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How ReSound Sensia Gets It Right for Your Patients

Presenter: Tammara Stender

Hello everyone and thank you so much for coming. Thank you, Melissa, for hosting this event. I'm very excited to talk to you today about ReSound Sensia and to discuss what it is about Sensia that makes it different. What is it providing to your patients that's new? And how can you get the right fit for your patients who based on what they need and want.

My name is Tammara Stender. I am sitting right here in a suburb of Chicago. I am the Director of Communications and External Relations for Global Audiology in GN Hearing. So thank you once again for sharing a part of your Friday with me. If you're here live or if you're calling in, or if you're watching later.

Thanks for joining.

A few Learning Outcomes Today we're going to discuss the enhancements, the new features and the new benefits provided by ReSound Sensia, including our newest package of AI, which is acoustic and how it helps your patients. We're also going to discuss the evidence behind acoustic and the new directionality and noise reduction feature called Intelligent all around. And then we're going to talk a little bit about how best to fit it to the needs and wants of the patients you see every single day. Some limitations and risks. Of course, I won't read through them all, but as with any presentation, your clinical judgment is always the best.

And I think that pretty much sums up all of these limitations. And I hope that you'll find this presentation to be useful, educational and helpful for you in your daily work. So without further ado, let's jump in and really talk about what makes ReSound Sensia different in the industry and from what ReSound has had in the past, and most importantly, how it helps you get more satisfied, more happy patients and fit all of their needs.

But first, let's talk about how we got here, because every hearing aid that's launched is a step in a journey. And at ReSound, we are very focused in really identifying where people have troubles, even with today's technology, and developing solutions to address those troubles. And I bet this comes as no surprise to anyone that hearing a noise remains the number one challenge, despite all of the advancements in directionality, noise reduction, signal processing, DNA in it is still the reason why people can come back for fine tuning, but also the reason why they come to us in the first place. 90% of people struggle with conversations in a NOISY background, and 80% are challenged with conversations when more than two people are talking. So even people who live very quiet lifestyles occasionally, even when they're just going to this Grocery store or having a coffee in a louder place, these kinds of things are happening.

And this is the area where people need the most help. Usually it's a social situation that they missed out on, or it could be a business and transaction that they couldn't hear very well, or maybe even just getting through their day and hearing what they want to hear. Hearing a noise is usually the reason why they're here with us. So Riza wants to know what makes a good hearing experience in real life. There are so many ways you can evaluate a hearing aid, and most of them are published based on lab research.

But we know that the lab is not real life. We want to focus on what people are experiencing out there. And so to do so, we did some research and we looked at feedback from users, hearing aid, user interviews, online forums, and we started to notice a trend. While hearing aids have gotten better at reducing noise, it's not always helpful for the person that the user wants to hear. For example, sometimes they can hear speech better in a noisy environment, but they don't hear the person speaking that they want to hear the best.

And that can be frustrating. So hearing exactly what you want and not hearing the things you don't want is really important to avoid frustration. Speech clarity is really important, and it's very common as an audiologist or hearing care professional to be like, well, what would you like out of this? What are some goals out of your hearing technology? And a lot of times they just say, I just want to hear what people say I want to hear so that I can be part of the conversation, not slow it down down by saying, oh, can you repeat that?

Or missing out completely and getting frustrated. Speech clarity is above all what people are wanting. And they want noise to be reduced but not eliminated completely because that tips over into the more unnatural experience for listening. Radically reducing noise in the environment, when you can see with your eyes that it should be a noisy environment, can be a little disorienting and possibly dizzying. So we want people to feel like the noise is brought down to a tolerable level.

Speech is lifted out of that noise, but they are still part of the natural auditory environment. And then finally, no effort and no adjustment. I just want to wear them and forget that I'm even wearing them. I don't want to go into an app. I don't want to change a program.

There's a great number of patients who feel that way. And so we need to address these needs and make it as easy as possible. So the journey to ReSound sensia in terms of reducing background noise, making the speech more audible and making things easier has really been a multi year journey. And that is very typical. But as I go through these different steps in our journey, I won't go into the details of all of them.

But the gist of this is to say that as technology has become available to us in a miniature form to put into a hearing aid, we have applied it to these goals. We started off with making directionality, not just the fixed directional on versus omnidirectional for all other environments. We looked into what the academic research was saying, what the experts were saying about how people actually listen in noise.

We found that people tend to look at the speaker that they're interested in, that they want to be part of the environment, but they want to perform as if they don't have a hearing loss. That is of course, the extreme goal and one that maybe hearing aids are never going to be perfect at.

But that is the journey that we are going to. And I think everyone can agree that we are as an industry, way farther than we were 15 years ago. And for ReSound, we have continued this journey step by step, keeping true to the research that we know is correct and using the technology that we have available to us at the time.

