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Beltone Serene BTE CROS Transmitter

Presenter: Laura Schachtel, AuD, FAAA

Welcome everyone to today's session. Beltone Serene BTE Cross transmitter. We are so pleased to welcome with us one of our favorite people, Doctor Laura Schachtel. And Laura, I'll hand things over to you. Thank you, Kimberly.

Hi. Good afternoon, everyone. At least I'm assuming it's afternoon for everyone. Again, I'm Doctor Laura Schachtel, your product training development manager. So today's quick 30 minutes session again will be about our bell tone Serene cross transmitter.

So we're going to briefly review what a cross by cross system is and that patient population that it's for. Quickly review on the hardware for our micro RIE cross transmitter and then dive into our BTE cross transmitter, the hardware that you'll need to fit it. And then just again, remind how to program and set that up with our here Max app. Again, there are lots of handouts for all the courses this week, so please make sure you downloaded those if not already. Also, if you don't want to do it through audiology online, you can find all of these handouts and much more on our training Homepage.

And that's www.Beltoneuniversity.com. so, learning outcomes for today after today's course, you should be able to identify the differences between a cross and a by cross fitting for someone suffering with single sided deafness, you should be able to describe the hardware needed to fit our two by cross or cross system solution. So what's needed for the micro RAE style versus what's needed for the BTE cross system. And then lastly, list the features in our fitting software that are designed to help you with that patient when you're fitting across or by cross system. So cross transmitter is used to help patients that have single sided deafness.

And this is the loss of all or almost all hearing in one ear. Or it can be a patient who has very poor word recognition in one ear, making aiding that ear with a traditional hearing aid very difficult. And you might have had or have patients where their audiogram as far as pure tones looks pretty symmetric, looks edible in both ears. But when you get to word recognition, the understanding in one

ear is just absolutely terrible. And there's no way that you can aid that ear with binaural hearing aids.

And maybe at one point you tried because at least we didn't have a cross solution for you. And the patient maybe even came back and said, you know what, I hear much better when I don't wear the hearing aid on that bad ear side. So again, that is also a reason to fit a cross or by cross. So, losses like these can be congenital, meaning from birth, or they can be acquired from things such as acoustic neuromas, a viral or bacterial infection, an autoimmune disease, a physical injury to the head or to their ear, an acoustic noise injury, a circulatory disorder, or, or even an unknown etiology. Now, cross is an acronym that stands for contralateral routing of signal.

And it's usually fit to an audiogram like this, where, again, one ear is essentially unaidable and the other ear is normal. So how does the cross system work? Well, we would fit a hearing aid to the better ear, so that would be our right ear, and then we would fit the cross transmitter to the poorer left ear. When sounds are heard on that left ear, the cross transmitters, microphones pick that signal up. They wirelessly stream that signal over to the hearing aid side, where it is then processed by the hearing aid and then heard on that right side.

This allows patients to have sound awareness and audibility on that bad ear side, which secondarily can help with sound localization. This happens because sounds arrive to that better hearing aid ear with a slight delay, mimicking the natural process for localization. So interaural timing difference is what helps us with localizing. So me, I have a sound over on my left ear. I will hear it in my left ear first, because it does take a second or so for it to get around my head, for my right ear to then hear that sound, as well as with any type of hearing aid solution, someone fit with a cross for the first time might feel it's a little strange hearing this way, but over time, just like anyone fit with hearing aids, their body will adapt.

Now, if the patient also had a hearIEng loss in that better hearIEng ear, then we would fit what's called a BiCROS or a bilateral contralateral routing of signal. And here is an audiogram of what this patient might look like unaidable in that left ear. RIEght ear is obviously better, but it also has a hearIEng loss that we can aid. So what happens is we put a hearIEng aid on that better, but still at a loss RIEght here, we put the cross transmitter on that bad left ear. What happens this time is when sound is heard by the transmitter microphones.

Again, it's wirelessly transmitted over to the hearIEng aid side, where this time the hearIEng aid amplifies according to the loss, the sound, and then it's processed by the hearIEng aids for the patient to hear it. So, as a reminder, last year we launched our micro RIEe cross, and at that time, it could only be programmed with our other RIEe styles. So only with another micro with the 63 with the 312 battery or the 64 with the 13 battery. But this meant that those patients that maybe wanted to be fit with a different hearIEng aid style, you were unable to help until now. Because now we have our BTE cross transmitter, which can be programmed with our rechargeable BTEs and our rechargeable custom products.

