Verification Enhancements for BCDs: Elevating Care for Ponto Users Using the Verifit 2

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Hi everyone. Thanks for joining us for today's session. We're excited to talk about verification enhancements for bone conduction devices and how we can optimize ponto fittings using the audioscan VeriFit 2. Today, we'll dive into how verification tools play a critical role in ensuring the best outcomes for patients using Ponto devices. So let's jump in and start exploring the importance of verification.

Before we get started, let me introduce you to the learner outcomes for today's presentation. By the end of the session, you should be able to describe the verification capabilities of audioscan VeriFit 2 for bone conduction devices and how these features optimize Ponto fittings. Identify best practices for using the Verifit skull simulator, including setup and fitting verification techniques. Apply speech map testing principles to assess and verify Ponto fittings leading to more accurate and effective patient outcomes. These are all the key takeaways we'll cover today, and by the end of this session, you'll be able to confidently apply these tools in your clinical practice.

We, of course, have our risks and benefits listed here as recommended by Audiology Online, and these can be found in your handout provided by Audiology Online.

Before we dive deep into. Excuse me, before we dive deeper into the specifics of Ponto fittings and verification, let's take a moment to introduce the experts who are joining us today. I'm Alicia Wooten with Oticon Medical and I'll be guiding you through today's session. We also have Dr. John Pumpford from Audioscan who is with us today.

John is a true expert in verification technologies and he'll be walking us through the best practices for using the verification or, excuse me, verification verifit2 and the skull simulator. I'm trying to combine words there. And finally, and finally we have Dr. Lori Morrow from Children's Hospital Philadelphia, who brings invaluable clinical insights into how these tools can be applied to real world patient care. We're lucky to have them here, and without further ado, I will hand it over to John now as he explains the

advancements of the VeriFit2 technology.

Great. Thanks, Alicia. And thank you everyone for taking time out of your busy schedules to be with us today. As Alicia mentioned earlier, in this course, we're going to be discussing the verification of bone conduction devices and in particular, how it relates to the capabilities of the audioscan VeriFit2 and its application with Oticon Medical Ponto fittings. Now, for those of you who aren't Familiar with the VeriFit 2, it is a hearing aid verification system that's been traditionally used to verify air conditioning conduction devices.

But over the past five years or so, it's evolved to support verification with bone conduction devices as well. And as we all know, verification is an important part of any hearing aid fitting, including with bone conduction devices, as supported by best practice guidelines and fitting protocols from various professional organizations, with research showing significant benefit for patients and providers versus unverified first fits. And so now, to take the verification of bone conduction devices even further, audioscan has recently included new enhancements that we'll be describing today, enabled by the addition of the DSL BCD 2.0 fitting formula in our 24.1 software release.

Now, when we talk about the verification of bone conduction devices, the historical challenge, of course, has been the lack of objective measures for clinical use, in contrast to what's been possible with air conduction devices. And so clinicians have had to rely on behavioral measures like the aided audiogram or functional gain to verify device performance. But as we know from the literature, these behavioral methods have significant limitations, including their test retest variability. And so, for example, knowing when a measured threshold difference, say, from a programming change, reflects a true difference in performance can be quite difficult. There's also limited frequency resolution with these behavioral approaches, with the results only obtained at audiometric frequencies.

There's no estimate of the maximum output of the system given the testing is only conducted with low level signals. The signals themselves, of course, are not real world, given we're typically using tonal signals that are quite different from speech. And finally, these methods can result in an overestimation of gain for real world signals like speech, given the fact that we're using typically softer inputs during this threshold testing where the gain of a typical compression hearing aid is the highest. And so to address these limitations and take the guesswork out of the verification of bone conduction devices, in 2018, Audioscan developed a new clinical solution which where we measure the actual device using a skull simulator that simulates the mechanical impedance of the head, as you see here. And then we plot the measured vibration and force level output on our various test box screens, including speech map, to support objective verification needs, which we'll be talking about in this session today.

So here we have a close up image of the Verifit skull simulator, which essentially is an electronic coupler for the verification of bone conduction devices that can attach to its abutment. It provides skull simulation of output via the mass and Spring hardware that's contained within it. So it's essentially working as an accelerometer. And it's been designed to function as an equivalent to the gold standard in the industry, the research based skull simulator, the TU1000. The VeriFit skull simulator is designed to measure the vibration generated by the bone conduction device in micronewtons.

