Terry, are you ready to go? Welcome everyone to today's webinar, my name is Will, I am the Director of Hearing Child Outreach known as the Echo Initiative at Utah State University. Known as NCHAM at Utah State of which I am the associate director, you know starting in 2001, for 20 years the Echo Initiative has served as a National Resource Center under the hearing detection and intervention with the focus of supporting programs of early head start, head start staff and implementing hearing screening and follow-up practices.

We are delighted to make our resources and learning opportunities available to as many people as possible who could use that whether they are in it HeadStart, early education, healthcare settings, or early health care settings. I am here today with Dr. Foust. Terry has served as a consultant and trainer and partner with us with the partner in the Echo Initiative.

>>: Many other Echo team staff as well as many of you as local collaborators, we have been training in almost every state with thousands of staff. HeadStart, and other early care and education programs over the years, there's just so many who get tongue-tied listing off. We are always encouraged by the continued large amount of interest as there is in establishing evidence with hearing-based screenings, so people with hearing leaves can be identified and served.

>>: Notice you have a captioning option, there is also an interpreter on the screens, and you can adjust the position and size of that window use that in whatever way helpful to you. We are not going to be taking questions while we are presenting today. We are going to hold off until we have completed a review of our different content areas, we try to construct a presentation that takes into consideration the questions that you have.

If you need to clarify anything else then we will open for questions, if you can hold off on that maybe we will come around and answer your question before you even ask it. We are going to ask you a few poll questions, there is one on your screen right now. Which screening method are you currently using, take a second right now we will give you about five seconds to answer the questions and then we are going to put up the next poll question.

This is great, about 20% of you are using a pure tone, 40% OAE, about 30% is goals. What a great mix we have today but see the next one. Which of the online courses have you completed or any, that you've completed on the screen .org that we offer from Utah State University. We are curious to how many of you are using that to getting your training.

Okay let's see the answer to that. Not a lot of you, we are going to encourage you and go check out learn to screen, org. All right let's have a look at that answer. We have people all over the map, 34% birth to three, 25% 3 to 5, 30% 05, and 12% five and older. That is excellent. We have one more poll question. What is your primary work setting? Home visiting, healthcare, something else.

Let's have a look, 40% HeadStart settings, and 24% in other settings. That's interesting for us and I'm guessing many of you in the other category are in other school-based settings, great to know. We are going to move on now that we have that, today's webinar is primarily intended for -- I am going to turn my face off, so you're not distracted by that.

Additional support, so our saying, today's webinar is intended for those of you who already have some experience implementing evidence-based screening for children. Across any of those age groups, we are delighted that we have had over 700 people registered for today and many of you have submitted questions whether in advance in this webinar or emails. We have tried to build a presentation that incorporates answers to the issues that you've raised, so we are not going to take questions as we go.

We are going to hold off and hopefully we do a good job of responding to a lot of your questions, if we have it if their other things that come up, we will have ample time at the end to make sure that address as many as if your questions as we can. Be sure to hang around, at the end of the webinar today you'll have an opportunity to do a quick evaluation of todays of webinar which will also produce a certificate of attendance for today's webinar. If you need a certificate of attendance for, today make sure you hang around and take that quick evaluation really quick.

You'll have a certificate that documents your attendance today, now tomorrow we are having another webinar which is just an introduction to evidence-based hearing

screening and evaluation practices between birth the five, if you are brand-new to evidence-based hearing screening you are welcome to stay for today's webinar. But we are going to be jumping ahead quite a bit for those of you who are fully engaged in doing hearing screenings.

If you are new to sign up for tomorrow, you can do that at kids hearing.org. And you can do that for anybody else who would benefit from trials webinar, today and tomorrows are recorded and will be posted on our website at kidshearing.org and a couple of days. You can review all of this again; you can share it with others who can benefit from it so if anything takes away your attention from this know that you can always return to it in the next few days.

We are going to organize our time today around a lot of the questions that you all submitted, and we are going to present some information around each of the following topics. We are going to start with a brief review for our newcomers on evidence-based hearing screening and the purpose of hearing screening and what recommended methods are. Having that review can be helpful to you who are already fully engaged, sometimes you need to provide that review. You need to explain what you're doing and why we are going to talk about that for a minute. We're going to review the screening and follow-up protocol whether you are using OAE or pure tone.

We are going to turn our attention to an age of issues of Pure-tone audiology, the issues that people have raised our attention to and that we also know our concerns when implementing pure tone audiology, we are going to redirect our attention to otoacoustic. There were going to dive into your questions about anything else you have with getting children screened in a variety of different environments, were going to wrap up by reviewing the resources we have online and kids hearing.org that way you know where to go if you have any other questions or needs.

This includes topics that you see on your screen are going to be on the left side of your screen throughout today so if you have watched this in video mode not live, you'll be able to advance forward by looking at where we are in the presentation. Think of that is a helpful tool for reviewing this later.