Now, again, both of our models provide your patients with an astonishing 16 hours of battery life. And this is with that audio streaming constantly from one ear to the other. So 100% streaming again, before we get into the hardware of our new BTE cross transmitter. For anyone that's new to bell tone and didn't hear this the first go around, I'm just going to quickly with a slider to review the hardware for our micro RIEe cross transmitter. So again, the micro RIEe CROs transmitter is only compatible with our other Beltone Serene RIEes.

And since our CROs is in that micro style, it also has the accelerometer, which provides tap control. So the patient, when receiving a phone call, can tap on that transmitter side to then answer the call. Our micro RIE cross transmitter comes in the same eight colors as our Beltone Serene micro RIEe and is

also IP 68 rated. When fitting our micro RIEE cross transmitter, you can use a SureFit three low power, medium power, or high power receiver. You're going to select whichever receiver fits the most comfortably in your patient's ear.

We're not using the receiver for amplification. We're using it to help anchor the device to the ear.

Obviously, the larger the receiver power is, the larger the receiver is. So whatever fits most comfortably in the patient's ear is what we want to fit with. Now, just as a reminder, when fitting the micro Rae cross, you cannot use a MaRIEe or an ultra power receiver.

Now, for the dome type, you can choose any one of our sure fit three domes. So open, tulip, close, or power. Again, the dome will not provide any acoustic effect. So you again should select the dome and the size that provides the best fit and comfort for your patient. Again, it's really there to help anchor the device to the ear.

As I said earlier, our micro RA cross is rechargeable, and it's compatible with any of our three charging options. So premium charger, the standard charger or the desktop charger can be used for this configuration. Okay, so now to the hardware on our BTE cross transmitter. So when you look at it in the fitting software, or if you're paired into the hearMax app or through a smart device, CROS. So again, cross Serene.

And it's the 176 DWI. So that's the labeling for our new BTE cross transmitter. Again, it is in that 76 style. So our BTE cross is compatible again with our belt tone Serene rechargeable 76 and 86 BTEs, and our Beltone Serene, rechargeable custom devices. This now allows you to fit a CROs to a patient that again, wanted something other than an RIEE on their hearRIEng aid side.

And just like with our other BTEs, the CROs BTE comes in the same eight colors and is also IP 68 rated. And since we're using a BTE, the only charging option available is the desktop charger. So when

deciding what type of tubing to fit on that BTE cross transmitter side, you can choose from a thin tube or an ear hook. Now remember that this is the poor earRIEng ear and the sounds will not be heard through the device. They will be transmitted.

So, very similarly. To selecting the receiver and dome for the micro RIEe cross, you will be selecting the tubing configuration and dome or ear mold based on the patient's comfort. And so I think most of us will be selecting a thin tube and more likely an open dome on that transmitter side. But if the patient's weaRIEng a BTE and they would like both ears to match, then you can go ahead and configure the transmitter to be an ear hook and then get matching ear mold so that both of their ears look exactly the same. So just as a reminder, again, our BTE cross can be fit with our belt tone Serene 86 BTE, our Beltone Serene 76 BTE and our Beltone Serene rechargeable ITc and Ite.

But each one of these styles uses a different charger. So if you are putting it in a different configuration than just 276s you, you need to ensure that you are orderRIEng not just the correct transmitter and heaRIEng aid, but also the correct chargers with an s at the end. So again, if you are using the 76 transmitter and you're going to use a 76 VTE, then very easily you get one desktop charger and you just make sure you order the one that has the number 70 in the charging walls. And I think you know where I'm going here. If your patient had a little bit more severe loss in that better heaRIEng ear, or there's a feature on the 86 style that they wanted, like more manual controls on the device, we ordered an 86 VT EI and then we have our transmitter.

That's a 76 VT EI. That means you need to order two different chargers. One desktop charger for the 86 dial that has that number 80 in the charging well, and then the 70 desktop charger for that 76 BTE style. And now I think you really know where I'm going. If they have a custom rechargeable in that better heaRIEng side, then they will need a custom charger for that side.

And then they will still need that desktop charger with the 70 in the charging well for the BTE transmitter side. Now just as a reminder, our BTEs have additional functions that most of our other styles do nothing. So both BTE styles have a telecoil and they also both have led light control. Our 86 style has a DAi option where you can order a boot and then you could plug in kind of like an fm receiver. It looks similar to what's on the screen for like fm communication.

