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ReSound Government Services: New Updates for November 2020

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- [Kara] Alright, so top of the hour and wanna get started here on time. Welcome and thank you for joining this course today for ReSound Government Services, we wanna gonna talk about new updates that are coming right around the corner now for November, 2020. And my name is Kara Sinner and I'm an audiologist at ReSound, I work in our training content development area and I work normally in normal times out of our home office here in Bloomington, Minnesota, which is just outside of the Twin City area. And I want to certainly thank all of you for taking time to join us today so that we can bring you these updates, new exciting product that we're offering here in the fall and let you know what you have available to you. So, our learning objectives for today are going to be to discuss the product families that are available on contract. We're going to describe the new technology features available with ReSound ONE. And we're going to describe the new ReSound Smart Fit fitting software features and enhancements that are going to be available.

So launch kits shipped out from us October 19th, so kinda depending on where you're located, how your facility kind of transports that stuff, and how quickly you may receive that or not, we anticipate that you would certainly be getting those by the end of this week. Some of you probably have already received those. If you haven't, hang on, they're on their way, and like I said, anticipate that being arriving by the end of this week. So things that have been removed from the contract that you had been fitting prior to November are going to include the ReSound LiNX 3D Custom hearing instruments, so that's going to include all of the different full shell, half shell, canal, mic in the helix and CIC wireless and non-wireless models that you had. Also the ReSound LiNX 3D BTEs, so that Mini BTE, the Standard BTE and the Power 88 BTE, those are all going to be removed coming up for this next contract. And then also for the receiver in the ear products, those ReSound LiNX 3D receiver in the ears, that 61Z housing style is also going away. What is new and being added is going to be our new family of products, which is the ReSound ONE and that family currently includes a Mini receiver

in the ear, which is the lithium ion rechargeable, and then two non-rechargeable receiver in the ears models. The Mini that's gonna have the 312 battery and then a Standard that will have a 13 battery. And then we are continuing to offer the ReSound LiNX Quattro receiver in the ear models, as well as the BTEs, the lithium ion rechargeable receiver in the ear under that ReSound LiNX Quattro family will be available still. And then the ReSound LiNX Quattro Customs. And in the Superpower category is going to be ReSound ENZO Q BTEs, so that's gonna include a High Power and a Superpower style. So digging into these ReSound products, like I mentioned, our newest product offering is going to be ReSound ONE and that's available in those three receiver in the ear styles, so again, that Mini non-rechargeable 312 battery, the Standard 13 battery, and then that lithium ion rechargeable Mini receiver in the ear product. We have brand new color palette that's available for ReSound ONE so it's going to be available in these new eight colors for you to choose from and these are really a fresh color palette really matching up very nicely with different skin and hair tone colors. So very nice updated look that we've been certainly hearing from people that we're looking for some new color options, they are now available with this ReSound ONE product line.

The new ReSound ONE product line, maybe if I just go back, you can see that they definitely have a different housing design and some of the, this is all brand new, all brand new hardware that's associated with this line, and some of those advantages or what things we thought about when we were designing this product was being able to sit low on the ear 'cause we want it to be a very secure fit, but also a very cosmetic fit. So where they reside on the back of the ear, it's very much less visible of a hearing instrument than maybe our previous generations of products. It has a very low center of gravity. So again, the patient's going to feel very confident that that hearing instrument is staying in place and that it's secure on the back of their ear. And then with the device shape itself and how it's positioned on the ear, those microphones have been optimized for directionality. So where that alignment for those directional

mics are, it's gonna provide that ultimate directional performance and as well as being that very comfortable and discrete fitting. We have straight-cut raised push buttons. So this is going to be a very nice push button to be able to find if you have a patient who likes to adjust, makes those adjustments at ear level, they're gonna be able to really have that nice tactile press, easily accessible while it's on the ear and being able to feel where that is. And then just with the shape of the ReSound ONE, there's nice tactile grip areas when they are using that push button so they can get ahold of it nicely. It's gonna have flat slides, which again, ensures that firm grip. And then when they're opening the battery door, there's a very nice large surface area for the battery door, so they can even use kind of the flesh of the thumb or finger versus using a fingernail to open, so it's very nice design to be able to open for those non-rechargeable receiver in the ear options that you need to change that battery out. Along with the new hardware design comes a whole new design of receivers.

So this is going to be our SureFit 3 receiver portfolio. So these are specifically designed to work with the ReSound ONE receiver in the ear products. They are designed to ensure comfort and aesthetic fit and better retention in the patient's ears. We have the standard receivers in the same power levels that you're used to seeing with previous receiver portfolios. So we're gonna offer that in that low power, the medium power, the high power, and then the ultra power, which is going to be that in case style. Some other cosmetic benefits on how these are designed, the back of the receiver is kind of that dark or muted design so it's going to help resemble that more shadow in the ear canal for better cosmetics. And then the fronts of the receivers, they're showing the right ear here, certainly, but if it was left, it would be blue, but they're very prominently marked with that red and blue color to really easily identify a right or left receiver. The new I'm SureFit 3 receivers have an eight pin connection, so this is going to be a brand new connection to the hearing instruments and this is going to allow for data transfer that's going to provide automatic receiver detection. So we have heard you, people love the automatic receiver detection, and we now have that

available with ReSound ONE. So that's gonna provide you a lot of fitting, accuracy and convenience. You're not gonna have to really worry about, oh, do I have the right receiver attached, you don't have to select anything in the fitting software anymore, this is automatically going to be detected for you when you add it. So it's gonna just let you focus on that patient more than worrying about some of those logistics of do I have the right components selected in the fitting software. The automatic receiver detection will detect the power level of the hearing instrument, sorry, of the receiver, the length of the receiver, as well as the side, so whether it's a right or a left. So you don't have to worry about identifying any of that in the fitting software anymore. We're gonna have those four power options in the low power, medium power, high power, and ultra power in that standard receiver portfolio. And then they're gonna be available actually in the four lengths that you're used to seeing, so sorry, five lengths from zero to four.