You've probably seen this graphic here before, we've used it for many years, we always like to remind people that the work of the Echo Initiative is based on the

recognition that each day young children who are deaf or hard hearing art being served in early childhood education and healthcare settings.

Often without their hearing related needs being known, so that raises that question hearing loss is often thought of in the visible condition, how can we reliably identify which children have what will be called normal hearing in which children may not?

>>: Early care and education providers can be trained to conduct evidence-based hearing. Like you see on the photos on your screen, the ultimate outcome of your hearing screening program is that we identify children who are deaf or hard of hearing who have not been identified previously. You will recognize the procedure on the left, that is Odo acoustic admissions which is the recommended method for birth to three years of age and is increasingly recommended for 3 to 5 years of age as well.

You'll see the process in pure tone and that's historically been the most used string method of three years of age and older, you'll still see many of us in early care initiatives and providers using. As William mentioned we will talk about both methods today but keep in mind that the hearing screening process itself will not diagnose hearing loss but what it does is identify at children who need further follow-up evaluation either by healthcare provider or an audiologist.

And if it does and that hearing must exist, we want to connect those children to the intervention services that they need, your role in your screen process is really that first most important step of the process.

>>: Some of you have asked how we can more effectively follow-up after a child has not passed the screening, one way is to share information about the incidences of permanent hearing loss and the fact that the child’s hearing ability can change at any time. Often without anyone even recognizing it. Most newborns in the US are screen now for hearing loss using for evidence-based methods, most before even leaving hospital.

Screening at the newborn period is not enough, the evidence of permanent hearing loss doubles between birth and school-age, about three children 1,000 of both to about 6 in a 1,000 by the time children in her school.

Those incidents can continue to steadily go upward throughout the school age period.

>>: We can only screen for hearing loss at birth, we need to screen throughout childhood because hearing loss can occur at any time. It can occur anytime because of illness, physical trauma, environmental, or genetic factors. Hearing loss that comes on like this and it comes on as late onset hearing loss, and that it means that after the birth period. A child can experience a change of hearing the building and we want to be able to identify that the capable access to language and all the information right there are going to be exposed to as they grow, you can find this information on our website, the information is a letter for parents that you're welcome to lose.

>>: Any conversation that has got screening and follow-up should always begin with reminder that screening methods are perfect, and whenever a parent or caregiver expresses a concern about child's language or hearing children should be referred for more thorough evaluation by an audiologist. And that is true even if the child passes the hearing screening, that is true about the highly reliable screening method that we are talking about today.

While they are highly effective, they will not catch everything.

>>: That's right William, we want to acknowledge right up front that for any number of reasons there might be an occasional child that you just won't be able to screen, you won't be able to get that screening completed. You can try everything you can do; you will be faced with that dilemma of what you should do. Here's that recommendation about that question with some of your braised, if you aren't successful screening a child then refer that child to a person you can. You really don't want to skip them and try them next year.

>>: We just mentioned having a pediatric audiologist in the picture, and that's what Terry is. I am a professional who specializes in the diagnosis and nonmedical treatment of hearing related and other disorders associated with that ear and auditory system. A pediatric audiology specializes in children, they can help with equipment questions you might have or consult with you about specific children who are passing your screening and importantly may be one your resources when you need to refer a child to further evaluation. On our website at kidshearing.org you'll find a link that says

find an audiologist which should help you. One question is a perfect question for a pediatric audiologist in which some people submit questions about whether they should screen children whom they know to have PE tubes. Terry, let's answer that question right now, what about that? Should we screen children if we know they have PE tubes?

>>: You should absolutely screen children that have PE tubes. They you should know if the tubes are doing the job that they were put into do, they should cast the hearing screening if the rest of the auditory system is functioning normally. So those of you who are using the OAE method sometimes require an extra button push to adjust for something that has PE tubes. And really what I'm saying is that some equipment does require a temporary adjustment, many other students do not, and those who are doing pure tone, you complete the screen like are just doing for any other child. You can screen children with PE tubes.

>>: If you are responsible for children who are under three years of age, the recommended method is OAE screening, if you are responsible for screening children three years of age or older as Terry mentioned earlier. Historically pure tone audiology has been considered the recommended method for this age group. This is the headset screening where the child raises a hand or performs another task that they hear a tone through the earphone. You see this method right here on the right.

>>: And the switch to OAE, that's because it's growing recognition. It's the most widely used method, historically it may not be always the most feasible method with some of these younger children. So, the example is that the research shows that 20 to 25% in this 3 to 5-year-old age group really can't be screened with this methodology with peer talent screening because they aren't developmentally able to follow the directions reliably. And that's really been our experience as well, in these instances OAE screening becomes the preferred method for children. I think it's important to remember as we emphasized a moment ago that we wanted to screen every child, even the one that we find most challenging to screen.

>>: And if you're considering using pure sound audiology as your primary method, you need to be equipped or prepared to do OAE. Alternatively, you could refer all those 20-25% to a pediatric audiologist who can perform the screening but for a clue

that could be overwhelming to a local audiologist if they were getting that many referrals.