Again, only available on the 86 style. So let's take a look at how these additional features now work when using it as a cross transmitter. So when fitting the BTE cross transmitter with a 76 BTE, both sides will have a telecoil available to be active. But it would be best to set the t coil for the heaRIEng aid side and leave the cross transmitter side in the all around program. So you can see on the screen both sides can be telecoil, but I would recommend the butter ear side as the telecoil.

The power ear, which let's say in our example is the left ear. Keep that in the all around program. Now, for patients using the BTE cross transmitter with an 86 dial BTE, it'd be the same options where both sides can be set as the t coil, but again, I would say better ear as the t coil and the transmitter side keep that in the all around program. Now, when we're just programming that 86 BTE style that has the DAi, the transmitter side will default to that all around program and the 86 bte side will be the only side available for that DAi. And just please remember that the cross transmitter only streams the audio from its microphones.

It does not stream any other type of audio source or any other type of audio input. So again, both of our BTE styles offer led light controls. Now, these controls are found in Solus Max under device control and then manual controls. This allows for visual confirmation of charging and manual control changes when fitting our BTE cross transmitter with either a 76 or 86 bte heaRIEng aid. Both instruments will have this option available.

As you can see on the screen. But when fitting our BTE cross transmitter with a rechargeable custom, only the cross transmitter side will have this option available. But when you push, and I've had someone confirm, so hopefully this is still true. When you push the buttons on the custom side, the led light on the transmitter side will indicate the adjustments on the hearIEng aid, that custom side. So this is not one of the handouts.

So if you need to take a quick screen grab, please do this. But this is the light flashing pattern for that led light controls. So it defaults in the fitting software to disabled, which means the led light on the cross transmitter or the BTE will only flash or light up for turning it on and off and for charging indications. The first option you have after that is flash once. So on top of the on and off and charging flashes, anytime you make a manual control, change, program, change, turn on the DAI, or go into flight mode, the hearIEng aid will flash in this pattern.

The last choice is continuous flash. So as you can see, the flash pattern matches exactly to that one flash option. But in addition to this, the hearIEng aid will just automatically flash twice every 5 seconds. And so a lot of time, these LED light controls are for a third party that would be managing the controls of the hearIEng aid for the patient. So someone that has cognitive impairment, so a caretaker is handling the hearIEng aids.

This could also be for a young child where the parent is handling, and it's just giving an indication to that third party that, yes, you did make a volume control change, and then in the continuous flash that, yes, the hearIEng aid is still on and it is working and it's charged. So, as many of you have told us, our cross transmitter sounds great, and patients are reporting that there's very little noise in the signal that they're hearIEng, which has histoRIEcally been an inherent problem with cross transmitters. Since the hearIEng aid side of a CROs system is generally fit to an ear with essentially normal hearIEng, a. So any low level noise in that signal will be audible in that ear when in quieter environments. So we wanted

to provide the same excellent dynamic range that we have in our Beltone Serene hearRIEng aids to our cross system.

And to do this, we utilized a compander, which is a type of processor that combines a compressor and an expander. So let's listen to a little musical melody here using a more traditional approach to a cross system.

It's a very lovely tune, but you could hear a little bit of that static, that sh, low level noise that was in the audio recording. Now let's listen to that same melody, but using our approach with the compander, same melody. But notice how it was a clearer sound, that static is gone. So this is. So what the compander is doing is it's cleaning the sound, so that in our fittings, our patients get nice, clear, clean sound quality.

So you might be wonderRIEng how this compander works. So, as you see here, that's the oRIEnginal signal. So when sound reaches the cross transmitter, the microphone dynamic range on the transmitter side is compressed. And this reduces the low level noise, and it prevents it from becoming audible artifacts by excluding it from the transmitted signal. Also, the amplitude of louder sounds is also reduced, which helps prevent peak clipping and audible distortion.

When it gets transmitted over this compressed sound, it sounds as compressed. We've gotten RIEd of the low level noise, we've gotten RIEd of any peak clipping. We then transmit it over to the other ear side, where it is then expanded back to its oRIEnginal dynamic range, minus the low level noise and without any peak clipping, equaling that nice, clean sound quality that your patients are raving about. Now, to really test how much cleaner our sound signal is, we did an internal study, and the results indicated that our cross system had an average equivalent input noise, measured from 200 to 6300, about ten decibels less compared to two of our competitors, cross situation or cross system. So that means on average, and you can see all the different frequencies, that our sound, when streamed

through our transmitter, is about ten decibels cleaner, less noisy than our competitors.