So you'll have those different length options, those are gonna be similar to what you're used to, we have those same lengths. Now fitting ranges are there so you have a wide fitting range to really fit pretty much any type of hearing loss, and then the specs listed there for the peak gain and output are listed there as well. So now because of this new design, this eight pin connection, these are for ReSound ONE hearing instruments so they're not going to be backwards compatible, those have a different receiver pin connection for previous generations of products. So these are gonna use the SureFit 3 with the new ReSound ONE, you'll continue to use the previous SureFit 2 receivers with your ReSound LiNX Quattro products. We have cosmetically made some nice changes to this receiver portfolio. So we're adding these ergonomic bends, which is gonna provide a really close and very attractive fit to the ear. It's gonna lie very nicely along the ear. And then as well as an angled receiver housing, so that angled nozzle will ensure that you have a nice deep insertion. It's gonna ensure that there's optimal acoustic performance and that it's comfortable and then just the overall discretion with this receiver portfolio. We also have a new SureFit 3 receiver, so besides those four

standard ones, we have what's called a microphone and receiver in the ear. So it's abbreviated M&RIE, we pronounce it Marie, so if you've heard the term M&RIE, we're talking about this new receiver style, that's again, available for ReSound ONE within the SureFit 3 hardware portfolio. It's gonna come with all the great SureFit 3 features. So it's got that same eight pin connection, the same automatic receiver detection, the same ergonomic design, but what's kind of unique about this is that it's equipped with a microphone on that receiver that's going to sit discreetly in the ear canal. It's part of that integrated receiver module. So if you're looking at the fitting software and you see an MM, just to kind of call that out that in ReSound Smart Fit, the M&RIE receiver is abbreviated MM. So when you see that, you know that you're working with that particular receiver. And this receiver, M&RIE receiver is available in a single power option, so it's going to provide you a peak gain of 53 dB and a peak output of 115 dB SPL. So that fitting range located there, it's a pretty nice fitting range that's going to accommodate a lot of hearing losses that you're going to be needing to fit. And it has the same lengths from the zero to four. So just like those standard receivers, same length options are available and likewise, again, not backwards compatible with previous ReSound hearing instruments.

So these SureFit 3 only are available for the ReSound ONE family of hearing instruments. Just breaking apart so you can get a little closer look at what that M&RIE receiver looks like. So certainly on this, let me get a little pointer, far left, of course we have the dome, but then we have the receiver port. Here's our receiver, right next to that receiver as a microphone and then we have that microphone port and on the back of that microphone port, there's a little tiny microphone filter that can be changed out just similar to how you, you know, we need to change those receiver filters on this end, we have one for the microphone that's located on that end as well. And with these receivers, they're designed a little different, so there's a little bit difference in how you will insert that receiver into the hearing aid and how you will remove it. So it just included a couple videos here. This design of these receivers are meant to not need

any tool in order to insert or remove. So these don't have any sound themselves so I'm gonna kinda talk through 'em as we look at these receivers. So first how we will insert that receiver into a hearing aid, kinda get started going here, but you're gonna certainly have both that ReSound ONE hearing aid with the new SureFit 3 receiver. On the belly of that ReSound hearing aid is that eight pin port. And then of course on the end of the receiver is that eight pin connection that you're gonna insert into that port. So you're gonna hold it by the hearing aid sides. You wanna angle it for the lower part to get angled in first. Once that's in place, you just simply have to press it down until it's flush into to be able to insert a receiver. So as you guys get these pre-programmed and we attach those receivers for you, so that initial one, you never have to worry about it, so maybe more importantly out of the gate is how do I remove it? What if I wanna change power levels or I need to replace the receiver for some reason. So this video is gonna kinda walk us through what that scenario looks like.