So making it easy with that level of technology is something that has to be done, done judiciously. We know that people just wanted to automatically apply the features and technology that they need to make things easier for them, but they also expect it to be right that it's doing that correctly. So things that we saw when we were doing interviews, when we were looking at what problems users still have, is that they like having this new technology. The DNN denoising that we introduced with Vivia has been very, very helpful to people to make the noise environment softer. But could it potentially be a little easier to use?

Could it be that it was put in the first program? So it's an automatic switching to that setting, Automatic denoising would be a game changer, is something we heard. We heard that the Vivia 9 did a lot of amazing things for people, but it was, it would be nice if they didn't have to go to the hearing noise program. We listened to that input. We understood that even though going to the hearing noise program makes the user the ultimate driver in what they're going to hear, then sometimes you're busy and you just want to stay in that first program and still succeed wherever you are.

So we wanted to address these situations and that was the challenge. So the challenge is if you are going to put a strong DNN denoiser or any of these features that are very strong at getting rid of noise in the background, you have to do one thing first, and this is the foundation of everything. You have to

make sure that the environment is being categorized and classified accurately every single time. Because if it's not, then the features that you want to have in those difficult environments might not turn on at all. And it doesn't make much sense to have a hearing aid where you have really high end technology to remove noise in the environment if the hearing aid isn't able to determine when it's supposed to turn that on.

And in an automated program, you have to make sure that you're accurately classifying and applying all of the features. Classification is basically like knowing the answer, but activating the features is acting on the answer. So it's two parts of an equation that are necessary to have. You have to know the answers and then you have to activate it properly. Step one and two.

And then finally with automation, we've said for years, you know, automation is great, but you don't want to take the power away from the human being to decide what they want to hear. Because after all, if there's two speakers standing in front of you, you might only want to listen to one. That other speaker might be somebody else in line with in the, in line at the supermarket and you don't want to hear their conversation. So how do you get the power to hear the speaker you want to hear and not another speaker in a noisy environment? And with automation, we have to make sure that we don't take that ability away from users.

So how do we take automation to natural listening? First, we have to build a product on how people naturally listen based on troves of research. And all of this research has really pointed to three different modes that humans need in different listening environments. They need spatial awareness. They need to take advantage of their better ear.

We listen through a system that is typically two ears going to the brain. And the brain is able to advantageously focus on things coming from the better ear. So we want to apply that knowledge into our products and use it to drive how our features work. And also we need to have a really strong

speech and clarity and noise setting. And so for that, we look at listening in general as a continuum.

Is it supporting spatial hearing, hearing all around you, or is it supporting speech intelligibility where you really need to hear a speaker in a background noise and that is a continuum that fluctuates throughout the day for the user. Sometimes they need to stay aware of their surroundings, and this is spatial cue preservation so that they can localize sound. Sounds really take advantage of the natural listening cues to be part of their environment. These are generally quieter environments or speech only environments. That's when you have a high need for spatial hearing. It's very natural, it's very preferred, it helps with own voice quality.

It's the lowest distortion you can possibly have in a hearing aid. And it makes it feel effortless because there's not much noise to worry about. But then when things get a little bit dicier and there is speech and noise in an environment, and maybe there's just noise around you, and you still need to get through your day and get your things done and talk to the people in front of you or maybe to the side, it gets a little more complicated. And in those complicated situations where there's not someone directly talking to you, the brain likes to do the work by focusing on the better ear, what's coming from the better ear. So it gives you overall better audibility to speech and noise, while still allowing access to surrounding sounds and localization cues.

We use that kind of example a lot of times with you're at a restaurant having a conversation with someone across the table, but then a waiter comes up to your side and starts to take your order. You have to at least know that the waiter is there. So you have to have audibility around you to be able to attend to the waiter and maybe turn your head to hear them better. So this is the better ear strategy. And the brain is doing the work here.

And in this case, the support for spatial hearing and speech intelligibility is pretty balanced. But finally, in these situations where you're trying really hard to listen to someone in front of you, you have to be

able to focus on the voices that matter. And this is where spatial hearing takes a backseat to really getting that speech intelligibility. But while we are giving speech intelligibility, we never want to put people into a tunnel. We want to be able to make them hear more naturally.

And so that's why we still provide vocalization cues.

So from building on how people naturally listen, we take it to the next step, which is the right noise reduction. For every situation. Whether it's quiet speech and noise, moderate or loud noise, we need to have different approaches because they work best in different moments. And for this, we have two kinds of noise reduction working. In sensia, we have for everyday listening, Noise Tracker 2, which is a perceptual noise reduction.