And again, you can see that at some frequencies, we are all kind of about the same. And other frequencies, we are much quieter than our competitors. And we know it can be very difficult to remove internal noise for a patient who has normal hearRIEng. So here's a few tips. First, try to fit the better hearRIEng ear as open as possible.

And again, this is why we recommend that that better ear be fit with an open dome. Also try to keep the gain in that better ear as low as possible, especially in the lower frequencies. And remember, you can now make the gain negative, which helps lower the gain, but also lowers the feeling of occlusion. And just like with any fitting, you can always activate or increase the level of silencer to improve sound quality in quiet environments by reducing low level noise. And finally, you can set the mixing point frequency to medium or high, meaning more frequencies will be processed in an omnidirectional fashion, which decreases the internal noise that the patient might hear.

So just want to quickly walk you through a fitting with our BTE cross transmitter. With either a BTE or a custom product on that other ear side does not matter as much as you. You already know. Fitting our cross system is essentially just like fitting a binaural set of our hearRIEng aids. So if you wanted to simulate the fitting you could, you would just pick for the better hearRIEng ear, a BTE or a custom rechargeable style and then the BTE transmitter on the poor or ear or an RIEE, and then the micro RIEE transmitter.

If you selected, let's say the RIE hearRIEng aid and then went to simulate the BTE cross transmitter, the software will let you know that you cannot do that. Or if you have the devices RIEght in front of you from our brand new home screen, you would just click on the connect into Beltone Solus Max and from here you'd be brought to the physical properties page where once again you see our familiar cross icon. Again, notice that dome recommendations will be provided for the hearRIEng aid side, but they will not

be provided for the transmitter side as again we're fitting more for patient comfort than any acoustic properties at the MSG calibration screen. Again, only the heaRIEng aid side will get that calibration as again the transmitter side is not amplifying anything so no need for the calibration. Once we're into the gain adjustment screen, again you will notice that there is no amplification being provided on the transmitter side.

And again you have our lovely cross icon to let you to remind you which ear has the transmitter side. Now remember I just said in Solus Max you can now allow the gain to go negative with the crossfitting. Kind of want to remind you that with that crossfitting you would really love to have a zero decibels insertion gain in that normal heaRIEng ear. And especially you'd like to get that if you're fitting it with like an ear mold and that 13 tubing. So in order to do that, you really might need that gain to go negative.

So in order to do this, just click on the display options and then you want to make sure that you uncheck the option for event corrections that will then let you see the gain number go negative in the gain graph. And just to remind you, the Maximum number that the gain can go negative is down to negative ten. Just as before, the only feature for our cross transmitter is balance. This is the sound ratio of what's being heard from both ears. So with the balance set at zero, the better heaRIEng ear is heaRIEng sounds from both sides of the head equally.

So when would you change the balance in Solus Max, you would make that balance adjustment to help your patient when they feel that their own voice is not centered in their head, meaning they feel the sound from the cross transmitter is not perceptually equal to the volume of the heaRIEng aids. So you would move the balance more positive or towards the cross microphone image when the patient is not heaRIEng sounds from their cross as much as they would like to and you would move the balance more negative or towards the heaRIEng aid microphone image if your patient is not heaRIEng enough

sound from their hearEng aid side. Now under manual controls, you can provide your patient access to adjust their balance on their own. On the cross transmitter side you can set the push button controls to be cross up and cross down. What the patient is actually adjusting is the input or volume of the cross microphones.

So with cross up, the cross signal is increasing, meaning your patient will hear more of what is on the cross side compared to what's on their hearEng aid side and adjusting cross down the cross signal will be decreased, meaning less of what is on the cross side will be heard compared to the hearEng aid side. Now over on the hearEng aid side, your patient can control overall volume. And again here at the very bottom of the screen is that led light control that we previously talked about. So our new BTE cross transmitter can also be paired with compatible smart devices. The Beltone Hair Max app, our new multi mic plus and tv streamer plus, and our legacy accessoREes.

Again, the paiREng process hasn't changed. It's just like paiREng a binaural set. Our apps phones accessoREes will automatically recognize that the paiREng is across or a by cross system and will accommodate the appropREate controls. Now, once in the Beltone HearMax app and the version has updated, we're now on version 1.37. You will notice that the volume control bar is expanded by default and that's because the slider for the better hearEng ear, and in our example this whole time it's been the REght ear.