>>: If we are to simplify things a little bit, I would say that more audiologists would recommend using OAE. It's quicker to do them pure tone, and it's equally effective.

>>: If you or your program at a place at reconsidering or considering for the first time which method to use, primarily for children three years of age or older we want to direct you to a document that we developed that's on our website at kidshearing.org that compares away OAE screening amp for your pure tone screening for this population. In right of rationale either way of what you go, here's an important note some states have regulations about what methods are to be used based on age. Requiring care tone for three years or older as at least the primary method so you need to check with your state if you're considering out OAE for the 3 to 5 age group and you can do that by contacting your states he knew were hearing screening program and you'll find a link to that on our website.

Under the find and audiologist tab, on another note we had a question about whether there are any other recommended space practices that should or could be considered other than OAE and pure tone. Terry, as our resident audiologist, can you answer that question?

>>: Unfortunately, the answer is no, there's no other recommended evidence-based screenings. You can augment these methods; all those things are absolutely important to note but they do not educate dots that the load is a hearing screening, and I hope that makes sense. One other note is that William mentioned with state regulations that may require for example pure tone for ages three and older. Just simply document that the child was not able to do it, the documentation will lead you to appropriate switch to OAE or refer.

>>: We use evidence-based methods which are key to fulfilling the purpose of hearing screenings, our best screening efforts are only as worthwhile as if we meant implement an effective follow-up. Let's take a good walk through the follow-up protocol and see if you have any questions about that.

>>: One of the good things to remember is that the steps of the follow-up protocol are to be absolutely the same regardless of which screening method you're using or how old the child is.

>>: Only one main rule to remember when it comes to knowing when your screening process is complete and that is the child passes the screening on both ears or child receives an evaluation from the audiologist and you obtain the results. Anything else is an incomplete screening process, so here's how the screening and follow-up process unfolds. Keep in mind again that we are always talking about screening both ears and they need to be or need to fulfill the passing criteria for the child overall the pass overall.

If that ear passes the screening right off the bat, the process is complete for that ear. Pretty simple. If the ear doesn't pass, we can't be sure why that is, we have screen them one time.

>>: In that case an ear may not pass due to screener error or a temporary condition-like head cold. It would not be practical for those who didn't pass this first screening to be referred to as audiologist. We can see up to 20 to 25% of children we screen with OAE do not pass on at least one ear on the first time that we screen them. Several of you have asked how ahead cold or congestion can affect screening outcomes, this is where we might see that. This is so common that you can look at cold and flu season and a high rate of referrals and so you might want to wait a little bit and let that pass and then do your screening program.

You'll be able to see that as we go through here and we go to the next screening that that refers rate is going to drop.

>>: If it doesn't pass that screening instead of making an immediate referral, we recommend that we wait about two weeks and screen again, and by the way if one ear passes the first screening in the other does not. You don't need to screen that ear the past again, we know that ear is done. Just screen the one that already passed, if the ear that didn’t pass the previous pass doesn't fact pass the second screening in what? The screening is now considered complete, not you have both ears done.

And that will be a very common scenario, if however, that ear doesn't pass the second screening. Now we have seen that over a two-week period at least the ear is

still not passing, this is the point at which further evaluation is needed. We expect about 8% or fewer of the children will pass the second screening and will need to have their ears checked by a healthcare provider using tympanometry.

>>: That was too many to refer, now or at 8% or fewer.

>>: A wax blockage could be causing it; a healthcare provider could find. Right Terry

>>: It has prevented the screening of the inner ear from being completed in that could've caused a non-passing result. He went to intensifier monitoring of the child follow-up, will consult closely with the healthcare provider to find out first the results of that test or treatment being provided whether that's antibiotics or whatever it is. We want to always document the results of this ear evaluation, keep in mind since the ear has not yet has to screening we still don't know if that inner ear in the cochlea is functioning properly. They don't complete a hearing screening; you're going to need to confer with healthcare provider when that ear should be rescreened.

>>: Finding a wax blockage or ear infection while truly helpful to the child that is not the goal of hearing screenings, we want to address those so we can return to our hearing screening agenda which is to screen that inner ear that ear is determined healthy to make sure that the child has normal or typical hearing. After the middle ear evaluation, we conduct a rescreening. This is only for 8/100 children at most, typically. But keep in mind it's essential that we get the steps completed so you rescreen them after they been to the healthcare provider and in most cases that's what, they pass.

Because hearing loss is rare, we eliminated and help those children who needed middle ear conditions but if they still don't pass, if they pass, you're done. If they still don't pass what then Terry?

>>: That's when the child should be referred to a pediatric audiologist for a full evaluation, that is now when our level of concern is heightened. Because the child has repeatedly not passed, because that's what typically gets addressed or ruled out when we sent them to her there provided further middle ear consultation.

