Research QuickTakes Volume 9: Clinical Implementation of Self-Assessment Inventories

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Here we go. Hi everybody, and welcome back to volume nine of Research Quick Takes. And today we're going to be talking about self assessment inventories. I'm Brian Taylor and with me as usual is Gus Mueller. Gus, welcome back.

It's been a while. Thank you, thank you. We, it's been a little while since we, since we finished up volume eight and, and now we got volume nine. This should be a good one. We, we went through a lot of stuff.

Pretty much everything you want to know about self assessment inventories, I think. So it should be a good time. Yeah, it's a good practical one. So we'll let you, I think you're in control of the, of the slide, so. Yeah, I'm ready to roll.

Okay, I'll let you get started.

Well, anyway, when, when we started going through this literature, the one thing we found out, there's just a lot of publications on every topic and including self assessment measures. And it's like, where do you start? Where do you stop? And so it took a while for us to pull all this together, but I think we got a pretty good selection. Just to give our listeners an idea, just last year There was over 400 articles related to hearing aid technology selection and fitting and self assessment inventory.

So it's, there's a lot of published stuff out there these days. Now you might say, why this topic? And you know, if we go historically, historically the by, I mean, going back maybe 30, 40 years, it was really popular to use objective measures to sort of look at the goodness of a hearing aid fitting. Some of you might even be old enough to know when we did repeated speech testing. But today, and this didn't just start, it's been probably in the past 20 years or so, maybe 30 years, there's been a real push to get the patient involved and to let them tell their story of how things are working and then utilize this in our fitting strategies.

And so over the years there's been a host of self assessment inventories established. Sort of a flurry of them came about in the early 2000s, but there certainly are plenty of them for us to talk about. So we've divided this up into five different areas and in this first section we're just going to talk a little bit about some background on self assessment scales. So you say, why, why should I have them in my practice? Why should I be doing them?

Well, for a starter, self report, inventories are a component of best practice. And just to give you an example, this is taken from the, from the 2021 standard, from the APSO, the audiology practice Standard Organization. I think there's a total of 15 items in this standard. And you see here, number three is that this would be a pre fitting self assessment inventory and number 14 is an outcome measure. So if you advertise that your office does best practice, then certainly self report inventories would be something you'd be doing.

Now when you look at these inventories, three different terms are going to come up. And I'm going to tell you shortly that, that these terms have been changed, but they're still used pretty frequently. So let's review them just the same. And that is we have an impairment, then we also have a disability that would be a restriction to perform an activity and then we have a handicap. And that's when an individual with an impairment cannot fulfill a given role.

So here's just an example to give you an idea how this works. We have our patient Robert, who's an 8th grade science teacher. He has a high frequency hearing loss. So indeed he has an impairment because a considerable portion of his hearing loss affects audibility, speech sounds. He has trouble understanding speech, particularly when it is soft.

That's his disability. And what's the handicap? Well, as you might guess, if he's a teacher, he frequently must ask students to repeat because they may be talking from a distance or softly. So that's how we

would analyze Robert's impairment, disability and handicap. Now, as I promised, those terms have been changed.

They were changed back in 2001 by the WHO committee. And so we'll now go through what these terms have become today and the terms that were supposed to use, I guess would be the word, although sometimes we fall back to the other terms. So what has changed here? If you go to number three, we now have the term called activity limitations. That's what we used to call disability.

And you can see why activity limitations, a given patient would probably be, would prefer to refer to something as an activity limitation as to telling them they have a disability. And then go down to number four and you see there what used to be called handicap is now called a participation restriction. Okay. And again, I think most people would prefer to say they had a participation restriction than they had a handicap. Now when we're using these, I was trying to think of how to classify them in their utilization.

And one thing that was reminded of going back to Barbara Weinstein, this is something she published well in the 1990s I believe. And it's a way we can look at what we do with hearing aids and how we can use Self report inventories. There's treatment effectiveness and treatment effectiveness means do hearing aids really do their job? Do they make soft speech audible? Do they improve speech understanding?

That can't. Could be done in a laboratory, but you'd also need some self report to assist. Once you determine that a product has effectiveness, then the next thing you want to look at is does it have efficiency? And that is, are certain hearing aids or hearing aid setters better than others? Which ones are the most efficient?

Because you certainly want to use, you want to use the most efficient product. Which then leads you to the third, third item which is treatment effects. And that is, is there really an effect when if people use

these hearing aids, will it improve their social or emotional well being? And this of course is where most definitely you would need to use a self report inventory. And so this is how it sort of goes from beginning to end and how you could view it in your own practice.

Now we know the common reasons for conducting these inventories. Probably the most common would be things like use, benefit and satisfaction. There's probably 20 different domains. If we really go through all the inventories that have ever been developed and we're going to get into almost all 20 of those later today. But there's also some administrative and business reasons for using these.

The. So Brian, you recognize that I do. I. I know that is the lead singer of U2 who took his name, his stage name from that hearing aid center, am I right? Yeah, yep.

It's in old town Dublin. Old town Dublin. I was in Dublin. You know, people go to Dublin and they want to think, they want to go to the Guinness and Jameson and all that kind of stuff or see old castles. I just wanted to see the Bonavac store that, that he was name apparently Bonavox means true voice or something like that.

And so one of his bandmates said that he was a Bonavox and it got turned changed to Bona, that got changed to Bono and he's done all right for himself, I heard. Anyway, I thought we needed some office up there. So back to back to the administrative reasons. Here's an interesting one that could be in any clinic where there's two people working, you might have one person's fitting to the now another person's fitting the same hearing aid but uses the manufacturer's first fit. Boy, that's a study waiting to happen.

Why not do some self report inventories and see if it really matters when these people get out in the real world.

Another thing you might be looking at almost monthly you hear News of some new product that just came out from, from a manufacturer and maybe you're using a different manufacturer. Is that new product really better? Well, why don't you try it out for a couple of months and fit some to the manufacturer you've been fitting to fit some to the, the new manufacturer, the new product and see how the self report inventories turn out. It also works. You can use this for counseling and it could be something as simple as extending the length of your appointments for hearing aid fittings.

And that is, does this extra time really equate to real world satisfaction? Or what if you put on a oral rehab seminar once a month, you then could track those patients and see if their satisfaction was higher. If it wasn't, well then maybe you're wasting your time doing the workshop comparing of different dispensing sites. This is a fun one. If you're, if you're somebody.

Well, if you're somebody like Costco, what a way that you could compare. They maybe already do this. I don't know what a way that you could compare satisfaction for different people working at different sites. You know, do people buying their hearing aids at a Costco in Chicago, are they more satisfied than the was buying them in Tulsa? And you could compare different employees.

I mean, even if it's only an office of two people, you could take a look and see if satisfaction differed and then find out why.

Service effectiveness. Now here, here's something that I think is really underutilized and that is that you, you know, you knew you do a good job, but, but you have data to prove it. Why not send out a few self report inventories, calculate what your patients are saying, compare that to national norms and if they look good, I'd make some charts that you could show to prospective candidates. An interesting thing about this is if you don't do it, probably the patient could do it on their own. I happened to got permission to show this particular one, which just happens to be my wife who has works at a large clinic here in Bismarck.

