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A New ERA for CROS

Presenter: Katherine Cardona

All right, so just want to thank everybody for joining today. My name is Katie Cardona. I'm a clinical trainer with phonics. I am based in the southeast region in coastal Georgia. So you have a local clinical trainer, but please feel free to reach out if you have any questions that I can answer as well.

So today we're going to be talking about a new era for Cross. So after today's course, you should be able to list the new infinite products designed to address single sided hearing loss, describe the steps to fit infinite cross in our target software, and describe the benefits of smart speech technology that are available in infinite Cross.

So we know that unilateral hearing loss is one of the hardest ones to fit, especially if word understanding on that side isn't great. So when thinking about single sided hearing loss, we know that there are really unique listening needs and challenges that these populations have to deal with.

So there's several research and clinical definitions of unilateral hearing loss. But we'll take this definition that unilateral hearing loss refers to any degree of permanent hearing loss in one ear with normal hearing in the opposite ear. So this is the definition of true unilateral hearing loss and just some causes of unilateral hearing loss. We know the prevalence of unilateral hearing loss varies in the literature just due to different research methods and clinical definitions, but one in every 1000 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 overall prevalence of unilateral hearing loss in American adults is about 7.2%, about 5.2% of them having a mild hearing loss, and about 1.5% having a moderate or worse than worse unilateral hearing loss.

We know there are many causes of unilateral hearing loss, as you can see from this really long list, but of course, you have some ones that we talk about often. So congenital CMV, bacterial meningitis, sudden hearing loss, and Meniere's disease. These numbers would probably increase for adults if we expand our definition to consider those with one unaidable side and one aidable side that

isn't true normal hearing.

So we know that patients with unilateral hearing loss may experience audiological, social, emotional, and educational challenges audiological, those with unilateral hearing loss have difficulty with localization due to the head shadow effect. Difficulties may include hearing on the side with hearing loss overall and distinguishing sounds from background noise, which can make social situations and group conversations very difficult, leading to the need to make accommodations such as repositioning their head. I know we're all kind of guilty of turning our head if, say, we have an ear infection or something like that, or positioning themselves where there's nothing really on the poorer side. One recent study even found that difficulty following conversations and noise and the presence of tinnitus were significantly more likely with unilateral hearing loss patients compared to those with 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 for children.

Those with unilateral hearing loss are more likely to repeat a year at school. They're definitely going to need more support services and have an increased risk of speech and language delays.

So let's just take a look at what some of the studies show. So we know children with unilateral hearing loss who have a large asymmetry between their ears report the most overall fatigue. So if you can imagine not being able to hear out of one ear at all, how difficult that's going to be in school. We know adults with single sided deafness are five times more likely to report severe fatigue than patients with no hearing loss.

Listening effort and hearing fatigue are now known to affect people with unilateral hearing loss as much and sometimes more than those with mild to moderate hearing loss in both ears. Pretty significant.

So let's look at some of the challenges for people with unaidable hearing loss on one side. So we know there's multiple considerations. So profound hearing loss in one ear, sometimes called single sided deafness, significantly impairs spatial hearing abilities, which are reliant on the complex interaction of monaural and binaural hearing cues. Our brains use cues comparing sound between the ears to aid a localization and understanding speech and competing noise. Unilaterally deafened listeners lose access to those critical binaural hearing cues.

So you can see from the picture, when someone has normal hearing in both ears, they're able to localize sound accurately. With unilateral hearing loss, they're able to localize mainly in the field of the better ear, but due to the head shadow effect, they are losing some of that information.

We know overall, this is not the population that you're seeing every single day, but we know that there are big challenges for this group of people. So we have difficulty hearing and noise, which is going to lead to less socializing and increased listening effort and fatigue. Difficulty segregating sounds, so difficulty localizing, and once again, increased listening effort and fatigue. See a trend here? And we know there's some difficulty with speech understanding.

So there's some selective attention, sometimes reduced work productivity, and once again increased listening effort and fatigue. Unilateral hearing loss is associated with those audiological, psychosocial and educational challenges like we talked about. So it affects communication, social interaction, and is associated with reduced psychological and social well being.