It's only used in noise and moderate speech and noise situations. When the speaker's not in front of you, it works with directionality to support natural listening and it adapts to the environment. So when the noise increases, you get more reduction. The wonderful thing about this is that it keeps listening natural without adding any over processing, without distorting, without taking more battery drain and then anything. Any other normal feature in a hearing aid.

It's a lovely feature for most situations, but then when that's not enough, DNN denoising really helps. In the toughest listening situations, it's activated when there is a speaker in front of when you're in a noisy environment. And it helps you as a human that tends to look towards the speaker you're interested in, focus on that speaker and not just the loudest voice. So in the example that I gave before, where there's two people talking kind of off in front of you and you only want to hear one, looking at the person you want to hear is where this is going to help you. Because the DNN denoising really takes the background noise down and the directionality helps you really focus on that use front.

So this is how we help users hear who they want to hear, which was one of the very most preeminent things that came out of the interviews and what people want from not only our interviews, but from Market Track.

Finally, if you want to go to natural listening in an automated program, you have to make sure you have natural transitions. You really don't want to have your hearing aid going zoom, zoom one way to the other, omnidirectional to directional in ways that the user can perceive that are very distracting, possibly dizzying, very unnatural. So we want to adapt as the environments change to different microphone settings and different levels of noise reduction, but without jarring shifts. And we also want to make sure that people feel like they can trust it without having to think about it or adjust how they are hearing. And for this we have applied multi split, multi band split directionality.

So the reason why this helps with transitions is because look at those low frequencies, they are always omnidirectional. And that's true whether you're in a spatial cue preservation mode, which is bilateral omnidirectional, or if you're in a speech intelligibility mode where you've got a bilateral beamformer in the mid frequencies and fixed directionality in the highs. So the bilateral beamformer is our ear to ear directionality that gives you a really narrow beam and this helps you in the speech frequencies be able to hear the speaker you're looking at. The fixed directionality in the high frequencies is for bringing back some of those interaural level difference cues that can be highly distorted by a four microphone beamformer so you get a better sense of localization and spatial hearing. But that omnidirectional and the low frequencies is key for keeping transitions between different environments natural.

Because low frequencies is where a lot of is where people we know are perceiving level differences, how loud things are. And back in the old days we would have people say, well, when I go to directional, all of a sudden it sounds like things are getting softer because even with a bass boost, it's not able to get over that low frequency cut for directionality. Keeping the low frequencies as omnidirectional

resolves that issue, makes it more natural, also has sound quality implications for the user's own voice. Keeping that more natural because it's less processed. And that is the key to our transitions being smooth.

One other thing to mention when you go to automation is that you have to make sure that that automated process doesn't consume all your battery. You have to have power that lasts all day. It's not something that's negotiable. So we have to use our processing power intelligently for stable performance and not having a trade off between using the technology that you paid for and draining your battery too quickly. And with that we developed the Sensia.

The Sensia was developed to address all of these concerns and make it a better product than has ever been out on the market before.

Acoustic is the new AI package that we have built since on and it is really the engine. I think of it as the engine of how all of the features work together with the classifier to determine what features to turn on. So acoustic is two parts. It senses the sound and then it turns on features and turns them off when necessary. This is what allows people to have the best of all worlds for automation and to get the benefits of their high end technology.

So acoustic reads the environment in real time, it engages and activates the optimal features for that environment and it works all across directionality, noise reduction, gain settings. It really gets the whole engine of the hearing aid to make those features turn on when necessary and only when necessary.

And we did a little. We've been doing some studies on this topic in the last few years. This is a study that came in 2023, although we've been looking at this since 2017. And we're not the only ones who've been looking at it. External researchers 2021 did a classifying and how it is so important in a hearing aid.

And also some things to watch out for. Not all hearing aids can classify sounds the same. Some of them even classify sounds that others don't. For example, ReSound does not classify music. The reason why we don't classify music is because music is such a varied stimulus that it can be very, very much like noise.

And we do not want to accidentally classify a noise environment as music. The reason why is because if you classify a noise environment as music, you are probably turning off your directionality, turning off your noise reduction amplifying gains, because music listening usually wants to have the most natural omnidirectional noise, noise reduction settings, and that's the opposite of what you would want in noise. So music is a very difficult and very tricky category and no one has an easy time doing it. So ReSound does not categorize or classify with music. However, we are very focused in classifying all of the other environments.

So, for example, we did this overall accuracy of classification study and we worked in quiet speech and noise and noise only. And what we found was that we were able to deliver 91% classification accuracy by consistently identifying real world listening environments. And this was done in a lab, in a test box while playing these stimuli to the other hearing aids as well as ReSound. And the data was analyzed by reading back the data logging from those hearing aids to see what environment each hearing thought it was in while we presented it with a stimulus. So, for example, if we presented it with a speech and noise environment, we would expect the data logging to say it was speech and noise.