She has happens to have a five star rating from 10 reviews. And of course anybody can go look at this. I would guess if somebody had an appointment with her and didn't know her, they probably looked this up. So since the patient could end up doing it themselves, you might as well do it and do it under a more controlled manner. And finally, this is sort of a fun one here.

I don't know if it's still true today. These data were from 15 years ago or so, but there's actually Research to show that asking somebody if they're satisfied, they actually become more satisfied on a group. I believe it one satisfaction went up 7%.

So Brian, what do you got to add to that? No, I think you've covered all of the basics of why self reports or self assessments are a critical part of what we do from a business and a clinical standpoint. So I'm kind of, I think the next step here is to kind of go into some of the self assessment findings and how they might compare to the audiogram or word recognition scores. I think. Do you know on that satisfaction thing is that still tossed about that, that if you ask somebody that they're satisfied, they're.

They're more satisfied? Right. I know that was probably from about 2010, the market track back. Right, right. Hodgkin was involved.

They still talk about that. I think, you know, I think it, it does sort of make sense when you think about it. Just the act of asking somebody raises today, of course we get so many satisfaction surveys that maybe it doesn't have the impact that it did back then. But anyway, yeah, I think what we need to talk about now is some of the ways that we actually can use self report inventories. And, and one of them which becomes more popular every year is we use it to supplement the pure tone audiogram.

And more and more people are believing that the pure tone audiogram might not be the holy grail of hearing loss. And one of the people who's done a lot of work on this is Larry Humes. He actually in one

of his articles was reflecting on all of his work over 20 years and he commented that he used to believe that when pure tone results and self assessment inventories don't agree that it was the self assessment that was wrong. And as we look at things in larger groups now, it could be that it's depending on how you look at could be the self assessment that is the one that's the most correct or at least they both are correct in different ways. So here's a big study that he did.

I'm going to show you the chart in just a second with over 1600 adults. And they did the HHIE. They did the full blown HHIE, the 25 question ones, which means that the maximum score, which is the worst score would be 100. So it goes from 0 to 100. And so I have a chart for that.

And the teaching point is pretty obvious when you see the chart and that is you see the red regression line and what you also see is there are many, many people who do not fall very close to that line. If we go down to, let's take a 20dB average hearing loss, which most people think of as normal hearing, notice that the regression line is at around, oh, looks like maybe 15 or so. But notice that there are scores up at 40, 50, 60 of individuals who have, by pure tone standards, have normal hearing, yet they're reporting a lot of problems. And let's go up to a 40db loss. I'm looking at the scale on the bottom here on a 40 decibels average hearing loss.

You can look at it on the opposite. There are people with a 40 decibels loss who are reporting scores of only 6 to 8 to 10. And of course, as you'd expect, many of them have scores much, much larger than average. In the stats that went with this, they found that the correlation is 0.61, which of course as you might guess with that, in an end like that, that's a significant correlation. But what you have to Remember is that 0.61 only explains one third of the variation.

And so it tells you that you're really getting. There's two different things going on here and I think that we need to pay attention to both. Now that was the hhie. We've talked about this in previous recordings, but just in case you missed it, the HHIE was modified or combined. The HHIE and the HHIA were

combined back in five years ago now.

And so it's now called the rhhi, the Revised Hearing Handicap Index. Interestingly enough, they still use the word handicap. I guess they didn't want to confuse us too much. And this is just the screening version that I'm showing here. And so this is what we would recommend you use today.

Although the results really aren't that much different than the hhi, the hhia. So if you can't find this form, well, it's pretty easy to find if you google it. But in case you couldn't find it, you could still use the HHI or hhia. So when we look at this is now from the data from that particular study when it was revised. Historically we've used eight, a score of eight or higher for the screening test.

What they found in their research that we should use a score of 6, 6 or higher. And that was based on work that they did looking at the sensitivity, meaning if somebody has a problem, is it positive? Or the sensitivity a specificity, meaning if they don't have a problem, is it negative? And for that they Use the hearing loss greater than 20, average hearing loss greater than 25dB in the worst of the earth. And you see on the ROC curve or roc, you see that the point where you get the best score is at 6.

So that's what the rules are. Now, greater than 6 would be at risk for mild hearing loss. Now, it gets complicated, though, and here's one of the things that definitely complicates it, and that is that we look at hearing aid adoption. Now, this is getting some age on it, this study, but I seriously doubt that it's changed very much. And that is what you see on the bottom there is the HHI score.

Now, this is for the screening version. So the worst score would be 40. And you see the adoption rate. And notice that even with a score of 24, the adoption rate is less than 40%. And, well, and even when it gets up to 30, the adoption rate is only 60%.

And we're talking about a cutoff of 6. Well, look at 6. The adoption rate was only, wow, not even, not even 10%. Now, maybe today things are better. Hearing aids are certainly prettier than they were in 1997 and hopefully more effective.

But the adoption rate is still a problem. And then related to the adoption rate has to do with how long the person has known that they had a hearing loss. So this was an interesting study from just 2019, not too long ago. What they did in this study is they actually asked. They looked at a big group of patients and one of questions they asked them was, when did you first know that you had a hearing loss that needed hearing aid treatment?

And what they then did is compared this to their hhi. And so what you see if you look at the far left column, is that the people whose HHIE score was 10 or less, it took about 11 years before they actually purchased hearing aids. If you go over to the far right, notice that if their HHI score was greater than 16, they purchased hearing aids in about four years, which is not too bad. So it definitely has an impact. Now, this is a nice tool to use clinically because it gives you some insight.

When you first identify a person, you can use the HHI score then as part of their counseling. Obviously, you want them to order hearing aids that same day, but realistically, if their score is less than 10, that might not be happening. Now, another area where this fits in is what has been called minimal hearing loss, hidden hearing loss. And that are people, that's people who audiometrically don't even have a hearing loss by Well, I shouldn't say audiometrically pure tone thresholds, they don't have a hearing loss. Unfortunately for most of these studies they didn't do speech and noise testing.

And if they had, it's very likely the hearing loss wasn't quite as hidden as they thought it would. But right now these studies are based on pure tone thresholds. So this, this was one done a few years back and these were all people who had hearing thresholds average better than 25 dB. And they were younger, as far as studies goes, 18 to 58, 17 to death, they all had HHIA scores greater than 20.

So what they found was in the field trial there was a good benefit obtained. The benefit went from 38 down to 20, which is a good benefit. But if you look at the last bullet point, they were given an opportunity to purchase the hearing aids for reduced cost. And even though they reported benefit, only three of the 17 participated. A similar study was just done last year and again it was people who reported on they had hearing problems on a self report inventory, but they had very normal hearing.

