Oticon CROS: A Revolutionary Sound Experience

Recorded September18, 2020

Presenter: Maegan Mapes, AuD

AudiologyOnline.com Course #35592

Partner: Oticon

- [Maegan] Welcome, everyone. We are gonna talk this afternoon about the new Oticon CROS product. My name is Maegan Mapes. I am the Education and Training Specialist for Oticon. I am in the Mid Atlantic region. So I'd like to walk you through our CROS, which was just recently released. And we've had great success with it. So please feel free to settle in and follow along. So these are our learning objectives, what I would like you to be able to do is, by the end of this presentation, I would like you to be comfortable with these key points. So I want you to be comfortable being able to describe the acoustic limitations of individuals with single sided deafness. Like you to be able to describe how an unprecedented signal processing technology, can provide better conditions for speech understanding and localization. I would like you to be able to identify the full portfolio of devices that are available to support the CROS. And finally be able to list the steps to set up and program the Oticon CROS. So let's get started here. So the Oticon CROS is able to provide outstanding sound quality for those patients with single sided deafness. So what are many of our patients experiencing? Many of our patients have difficulty understanding and noise, and reduced localization ability.

So many of us now know that we have these patients. And these are the situations where they really struggle. What we're really gonna talk about today, is a lot of these patients, especially ones that have normal hearing ears, can be very deceptive. And we don't always see when they're having these problems. So these are things that we want to be able to help them with. Our CROS is able to provide them excellent clarity and sound quality, because we have Open Sound Navigator on the CROS side. So that's something we're gonna talk about in detail today. As far as, what does that mean? Why is that different? And how can that be helpful to our patients. And finally, we were the world's first company to have TwinLink dual-streaming for people with single sided deafness. So I'm gonna explain to you what that means. But we were very, very excited to be the first on the market, to be able to have this feature. So to fully understand the CROS and how it can benefit your patients, let's first talk a little bit

more about single-sided deafness. What is it? Who does this impact? And what are the challenges that these people are facing? How many of you have seen a client with single-sided deafness in your clinic? So let's do a little poll here. Okay, so how often are you seeing these patients, three to four times a month, one to two times, or only occasionally. So let's give you a couple minutes here to be able to fill this out. So yes, many of you are seeing these patients just occasionally. And that's really what I felt to whenever I was in the clinic, it was something I think sometimes came in waves. Sometimes there were a lot of them, and then I might not see one for a couple months. So it varies obviously with every clinic. But it's not always something that we see every day like high frequency hearing loss. So in your mind, what constitutes single-sided deafness? So let's talk about that a little bit more here. What exactly is single-sided deafness? So it is defined as unaidable hearing in one ear, and normal hearing or aidable hearing in the other ear.

So we really have to look at that ear and make sure that we have done everything we possibly can, to try to utilize that ear in its best of its ability. And if we've done everything we can, we've had them do demos and trials on that side and we find that, that ear is not helping them. Then they really truly are a candidate for a CROS device. So many times people will do functional gain testing, and they'll do demonstrations. And we just need to make sure that that ear is not giving them any assistance. It's very difficult sometimes when you're looking just at an audiogram, sometimes it looks like a patient might be a CROS candidate by just looking at an audiogram. But then you go and you do functional gain testing, and you find out whenever they try that, that maybe it actually is giving them some benefit. Or they may do functional gain testing and find out that it's making it worse for them. So we don't know until we try. So a true single sided deafness patient gets no benefit at all, from amplification on that side. Do you know how many people suffer from single sided deafness? Anybody, anybody? Each year 60,000 people, which is not a lot, so it is less than one percent of the general population. So small percentage of patients that we see. But it's still a very, very

important population, and a population that really wants and needs the assistance from us. So we can't ignore them. Even though we don't see them that often, it is still a population we have to give a lot of attention to, but it is definitely a smaller population for us. So what has caused this. So we have many, many different things that can be causing single sided deafness. So let's look at a few of these. So we have sudden sensory neural hearing loss. We could have infection, we could have stroke, trauma, acoustic neuroma, many different things can be causing this to happen. And some people are simply born with it. And something newer that people are seeing, is that sometimes COVID is even causing these sudden onset types of hearing losses. So it can be any one of these numerous, numerous causes. Who are these clients? Typical user of CROS could be anybody. When I was in clinic, I had little ones that had CROS devices, and I had hundred year olds that had CROS devices.