So how CROS systems help overcome these hearing challenges? So rehabilitative solutions like the CROS system are on the rise. So contralateral routing of signal cross, or bilateral contralateral routing of signal, try to say those five times fast, are non invasive, cost effective, and easy to use options. So the overall benefit is to, or the overall aim is to improve speech understanding and quiet and in noise when the speech is coming to that poor ear. And we know increasing this communication ability is

fundamental for social, emotional and physical well being.

So let's just look at a quick review. I'm a visual learner, so I, when I was in school learning about cross systems, I always liked looking at pictures. So making sure we're all on the same page. A traditional cross patient has an unaidable ear and then a normal hearing ear, and the signal is being routed from the unaidable ear over to the normal hearing ear. In a bi-cross system, the unaidable ear is on one side, the other ear, it does not have normal hearing.

We are using a hearing aid on that side to amplify those sounds. So we call this a bi-cross, just a little fun trivia fact. Did you know the first cross was introduced in 1965? It's going to say, I doubt that's going to come up in your local trivia, but it's a nice little audiology fact.

So, as you all know, phonic has been doing cross for a very long time. So back in 2011, we introduced our cross solution that was based on a 10.6 MHz wireless technology. So if we have any of the more experienced audiologists in the crowd, you probably remember when there were cross wires between the two. So by utilizing our binaural voice stream technology, our cross system was able to stream bi directionality in real time between the CROs and the hearing aid. In 2015, the CROs two was introduced.

So this was a huge improvement over the original CROs device as it was more selective about what was being picked up and transmitted to the hearing aid. We then moved on to CROs B. We moved on to our CROs BR, where we introduced rechargeable Cross 2021 cross paradise recently 2023 Cross luminary. And today, we introduce the Cross infinitenn.

So, the new Cross infinitenn is compatible with the new audio infinitenn R. The Cross infinitenn will also function as a bi-cross if needed, based on how the audiogram is set in the software.

So at the heart of infinitenn is the new era chip. So this is powered by 552 million operations per second. So if you can imagine how fast and how powerful this device is, there is 74% more ram for faster processing. And this is compared to luminary. And we knew luminary worked very, very well.

The aerochip provides digital sound processing for exceptional sound quality from the first fit, consistent, reliable technology, and improved power management. So that is something that everybody should be excited about. So we're going to walk through the aerochip a little bit more.

So the hearing aid side is what's really running everything. And phonic really prides ourselves on sound quality. It's all based on our, our proprietary fitting formula, adaptive phonic Digital. So, almost 20 years ago. So back in 2005, this is when phonic first introduced adaptive phonic Digital.

It was designed to compress a wide range of sound intensities into a narrow intensity range. What adaptive phonic Digital does is it maps the hearing impaired loudness function into a normal loudness function for different hearing losses, with the aim of compensating for hearing loss recruitment and restoring that dynamic range. So, for those of you who may remember, Marvel. So back in 2018, we really focused on that love it, first sound and first fit acceptance.

In 2020, we launched paradise with adaptive phonic Digital 2.0. This utilizes adaptive compression speeds and an additional knee point for loud sound. It's giving patients an even better sound quality. And now, with infinitenn, we have launched adaptive phonic Digital 3.0, which is an even bigger improvement.

So everybody asked me when we come out with these new fitting formulas, well, what's so different about it? So the next step was to look into what developers of high quality headphones do to maximize sound quality and see if we could take that technology and put it into our hearing aids. So they use these things called Harman curves, and it's a theoretical target sound signature that's said to produce

the best one size fits all fitting that most listeners would prefer.

So we use these Harman curves to develop adaptive phonic Digital 3.0. So, using the Harman targets, like I said, this is described as that best one size fits all, we were able to take that technology, put it into adaptive Phonak digital, and check the offsets that we needed to make to really maximize sound quality for our hearing aid patients. So the graph here shows how targets for adaptive phonic Digital 3.0 are adjusted based on adaptive phonic Digital 2.0 for the acoustic signal, which is in black. You can see that we didn't really need to make too many changes. It's just a few decibels in total.

But the changes have made such a big difference. How much of an offset there is is based on acoustics. So here on this graph, this is for vented or occluded acoustics. The offsets are going to be less for more open fittings. These offsets are applied to both for the infinitenn devices are applied to both adaptive phonic Digital 3.0 and adaptive phonic Digital contrast 3.0.

Excuse me.

