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ReSound Smart Fit 2.4: Navigating the Revolution in Better Hearing with Advanced Features

Presenter: Valerie Kedem, AuD

Okay, well thank you so much Melissa for getting us started off here. My name is Valerie Kedem, I am one of the field training audiologists here at GN ReSound and thank you for joining us on a Monday to learn a little bit more about our newest version of the software which is ReSound Smart Fit 2.4. Our course is entitled ReSound Smart Fit 2.4 Navigating the Revolution and Better Hearing with Advanced Features. Just telling us that this is going be more of an intermediate course. It will be a little bit fast paced, we're going to talk about a lot of stuff, so feel free to come back and reference it as you need to.

And if you have any questions or concerns, we're always happy to answer them. With anything that we do in life, there's always inherent risk and benefits and of course this is no different for audiology online. So I'm just going to let everybody take a moment here to peruse this slide and also know that it is in your course content as well if you need to go back and would like to go back and just do a deeper dive into what those risks and benefits can possibly be. We do have three learning outcomes for us today. After this course we would like for you to be able to identify the best option for volume changes based on patient feedback.

We'd like for you to be able to solve patient issues using the ReSound Smart Fit 2.4 advanced features and also be able to differentiate between ReSound levels of technology within your course materials. There should be a technology level difference form or sheet in there so that might help you out too as you are learning some of this information. And like I said, we do have a pretty deep support system. If you do call our 1-800-number, we have three options for you there to provide support, whether that's through customer care or audiology fitness fitting support group as well as our audiology computer support team. They are wonderful and they should be able to help you out with anything that you need.

If you need additional resources, then you can also at any time reach out to any of us really. That would be your territory cells manager, your outdoor outside sales rep, inside sales rep, somebody like myself who's a field training audiologist who can come out to your clinic, help with patients, help with questions

and then we also have remote training team as well that does the same as me but just in a remot format. So we got you covered if you have any questions at all. Now because this is a software course, I do like to spend most of our time in the software. So that is the end of our slide deck and we are just going to transition into our Smart Fit software.

So in August of this year we launched a new product called Sensia. It's just our next generation of product, just building upon what ReSound has been doing over the last five or six years. And with that launch of new product, then we always update our software. So if you are used to fitting the ReSound product and you've already downloaded 2.4 and been fitting in it, then you probably feel more comfortable with the different navigation. If this looks the same but different to you, or you haven't really done a whole lot within the ReSound Smart Fit software, we're going to talk a little bit about why this looks the same but different.

So in our previous generations of software for about the last 10 years, everything has been more in this horizontal navigation. So all the things that we see here on my left side where my point here is where it says patient, instrument setup, gain adjustments, advanced features, device controls, finalized. These options used to be up here at the top of the screen and then home fitting, catalog, etc. Used to be kind of above or below it. So just a little bit different layout.

Part of the reason that we've changed the layout is so the flow of the fitting software is more familiar. A lot of the type of softwares that we work in, Yahoo, Outlook Teams, etc, tend to have more of this vertical navigation. So just trying to make it easy and familiar shouldn't be rocket science to do the fittings. We want to make sure you can get through the fittings easily and feel good that everything happened as it should. So because this is more of an advanced course or that intermediary course, we've assumed that we've already fit these hearing aids.

And so as we cruise through today, I just want you to keep in the back of your head that we have a lot of options within our software for you and for your patients. However, I don't want you to feel like after at the end of this course that you need to come into the software and make a bunch of different changes to get a first fit or to get a follow up. That is not the case with all of our advanced features. Really what these advanced features are here for is whenever you have a patient that is continuing to come back and what you typically do to manage that patient through counseling, changes in gain, changes of compression, whatever that looks like for you, it just really isn't working. So we never want you to feel stuck, like, oh well, I Don't have anywhere else to go.

That's not a good feeling for you. It's not a good feeling for your patients. And that's where this course comes into play. So what else can I do when I don't? I.

What I typically do isn't working for me.

Just to kind of highlight some of the differences in Smart Fit 2.4, I am going to come back to our home page here. And this is because we have a new tab here called Fitting. This wasn't here in 2.3 or any of the previous generations of software. So if you are maybe in the catalog screen here because you wanted to kind of take a look and see, well, I know I have a new bimodal offering. What does that look like?

I just want to take a look at it. Or hey, I want to maybe check out and see what the fitting range is for these different receivers based on my patient's hearing loss and kind of just do a side by side comparison. Maybe from low power to medium power receivers or maybe from a low power receiver to the recommended Marie receiver. Whatever it is that you're doing outside of that main fitting screen, the easiest way to get back into that fitting screen that was not there previously is to click on fitting. So that's just a really long winded explanation of hey, we've got a new tab.

It's going to take you back into the main body of the software. So when we're looking here, once you find what you're looking for. So again, this is a different navigation, so the vertical versus the horizontal once you figure out what you're looking for. So maybe you're looking for the patient Profile screen. If I click on profile here, this should look familiar if you have been working within the software for any time.