And again, you're gonna have that ReSound ONE hearing instrument with the receiver attached. You're gonna want to hold the hearing instrument by the hearing instrument body and not holding on to that receiver. And then there's a little lock there that you pull straight down to release it from the port. And then once it's released, you can just simply lift it out . So important kinda pieces on that, I know that was a quick video, but they are available certainly on our website. You can always go and look at those there or direct people, patients to look at those as well. But the important part of when you're removing it is again holding the hearing instrument by the body of the hearing instrument, not by the receiver wire. If you try to hold it by the receiver and you're trying to unlock it at the same time, it tends to be kinda a counteractive tension against it. So what really works well is to hold the hearing instrument by the body, and then the other second important point is with that receiver lock is to pull straight down. So don't try to angle it, just pull straight down on it and you'll see it pop out. Once it's popped out, then you can grab the receiver wire and just simply lift it out of that port. So we have had some people, you know, like I think anything new, you gotta play with it a

little bit. I think if you use those two tips, you're gonna be headed in the right direction. We also have a new receiver measurement recommendation. So we did an internal study based on receiver in the ears and thin tube fittings to try to decide, are we really measuring these receiver lengths the way we want to measure 'em? Is there a better way to do it? And based on the results of this internal study, we actually during this study had done measurements using the top of the ear canal aperture as the measuring point versus using the center of the ear canal aperture to measure. And then when we analyzed these, we gave them a rating and the results of this actually showed a statistical significance revealing that if we measure at the top of the ear canal aperture, we're going to get much better preferable fits for both actually receiver in the ears and thin tube fits. So we developed a new measurement tool and the development of the new measurement tool actually mainly adds a little icon to it that kinda will remind you of where that preferred measurement point is in order to determine what that receiver length is.

So it's kind of important to note, if we think about these little markings that are on the receiver tool, the lengths themselves haven't changed. So these are the same lengths as you'll find on the previous tool, we just have added this icon to help you as a guide or to remind you of how to measure for it. So if you are using an older measurement tool, as long as you're following this new criteria of measuring to the top of the ear canal aperture, your going to ensure that you have the right length that you're measuring for. So you can technically use either tool, just use this new measurement recommendation to make sure that you're getting the right size the first time. And then kind of in addition to this, we actually recommend based on this study, not only just for ReSound ONE, this is gonna apply to any of our ReSound receivers or thin tubes, so we have determined this is a better process for all of our hearing instruments, ReSound ONE and our legacy products. So just make sure that you're using this new criteria, you know, get ya that best start. Okay, along with new receivers comes new domes. So we have new SureFit 3 domes. We have redesigned these, well, first off, the

receiver is different so we have to have a dome that's going to work well with our new receiver type, and it's going to be designed for the best retention. So you're not gonna have to worry about having that dome retained on that receiver tip. They are very distinguishable from previous domes, so these are going to be a light gray color, they kind of have a bluish hue to them actually, versus the SureFit 2 that you use with ReSound LiNX Quattro, is going to be that darker charcoal color. So you should be able to very easily identify one from the other because part of that is with the new design is that they're not backwards compatible, so you don't wanna use SureFit 3 domes with previous products, you don't wanna SureFit 2 domes with the ReSound ONE, they're just not compatible, they're different design, and that can kind of create some issues that maybe are unforeseen if you try to do that. So we wanna make sure that you really are using what's designed to be worked with the specific receiver type it belongs to. And then we do have a new style, so the new closed dome, this is new for ReSound. This is going to be that nice closed dome that's going to let you get something that's sort of between this open type of fitting versus that completely closed power dome fitting. It actually offers about the same amount of occlusion properties as what our original tulip dome, which is over here on the far left does. So from an occlusion perspective, you're gonna get kind of that same result, but like the power dome and the open dome, the closed dome has the three sizes, which is gonna be small, medium and large you can choose from, tulip dome of course has always been only available in that single size.

So just giving you another option to make the fitting process more flexible and have more choices to really fine tune that for your particular patient. And when we look at that receiver, we see that there is a single rib on these new SureFit 3 receivers so hence, you know, that's why it is a different design, again, can't reiterate that more that you want to be using the correct domes with the correct receiver type because they are designed differently. And then we also have new sports locks 'cause new receivers, we have to have new sport locks. So we are gonna have sport lock for the standard

receiver and sport lock for the M&RIE receiver, and certainly when we're talking about standard receivers, they have the three different sizes, so there's gonna be three different sizes of sport lock that's going to be available for those. They attach as far as pushing that over the receiver similar to what you're probably used to. If you notice on the standard ones, we have kind of a little ridge here that that connects up to. On the M&RIE, it actually has sort of a natural ridge with that microphone port being back there. So they sit really nice and secure towards the back of the receiver. They're very far away from where you attach the dome so that we're gonna make sure that we don't have any kind of interference with the dome and so that's just gonna improve again, that dome security, so the whole system working together.

Also available, so we talked about this, was ReSound LiNX Quattro. So not gonna spend a lot of time on ReSound LiNX Quattro or ReSound ENZO Q because these are products that you are already familiar with but just as a reminder, that you do continue to have these products available to you on contract so if this is gonna be where, if you're looking for a custom device, this is gonna be ReSound LiNX Quattro where you're gonna get your custom product offering. You still have receiver in the ear, so the rechargeable, the Mini and the Standard available in ReSound LiNX Quattro, so you have lots of different receivers in the ear options between the new ReSound ONE and ReSound LiNX Quattro. And then you're going to get, this as if you're looking for a BTE, so you'll have the Mini, the Standard, and the Power BTE to choose from. These are going to be available in that 17 color palette, again that you have been using and then custom hearing instruments, we'll give you those eight shell color options to choose from. Again mentioned earlier, SureFit 2 is the receiver system that you use with ReSound LiNX Quattro. So again, in the low power, medium power, high power, and ultra power options, and then those darker charcoal colored domes belong to this product family. ReSound ENZO Q, so this is going to be your superpower fitting solution. This is going to provide you with both the High Power BTE and a Superpower BTE when you have those more significant hearing losses. And with the ReSound

ENZO Q, that's going to be available in the 13 color options that you've had. And because we're not spending a lot of time talking about technology specific to LiNX Quattro or ReSound ENZO Q, all those technology features are still in place that you're used to having. And those technology features, again, while we're not going to reiterate them with ReSound ONE but those are also all available with the ReSound product family, we've just enhanced and made some new features available in that latest product family that we're gonna talk about more specifically coming up.