>>: So, it's about 1% that typically need this final step of being referred to in audiologist, when you make the initial referral to the healthcare provider. When you do that part it's a good idea to inform them that you are screening again and that you are

very likely to need their assistance in making a referral to the audiologist should the ear not pass that rescreened. You should support the parent until the audiological screening complete, and obtain a complete report afterword of the audiologist evaluation. We want you to check out and a referral forms and letters for parents which are in English and Spanish at kidshearing.org.

Letters for healthcare divide providers into what you're screening for and what you're asking for from them when the middle ear consultation. Keeping in mind the overriding rule, say it to yourself that the rule to remember is that the screening in the following up process is complete when either the child passes the screening on both ears and the child receives an evaluation from an audiologist. And you've gotten the results.

This pair recall applies to oases and applies to peer tone, it's the same exact protocol, although screening can lead to the identification to the most common types of permanent screening loss, any time a parent caregiver or teacher has concerns about a child's hearing referred to in audiological evaluation. It's always warranted if there is a concern, keep in mind also that there may be children we found this more times than I wish to have we had. Children who are receiving interventions like speak language therapy, so they may be getting speech therapy without anybody knowing whether there in fact hearing typically.

If you notice or know any children who have been identified with a speech and language development need, their hearing has been factored into the situation. So, we know several of you have questions about how to move this process along once referrals are made, how to support parents in follow-up and what to do. Terry what you say to that dilemma

>>: It's one of the most frustrating things for us, one of those breakdowns is not only the lack of providers to refer to sometimes it's hard, but getting the parents or other caregivers motivated to follow up through that. There's a whole slew of parent education materials which you can access on her website, you have information also toward providers that weaved for two. I mentioned earlier apparent letters and letters to providers and things like that that can help you in helping that process along.

The other thing that our other caregivers have expressed assets that they have built trust in them and as they built that relationship with parents, they are more likely to follow up with those referrals. But I think the bottom line is that we as care providers must be doggedly determined as we push them along to get that follow-up completed. And we acknowledge that it's a challenge.

>>: It is hard to be given a perceived status difference between healthcare providers, you may know more about the importance of hearing screening than they do. You can really wave the flag and know that you are part of a really raising awareness across the professional spectrum. Terry, I heard you gasp.

>>: You from this webinar that knowledge for example how hearing losses increases while we go through school age, the information that will just be presented, I've hardly known practices that know that.

>>: You just will help educate everybody, some of the tools to help with that are found on hearing.org. You'll find; I'll do a quick little scroll here. Under planning resources to find picture information that you want to share. There is an audiologist tab if you're looking for screening equipment and resources of ground that we mentioned earlier in our poll question about training, this is where you can link overture training courses. So, remember that that’s there and that's comprehensive standardized trading that you can get whenever you need because it's individualized and available to be self-paced online.

The next set of resources is all the practical things you need around screening, what to do to prepare for screening event or your day with a child, a group of children, that's where you find the protocol guides screening forms, letters for referrals purposes, and even scripts for what to say to caregivers at different points during the protocol. There's a tracking tool as well as tools for monitoring the quality of the screening activities, if you're not familiar with these take a minute or two and have a good look at the resources that are there and that we've developed in collaboration with a lot of folks like yourselves over many years that we've been doing this.

We really appreciated the various questions we have gotten from so many users including yourselves, one of them has prompted us to review both of the methods so that we are sure that everybody's following the same process, that's always a good idea

if there has been any time between the last time you screened and what you're doing now. One of the advantages to having an online curriculum that you can go back to is that you can quickly review it, and you can jump forward to the places that you need a refresher on, we can't encourage enough the value of having everybody trained the same way to do what we call evidence-based practice.

Let's start by talking about pure tone audiology and this won't be long so if you're not using this just hang tight it will come around to OAE in a minute, these two methods are different, but they do follow some of the same steps. They are unique, as I just showed you there are several tools that can support your screening efforts in different ways and for each of the methods are tone and OAE, we have a screening skills checklist on our website. That in one page walks you through each of the critical components of doing what we call evidence-based screening. That tool can be used to monitor one another and to make sure that you're going through it in the appropriate way.

Not skipping forward in forgetting or doing something that really isn't helpful, we will point out a few of those things. Now for each method in most cases since children will pass on both ear at the initial screening. The first portion of this form is all you need to use, but in cases where the child doesn't pass on one or both ears. This is to record. Let's look at the form, this is the pure tone screening form. A profile is the protocol, and if you don't pass you will go to the second part of the form that records that second result. If the child still doesn't pass and you make that form to middle ear consultation, you go to that second form, were going to walk through that.

Each of these steps is reviewed in the screening track list, that was a quick overview. The first of the screening process is what? To conduct a visual inspection of the ear, you documented the child's information and then you're going to a visual inspection of the ear. Now Terry, what are we looking for? In a visual inspection of the ear that might tell us whether to continue or not?

>>: What we're doing here were going to take a careful look at that ear, open that up and make sure there's no visible sign of blood infection or blockage. We are not going into the ear with a light, but we are looking for anything that is visible right

there to the naked eye. And if it appears normal, we will proceed to the next step in screening.