In fact, look at this.4 frequency average of 8dB in the left ear and 9.8dB in the right ear. They did a lot of questionnaires and EMAs were part of the study, speech and noise was part of the study. And so this was a pretty comprehensive study. And what I liked about this is the participants were randomly separated into two groups. They had the experimental group, they tried the mild gain hearing aids, which also had directional processing.

Remember now these people have no more than on average of an 8dB loss. The control group were fitted with hearing aids, but their aids were programmed to zero db insertion gain. So what they're getting away from here very nicely is some type of halo effect where the person just thinks that you're helping them and they're going to give you the answers that they think you want simply because that's why they have the group with zero insertion gain. So when they collected data for this, they found that indeed the ones fitted with mild gain hearing aids reported benefit and the placebo group did not, which is what you hope for. They also showed higher satisfaction for the ema.

Neither showed an advantage for laboratory testing, probably because they had normal hearing, but that all sounds good. But then there was the final, final, final finding, which was despite the real world benefit, 91% reported improved speech, understanding and background noise in the real world when given the option of buying the hearing aids pair hearing aids for 3500, which isn't too bad of a Deal. None of them agreed to that option. Which takes us back to this. The adoption rate relative to the hhie.

Remember, their HHI scores were abnormal, but they weren't apparently to the point that it was worth purchasing hearing aids.

So in closing, this section I think we know is that these inventories are very helpful in assessing the patient's hearing status. And I can't think of a reason why they wouldn't be standard practice in all clinics. It's a simple thing, simple scale to, to use. There's. Later on we'll talk about three, four of them that you could possibly use to supplement the audiogram.

We know that you'll, you will end up with results on occasion that are different than, than the audiogram. And you'll have to look at this as a, as a benefit, not, not as some, something that it should be corrected. And I think that it then really falls on the clinician to use both sets of data. You know, particularly on these types of data that are done pre fitting. I mean these are the, this is something that is so easy to do and could be done in the waiting room when the person first walks in.

I went to an appointment a few months ago before I was ever seen. I had to fill out, I think it was three full pages. I had to answer 12 questions on depression alone. There was a real fun one on how much alcohol I consumed. I had some good times with that.

So I think we're ready for the next section. Brian, you don't answer those about alcohol consumed, do you? Well, you know, I think more and more insurance plans and even regulatory agencies are mandating that people get those types of questions. You know, if you want to get paid by the insurance company, you have to document that certain questionnaires are, are being administered and scored. And I don't think you see that yet in audiology, but that's kind of what you're, you're inserting, I think.

So we'll get into more of the practicalities of some of these, some of these tools later on, but that was, that was a really a nice overview, so thank you. Yeah, the, this is going to come to a shock to our listeners, but I'm actually a Medicare age and I think that some of those are also required. Because of

Medicare. Exactly. I'm not certain, but it seems like when I hit 65, I started getting a lot more questionnaires than I'd ever gotten before.

So we've, we've covered the first two sections of volume nine, I think. Now, Gus, if you can Move into some of the nitty gritty of these scales or these self assessments, you know, the reliability, the variability, the validity, those kinds of more researchy things, so to speak. Yeah, we're gonna, we're gonna lean heavily on Robin Cox for this. And there she is. I can't, I can't resist telling a very quick story about those eight photos is it was at the American, by the way, for those of you who don't know, Robin Cox just did a ton of research on self assessment inventories and you'll hear her name come up over and over again as we go on.

And unfortunately, she passed away at a way too early age, about 10 years ago, I think it was, or seven years ago, something like that. But this was, these photos were taken more like 20 years ago when she was doing all of her work on a self assessment scale for personality, which we'll mention briefly later on. And I was giving a talk or I was going to mention her scale later on. And so we were standing in a hallway, I was with Ruth Ventler and I said, robin, I need some photos for your personality scale. Why don't you give me eight different personalities?

Or I maybe didn't say eight, why don't you give me a bunch of different personalities? So she backed up against a wall, I had a little Sony camera in my pocket, and Ruth Bentler called out personalities. And she made the face two seconds after her, after it was called out. So not only does she know a lot about self assessment skills, she's a pretty good darn actress also. Anyway, I won't ask you to name the eight different personalities there, but you get the idea.

So in a real classic article that she wrote for seminars and hearing, and because it's in seminars and hearing, which at that time wasn't Medline, it doesn't get referenced as much as it should, but it's really an important, important article to go through because everything she said 20 years ago is just as true

today as it was then. And so she, she really, even though she never was a clinician, she really understood how clinicians thought. And so she came up with the notion that if you were to go out and select a self report inventory, there's things that you should consider. And so the first thing she did was come up with four practical items. Clinical burden, patient burden, scoring and utility.

So we'll go through these quickly. Clinician burden. This is pretty obvious. The average clinician is busy. They don't want to adopt a self report inventory that takes them that they have to Go to a short course.

You know, this isn't a self report inventory. There was a time when if you wanted to do the ssw, Jack Cat said you go to a two day, a two day workshop to do the ssw, which is really a pretty simple test. But anyway, fortunately you don't have to do that for any self report inventory. But obviously, you know, the clinician needs something that's easy to learn and that's going to work effectively. Let's go back to this scale, the rhhi.

You don't need a lot of training to know how to hand the person this particular test. There's 10 questions. This is one that was completed and there's not a lot of clinician burden there.

On the other side is a test that was developed by Robin Cox. This is the AFAB. The AFAB has 24 questions divided into four categories of six questions each. They're scored from A is 99% to G is never is 1%. For a given patient, A or B might not be the correct response for some statements and other ones, F or G might be the approach appropriate response which confuses the heck out of the patients.

And they're usually saying, hey, hey, I don't understand this. And you also will have the situation as we'll get into later. Several questions might not apply to a given patient, which also then bothers them. They don't know what to do with those questions. So there's a lot more clinician burden there now.

Patient burden, really? They go hand in hand. If it's low burden for the clinician, usually it's also low burden for the patient. But the one thing that you need to consider is the reading level and cognitive level of the instructions. And the patient burden also has to be decided.

How is the patient going to complete this? Are you going to send it to them in an email? Are you just going to have your front desk person hand it to them when they walk in the door, or are you going to do it knee to knee with them in your office?

Scoring, you want a scale that's easy to score. And most scales today, almost all have computerized scoring. Some of them, it isn't really worth the effort to enter it into a computer, which we'll talk about later. And there are three inventories. I don't know if the average audiologist knows this or not, but there are three inventories that are part of the HIMSA NOAA questionnaire model module.

So if you go to that module, you then can get scored. The afab, the COSI and the iowaiha which we'll talk about the COSI and the iowaiha later. The AFAB scoring. You don't really need a computer to score the COSI and Iowa, but for the AFAB you do. Now there are also some companies had the scoring for the AFAB as part of their software at one time.

I'm not certain if they do now or not.

So speaking of scoring, let's go back to the rhhi. As you can see, four for a yes, two for sometimes and zero for a no. You don't really have to be a wiz at math to know that 4 plus 2 plus 2 plus 2 plus 2 is 12. That's pretty easy. And you just scored it in what, five seconds.