Rechargeability, this is one thing I wanna point out because we do have the lithium-ion rechargeable in the ReSound LiNX Quattro family, and we have a new lithium rechargeable ion rechargeable in ReSound ONE. And they both have the premium charger and those chargers from outside view, they look very similar and they have a lot of the same features, but because those housings on the ReSound ONE versus the ReSound LiNX Quattro, those case designs are completely different, these chargers are not interchangeable with one another.

So if you're using a ReSound ONE, you wanna make sure that you have a ReSound ONE premium charger. If you're using a ReSound LiNX Quattro, you wanna make sure you're using the charger that belongs with ReSound LiNX Quattro. They have some similarities. So they both provide the 30 hours of battery life with a three hour charge. They're gonna give you the LED indicator statuses. They're going to, you know, the charger has that integrated battery that holds another three additional charges. So really when you think about that, you have 120 hours of battery use between that battery pack that's in that portable charger and the hearing instruments when everything's all charged up. But with the ReSound ONE, there have been enhancements that have been made so that now you're going to be able to get 25 hours of battery life with unlimited streaming. So this is a huge advancement where your patient's going to be able to stream all day long and not run out of battery life. So with comparison with ReSound LiNX Quattro, it's about a 50% streaming that you would get 24 hours. So now they can stream all day if they want, if they're on Netflix all

day, if they're streaming away, they can do that all day, they don't have to worry about running out of battery life, so a huge improvement there. We're still gonna have a quick charge available with ReSound ONE. I think this is really important for let's say your patient comes in for a follow-up fitting or maybe you're doing something with the live assistance remotely with your patient and they have forgotten to charge up their hearing instruments. If you pop those in the charger for quick 10 minutes, that is going to give you 2 1/2 hours of battery life. So you're going to be able to have no problem doing a fine tuning, getting through that and then have them pop it in the charger to get that back charged to a full situation again. So because the chargers look very similar, there are ways to identify, we haven't left you not knowing which one is which. So I wanna just go over a few really easy ways to tell the difference between the two. So the ReSound premium charger in the front, let me get my little pointer here, we're gonna have these big red and blue, blue and red color markers for the left and the right and those are gonna be located in front of these charging bays and they're much larger. So on the previous ReSound LiNX Quattro charger, they were little red and blue dots in the back and they were behind the charging bay. So that's probably a really easy way first off to identify how they're different.

The second way, and this might be a little bit more subtle, but it's definitely a difference is that because of that case design difference, the ReSound ONE, they're a little bit more narrow and elongated for the charging bay versus the ReSound LiNX Quattro charger. And then a third way is that if you look down into that charging bay, you're going to see an inscribed one on the ReSound ONE charger and there's no inscription on the ReSound LiNX Quattro charger. So just kinda giving you a few different ways to make sure that you're using the right charger with the right product family because again, they are not interchangeable between the two. So these chargers they, you know, a lot of the similarities, they both use induction charging, they have that battery pack for the additional charges, the 30 hours of battery life, but they are definitely different when it comes to how it's fitting in there and we wanna make sure that you

are very successful and have no problems. So just ensure that you're using that correct charger and you will be good to go. Alright, diving into technology. Now we're gonna turn our attention and again, as I mentioned earlier, we're gonna really focus on ReSound ONE and what's different with ReSound ONE since you are already familiar with ReSound LiNX Quattro and ReSound ENZO Q and those technology features that came along with those product launches, but know that all of those features, you know, that high input dynamic range, that extended high frequency bandwidth, all of those new features, those apply here as well, ReSound ONE has all of those, we haven't taken that away from any of these products. It does have a new chip platform for ReSound ONE. So what that new chip set's going to provide is 50% more processing power, 220% more memory, and if we're talking about those non-rechargeable, so that 312 or that 13 RIE, we're gonna have 20% reduced power consumption compared to the ReSound LiNX Quattro. So your patient should be experiencing much better battery life with those two non-rechargeable models as well.

Now, part of having this new chip set is what's going to allow us to do some really new great things with processing as it pertains to our directionality and the M&RIE receiver. So we have a new radio that we've added, a new magnetic induction radio. I don't want you to forget about the radio that's in there already, which is our 2.4 gigahertz radio. That 2.4 gigahertz radio is responsible for all of our data ear to ear communication. So anytime you make a volume adjustment, a program adjustment that happens in the ear, that's gonna be the 2.4. The environmental classifier uses the 2.4 to determine what kind of environment you're in. The environmental optimizer is going to use that 2.4 information from the classifier to make those gain adjustments. The noise reduction that happens for environment is relying on that, which kind of listening strategy, which kind of microphone mode the hearing instruments need to be in is gonna be the 2.4. And then what we may be always think about more commonly is going to be all of the wireless connectivity to all of our wireless accessories, the MFI connectivity, the direct connectivity to the Android smartphones and the apps. So all of

that is going to still be powered by that 2.4 gigahertz radio. But we have added a new magnetic induction radio, and this is going to be responsible for audio ear to ear communication. So where this comes into play is that we're going to exchange audio between the ears, so we're going to be able to take all that information from the microphones on both hearing instruments and exchange that and what this does is it allows us to create one highly directional signal. So this binaural beamformer, that's what this magnetic induction radio is going to allow us to do and this is going to be new for ReSound ONE and how we implement our directional strategy when it chooses one of those modes. So each person's hearing aid, just like a fingerprint, is one of a kind, we know this. Every person is very individual, each ear maybe on a single person is very individual. How people perceive sound is really unique to the individual.