So here at phonic, we'd like to test what we are putting out there. So we looked at patients using first fit with adaptive phonic Digital 2.0 versus adaptive phonic Digital 3.0. The studies were focused on comfort and maintaining speech clarity, how intrusive that background noise is, and overall preference. So the results from the study show that first fit with adaptive phonic Digital 3.0 is preferred over the first fit with adaptive phonic Digital 2.0. So more comfortable, less noise, intrusive, and just overall preferred.

And we have to say that not all first fits are created equal. So we also tested our first fit against another leading manufacturer that's been perceived to have a great first fit. In the past, these patients were blinded, so the hearing aids were put on them from behind. They could not see if it was phonic or this other manufacturer, and they were fit to just first fit. Overall, 93% of patients preferred phonic's first fit

with adaptive phonic Digital 3.0 over this other leading manufacturer.

And I will say this was at their top of the line product, first fit. And these were experienced hearing aid users, not all of them wearing phonic previously.

So let's look at what kind of runs everything in the background. So you probably all have heard of Autosense. So Autosense OS is the controller of how our hearing aids respond and adapt in the ever changing listening environment. So this is our scene classifier. Autosense OS is based on 24 years of experience with artificial intelligence and machine learning using real world recordings.

The hearing aids are scanning the environment 700 times per second, and the hearing aids are then deciding what's the best signal for the patient in this environment right at this second. There are so many unique setting combinations. I would hate to be the engineer that would have to count all of these. But what does that mean for our patients? It means that the hearing aids are seamlessly adjusting based on the environment.

And we know that patients are not always the best at pressing buttons and getting to that program or getting out of that program throughout their day.

So one of the other things you may have seen with phonic is our smart speech technology. So smart speech technology is an umbrella term, and this is a group of features that are there to really focus on reducing listening effort. So you have things like dynamic noise cancellation, motion sensor, hearing Roger technology, speech enhancer, stereozoom 2.0, and speech sensor. These are all orchestrated by Autosense. The available features are determined by the technology level.

So not all of these are in every tech level.

So one thing to note is that you will not see a designation with the cross and finio. And that's because the CROs is going to adapt the technology of the level of the hearing aid. So it's important when we consider which hearing aid we want to fit on the better ear.

So when fit with the 90 level technology on the better ear, users get automatic activation of speech and loud noise, including stereozoom 2.0 and access to speech enhancer. Stereozoom 2.0 is going to be our narrow beam former that uses four microphones to create that narrow, what I like to think of as flashlight beam. When this is set to max, the signal to noise ratio improvement is 6.4 decibels, which is pretty big. Speech enhancer is going to take soft speech in quiet and boost it up to ten decibels. So I want you to think about those patients who've got young grandkids that they need to hear, or they're a caretaker for someone who has a really soft voice.

That is where speech enhancer is going to help. And even when you have a cross, if you fit them with a 90 level hearing aid on the good ear, they're going to get access to speech enhancer. When they're fit with the 70 level hearing aid, speech and loud noise can be added as a manual program. So they get the benefits of stereo zoom 2.0, but they do have to access it manually, as opposed to it being automatic in the 90 level.

So let's start with addressing one situation that patients are in the most often. So this screen should look pretty familiar to you. So let's think about calm situation. So in these environments, think about that soft spoken spouse or a grandchild or speech from a distance due to furniture configuration. If only the monaural signal is available, these patients don't have access to the binaural summation to give an extra bit for distance or soft voices.

These situations are even difficult for binaural hearing users, so you can only imagine how it is if they only have one aidable ear. The advanced feature of speech enhancer is proven to help with these soft voices and quiet. So specifically, research has shown that using speech enhancer can reduce fatigue

by about 21%. And there's some improved memory and comprehension performance.

Think about your patients. I'm sure there's so many that you can think of in your clinic that would really benefit from having speech enhancer, not just your cross patients, but also your binaural users. What could your patients do with their day if they were less fatigued? I know we were joking before this started. I'm on my third cup of coffee today and I have normal hearing.

I'm sure if I had hearing loss and specifically unilateral hearing loss, how much more fatigued I would be.

With all of these considerations and proven benefits, speech enhancer is now going to default on for all infinitenn 90 users, regardless of experience level. So just a thought, keep it in the back of your head when you're fitting across. Getting a 90 on that good ear is really going to add a lot of benefit. So now let's talk about background noise. So we can't talk about background noise without talking about where we have been in the past.

