

This unedited transcript of a continued webinar is provided in order to facilitate communication accessibility for the viewer and may not be a totally verbatim record of the proceedings. This transcript may contain errors. Copying or distributing this transcript without the express written consent of continued is strictly prohibited. For any questions, please contact customerservice@continued.com

Conversations Shine with CROS Lumity

Presenter: Aly Hoffman, ScD

- [Aly] Hello everybody. My name is Aly Hoffman. I am a clinical trainer with Phonak, and today we're going to be talking a bit about CROS Lumity. So after this course you'll be able to list the new Lumity products that are designed to address single-sided hearing loss. You'll also be able to list the benefits of SmartSpeech technology, as well as to have the awareness and be able to list resources that are available to both you as the provider and your patients. So I wanted to kind of take a couple steps back so that we can really think about what the needs are of the patients who we are fitting with CROS Lumity, because when we think about a CROS fitting, not a ton of things to know alternatively or anything that's really different from any other fitting that we're doing.

But we really need to keep in mind the specific listening needs and the challenges that are going to impact these patients. So when we think about anyone with single-sided hearing loss, we know that they have those unique listening needs and there are several research and clinical definitions that you may come across that describe a unilateral hearing loss. We are going to take the definition from Marlene Bagatto and colleagues. And what we see here is that a unilateral hearing loss refers to any degree of permanent hearing loss in one ear. And then we have a, well, we have either a normal hearing ear on the other side, or of course we may be thinking about a patient that has hearing loss in the better ear as well when we think about more of a BiCROS fitting.

Now, how prevalent is this? The prevalence of unilateral hearing loss is going to vary throughout the literature, particularly because of the different research and clinical definitions. So we know that one in a thousand newborns are identified at birth with unilateral hearing loss, and this number increases to approximately three in 100 children who develop unilateral hearing loss by school age. The prevalence overall of unilateral hearing loss in American adults is considered to be 7.2% with 5.2% having a mild loss and 1.5% a moderate or worse unilateral loss. So there are many, many

causes of unilateral hearing loss that you can see listed here. Not gonna read through them all, but some that you may kind of be familiar with or remember learning about in school would be CMV, bacterial meningitis, a sudden loss or potentially Meniere's disease.

Now, as I previously stated, unilateral lead deafened listeners are going to lose access to that very critical binaural hearing information, and this is going to lead to a reduced ability to understand speech when there's noise. So looking at what we have here, this is based on some of the research done by Hillary Snapp and she found that there is an increasing global recognition of the negative impact of hearing loss and its association with many chronic health issues and conditions. And she found that the deficits and disabilities associated with profound unilateral hearing loss are going to continue to be under recognized. And there really is a lack of public awareness. With a profound unilateral hearing loss, sometimes called single-sided deafness or SSD.

We have this significant impairment when it comes to spatial hearing abilities and we become reliant on some of the more complex interactions of mono and binaural hearing cues. Now, unilaterally deafened listeners are losing access to the binaural hearing cues, and this is going to reduce, excuse me, this leads to a reduced ability to understand speech in difficult environments and it's also going to cause difficulties when it comes to localization of sounds. So looking at this here, we're really thinking about how this is going to impact the head shadow effect. Now, this reduced ability to understand speech and challenging environments is due to the head shadow effect. So how many times have you heard someone say, but you have one good ear, right?

And the perception is that if you have one good ear that's working for you, you should be able to hear just fine. But more recent research shows that this is not the case and one area that has been explored is the amount of effort that is required to hear when one ear is not picking up sound. Now, if you've listened to any of Phonak's trainings in

the last couple of years, you've likely heard us talking about listening effort, and that's because listening effort and hearing fatigue are critical when it comes to the benefit that we can potentially provide for patients who have hearing loss. And we know that listening effort and hearing fatigue are known to affect those who have a unilateral hearing loss, even maybe more than those with a mild loss in both ears.

So thinking back to that study that I referenced by Snapp in 2020, there are results that challenge that age old perception that if you have one ear that's working normally overall the hearing levels will be fine. So both listening fatigue and effort were found to increase the larger the asymmetry between the ears years. A child with SSD is likely to have greater fatigue than one with mild or moderate unilateral hearing loss. Adults with unilateral hearing loss were five times more likely to report severe fatigue than those with no hearing loss. So ultimately we know that this is important. It's something we need to consider when determining what type of device or set of devices we are going to recommend for these patients because the goal, of course is helping them to hear better where they have challenges, but also to reduce that effort and that fatigue.