So it really can be anyone across the board. It is not a particular population that we're dealing with, when we're talking about this typical CROS user. It could be anyone of any age. So what do these patients, children or middle aged or seniors? What are they actually struggling with in their every day to day life? These are the things that most people are reporting and that we see in most of our patients that have the unilateral type of hearing loss. It is very interesting, because as I said earlier, that can be kind of deceiving. Because the patients oftentimes look okay, especially when you're in a one on one situation. But when you get into a crowded situation where there is noise, that's where we really see that they struggle, they're really squinting, and having a hard time following information. And localization, that might not be something that you and I are noticing from our patients or from our friends and family members that have this type of hearing loss, but they don't know where sounds are coming from. So it can be scary. You're sitting somewhere, you're sitting in a restaurant minding your own business and all of a sudden there somebody is, right on top of you. It is something that can really be very startling and very unnerving for a lot of our patients. So, we really want to do whatever we can to help these patients. What is the importance of

binaural hearing? So what are these patients missing out on, by not having that ability? So binaural loudness summation, what exactly is that? That is that the signal is perceived as louder. So that is something that is happening with binaural summation, binaural redundancy. So that's the brain's ability to receive two signals at same time, and giving them a lot of assistance in a noisy situation because they're essentially hearing the signal twice. So if you have normal hearing like I do, that is something that is obviously very helpful, I don't even realize that that's happening, it's just happening. Binaural squelch is the brain's ability to suppress noise from spatially separated sources. So that is something that is happening because I have two functioning ears, and then the head shadow effect, that is giving timing information. So that is telling me whenever the sound is coming from a certain direction, and that is reducing a sensation level of speech in the other side, so I know what direction things are coming from. So what are the treatment options? I'm gonna do another poll here. So we have the treatment option of the CROS. And then we have the bone conduction device.

So I'm going to do another poll, let's see here. Are any of you in a clinic that fits bone anchored devices? Okay, so doesn't look like a lot of us. It's like 50 50. Okay, so thank you for that. So what are the benefits for each? So as far as a CROS device, pros to this or that it's not a surgical situation. So it's something that you can demo instantaneously, right there in your office. So if you have a demo available, you can demo it right there in the office. You can accommodate if the person has hearing loss in the other ear. A pro for the bone anchor device is, they only have to wear one device. So that's something that is very enticing to people, can also be a little bit less visible, if they have long hair, they can kind of cover it up. A con, so let's talk about some of the negatives to this. One of the negatives to a CROS is that they must wear two devices. Not everybody is okay with that. I think people kind of used to give me pushback on that. And that they thought, well, this is so silly, I only have hearing loss in one year. Now you're telling me I have to wear two, I'm not okay with that. So they didn't always like that. But also you're putting a device in that better ear. And it can

occlude that ear. So that can cause their hearing to actually go down a little bit because there's something blocking that ear, depending upon what kind of mold or what kind of device you put in there. So not everybody was okay with having to wear two devices. And a con to both of them is that it's not restoring binaural hearing. So we're not able to give back binaural hearing because she's still at the end of the day have one side that is not functioning. And a con to the bone anchored device is, it is a surgical option. So it is something where the patient does have to undergo a surgery. When I was in clinic, and I met with our local ENT to talk about this device, he said, Oh, that's not a big deal, I can do that. It's not a major surgery. So the surgeons don't look at it like it's a major surgery, but it is still a surgery. So it is something that not everybody is comfortable doing and understandably so.

So let's talk about the difference between a CROS and BiCROS. So CROS stands for contralateral routing of a signal. So there are two different ways that we are doing the CROS. So the straight CROS would be, you have a poor ear, which is unaidable, and then you have a normal hearing ear. So that's just a straight CROS, it's just picking up on the information from the unaidable ear and sending it over to the normal ear. The BiCROS option is you have an unaidable ear and your other ear is aidable. So that's where we're just getting the information from the non functioning ear and sending it over to the better ear. And in that particular situation, the better ear is still getting some amplification. So I'm gonna ask another question and you can just go up to the little people bar and you can just say yes or no. So are any of you, fitting a CROS patient as BiCROS patient? So I'm just gonna ask that out of sheer curiosity. Okay, so a couple people say yes. So what I have heard from some clinicians, is some clinicians, even if the patient is technically a CROS patient, they're actually fitting them as a BiCROS and giving them just a little bit invocation to overcome that occlusion effect. So, that is your personal preference. I was just curious if anybody out there is doing that. So that is something else for you to make a decision about. So who is a candidate? How do you know if this patient is a candidate for a CROS or traditional amplification? So in cases