So ReSound ONE has really implemented even going beyond what we've always done kind of when we develop products is doing it based on giving the brain everything it needs to process sound, letting the brain have access to everything that is around that listener. We call this organic hearing. So we've been doing this a long time, we've now put a name to it, which we're calling organic hearing, but this has been our philosophy from when we started developing hearing aids way, way, way back when. We wanted it to be natural, we want it to be seamless, we want it to resemble what a normal hearing ear does. So our ReSound organic hearing philosophy, you know, at the heart of it is our belief in using nature as our inspiration to develop this technology that's going to work with the individual ear anatomy and the individual's auditory processing. We want to closely mimic how sounds in the environment are naturally collected and delivered to the brain. We wanna give people all of this information the same way that you would if you were a non-hearing aid wearer and be able to make sense of it and be able to use it and be able to connect with everything going on around you. So we know that we are built with very complex auditory systems and our auditory system, we know works with both ears together working with the brain to be able to accomplish what we call binaural listening in the various environments that we're in. So in everyday life,

people with normal hearing or everybody naturally and we subconsciously actually use different listening strategies depending on what is happening in the environment. So our auditory system can take into account a person's intention or goal in a given listening situation. The brain is going to use all that information that is delivered from both ears. It can evaluate sounds for safety, you know, is there a bus coming up that I need to get out of the way, or importance maybe of a sound that I want to tune in and listen to, and it can also help us discriminate hearing speech in those very noisy environments. So the way we naturally hear certainly is that we want to be able to provide all of these inputs that allows us to decide what we want to attend to, what we want to ignore and be able to place everything that's happening around us in our listening environment. Know where that bird is singing in the tree or hearing the neighbor call to me from across the road. We wanna be able to place all those sounds in our environment. So if we consider how often in everyday listening situations, we just do this automatically, right? It's intuitive as normal hearing people.

We can choose what we wanna listen to, we have access to everything, we hear everything that's going on around us. So for example, if you consider maybe Thanksgiving's coming up and who knows if we're having Thanksgiving things, but in the past, me specifically, I have a very large family. So Thanksgiving if my immediate family is like 40 some people and this can be a really chaotic, good chaotic but challenging listening situation when you have all these people, lots of different conversations going on, lots of kids, lots of adults, and trying to discern what you want to hear and what you don't wanna hear. So we can intuitively, say I'm having a conversation with adult, I can focus on that, I can hear what they're saying, it's very noisy around me but then maybe, especially when my kids were younger, I would hear one crying and I'd be able to be like, oh, something happened and I have, you know, then I can attend to that and say, hey, do I give you an opportunity to figure out what that is and solve it on your own or do I need to get involved? Now that my kids are older, I'm happy to say that those cries, those aren't mine anymore so I can I can

choose just to go back to doing what I was doing. But the ability to do this, we don't wanna take this away from people who are wearing hearing aids, right? We wanna provide them with that same access and that same ability to easily switch their attention, ignore things that aren't important to them and be able to hear everything that's going on around them. So we typically think about normal listening strategies, typically we talk about 'em being three different strategies, so we have a spatial cue preservation strategy. This is going to be when you wanna hear everything going on around you, you may be out for walk in the park or outside, you wanna be able to put everything in its place around you. You wanna be able to hear everything that's going on around you easily. Our binaural listening strategy is when perhaps you're sitting with a group of people, maybe you're at a restaurant, maybe you're outdoors, indoors, but you have people talking at the same time, there might be some noise in the environment, we wanna be able to listen to one conversation, but be able to hear what else is going on and maybe join a different conversation if it seems that there's some input that you wanna give to that. And then our speech intelligibility strategy, which is going to be when things get really, really tough.

When there is one person in front of you that you wanna hear and there is noise at high level, typically going on around you and you wanna just be able to focus on that person. In this strategy, in this kind of environment, you don't necessarily, you know, aren't as concerned with what's going on around, you wanna listen to this person in front of you. So naturally, even normal hearing people, switch between these strategies depending on what the listening environment is really doing. So as we always have, it kinda sounds familiar, we've talked about binaural directionality for a long time, we've heard this, these are our organic hearing philosophy, this is how we approach our directional system. And we have with ReSound ONE support for those three listening strategies as well. And with ReSound ONE, our new directional system is called all access. So we have taken it the next step beyond what we had previously with our binaural directionality three, we are doing it different and we're gonna talk about how

we're doing it different coming up, but we do support all of these natural listening strategies. So if we're in that situation where we're walking outdoors or in the park and we wanna be able to hear and monitor what's going on around us, typically those situations are either quiet situations or maybe just mildly noisy, not a lot of noise and our normal auditory system is actually going to select, naturally select this what we call spatial cue preservation strategy. It's where we want to and then what the brain attempts to do is to maintain a time and place for all sounds going on around us as listeners and be able to place where things are happening. So all access directionality supports the strategy by providing hearing instruments that are in a bilateral omnidirectional pattern and we provide spacial cue preservation in these situations so we can place where those sounds are going, so we can hear what's happening around us and where it's happening.