>>: The next step is to prepare the child for the screening, this means teaching the child the process where the child provides a behavioral response each time they hear a sound.

>>: This is where US the screener will construct or condition, they will respond by raising her hand or placing it when the bucket for example. At 1/60 40 dB level, efficiently loud enough for them to hear that and respond. While you're conditioning the child you're usually facing them to make sure we can assess whether they understand your instructions, once you think that they're understanding you want to turn them around so you can no longer see you want them to see if they can continue to respond.

>>: Conditioning is different from the actual screening and a couple of ways; one is that that that you're using a louder dB level and they're facing you and you're helping them answer.

>>: Your helping instructs and demonstrate show.

>>: How long should this conditioning process take, we must always be kind of mindful about how much time we are spending getting children screened. We don't have it all day, so how long should that conditioning take if we are going to stick with the pure tone method.

>>: Actually, just a couple minutes, her children are dealt with it mentally. It should take no more than a couple of minutes, and that's what we observe them, and they are reliably a response to the sound presented as we've instructed, that's when the point the actual screening gets started.

>>: If we can instruct the child in five minutes.

>>: It should only take five minutes hopefully less, overall than children were going to be screened using the pure tone method we must be able to screen them intended 15 minutes max, excluding that conditioning step.

>>: After five minutes or so you're not confident that they're getting it, that's when you use the backup plan or OAE or make the referral.

>>: You can also try them another day if you have the flexibility to do that, if you can't screen the child, you'll need to do them in OAE or refer them to someone who is

successfully be able to screen them, now would have to be a pediatric audiologist. Two points we made earlier we made earlier that some children that have hearing loss could be the ones that might be the most difficult to condition during the screening, William makes sure that we get every child screened, it won't be acceptable to conclude that if they cannot be screened until next year. This could be the very children that may have hearing loss.

As we've gone through this and we talked about conditioning, we started to screen, or in the screening process this listen and respond game is going to be repeated at least twice at three different pitches or frequencies in each ear. We are going to note the child response or lack of response after each tone is presented. Then the child passes the screening, okay so now we're going to assume the child successfully conditioned the screening process begins. The form provides a space to record the inclusion to each ear.

And noting that the child responds as desired, then the actual screening starts. Up to four presentations of the tone can be made for each frequency or level, 2000, 4000, then go to a thousand. Two responses are needed for the ear to pass a given tone. Once you complete the presentation of tones, the child is to have two successful responses out of no more than for the intended attempts at each frequency level. That isn't needed to have an overall pass, once that's recorded then the left ear is screened in the same way. Recording each presentation result as you go, if the child responds at least two times at each frequency level both ears. They passed the screening in that ear.

You sometimes you have the ear or both ears that won't meet the criteria for passing, the other child risk bonded only successfully one out of four attempts at the 2000 Hz level. As you see here for this writer, then the second screening of a previous non passing ear is conducted in proximately two weeks very similar to OAE just as the form dictates here.

>>: To see how this form is following the protocol, we spent a lot of time making sure that we could offer people an easy documentation strategy that reflects the protocol, if you aren't using this there is one pro OAE as well. Look at it and see if they can help you with your process. Continuing, we do that second screening two weeks

later the ear or ears that didn't pass the first time. Now in this case we only need to rescreen the right ear, because that ear is the only one that did not pass. The child passes at this point, the screening is complete because you received a passing result on both ears across the two screening sessions.

What if the previous non passing ear still doesn't pass? As we see here. Then this is when we record that in the form points us to the next step, which is the middle ear consultation from a healthcare provider.

>>: For any child who is referred to for middle ear consultation, you want to use the diagnostic follow-up form in which then you can document the remaining steps in the diagnostic process. And then the child is sent to a healthcare provider for middle ear health problems. You will find the results of this consultation you would want to record here. And then once the healthcare provider says that the ears are healthy and clear, you'll want to rescreen the child's ear or ears that had not passed.

They need to receive the rescreen in any ear that did not previously pass, then you'll document the rescreening results on the screening form that we started with. If any point there still an air that has not passed, the child is referred for complete audiological evaluation. You want to support the family in completing this important step and make sure to get to those results and document them in this form. Also, you want to collect any additional information supporting documentation of that result. Especially if there's been a permanent hearing loss identified, additional referrals for intervention services that you want to be aware of and support the family in obtaining those services.

In getting all these results, then deem that rescreening complete.

>>: That's a lot I know that's a lot that's why we are recording this webinar, how this documentation strategy can keep you on track to complete the entire process. Before your eyes rolled back to find your head, remember this is all only complete use of these forms is for a very small number of children. Most of them get a pass, but these two forms in tandem are there so you have a complete documentation set for what we call a worst-case scenario. For the child must go through all those potential steps, you'll have a way to thoroughly and accurately document that reflects evidence-based practice.