of this asymmetric type of hearing loss, the first question is, can they benefit from conventional amplification? So is there any benefit? Is there anything we can do to give that ear that is so poor, some amplification? And can we go that route? That is obviously the number one preference is to be able to amplify that poor ear. So we as I said earlier, we can consider doing trials, doing some functional game testing, and do everything we can to attempt to not jump to the CROS right away, but attempt to do everything we can to utilize that ear to give it some stimulation to that particular site. However, there are definitely cases where the hearing is so poor, or the speech recognition is so poor, that a CROS or a BiCROS may be warranted. But at the end of the day, you don't know until you try. So we do recommend that you try first. And then if you've exhausted all options, and you feel that they're not getting any benefit, or sometimes it makes it worse, sometimes if you amplify that poor ear, causes distortion, and makes it worse in that better ear. So we obviously don't want to degrade the good ear that we have.

So we don't know until we try. So we have to try first. And then if we've exhausted all options, then the CROS or the BiCROS would be our choice. What about for kids? Yes, there absolutely are children that are born with a non functioning ear. Some children could acquire it later on maybe from Ototoxicity or from some type of a virus, but there are definitely children that have non functioning ears. So we feel that a CROS is not intended for children to over 36 months. And the reason that we say that, is because that is ASHA and triple A guidelines. So we are supporting that ASHA triple A guidelines. So we should not be utilizing a CROS until the child is at least three years of age. Why do we say that? There is lack of evidence for the CROS hearing aids for infants. So we are recommending it for older children and those that can control their environment. So that's why we are saying that. With our device, we also do not have a tamper resistant solution available. So we don't want the babies having a hearing aid that you can't lock that battery in there. We don't want them chewing on it. So that's not a good solution. And our CROS is available in the seven standard colors and not in

the crazy pinks, purple, blues and greens. So that's another thing that kind of leads us down that road. So let's dig a little bit more into what is inside of this CROS. So we're the first time ever Oticon is introducing a wireless CROS BiCROS option for people with single-sided deafness. So this is new to us. And the good thing is we were able to really look at some things that we could decide, okay, these are things that we can improve on from what other people have done. So we came onto the market and we came on with something fabulous that's been very successful. In our CROS hearing aid, we have the Velox S platform. So for those of you that are not utilizing Oticon, this is our processing platform. It is our latest processing platform, and it takes 56,000 measurements per second. So this is unprecedented speed and it gives us the ability to deliver our brain hearing philosophy. For those patients with single-sided deafness. This platform is also 30 times faster than our previous platform. So we are constantly upgrading and moving forward and really, really proud of this technology. So what makes this CROS so different? We are the world's first CROS that features Open Sound Navigator. So for those of you not using our products, I'm gonna explain to you in detail what exactly Open Sound Navigator is.

But what you really want to think about here is for the longest time, I mean, CROSes are not new, they've been out for a very long time, if any of you remember, they used to function with a wire from one side to the other. So it's not a new product on the market. But for many, many years, what was happening with a CROS, is that it was simply picking up on the signal and sending everything over to the other side and not analyzing it. So we are analyzing it with our Open Sound Navigator processing platform. So it is making sure that the signal that is being sent over is clean and clear and crisp and precise. To allow that patient better understanding and better comfort in a noisy situation. I remember many patients years ago would take the hearing aid off, take the CROS transmitter off when they were in a noisy situation. Because if it's sending everything over, it could make it more difficult for them to hear and not necessarily easier. So we want it to be easier, we want it to be comfortable. So I will

explain to you what Open Sound Navigator does, that is different. That will make it more comfortable and easier for them to process in noise. We are the first CROS on the market to provide dual streaming. So I'm gonna dig into that a little bit more. But in a nutshell, it gives the patient the ability to be able to stream and hear the information coming from the CROS non functioning side. And I know that that sounds like, a little that's obviously should have that. But that was not available on the market until we came out with this CROS. So it is a huge benefit. And I'm also gonna show you some research we did specifically focused on this, proving why this is extremely beneficial for your patience. So Open Sound Navigator, what exactly does this mean? So with Open Sound Navigator, it is analyzing the environment 360 degrees around the head. It is a balancing what is important.