And it's calibrated so that when it's attached to our system, a zero db force level measurement, which we'll be getting into later, shown on our test screens, is equivalent to one micronewton.

So for those of you who haven't used the skull simulator, it simply plugs into our test box coupler microphone jack. As you can see in the left image here, it's self powered in contrast to some other skull simulators that are out there and it doesn't require any adapter as you can also see on the right image. The abutment of the skull simulator is designed to couple with any Ponto or BAHA device using the typical clinical approach.

Now, the physical setup of the skull simulator in the test box is a key part of getting accurate measurements. And I've got a couple photos here just to illustrate that point. As the skull simulator supports measuring only one device at a time, you would be simply rotating it based on the side you're verifying. So for example, for left devices, you'd rotate the skull simulator so the blue label that you see there is facing you with the black dots, or the little toenails, let's say, of the skull simulator on the base over the crosshair posts on the test box floor, positioned directly in front of that test box speaker. And then for right devices, you would just simply rotate the skull simulator so the red label is now facing you again with the black, black dots on the base over the crosshair post, as you see in the image shown here.

And so with the Ponto now attached to the abutment, you would simply align either the left or the right test box reference microphones within 1 to 3 millimeters of the front bone conduction device microphone, depending on the side that you're measuring, as shown where circled on that left image there. For example. This step I should highlight is very important because that reference microphone, its purpose is to measure and control the test box speaker level to make sure that you deliver the proper input to the hearing aid so that you can obtain accurate measurements. You're also going to want to be sure to rotate that hearing aid after you've attached it to the abutment so that the front and rear mic ports are essentially parallel with the test box floor with a directional device, as shown in that right image there. Now, this is especially important for accurate directional microphone tests where signals are generated from that front speaker in addition to rear speakers that are in the test box lid, as you can see in that upper right image.

And this is a procedure that Lori is going to touch on a little later in this presentation.

And so, with these positioning considerations addressed now, you can now accurately tap into the various bone conduction verification capabilities in the Verifit 2, including those listed here, such as

Speech Map or accessory verification with remote microphones, various adaptive feature verification tools, quality control checks, and so on. So, basically any test feature that involves the use of the test box, where arguably the primary test procedure of interest is Speech Map.

And so, for those of you who aren't familiar with Speech Map, with bone conduction devices, it's essentially a test environment where you're delivering calibrated speech inputs to the hearing aid and then visualizing the amplification of those sounds on a graph called an aphelogram. It's essentially a similar concept to an spleogram for those of you who fit air conduction devices, only in this case, we're plotting output in DB force level or DBFL versus DB split, so sounds are softer at the bottom of the chart and get louder as we move vertically up the Y axis. The screen also provides a nice representation, as you can see here, of the patient's bone conduction thresholds and force level, along with the device specific MFO or the patient's ucls. There's also a representation of the normal bone conduction thresholds in FL for reference and for counseling purposes as well. And so using Speech Map, we can quickly figure out if the device is delivering an appropriate output for speech as indicated by the prescribed targets.

You see here as those plus signs on the chart, how the output relates to the patient's auditory area, you know, for example, is the output audible? And if any, programming adjustments may be required to provide audibility or again, improve the match to prescriptive targets.

Now, speaking of prescriptive targets for bone conduction devices and Speech Map, there have been some recent updates that you should be aware of. So first, if we look back to the DSL BCD 1.1 fitting formula that was developed by Hodgetts and Scolley in 2017, it provided targets that were designed and validated for use with percutaneous or abutment based fittings only. And so the use of those targets with any Softband fittings was deemed to be more of a descriptive exercise as they weren't validated for softbands and essentially we're providing a general sense of performance versus a

prescriptive approach. In addition, this version of the formula only supported the use of in situ or what's sometimes referred to as dial level thresholds where the hearing test is conducted with the bone conduction device and the fitting software. At that time the formula just didn't have the ability to use standard bone conduction oscillator thresholds if in situ data wasn't available, which of course can occur commonly with young infants or children where this is more likely to occur.

But thankfully now with the recent release of The DSL BCD 2.0 formula and its addition to the VeriFit 2 in our 24.1 software, additional capabilities have become available given additional research by by the developers. And so this would include the support of prescriptive verification of softbands where the in situ threshold testing with the softband can now be used as an input to the fitting formula by accounting for the patient's skin transmission loss or the reduction, let's say of sound reaching the cochlea when soft bands are used. And The DSL BCD 2.0 now also supports the use of standard bone conduction oscillator thresholds when in situ thresholds can't be measured where the formula will apply an age based skin transmission loss transform automatically when needed to convert standard bone conduction oscillator thresholds to in situ thresholds as required by the fitting formula.