Now compare that to the AFAB. There are 24 items. The answer to each item could be 99%, 87, 75, 50, 25, 2012 or one definitely need a calculator and it's going to take some time. So let's go on to utility. Utility means how well is this are the outcomes of this using the scale?

How is it going to be applied to your treatment, to your planning to hearing aid adjustment? And without question we haven't gotten to explain it in thorough yet. But many of you listening already know the cozy. The cozy is when the patient nominates items that relate to their everyday life. So this has very good utility simply because the patient was the one who selected it.

So if Bob said one of the problems I really have is understanding my granddaughter when we're playing cards, then his rating of that item will have great utility. Now again, I hate to pick on the afab, but I'm going to the AFAB may not have that much utility for some patients. Imagine you're seeing an 80 year old on a follow up visit just after her new fitting and you're conducted the aided afab. So she's been wearing the hearing aids for three weeks. Here are the six items on the reverberation scale.

That's the ones with the bullet points. Misinformation. When I'm listening to lecture, she's never gone to one. When I'm talking to someone, I haven't been in a large empty room. I have trouble understanding the diet.

I didn't. I don't go to movies when a speaker is addressing me. I didn't go to a speaker once. It's hard for me to understand what is being said. Well, I do go to church and I don't know if it's, if it's Better or not, or I can follow the words of the sermon when listening to a religious service.

So you get the point. It's very possible that there will be little utility unless the patient participates in all six or at least three or four of those particular items. By the way, for it to be an official score, they have to answer at least three. That's from the words of Robin Cox. Oh, and there she is.

So we're not finished though those are the four practical items. We now have four other items.

So norms. It would be very nice when you score one of these tests to see how your patient compares to others, large groups, you hope of how they're doing, particularly if you're using it as an outcome measure. It would be good to say, Bob, this is great. Do you realize you're doing better than 90% of people fitted with hearing aids? I think Bob would like to hear that.

So it would be very nice to have norms. And some of the scales do. That's the real advantage of the AFAB because it has a lot of scales and those scales are all available in the software. It's for other tests like the cosi. There really isn't a norm because the patient designed the test themselves and the norm is really that patient.

And we'll talk about Iowaia norms in the next section. Reliability simply means that the test is reliable. And that is if you give it one day and give it a week later or a month later or a year later, you'll end up with similar results. This of course is important, particularly if you're comparing unaided versus aided. You certainly want to test.

That's reliable validity. What do we mean by validity? Well, it means that if a test sets out to say that it's going to assess benefit, well, then it should agree with other tests that assess benefit. For example, if you take the afab, the AFAB has a scale on it, six questions, and the six questions all relate to understanding in background noise. Well, that should then be similar to your results on an objective test or mostly objective test like the quicksand or you're actually measuring assessment.

So this would make a test valid, meaning it's actually assessing what you want it to assess.

Sensitivity. And this is an interesting topic in that we sometimes want these self assessment scales to be more sensitive than they really are. And this shows up in research time and time again. And that is we're looking at unaided versus aided. And usually you will see a difference.

But now if you start trying to pull out smaller differences on a scale that really Isn't designed for that. You may find out there are no differences. Some examples might be under the second bullet down, bilateral versus unilateral fitting, new technology versus the patient's old hearing aids, premier hearing aids versus a pair of inexpensive OTCs. So it's very possible that the scale just isn't sensitive enough to separate that. And then of course this begs the question, what do you rely on?

Do you rely on clinical objective results or what the patient tests say?

It's very popular today for all manufacturers to put out white papers. And what I see, what I see posted quite a bit on popular audiology Facebook pages are things like, well, this hearing aid was supposed to do such and such, but I don't find that it really does such and such. And so this is where we tend to have some problems with sensitivity of self assessment scales. Trying to wish and hope that they that they do things that they aren't capable of doing. I just gave you some examples.

Manufacturer reported in their clinical study showed that new product improved the SNR by 4 dB. They go on to say that this is about a 30, 40% improvement. There's sort of a technique that is only partially accurate that you can convert a DB improvement to percentage. So they say there should be a 30, 40%.

You just gave this, who your patient gave the terms listening to my friends at a party, a low score on the COSI and says that the new hearing aids aren't any better than the old ones. Well, why is that? It's supposed to be 4dB better. You gave them the COSI which is supposed to be a reliable scale, but then is it sensitive enough? Well, there are several issues here and one of them that we have to think when we do self assessment scales is many of these studies, the manufacturer did their testing in the negative SNRs where they saw the improvement.

When your patient is in background noise, they live a relatively quiet life. It's usually around +5. By the way, research has shown that +5 is the most common SNR that our patients are in. Even with his old hearing aids, he was at his speech and noise recognition. What I'm saying is that at plus five, if he has a mild loss or even a moderate loss, it's very possible that he's going to understand we'll say 80% and 80% is as good as it's ever going to be because he has cochlear damage.

This of course is a reminder why we'd always do a pre fitting quicksand testing so we know what is the max for each patient if his quicksand score is plus 8, well then we know he's not going to be seeing improvement in this situation. Along the same lines in this, there was a clinical study showed that their new product improved the SNR by 2 dB. They go on to say that this should give you a 20, 30% improvement. But your friend gives the item listening to my friends at a party. I mean your patient gives listening to my friends at a party a low score on the COSI and said the new hearing aids aren't better than the old ones.

Well, there's a couple things going on here. First, research has shown that for people with no hearing loss, the JND for SNR is 3 DB. Okay? So there he's not going to hear a JND difference, just noticeable difference in SNR of 2 DB because most people with hearing loss do not hear that difference. So and again, it could be that the SNR of the parties is not within his understanding window.

So a lot of times we look at these self report inventories and say, oh gee, what did I do wrong? And oftentimes it has to do with speech understanding and background noise. And the point then is you need to sit back and look at the big picture. And it also is why we'd always do pre fit and quicksand just to, just to give us realistic counseling. And it helps us interpretation of these tests.

Okay, we're just about wrapped up with this section. We got some final procedural considerations. The halo effect. And yes, that's like halos that I don't know who has. Do angels have halos?

I don't know if they do or not. I think you're right. Yeah. Do they, Brian? Do angels have halos?

Last time I checked, they do. Okay, so that's, it's like the person likes you a lot and they think that good answers are right and they may give you good answers. And you know, particularly if you said, oh geez, this is the new product for manufacturer X and I know you're going to like it, it's perfect for you. You'll probably get some ratings back that are inflated simply because the patient likes you and wants you to be happy. The hype effect.

Whoops. The hype effect simply means if you maybe even sort of unintentionally hype up a new product or encourage the person that it's going to do things that maybe it's not going to do again, you might get results that aren't accurate. An interesting study that ruth Bentler did 20 some years ago, when digital hearing aids first came out, she had digital hearing aids, but they were all the same hearing aids because it was a crossover trial. And one group at one point they told they were getting new digital hearing aids, and another time they were told they were getting traditional hearing aids. They were all the same hearing aids, by the way, programmed exactly the same.