At Phonak our hearing solutions open the door to a world in which all people are able to create meaningful relationships and enjoy greater states of social-emotional, cognitive and physical well-being. Again, this is something we've been talking about for years now, we know that conversations are at the heart of life. It's important for a baby to hear their parents singing to them, a child being asked something in their class at school, a businesswoman hearing the important questions during a pitch or an elderly couple reminiscing about a well loved movie together. Whether short or long, challenging or exciting, conversations shine for everyone with Lumity, which is why we were so excited to introduce CROS on the Lumity platform because Lumity features are cutting edge SmartSpeech technology.

So this is continuing our commitment to providing high quality switch engineered reliable hearing solutions. And with CROS Lumity, the wearers can experience every conversation with peace of mind, knowing that they have a device that prioritizes speech understanding and reduces listening effort. So as I said, unilateral hearing loss is going to create not only audiological challenges, but social-emotional and educational challenges. Audiologically, those that have unilateral hearing loss have difficulty with localization due to the head shadow effect and difficulties may include hearing on the side with hearing loss overall and distinguishing sounds like speech from background noise. And that's going to make social situations and group conversations difficult leading to the need to make accommodations such as maybe turning their head to hear out of the better hearing ear.

One recent study even found that difficulty following conversations and noise and the presence of tinnitus were significantly more likely with unilateral hearing loss compared to bilateral hearing loss. In regards to social-emotional well-being, unilateral hearing loss is also associated with reduced social interaction, increased loneliness and poor psychological well-being. In children, those with unilateral hearing loss are more likely to repeat a year at school, to need support services and to have an increased risk of speech and language delays. So this is not just, eh, someone has a good ear, they'll probably be fine. These are patients that we want to ensure are getting all the benefit that they need so that they can be successful in every aspect of their life.

Now overall, any number of these listed difficulties may be experienced by this population. So we see that they may have difficulty with localization, maybe it's selective attention, reduced work productivity because they're focusing so much on ensuring that they hear everything they need to hear. Maybe they have poor speech understanding and so on. In recognition of these challenges, rehabilitative solutions such as CROS system and hearing implants are on the rise. So what is CROS? CROS is the contralateral routing of the signal and bilateral contralateral routing of signal is a

BiCROS system. And these devices are noninvasive, cost effective and easy to use treatment options for patients with unilateral hearing loss. Both CROS and BiCROS aim to improve speech understanding in quiet and in noise, especially when speech is coming into the poorer ear.

And we know that supporting communication is fundamental for social-emotional and physical well-being. So now we're going to take a little walk down memory lane and look at the CROS systems of the days of your right. So back in 2011, Phonak introduced a CROS solution that was based on its 10.6 M, so sorry, excuse me, that wireless system that we had constantly been using for our sending of signals back and forth with binaural voice stream technology, the Phonak CROS system, which includes the transmitter and the receiver microphone, was able to stream bidirectionally in real time the full audio bandwidth between two hearing aids. Now in 2015, the CROS II was introduced. Now if you were in clinic at that time, you may remember the huge improvement that this provided, and I still remember the first patient that I fit with the CROS II and the amazing jump in improvement in performance that I saw because it was more selective about what was picked up and transmitted to the hearing aid.

This functionality and benefit is still seen in our current CROS system and of course with even more improvements added along the way. So let's think a little bit about the evolution of CROS. What you see here is the depiction that shows how the original CROS system functioned. When the patient was in quiet, both the hearing aid and the CROS device would have omnidirectional microphones activated. Now as you can see here, as the microphone mode adapts on the hearing aid side, the CROS transmitter would stay in an omnidirectional mode. So as you can see, even in the most challenging of environments, the CROS device was unchanging. Now of course, this is what the original CROS device was doing and honestly it's what some other CROS still do today.