So to access these capabilities through The DSL BCD 2.0 formula for verifying bone conduction devices with the verifit you would go to the Hearing instrument menu and speech map and select BCD from the device type dropdown as shown here, which would then result in a pop up on the graph indicating that you're now in an FL gram world and any previously existing speech map data would be erased. The next step would be to set the prescriptive target parameters and enter the audiometric data into the system. So you would do this by selecting the audiometry button shown here where you'll then see a pop up with the audiometry menu which now has the selection shown here. So for those of you who've used DSL 1.1 you'll notice some new parameters for age, connection and transducer. All of these I'll now going to walk through briefly.

So first in the targets dropdown The DSL BCD 2.0 now offers separate target formulas for children in adults, as you see with the foundational DSL 5 formula for ear conduction fittings. So pediatric targets are essentially slightly higher for the same hearing loss to account for the unique listening needs of this patient population and to support proper speech and language development. In addition, you're now seeing noise targets that are also provided which are designed to emphasize listening comfort and noise over maximizing speech intelligibility, just as with the foundational again, DSL 5 prescription with air conduction devices where you'll also find noise targets. And so this prescriptive method could be used, for example, in a secondary noise program if desired, where again, we're trying to maximize listening comfort over maximizing speech intelligibility.

In the age parameter, this sets the skin transmission loss correction based on the patient's age in cases where in situ audiometry has not been conducted. And so basically it's a parameter that's used to select the soft tissue transform to use when converting standard bone conduction oscillator thresholds to in situ thresholds, if right, only if in situ thresholds aren't available. And so in cases where there are in situ thresholds, this age parameter is basically used for documentation purposes, say for example on reports or printouts. Next up is the device dropdown, which is where you would select the bone conduction device that the patient is being fitted with. And so this provides the DSL BCD 2.0 formula with the device specific transducer characteristics it needs to properly generate the targets.

And so this would include, for example, the device's MFO or maximum force level output values. You're also going to see here in the dropdown an unlisted option. And so this allows us in the system to support your ability to verify devices that are not currently in the software dropdown list until such time as we're able to incorporate them in a future software release. Now, with this enlisted option, the system will use the average transducer characteristics, so for example, the average MFO values for all devices that are in the current dropdown.

Next up is the connection parameter. And so this is where you would indicate how the bone conduction device will be coupled to the patient, and it later determines the transducer options to select from. So for PONTO devices, the connection options are aligned with what you'd find in the GENIE medical software for ease of use. So for example, you would select abutment for surprise abutment connected devices or select softband for yes softband fittings. The transducer dropdown.

So this will indicate how the hearing thresholds were measured. So with softband fittings you're going to see the options listed here on the screen. In Situ again indicates the hearing thresholds that will be entered into the Verifit 2 that were obtained using the bone conduction device itself and the fitting software. I should note here that the in situ thresholds are still preferred with DSL BCD as they account for the device specific transducer characteristics and coupling characteristics. So for example, it captures the patient's specific skin transmission loss with transcutaneous or soft band fittings.

That said, we know in situ is not always possible, and so the system and the formula will now support your ability to enter standard bone conduction oscillator data and then the age parameter that I mentioned earlier will be used to transform those values to equivalent in situ values. So here we have the HLBC options which indicates the thresholds were obtained using a standard bone oscillator using either standard visual reinforcement or Condition Play audiometric methods. All three of these HLBC options are handled the same way by the formula, with the selection essentially being used for documentation purposes. Now, thresholds obtained via ABR with a bone conduction oscillator have also been added, as you can see here with the ABRBC label, where there are two options, either EHL for estimated hearing level or NHL for normalized hearing level. All four of those options highlighted here use the same soft tissue correction for skin transmission loss for the selected age.

But in addition, if ABR bc, NHL is selected, an additional transform is applied to get us from NHL to ehl.

And so here we have a scenario where the connection type of the BCD to the patient is with an abutment. And in these cases the DSL BCD prescriptive formula requires the use of in situ dial level thresholds only. And as such you're only going to see the in situ BC option available in this transducer dropdown.