And then afterwards they had them rate the products. And I don't remember the exact number. I think it was 83 or 84% preferred the pair of hearing aids that was labeled digital type effect. Hawthorne effect.

This is if people know they're being studied, they will inflate their results. This was a real interesting study where they were looking at the effect of lighting on people working in a factory. And they concluded that lighting made a huge difference. And they found out later that the only reason that they got the difference, it had nothing to do with the lighting. It was the fact that people knew that they were involved in some kind of study and they worked harder.

And that is now called the Hawthorne effect. Now you say, well, I don't. I'm not telling them they're in any kind of study, but sometimes indirectly you are. You say, yeah, I'd like to try this out on a few

people and you'd be a great subject. Well, on the other hand, of course, there's actually newspaper ads or flyers of people saying this new product came out.

We're enlisting 12 new people to try out this new product or something. So that will have an effect. And why not have a fourth age effect? It just seemed. Because I was in 4H.

Were you in 4H, Brian? I was in fifth grade. Maybe I won't ask you to say the creed, but all us four H'ers, we, you know, now and then we have our own little Secret Creed for 4H, Hands and Heart and health. And, and Henry, I think Henry was the fourth age, remember? And so here he is.

So this is, this is a little abstract, but it was too good not to include. And that is, the patient really showed improvement because they just worked hard. They have that kind of personality that they really want to do better. And we know that concentration will actually, you can understand speech and noise better if you just try harder and work harder. Maybe one or two.

DB SNR so anyway, John Henry, according to legend, was in the railroad in West Virginia. And he was the biggest and strongest of all workers. And what his job was, he had this big. He had, he. It was for getting ready for explosives.

He had a big old hammer and he had to hammer a steel drill into rocks and he found out that he was being replaced by a machine. He decided that he would go up against this steam drill, this machine to prove that he could drill a hole through the rock farther and faster than the drill. Interesting story. I encourage you to read about it. And there's Henry.

He won, but then he died of exhaustion. So let's hope your patients don't work quite that hard. Too bad. All right, we're moving on to 9.4. You got a review for that third section, Brian?

I know. I think you covered all the bases. I don't have anything else to add. Now we get into the. How you actually bring these things to life in the clinic, so.

Yeah, exactly. And there's, there's a lot of them. And I'll. You know people can download, download these slides, right, Brian? Yes, they can.

Okay, so some of these I'm going to go. There's a lot of them. Let me warn you listeners in advance, there's a lot of them and we could have included a lot more. So I'm going to go through them fairly quickly because you can download the slides and, and get all the fine points later. So we're going to start with category one.

So these are self assessment measures that can complement the pure tone audiogram. So this was like what we're talking about of the rhhi, something that would help you determine whether the person needs treatment or not. So we're going to start off with a fun one. That was one used by Helena Soledar. And the scale doesn't have a name, so Brian and I named it.

We're calling it the Solidor one Question or the soq. It actually wasn't a publication. The senior author of the publication was Katherine Palmer. But all the data was collected at Helena's offices. So it seemed fair to give her credit.

I don't know that she wants credit. We didn't really ask her, but she got it anyway. I actually saw her at aaa, Gus, and I told her that we were. You what? I said I saw her at AAA a couple months ago and I told her that we had done this and she was very pleased.

Okay. All right. So this is it. It's one question. On a scale from 1 to 10, 1 being the worst and 10 being the best, how would you rate your overall hearing ability?

And then the answer to this was then compared with whether the patient purchased hearing aids. Now, the, the interesting thing. Well, the first thing isn't terribly surprising to anybody, and that is the worst they rated their hearing aids. Did I label this correct? To purchase tyrannies?

I might have labeled this incorrectly. No, I think you got it right. Okay. Because 10 is the. The worst.

Yeah. Oh, that's right. It's right. It's right. Yeah.

So I always want to turn it around, but it's correct. So number one is the worst and number 10 is the best. Okay? So what you see there is they. If the people who really rated their hearing aid the worst, they, almost all of them purchase their hearing aid, 80, 90%.

And so if they rated either a 1, 2 or 3, 92% purchased hearing aids, and then you don't look down at the other end is what you'd expect. If they said they really didn't have. Have a hearing loss or very little hearing loss, then the purchase rate was very low. What we found to be the most interesting, however, was the change between number six and number seven is that for the seven rating, only 7% purchased hearing aids, but for the six rating, 58% purchased hearing aids. So it was a change of 51% just for that one rating.

The beauty of this, of course, is that if you want low clinician burden and low patient burden, it doesn't get any better than this.

We have the rhhi, and we've already talked about this. I just want to add one thing here, and that is that the research did show with the RHHI that it wasn't terribly different than the HHIS or the hhias. So my recommendation would be that if for some reason you don't have the RHHI or you haven't downloaded it yet, just use the hhi, the hhia. Something is going to be much better than nothing. And there's the example again of this particular test.

Now we're going on to something that many of you are not that familiar with, although it's coming on in the last few years, and that's the Speech Spatial Qualities ssq. There's actually four versions of this. The big version, the oldest, and the one with the most questions is on the top here. That's 49 items. Then that got reduced to the SSQ 12.

That's 12 items from the original SSQ. Then it went to the SSQ 5, which is now, you might think it's five questions from the SSQ 12, but it's not. It's five questions from the original SSQ. And then we have the SSQ speech 5, which was just introduced in the last couple years, the speech 5. These are 5, 5 items from these are from the SSQ 12 that relate to the understanding of speech, but only 5.

They're all scored on the same on an 11 point scale. And for most, the way it's labeled is 0 is not at all and 10 is perfectly. And here's just an idea of what some of the questions might be. Remember it's the ssq. So some questions are about understanding speech, some questions are about spatial, like localizing, in this case located dog barking.

And then some of them are about the cue which is quality. And in this particular, on the SSQ12, the first five are speech, the next three are spatial and the last four are quality.

Now we're going to the SSQ5. And so they went back to the original 49 and came up with, and came up with what they believed was the best five questions based on a lot of statistical analysis, particularly logistic regression and to come up with what are the best. Interestingly to me, at least that this is intended to give us idea mostly of people having trouble understanding speech. But only one of the questions was about speech for the SSQ5, which was one from the SSQ12.

So this is the, here's the SSQ5 and as I mentioned, there's only one speech item on there. Can you have a conversation with someone, with another when another person is speaking who voices the

same pitch as the person you're talking to. And these other you see are spatial. Spatial qualities and qualities. Now norms.

Here's some norms and again we just put these in so that if you start using this, you'll have a reference. This is a little hard to track down. So again I'd encourage you to download the slides and you'll have a chart and norms that you can go to. These important to note that these were collected for the SSQ5 items, but they were embedded in SSQ49. Now that's not the cleanest way to collect norms.

It would have been better had they just been given the SSQ5. This makes the assumption that the other items didn't influence it. Well, there's. These norms are for people with normal hearing. The first group was for people with a hearing loss.

