxes are checked. That's important because we want to ensure that it's saved not only to the devices, but also the database correctly.

You'll notice that it looks very similar to Phonak Target. So it's the exact same process as what you're used to with a hearing aid. And then at the bottom of that screen, you can also select Battery Estimation. On the bottom left, you can see it kind of highlighted in green right now. And it will pop up with a box that will allow you to estimate the battery life per battery size option.

So it looks something like this.

So it will pop up, it will run, and then it will give you an estimate. The battery life can be highly influenced by several things, not just the battery size, but it can also be influenced by the sound processing strategy that you've chosen. The lock with the internal device, it can also impact. Be impacted by skin flap thickness and then your M levels. So you can see some variability.

But in general, I would say, typically, the rechargeable battery life is quite excellent.

So once we've saved everything, you may also see a row that is going to say enable remote support is enabled. What this means is that remote programming is now available for Josh in any subsequent programming sessions. That's something that we won't get into in this session, but stay tuned because there is another session that talks about remote programming.

All right, so now we're going to select closed session to complete the programming session for Josh. So you saw that light up in blue. So we will select that and it's going to bring us back to the main screen. So our Target CI programming session is now complete. You've activated Josh and you're back on that main screen.

So congratulations. Josh can officially hear with his device.

All right, so now we've gone through the steps of the initial activation for one sound processor. So I thought it would be helpful to review some unique information about fitting each of advanced bionics 2 ear solutions.

So we're going to start with the bimodal hearing solution. So thinking about a bimodal fitting with a LINQ hearing aid. So we're going to stick with Josh. And let's say that Josh has decided that he would like to try a link hearing aid on his opposite ear. So he's got his cochlear implant on the left side, and now we are fitting him with a link hearing aid on the right.

So in order to do this, you'll need to ensure that he has a recent audiogram and that it's either in the NOAA system or that you've entered it into the audiogram tab that's in Target CI. You'll then connect the link hearing aid through the Noah Link wireless at the same time as the sound processor. And that's important because you want to be able to see both instruments available at the same time. You'll see that on this screen, and it's denoted at the very top. So you can see the blue processor for the left side, and then you can see a right hearing aid on the right side or red hearing aid on the right side.

The reason that it's important that you program them in the same session is that it ensures that the binaural voice stream features are then enabled for the devices as a pair. So in my opinion, I think this is a huge advantage for patients and something that really sets Advanced Bionics apart from others. Beyond streaming, the two devices actually work together as a pair. So not only can you program it in the same software, but they actually function together as a pair. The hearing aid programming itself, I think, is actually pretty much identical to what you're used to seeing in Phonak Target.

So that will look very similar. And then another thing to just be aware of within this software is that you'll have the ability to program your link patients with the adaptive Phonak digital bimodal fitting formula. It's a mouthful, but it will be available. And it's recommended to use this with your bimodal patients. Though if you wanted to use a different prescriptive formula, you could, you have the flexibility within the software, but it will default to that bimodal fitting formula.

All right, so now we are on the screen where we can look at the different features of both sides together. So I think this is something that I really like, that you're able to make adjustments to both devices under this fine tuning tab on the same screen. So the beauty of this, it's not even that, it's just in the same software though, that's awesome. But the fact that I can see it on the same screen saves me a lot of clicking back and forth and I think really leaves little room for error, which is always a plus in my book. I want to minimize any place where I could possibly make a make a mistake.

So within device options you'll be able to, I guess on this screen you'll be able to look at all of the different fine tuning features. So sound, relax, whistleblock, wind block, noise block, you have access to that and you can look at it and compare between the hearing aid and the cochlear implant. You'll also see that within device options you can name the hearing aid for Bluetooth discovery and you can consider assigning the Bluetooth side to the ear that has the better hearing. So that could be the link, it could be the cochlear implant. You could also make that decision based off of which side has the better battery life.

Just a side note, remember that the recipient only needs to pair one device and then the streaming will go to both units. So you don't have to visually see both. It's just going to be the one as a pair.

All right, so now we're going to take a look at the unique features of programming across device and we're going to come back to Josh. So let's imagine we're now a couple of years down the road and Josh is no longer getting any adequate benefit from his link hearing aid. His hearing has really declined on the right side and he's considering getting a second side. But for the time being, he'd like to use a CROs to help him out in some noisy environments. So within target CI the CROs retention option, you'll first see CROs noted at the top of the screen.