With ReSound, it was 91% accurate. And this was in 2020. 3. Other manufacturers we tested at the time did not achieve those same results. And so we want to make sure that if we do anything, we've got to get it right and we've got to make our features activate when necessary.

We took that idea further and this year did a study that was building on that classification study. It had a different methodology and it looked at not only classifying or knowing what kind of environment you're in, but also whether the hearing aids were actually turning on the right features when they were supposed to be. So in that speech and noise environment, we didn't only look at how were we data logging it, but we also looked at, okay, did the hearing aid actually turn on noise reduction? Did it actually turn on directionality? And looking at that kind of a question gave us a whole different answer.

That again showed that there's differences in the way that hearing aids classify and activate features across the industry. We looked at how the top six premium hearing aids automatically activate directional microphones and we called them gain agents because gain and noise reduction with our compressors can be hard to separate when you're looking at a test box in response to different sound scenes. And that's how we act, how we measured feature activation.

What we found was that in this situation, when we provided all the hearing aids with exactly the same stimuli and looked at whether their directionality and gain agents were activating as they should be, we were very proud to see that with our acoustic system, we were able to get 100% feature engagement accuracy every time we presented a stimulus. And we said, well, it's moderate speech and noise, you should be getting some noise reduction and directionality. It did what we wanted it to. It did as it was supposed to automatically. But when we measured some of the other companies, it didn't always turn out that way.

The right graph breaks it down into the three kinds of categories that we measured. Voices and quiet, speech and noise. And noise. And you can see that across all of those stimuli, we were able to measure that our system is 100% accurate. So this is really interesting work because the basis of automation is ensuring that things turn on when they're supposed to.

88% is a number that we put out with the claims for ReSound Sensia, and this is based on how much of a difference we were able to observe with our product versus other products out there in that test that I just presented. So the most important thing to remember is, are the hearing aids that you're fitting doing what they're supposed to do? Are they meeting the expectations that you have as a fitter, as a patient has, when they walk into a noisy environment, are they doing what they are supposed to do? And with ReSound and with Sensia, I can assure you that they are doing exactly what they are supposed to do in all of these environments.

Acoustic is really the engine, as I mentioned, but we have to apply that to the breakthrough technologies. We have our DNN denoising our four microphone ear to ear directionality. And that is all in one the Intelligent all around program. So Intelligent all around really combines the power of acoustic with 4 mic beamforming and DNN denoising. And it's all seamlessly integrated into one AI platform to constantly sense, adapt and optimize so the user can take advantage of these features without having to change programs, without having to worry that they're not doing the right thing in the right time.

So as I mentioned before, when we are in a very noisy environment, we're applying that strong 4 mic beamforming directionality and strong DNN denoising. But we're also going to keep those transitions natural with our low frequency omnidirectional processing. This is a real distinguishing thing between us and other manufacturers that don't necessarily do that in a loud speech and noise environment. We firmly believe that natural and effortless hearing should feel transparent to a user, that they shouldn't be perceiving, that they're zooming in on something, that it just automatically does it without causing any kind of jarring sensation. And this is why we do what we do with the low frequency omnidirectionality at all times in our automatic program.

We want to preserve access to speech and have the user listen to what they want to hear without distractions.

And putting people in a distracting situations or taking away their control leads to complaints. So if you've ever heard the person come back that you just fitted and they say, at the follow up appointment, I was at the restaurant, I could hear people at my table. I could hear other people at other tables too though. How do I only focus on the people at my table instead of the people at other tables? This is where that technology is supposed to help.

The 4 mic beamforming directionality helps the user be able to turn their head to the direction that they are looking and wanting to hear. And this is a basis for natural human hearing. There is a treasure trove of research out in academia to support that. This is how humans behave when they possibly can look at someone to hear. This is what they want to do.

And this is what happens in so many of the situations that we hear as audiologists.

So in order to make sure that our hearing aids were providing a solution for this situation, we did two studies. Our study was internal and then we had an external study at Horst and Trim Oldenburg. Both studies looked at having the person identify and repeat back what a target speaker was saying in the midst of detractor speech and noise. And both studies came to the same conclusion, that we were able to allow users to really focus on the speaker they were interested in and not have to be focused on the other speaker. Let's take the results on the left side first.

This was for a equal distractor. So we had the speaker in front talking at the same level as the distracting speech around the user and the user was able to turn their head, because that's natural, normal human behavior, to who they wanted to hear. And that speaker could change, that intended speaker could change from right in front to off to the side. But since the user was able to turn their head, they were able to choose who they were listening to and respond back with equal detractors, equal level of speech on either side. Users wearing Sensia were able to hear the speaker they wanted to hear best, and that was the speaker they were looking at the speaker in front of them at any time.