If I'm in my Gain Adjustments tab, once I figure out where it is and I hit on Fine tuning, this hopefully also will look familiar. So my point is, once you figure out where where the buttons are or where the features are that you're looking for and you find them and you click on them, the screen over here on the right should look familiar and function similarly to what we're used to now. Right now we are on my Gain Adjustments screen here and we are on Fine tuning. And so just as a reminder, anything that's listed under here under Gain Adjustments, whether it's your fine tuning screen, whether it's your environmental optimizer, Auto Rem Acceptance manager, and we have moved our Smart Fit guide underneath Gain Adjustments too. Mainly because most of the Smart Fit Guide recommendations are usually around increasing or decreasing frequencies or gain values.

So anything that's under your Gain adjustments tab here is all about making these hearing aids louder or softer for whatever you're trying to do. So when we're here in our fine tuning screen, I like to call this our meat potatoes screen. This is kind of where we hang out the most. This is where we should be spending a majority of our time when we're on our fitting software. As you can see, we are continuing to have default programs.

Program number one, all around. We also have Hear a noise. This is our program number two. These are the two default settings that unless you've changed it personally, this is how all of our hearing aids will start off. You do have the ability to add four programs to any of these levels of technology.

So it doesn't matter if you have a premium product or if you have a entry level product, all of them have access to these four different program options.

So when we're talking about fitting these hearing aids, a lot of times it is going to be about making the hearing aids louder or softer. So within the software software there are three main ways that we can manage this. So if your patient is coming back and they're telling you that all day, every day, everything is too loud or everything is too soft, you can do this a couple of different ways. You can manage it. You can click here where it says all.

And then my all of my frequencies and all of my input values 60 at 50, 80, they all become highlighted in this gray color. And then that allows me to move them up or down by 1, 2 or 3 dB. So if the complaint is, hey, everything is too soft all the time, then maybe I just want to pop up my volume. And I think I did that three times, which should have been like 9dB, but I can just go back and forth here. This is also how you can fine tune.

So if your patient is saying that maybe everything's a little too sharp, this is certainly where you can come in here and make those fine tuning adjustments based on independent frequencies as well as independent inputs. So maybe you just want to make a little change at 250. At 50 gain, this is where you can make that happen as well. So everything's too loud or too soft. First way you can do that is here.

Another option for you is up here in the middle where it says gain percentage. And so if I drop down, we can see we have a gain percentage of the between 60 and 110. And this is just increasing or decreasing the hearing aid volume by 10% increments. It doesn't matter which way you decide to do it. For that complaint of everything is too loud or too soft, it's just what your brain actually prefers.

I'm just going to recalculate to our initial settings there. So again, everything's flatter. Too soft. Maybe you're like, you know what? I really like the idea of just tweaking it down by 10%.

Totally fine. All roads lead to wrong. So those are two of the ways within the software here on this page that we can adjust for that complaint or that issue of hey, all day long, everything is too loud or everything is too soft. Sometimes what happens though is that you are bringing down the volume. You maybe can put the gain to 60%.

These are very extreme examples just to kind of get the point across. Okay. And the patient is still telling you, no, these hearing aids are too loud. So in that case, if you are doing that or the reverse where you have you have the gain at 110% and you have these hearing aids cranked up and they're like, nope, it's still not loud enough. If that is what you're getting, then that tells us that we need to change the experience level of the patient.

So in order to do that, we're going to click over here onto our patient screen and we're going to go back into that patient profile. So with ReSound product, we default our experience level to first time user for every patient, unless you change it. Now. You can either change it in our preferences tab up here. Maybe you'd like everybody to start off at first time or experience on linear.

You don't want a first time user start off. You can change that. Not a problem. That's what the preferences page allows you to do is to kind of fine tune the beginning part of the software. So every time you come into our Smart Fit software, the preferences you prefer to be fit with are already here.

You don't have to make any changes. But we do do the first time user here. But if your patient is telling you, hey, it's just too loud, it's too loud, the hearing aids are too loud, it doesn't really matter what you do over back here under gain adjustments, under fine tuning. This isn't working, it's not making it happen, then that is usually our cue that we need to change the experience level. So we do have these different experience levels.

We have four of them. Two first time users with little differences and two experienced user options. And again, they have differences between them, in the biggest nutshell, kind of to explain what the experience levels do, they are a little bit more sophisticated than just changing the gain and the hearing aid. They really are taking into consideration where is this patient at in their journey with their hearing aids. Are they somebody who is just really sensitive to audibility?

Just putting amplification on is a lot for them. Are they somebody who has been wearing hearing aids for quite some time and if they could get their hands on an analog hearing aid, they'd be even happier? And that's what these experience levels are trying to address. So they're taking into consideration three different parameters. They're looking at the total volume of the fit for the patient, the total amount of emphasis in those high frequencies, as well as the amount of compression that is being applied to the fitness.

So first time user, whether it's onboarding or first time user in general, have less gain, less high frequencies, more compression, experience nonlinear and experience linear. More gain, more emphasis in the highs, less compression. So again, less gain, less high frequencies, more compression are the first time users, the experiences are more gain, more high frequencies, less compression. So if your patient is saying everything is still too loud, you're a first time user, then maybe you need to go down to first time user onboarding. So note here, this is kind of the default that we have here.

We're going to start everybody off at our target role, which is audiogram plus, it's our proprietary target role. At experience level of first time user, I gain level percentage of 100%. Patient's saying it's still too loud. When you clicked onboarding, notice that the gain level percent automatically drops to 70%. So we're saying, okay, this person just can't take as much information.