So if we're talking about our standard receivers, so our low power, our medium power, our high power and our ultra power, those receiver types will use these bilateral omni in this situation and we preserve the spatial cues by doing a pinna restoration calculation that's based on an average pinna response in order to restore those cues. So we, you know, if you've been to any of our previous talks, when we put hearing instruments on the ear, we have those microphones sitting on top of the pinna, we mess up everything that our pinna does for us naturally, we wipe out all of those pinna cues. So what we try to do with spatial sense or what we do do with spatial sense, not even try to, is that we apply this average ear pinna measurement that restores those spatial cues so that we can hear where things are happening around us. And then kind of combined with that, we also know there's a problem when we put hearing aids on and we apply wide dynamic range compression that we can mess up interaural level different cues. And so we maintain those as well with what we call the other piece of that as binaural compression. With M&RIE, we have actually taken this to the next step, to the next level and it's even better than what it could ever possibly be by using an average ear calculation. So simply by putting that microphone in the ear canal, what it allows us to

do is instead of having to rely on an average ear pinna calculation, we're using all of the pinna cues provided by that person's specific ear. So it's very individualized, all of that unique spatial hearing, all that spectral filtering that the pinna provides, that's what's being used in the spatial cue preservation strategy when a M&RIE receiver is used. So it's very specific to that patient. And I guess kind of thinking about it, it doesn't get better than the real thing and this is the real thing because we are using that individual's ear. We know from what research tells us and even our internal when we look at our classifier data, we know that people have a preference for listening in a bilateral omnidirectional pattern. And we know that it happens probably about 80% of our time listening, we're in this type of mode so it's really important to be able to provide these spatial cues to address that best listening situation. So with the M&RIE, the microphone and receiver in the ear, again, inspired by organic hearing, how does the normal ear do it? That's what we wanna try to mimic.

So we put that third microphone in there into the receiver module and gather all of those unique individual pinna cues to be used so we don't have to rely on something that's an average. So we have some advantages and benefits when we select M&RIE, we're gonna talk about three main areas. The first being improved localization to be able to localize what's in front or back or all around you is going to be much, much better when you use the actual cues that the brain's used to hearing with the M&RIE receiver. We also provide superior natural sound quality. Again, whenever we can do something that is happening normally for us, the brain knows what sounds to listen for. If we provide the brain with those sounds, there's no need to take even time to acclimate to that, it's very natural sounding and it's a natural way to do things. And then a third benefit being comfort in wind. So again, by locating that microphone in the canal, we get a natural wind noise protection. Wind's not getting at that microphone so we can go out and enjoy outdoor activities and not have that terrible wind noise coming over the microphone when we're in that listening mode. So talking about these advantages, improved localization and sound quality, and some evidence for why is

this a good reason to do it, why do we do it this way? If we take a spectrogram of an open ear, we can see the different intensities that are received at the eardrum as that sound source moves around the head. So this is an example of an open ear and every, you know, this is going to look different depending on what ear you're running on. So everybody's ear is different. These patterns and the intensity levels of those patterns always are going to be slightly different from ear to ear, but this is one example of this open ear. Now, if we add in our pinna restoration algorithm like what we do in spatial sense and what other manufacturers provide for spatial cue preservation, we can see that we kinda have those same intensity, you know, the same pattern represented, we can see it's pretty, you know, in the same typical area, but certainly when we're using something based on the average ear, it's not individual and it doesn't quite have that same kind of intensity and that same exact pattern as what that normal open ear would have. Now if we add in and we look at a M&RIE, we can see between that open ear and that M&RIE receiver, that we're providing a much closer representation of that ear.

And when we look at them side by side with a little bit closer view, we can see that we have those same patterns that exist and those same intensities are pretty much identical when we use that M&RIE receiver in the ear compared to the open ear. So we're able to provide that same kind of listening experience, those same pinna cues that would be there if we weren't wearing a hearing aid at all. Improved localization, so front and back localization, as well as overall localization. It's going to absolutely improve how we localize sound when we're using real information that's normally provided. So in this study, we looked at people with hearing loss and people with normal hearing and we put hearing aids on all of them and when the hearing aids were in an omnidirectional mode, they had a lot of errors. So the percentage of errors of identifying where the sound was coming from was pretty high. They were really just guessing, didn't matter necessarily too much if you were normal hearing or if you were hearing impaired. And then when we add the pinna compensation, we see those drop down. So using pinna compensation, don't get me wrong, this is a good thing, we're

providing some information and providing information is always going to be better than not providing information. But when we add that M&RIE receiver, we see a significant improvement in the ability to localize both front and back and overall localization. One other thing that's kind of interesting is that when we look at that orange line for normal hearing and that blue line for the hearing impaired, it's like overall we see that normal hearing people did better compared and we would expect that because normal hearing, you don't have any kind of degradation of any kind of neural things or any other things that might be going on associated with the hearing loss that would further affect how well you're able to localize. So normal hearing even with hearing aids on are gonna do a little bit better than somebody who has that hearing loss, but overall that same pattern exists and if we can provide those spatial cues, we're going to improve that localization capability. Natural sound quality.