And so this will give you an idea and what I did just if I were in the clinic right now and doing the SSQ5, I put these side by side just like I have them here. And then it'd be very easy to see where your patient falls relative to people with hearing loss and relative to people with normal hearing. So 10 is as good as it gets. As you remember I mentioned that earlier. And so you can see that people with normal hearing are scoring relatively high.

The lowest is what, 7.6. And so what you see then roughly between the hearing loss and the normal hearing is on a lot of these you're seeing about a three point difference or so.

Now they also have what is called the TSSQ5. And what that is is you take a mean of all five of them. And so here are some data in case that's what you choose to do. We've just included some data of using the TSSQ5.

Now here's what might be, I think the final one of all these, and this is using only the speech understanding questions. This is from some work done out at Stanford by Matt Fitzgerald and his group

in the past four years or three years. They've done a lot of work with the quicksin to the extent that they recommend it should be used with most patients rather than pbs. And quiet, I agree. But what they wanted then was a self assessment scale that might agree with the speech and noise or at least give them another speech and noise measure.

So what they did is they took these first five questions from the SSQ 12 and had the people complete these of which they're calling the speech 5. So these are the speech 5 of the SSQ 12. And yes, it does get confusing. And what I like about their work is they gave us some real nice norms to use and they broke it out for normal, low normal, sort of normal, mild, moderate, moderately severe. And then you can see over to the right, you can see the Speech five score.

Okay, moving on to a different scale. Some of you who have worked with tinnitus might know this scale. It's been around for 10 years or so. And this is the Tinnitus and Hearing Survey, ths. What we're going to talk about though is a component of that that has been used at various places, most notably by researchers at Walter Reed.

And what they have done is they've taken the four hearing questions and there also are four tinnitus questions, but they've taken the four hearing questions and converted it into just a scale of hearing. The original THS had a 5 point scale of 0 to 4. What the group at Walter Reed have done is have converted it to an 11 point scale so that it would be like the SSQ and that is it scored from 0 to 10, which goes from no, not a problem to 10, which is, yes, a very big problem. And here is the th, they call it the thsh H or tinnitus Hearing Survey, hearing. And here are those four questions.

So you got quite the choice. Must be about six or seven of them that could be used. You may want to use more than one. Okay, moving on now to the time of the hearing aid fitting. We have the most popular that I'm guessing most of you already know about, the Client Orient Scale of Improvement.

The patient simply selects. You want them to nominate at least three items. If they want to go as far as five, that's fine. And these are things that relate directly to the patient's communication needs, whether it's speech and quiet, speech and noise. And then these will be used later as an outcome measure.

So it starts out as a blank sheet and you and the patient complete it. Once the items are selected, those little boxes on the left, the patient then picks the priority. The first thing they mention probably won't be the most important. It usually is the thing that happened most recently. So be sure then they rate importance.

I do have to mention, you know, I was pretty impressed when I saw that Harvey Dillon got an award and they were talking about, you know, all the things that he'd done, which then he has done a lot. And one of the things they mentioned is he, he developed the cosi, the Client Oriented Scale of Improvement. The, the one, the one thing that I noticed, however, it's a blank sheet. So I thought, well, maybe I'd try that in the world of music. And so I put out this ode to Audiology a year ago because it's like the cozy, It's a blank sheet.

And I was a little surprised actually got an award. So you never know. Both Harvey and I now have awards for our blank sheets. I'm pretty excited about that. Anyway, moving on.

One of the things you also can do is use the COSI to assess expectations. So this is the modified version of it simply by adding expectations onto the chart. And what you see there is this patient who nominated five different things. Notice that after he nominated all five, the last one he nominated is actually what he ended up rating number one with some encouragement from his wife, I suspect. And then over to the right there you see that he picked how he thinks he's going to be performing.

Most of them better, and one of them much better. We'll see how we do on that.

Here's a worksheet created by Palmer and Mormer, Catherine Palmer and Elaine Mormer, 25 years ago that's very similar to the COSI. And it actually resulted from their use with the COSI. And that is they found that oftentimes the COSI people, when they came back, really didn't have some of the same goals that they had at the day of the fitting. And that typically people only really had two important goals or so. So they came up with the patient expectations worksheet called the pew.

Obviously they didn't think that acronym through very well, but anyway, so here's the example of the PEW worksheet. And this just the key is that C equals current ability, E equals patient expectations, and X is the realistic outcome predicted by the, by the provider. And so you see this per, this person has high expectations. They think they almost always are going to be able to do these, and then you can mark on your own and you can mark their current ability. So it's a modification.

Well, it's sort of using the principle of the cosi, but particularly for expectations, this is a little complicated. So it started off with a three clinic hearing aid selection profile. And these were big players, the clinics, which were Cleveland Clinic, Henry Ford and Mayo. And they came up with what was called the hasp. The HASP turned out to be a little overwhelming for routine clinical use.

40 statements, eight subscales. So some of the people involved in that HASP, Sharon Sandridge and Craig Newman, developed the coat. And the coat is a shortened form of the hasp. Now, the original coat was developed 20 years ago, and when Brian and I, when we were reviewing it, there's a few questions on there that really don't apply anymore. You know, one of them, for example, said, do you want automatic signal processing in your hearing aid?

Meaning will it automatically turn from omnidirectional to directional? Well, good luck finding hearing aid today, except an OTC that doesn't have automatic signal processing. So we eliminated that and a couple others and we came to the A coat, the abbreviated coat. Now, so just to put things in perspective, we've gone from the HASP to the coat to the A coat. So we started off with this three clinic

version, and we're now down to the one clinic, Taylor and Mueller, six items.

So we've come a long ways and our building isn't quite as nice as theirs, but sales are doing well, really, really well. Here you go. Here is the A coat. So it's only six items, and it's items that you probably would ask probably through your in a good case history, but maybe not. And again, this is something that, that could be completed while the patient is in the waiting room waiting for their appointment.

Here is another one. This scale was developed out at Western University and, and again, this is something that you can do to help make decisions, which is what the coat was designed for. And this has a cute acronym called the hafi. Although when I look at it H A A F I guess that works. There's two ways but yeah, the HAFE and it's to help you select the best fitting for a given person.

It's on a five point liker scale and it has nine sections and we have them listed there. This includes smart based technology, multi environment functionality, comfort and appearance and on and on and on. Now they've developed a shortened version which is only 14 items and that can be downloaded from the Western University National Center. They've come up with probably three publications on this. One of them was just last year that you might want to check out.

One of the things you could use this for of course would be to determine maybe from a mid level to a premier hearing aid basing on what the patient really wants and needs.

Here's another Robin Cox scale called the Echo. It has to do with consequences of hearing aid ownership as the acronym suggests. And it has 15 items that are on four different subscales which include the positive effect. This is how the. Well what the person think is going to be the improvement service and cost negative features.

This would be things like feedback, occlusion, those kind of things. And personal image has to do with the appearance of the hearing aid. This is example of an ECHO scorecard and Robin has on there which he calls reality norms. That's what you might expect from the average person. And again remember this is before the fitting.