Now when we think about the CROS Lumity system, we're going to see that this varies a lot. So now starting with CROS II and through to CROS B and CROS P and now CROS L, we see that the system has been advanced. When a patient is in quiet, the hearing aid and the CROS system will utilize the real ear sound configuration, which takes into account the pin effect. This helps to lessen the amount of noise being sent to the poor ear from the poor ear to the better ear. Do note that this is true of CROS systems that are fit with the 50 level technology or better in the better ear. Because of limitations within the 30 level, the Audeo L30 CROS system would utilize an omnidirectional microphone pattern.

Now once we introduce moderate levels of noise, while our adaptive beam forming is going to kick in on the hearing aid side, the CROS device is going to remain in real ear sound. Again, 50 and above. But when we think about the improvements that make our updated CROS system so special is when we introduce the most challenging of environments. So louder levels of background noise because here the CROS devices going to help out the microphone systems of both the hearing aid and the CROS are going to work together as a four microphone system to further narrow the beam former to pick up the intended signal and not all of the noise. So this is going to allow for much less noise to be transmitted to the hearing aid ultimately leading to improved speech intelligibility and reduced listening effort.

So if you think about that patient in the very challenging environment, maybe they're in a popular restaurant on a Saturday night or they're at a wedding or a large family gathering, if the CROS transmitter is staying a bit more open, so whether it's real ear sound or whatever microphone mode it may be applying, it's still picking up a lot of the noise and it would be sending the noise to the better ear. Having this ability for the transmitter side to have a narrowed beam former as well is going to make it a much cleaner signal that is sent to the better ear. Now as you see here, there are a few limitations when it comes to what systems are going to take advantage of this and it's

why I always recommend considering higher level technology on the better hearing ear for a CROS system.

So as we know with 90 level technology, speech and loud noise or our StereoZoom microphone configuration is automatically applied when the patient is in loud noise. So this means that both the hearing aid and the CROS transmitter are going to have the narrowed beam former automatically in very loud noise. In the 70 level, this would be a manual option that the patient would need to select, whether it be on the device itself or in the app. Now I talk about StereoZoom and all of these things. So I think it's important to kind of remember what these terms mean and revisit the idea of SmartSpeech technology and Lumity as a platform. And we're going to do just that. So remember that SmartSpeech technology was introduced with Lumity and this is going to provide many of the features that support CROS wearers.

Now as I go into this next section, please don't hesitate to pop any questions in the Q&A if you do have a question, I'll do my best to either answer it as I see it or at the end of the session. So SmartSpeech technology is defined as a collection of new and legacy features that are adaptively activated in a seamless way with the goal of improved speech understanding and reduced listening effort in many listening environments. So some of these features may be features you've known and loved for many years when it comes to Phonak technology and a few of them are new as well. But we're going to do a little bit of a review and discuss how they impact CROS fitting.

So Dynamic Noise Cancellation is a feature that was introduced with Paradise and it was expanded within the Lumity platform. It is a spatial noise canceler that is working hand in hand with the beam forming technology to improve signal to noise ratio. And this is going to lead to a reduction in noise from the sides and from behind as well as a reduction in listening effort. With a CROS system, this will get applied to the overall signal once the information is transmitted from the CROS device. Now with your

Paradise platform, Dynamic Noise Cancellation was available in the 90 level technology, but with Lumity it's available in both the 90s and the 70s. So just another little tick of the box as to why recommending these levels of technology are very helpful for CROS wearers.

Now we keep talking about reduction and listening effort and of course this is not just something we claim that it does. There are studies done this particular study and honestly a lot of hearing studies are done at an acoustic testing lab in Oldenburg, Germany that looks at many different hearing solutions and basically has a database of hearing impaired participants with all sorts of kind of criteria for their participation in different studies. So for this particular study, they were looking at the subjective rating of listening effort when comparing to our previous generations of hearing aids. So the data we're looking at here is comparing from Marvel to Paradise. And the ratings were done with multiple strength settings of Dynamic Noise Cancellation and there was strong evidence showing the benefit of the new feature.

Listening effort was found to decrease with increasing strength of Dynamic Noise Cancellation. And this observation supports the idea that giving the wear access to adjust the strength of Dynamic Noise Cancellation individually while using the myPhonak app. While the observed difference between Dynamic Noise Cancellation in its default setting and in the max setting is not statistically significant, the difference between Dynamic Noise Cancellation at minimum and maximum was proven to be statistically significant. So remember that this can be adjusted by you and target software or by the patients in the app so that they can determine in their own unique listening situation what their difficulty is and what they need to do to improve it. Now of course some of this happens automatically.