So if they turn to the side, that speaker would be in front of them. If they turned straight, that speaker would be in front of them looking at, making sure that who they want to hear is who they hear best. With a competitor, the best audibility was achieved for a speaker on the side, which was not the speaker that they were wanting to hear that they were told that they needed to attend to. So the best audibility, the most effortless listening for who they wanted to hear with equal distractors, came from Sensia very overwhelmingly. But then when we look to the right side and and we increase the level of the distracting speech to make it an even noisier restaurant situation with loud talkers off to the side and still asked who are you hearing best when you're able to look at the speaker that you're supposed to be listening to?

We found that it is much harder. But still users wearing sensia were able to hear a speaker that they were looking at a whole lot better than a competitor, in which case they were hardly ever able to hear that speaker they were looking at because the side speaker was so loud. So this is really important. This addresses a problem that our field has had in a long, long time of directionality. Not always making the intended speaker the loudest, not always allowing the user to hear who they want to hear.

But with Sensia, with this technology, we're able to give them that ability to choose who they want to hear and hear that person best, even when it gets difficult. They are doing very well in these situations. So this is really exciting and it can make a difference in your fittings and how people respond when they come back to that fitting follow up visit.

The numbers that we got out of these studies gave us numbers like 80%, 80% of users experienced better audibility of the intended speaker in our study. And they perceived subjectively. They told us it was easier to hear the target speaker. They didn't have to work so hard because the directionality was helping them focus on who their brain wanted to hear. They also experienced reduced distraction from competing voices because of that DNN denoising that was happening.

So we're very proud to say that we have the best audibility advantage compared to other DNN denoising solutions in these situations that are the most troublesome for users.

So how does Sensia get it right for your patient? It senses the sound, it gets it right, it focuses on speech and tunes out the rest. And it applies automatically now with Sensia DNN denoising when you need it.

So listening in noise is like I would say, the bread and butter of what we do and listening through the hearing aids alone a huge part. But we can't ignore the other ways that people need to hear where they need some additional support and that's broadcast audio. Whether it is with telecoils, FMS or AuraCast. These are difficult situations for people. ReSound Sensia continues in its tradition to connect with AuraCast.

This is our third generation connecting directly with AuraCast. And we have an AuraCast assistant right in our app to make it easier because we know that there's going to be situations, lecture halls, concerts, theaters, airports, where people have a hard time hearing just with hearing aids alone. We've been able to provide this technology. We're happy to provide it again. It is the future of where we are going.

Multi Connect makes it easier for users to connect to more than one thing at a time. So they're able to pair their ReSound devices with two smart devices simultaneously so they can take a phone call while streaming a music or movie from another smart device. Our accessories extend the benefits of our cast to other listeners so you're able to share the. Sorry, share the AuraCast experience through our TV streamer. Plus how that works, you pair the hearing aids to the TV streamer, plus you allow the auto streaming to make that streaming effortless.

You just turn on the TV and the hearing aids receive the sound directly. But then it also allows an unlimited number of AuraCast enabled devices. Not just hearing aids, but earbuds. Any other brand of hearing aid that has AuraCast to connect to that TV streamer for a shared listening experience. So let's say your best friend is wearing a different brand.

If they have that auracast in there, they can watch the game with you too in your living room through that TV streamer. It is accessible connectivity for all. And I think that's really the purpose of AuraCast is to really bring people together and to allow people to have shared experiences in situations that would typically be hard with just hearing aids alone, we are also allowing people a lot of adjustability. You can adjust the TV volume, the surrounding sounds, all within the Smart 3D app. So if it needs to be a little louder for you alone, then you can do that for yourself alone on your own app without disturbing others in the room.

Our Multi Mic plus accessory is our remote mic accessory and it helps people hear clearly up to 82ft away. It really is a game changer when you need to have SNR improvement that is bar none the best. We were able to measure an almost 10dB SNR improvement compared to omnidirectional, not compared to unaided, but compared to omnidirectional. So we know that people get outstanding benefits out of the streaming Bluetooth. Low energy audio on AuraCast is everywhere in the hearing aid industry now and basically everywhere else.

Five new AuraCast enabled venues are popping up every day globally. And that might not seem like a lot except for when you consider that they they've been popping up over time. They are at the Frankfurt airport. I know that I never actually experienced that because I'm sitting here in Chicago, but it's coming, it's in the U.S. it is here. And there are so many places that I can think of even in the Chicago area alone that have AuraCast installed at this time.

87% of the time. AuraCast is the preferred streaming method for users with and without hearing loss compared to telecoil. And I can tell you from an experience that I had at an Aura Cast enabled venue, I actually really was wishing that I had had my hearing aids with AuraCast because I was listening to the concert unaided. I have pretty normal hearing and I found like it was a little bit too loud and having the auracast stream, the people around me that were using hearing aids with it said that it was delightful because they could actually make it the loudness that they wanted to. So I'm not advocating using hearing aids as any kind of hearing protection device, but I'm just saying that it provides so much in terms of benefits for making hearing personalized to the user.