That's totally fine. Over time we'll kind of push them forward. The other thing that first time user onboarding is doing, and I'm kind of jumping forward here, is under Advanced Features Comfort, we're

going to see expansion turn itself on. We're going to see impulse noise reduction get a little bit more aggressive. And we are going to see Noise Tracker 2, which is our noise reduction system, one of the two noise reduction systems that we have access to in the software, also become more aggressive because we're seeing this auditory system just really can't take as much background noise, we don't think, or as much gain.

So that is your first time user onboarding. And then over time of course we'd like to get them at least in the first time user. So if your patient is saying the opposite, which is, hey, you know, when I first got my hearing aids, they were great. I could hear a lot better. But over the last two months, three months, four months, six, whatever that time frame is, I just find that I'm not getting that same benefit, that same razzle dazzle, if you will.

Will. And maybe you've been hanging out here under gain adjustments and you have just pumped them up, give them a lot more volume and they're like, nope, it's just not working. So at that point that's again, that's kind of a clue or a cue that maybe the experience level needs to be changed. And there's nothing wrong with changing the experience levels. That's why we that it's just good to know that you have this tool.

So at that point, if I'm a first time user, I'm going to go up to experience nonlinear and see how they're doing. And this usually will kind of open it up because remember, when you're going from a first time user to an experienced user, you really are changing how much compression is being applied, how much access to the high frequencies they have and then just the total volume or the total gain of the fitting. So a lot of times once patients have worn their hearing aids for any amount of time, they go out of first time user and they actually now are an experienced nonlinear user. And that's wonderful, that's great. Or perhaps you have somebody who the experienced linear.

This is a really good experience level for folks who have medical ears, have draining ears, they have middle ear issues, they've had surgery, whatever that looks like for them. Or again for folks who really like a lot of power, sometimes the experience linear experience level is good for them.

So you can see kind of what it looks like with the fine tuning. I am going to again recalculate here to get back to where we were. I'm going to come in here to my patient profile and I'm going to hang out in first time user and I'm going to go back to my gain adjustment screen fine tuning. And so this is where we're at. Kind of look at the compression here.

Overall gain values, the amount of change between the compression and the gain values really is going to be dependent on the hearing loss. So sometimes you might be making big, big, big changes and sometimes it could be really minimal changes. So not a whole lot. Maybe in the 80s if I go back up to patient here and maybe go into nonlinear, Then we can see a little bit of a difference here. And last one, when I Go here into linear.

It's not a real linear fed, it's not a one to one compression.

So it's a little bit tighter. So those are your experience levels and that is how you can help your patients whenever they feel like they need a lot more volume or maybe less volume. And this really does make an impact. I'll tell you why, because when I was in my last clinical job, this was new in the software suit a while back and I wasn't aware of it and I had an experienced patient and I had him in first time user and we were not doing well. Like it was a, it wasn't good.

I could never get the hearing aids loud enough for him. And I finally saw under this patient profile here, these experience levels. It finally dawned on me what was going on and I clicked him into experience Nonlinear from first time user. And everything opened up and it was a much better day. The fitting went a lot better.

So they really can be quite impactful. So we've been spending some time here talking about, well, how do we change the gain in the hearing aid? And it sounds like a very basic thing in theory it can be, but we do have those three ways to adjust for and get patients to a better place when they're telling you that all day long their hearing aids are too loud or too soft. Now the reason I keep saying all day long is because we have a fourth way to change volume within this hearing aids and the software. And it's under here as well, under gain adjustments under environmental optimizer.

Now, environmental optimizer is an automatic volume control wheel. So we can turn these words Automatic Environmental Optimizer 2 into automatic volume control wheel. I think that gives us a better idea of what the function of this feature is. So we have an environmental classifying system. It's now being called acoustic.

But at the end of the day, what it's doing is two things. A, it's determining where the patient's standing with those hearing aids on, like what type of environment which we see here. Is it a quiet environment? Is it a speech environment? Is it a speech and noise environment?

Is it an environment that really is noise only? So determining where the patient's standing. And then next step would be to be applying the automatic features that go along with that particular environment. So that's your noise reduction, that's your gain changes here, your directionality, your microphones, etc. And so what environmental optimizer is really good for is when your patients come in and it is a gain issue or volume issue and their complaint Sounds something like this, everything sounds good, but.

And they might say to you, hey, everything sounds good, but.

I. And at home during the day, work from home. The volume of the hearing aids are perfectly fine when everybody's at home. But once my family leaves for the day, I just feel like my hearing aids are really

quiet. And I just mean, like, I'd like to have a little bit more awareness of what's going on in my home when I'm just there by myself.

And so we're going to say that's probably a quiet environment. And I would come into Environmental Optimizer and raise the volume of my hearing aids only while I'm in a quiet environment. So let me step back and talk about this for a second. So if your patient comes in and they say everything sounds good, but. And we're not aware of Environmental Optimizer and kind of what it does, typically what we might do is maybe we have that same complaint.

It's too quiet when I'm at home by myself. Can you make these hearing aids louder? And the answer, of course, is absolutely. And so you can come in here to all and you maybe want to give, I don't know, 2dB increase for the hearing aids. But what you've now done, again, not wrong, is you have increased the volume of the hearing aids for the entire time that the patient is wearing those hearing aids, not just the time that the patient is home by themselves.