So this is for somebody seeking hearing aids. And you see that this person's ratings, this person, what jumps out is that they have, they have look at positive effect. They're maxing out on that meaning they have high expectations.

The AFAB we've already talked about, it's been around a long time. It is the most popular self assessment scale in the world. It's been translated into I think 20 or so different languages. It's been used in more research studies without question than any other scale. As I mentioned earlier though, it does have fairly high clinician burden and patient burden.

Although automatic scoring is available. This is just some sample. It's 24 questions. Here's an example of the AFAB questions. Let's just.

If you can read these. I'm going to start with number one. Crowded grocery store, talking with the cashier. That's speech and noise. I miss a lot of information listening to a lecture.

That's reverberation, unexpected sound like A smoke detector. That's aversiveness. And question number four, I have difficulty hearing conversations when I'm one on one. That's ease of communication or listening and quiet. They don't all go in the perfect order like that, but that just gives you an idea.

And so there's. Those were the first four. There's four categories, six questions in each category and they're scored on a seven point scale.

Robin put together a lot of, a lot of norms. One of the scales that I like is that she has elderly with fewer no hearing problems. So here's just a sample patient that had a very mild hearing loss and ended up being plotted on this scale. And notice that he's at about the 80th percentile for elderly people with normal hearing. Normal hearing.

So not really doing too bad. But this is a nice thing. This is, this might be. I don't know if this is unaided. Yeah, this is unaided.

But what you really can use this for is when you do a hearing aid fitting, it really is a great counseling tool. Be able to show the patient that they're performing aided as well as somebody that has normal hearing. And that's what I've always used this particular scale for. But there are other scales for benefit, a lot of different and the software prints all that out for you. Okay, we're moving into another category and these are the scales that can be used to access real world hearing aid satisfaction Benefit too.

We already talked to the about the rhhi. You give it at the beginning, you give it again after some hearing aid use. We already talked about the cosi. Here's our fellow who's back who we measured expectations on. He's now back reporting reporting his after three weeks.

I think this was not too bad. We notice that hearing friends while shooting pool in the Rider bar. His expectations were very high and is not doing terribly well. But that's about as good as it gets. And so you.

One of the counseling items that you can use here is the afab. Again it can use as a outcome measure. Here's an example. Now as I mentioned before, you can plot on the patient's benefit and what you see here down at the bottom, EC is ease of listening in quiet. RV is reverberation.

BN is background noise. AB is aversiveness. And if you look at the patient scores, you see they're coming in at around the 50th, the 65th percentile for benefit. Good. It's a good outcome.

Here's our another test that we talked about before this ssq. But this is another version of it that we didn't talk about before because this is a version that is used only to measure benefit. So they, they change the scale a little bit. It's still, it's still 11 point scale but the difference is the middle of the scale now became zero and then you can go either direction, left or right. I think I have an example.

Here you go. So what you see there on the top is how an item appears on the SSQ and then the wording is just changed slightly for the SSQ. 12B down on the bottom. Notice that we have 0 is unchanged, minus 5 is much worse, plus 5 is much better. So you know, can use this scale to measure benefits.

Here's one that's a little different, that's only been around for the last four years or so. This particular version of it. And this comes from Ben Hornsby work at mostly Ben's work at Vanderbilt. This is the Vanderbilt Fatigue Scale for adults. And it's only 10 items.

And the questions are answered on a five point scale. And you can do it before hearing aid use and then do it again afterwards to demonstrate a benefit. It actually has been used in a couple studies I think for that particular purpose. And Ben mentioned A score of 26 or higher is an indication of frequent problems with fatigue. So this would be for the unaided.

And there's the scale over to the right. We suggest that you administer the scale about four weeks post fitting. And what you would suspect or hope is that there's less fatigue. That's the idea. You know, it's a, it's a different way of looking at problems.

It's not directly looking at speech and noise or listening effort, but it's a combination of several different factors that go into hearing aid use. We then have the saddle which was designed by Robin Cox at the same time as the echo. And so the 15 items are the of the saddle tend to mirror the items of the echo. And you see at the bottom bullet we have those same categories of positive effect, service and costs, negative features and positive image. And here's an example of the saddle on the left.

And just to point out the personnel the similarities, we have the echo that I showed you earlier on the right I would say, I mean the saddle would be, is useful using it as its own. And there's considerable data published with the saddle. Several researchers have used that in their study simply as a measure of satisfaction. But it could also be used then as a companion with the echo.

Here's a scale that is popular internationally called the IO iha. At least that's the way I pronounce it. And it's another scale that was introduced by Robin Cox. It's popular for a lot of reasons, and let me name them for you. It's short, it's easy to administer, low clinician burden, easy to score.

It covers seven different domains. It's well researched, and it's been translated into 30 or so different languages. So the seven domains, I'll read them to you. I'm at bullet number three. Daily use benefit, residual activity limitation, satisfaction with amplification, residual participation.

Notice that she's using Those terms from 2001. Residual participation restriction, impact of using hearing aids on significant others, and impact of quality of life. Those are the seven domains.

The scoring is very simple. One is worse and five is best. And here's an example. Note, there is a number eight on here, but the number eight is to just tell you what template to use for scoring. And that is, how much hearing difficulty do you have when you are not wearing the hearing aid?

There are two different templates to use for scoring. One for mild and moderate, and then a second one for moderately severe to severe. And I'll show you that template. This is the. The template right here for mild.

This is for mild to moderate. Yeah. So in other words, the. The block simply means the range. And there's only one question for each one of these.

So you're not really going to be taking means and standard deviations unless you're comparing a whole group. So because there's only one question, your answer, let's take benefit. And notice that the shaded area goes from three to four. So if the patient says four, that's good, three is good, two isn't good. There isn't going to be a 3.5 or a 3.7 or anything else because there's only one question.

So it's. It's very simple then to score and very simple to plot on this particular scale. We made it. Wow. You made it.

Thank you, Gus, for that comprehensive overview. Yeah, that's a book chapter. Yeah, no doubt. Well, I skipped over some things, but that's. There's just too much detail to go into for each one of these picks.

It gets a little. A little overwhelming. Well, there's also an article out that people can refer. That's true. I guess our listeners know that.

That there's a. This, this is simply a companion recording that goes with an article that goes much, much more into detail. And I believe the article is worth either seven or eight CEUs for any, anybody who's CEU hungry. Be a fun time to get, sit down with a beverage and learn all about outcome measures. Right.

Well, here's the fun part, though. This is the last, the last chapter, the last volume of number nine where we, yeah, this should be good. I don't know if we'll have to get out the boxing gloves or not, but the, the whole idea of this, of course, is that we're trying to make this relative for clinicians. And I, I think we named 18 different scales. And you're, you're not going to use all 18 of them.

No. And you sort of have to decide how many are practical to use. And so you and I went through this independently and I, I, I did up the slides, but I, I, I promise you, I, I entered your true choices. I, anything too goofy. So let's see how it turns out.