That gives you an overview of the complete screening and follow-up protocol from start to completion keeping in mind the overriding rule that the screening and follow-up processes are complete is when the child process passes. And you obtain the results all although screening can be identifying the identification of all the common types of hearing loss is only a screening. I wish we can all hear each other right now, has concerns about a child hearing or language development if you know that the child has been referred and is receiving speech or language therapy make sure and audiological evaluation has been provided or is going to be provided.

>>: Before we leave tone let me interject the question that is common, what if a child does find in responding at first and then they become distracted, or you observe that there are no longer engaged in the screening after the first couple of pages what can we do? This absolutely could happen, just be sure to document as far as you go and then you can do one of several things, you can use your backup method if you have an OAE. Or you can come back to the child another day and you can continue where you left off. Always start with the kid repeating the conditioning process.

>>: If there is a sudden increase in environmental noise outside your control, if you can't continue to screen at that time you have to come back at another time picking up where you left off.

>>: If the child is not able to be conditioned again or remain attentive then you should use the OAE method or refer to an audiologist. The ones that have hearing disabilities or hearing loss are the ones that are usually the most or the hardest condition.

>>: You'll find all these resources on our website, if you don't remember anything today remember to go to our website because everything that we were talking about today is there. But shift gears now and do a quick overview of OAE screening, this is the recommended method for children 0 to 3 years of age and increasingly you being used for other children as well. One of the reasons is that because as you just saw as we overview all the manuals and steps you have to use of the screening it's a lot harder. There is more to make mistakes around in pure tone screening, and it takes longer.

Walk us through OAE screening will you.

>>: We will take an inner look at the ear makes it is no infection or blockage, if it appears normal, we're going to go ahead with the screening. We were going to insert that into the ear canal, using a small probe inserting it into the ear canal. Going to push a button or push a button on the screen and not start automated screening process. The probes are independently in the air and deliver a low sound stimulus. While also at the same time having an acoustic emission that comes back and that is analyzed by the screening unit and by 30 seconds or so a result will appear, either as a pass, or as a refer.

>>: That's also much simpler and it is, especially for older children, for little kids it can still be hard to get them to sit still not resisting all of that. But for older children this is speedy to do on most children. Sorry I interrupted you, Terry.

>>: No, you're right, those little ones really make us work for it. As a result of the screening as it goes through every normal healthy inner ear will produce an admission that can be recorded in this way.

>>: We have a checklist that follows all the steps, you know Terry and looking at the clock and we want to make sure that we've got ample time for questions. I think let's just go over to make sure that everybody knows how the forms to work OAE it's much more straightforward both of them the screening in the form and the diagnostic form like with the pure tone follow the protocol, and this checklist includes all the things you need including your supplies so with screening you have a place to document your first results and if you need a second screening if they didn't pass.

You can walk through that if the child still doesn't pass it takes to over to the middle ear consultation referral and then onward if you have children that need to go further then there is a place to document your middle ear consultation and then the subsequent re-screen after you get medical clearance, and then finally documentation of the audiological evaluation outcomes. Then you know you have completed your process. One of the things you'll notice here in these photographs, is that these children are being screened where they are already happily spending their time.

We really encourage you to think about how you can efficiently go with screened children in the settings where they are already happily engaged. You can screen children while they are asleep, is it not right Terry?

>>: The screening works best when they're familiar and comfortable. I jumped in the car as the parents came in in the child's asleep, we drove around the block, and we were able to get the screening done.

>>: There really four keys to successful screening Terry, right? What are those keys?

>>: Get a good probe fit, that's key and got the listed first.

>>: Does that mean holding the probe in the ear?

>>: A good probe fit means that it seated in the ear and could be left alone, and it needs to be able to be self-seated in the ear to avoid getting in error or putting up against the canal or moving through your hand, the equipment is calibrated and calibrated for the probe to be seated in the air.

>>: Holding it can cause more problems than it solves.

>>: We going to minimize movement, internal noise, so no sucking or chewing. And try to exterminate external noise. If you don't get a passing result, we want you to try again. Trying to reduce noise, I wanted to check the probe for or cleaning wax. We want to use unique and quiet toys for distractors and are often helpful to have the help of another adult or screener to help you as we screen.

>>: Different OAE equipment will often produce different error messages on the screen. What does this message mean? What does it mean? Usually, it doesn't really matter because you're in a do these four things, don't get too caught up in what the error message is because these are the four things that you want to do and then try again right Terry?

What you notice about these positioning of these children, what Terry would we want to point out?

>>: If you look at the one that is on your far right on the screen, we've got the mother or the caregiver there holding the child in helping keep their head in place, so the screener has access to that ear, as you go through, we got engaged children. Hands busy with toys, so they're not couple out probes, and them have distractors in another one in the lower left that you see the screener is going to approach from behind while the child has a toy and another screener in front. So, there's all kinds of things that we can do to try to get the screening successfully completed.

>>: Watch how this screener is actually ready for this little girl to reach her hand up and take the probe away from her ear and then directed toward the puzzle piece right at the right moment. Let's have a quick look.

(Video playing.)