So that might be fine, but the patient might come back to you and say, okay, when I'm home by myself, I love the volume of my hearing aids, but when my family comes back into the mix, woo, they are just too loud. And so then now you're saying, okay, well, maybe we'll go down by one db or, you know, whatever it is that you decide to do. If you use Environmental Optimizer and you have that same complaint, everybody, everything sounds good, but my hearing aids are too quiet when I'm in a quiet environment or too soft when I'm in a quiet environment. You can come to Environmental Optimizer and just have the hearing aids automatically go up a couple extra decibels whenever it's quiet. And then when people are coming back into the house, the volume of the hearing aids will return to what's comfortable for when there's other people around them.

So when we're looking at Environmental Optimizer, I'll give you an example of what I'm talking about to kind of hopefully firm this up. Hey, everything sounds good, but I watch my granddaughter a couple

hours A day during the week for my, my own daughter. And she just, oh, she's so cute. But she talks really softly. I'd like to hear her a little bit louder.

But she's the only person, really the only thing that isn't sounding as good as it could or isn't as loud as it could be. So if we don't have Environmental Optimizer, probably what I would be doing is coming over here into my fine tuning and maybe doing a little boost. I don't know, mids highs and gain 50, gain 65, maybe bump that up a couple DB, two or three depending on, you know, how soft the baby is. And that's perfectly fine. But what might happen is that the patient comes back in a week or two and says, yay.

Oh, I can hear my granddaughter real, real good. But man, my dog walks across my tile floors typing or my fork hits the plate or shake a book or a newspaper. That is really loud. So what we've done is we've fixed a problem for a couple of hours a day and we've created another problem for that volume of that hearing aid for all the other hours of the day that that patient is wearing those hearing aids instead. It might be a nicer option to come into Environmental Optimizer.

And the complaint is the same. Hey, everything sounds good, but I can't, I can't really hear my grandbaby, but she's the only person I'm struggling to hear. Oh cool. Well, let me just boost you up. That's probably a soft speech environment.

I'm just going to give you a little bump up in your volume whenever your granddaughter is around.

Speech loud, this is usually addressed. It could sound something like this. Hey, everything sounds good, but you promised me six weeks ago at first fit, that my own voice was going to be softer and it's just not. It's still banging around in my head. Well, as it stands now with Environmental Optimizer, the preset is that every time the hearing aid recognizes a speech loud environment, which patient's own voice would be considered a speech loud environment?

Right. It's the loudest thing that they hear. The hearing aids go up in volume by 2 dB. So these numbers that we see here, 44210, negative 2, negative 3, these are actual decibels. So these hearing aids are turning themselves up and down by whatever number you see here automatically behind the scenes.

So maybe every time I talk with my hearing aids on, I don't need an extra 2 decibels of volume. I'm going to make this zero and see how they do. And oftentimes with that complaint, my own voice is too loud. This will do the trick out the gate for them. Some other examples with our speech and noise, moderate speech and noise loud.

If you can make your brain say, and instead of in, I think that better describes the environment. We're saying, oh, our patient is wearing these hearing aids in an environment that has both speech, speech and noise together. So I think of like a restaurant, a business meeting, something like that, where there's both things happening at once. And sometimes they, your patient might come in and say, hey, everything sounds good. But when I go out to dinner, I just feel like I need the volume of the hearing aids to be a little bit louder.

And so that might be speech and noise. Speech and noise loud. I'm going to pull my little sliders over to the right because I want to raise the volume of my hearing aid for that moment in time. Just like when we talk about our hearing aids, even if we think about like our car radios, when you go to the right, whether you're pushing a plus arrow or a plus button that's usually on the right side or you have a dial, when you go on the right side, you are raising the volume. When you go to the left side, you're lowering the volume.

Whether that's your hearing aid or even the radio in your car are. So the same thing holds true here. Usually if I'm doing my speech and noises, or speech and noise, if we will, I usually bring them up in tandem. Because what about if the patient's there, say 4 o' clock in a restaurant, maybe they're getting

there a little bit early, but they stay until 7. The.

Probably the volume or the, that room environment is going to change. It probably will go from more of a moderate type of environment to maybe a louder environment. So I just want to make sure that they have the volume they need. Even if no matter where they're at and then our noises, our hearing aid brains always want to make noise about background noise. It's not, we're just saying, where am I standing right now with my hearing aids on?

Oh, I'm standing on the side of a busy road at rush hour. That's a noise only environment. Or I'm going to the mall at the holiday season, that's there might be chatter around you, but really that's more of a noise environment. And so that complaint or that issue, a patient could come back to you and say, hey, everything sounds good, but I work in a really quiet Office building. There's an awesome cafe.

I love this place. It rocks out across the street. Every time I step out of my office onto the sidewalk to go to lunch, it is just so loud. It's not the background noise, it's just the volume of that transition from a quiet building out to that busy sidewalk. Can you help me with that?

Yeah, no problem. So I'm going to come to my noise environments and I'm going to go to the left because I want to lower the volume of the hearing aid.

I'm going to reset it here. Environmental optimizer. These are the defaults for every hearing loss, for every hearing aid, for every patient out the gate. We did some research on this, put a bunch of people on hearing aids, ran them through data logging after a week and we said on average, when you go into a quiet environment or you go into a speech and noise environment, or you're in a noise loud environment, what are you doing with your volume control wheel? And that is what they're doing.