So this is a depiction of how the original cross system worked. So when in quiet, both hearing aid and the CROs device would have omnidirectional microphones activated.

As you can see, the hearing aid microphone is going to adapt on the hearing aid side. So real ear sound, the cross hearing aid is, or the cross side is going to stay in an omnidirectional mode. And you can see how that hearing aid microphone is changing.

So starting with cross two. So back a long time ago and continuing up until infinitenn, we can see that all of this has advanced. So in quiet, the hearing aid and the cross will both utilize real ear sound, which takes into account the pinna effect. This helps to lessen the amount of noise being sent from the poorer ear to the better ear.

When in moderate levels of noise, our adaptive beamforming is going to kick on on the hearing aid side, the cross side is still going to remain in real ear sound.

But what makes our updated cross system so special is when the cross device actually helps out and helps reduce that background noise even more so when we get into a loud noise situation. The mics of both the hearing aid and the cross will work together as a four microphone system to allow that narrow beam former to only pick up the intended signal. This allows for much less noise to be transmitted to the hearing aid and ultimately ultimately leading to improved speech intelligibility and reduced listening effort. As a reminder, if you were fitting the audio infinitenn 90 real with the cross, speech in loud noise is part of Autosense OS as an automatic program. If you are fitting an audio infinitenn R 70, speech and loud noise is a manual program.

And with stereozoom, patients have that additional control in the Myphonic app so they can use the hearing aid or, I'm sorry, the speech focus slider to make it a very narrow beam former, as well as adjusting the noise reduction, which adjusts dynamic noise cancellation.

So Autosense OS 6.0 and adaptive phonic Digital 3.0 are the core features coming with infinitenn, which offer exceptional sound quality from the first moment. The comfort features such as sound relax so that impulse noise reduction is now available with standard performance level. So it's now in our fifties level technology and real ear sound is now a benefit for our 30 level. So previously real ear sound was not available in thirties and it was an omnidirectional microphone. Now you have real ear sound.

Speech and car is available at 90 and 90 performance levels, and we've added it to 70 and fifties as well. Due to the adaptive compression speeds and greater acceptance of reverberant conditions, we no longer have a comfort and echo program. And that's because we found with all of our research, patients are adapting more to the reverberation.

All right, so let's talk about connectivity. One of the other hallmarks of the era chip, which runs all of our infinite devices, is our made for all connectivity and Bluetooth improvements. So as you can see, we are still using Bluetooth low energy for our apps, for the remote control, for the no link wireless Bluetooth classic for your streaming. We have airstream technology for the partner mic and tv connector. We have binaural voice stream technology, which is that ear to ear communication.

We have Roger technology. And then we also have made these devices future proof so they are ready for broadcast. When broadcast comes out into the market, all of this is done in one chip.

So what's new? We have a new patented antenna design which gives up to six times higher transmission power, which is fantastic. This is compared to our luminary device. And we know our luminary device was really good when it came connectivity. The benefit of all this is that there's a new level of stability, so calls are going to drop, much less.

The streaming distance is two times what it used to be. Now, granted, this is going to depend on the phone. As an Android user, it makes my heart happy that androids will stream a little bit farther than iPhones, but still we are doubling the distance of what it used to do with our previous chip.

As a reminder, the Cross infinitenn R is compatible with the audio infinitenn R. You will see we have another new product called the audio infinitenn sphere. The cross is not compatible with this, and that's because the advantages of the improved power consumption and extended use time would be limited by the sphere. Both the sphere device plus the CROs device are power and streaming intensive, so it would not benefit the patient. Let's chat about chargers for just a quick second.

When you order an audio infinitenn R and the compatible cross IR, your default charger is going to be the charger Ric infinitenn. From the picture, it probably looks a little bit like the luminary charger. It is a

little bit bigger. Not by much. There is an option to purchase as an accessory the charger.

Go rick infinite. This has a built in battery pack with three full charges.

Now, I know this is a hot topic with everybody. Battery life. So thanks to the improved power consumption with the aérochip, the cross and bi cross system can now benefit even more when using the cross ir system. So clients can look forward to having a battery runtime of over 16 hours, which is an improvement of more than 30% compared to luminary. So giving them a full day's use.