So it will focus obviously on the person in front, if the person on front is speaking. But it will also give priority to people speaking from the sides. So traditional directional technology is really focusing strictly on the front and not giving a lot of access to people from the sides. And Open Sound Navigator which is present in our hearing devices. And present in this CROS device, it is giving them that ability to analyze 360 degrees around their head, and it prioritizes and then it removes the noise between the phonemes. So that is giving them a clean, clear signal not only from the hearing aid, but also from the CROS site. So they're getting this Open Sound Navigator coming from both sides, ensuring that the signal that they're getting is a clean, clear signal. And it's allowing their brain to support this information naturally. And make sense of the sound. We want them to be able to hear all the way around, they don't have that localization ability naturally. And because of that, we want them to be able to have that and that is what Open Sound Navigator is able to offer them by processing in that CROS transmitter side and in the hearing aid side. So what is this TwinLink dual-streaming? And what does this mean? So, up until we came out with our CROS, how many companies were processing the CROS transmission was using Bluetooth? Bluetooth can only do one thing at a time. So what happens is if you're utilizing

Bluetooth for the CROS device, if you use Bluetooth for a phone call, for a TV box for some type of ConnectClip or RemoteMic transmission, then the CROS transmitter shuts off. And that is always something that was so frustrating to me when I was working with children. Children could either have CROS or FM, but they could never have both. And I just thought that was so crazy, but it just wasn't able to be done in the past. So we are able to do that, with our TwinLink dual-streaming. So they have an NFMI. So an NFMI is transmitting the signal from the CROS side over to the app other hearing aid side. Then the Bluetooth signal is coming from a ConnectClip, or a TV box, or a phone call. So it allows the CROS transmitter to stay active while they're streaming. And that is huge. Any of you that have normal hearing, like me, if I sit and I'm on the phone, of course, I can still hear the people in the car beside me. But if you're using Bluetooth for a CROS device, you are not hearing the people beside you when you're on the phone. And that could be dangerous. I'm driving in my car, and my kids are doing something crazy on my non functioning side. For safety purposes, I need to know that that's happening.

So I need that CROS transmitter to stay active. And that's what we're able to give to them. I'm sitting on the sofa with my spouse watching TV, the TV box is streaming the TV, I wanna be able to hear the conversation coming from my spouse on the other side. That's all logical. And that's what we are able to give to them. And then you talk about a classroom situation. So I'm in the classroom, I'm a child, my teacher is wearing the ConnectClip, or the Edgy Mic, I still wanna hear the kids beside me. And I'm able to do that with this device. So it's just giving them a more natural experience, it's giving them more access to sound, this giving them more safety by being able to have this NFMI activated and allowing them to be able to hear what's going on, on their non functioning site. So what is CROS? Contralateral routing of a signal. So as I said, it is this NFMI signal. So it is located on the poor ear, and it is then sending this signal over to the better ear. The Bluetooth is coming in just to that better ear. So the Bluetooth signal is just coming into that better ear. And NFMI is called near field, magnetic

induction. So it is the binaural communication between the hearing devices. So that's what that actually is. So the signal is sent back and forth with a high speed transmission of sound, from the transmitter to the receiver. It's also low battery consumption. So it doesn't take up a lot of battery life. So that's something else to consider. I remember whenever the CROS came out years ago that I had a patient who's CROS device, the battery lasted one day. So that is really, really interesting. And she ended up returning the hearing aids because she didn't want to deal with changing her battery every single day . And I don't blame her. That was difficult. So that is something that we were able to get away from because the NFMI is not as consuming of the battery. So it is something that has really given our patients a lot of benefit. So let's talk about evidence. Those of you who know Oticon a lot, we love to do research and we always are trying to back up what we're saying, with a lot of research. So we did research with this CROS device, we have a white paper that you can reach out to your representative or go on our website, to have access to that white paper if you wanna read further about this, but I'm going to review this for you.