And the sound quality is so advanced, it is such a clear sound quality that compared to telecoil it is the preferable sound quality people are getting.

So really it's here, it's all over our industry now. It is all over our world. And providing your patients with this technology really helps them be able to access everywhere they are going to need to be in the future as well.

So inclusivity connectivity is all about inclusivity about feeling part of the lecture hall, feeling part of the show, feeling part of your classroom. And we want our accessories to make that happen for our people that are wearing our hearing aids and to share it with their other friends who are wearing earbuds that are auracast or other hearing aids that are auracast. So when you might be wanting to consider this with your patients is for someone who watches television a lot for a TV streamer plus and the spouse says that they have a hard time listening with them because the volume gets too loud if they're in meetings, both in person and virtual. We have someone in our trials who connects seamlessly with their laptop to Bluetooth low energy audio, directly to their hearing aids, no gadgets, no gizmos, nothing, just directly to their PC. And this is very helpful to them because the person is also has vision impairment and they need to be able to have their laptop talk to them.

Having this direct connection to laptops is really, really important. And that is built right into the hearing aids. But it's also available through our accessories. If you have a laptop that doesn't work with Bluetooth low energy audio, you can use the Multi Mic plus to do the same thing as well. And for very active people, there are so many ways to use these accessories to really make life more accessible.

So with no further ado, let's talk about the hearing aids and the Sensia family. Thanks so much for sticking with me for this part because this part is where we really bring in the tools and of how you can apply all this technology into your clinical practice. We have six new hearing aids, CIC, ITC and ITE and then three kinds of RIEs. The micro RIE is the smallest RIE we have and also the world's smallest rechargeable rie. Still, even with new products on the market today, it is still the smallest one.

And that is the one that has all of our DNN and strongest features. So it's amazing and remarkable and maybe counterintuitive that we were able to put all of our best technology into the smallest RIE that we have. We're also offering Cross and Bimodal models as well. We have a Micro RIE version of the Cross transmitter and we also have this working as a bimodal product so that it is compatible with the Smart Hearing alliance products with cochlear making your product selection a whole lot easier. In addition to the Sensia Bimodal, we also have the Superpower ReSound Enzo IA Bimodal solution.

So two different options that Work with Cochlear's latest devices. So when we start talking about other products like Enzo ia, I like to take a step back and look bird's eye view at what the portfolio looks like. Like if you're trying to figure out what do I fit if I want an rie, what do I fit if I want a Superpower, what do I fit if I want a budget version? This slide really shows how our products are distributed in the portfolio across all the technology levels. So we've got sensia available in 9, 7, 5 and 4 along with ReSound Enzo IA.

For BTES we have ReSound Nexia available at 9, 7 and 5. And for savvy we have availability for Ries and customs.

Oh my goodness, I just sneezed. I'm so sorry. Savvy is a more budget friendly version available at level three and level two. So with the Sensia launch we have a wide palette of colors including my personal favorites, navy blue and red. I think they're beautiful, but all of them are weatherproof IP68 rated with protective nano coating in and out.

So no worries about less protection from moisture and debris. They've got that protection built in along with exchangeable mic filters. They're using the same SureFit receivers, the SureFit 3 receivers that you have used in the past if you've been fitting us before floor. But we also have the all fit domes which have five different options of domes. This is a very busy slide but all together it just gives you confidence that we've got so many different options now for fitting people with an instant fit dome that would fit 97% of ears and that was looked at over 16,000 real world real ear impressions.

So you're really going to be able to find something you like here. I personally love that sleeve dome, the new sleeve dome that we have which is a custom like fit but provides that still open and airy experience.

And then the power we need to make sure that we have all day power, that's a given. So our charger is the premium charger with three additional charges built in just as our premium chargers always have. We are looking at testing with real life use. Not just turning off all features and seeing the max we can get but testing with DNN, denoising testing with connectivity and streaming. We're looking at 30 hours max and 20 hours with 50% of the time streaming.

50% of the time streaming. You would have to go through half of your day streaming something to have that and it's still 20 hours of use. So rest assured you're going to get through the day with these and it will not be an issue of your battery running out prematurely.

We wanted to bring the power of AI to more patients, going again with being more inclusive and accessible. In the Vivia, we had DNN denoising available only in the nine level. Now we are extending it to the nine and the seven level. It is automatic in the nine level for the program one and it's a choice to go to the hearing noise program, which is usually program two for the user to manually have it turn on. Or in the Level 7, you can have it in the hearing noise program as a Choice.

So the 9 and the 7 both offer DNN, but the 9 is the one that brings that automation to the first program.