They're going up a little bit by 2dB in a quiet environment. They're pulling down their volume on their hearing aids by 3 decibels in a noise environment. Last thing to say about environmental optimizer.

I wish I would have understood this when I was in clinic. I would have taken out a lot of back and forth chair time just to kind of dial in what the actual problem was. So instead of creating, fixing a problem, creating another problem for volume on the other side, Environmental optimizer can be your friend. And just kind of dialing that in, it's literally just making these hearing aids louder or softer. So when I pull my slider here up at the top where it says quiet, if you take a look up here where my pointer is, you're going to see these lines flash up.

So I'll do that real quick. I'm going to pull it over to six and it flashes. That's just trying to remind us that we are making the hearing aid louder from 250Hz to 8000Hz. We are not specifically going, oh, speech. Okay.

We're going to be raising mids and highs and cutting lows. No, it's not that sophisticated. It's just a volume control wheel. That's it. It's just doing automatic volume within these seven environments.

Because the amount of volume that I need in a quiet environment is potentially and most often difficult, different than something that I might need in a noise loud environment. It takes about a second per decibel change here. So if Your patient is telling you that you, every time they walk into different rooms, that their hearing aids are pumping, turning off, acting wonky, doing something weird, whatever that looks like. I always like to check Environmental Optimizer and make sure I don't have something like this because it takes, this is a 12 second transition. Your patients will notice a 12 second transition.

It's not wrong necessarily. But you know, patients don't like to hear the transitions and we know that. So we, everything that we can do to minimalize the listening or being aware of the transitions, we definitely try to do behind the scenes. But to that point we try to keep our lines from about 2 or 3 dB. So from

quiet to soft speech, that's a 2 dB difference.

If you're pushing it, you can make this negative one even, that's a 3dB difference. And this is about the amount of difference from line to line to line that you can do without the patients hearing those transitions. So everything sounds good, but Environmental Optimizer is going to be your friend. If you are just trying to make fine tuning changes for the complaint of everything is too loud or too soft, you can fine tune it here in the Software with your 1, 2 and 3 DB. You can do your gain level percentage and then if that is not working for you, you can come over here into your patient profile and change your experience levels as well.

So who knew you could spend 30 minutes talking about how to change the volume in your hearing aid? But you can because there's a lot of different ways and they all have again, all roads lead to Rome. There's not necessarily a right way or a wrong way. Sometimes it's a comfort level for us as providers too. But we do have these tools and resources for you.

Now I'm going to go here into our advanced features category. And so I had a few generations of software back. We did break out our advanced features into what the purpose of them was. So we had like a whole bunch of them. We have all these speech features here, we had all these comfort features here that you see and they were all listed under one screen of advanced features and realized after a while that providers didn't realize they need to keep scrolling down, have access to everything that's available in the software if they needed it.

So kind of in an effort to make this make more sense. Right. What are all the point, what's the point of all the advanced features? I know them because I talk about them all the time. But it's very difficult when you're in clinic to remember, remember all of these directionality, directional mix time constant sound shaper.

What is the purpose of this versus that? Especially if you're in multiple manufacturers hearing hearing aid software. So just trying to make it easy for everybody, including myself. So anything that's under this speech tab under advanced features is all about making speech better and or making the overall sound quality better. Again, you don't have to play in these sandboxes very, very often, but they are here for you when you need them.

So when we're talking about directionality, we're just saying, hey, this is what my microphone pattern is doing.

You can see we have a lot of options under here. This is our program number one. We default to intelligent all around. But you do have access to 360 all around spatial sense, soft switching omni if you need any of them to kind of give you an idea of what all around is doing, whether it's intelligent all around or 360 all around. If you go down into different levels of technology, you might see all access or you might see binaural directionality 3 under directionality.

At the end of the day, this is what's going on. So underneath my resources tab here we moved feature demonstrations. So if you're familiar with this software and you're like where are feature demonstrations anymore? Anymore, they are here under resources. And this is basically an internal cheat sheet in the software.

That is it will be dependent on which hearing aids you either have live fit to, these are connected to the hear to the software or that you're simulating. So what you get for a custom Sensius 7 in this page versus a RIC rechargeable Sensia 9 are going to be different because they have different features. So it is specific to those hearing aids needs. But anytime you see 360 all around, intelligent all around, all access binaural directionality, know at the end of the day that you have these four microphone patterns that are hanging out in the background. And again, I know this is a lot of information being thrown at you at a really rapid pace.

That is also why we have these resources embedded in the software too. Because it's, you know, it's a lot lot. And essentially our microphone patterns are doing these four automated patterns. Omni. Omni this asymmetrical pattern.

One hearing aids in directional and the other is an omni. It'll switch automatically depending on where speech and noise is in the environment. And then when you get into a really challenging listening environment, then these hearing aids will go into this directional. Directional. We think more restaurant.

If you Will or noisy environment. And so all day long, this is what's going on behind the scenes. This is also what our classifying system is responsible for, is determining where the patient is and making these automatic changes.

I'm going to go back into my fitting page, back into my advanced features, back into speech. Then you might ask, well, what's the difference between 360 all around and intelligent all around? And that's a good question. So with the Vivia, which we launched last year, we added a second chip in the Vivia rechargeable RIC level 9. And that second chip is a deep neural network chip that's responsible for noise reduction.