The default for Dynamic Noise Cancellation is at its minimum point, which is eight on the scale of zero to 20. But again, there is the flexibility to strengthen this feature for

further improvement. Moving along to one of my favorite new features is Speech Enhancer. So Speech Enhancer is another feature that was introduced with Paradise and continued with Lumity. In both of these platforms it is available in the 90 level technology. This feature is targeting very soft speech signals in quiet environments to increase awareness and improve audibility for soft speech sounds. Additionally, further research has shown that listening effort is reduced by up to 20%. Now similar to the Dynamic Noise Cancellation results, the scaling of listening effort that you see here provided reliable data on a highly statistically significant benefit with this feature.

Now one thing I think is exciting and sometimes limited to you know, things that we are looking at. We not only do the research with the "typical hearing loss." So a lot of hearing research is done with those with a traditional, sloping sensory neural hearing loss. But when we looked at the benefits of Speech Enhancer, we also looked at populations like pediatrics and the severe to profound listeners. So we are ensuring that the data we are applying to determine what our defaults should be within the software are appropriate for listening populations that may have more specific listening needs. Now those were a few of the most exciting and of course impactful features that we can talk about when it comes to improving performance for a CROS wearer.

But we do have two new features that are very helpful as well. And those are StereoZoom 2.0 and Speech Sensor. So StereoZoom was improved for the Lumity platform. We've been utilizing our StereoZoom technology for many years, but with this feature we've got the ability to make the transition smoother and smarter with also the flexibility to make it stronger. The key features of StereoZoom 2.0 is smoother activation of the binaural directional mode and this smooth activation is also smart in that it is more dependent on the level of noise that is present. On top of that, the strength of StereoZoom 2.0 can be adjusted either by you in target or by the end user in the app. Some technical measures on StereoZoom 2.

0 shows that the new implementation provides a 3 dB better signal to noise ratio when is coming from the front and challenging environments. And when set to maximum strength there is an additional 2.5 dB better SNR. The overall benefits is that StereoZoom 2.0 provides a balance with more environmental awareness thanks to the smooth activation from UltraZoom into StereoZoom 2.0 and more speech focus with the ability to increase the strength of StereoZoom 2.0. The awareness of the sound environment can contribute to physical confidence of the wear within their environment. So personalization in the myPhonak app is going to allow for additional narrowing of the beam former and this is even more precise to pick up that intended signal. So what we see right now is directional modes kicking in to ensure that this patient is hearing the person that they intend to listen to.

But when we move that speech focused slider and potentially the noise reduction slider over to the right, we see that the beam former is narrowed even further. We are reducing that listening effort and making sure that in this extremely challenging environment with conversations going all the way around, that patient is picking up that speech. This is all leading to the reduction of listening effort which can free up cognitive resources for the purposes of things other than listening. So to summarize it, StereoZoom 2.0 is improving that signal to noise ratio and leading to better speech understanding. And for those with the most challenging listening needs, the more they have, the better they're able to do. Now as we know, approximately 80% of conversations happen from the front and that is some data taken from Walden et al.

That's going to make StereoZoom 2.0 the ideal situation for when speech focus from the front is most important. Now of course the other 20% of the time when speech focus or the speech is not coming from the front, we want to ensure that the patient is able to hear those other speech sounds and that is going to be where Speech Sensor comes in. So Speech Sensor is a spatial speech detection algorithm and it is constantly monitoring the sound environment, creating a 360 degree picture of the

sound environment around. Now, I say that it is constantly monitoring the sound environment. This is purely a fun question here. I will give you some completely meaningless bonus points if you know the answer, but you can pop into the Q&A, do you know how many times per second Autosense and therefore these monitors are looking at the environment.

So bonus points to anyone who knows the answers to that while you're thinking and putting the answers in the Q&A box, I will go on to say that the result of this algorithm is an accurate detection of the direction of the primary speech signal while in a challenging environment. All right, so I see one person answered correctly here and yes it is 700 times per second. So that is how quickly Autosense is scanning the environment and therefore looking for changes around the wearer. So let's think about Speech Sensor. We want to ensure that when the the primary speech is not coming from the front that the appropriate microphone modes are activated to provide better understanding and reduce listening effort.