But regardless of the level of device that your patient needs and wants, rest assured that acoustic is there for you. That is the engine, and the engine was not defeatured. That acoustic system is running across all of our price points. In addition, we have four microphone ear to ear beamforming available in all of those tech levels too. We know that people need to choose what they want to hear regardless of if they're being fitted with a 9 or a 5.

So we really or even a 4. So we have brought that into our portfolio. In the Sensia 9, there is also an added perk where you can have more control over your dnn. And this is in the hearing noise program. In the hearing noise program for level nine, you can adjust the strength of the dnn.

And that's something that's really cool because that DNN is our very strong denoising system. You can also control it in the first program with that automatic setting too. That's going to be controlling your perceptual noise reduction, which is our noise tracker too. So either way, whatever program you're in, you're getting a lot of flexibility and personalization for your noise reduction.

Comparing tech levels, especially when there are four of them, can get a little bit, for lack of better word, complicated. It can be a noisy in terms of keeping all of this straight. So I just want to give some high level overview of how to compare them. And I think this is the best thing that I've seen so far. It really is a question of how much noise reduction, how much speech intelligibility, how many different

environments are your patients going to need help in.

And for many patients it's a lot more various than they'll tell you. They'll tell you that they don't go anywhere, but then you see them out at the cafeteria. So clearly people are in noise even when they live pretty quiet life and lifestyles most of the time. To address every situation that the patient will be in at tech level nine is where it's at. Comes to no surprise.

You have the strongest level of DNN denoising. You have up to 15dB of reduction. You also get it available as an automatic in your program one. In a tech level seven, you still have the DNN denoising, but it's a little reduced up to 12dB and it's not available automatically. You have to go into your second program to get it.

In terms of optimizing your gains per the environment, you get the most flexibility and optimization of noise reduction for Noise Tracker 2 with your 9 level. And that really makes a difference in having the speech and the noise be the right level at all times. So I created this grid to try to help myself remember why would I recommend a 9 versus a 7? And when you are thinking of it as an audiologist or a hearing care professional, I'm going to think Sensia 9 is for automatic support. You get that DNN in the first program for the best speech and noise performance in the Sensius 7, you will still get DNN, but you'll have to move to the second program, which is great, but it's not as automatic.

So the benefit I would tell to the patient sitting across from me is with a 9, you can stay in that one program and not have extra programs and you're still going to get the best support to hear speech and noise from a 7 to a 5. If we're looking down a level, DNN denoising is in program two for the seven, it's not in the five. So you're going to get better noise reduction for A seven. And for a sensi of five versus A four, we are starting to see that the directionality is better for a 5 versus a 4 because it has a narrower beam. Sensio 5 has front focus and this was where we were really able to get a Precise narrow beam.

Sensia 4 has ultra focus. That's still a formic directionality, but the beam width is slightly larger because it wasn't calibrated exactly as narrow as we could when we came out with the technology for front focus. So there's better ability to focus on speech and noise. With five, they're going to be able to get rid of more of the environmental noise because their beam will be narrower with five.

Regardless though, there will be acoustic in all the these form Factors meaning that wherever you are, you can be confident that those features are turning on when they need to. We have a lot of names for our directionality. The intelligent all around in Level 9 is how we are packaging our automatic DNN denoising with our 4 mic beamforming directionality. So it has that in the first program as you go to lower price points, you see that there is less ability to focus on or to combine with DNN. The 7 still has really good 4 mic beamforming directionality, but without the built in DNN as an automatic program.

So that's the 360 all around the all access directionality. Again, you're getting less built in noise reduction there. And so this is how we have chosen to make the differences between the different price points.

Looking at listening comfort specifically, you see a real clear delineation here between which ones have DNN denoising and which ones don't and the amount that they have for each noise reduction that is. Noise Tracker 2 also has more flexibility in the higher price points as well as wind noise reduction and impulse noise reduction. But regardless of the price point you fit, all of your patients will enjoy the benefits of these features. Looking at the custom products, we see that there is a little difference here in that there is no DNN denoising. However, there's still acoustic throughout, there's still beam forming directionality throughout, there's still spatial cues with spatial sense.

All of these are benefits for speech intelligibility and awareness. And the listening comfort. Again, you get the greatest amount of noise reduction with your higher level.

So that's a lot. So I want to close up today with a fun analogy that I like to think of when I'm thinking about price point differentiation for hearing aids. So imagine you're going on a trip. I recently found out I'm going on a trip next week. I need to pack my luggage.

What am I going to need to bring with me so that I can do best no matter where I am on that trip? What do I need to pack so that I can have everything I need to enjoy myself, to not be cold, to not be too hot, to be appropriate in all of the environments that I'm going to be in all of the settings. So it's going to matter whether I'm going someplace like Florida in the summer or Chicago in the winter. I'm going to pack different things. So I'm thinking about what am I going to need for my my trip, bringing this back to an audiologist or a fitting.