Yeah, no, this is good because I think that's always the trouble with these kinds of self reports is that there's so many of them out there and so many are used in research and they don't always apply to clinical work. Yeah, exactly, exactly. Which is what most clinicians will tell you. And to the extent then some of them say, well, I don't know, I don't use any because I don't know, there's so many of them. Exactly.

They get overwhelmed. So again, we have them in categories like we did in the previous section. So the, the first category is going to be ones that you use to complement the audiogram. So here we go. At any time you want to jump up, right?

Yeah, sure. I screwed something up, but I, I went through and we did it on paper and pencil and I think I got all the ones correct here. So, and I, I always, just to be kind, I think I, I think you're answering first on most of these. So SOQ got a yes from Brian. Yeah.

And just so to remind everybody, that's the question where you ask somebody how much, how bad they think the problem is on a one. Exactly one question. And it seems to have a very strong relationship to whether they eventually purchase hearing aids. Right. The rhhi, we talked about that.

This is the screening version. So this is 10 questions like the HHI got a yes. Got a yes. Oh, we're up to two scales already.

SSQ 12. I didn't think, I didn't include the 49. I didn't, I don't think anybody's going to use that hard. No. Nice move.

A no and a no. Yeah. Okay, we'll put that aside for a research project. Maybe SSQ 5. A no.

Ah. A yes. Okay. I'm pulling that in just because they're. Because of all the norms that are available.

Yeah. There's norms for normal hearing and then norms for people with moderate hearing loss. And that's not. Not available for a lot of the. A lot of the other scales.

So that's why I included it. But I'm sure you got something else up your sleeve to take the place. So now we got the Speech five. The Speech five of the ssq. That was the work that was done the past few years by the Stanford Audiology Group.

And you gave it a no? I gave it a no. I like it, but I'd like to see more data on it. And. Right.

And interesting about that, Gus, is I saw Matt not too long ago and he said that they don't use it routinely any longer at Stanford. Oh, okay. So he just collected data and. And convinced us. And actually.

So I sort of like the idea. It's. It's intriguing, put it that way. But anyway, the Tinnitus Hearing Survey hearing. So the hearing four.

That's the four questions of the ths. Brian gave that a yes and Gus gave it a no. I'll tell you why I said that. I want to preface it by saying that I think it's a really useful tool. If you're working closely with primary care physicians or you're doing a lot of screening, triaging, I think then it becomes a very useful tool.

In fact, I've worked with some clinics that use it for that reason, and it works very well. Okay. I guess. Well, partly I said no because you can only pick so many, and I picked the SSQ. If you told me I couldn't use the SSQ5, then this would be something to look at.

The one thing I wondered about was the. The amount of norms. You know, a lot of. A lot of the data was collected from service members, which is sort of a different group than. Than what you'd see in the clinic.

But there may be other norms out there that I'm. I'm not familiar with. That's a fair. Okay. Category number two measures at the time of the fitting that can be used as a NASA.

The three clinic Hearing Aid Selection Profile. The hasp. Hasp. I don't. The HASP is just.

I think that they had a great idea, but it just is. Yeah. Clinically feasible. It's too long. 40 questions and.

Yeah. The Abbreviated Characteristic of Application Tool, the acote. Brian, are you in on an a coat? Yes. Yeah, I actually use that myself, and it works pretty nicely.

So when do you have it filled out? Like before the patient seen or. Yeah, before they're seen or. I think you could probably also do it as part of the case history or during the week. Is.

Is it computerized any place or it's paper and pencil? I've not seen it computerized. Yeah, yeah, I haven't either. Anyway, I want to know on that. I like it, but again, I don't want to overwhelm with the patient with too many.

Or the clinician. So I think you. I'm thinking you get a lot of that information from a good case history, but maybe not the bank for the buck. Just to remind our viewers, this is the acoat, which is a yes for Brian and a no for Gus. Well, you know, it has aspects of the cozy.

Please list the top three situations where you'd like to hear better. That's. That's a cozy question. Yeah, I think I would. So that is the question.

I've used more abbreviated, but. How motivated are you to wear hearing aids? Yeah, well, it's. Yeah, I could see that it's useful. I mean, to me, it's part of the case history.

You're just. You just recording it on this.

Okay. The pew.

A yes for the pew. Okay. What about you? No, I'm a no. But see, I'm gonna.

But I'm gonna tell you why. It's because. Because I'm. I'm going to use that. Well, we'll get to it.

Why I said no. Well, I think of it as the cozy. Anyway. Just another. It's a version of the cozy.

Yeah. Yeah.

So the echo. Brian's a no. Gus is a no. It. It.

You know, it's more. It's more data. And I. I understand how it could be useful, but again, if you only need to select so many things, I. I think there.

There could be. You might do all that and say, well, I don't. This doesn't make any difference. I don't know the He. You.

You're going to. I bet you like this just because of the acronym. I mean, who. Who doesn't like halfy? And yes, we got it.

Yes from Brian. Gus is a no. Well, again, I'll say. I'll say I like about half of the halfy. I think even the abbreviated version is too long.

But some of the questions that look at using wireless connectivity and apps and things like that. I think it's really useful for that, actually. Yeah, you Know, it's. I guess, but you know, Mike, Mike, what I'm wondering, I guess is what's its long longevity? You know, I mean, as you say, years ago we're asking people if something, you know, if they wanted automatic signal processing.

I mean, I think at one version of the hafi. Hafi they were asking them if they wanted rechargeable. Well, yeah, 98% of hearing aids are going to be. Yeah, it doesn't make sense now, but I think the wireless, I'll tell you the reason because as you know, I mean every hearing aid now is wireless. But is it going to be a priority or not?

And I think the Hathi kind of helps you determine what patients you can focus. Yeah. Any more time related to my concern is that all the stuff that is super special on the Premier product, we know that in a couple years it's going to be on the middle level product. Right, right. So you need a new Happy to whatever's on the new premier product.

I don't know anyway, but it's. I, I see the value. I just, it wasn't. My, my, your toolbox is bigger than mine, I can tell you that right now. I got a little tiny toolbox.

Yours fits in your back pocket. Well, I'm trying to be proud. I'm trying to be what I could if I had to go into a clinic and sell my, my protocol trying to come up with something that I really could sell. Right. Okay.

This will be an easy one. I bet. The Cozy. That's a yes and that's a yes. I gave it a yes plus.

And the reason I gave it a yes plus is because you're using the Pew. But as I mentioned, I'm going to use the Cozy to also measure expectations rather than use the Pew. So I'm saying I'm getting double my value out of the cosy. I just think of the Pew and the Cozy as one of the same. Oh, okay.

And it can be. Absolutely. So we got the afab, the most used scale in the history of self report scales. Well, probably the HIE is the most I've used, but most used in research. I know, I saw those data.

How are we doing on that? A no and a no. Yeah, I think. Why did you give it a no? Well, for some of the reasons you mentioned earlier, I think that there's several questions that don't have a lot of utility for many patients.