I'm going to put this big asterisk out there. This is all dependent on how much streaming someone does. If someone is doing a lot of streaming, the battery is going to be shorter. The good thing is, if the battery is running low, you can easily charge the cross system in one of the two new chargers. You can get a full charge from zero to 100% in 3 hours.

Even if you just need a quick boost. Popping it in the charger for 15 minutes is going to give you an additional 30 minutes of wear time. Think about how this is going to benefit your patients. And like I said, 16 hours is a rough estimate. It is going to vary individual to individual, taking into account the amount of streaming someone's doing.

So the audio infinitenn Rick portfolio comes with more colors, which I really love. As you may see, we have taken off beige. So h zero, which was our basic beige, I refer to it as Barbie leg beige. That is not available. We are adding three new colors, copper, sienna, redhead, and Atlantic green.

I've seen these in person. I think they're really, really pretty.

Now, one of the things you may have noticed is I didn't mention anything with a life product, and that's because we have taken that technology and put it in all of our rick hearing aids. So there's nothing that

is labeled life because this is now our standard. So let's take a look at what makes this ready for rain, ready for dust, ready for life. All of the internal components, including the cross, are coated with perylene, and this is to give a layer of moisture protection over all of the electronics. The housing is coated with a Teflon like substance that is going to repel water.

The battery is fully encapsulated. And if you remember from the life devices versus the regular luminary devices, there were two receiver, I'm sorry, microphone ports at the bottom. This is to help if a bead of water rolls over the top of the device, that water is not going to go directly into the mic port. So all of our infinitenn devices have two mic ports down at the bottom. So really, these devices are ready for people to wear and ready for life.

phonic is really big about reliability. So, like I said, we are making this our standard with beyond IP 68 testing. Our hearing aids undergo 10,000 hours of testing. So if you think about 10,000 hours, it's the equivalent of if a patient wears their hearing aid 16 hours a day for the equivalent of two years, that's a pretty long time. And we know that we want our patients to really wear their devices and test them.

So some of the testing that we've done includes organic material, aging tests, humidity tests, charging contacts tests, condensation, chemical resistance. With an ecosystem built for reliability, the new design, stringent testing, you can be sure that recommending phonic for your cross patients and even your binaural patients are going to give you that peace of mind.

So let's talk a little bit about receivers. So infinitenn uses a new sound delivery system. So SDS 6.0. We've listened to what you've had to tell us and we've added a double zero length for shorter ears. We are keeping the Serumm stop filters.

Serous shields will be discontinued soon. Everybody is going to be in a serous stop. In regards to the cross, you do have that dedicated cross receiver, so it fits more snug than the previous cross tubes that

you may have seen in many generations back. Our up receiver has an increased bandwidth. So instead of going out to about 6100 hz, we're going out to about 8000 hz.

In terms of frequency range, the receiver port and the pins is an eight pin plug. So there is no pin to pop out. You can just pull the pull the receiver out of the hearing aid just like our life devices. But those pins that go into the hearing aid, there are eight of them. And this is to help with that Bluetooth connectivity and transmission speed.

And to make everything future proof and broadcast ready. There is also a new receiver handling tool to support attaching or removing receivers from slim tips because we know everybody loves doing that. These devices do use the same domes as your marvel paradise and luminary platform. So you do not need to get a new stack of domes. Just the receivers are changing and I know it's kind of hard to see.

I'm going to try to put my laser pointer on it. If you look right here on the receiver port, there is a little black ring. That black ring is a silicone seal and that is an extra layer of protection against moisture. We are doing these to make sure your patients are getting the most reliable hearing aid they can.

So let's recap on what the aérochip delivers. So with the aérochip, it's our new ultra responsive chip. It has market leading connectivity that is taking a huge step forward. Aero hosts the new level of digital sound processing including the AI dome proposer which is going to recommend vented domes. More than open domes, we have adaptive phonic Digital 3.0 and our autosense OS 6.0.

Industry leading universal connectivity is brought to a new level for instant compatibility with all Bluetooth devices. We are setting the path for the future by making it broadcast ready. And the new patented antenna provides us with up to six times more wireless transmission power for a more stable Bluetooth connection. We know for all of your patients, Bluetooth always comes into the conversation. So we really want to make sure that your patients have the best connectivity there is.