So the purpose is the participants will perform better hearing speech from the poor side when wearing a transmitter versus not wearing a transmitter. Simultaneous streaming using wireless Bluetooth Low Energy, and the hearing aid is possible while CROS transmits the signal from the impaired side to the hearing aid via an NFMI There were eight participants four in CROS four in BiCROS, they had a dual task, there was one task related to the 2.4 gigahertz. And one test related to the NFMI. And the outcome measure was speech awareness. So number of words heard was transmission on versus off. So the setup was this, you had target speech, 208 common two syllable words and phrases. There was speech in front directly streamed to the hearing aids, that was a one minute news story. And there was a noise source behind. So what did we find? We found a 50% improvement in speech awareness when they were streaming. So that was showing that the transmission of sound from the poor side versus when NFMI was turned off, when the transmitter was on, the participants

were 50% more aware of the spoken words in the noisy environment. So the CROS supports the Open Sound experience. So that is something that we are very, very proud about, is that it's giving our patients more speech awareness, and challenging environments. While they are streaming to, we're able to give them really the best of both worlds in this situation. So now let's get into the meat and bones of the actual device. So we have the transmitter and the receiver. As you see in this image, they look exactly identical. So how would one know which is which? That's a really, really good question, right? How do you tell the difference? They look exactly the same to me. So in the underbelly, the part of the hearing aid that is facing their ear, you have the little plate that has the serial number on it, one of the plates will simply say Oticon CROS. So that is what you're going to see underneath. So you will be able to tell right there, that that is a CROS, and then the other one will have the name of the model and the serial number. So that's the only difference that you are going to see. So something that is unique is our transmitter has a real live receiver.

So this is not a fake wire. So don't look at that and think it's just a dummy. It's not a dummy, but it's not doing anything. And it's not putting any sound in, it has no acoustic purpose, it's just we wanted to be able to provide something that looked the same, that is comfortable, something that you are used to utilizing. So it is not a dummy wire, it's a real live receiver. So if you do not like the length of it, if it's not fitting properly, if it breaks, you can just simply take one of the receivers off of your stock or off of another aid and put it on that and that is completely fine. Which length and which power and which dome is completely up to you, we feel a 60 with an open dome would be the most comfortable. But that is whatever you are comfortable and what your patient is comfortable with is completely fine. You also have a 10 K bandwidth signal which is really unique. So you have a very wide range of speech that's coming in. And that's obviously really important. There's a lot of speech information out there and your patient is able to pick up on that from the transmitter side. And once again the sound is being processed and clean with Open Sound Navigator before it is coming into the

other side. So you do see that there is a volume control there. So the volume control is active and it is controlling the amount of sound that is being transmitted to the other side. There is no Bluetooth coming into this device. It is strictly an NFMI. And as far as durability, it has an IP 68 ratings, so it is dust and water resistant. So it's going to last your patients a long time. So inside the actual transmitter, we did a lot of research to be able to decide what did we want these patients to be getting from this transmitter? So the settings that are inside the transmitter are fixed, so you're not gonna get into the software. And you're not gonna be making any changes to this, this is fixed. And we strongly believe that the entire soundscape should be open for these patients. And that's why these settings were picked. So the simple environment is zero dB Noise Reduction, so nothing is happening they're. Complex environments negative five, and then the transition is high. So those are already set, you're not gonna be making any changes to that. We just want the patient to have access to as much information on that side as possible. So what's happening as far as this being transmitted, so there's a high pass filter with a 1500 Hertz cut off. Anybody have any thoughts as to why we might have done that? Head right in the comment box. Anybody know?

Well, like I said, because we kind of came onto the market late, we could get some information about what people might not like about current devices. And what people said is, they were receiving an echo sometimes from their CROS. So we are transmitting sounds above 1500 Hertz, because the sounds below are passing through the head naturally, because of the head shadow effect. So that's why we decided to just transmit above 1500 Hertz, so they would not get the echo. So as I said earlier, the volume control is active, so they can do a short press with that. Or they could press it for four seconds, and they could mute it. So they don't have to take the device off. If they want to do that they could do that. But we really want them to not be taking it off 'cause we all know that's how they get lost. So they can go up to the device, they can turn the volume up or down or they can press and hold it for four seconds to mute it. I will be showing you in the software in a couple minutes, how you could add a mute to

their program and they could look at it through the app. So you could do that also. But I want you to be able to see how this could be done on the device. So you have a transmitter and a receiver. The receiver is a normal hearing aid, so it can be used by itself. So it receives the NFMI signal and mix, so it is receiving the information through NFMI from the non functioning side. But this receiver side is a normal hearing aid, so they can use it all by itself if they want to. When the hearing aid is connected to the On App, the On App is controlling the receiver side and not the transmitter. So that is what is being picked up, the receiver is being picked up on the phone and on the On App because if you remember earlier, the receiver has Bluetooth, the transmitter does not. So the transmitter is not talking to the phone, the receiver is talking to the phone. When you control the volume on the receiver side it is controlling the overall volume. So that is what is happening here. So what is it compatible with?