So this study kind of looked at getting a bit more subjective 'cause when you talk about sound quality, it's more of a how do you think something sounds, right? But we looked at these users wearing both the M&RIE receiver and using receiver with pinna compensation, and the interesting part of this for both overall sound quality and spatial sound quality is that when we look at the M&RIE receiver for both, they're all clustered at these high ratings. So really everybody that was wearing these said, yup, really great sound quality, they're all clustered up high. When we look at this pinna of compensation, it's a much larger distribution between some people thought it was really good sound quality, some people thought, yeah, it's okay and some people actually thought, no, this isn't good. And this really does make sense when we think about that pinna compensation is based on an average ear. So if my ear is close to that average, I'm gonna think it's wonderful. If my ear is not close to that average, I'm not gonna think it's good at all. So by able again, providing those individual cues from M&RIE is going to be a huge benefit in having that sound quality. Comfort in wind, so we did another study comparing the average wind noise reduction that you got with a M&RIE versus omnidirectional microphones and just at different wind speeds. So just

to point out one example, five meters per second kind of in the middle there, the M&RIE provided about a 15 dB reduction in wind noise, and five meters per second to put it in perspective is kind of like a fresh breeze that would be strong enough to sway small trees. So there's definitely some wind there and by wearing the M&RIE, we got 15 dB less wind noise than we would have with wearing omnidirectional. And then on the last area here for M&RIE is going to be the DFS Ultra III that we actually redesigned this algorithm in order to account for that third microphone that's in the ear canal. So we wanna make sure we have really robust feedback system, we've always had for generations and generations really robust feedback cancellation and we want to continue that, but we have to account for this additional microphone.

So we have redesigned that DFS Ultra III to incorporate that third microphone to determine that feedback path so that feedback is canceled. And this is even more important considering that proximity of the microphone to the receiver, we have to definitely make sure that we are handling feedback and we do. We're not having any kind of feedback problem with this M&RIE receiver and very important that you do run that calibration again, because of this proximity is gonna be more important than ever. Alright, our next listening strategy is going to be the binaural listening strategy. So this looks familiar as our asymmetric directionality, it is, but what we've done is we've improved it with our all access directionality. So we're still providing one ear as an omnidirectional, one ear as a directional so that we can focus in and get a good signal to noise ratio but still monitor everything that's going on around us with that omnidirectional ear. So this is gonna allow us to be able to stay in those conversations and participate and not miss out on anything, it's gonna provide us those cues. And then our speech intelligibility strategy, which is gonna be that bi-directional listening situation. Again, supported by all access directionality. We're gonna talk about coming up here how we've done that differently and what's new about it, but providing that really good signal to noise ratio when someone's in front of you and there's noise happening all around you. And this is this automatic, this automatic system with all

access. So it's going to automatically choose between the spatial cue preservation, the binaural listening, the speech intelligibility strategy depending on what the environment's doing, it will automatically select what is best. We do know though that some people might want to choose something on their own, right? We wanna keep that user as the center point of all the decision-making so we have added what we call a new Ultra Focus program. And what this does is it allows, you can set this up in the software as a program, it allows the patient to be able to select Ultra Focus, which essentially will put them in that speech intelligibility strategy when they decide they need to use it. So if they're at a busy airport counter and there's noise going on around them and they need to hear that ticket agent, they can quickly go to Ultra Focus, those zoom in, once they're done with that, they can take themselves back out and they're back in that automatic listening situation. So we've optimized this program to be just the best listening situation that they can select when they need to select it giving them control. And we've actually get about a 2 dB better AIDI measurement, so that equates to about a 30% improvement in speech recognition.

Alright, so how do we support natural hearing? So three ways with the new all access directionality is how do we apply this unique strategy? We're using now what's called multi-band directionality and we're using what's called a weighted beamforming. So with our ear to ear audio exchange, we're able to exchange all that information between the four microphones and it's going to create that really narrow beamformer response in the hearing instrument, so we're really narrowing down that directional microphone. And how we apply this is if we're in that binaural listening strategy, which is our asymmetric mode, the ear that is in the directional mode is using that beamformer so that directionality is very narrow to the front. If we're in the speech intelligibility strategy, that is just one very narrow beam to the front because both hearing instruments are in directional. And this is part of the story, so how do we apply it, this is just part of the story. The next part of the story is that we're using a multi-band directional approach. So we have always in the past used split band

directionality in our products, so what does split band directionality mean? It means that we're processing low frequencies omnidirectional and what that does is it actually preserves our interaural time difference cues by doing that. And then we will have some sort of frequency that transitions over into directional processing, and for ReSound, we call that directional mix, and this is adjustable in the fitting software. It's actually initially based on the hearing loss and the hearing aid, but can be further adjusted just to personalize it even more for the patient. So where that omnidirectional processing happens and the directional starts between that low and mid frequency band is determined by that directional mix. What's new with ReSound ONE and all access directionality is in the mid frequencies is we're applying this binaural beamformer to maximize the signal to noise ratio improvement for those really important speech frequencies where we need it. And then we have actually at the high end, so above 5,000 hertz is the third band of our directionality where we're applying independent fixed directionality. And what happens when we do it this way is it actually preserves monaural spectral cues, so monaural pinna cues and spatial cues, and it doesn't distort the interaural level differences.