So an additional cross option they are still available. So if your patients need a solution with a telecoil, they can use the cross luminary device with the audio luminary rechargeable telecoil and for BTE compatibility, the cross luminary partners with both the NIDA LPR and the Sky LPR. If a patient does require a rechargeable or, I'm sorry, a disposable battery, not a rechargeable battery. The cross P 13 and the audio P 13 t is still available.

Okay, so let's walk through target. So when you are connecting to target, you're going to want to connect the cross transmitter and the hearing aid using the Noah link wireless. The connection workflow is exactly the same with the standard hearing aid fitting. One of the benefits is that the cross transmitter is active during the fitting process and allows for fine tuning in real time. So let's take a look at some of the improvements.

So your connection sequence is very familiar. You'll see both devices are detected in the software. When the devices connect, you'll notice you have the option to unmute. When you unmute the cross side, this notification will appear stating that binaural voice stream technology will activate. You want to click ok.

What is happening is the cross system needs to realize that it's actually a system and it doesn't know this until the hearing aids are saved. This happens with your speech and loud noise program for your traditional 90 level fittings, but it works the same with your cross because you're using the microphones, transmitting signals back and forth. When you click ok, the hearing aid is just going to quickly reboot. And now the hearing aids know their repair. The other way to do this is if you just click the save button at the top.

The hearing aids now know that they are a pair by activating this microphone. The cross signal is now being streamed to your client's better ear. So that means you can make some fine tuning changes

changes in real time in the office.

So on the acoustics parameters screen, this is where you're going to want to make sure the acoustic coupling on that hearing aid ear is the same as what you have in their ear. We have this new AI dome proposer that I had briefly mentioned a minute ago. So we've used AI modeling of fitting data from all across the world to determine how acoustics are being fit with audio devices. So we analyzed data from over 40,000 real world fittings to determine a patient satisfaction score. It was based on how long they're wearing the devices, the appropriateness of the acoustics and are we maximizing speech intelligibility?

The longer they wear them, the higher the satisfaction score. Now, we can pair that to what we recommend in the software based on what they were actually fit with. And like I said, these are successful fittings. So if someone is in an open dome but has a ski slope hearing loss, we know we're not maximizing speech intelligibility. So we're really looking at those best fittings.

So this new AI dome proposer takes into account the degree and configuration of the hearing loss. It takes into account the symmetry of the hearing loss, which is going to play a big role for your cross patients. What fitting formula is being used? Are they a new user or experienced user? And whether it's a binaural or monaural fitting, overall, you're going to see more vented domes and less open and power domes.

I also want to put out the notion of the acoustic optimized vent. This is nothing new for phonic. This is something that's been there for a very long time. But this algorithm has been patented by Synova, and this is for your custom devices. So for your cross devices, for the hearing aid side, either a seashell or a slim tip, we are taking those ear mold impressions, looking at the receiver that you ordered, and using our proprietary rapid shell modeling software, we are there trying to create the greatest venting effect possible.

So with the aov, the algorithm we design, event that is has the best effect for each instrument, regardless of amplification or with regards to amplification, ventilation and the risk of feedback, the shape of the vent maximizes the effects of the venting. And there are so many different vents possible when you get this in your clinic. On the seashells and slim tips, there is a six digit code that you will enter into the acoustic code tab under acoustic parameters. If you are like me and don't feel like pulling out your otoscope to read those tiny, small numbers, it is also written on your sheet that you get in the hearing aids.

We have a few different coupling options for your cross system. So really for the cross side, we're only concerned about retention because no sounds being delivered into that ear canal. So there's a new Crosstube 6.0 which is going to work with the infinitenn devices. It can be used with domes or a slim tip. You can also order a cross tip that is similar to a slim tip, except the wire is embedded in the mold.

So it kind of is similar to a seashell. But obviously, we are not putting the power in there.

So moving on. So you'll run the feedback test. You'll proceed to global tuning. In your global tuning screen you'll see a cross balance tab.

So cross balance is a tool designed to mix or balance the mix of levels between the cross transmitter and the hearing aid. So if you're familiar with fitting cross in either the belong paradise or illuminary platform, it is very similar for the CROs and final. The starting point is zero, so that means the transmitter and the hearing aid are balanced at the same input volume. At this setting, you can go up or down five steps. The range is available from negative 15 decibels to zero decibels on one side and same for the other.