And technical measures show that transitioning into a fixed directional microphone pattern when speech is from the side is going to give a 3.4 dB better signal to noise ratio. Now if the situation is where the main speaker is behind the patient StereoZoom 2.0 would transition to real ear sound and this is going to provide a measured 2.5 dB better signal to noise ratio. And we know that from independent scientific publications that having more access to sound not only provides clarity but reduces listening effort. So overall we can recognize what this algorithm does in the hopes of improving access to sound from the back and from the sides whether the patient is wearing a binaural set or CROS when they are wearing higher levels of technology.

Now moving on to CROS itself, this is going to be a system that allows people to enjoy conversation no matter where the speech is coming from, patients can be immersed in the words and live every moment. We are able to provide this innovative technology so

that patients can experience the world in a new way that maybe they couldn't do previously. The CROS Lumity portfolio is the Phonak solution for people who have an unaidable hearing loss on one side and either normal hearing or addable hearing on the other side. Remember we have SmartSpeech technology that's going to include all of our groundbreaking new features to improve speech understanding in the most challenging listening environments. With our CROS or BiCROS system, we are increasing environmental awareness from the unaidable ear and combining all of the features that make up Autosense OS 5.

0 to automatically adjust to suit any environment and they can experience better hearing over distance and in noise when combined with Roger Microphones. We have ease of use with the CROS Lumity system because all your patient has to do is put the devices on their ears. It is going to automatically detect sounds coming from both sides. When it comes to personalization, we know that hearing is personal and we offer the myPhonak and myPhonak Junior apps, these innovative apps are allowing your patients to personalize their hearing experience so that they can hear what they want to hear. So remember that you can pair your CROS system with our apps, you will have access to the volume and the features.

The only thing you will not be able to do is have the patient adjusting the CROS balance within the app. So something to keep in mind but also something we'll talk about shortly. Now connectivity, this is something that all patients are looking for these days or the very vast majority. So with universal Bluetooth connectivity and Roger and tap control, your patient can connect to the world around them very easily. They can multitask and embrace freedom in their daily life with effortless hands-free phone conversations. But again, we're going to focus on understanding the challenges of these patients and how the CROS system can benefit them. So what makes CROS L the solution for those with an unaidable ear on one side, first we need to think about noise.

We know that the head shadow effect is bad enough and when you're in quieter situations we can you know, kind of get by. But in noise things can get really, really tough. So that's where SmartSpeech technology is going to come in, including StereoZoom 2.0 as well as all of these other great features. Now CROS has compatibility to rechargeable Ricks and BTEs but we also want to remember that this excludes Aday life and Phonak Slim. So we've got lots of connectivity and lots of compatibility to provide patients with all of the different devices that they need. So we're going to take another dive into SmartSpeech but think about it in a little bit of a different way. So I mentioned before that recommending higher level technology can be very impactful when it comes to a CROS or BiCROS fitting.

So let's take a look at that even further. When fitting with a 90 level technology on the Better Ear, patients are going to have automatic activation of speech and loud noise, which includes StereoZoom 2.0, Speech Enhancer, comfort and echo speech and car and more. When fit with a 70 level technology on the better ear they will have access to manual speech and loud noise which can be added to get the benefits of StereoZoom 2.0 as well. We have to highlight that Phonak is the only CROS system that is able to use the stream signal to change the microphone mode of the CROS transmitter so that CROS wearers can take advantage of StereoZoom 2.0 in your speech and loud noise environments. So with StereoZoom 2.

0 speech intelligibility with Phonak CROS Lumity is improved by 1dB SNR and more than 10 dB has been measured in the results for 50% SRT in diffuse noise compared to unaided. So this is looking at an improvement over our previous CROS system. So we can truly think about this as the SmartSpeech technology advantage. We are going to have an improvement over previous systems or other systems and this is going to make your life even easier as a provider by being able to provide a system that does what it says it's going to do. So how do we achieve this? We have added a small

amount of gain through the hearing aid side and we're able to compensate for the reduction in gain of the resonant frequencies from a dome and receiver in the ear canal so that we see a measurable speech and SNR improvement as compared to Paradise when in a loud noise environment.