It was always active in program number two. So if you needed to, if you were in a really noisy environment and you want a deep neural network noise reduction for those patients, they would push into program number two manually and that is when the DNN chip would automatically turn himself on. One, we do realize that patients and providers like automation and access to everything. Typically in program number one, the hearing aid has to offer. So with this generation of the sensias, if you get a Sensia 9 rechargeable RCK in program number one under directionality, you're going to see this word intelligent all around.

It's just telling you the word intelligent whether you see it in this software here in this piece, or you see it in your hearing noise program. If I click over here, a noise intelligent focus. Anytime you see the word intelligent in the software, that's telling you two different things. One, hey, this period has a second chip, a deep neural network chip for noise reduction or you'll see it called denoising. And then two, this chip is active, so an intelligent all around.

What's happening is that the patients are automatically getting access to both types of noise reduction. The environmental classifier in the back operating in the background is going to turn on and off the appropriate noise reduction based on where the patient is. Really noisy environments. Intelligent noise tracker, which is that DNN chip, will be the active noise reduction and quieter or moderately noisy environment. The main noise reduction system would be noise tracker 2 per environment, which is what we've had around for a really long time.

They both have a purpose and a point. DNN tends to sound a lot better and noisier environments, not so great in quieter environments. Noise Tracker 2 does better in quieter environments. So that's what's happening with the intelligent all around. We're just giving you not only all the automated and gain changes as well as directionality changes, but also some automated noise Reduction changes as well, but you do have access to 360 all around.

Soft switching used to be our super fancy directionality. It's going between omni, Omni and directional. Directional Omni's omni and spatial sense is going to be a fixed omnidirectional pattern, but with average pen and cues built into that. So you have a lot of options here at the end of the day. Day Directional Mix, this is what you're going to see now in all of your levels of technology.

So if you've got a Vivia, an Enzo, IA or Asensia, you will see Directional mix available to you in levels 4, 5, 7 and 9. In previous generations, Pre via, this was a premium option, so you only would see in the level nine. So if you haven't fit us in one, haven't been the software in a while and you didn't do a lot of

nines, this might be new to you. Directional mix is basically your crossover frequency. So I like to show this little video here.

So we have little blurbs, right? And if I click play, Directional mix is basically when the hearing aids are in this directional microphone pattern. How much processing are we doing between omni and directional?

And this is to try and maintain a really nice sound quality for the patients in that directional beam form. So the software is going to pick the beginning part of Directional Mix or kind of that default setting, the recommended setting based on the style of the hearing aid as well as the hearing loss. So if I click over here on medium and we can see this red line right here, what's happening is that that everything that's on the left side of this line is being processed in an omnidirectional pattern. Everything on the right side is being processed in more of a directional pattern. When would you change this?

That's a great question. Patient is telling you that they can hear everything around them in a quieter environment or a noisier environment, but they can't hear the people right in front of them. Well, maybe we need to have a higher directional mix. Maybe we need to process more of this information. Directional.

So this is when you might pull it from low to medium or medium to high. Reverse of that is maybe your patient is saying, even in a quiet environment, you've done all the noise reduction that you can within the actual noise reduction features that it still sounds noisy. Okay, well that's fine. Well, maybe we are processing too much information in this directional beamform, so we need to lower nas when you need might pull it to the left so it's a little bit backwards from how we're taught about crossover frequencies, but this is basically what's happening. And again, it's in those four different levels of technology for us.

Time constants, this is what you're getting access to change, they're always there. But to modify, you get this in a level seven, in a level nine, this has not changed over the years. This has been around for quite some time. And your time constants, as you can see here by my little blurb, is the or are the attack and release times for compression. So we believe that syllabic is a really great place to start.

These are going to be your super fast attack and release times. So in a level four and a level five, your hearing aids will always be in syllabic for the most part. But when you go up into the sevens and the nines, you do have the ability to slow down those attack and release time times. In my opinion, there's two ways or two reasons or scenarios that you might be doing this. First is going to be for a preference to sound.

So you've got a patient and they're telling you everything is too harsh, sharp, tinny, harsh, sharp, tinny, harsh, sharp, tinny. So usually what happens here is that you're in your gain adjustments and they're saying it's harsh, sharp, tinny, harsh, sharp, tinny, harsh, sharp, tinny. And you are cutting your, your mids and your highs, right? And you got something like, like that. And you're like, well, maybe, maybe, maybe you don't have enough lows because that also can make things sound harsh, sharp, tinny from time to time.

And then you do this, okay, so this is what you have for your fitting. You're like, oh, gosh, I hope nobody ever sees this behind me. But you know that at this point it can't be a gain issue because they're telling it's too sharp and harsh and tenny, but they've got like Z0 gain. So if that's the case, and again, this is an extreme example, I'm going to recalculate my gain values here.

I am going to try something different. I'm going to go to advanced features speech and I am going to go from syllabic and I'm either going to go to moderate or slow, and I'm going to slow down those attack and release times. Because fast attack and release times tend to have a sharper sound quality. Slower attack and release times tend to have a more rounded sound quality. There's not necessarily a Right or

a wrong.

But sometimes auditory systems prefer one versus the other. Especially if these are previous hearing aid users from a manufacturer maybe that has slower attack and release times. Everything is good. There's a reason for everything behind the scenes. But.