The levels are inversely related. So as you can see, if you increase the input from the cross, the hearing aid microphone will decrease. Some patients prefer the cross input slightly raised, reporting that it gives them better perception of localization. Cross balance can be set here or patients can change it real time on earth. In the program options tab for fine tuning, you can see how that hearing aid microphone is configured.

You'll notice that for streaming programs, the cross microphone is muted for speech and loud noise. You can see it confirms that both devices are going to use stereo zoom 2.0 and device options is where you're going to review how the patient can use the button. So let's chat a little bit about the button. So on the cross side, the patient can adjust cross balance in the moments. So a short push on the cross side up is going to increase the input from the cross side and decrease the hearing aid side.

A short press down is going to do the reverse. So similar to the cross balance that you were setting in the beginning in your global tuning screen. Patients can make this adjustment on ear with their cross side. On the hearing aid side, a press up is going to increase the volume of the combined signal. So we are looking here at overall volume.

A short press down is going to decrease overall volume. So think about the cross side as the input from the cross side. Specifically the hearing aid side is overall volume of the signal.

Now we know not everybody likes to press buttons, so we do have the Myphonic app that is available. The hearing aid side is always the Bluetooth side when it comes to pairing for phone calls and for audio streaming. For additional control, the cross infinitenn is compatible with the Myphonic app and can be used to make program changes, overall volume changes do remote support, cross luminary and paradise are compatible with both the Myphonic app and the Myphonic Junior app coming soon I know this is something that I have been asked about so many times. We're very excited to announce that coming soon with Myphonic nine. I do not have a date yet.

Cross infinity patients will have access to the cross balance features and the cross mute right and left is going to refer to the patient's right and left ear. So they don't need to think about, you know, which side is going to be the hearing aid side versus cross. This is also going to be backwards compatible to luminary and Paradise cross solution. So I know everybody is very, very excited about this.

Also coming soon with Myphonic 6.9 is a find my hearing aid feature. So this has been much, much requested. I know, I hear it on a regular basis. This is going to be available for our infinity devices. This is not backwards compatible and this is one of those benefits to having the new era chip.

This is going to indicate the last connection point. As you get closer and closer to the hearing age, you will get an indication of signal strength. The stronger the signal, the closer you are. So there's so much to love when fitting infinity and the cross infinite.

So let's chat a little bit with the time we have left on verifying cross. So it's well established that verification is part of best practices. So I want to walk you through how to easily verify across fitting. We also have a cross verification guide that was also uploaded. If not, you can find it on my phone or you can find it on phonic.com under my professional so here we have an example of an audiogram for a CROs user.

The left ear hearing is within normal limits and there's a profound hearing loss on the right side. To start, you'll connect the CROs and the audio in target. Both devices should remain in startup so that calm situation don't use the verification assistant as this will disable the cross stream. For the same reason, don't use target match and that is because it is not going to be detected. So step one, you're going to put the probe mic in the real ear reference and probe mic tube into the better ear.

Step two, you're going to select Rick in the real ear measurement system menu.

Step three, place the audio and the cross devices on their ears. Leave the devices muted and perform the open rem calibration with the client facing the speaker. Step four, orient the hearing aid between a 45 and 90 degree angle facing the speaker. Unmute the hearing aid keep the cross side muted and make that measurement it.

Now we're going to unmute the cross and change the orientation of the client so that the unaidable ear or the cross is now oriented towards the speaker. So it should be pretty much the same. So if it's 45 on one side, do 45 degrees on the other side. When you measure this using the same signal, it should be pretty similar to curve one that you originally measured.

Just to demonstrate the head shadow effect, keep the unaidable ear facing that speaker and mute the cross microphone. You will see there's going to be a difference in the results and that is going to demonstrate the head shadow effect. This will go away as soon as that cross is unmuted.

If the output when the stimulus is presented to the cross side is lower than the first one, you want to try increasing that cross balance or increasing the gain at the relevant frequencies. It's important to note that if the gain settings dictate the absolute output in the better ear, whereas the cross balance adjusts the relative contribution of the cross. So I would not do large adjustments. Overall, they should be pretty similar.