So again, we are always looking at not only how we can benchmark against competitors but also against ourselves. So this is again looking at comparing from Paradise to Lumity. A subjective outcome assessment study was performed with SUNOVA and the Western National Center for Audiology and it showed that individuals with unilateral hearing loss demonstrate higher subjective quality of hearing scores when fitted with BiCROS hearing systems as compared to being unaided. So this was looking at measures of the SSQ and the BBSS and those are linked in some of in our evidence library if you're ever wanting to read some of the the background information. Now we do have some new fun ways to personalize the hearing experience with CROS.

So remember that CROS L is available in one rechargeable Rick form factor and it is going to be compatible with the standard Rick options, the L-R and the R-T as well as the PR, BTE products. And as we had a very exciting update with the Lumity platform as a whole, we have CROS available not only in the traditional colors but also our new fun fresh colors. The charger ease is the default charging solution for CROS L-R and of course when paired with the L-R and R-T you will benefit from the magnetic retention of the hearing aids, the magnetic closure of the lid and the extremely reliable functionality of the charger. Remember that with the charger ease, we added the voltage booster or regulator to ensure that any charging issues we had in the past were that and a thing of the past.

Now when it comes to coupling CROS L acoustic coupling options are technically considered part of the sound delivery system 4.0 or SDS 4.0. So there is the CROS

tube that can be coupled with the dome options. You can also choose a CROS tube to be fit with a custom slim tip or a CROS tip. So whatever is going to be the most comfortable fit for your patient, you've got the options right there. Now the elephant in the room, our CROS battery life is more than adequate for a majority of patients but we do recognize that it is less than our traditional hearing systems. So because CROS Lumity is leveraging all of the performance benefits of SmartSpeech technology as well as the constant stream of that CROS signal, we are able to provide about 12.

5 hours a day or for a charge. So for a lot of patients that's the length of time they're wearing their hearing aids. If you have a patient that's on the kind of extreme end of that, you can always do a quick charge, pop the devices in the charger for about 30 minutes to add a couple extra hours onto that day. Now anything to know in target and of course do note that we are already in Target 9.1 always making some quick changes but you have a seamless connection to both devices using Noahink wireless but the connection flow overall is the same as a standard hearing aid fitting. So as soon as the hearing aid and the CROS device are unmuted, you're going to have the notification that appears stating that bin voice stream technology will activate and it's going to briefly reboot.

This only happens the very first time you're programming this system and that's because you're basically telling the devices that they are friends, they are a pair and they talk to each other. Once you go back in and connect to the pair another time, they already know this and you won't have to activate binaural voice stream technology. So during the fitting session the CROS signal is going to be streamed to your patient's better ear. So it allows for fine tuning in real time. Now what specific fine tuning would that mean? Of course that's CROS balance. So this is the tool that can be used to balance the loudness levels between the CROS transmitter and the hearing aid and it can be accessed in global tuning.

The default starting point is zero and this is the point where both sides are balanced at that same point, kind of a 50/50 split, you have at that point the ability to go up or down five steps. So you can ask the patient if they feel that they're perceiving sound louder in one side or the other and adjust this to make them feel comfortable. Now when you think about a CROS system, really any changes that need to be made can be done right there on the devices themselves. So on the hearing aid side, the patient can adjust with a short press volume up or down and that's going to impact the overall volume. On the CROS side, this is going to adjust CROS balance.

So the way that I would explain this to a patient because it could be a little confusing or tricky. That if they want to hear more from their CROS side, they would hit the volume up on that side, it will make the CROS side more sensitive and in turn lower the or kind of attenuate the hearing aid side and if they feel like they're getting too much from the CROS side, they can hit the down arrow which is going to decrease the hearing the CROS signal and increase the hearing aid signal. So another thing you can do is display this for your patients on a or client view, which can show a realtime display of the provided gain to the actual signal that is being picked up by the devices.

Now I see we are somehow kind of cutting close on time so I do want to kind of point out and remind everybody that there is all of your connectivity available with a CROS system. So again, you've got the flexibility with universal connectivity to pair to additional Bluetooth classic devices, the app or the remote control as the low energy devices and all of the additional accessories as well. Now personally I feel that any and all patients can benefit from Roger but of course these patients can benefit as well because in the most challenging of environments it is going to you know, be even more difficult for these patients in particular. So by utilizing Roger we can help to kind of put that signal right there in their ear and overcome both distance and loud noise.