So once all of those parameters I've walked through are configured, the system will then automatically advance to the audiometry entry screen and it will indicate at the top of the graph the threshold data that it's expecting that you're going to be entering as an input to the formula. So this is a good troubleshooting step to ensure that you're entering the correct data. And so here, for example, we see a label indicating the system is expecting in situ dial level thresholds. And here's an example where the bone conduction oscillator option was selected and we're entering thresholds obtained using a standard bone conduction oscillator DB hl. The entered and configured data that's entered then results in the generation of an FL gram that I described earlier, where we can see again a nice representation of the patient's BC thresholds in FL in addition to the device specific MFO and also normal BC thresholds, if you want to use those as a reference or for counseling purposes later on during your fitting, at which point now, the verification process is simply a matter of following a similar approach that you would follow when verifying air conduction devices.

So you'd begin by starting a test curve, choosing a stimulus type for verification from the dropdown that appears, choosing from any of the speech signals that are calibrated for verification as expected by the fitting formula, and then simply choosing the stimulus level for verification for the dropdown, where guidelines recommend verifying at soft, average and loud speech input levels, along with an assessment of the maximum output of the device using a loud narrowband input signal such as the MPO signal.

And so here we have a nice representation of an acceptable final fitting to prescriptive targets, where you can see a nice match of the aided response for each speech input level to the corresponding targets for soft, average and loud speech. There's also, as you can see here, a nice match to the prescribed targets for a narrowband 90dB input as well. Now, in addition to the target matching component, I should also point out there's other valuable information on the screen to consider, which Lori's going to touch on a little bit later. So that would include, for example, the calculation of the aided SII in this area shown here on the right for each input level that was evaluated. And by selecting this toggle shown here, it will actually change the values on the screen to provide a representation of the RMS error, which essentially represents a single value reflecting the overall deviation from target for the frequencies included in the calculation, which is typically by default would involve 0.5, 1, 2 and 4 kilohertz, where those values can also be modified in the product setup screen if desired.

So I know we've covered a lot, and I'm hopeful that this portion of the course has given you a general sense of the bone conduction device verification capabilities of the VeriFit2 and how they might apply to your PONTO fittings. I'm now going to turn things over to Lori, who's going to provide an expert clinical perspective on the real world application of these bone conduction device verification tools that We've covered. So, Laurie, I'll hand that over to you. Thank you, John. I wanted to start off with just talking a little bit about me.

So, I am a clinical audiologist and my time is split between about 75% direct patient care and the remainder is spent on administrative work, consulting projects and clinical research. I actually have been working with bone conduction devices for my entire career and have spent almost 20 years at CHOP, not only supporting our internal audiology staff, but also providing external training to clinical audiologists through projects and presentations just like this one. And as we heard, John is by far the expert on all things verification. But for this next part, I wanted to share a clinical perspective on how you can implement the verification of bone conduction devices into your practice.

So, as John mentioned, in situ BCD audiometry. These are those threshold measurements obtained with frequency specific stimuli using the actual device, that bone conduction device, as the transducer. They could be completed using traditional audiometry measures such as conditioned play, VRA or standard voluntary, but should be performed in a quiet test environment, ideally a sound treated room. These measurements are very important, as John said, because they do individualize the fitting by accounting for the patients, individual skull residents, and those skin transmission differences specific to the device that they're wearing.

In GENIE medical software, this is where you'll find that BC and C2 audiometry screen. It's recommended to try to get as many frequencies as possible, but as we know, if you work with children, it's not always feasible, so you should aim to try to get thresholds at 500, 2000 and ideally 4000 Hz as well.

If you are conducting these measurements in a hearing aid or programming room, as shown in this top picture, I'm actually sitting at the computer presenting the stimulus while I enlist my coworker to sit behind me with my patient, helping me complete condition play. You should always position the child facing away from their computer so that they are not seeing any of those presenting cues. The second picture shows how you can perform these measurements in a sound booth. So at chop, we initially used standalone manufacturer software that we installed on all of our booth computers without the need for Noah. However, a few years ago, we transitioned to using laptops at all of our sites, which actually made making these measurements even easier.

In the bottom picture, you can see we have a laptop with the software installed. The Noelink Wireless is plugged into that laptop on the tester side, which actually maintains a secure connection to the device that's located on the patient's side of the booth.

This setup is particularly useful in a booth when conducting VRA with those younger children. And this picture, this picture here is actually one of my patients that was seen last week. That's how long it took me to get a picture. I am positioned on the tester side of the booth with a laptop that was presenting the software through Genie Medical's software and it transmitted to my patient's PONTO devices. We actually had his mother sit in front of him to help distract him so we could obtain as many frequencies as possible.