Probe microphone measurements can be easy, they're objective and it's reliable to really verify what is happening in the ear. Like I was mentioning, there is a cross verifications guide available which goes through step by step guidance on how to perform this verification with the phonic cross system. Same thing with a bi-cross, the one that was uploaded. And if you scan this QR code, it's going to say cross I verification. This is the same process whether you're fitting across infinite, across luminary, or across paradise.

So it pretty much just walks you through those last few slides that I just went through. But you have it in written form.

So with exceptional sound quality, unparalleled connectivity, improved battery life, and all of the other great things about cross infinitenn and audio infinitenn, you can be confident that you are providing quality solutions that you can count on, and these truly make a difference for your patients.

So let's kind of recap these benefits for the cross infinite. So we have improved speech understanding and noisy environments. We talked about by using the 90 and the 70 level, you're going to get benefits of dynamic noise cancellation. In your nineties. You have the automatic stereo zoom 2.0, which is really going to make a narrow beam former and reduce background noise, you can follow conversations wherever they're coming from.

So by taking out that head shadow effect of not having any input on the poorer side patients are able to figure out and localize better. There's improved subjective quality of hearing, ease of communication and sound quality. Think about reducing listening effort for your patients. We still have that universal connectivity to smartphones, tv, Roger, and so much more so that made for all connectivity that you know and love from phonic. And just as a reminder, they are future proof.

So when broadcast comes out in the market, we will be ready. They are easy to use and we have those great rechargeable solutions.

And I would like to end with some of the statements from participants from a recent study. So I am very much a technical person. I love hearing the data, but I love hearing from patients. So these quotes are gathered from these participants from a recent study. So they were presented with the prompt.

One benefit to using my hearing aid in both ears cross system, rather than just one hearing aid on my better ear is dot, dot, dot, finish the sentence. You can see what these patients have been saying. Less worn out physically and mentally missing fewer words. I feel like less of a burden. I'm more aware of my environment.

Social situations are less daunting. I can recognize the nature of sounds more quickly. I feel safer overall. That's huge. I don't have to keep turning.

It's easier to hear in a classroom setting, and I can hear speech from my weak side. So I really think that this shows how using the phonic Cross can make the world seem brighter and supports our belief that infinitenn unlocks a world of possibilities for everyone.

All right, so we've got a few minutes left. Does anyone have any questions?

I'm just gonna say, I don't see any popping up in the chat. See if I can pull up the q and a. There we go.

So what would be the benefit of doing 90 over a 70 for the hearing aid? So we did. I mentioned this a little bit. One of the things I want to mention with the infinitenn 90 devices versus the infinitenn 70 devices, the infinitenn 90 devices, you are going to also get speech enhancer. So even if your patient is not in a lot of noise and has the ability to go into the app and change into a manual speech and loud noise program, you want to give them speech enhancer.

So I can talk forever on speech enhancer. It's probably my favorite feature, but speech enhancer is only available in nineties, and it's in your calm situation. So what happens is you have a soft input level, about 30 to 50 decibels. And when that sound is coming in and quiet. We are taking that signal and boosting it up to ten decibels.

I always like to think about specific patients when I talk about features. So if you everybody has this one patient. I know I can think of a few that I saw in my career. You have a husband wife duo. Wherever the patient, usually the husband is wearing hearing aids and his wife has a very soft voice and she is also from sitting on the other side of the room.

That's where they've been sitting for 40 years. And they're not going to change it, even though they're not in a lot of background noise. Where you would normally think of these 90 level features, that feature of speech enhancer is going to be beneficial. We've all heard it where patient comes into the clinic and says, I hear you just fine. We all know in this profession that we can boost our voices and can project.

A lot of patients family members can't. So speech enhancer is going to be that big kicker that is going to push people into the nineties. All right, another question that came in. Any idea of custom cross with the new chip is on the horizon? I have no idea.

So at the time that we are doing this presentation, the new audio, and I'm sorry, the new Virto infinite is not available. I do not know if a cross is coming. I know that we have told our development team that that is something people have been asking for, but I do not know if it is on the the horizon. So if you have any questions that we have not answered, please reach out to your phonic clinical trainer or feel free to reach out to me directly. I hope everybody has a great day.