But this is how you can modify and correct for that complaint or that issue. The beauty about having time constants is that you can give your patients two things. The gain that they need in those higher frequencies, which is their speech information. Right. We don't want to just be cutting speech information because it sounds too sharp.

And it's also giving them the sound quality that they prefer. So they prefer more rounded sound quality. Perfect. And you're still able to give them all the volume and those really important speech frequencies at the same time. So you're giving, giving your patients the best of both worlds.

So that's scenario one with time constants, right? Harsh, sharp, tiny. Scenario number two is more of a permanent solution. So this is going to be for your folks that have had a cognitive issue. Maybe you fit them six months ago and between then and now they've had a stroke.

And audiologically, on paper, test them out, everything's good, bird rec thresholds, all of it. It. But they are not able to process everything in the same manner due to the stroke. They oftentimes will do better with slower attack and release time. So again, you go to moderate, you can go to slow, whichever one is better, it doesn't matter.

Usually your patients will be able to tell you, I hear better here, I understand better here. And then you usually just leave it there for the long term. This is also a good solution for folks who have bigger hearing losses. They have poor word recognition, slower attacking release times. There's lots of

documentation evidence based around this.

They do better with slower attack and release times. This could also be sometimes for your bimodal patients as well. Not all the time. But these are just solutions for patients when they need a little bit more or a lot more. So time Constance can really be your friend.

You can see patients, patients visibly in clinic, like feel better about the overall sound quality, especially when they're in that category of everything's too harsh, too sharp, too tiny sound shaper. This is again, I like to show our little video for this. This is our frequency compression feature. So there's two different ways to do frequency lowering. You can either do it or frequency compression.

You can do it, but transposition or you can do lowering. We do it in the lowering manner and essentially to usually scientific words, we smush the area of inaudibility into the area of audibility, whatever that may be. And so we're going to do this in a linear fashion because it is compression at the end of the day. And we know compression can cause distortion from time to time. So we just try to do in a linear fashion to prevent as much distortion as possible possible.

Now, because this is Sound Shaper and this would be, you know, maybe people don't have responses at 4k, 6k, 8k, 2k. This is when you might consider Sound Shaper. They have, they say they hear a ting ting tank instead of a beep, beep, beep, or they've got cochlear dead regions. Whatever it is. This might be a feature that you can turn on when appropriate.

We always recommend that you leave it off. That's also always. The default setting will always be off. But if the software sees a hearing loss that the patient might benefit with Sound Shaper being turned on, it'll still be in the off position, but it'll bold it. They'll say, hey, what about moderate?

And so if you see moderate bolded versus off, then you could try it and see if that helps them. In my experience, this is a very. It's not really a gray area. It's like yes or no. So try it out, see if they like it.

If they don't, you can always turn it off. But just know Sound Shaper will always be off. And it's going to be for those corner audiograms, collicular dead regions, no responses at certain frequencies, et cetera. So these are your speech advanced features for enhancing speech and making overall sound quality better for your patients. Aids.

When we come here into our comfort, then we have what looks like a whole lot more options. But basically everything that's in here under our comfort advanced features is made to make these hearing aids more comfortable for the patient. So DFS Ultra 3, this is our feedback manager. We ask you to run calibration for our patients. We want you to run calibration for every patient, no matter what at first fit.

And this is so we can activate our digital feedback feedback system, which is what DFS stands for. Once you've run calibration and the DFS system becomes active, this is what you have. It will always default to mild, but you do have the ability to make the feedback system more sensitive. So when I say that, what happens is that when I go from mild to moderate and moderate to strong, the feedback system is going to want to classify more sounds in the environment as potential feedback. Feedback music doesn't want to classify very much as potential feedback.

And this makes sense. So if I'm in a music environment, I do not want my hearing aids to be classifying all of my notes, all of my piano, all of my guitar, like, all the instruments and singing as potential feedback. So the way I think about DFS Ultra 3 between these different options, mild's like, hey, hey, you look like feedback. You sound like feedback. Cool.

I'm going to do my thing. Moderate's like, oh, hi. You look like feedback. You sound like feedback. I'm going to do my thing a little faster.

We'll be more sensitive if you will. Strong's like, oh, hey, you look like fe. Sound like fe. Cool. I'm going to do my thing.

It wants to say that your feedback really likes this job. Music's on vacation. Music's got its chair ready to go. It's got its magazines on the beach hanging out. It's like, hey, man, you look like feedback.

Are you sure? Are you sure? All right, fine. I'm going to do my thing. So, again, most scientific way to explain it, not at all.

But hopefully it gets the point across that it's just being a little bit more aggressive, a little bit more aggressive, and then just not aggressive at all. So go ahead. You can always. If you've got breakthrough feedback for. For whatever reason, you're welcome to pull these to the right and see which one works better.

If for some reason you get it on strong and the patient comes back to you and they say, hey, every time I use my microwave now and I go beep, beep, beep, beep, my hearing aid goes beep, beep, beep, beep. That's because our DFS system is using something called phase cancellation. And so if it hears something in the environment that it's classified as feedback, it's sending something that's equal but opposite. So it's. If you're feeding back or thinks you're feeding back at 3000 Hz, 4000 Hz, 2000 Hz, it's going to send out a signal of negative 3000 Hz, negative 4000 Hz, negative 2000 Hz to phase it out, cancel it out, zero it out, wipe it out, however you want to think about it.