Now one thing we do need to think about with a Roger system is what kind of system we're fitting and how it's going to work. So if we're thinking about a system where you've got the addable ear and you know the unilateral hearing loss, we've got one ear with hearing loss, the other ear is okay, maybe we fit them with the hearing aid and a Roger itself. But if we've got an unaidable ear, so one ear that can't do anything, the other ear that may need some help from a hearing aid, we can provide them with a Roger as well. But remember that when the Rogers signal is streaming, the CROS side is going to mute.

As I said before, you have the ability to connect to either of the apps with the CROS system, they'll be able to make adjustments to any of the typical adjustments, whether it be in the myPhonak app with the more advanced features or in the myPhonak Junior app with the more basic features. Now another thing to point out, not necessarily CROS related but always good to know you can fit the myPhonak Junior app for any patient that is wearing any of our hearing aids. So if you have a patient that you think can't handle the more advanced features or you don't want them using the more advanced features, you can absolutely have them download the myPhonak Junior app and have a more basic app overall.

Now I did want to just briefly mention the verification of CROS and you can pop in the the Q&A if that is something that you have done or do in your clinic. But to review, of course, you know we can look at atypical true CROS system and we need to think about how we can do verification and determine that the patient is getting benefit. So essentially we would start by placing the patient in front of that REM speaker. We are going to have the probe measurement in the hearing ear and at that point you are going to take measurements as the patient turns their head to or turns the feature the chair to a 45 degree.

So first we are me taking a measurement with the hearing ear kind of turned towards the speaker and we'd also want to take a measurement with them turned the other way towards having the unaidable ear towards the speaker. And essentially what we can do is do this with muted and unmuted to show that head shadow effect. So we can demonstrate that we see that head shadow effect by having it muted and having the patient, with the good ear towards the the speaker and then the bad ear. And then when we unmute the system, then we're going to see that the head shadow gap will close. Now if you see that the head shadow effect doesn't close, of course you can go into the software and make adjustments, whether it be to your CROS balance or to the gain strategy overall, if this is something that you haven't done in the past but you think would be something you'd like to incorporate, we do have a verification guide.

You can scan the QR code here or always look on our Phonak Pro website to get more information about doing verification on a CROS system. Another thing to note is that if you happen to use one of the verification systems that is compatible with Target match, unfortunately target match is not available when a CROS L fitting is detected. And this is because when verifying the CROS system using on ear real ear measurements, the verification assistant would disable the CROS stream. So you'll have to do this a bit differently and go in through your verification equipment module itself. So overall we can recap and kind of think about maybe some quiz questions that you might be seeing in the next 15, 20 minutes or so.

We know that with SmartSpeech technology we are going to have improved speech understanding in the most challenging environments. We have compatibility with the standard Rick devices as well as Naida and Sky rechargeable BTEs. We know that you can pair to your apps for an optimized listening experience. And of course we have even more options and choices by adding in these fun colors as well. So with our CROS system, we are going to have increased environmental awareness from the Unaidable ear and we're going to combine that with Autosense OS 5.0 automatic

technology that is going to adapt to any environment. With Phonak CROS Lumity, we have ease of use and all you have to do is put your devices on and hear well.

So I think the benefits of a CROS Lumity system are proven and I think we've talked about whether it's the research that's been done at our park facility, the research that's done in independent research facilities, to know that the performance is there and you see it with your patients. I've seen it time and time again where the performance of a Phonak CROS system is just kind of stands out. It's above, over and above anything that we can hope for our patients. So again, I'm going to summarize here by looking at a collection of statements that was gathered from participants of a study and participants were presented with the prompt one benefit to using my hearing aids in both ears.

So using a CROS rather than just one hearing aid on my better ears is. And I think all of these statements here show really well how using a phone act CROS Lumity system can help make the world seem brighter and support our belief that whether short or long, challenging or exciting conversations shine for everyone with Lumity. So with that, I thank you for joining me. If you have any additional questions, please don't hesitate to pop them in the Q&A box and I hope you have a wonderful rest of your day and week.