>>: So having activities that you can direct the children to is helpful, let's talk about children who might cry during screening. What do you recommend around this, do you just give up, do you leave the probe in other crying what strategies have you found that are useful?

>>: We can keep trying but you don't automatically remove the probe even though that might be your first impulse, instead let them relax with the probe stoner air, have the finger close to that start button.

>>: Sometimes the equipment won't stop screening and in between the child's cries and when they're quiet you might get a result. What about using an oral distractor? Some kids will settle down and you give them that, but can you screen them if they're eating or sucking?

>>: Then we can sooth them with a pacifier or a snack you can attempt to screen while that sex child sucking or chewing as I mentioned it will introduce a noise, but as William said the machine will record that response in between pauses and sucking and chewing. And if that is result is referred you need to retry when they're not sucking or chewing.

>>: This is an overall important note, you can always trust and a passing result you don't have to confirm it with a second screening, but if they don't pass and they get a referral or an error message. Then you want to eliminate the bottle, wait until the crackers are gone, and screen them while they're not sucking or chewing and see if you get the same response. What about screening and groups? Sometimes that can really help set up the social dynamic while children are waiting to be screened, as long is the ones being screened first are having a positive experience and enticing others to have their turn.

We don't mean having them all screened at the same time but having them kind of there watching and eagerly waiting to have their chance to play the listening game.

>>: We can create some anticipation, as we start with the child is most likely able to be able to cooperate.

>>: Try again if you don't get a pass, if the child remains cooperative go ahead and screen the air again or screen the other ear and then come back to the ear that didn't get a pass on. And then at the end of that screening session when you are going to move onto another child then you document those ultimate results and then you'll know if there's a next step to treat screen again in two weeks or not.

>>: Screening children that might have autism or other developmental delays, we can absolutely try to screen those children. We tried to find something that they really enjoy and fixate on, and we can get them busy with that head that we can go ahead and screen them. Sometimes they like to fixate on the actual screen of the equipment themselves and then we can have them watch that button push with us. Don't be afraid to screen children that might be on the spectrum or have other developmental delays, and we are often successful in getting that screening done.

>>: If you're screening children that are quite young, be aware that a deaf child and a child on that spectrum might present in very similar ways. Not only do we identify children that are deaf or hard of hearing. We don't skip children who are difficult to screen, you are most likely want to have children that you're not successful in screening anyway. You'll have those, we want to make sure that those children get the follow-up. We send that many times I know, it's because of our experience that we keep emphasizing that.

The owner is going to open the Q&A field, any remaining questions but again we want to make sure that you are aware of the resources that are available at Kidshearing.org is starting with the planning resources. About what screening ears is like, what is helpful to find pediatric audiologist. Having skills and abilities that an audiologist to serve primarily older populations don't have is real value in finding pediatric audiologist, they are rare and there are not many. They will be able to help you find some pediatric audiologist, training on a regular basis and having everybody in the program following the same process to standardize the process grounded in evidence-based practice.

In the trainings that are available here will help you do that. The only way can you get training but there is one way you can get it, and you can get at any time throughout the year. The next set of resources are for those practical tools of what you need to do your screening and follow-up practices. Open kidshearing.org, let's hear your questions.

Let's see here I need to open the Q&A field. The checklist is where, under each of the resources here for protocols guides and forms. I don't hear the bottom; it's thundering monitoring program quality. Right here with the bottom arrow is, the checklist for both his right here. Are there resources on the website Spanish, there are letters and forms and scripts in Spanish and English.

The next question is, where and who do you recommend doing the calibration of OAE equipment? I'll let you handle a question.

>>: Our equipment needs to be calibrated annually, and it should be done by the manufacturer where you purchased the equipment. If you have a vendor near your area you should set up a time to do that calibration, if you know where you purchased the equipment I would contact them first for calibration, if not then there are local national vendors.

>>: I want to remind everybody that when we are done here in a few minutes we are going to put up the evaluation links that once you've answered, I think it's for quick questions. We will generate a certificate of attendance for today's webinar, if that is useful to you make sure that you hang around for that, it will be up in about eight minutes ear. What is the protocol for screening and follow-up for children with already known hearing loss? Or hearing devices?

>>: They have been diagnosed, it did not diagnose and identified but we want to make sure though is that they have a care provider and their intervention plan in place. For example, are they wearing hearing aids, do they have a cochlear implant, language intervention services, all those types of things. They would be your documentation that should show that they don't need to be screened, they have been diagnosed with an existing hearing loss, and you would go forward.

>>: Here comes a question that many people ask, once they learn about OAE I think. I don't mean to disappear tone screening, it's valuable because the child is

giving us feedback that they can perceive sound. But OAE are also reliable methods and so the question here is, I'm a school nurse in California are OEE's accurate as spirit tone. Why would we not use them on all students? To use OAE, I have a response, but I'll let you take the first.

>>: One thing I'm going to mention is that these tests, sometimes they can be held up as the gold standard but what is it just the one longest in existence. OAE is just as accurate and I'm just going to address upfront that sometimes are often we are asked about more prayer auditory conditions that screening may miss.