So where the hearing aid was on the right, you'll now see the CROs and then you'll see that pulled up under hearing instruments and under acoustic parameters, you'll see where you can add in what the retention option is for that particular patient. Now, in order to actually pair it, you're going to just simply power on the CROs device and connected in the same session as the processor, just like you would with the link, and the devices will be connected. One of the things that I think is particularly cool is that the binaural voice stream features are automatically going to activate at default as soon as the cross is linked to the session. And I know that sounds really simple, but it really is that easy, which I think is always great.

So another neat feature is within the CROs connection is that you have the ability to adjust the CROs balance between the CROs microphone and the hearing instrument microphone. So in this case, it's a cochlear implant. You can find that specifically under the fitting tab. And then it's going to be under cross balance, which you can see highlighted here. And so you have the ability to adjust it there.

But also a recipient can adjust it independently using the CROs multifunction button, so they can tap the top of the cross device. I think from a provider standpoint, if recipients are frequently feeling like they have to use and adjust their cross balance using the multifunction button, I think it may just be easier to adjust the default settings within Target CI, which you easily have the ability to do. So something to just kind of have as part of your conversation with your patients as they're coming back into the clinic.

Now, under the fitting tab, if you go over to the device, if you go over to the device options, which you'll see highlighted here in white, the top middle of the screen and then you go down to manual controls, you'll see that you have the option to adjust settings for the multifunction button, but you also might want to choose to enable the mute button, which you can see denoted next to the blue arrow. So let's say, let's bring it back to Josh. In his case, he might want access to a mute button if maybe he were in an environment where the noise is on the cross side, or maybe he is taking a call by holding the phone up to his ear. So it can be an easy thing to access in the software to just check that box to enable it. But of note, it is disabled by default.

So you do have to manually go in to enable that.

All right, so now we're going to look at the unique features of programming bilaterally.

So Josh has been experiment experimenting with both Bimodal and the CROs device, but now he's decided he wants to pursue a second cochlear implant. So we're going to take a look at his file. With bilateral processors and in general, the basic steps of fitting a marvel CI bilaterally are really quite similar to a unilateral fitting. So we're going to kind of highlight some of the differences within the software. So to start, you'll select his name from the patient list and you'll open the session just like you did with a unilateral patient.

So we're selecting.

So again, programming two processors are pretty similar, but I think the first thing that you'll see that looks a little bit different is that you have this link and unlink button that you'll see highlighted on the slide. This allows you to keep the same map parameters so things like your processing strategy, your pulse width, filter type, etc. The same between ears. So if it's linked, they're the same. If it's unlinked, they're obviously not the same.

I think it's super handy and it's a built in mechanism that makes your life as a clinician easy. Of course, if you want to unlink it for whatever reason, you absolutely, of course can and you'll have independent control of either ear. But I really find that in most cases my bilateral recipients will have fairly similar electrical parameters. Not necessarily M and T levels, but the I would say strategy, pulse width and filter type for sure.

So now let's notice that in the middle of the screen there is an arrow that's pointing to the right just above that text box. If you select that arrow, it's going to change the view from the left side to the right and then you can click it again and it will work vice versa.

That's how you would switch manually between the two ears. But by now you've probably gathered that I'm a creature of habit and I like to see everything to ensure that I haven't missed a single item. So if

you feel similarly, you may choose to select the arrows right in the middle that you'll see highlighted kind of in blue right at the center. And that allows you to change the screen stuff. Rather than seeing one ear at a time, you can see them both on the same screen.

So I really like having the view of both ears at the same time. You can see in this image that the left ear is a side of focus because the right side is grayed out, but I can look at them next to each other. And maybe you're not sold on seeing both ears at the same time and you prefer seeing them individually, that's totally fine. You may find that in the case of activating a second side, when you're likely just focusing on that one ear, you might prefer the individual view, but I think you may find that you like the bilateral view when you're stimulating both ears together to really be able to gauge and ensure overall comfort. Just an idea.

It's nice to have options, but I think it's a cool feature to see them both on the same screen.