So let's say you have a patient that has an Opn S and now all of a sudden their other ear has bottomed out and you want to add a CROS. Can you do that? So you can add a CROS to the other side if it's an exceed and exceed play an, Opn S, open play, Oticon Ruby, it is not compatible with the Opn S three or the Opn Play two, but it is compatible with everything else. So just keep that in mind. So for the new CROS if you want it to look identical, so you want the two sides to look exactly the same. What you would order is the miniRITE T, so the miniRITE T in the good ear will match the CROS site perfectly. They're gonna look identical as I showed you in the earlier picture. The only way you're gonna know is on the bottom the one will see CROS. You also could use a rechargeable, so the rechargeable is gonna look identical. Our CROS is not rechargeable, so you will not be charging this far, but you can have a rechargeable in the other ear it will look identical. So that's something that you want to know, the receiver must have firmware 8.0. So let's say that you have a situation where a person has had their device for a year or so now you want to add the CROS, you may have to upgrade the firmware to make sure that the two will communicate with each other. But you absolutely can do that. So don't worry about that. So let's say that somebody has

a miniRITE already, or they want a miniRITE, because it's smaller, what do I do? You can do it, that's completely fine. However, that button is not going to control the volume. So don't worry about that, you can use the App to control the volume, you could use a ConnectClip, or you could use the Remote Control. Two you have options, don't panic if that happens. But it's not going to happen from the button on the actual hearing aid So these are the colors as I had said earlier, we don't have the kids colors. These are the standard skin tones that will match. So this is what you would focus on picking for your patients as these different color options are available. So now we're gonna talk about programming. So I want to get into the software and show you what you are going to see whenever you decide that you're gonna program one of these devices. Okay, so this is my software. So what you are going to see is, I hit Connect, and when I hit Connect, I found the miniRITE T, but I did not find the CROS. So as I said earlier, the hearing aid itself has Bluetooth, and that's gonna talk to the computer, but the CROS transmitter will not be detected by the computer.

So all that you have to do is you have to have the two devices within seven inches on side by side, you get into the screen and you select CROS transmitter. That's it. You do that one time in the beginning, and then it will be done moving forward. Very, very, very simple to do. And then you go into fitting. And here you are, this is the screen that you are going to see. So when you want to make adjustments, you go into the little tab here on the left, that says CROS BiCROS. So this particular patient has a mild high frequency hearing loss in the better ear. So the BiCROS was already selected, but you have the option here to pick what you want. So you have BiCROS CROS or no CROS, I'm gonna go into the no CROS in a second. If you forget what you're doing, because as you told me in the beginning, you don't fit CROS that often, you can click on this little guide here to the left, it says CROS fitting guide. So you can click on that, that will take you right to our website that will have that PDF guide, that will tell you what you're going to do. So don't worry, 'cause I know we don't do this very often. So you're gonna be in this screen. And basically you are adjusting the level where the patient

feels balanced. So you're going either to the right or to the left. And that's where you're balancing this. Not a lot to it very, very simple. So let's say that the patient does not want to go up to the back of the hearing aid and make adjustments, they wanna be able to go to their phone and make different changes, then you can go into the Program Manager and you can add programs. So for this particular patient, I added a car program. So what the car program was, is that the patient spouse is on their non functioning side in the car. And they want it to be louder just for the car, so they can hear their spouse sitting beside them. But they don't want it to be like that all the time. So I added a P two car program. So when I go into the setting here for P two and I look at my settings, what I did for that car program is, I turned it all the way up. So it's going to be much louder in that particular program. So that was my P two that I called the car program. Then I added a P three which is softer, so I go into the P three. And basically, I'm gonna turn it down and make it softer. So that's what I did for the P three. Now I want to program so that I have Gertrude my aunt, sitting next to me on my non functioning side. I don't want her to know that I'm ignoring her, but I really don't want to see her.