As John stated, it's not always possible to obtain these in situ measurements, but specifically for infants and young children that are assessed using abr. The national center for Audiology at Western University has actually recently just changed their recommendations for how to apply DSL BCD 2.0 for softband verification. Those detailed instructions will be available really soon in their clinical protocol selection and I provided it here. It's not quite ready for us to share for today's presentation, but I wanted to provide an example. So this is an example for bone conduction thresholds that were obtained during an ABR testing for your clinic's minimum test level on an abr.

So we would generally consider these those normal bone conduction responses. So at chop, as seen here in this example, our minimum test level for bone conduction on an ABR is 20 dB. So again, the recommendation for the appropriate value to input into the verifit for ABR testing at a minimum level is not included in this example, but again is expected to be released in the coming weeks.

Those recommendations will also include the recommended value to enter into the verifit for those AVR bone conduction responses that are elevated as in a mixed hearing loss seen in this example for 2000 and 4000 Hz. So again, please stay tuned.

Joan already oriented you on the speech map details. This example highlights those clinical recommendations for bone conduction verification used by CHOP audiologists at chop. Over this past year, we made a change to look at that root mean square error or rmse during hearing aid verification.

So this measure reflects how well the device is matching those prescriptive targets across that frequency range. The RMSE value can be calculated for quiet, average and loud speech inputs, and the lower that RMSE value, the closer the device is to meeting those targets.

At chop, we aim for an RMSE value of 3dB or less, but most literature does indicate that a value of 5dB or less is also acceptable.

So now moving on to my favorite part of the presentation where I will highlight this information through some case studies. My Patients and families have given me permission to share their stories with all of you today.

So first let's meet Jacob. So Jacob referred on his newborn hearing screen in both ears. He was noted to have bilateral atresia microtia. His first visit to CHOP was at one month old. For his diagnostic abr.

Those results showed normal bone conduction thresholds in both ears and this was using a two channel ABR testing paradigm. Binaural Ponto 5 SPS on a softban was recommended, but due to his very young age and very small head size, they were fit sequentially.

Although the focus of today's presentation is on verification, the rationale for determining Jacob's assessment, his candidacy, the evaluation and fitting of his BCD soft ban is outlined in this clinical consensus document. This document was published in the International Journal of Audiology and written by the Clinical Outcomes in Pediatric Audiology or COPPA Working Group and this is formally known as the Pediatric Bone Conduction Working Group. This group consists of clinical and research pediatric audiologists throughout North America of a special interest in bone conduction devices. This clinical consensus document provides evidence and consensus based clinical direction for evaluating and fitting those softband devices to young children who are under five or who have permanent unilateral or bilateral conductive or mixed hearing loss.

The document outlines candidacy and for BCDs that have unilateral or bilateral conductive or mixed hearing loss we recommend an air bone gap greater or equal to 30dB HL. We do recommend determinant candidacy using that bone conduction PTA that includes frequencies from 500, 1000, 2000 and 4000 Hz. You might notice this differs slightly from the manufacturer guidelines which recommends using 3000 Hz, but we chose 4000 Hz to better align with pediatric assessment protocols. Most devices are typically appropriate when that bone conduction PTA is less than 45 db hl for assessment. Any audiologist who ever struggled to position a TDH headphone over that infant's tiny little ear during an ABR will appreciate that air conduction thresholds are not necessary in order to proceed with that initial fitting in cases of confirmed atresia, but they should be obtained whenever feasible.

And lastly, we recommend obtaining minimally at least one low and one high frequency of bone conduction to fit that indicated ear.

So Jacob's ABR results indicated that bone conduction thresholds were obtained for all four frequencies at CHOP's minimum test level of 20dB in both ears and again air conduction testing was not needed at this time due to confirmed atresia.

So here's what Jacob's speech map would look like to verify his Ponto 5 SP worn on a soft band. So for the audiometry sections we have, we would always select DSL Bone Conduction 2.0 child targets. You would enter the age the device, the Ponto 5 superpower. It was worn on a soft end connection and for chop we recommend that we choose ABR bone conduction ehl. Now again, the recommended number that you would Input into the VeriFit 2 under Dial Level to calculate the prescriptive target is not able to be shown yet, but again is coming soon.

For my next case, let's meet Luke. So Luke is 2 years old, diagnosed with unilateral conductive hearing loss in his left ear and fit with a Ponto 5 superpower softband. This fitting included custom in situ bone

conduction threshold measurements that was obtained in a sound booth using vra.