The REght ear is adjusting gain or the volume of the hearEng aid side and the slider for the poor ear. And so that will be our left ear in our examples, is adjusting the balance for the cross transmitter. This easily allows your patient to make balance adjustments at their fingertips in their app. If doing that ear level with the push button was a little bit too much for them to do so it's much easier to just do this sliding mechanism through the app. As I stated a moment ago, our two cross transmitters can be paired to our multi mic plus or tv streamer plus and our other legacy accessoREes.

So when streaming audio, either a phone call or from one of our accessories, the audio will not stream to the cross transmitters. Those microphones will be muted while audio streaming. The audio will only be streamed to the hearing aid side. Now, if the patient receives one of their streamed phone calls, the cross transmitter will kind of temporarily pause its streaming so the patient can have that stream phone call. And once that call is hung up on, the streaming from the cross transmitter will automatically resume.

And this is very similar to how other brands handle this behavior. I just want to remind you that a little bit later, I think earlier this year we brought back sound enhancers when using a cross or BiCROS fitting. So just want to remind you once again that all technology levels allow for the sound enhancer, bass middle and treble adjustment, as well as the tinnitus manager if you turned on the tinnitus breaker pro. But only our 17 level products allow for the sound enhancer adjustment of noise reduction, wind noise reduction and the microphone beam width. Now, lastly, I just want to walk you through how to perform a listening check using our cross transmitter.

So here's the setup. You will be using a StethoSite, so kind of an earbud that has a little cup at the end where you put the dome into, and you would put that in your ear and kind of hook the hearing aid over your ear level. Or you could hold the hearing aid in your hand, but I like freeing up my hand so I can do other things there. And then you will hold the transmitter in your other hand with the microphones facing up towards your mouth. And you will need some type of speaker, which could even be your cell phone.

You want to keep the cross transmitter close to the hearing aid side because we do use ear to ear to transmit the sound. So you only have about twelve inches or so, so you can't keep them too far apart. Or we just don't have the sound streaming. So when we have this set up, what are we listening for? Well, the first thing is, is the transmitter on and is it streaming to the hearing aid side?

So to test this, all you have to do is just rub on the microphones on the transmitter and then listen for that rustling sound over on the heaRIEng aid side. And if you want to, you could even put both devices ear level and do it that way. The second thing we're listening for is sound quality, is the sound quality that's being transmitted, like actually a good sound quality. So to do this, you will need some type of sound source. So it'd be great if you had some type of running speech.

So if you could find like a podcast or something on your phone, have the transmitter pick that up and then listen to the quality of that streamed sound. Now, this might be difficult to do if as you have one ear that's normal and it's open and it's probably just heaRIEng the speaker normally and it's hard to hear what's coming in through the heaRIEng aid. So you might have to put an ear block in your better heaRIEng ear, that open ear, so that you can really hear the transmitted signal on the heaRIEng aid side to gauge if it's good sound quality or nothing. So just to quickly summaRIEze, with Beltone Serene, we now have two wireless rechargeable cross transmitters, one in our micro RIEe style and the other in our 76 BTE style. In both styles, we are using a compander to allow for a clean, low noise level signal that many of our patients are enjoying.

The transmitter can be configured for a cross fitting when one ear is healthy and the other ear is unaidable, or a BiCROS fitting where one ear is compromised or has a loss and the other ear is unaidable. To fit our Beltone Serene micro RIEe cross transmitter, you can use a low, medium or high power SureFit three receiver. And again, we recommend using an open dome on that transmitter side. For our BTE cross transmitter, we recommend using the thin tube configuration and again, also an open dome for fitting our cross system. It's very easy, and again, essentially just like fitting a binaural set of heaRIEng aids.

But within Solus Max, the only control for the cross is balance. And to help overcome any occlusion or insertion gain issues, you can make that gain go negative. And so with that, I just want to thank all of

you for joining me for the quick 30 minutes to talk about our Beltone BTE cross transmitter. No questions have come in, so I'll stick on for just another minute if you were just frantically typing in your question. Otherwise, thank you again for spending 30 minutes with me.

If you have questions, you can definitely reach out to the training team or audiology support. We're happy to help you. If you want more information on these product launches, you can go to Beltone University, the Homepage, and take any one of our courses on the fitting software or our product. So no questions have rolled in. So I will say thank you once again and I hope you all join me tomorrow as we talk about our multi mic plus.

So thanks everyone. Have a great rest of your day. Bye.