So what we have found or what research kind of has indicated that when you use adaptive directionality in those high frequencies, it can actually disrupt some of those spectral cues and disrupt that interaural level difference. So we're gonna preserve that by doing fixed directionality in that high band. The next thing we're doing with all access is we're doing a weighted beamformer blending. So what this means is that we're going to exchange that information between the hearing instruments and we're going to look at which side, if we're in an asymmetric noise situation, so if we have more noise on one side than the other, we're gonna wanna use more signal from the side that has less noise. And by doing that, we actually improve our signal to noise ratio because we're removing some of the noise from that binaural beamformer signal. And how we're gonna do that is kinda represented maybe a little bit better here is that if we have a lot of noise on one side, so let's say we have on the right side, we have a

bunch of noise around us and on the left side we don't, we're going to apply more of that left signal into the binaural beamformer so it looks a little bit more blue where the red is a little bit dismissed, and then we're gonna have that better signal that appears for the binaural beamformer. And the same can be true like if we have more noise on the left side versus on the right, our signal would then use more information from the right, which is less noisy to provide again, a better less noise signal to that beamformer. So with ReSound ONE, we get that automatic directionality switching between those three different listening strategies. We get the speech intelligibility and environmental awareness where we're providing all of those nice cues and that signal to noise ratio benefit with our directional microphones. And that beamforming for one-to-one conversations even when those environments get really, really tough with a lot of noise. With Ultra Focus, benefits there are better performance in very noisy environments. Again, one to one, we can improve that speech intelligibility by 30%. We're letting the patient control when they wanna use this, they choose when they want to use this Ultra Focus feature. And it provides that confidence to hear in those most difficult listening situations.

And then M&RIE, our greater depth and direction with our spatial cues, our wind noise reduction, and then that natural sound quality are gonna be benefits for that patient. And then of course we have our whole ecosystem for ReSound ONE, don't want you to forget that, like we don't take it away, you have all the access to all the accessories, the Android smartphones, the made for iPhone, the apps, the live assistance, and then our bimodal fitting strategies with our cochlear smart alliance. Okay, and then quickly turning to, 'cause we're almost out of time or we are out of time, is the Smart Fit 1.8. So with Smart Fit 1.8, just wanna highlight some of those features again, is going to be that automatic receiver detection, so you no longer have to worry about selecting the receiver power in the software or the side or the length, it's going to automatically do that for you. We also have something new called Prescribed First Fit. So we've always based gain settings and stuff on the patient's audiogram, we're gonna take it a step

further and with Prescribed First Fit, we're going to use the target rule that's selected, the experience level of the user and the gain level percent actually to make some additional adjustments to advance features like noise tracker, impulse noise reduction, expansion. So what this will be is nice for the patient giving them this really nice starting point based on them specifically out of the gate for their initial fitting but good for you as a fitter that you don't have to spend time making those adjustments, it's going to happen automatically now with Prescribed First Fit behind the scenes. All access directionality, where you find that is going to be under the default under the all around program.

So that's where you're gonna see that feature. Ultra Focus is a program that you would add to give the patient that ability to select that speech intelligibility strategy when they think they need it. They can do that either through the app, through the push button on the hearing instrument, through an accessory that would allow program adjustment, et cetera, so however they adjust their programs, they'd have access to that once you add it. And then M&RIE mode underneath, again, the all around, you'll see something at the bottom that's called M&RIE mode, and I just wanna point this out because you're probably used to previously seeing spatial sense with our previous generation products, spatial sense is there when you use the standard receivers, it's going to say M&RIE when you're using a M&RIE receiver and they both kind of do, you know, the intent is similar, so what happens when you choose this is that the hearing instruments no longer will go automatically through those three listening strategies, it will only be in that omni omni, that speech preservation strategy with the spatial cues preserved. And if you're using a M&RIE again, preserve so based on that individual information. If you're using a standard receiver, it's using them based on that average ear pinna, that's the difference there. And then new onboard device control, we have a mute, unmute device control that you can set up in the fitting software. So you can set either the short push or the long push of the push button that would give you access to an immediate mute or unmute. So I just wanna point out that that's something new there

as well. And I apologize for going over. If there's any questions, I haven't seen any pop-up, but we can take those now and answer those if you have 'em. If not, again, I wanna thank you all for joining us today and we're really excited about this product, we really think ReSound ONE is providing a unique opportunity to provide you with a binaural beamforming solution when you need directionality, that's going to be providing a better signal to noise ratio 'cause we're not including as much noise. We're gonna maintain some awareness when we're in that binaural beamforming situation by preserving those spatial cues in the highs and the lows. And then with the M&RIE receiver, providing that additional individual pinna cues, we're super excited about being able to do things more naturally for the patient, giving them just better hearing in whatever situation that they happen find themselves in. So I don't see any questions, so I think we'll end the course. Again, thank you all so much for joining us.