Once again, this is where you present the stimulus to the patient's Ponto device using Genie medical software.

And for Luke's audiometry selections included DSL bone conduction 2.0 child targets the age of 27 months. The device he was wearing was the Ponto 5 Superpower with a soft band connection and for transducer for loop specifically you would select in situ bone conduction. Next, those custom in situ threshold measurements are added to the Barafit 2 under dial level as seen in this picture here.

Adjustments to gain were then made in the fitting screen in the software to match those targets for soft average loudspeech and MFO. As you can see, an RMSE value of less than 3 indicates a strong match to those prescriptive targets and therefore it's considered an electric acoustically acceptable device fitting.

My final case study today involves sharing Bose fitting of his Ponto 5 Mini on his percutaneous above.

So as always, we start with those custom in situ bone conduction threshold measurements whenever possible.

And for BoA's audiometry selections this time again DSL child targets his age of 7 years old. His device which was the Ponto 5 mini, this time with that abutment connection and then for transducer, the in situ bone conduction and again to the right. Those thresholds were entered into the verifit as dial level and then gain was adjusted to match those prescriptive targets for MFO and then the speech inputs at 55, 65 and 75 dB.

For BO, we also completed an electroacoustic analysis of his Ponto device by using the technical measurement setting in the GENIE medical software, completing the electrocoastic analysis on the verifit and then comparing those measurements to the manufacturer specifications ensures that the device is operating as it should.

The skull simulator can also be used to complete advanced verification of the directional microphones and noise reduction communication mode within GENIE medical software. On the left allows you to evaluate each of those features as seen here. On the right, we wanted to look at that microphone characteristics when the device was placed in omnidirectional mode and then compare that to when placed in open automatic or directional mode. If you activate your directionality, you should make sure that it's evaluated and verified to ensure that the correct positioning of those microphone ports.

The skull statement can also be used to verify remote microphone systems as well as I mean such as the edge MIC and the ConnectClip as well as to be able to perform a listening check.

The setup for verifying a remote microphone with a BCD is is pretty much the same as with an air conduction hearing aid. So first you want to evaluate the response with the BCD alone. Then you disconnect the device from the manufacturer software and you pair that remote mic to the bcd. That remote mic is then placed in the test box with the verifit reference microphones positioned about 1 to 2 millimeters from the remote mic and this is seen in those top two pictures. Then you take the bone conduction device while still attached to the skull simulator and you place it outside the test box using that extension cable shown in that bottom picture.

If just as in air conduction hearing aids, if the average difference between the two responses for frequencies 751,000 and 2,000 Hz is less than or equal to 2 dB, then you have confirmed transparency.

I have to say, completing a live speech listening check is one of my favorite uses with the skull simulator. It does require you to look for those verified monitor headphones that are usually kept in a drawer somewhere. But you can use those headphones to complete a listening check of the bcd, eliminating the need for that PONTO test rod that is often difficult for you to tell if the device is working. They can also allow for you to complete a listening check of any device streaming with the patient's phone or tablet, as well as listening to and verifying phone calls.

So in summary, when verifying PONTO devices, you want to keep in mind that matching the MFO targets for those lower frequencies is challenging even with a super powered device due to the device limitations. As pediatric audiologists, we understand the need to want to match targets for every single frequency. However, it's a little bit more difficult with BCDS compared to air conduction hearing aids. Therefore, it's best to focus on ensuring audibility for soft and average targets. So if the RMSE value of the target is 3 or less for soft and average speech, you can be confident that the device fitting is electric acoustically acceptable.

If you're trying this for the first time and your results are far off from the verification targets, the most common cause is selecting the wrong fitting formula. For pediatrics, DSL bone conduction child is the recommended fitting method in the Verifit. You want to make sure you're selecting the DSL BCD 2.0 child targets and then in Genie Medical you can confirm the correct fitting prescription by going to the Program Manager section hovering over that P1 program and then make sure you have DSL BC Pediatrics selected.

Few more tips Again, as John mentioned and I've said throughout this presentation, custom in situ bone conduction measurements are necessary whenever possible for the most accurate fitting. Again, for infants and young children that are assessed with abr, the national center for Audiology at Western University will provide guidance on how to apply DSL BCD 2.0 for your softban verification hopefully in

the coming weeks. Third, instead of focusing too much on matching targets for MFO and 75dB, you want to prioritize meeting the targets for 55 and 65dB inputs. And then finally I learned this the hard way. Oticon Medical's verification mode is not required for speech mapping with the Ponto 5 as any adjustments made in that fitting screen are not saved once you move out of verification mode.