One is auditory neuropathy; it's one in 10,000 births. I think there is some common perceptions about OAE and pure tone, and its use in that particular disorder however with a child with auditory neuropathy can technically pass a pure tone screening. Screening for every rare condition but we are screening with every common defect, these are very objective methods as we gone through the presentation though we have seen that there are some advantages to OAE as to time and speed and automation.

An opportunity for operator error, the second partier question is why it is not used across age groups, I think one is because host sorely is pure tone has been there, and things are slow to change. But they are changing, and there are more studies, looking into that we hope to be able to use as further research documentation as we move forward, and then the third partier question is being licensed as an audiologist.

There are some states that require some training pure tone, and you need to be certified to be able to do that, we do encourage that everyone follows their state regulations.

>>: To recap, the screen where your arrow is pointing towards planning resources. That is where you will find the document that compares OAE and pure tone in the considerations that need to be taken in deciding one of the other. Terry mentioned the important fact that some states have old regulations and some of those regulations were developed before OAE were even in existence.

So, you want to both be compliant with current recommended requirements and participate in a conversation about what new research is suggesting as new options. Why don't we do OAE with all kids or most kids, I hope that's helpful. Every state is a

little bit different in different school districts but had different rules around methods have to be used. The next question is how do I access the pure tone screening form?

It's right here on this page, protocol guides and forms. And that's the kids here in.org. We're going to hang on for a minute more, Gunnar posting in the chat the evaluation link so if people need to run they can. Otherwise, I will try to answer a few more of these questions. Thank you everybody and know that this has been recorded and will appear on kids hearing.org again. Also tomorrow at the same time, you can register on our website. Join us tomorrow, the next question is when ice green children with tubes in the past with OAE I get no seal message, how do I avoid that? Terry?

>>: That's a great question admittedly two things come to mind, first is that the machine needs an adjustment made or a button pushed for PE tubes. I would suggest checking the manual for that machine and making sure that there is not an adjustment that needs to be made to the machine port to be able to test children with PE tubes. And then the second with no seal, it means that that probe isn't feeling well into the canal, and I would try to upsize, and I say that because we find that the bigger the probe that fits in the ear canal the better sale that'll get. But maybe suggest that you upsize your probe and get a little tighter seal.

>>: If the child is referred to the audiologist and unable to tolerate headphones and probe temps and complete testing the sound fields and report, normal findings and at least a better ear is this considered a full pass?

>>: And just not able to separate his ears out of this time, that they're going to bring them back and going to keep trying and there's some things that there might be able to do to get your specific information. But a full pass would mean I would have the known results for right in that I have the known results for left.

>>: Any strategy to help toddlers to tolerate probe tips.

>>: One of the things that I really like personally is the soft comply foam tips, because they find that one, they are more comfortable for the child, and they are more comfortable for myself. But also, they get better seal and stay seated in the ear canal a little bit better. I would try a good foam tip if you had that first, and then I would maybe do a couple mock screening sessions where we play with the foam tip, we put it gently and there and then we condition them to get used to it over a couple of days before we

feel comfortable doing a screening session. But there's some other things that we might be able to try, are there tips for screening as well?

>>: Children with hearing aids do not require screenings from staff because they are being seen by ENT or audiologists, is that correct?

>>: They have already been diagnosed and have a plan.

>>: Please go to our website and email us to contact us if there's something that you're looking for they can't find, we try hard to make things easy to find but we don't always ask to succeed. Email for the website and I'll get it and either send it directly to you or show you how to find it. We are at the bottom of the hour, so I want to just look at a couple more questions here, Terry, music to my ears as a screening tool is that diagnostic at all?

>>: As far as diagnostic it's not, it's more of a screener. It's not used diagnostically at all. There are manufacturers that tried using your tone more automated and user-friendly and child friendly, but we just don't have the research and the documentation to show that we should be deviating from the accepted practice standards for pure tone screening.

>>: What if your local audiologist has abnormal function of the ear, how's it beneficial to have an audiologist?

>>: On the surface it may be, I just wonder if it's someone who's may not become triple working with kids or may not have the skill set but I don't want to make a generalization there.

>>: We are over our time, please take a moment to complete the evaluation and get your certificate of attendance today, if we can provide any additional information or support to you. Just contact us through our website and we will do everything we can to help you get the support that you need. Thank you for all that you do, we know for most of you that hearing screening is just a tiny part of the many things that you do to support the success of children that are in your preview. Remember that communication is at the heart of all aspects of life.

Learning, socializing, being able to express oneself, knowing the status of the child's hearing to make sure that if hearing needs to be supported there's a way to do that. If not, to get them another communication modality in place. One way or the

other children need to be able to, all of us need to be able to communicate to be fully included and fully participate and the time you spent ensuring evidence-based practice is well worth it. Terry, thank you; Gunnar, thank you for your technical background support and to all of you for all that you do.