What does the Patient need for their lifestyle, what are they going to need to bring with them in their hearing aids? What's going to help them succeed wherever they are going. And there are always things for a trip that you need no matter where you're going. And that seems like shoes, socks, basic clothing, ID medications, if you have them. And you probably need some money or a way of paying for things.

But then you customize, right? When you're packing a bag, you're customizing what else goes into that luggage for what your needs are. So if I'm going to Florida, and I chose Florida and Chicago because they are both places that I love, I used to live in Florida, so I can't help but think about about packing to go to Florida. What do I need when I go to Florida? I need something to address all the sunny days.

So I probably need some sunscreen. I need to bring my sunglasses and a hat. Or if I'm taking that reverse trip to Chicago when I used to live in Florida and I would come up to Chicago to visit, what do I need in the winter? I need to dig out my boots, I need to pack my stocking hat, I need to have my gloves there. These are all things that I'm going to need to be able to be successful.

What if I could fit more in my luggage and still be able to fit it in the overhead compartment and go more places? Well, it would be great if I could do all of these at once. What if I could go on a multi stop trip and go to both Florida and Chicago? I would need to have all of these things that all of these features would help me be able to have a good time in both of these locations? And what if that luggage didn't have to get bigger in order to fit it all in?

What if I could also accommodate for special occasions that I'm having, like going to the ball game, going to a wedding, enjoying some music, curling my hair. What if I could fit all of that into my suitcase as well? And this is usually where my packing endeavors break down because I want to bring way too much stuff and there's not enough space in my luggage. Luggage. I'm sure many of you can relate to that kind of feeling of frustration.

Wouldn't it be great if the luggage could fit it all? Well, let's take this back over to the world of hearing aids. The cool thing about hearing aids is that you can fit all of this into the same size package. It's all of these features and things that are going to help the user succeed. Are software features.

So it's basically how it's programmed inside the hearing aid. So the good news is, unlike traveling on an airplane to go someplace far away, you can fit what your patient needs all in the same size device. With ReSound Micro Rics, it doesn't get any smaller. And you can have the ability to customize these fittings for what the patient wants and needs. With that, you know, there are things they have to have and this is going to be available in all the technology levels.

Accurate classification and feature activation. A compressor based on the way humans hear and support for speech and noise. Because you know that they're going to run into situations where they need all of these things. This is your basic fitting, but it would be great to be able to cover more listening situations. If they're going to Florida, they're going to need that sun hat.

If they're going to Chicago in the winter, they need a stocking hat. So analogously we look at if they need more support than just the basic. Better comfort and noise in program two can be achieved in our Sensi 7. That's through the DNN denoising better performance and noise in general is going to be advanced for mic directionality available through that 360 all around in a seven, but for the best for the user who's like, I want to fit all of my things into my luggage and not leave anything behind. I want to be able to get them that curling iron and my dress shoes in for the wedding that I'm attending, then let's go with the best performance and personalization to make me feel as successful as possible.

And so that's going to be the best speech and noise features activated automatically. The best amount of app control of that DNN now so that you can keep track of what you want to hear and how loud the environment is around you, you and then the strongest support you can have, no matter where the day takes you to the ball game, to the theater, or just lounging around with your relatives at their home. So with that in mind, we have the ReSound Sensia product family. It is a new AI platform for hearing and noise. It's in the smallest style in the industry.

For re, there is a new version of fitting software, the Smart Fit 2.4 that was the first to come with NAL NL3 for more navigation and alignment of hearing aid basics with a better focus on what you need to do in the clinic to get your job done. And connectivity with AuraCast with Bluetooth, lower energy audio with made for iPhone with Asha, with all of the accessories that allow that connectivity and accessibility, we want our patients to get what they want and need and Sensia can really deliver that to patients.

So I have a little bit of time here for any questions that came up. I will see if there's any in the chat. Thank you so much for joining me.

There is a question of what is the major difference between Nexia and Sensia hearing aids? Great question. The major difference is that Sensia has DNN denoising it really is the next frontier for noise reduction and nexia does not. So Sensia really offers that instead of Nexia. There's another question of

is this a benefit for mild to moderate only or does it also help severe losses?

It was. It's a wonderful question. We don't only see mild to moderate, right? We see a whole slew. But mild to moderate is where a lot of our users are coming in.

This technology is scaled to help you if you're mild, if you're moderate, moderate, severe or severe.

This is the kind of technology that we test on users that have very mild hearing losses all the way up to severe. So we know that this works regardless. So great question. Any other thoughts or comments?

Okay, I guess we will wrap it up. Thank you all.