So final takeaways the VeriFit 2 and Skull Simulator coupler offer objective and precise verification for all PONTO users, whether they're surgical or softband users. Speech mapping does allow for that individualized patient specific fittings to ensure speech audibility and finally, best practices include completing proper setup, selecting the correct fitting formulas and using speech map for verification of all bone conduction devices.

Wonderful. Thank you so much Lori. I just want to remind everyone that Oticon Medical and Audioscan offer training and resources to help clinicians just like you implement these tools effectively into to their everyday practices. So if you would like, you are absolutely welcome to reach out to the Oticon Medical Audiology Technical Support team and we can help to get you set up. We can also help you with any of your programming needs or requests for the PONTO system and also I'd like to offer the support with audioscan technical support as well.

Their phone number and email Address can be seen here on the screen. So we just want to offer a sincere thank you. Lori, if you could move on to the next slide for me. Thank you so much for attending today's presentation and also thank you so much to Lori and to John for all the effort that they put into this presentation. We really know that this is an area of interest for so many audiologists, but it is difficult to get started.

And so that's what we are all here for. And we're so appreciative of the expertise that Lori and John bring to the table to help us get ready for, to support our patients. So I'd like to go ahead and open up the channels for any questions that you might have for each of us. And again, we just thank you for

attending today and thank you for spending your time with us.

But I also just want to echo a bit of what Alicia said that and Lori as well, that we do appreciate your time. We know if this is an area you haven't spent a lot of time working in that it may take a little while to become familiar with the procedures. But the folks from Oticom Medical and Audioscan are here to help.

And yeah, feel free to reach out whenever you like. There's also some additional education materials available I think with both companies beyond this webinar today. So I know from the Audioscan side of things you'll see some various videos kind of walking you step by step through the verification procedures in Speech Map, along with some other Quick Start guides and so on around the use of the skull simulator itself. Yes, and also as John mentioned, we are very happy to help train you to use these devices in your practice, but also to get access to them. So we know that skull simulators are quite expensive and that they may not be available for every practice.

So please, if that's something that's keeping you from moving forward with verification for bone anchored systems or bone conduction devices. Excuse me. Then please reach out to our teams and we're happy to try to figure out a way to help you implement them into your practice.

So, Melissa, do we just hang tight here and offer everyone the opportunity to pipe in with any questions or just. Of course, you all are welcome to email us as well. Yes, we actually have some time that we have to fill, so let's run through. I'm going to send you a link really quick. Okay, chat and we're going to run through this CE exam.

I think if there's. Unless anyone has any questions today, I think that sounds great. We all Right. Amazingly, everyone went through a little bit on the that fact faster side. We thought that we wouldn't quite have enough time to cover everything, which is how it always goes.

Melissa, you're putting this. Okay, Excellent. Perfect. All right. All right.

Alicia, if you want to run through the questions with, with Lori and John. Yeah, I would be happy to do that. So I think that, you know, if each of you could speak to, to this kind of off cuff as well. I don't have all the answers, but what is the primary purpose of using the Verifit simulator when fitting a PONTO device? I believe that you all can see the answers, but if you could.

John, if I don't want to put you on the spot too much, but if you could speak to some of what audioscan stands for and hopes to accomplish.

Sure. I mean, I think at the end of the day it comes back to some of the points raised early in the presentation which, you know, prior to these objective measurements, like skull simulators and verification systems, verification essentially involves a lot of behavioral methods. And so while there's a place for that, it obviously doesn't necessarily provide you with all of the information you might require or desire. So really the, the skull simulator and its integration into our system is about, you know, standardizing and objectively measuring the output of the device that you're fitting, where that data could then be applied across various test screens. So for example, quality control, which we know is an important part of hearing aid fittings, there's nice opportunities there for quality control on the intake or a follow up.

There's nice opportunities that relates to verification, to prescriptive targets, as Laurie nicely walked through to ensure that again, the output for various speech input levels are appropriate based on the research evidence from the team at the DSL group and the BCD 2.0 formula umbrella. And then there's all of those opportunities now around adaptive feature verification. Right. So knowing for example that the directional microphones are performing appropriately given that directional mics are mechanical systems, you know, we know that moisture, dirt, debris, cerume and all of these things can, can

damage something that worked wonderfully when it first arrived some some time later when it's used in the real world. And so it's nice to have these tools again as, as Lori kind of illustrated follow up appointment.