It can also do lots and lots and lots of different peaks all at the same time. So it's pretty sophisticated system. It's been around for about 20 years, give or take in some form or fashion. So we really are able to manage that feedback pretty well.

But this is how you can do that with your DFS Ultra 3. Also because we do feedback control this way it does allow us not to cut gain, especially in those higher frequency areas like that 3k area. So again, we're giving your patients the best of both worlds audibility that they need for that speech information without any feedback. Intelligent noise tracker versus noise tracker 2. Noise tracker is our key word.

This is telling us these are our noise reduction systems. Intelligent Noise tracker, like we talked about a few minutes ago, if you see the word intelligent, that's telling us that, oh hey, this hearing aid has a second chip for noise reduction or denoising. Oh, and it's active right now. So we can see in program number one now because this is our Sensia 9 rechargeable RIC that I have both options of noise reduction. This is all happening behind the scenes when it's being turned on between Intelligent Noise Tracker versus Noise Tracker two.

But you do have the ability to come in and make these stronger or not as aggressive if you need to. Intelligent noise tracker, it's probably going to sound something like, hey, in a really noisy environment, background noise is still crazy loud. Cool. Because this is when Intelligent Noise Tracker is going to be turned on. It's for really noisy environment.

If your patient's complaining or has an issue with background noise and it's not a super noisy environment or more of a quiet environment, Noise Tracker 2 is probably going to be the one that you can hang out in. But these are all about modifying or reducing or managing your background noise.

When you're looking at Noise Tracker 2. So you do get Intelligent Noise Tracker and the nine rechargeable RICs, it's also now available on your site. Again, I notice there's a lot of information here. It would be more like the Vivian 9. So it's in program number two.

So if you don't have awareness of that, that's okay. Just throwing it out there. For those of us who have been fitting the Vivias for the last year or so, when you're looking at Noise Tracker 2 and you're thinking

about levels of technology, this is still pretty robust. So if you're in a four, you get quite a bit of noise reduction. When you're in a level five, get up to moderate, considerable.

When you're in a seven, again, up to considerable. I'm sorry, you get up to strong. And then whenever you're in a level nine, you get all of these mild, moderate, considerable and strong. And then you get this magical thing called per environment. So if you're looking at this and you're like, wait a second, this looks really familiar.

You are probably more likely than not thinking about environmental optimizer too. And you would be correct. Again, these are the environments that are environmental Classifying system Acoustic Classify Quiet speech, soft speech, loud speech and noise. Moderate speech and noise. Loud noise.

Moderate noise, loud. Environmental optimizer is all about volume. Everything sounds good, but it's a volume machine. When I come down to my advanced features under comfort and go To Noise Tracker 2, this is about modifying noise reduction or making background noise better. If we look at this and we say, okay, in a quiet environment, do I need as much noise reduction in a quiet environment as I do in a noise loud environment, I. E. Standing on the corner of a really busy road, typically the answer is answer is no, I don't.

And so this is all automated behind the scenes. It gives you these seven environments and it will apply the amount of noise reduction that we see here. Again, These are decibels. Negative 3, negative 4, negative 6, negative 8, negative 9. Depending on which environment that you are in.

And if your patient's telling you they go to a restaurant and background noise is still not great rate and you can come in and individually increase the amount of noise reduction being applied based on the environment they are in.

So these are your two options for noise reduction. Windguard's Wind Guard, it hangs out in mild and program number one, it's kind of in a sleep mode until three different parameters kick in. So that's the an asymmetry or a turbulence between the front and the back microphone. So if you've got like a cic, windguard is not an option because you got to have two mics. It's got to be a certain frequency range and it's got to be a certain volume.

And once those three requirements are met, then Wingard will turn itself on and pulse noise reduction. This is for loud sudden sounds, door slamming, keys dropping, busboy is going to town behind you. You can definitely modify this if you need to.

And then we have expansion. So expansion is a nice feature. Originally, my understanding originally was developed for circuit noise for hearing aids. Hearing aids in general are pretty soft. Here in our little video trying to show that as you go up in the levels of expansion, the amount of expansion being applied, that that refrigerator is going to get softer and softer.

So expansion is really great for when your patient comes in and they say, hey, I don't know, my room has this weird noise. It's breathing, whatever. I hear this like hum anything like that. These low level environmental sounds. Expansion will be your friend.

Also what's cool about the software is that we have some automated turning on turning off of these features. Expansion is one of them. So if your patient has good lows, bad highs, the technical would be be a low frequency pure tone average of 25 decibels or less. Again, good lows, bad highs. Expansion will turn itself on to mild automatically behind the scenes because we know that likely than not this is going to be turned on anyways.

So we have kind of run through a lot of information here. I will click on our hear a noise program so you can see what these features look like. Here again, Intelligent Noise Tracker is your second chip. If I go

up into speech, we still have directionality. We have our time constants.

There's not as many options there but it is not, you know, automatic program. I will pause here for a second. Second. We are kind of right up at the edge of our time. I'm going to go into our Q A and just see if we have any questions here.

Let's see. Nope. And with that I will say thank you very much for joining us today. Please reach out if you have any questions. We're always happy to answer any of them.

I hope you have a great rest of your week. And please don't forget to take your five question quiz is so you can get your one hour ceu. Have a wonderful day and a wonderful week. Take care.