So I have to see her, but I don't want to hear her. So I'm gonna add a P four program under Program Manager, and I'm going to call it mute, I could call it My aunt program in the side comments if I wanted to. So I would go in here, for the P four program. And I would say no CROS BiCROS. So that's my aunt Gertrude program, I could turn her off just by picking up my phone, pressing that button. And that would make that side basically be muted. So let's go into the end fitting here. So if I'm in the end fitting, what I want to show you is under buttons and indicators, what you're going to see is, volume control is always on. And mute is always accessible. So you're not making any changes here, this is already set up for you, that's what you will see. So very, very easy, should not be something that's giving you too much trouble. So let's go out of the software here, okay. Now, let's just review what we went over, when you're pairing for the first time, they are within seven inches of each other. That's all you have to do

when you're programming, very easy. So remember, when you're programming, wireless is the best recommendation, the CROS transmitter will not be visible in Genie. And the trigger transmitter is active. So I didn't remember to bring that up, for some programming with some companies, you're not actively hearing from that actual side. But with us, it is always active. So that's a much more natural programming experience the patient is live, you can make adjustments as you need to. And the other thing is it is not possible to update the firmware. So it is not possible to update the firmware, everything is set, it is what it is. Now verification, we do recommend that you are doing real ear measurements to verify your CROS. Verification can be different for the CROS with all the manufacturers, with all the companies that are providing you with your real ear equipment.

So we do not make a set recommendation for that, we ask that you do reach out to the manufacturer that made your real ear equipment and have them give you advice on how to do that. But we do recommend that you are utilizing the real ear measurement when you're doing that. So once again, as I showed you in the software, having the devices seven inches apart is the first thing. And then you are just balancing what is happening. So you're balancing where the patient feels that things are coming really into the middle, you don't want it to feel like one side is stronger than the other, or one side is overpowering. So they don't want to feel off balance. Whenever I was programming, basically what I would do is, I would turn it on. And I would walk around the patient and really just say okay, do you feel like you're hearing me the same on both sides? Is it equal? Are you feeling that there is a balance? You don't want them to feel lopsided and feel like one is pulling versus the other. So that's how you're going to utilize that. So let's summarize. Single-sided deafness, this can result in poor speech understanding in noise. So in this particular situation, they as I said can be very deceiving. I have a very, very good friend and she was born with one non functioning ear, and a lot of people do not know that about her. She is my good friend. I know that. But when we are just sitting around with a couple people, she seems like she's not

having a problem. It is not until we go out to a restaurant, or we're at a party, that I notice that she starts to get lost. And she has that look on her face. And she is not currently wearing devices at this time. So she starts to get lost, and she's really missing information. And that's where she really struggles. But Beside that, you really would never know that there is a problem, but in a noisy situation is where these patients really have to work. And then the ability to localize. So I had a great story of a patient of ours, that sits down at a bar, has suffered with this unilateral hearing loss for many, many, many years, and was now wearing our new CROS. And they sat down at a bar, and they were having minding their own business having a beer and some dinner. And the other random person came and sat down beside them. And lo and behold, they knew that they were there. And they could actually sit and have a conversation. So they could talk to this person and still enjoy their beer and their soup. And comfortably engage. Whereas years ago, they would not have been able to comfortably do that. So very, very liberating, and very comfortable for them to be able to do that.

So we've seen great success stories with this, Open Sound Navigator. I hope you have a better understanding of what Open Sound Navigator is, and how it can help our patients. It really is giving them clean, clear information, allowing them to have better access to the signal coming from all around them. And that is something that really is putting this at the top of everyone's mind, because they're having good clean, clear information, giving them really great ability to hear in noise and localize and really kind of know more about someone coming up on top of them, because the device is giving them that information from the non functioning side. And this dual-streaming, as I said, we were first on the block to be able to come out with this very, very proud of this. Being able to give these patients the ability to have a phone call, know someone is sitting next to them, listen to TV and be able to talk to their spouse, be a child that can sit in the classroom, and hear the teacher and still hear their friends beside them, that is huge and groundbreaking for so many people. So we're really really, really excited to

be able to give this option to all of our kiddos and our adults that did not have access to this information that you and I have access to that have normal hearing. And now these patients are able to experience these situations in a much more natural environment. This also supports our brain hearing philosophy, in that we're giving the patients the information that their brain wants and needs and is craving. And that's what we're really, really proud of. So in summary, please reach out to your Oticon representative in the area. We encourage you to have them come in and do a demo, so that you can see what this is like. It is fabulous to be able to experience this with your patients in the office, so that they know what is going on and they can experience the fabulous benefits of this. So any questions? I'm gonna stay on here for a couple more minutes, if anybody has any questions. Otherwise, please reach out to your representative. We're more than happy to help you and let you and your patients experience this.