Right. To ensure that these directional microphones are working properly. The other piece I think maybe we didn't dive a whole lot into today is just the opportunities around counseling that come with these measurements as well. And so I know in the Air conduction space. I mean we often talk about the use of this sp al gram, you know, for describing kind of the reasoning for someone being a candidate for device and then the impact of the treatment that you've provided.

And so the same would hold with an falogram where we can now see the aided audibility. Right. Provided by your treatment. So that's quite helpful. Yeah, absolutely.

Thank you for all of that. And I think one of the other components that is so nice to even have a skull simulator is to truly do that simulate what the skull should be doing. Because prior to having access to that type of technology, unfortunately a a lot of bone conduction devices were programmed completely off of B.C. in situ and or off of guesses if we go way back. And so I do think that by having the opportunity to verify that your programming is accurate is really reassuring for the everyday clinician.

And it's not just based off of subjective measurements, but really being able to to know what you're doing in your day to day practice. So I know I'm very appreciative for the technology and I also wanted to bring. I was just going to add that we started off only at chop, only doing voluntary or play in a sound booth. But I really wanted it's most important to do it for those little ones for vra. So having the setup that I described truly has made made a difference with our staff and being able to get these measurements more consistently to set up that the kids that come in for routine hearing desk, they know how to look at the puppet, they know how to do vra.

It's an easy transition. And so I was hoping to give an example so that you can use that in your clinic now to start making those measurements even easier. That's fantastic. Yeah, it's really, really great. And I think I also just wanted to touch base on the different fitting formulas and algorithms that are available.

Laurie, I know you touc a little bit on that in your presentation, but through Oticon Medical, the Genie, excuse me, the Boss software 2024.2 is what you should all be on. So if you go back and you look at your software and you realize that you're not on that, please feel free to reach out to our team and we're happy to update you, but we do have the option of either DSL or NAL programming. So with that, what's important to know is when we're using our verification through the VeriFit 2, we do want to select the DSL bone conduction option. And I Believe John showed that during his portion of the presentation too. And the reason for that is that we don't want there to be any potential for proprietary technology and fitting information there.

So we know that what is in the Verifit 2 is well studied. We know that those are the targets that we want to get for our patients. And so that's not to say that what else is available within our software isn't great, but we know that in order to verify appropriately that we are going to want to stick with the DSL, BCD and now the 2.0, when that's available. Do either of you have anything that you want to add to that? Well, as you speak software, it does.

Just, I just wanted to echo the point I made earlier that for this capability to be available in our system, you do need to Update to the 24.1 software for our system, which was released in early January. So I'm not sure how many folks have had an opportunity to install that. There are, of course, other capabilities that extend beyond bone conduction verification. But if you're specifically wanting the BCD 2.0 formula, you'll need to update your equipment, which is something that can be done quite easily through our NOAA module or you can go to our website, audioscan.com and download the software there. There's

no charge associated with any.

That. That's fantastic. Really good point too. I know sometimes when you're in clinic those updates come through and you just say, remind me later. I'm in the middle of something right now.

So it's good, a good reminder to have that. And then I just wanted to touch base on some key steps to ensuring accurate measurements with a VeriFit 2 and bone conduction devices. So really the key thing that you that, that I want you to keep in mind is that if you go to do this and you do not have a skull that is absolutely necessary to do any of these measurements that we've talked about today. And so that's. That is something that we want to make sure that you are prepared for before you have your bone conduction patients that are there ready for verification.

And if you don't have the tools to do that, well, you know, that's again, something that we can assist you with and just a couple of other things here. And I want to give you guys the opportunity to pipe in with anything else. But the quiz does have a few little things in there about ponto fittings for SoftBan users, which Lori so eloquently went over today as well. So please, if you have any questions about that, we're so excited that that's now a feature that we can use and how important that is for our pediatric population and anything else that you all want to add before we wrap up today?

No, I mean, I think if there's questions, happy to answer them. Again, if not, I think you've provided the contact details. So we're, we're happy to follow up with people and provide them with the information they need. Excellent. Well, thank you again for joining us today, everyone, and for taking some time out of your busy weeks, especially on a Monday and many of you are spending your lunch break with us.

Even so we know how how busy you all in clinic and we just value your time and appreciate you taking time to learn more about verification, which I know the three of us are very passionate about and we really care about. So hopefully you gained something from this presentation. And again, if you have any

questions, don't hesitate to reach out to us.