Similar to bimodal programming, you'll want to add the Bluetooth name for the second device and then confirm the preferred Bluetooth side within the software. So that looks fairly similar. You can see on the screen that the Bluetooth name for the right is Josh's right CI, the left is Josh's left CI and then we've selected the left as the primary pairing item. So that looks fairly similar to all of the other Bluetooth settings. I think overall the main takeaway here is that regardless of which device is used on the opposite ear, whether it's the link hearing aid across or a second cochlear implant, all of that programming can be completed in one simple fitting session all in the same software, which makes it really easy for both you as the clinician and the recipient.

If you would like more information and additional details on AB's two ear solutions, you'll have access and can refer to the clinician clinical tools documents attached to this session.

Thank you so much Dr. Overton for that great walkthrough of Target CI. We appreciate you walking us through programming all the solutions. You know, two ear hearing is very important to us at Advanced Bionics, so it was helpful to walk through how to manage those in Target CI. I'm interested in just your clinical experience with Target CI. Are there things that you, you really like about the software or that make it easy for you as a clinician?

Yes. Oh, to think of just a couple. I love how everything is all in the same software. I think when I have to open and close different software, it just introduces time into the appointment. It introduces the likelihood that maybe I got distracted and saved something in in one setting and then now I'm opening up the other program and maybe the balance wasn't quite right.

So I've got to go back and forth and it just, I think from a time standp point it is so, so useful. I also, I really like that there are just so many features that are tucked in there that I don't necessarily have to think about how Easy. It makes my, my life. So, for instance, linking the parameters. I know, I mean, I almost take it for granted that it's there, but I really appreciate that I don't have to think very hard about having my processing strategy matched or having my filters matched, that it's just, it's easily accessible right at my fingertips to be able to do that.

And I think any little bit that we, we can have to make our lives streamlined and, and provide quick, efficient and quality care for our patients is, is important. Fantastic. Thank you for sharing. I love that the software helps make your job as clinician more efficient. And if you have suggestions, you know, you can always reach out to us an ENT or tell your clinical specialist of things you'd like to see in the software.

I'll let you cover the last information a little bit about the research. Thank you.

Okay, thank you, Kayte. So we're going to move on to a little bit of research. So you all should be provided with a poster from Dr. Newman and others about the optimal parameters for a marvel CI within the Target CI software. So I would strongly encourage you to take a look at that. It's great and it can be a really nice guide for your clinical practice, but wanted to give you kind of a general summary of what you can find there.

So, in general, many of the electrical parameters that are set within Target CI are set to certain defaults. So things like your input dynamic range is set to 60, soft voice is set to on, clear voice is set to medium, and then your T's are locked to 10% of your M levels. Sometimes clinicians will wonder, well, why are these the defaults and should I use them? Should I trust them? I know that's a lot of conversation that we have in my clinic.

So a group of researchers sought to examine whether these defaults were indeed beneficial for recipients or if maybe they needed to be tweaked for each individual patient. And so they ran two different experiments. One was looking at soft speech in quiet, and then the other simulated a classroom environment. And for both, AutoSound OS 3.0 was the program setting that was utilized in this experiment. They found that the soft speech for the soft speech experiment, an IDR of 60 with soft voice enabled offered the best performance.

Measuring T's at that point did not have a significant effect on performance. And then in the simulated classroom experiment, the results showed that again, 60 DB IDR with soft voice and clear voice on resulted in the best performance. So I think it's important that we consider each individual patient as their own and recognizing that they each have have their own unique differences and that some may perform better with adjusted settings. But I do think that we should have a good peace of mind that the default parameters are appropriate, particularly as a starting place place for a new recipient. I think you can feel really confident in that and use this as as kind of a guide for you.

I want to mention again that there is a hands on activity available for you. The best way for you to learn about software and programming is to get some personal experience in the programming software. Please download the activity that we have available for you so you can increase your skills by getting some hands on experience in Target CI. This hands on activity will walk you through programming a new AB cochlear implant recipient step by step.

I would like to wrap up today's session by thanking all of you for taking time to learn more about AB. I also want to say how much I appreciate Dr. Overton for taking time to share her clinical experience.

And before you leave today's session, please use the QR code or the web link to complete a short survey. As I mentioned earlier, we really, really value your feedback and this survey should take you less than a minute. I hope you found today's training beneficial and I look forward to seeing you at future AB trainings. If you're interested in additional virtual trainings from ab, you can sign up for other introductory trainings using this link. You can also review the courses from Advanced Bionics and Audiology online.

Thank you again. And don't forget that your regional team is available to provide you support as you continue to learn more about AB and provide support to your AB cochlear implant recipients.