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NCHAM

Introduction to evidence-based hearing screening and evaluation practices for children ages 0-5-(Ai-Live to Zoom)

NCHAM Transcripts

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>> This is an audio check for today's webinar entitled Introduction to Evidence-based Hearing Screening and Evaluation Practices for Children Ages 0-5. We're going to start at the top of the hour, about 15 minutes from now. If you haven't already, we invite you to use the chat box right now for one primary reason, that's to post the state and program that brings you to this webinar, whether that's a Head Start program, part C intervention, home visiting, healthcare setting, so that we know a little bit about where you're coming from. For those who have just signed on. We'll be starting at the top of the hour or a few minutes after that. People are signing on at a fairly rapid pace now, as you might expect. We invite everybody to use the chat for one reason right now, and that's to enter your state and whatever kind of program brings you on here today, whether it's a Head Start program or a part C program or a home visiting program. If you can avoid using acronyms that we might not know, we'd appreciate that. So we know what type of program you're from, that'd be great. and once again, we'll be starting in a few minutes, around the top of the hour. Today webinar is entitled Introduction to evidence-based Hearing Screening and Evaluation Practices for Children Ages 0-5. This is sponsored by Eddie, which we'll tell you more about. We're based at Utah State University. And I'm just kind of rambling right now so that as people sign on, they have a, an opportunity to get their volume adjusted to their liking. You'll also notice there's a

closed captioning option available on your screen. By clicking live transcription, you'll be able to see that if that helps you follow along today. As we'll be mentioning after we get started, today's webinar is going to be recorded. If anything takes you away from our live presentation today or if you think of other folks that would benefit from what we're discussing today, you can always direct them to our live, to our recorded version of today's webinar to view it another time, which will be on [infanthearing.org](http://infanthearing.org). We'll be sending out the link to everybody that registered.

>> Once again, this is an audio check for this webinar. We'll invite you to communicate with us through the chat screen. We're going to save that option for after we've wrapped up our comments today so that we can proceed through our content. There's no microphone for many participants today, so don't worry about that. We had well over 2,000 people registered for today's webinar. So, we're going to be inviting you to ask your questions through the chat screen once we have completed our comments at the end of our presentation. Then we're tell your questions or comments then. For now, we do invite you to use the chat to enter your state and whatever type of program brings you to today's webinar. Whether that's Head Start, part C early intervention, part B, home visiting program, we encourage you to tell us, without acronyms, what that is so that we know what that means. You might know your acronym, but not everybody does. We'll be starting in a bit. People are signing on at a fairly rapid pace now. If it helps you, you'll notice there's a closed captioning option for you to see a transcript on the screen, if that is to your liking. If there are people you think might benefit from today's webinar who aren't in attendance, we'll provide you with a link to today's recorded webinar. People are continuing to sign on at a fairly rapid pace now. We're going to pause for a few more minutes. Then we'll get started. Terry, are you there, still, with us? >> I am, thank you. It's helpful as presenters to get a sense of who's in our audience since we have so many people that registered for today's webinar. Terry, I don't know if you're able to come on the screen, if you're not, that's fine, don't worry about it. I think we're going to honor our start time and get started, even though people are signing in at a fairly rapid pace right now. You're in the right place for today's webinar which is entitled Introduction to Evidence-based Hearing Screening and Evaluation

Practices for Children Ages 0-5. My name is Will Eiserman and I'm the director of the Early Childhood Hearing Outreach or ECHO initiative at Utah State University. The ECHO initiative is based within the National Center for Hearing Assessment and Management, which is also the grantee for the Early Hearing Detection and Intervention National Technical Resource Center. We provide support for newborn hearing screening programs, and also, for an expanded focus of developing birth to 3 hearing screening programs and for years, we were funded by Head Start as a National Technical Resource Center and we developed many, many resources to support the implementation of evidence-based hearing screening programs in Head Start, early Head Start programs

And we're delighted to be able to continue to offer those resources and other learning opportunities to Head Start, part C and really to anybody who can put them to use. Even in school-based settings for, for older children. I'm joined today by Dr. Terry Foust who has worked with the ECHO initiative since the early 2000s. Terry is also the grandparent of a child who is deaf or hard of hearing and has had experiences in both professional and his private life. Related to the importance of identifying children early on, who have hearing loss. And so, we're delighted to have Terry with us today. Terry, you want to say hi to everybody?

>> TERRY: Yeah, good afternoon, everyone and thank you, William, I've been very appreciative of the chance to work with William, along with many other ECHO team staff and as well as so many of you as local collaborators that have been, enabled us to provide training in almost every state with thousands of staff from Head Start and really, really grateful for the lessons we've been able to learn from you all over the years.

And we're always encouraged and especially today, with just what continues to be a large amount of interest in establishing these evidence-based hearing screening practices, so that children with hearing-related needs can be identified and served.

So, again, really grateful for all of you.

>> Thanks, Terry. Shoutout to our captioner. That's a real, live person captioning what we're saying today. So, thank you for your services and talents and availability to help make our presentation more accessible. For those of you who came on just

recently, this webinar is being recorded, so, keep that in mind. If you need to step away or think of somebody who isn't participating live with us today, whom you think might benefit from the information that we're covering, they can access it through our website after we're done today. At [infanthearing.org](http://infanthearing.org) or [kidshearing.org](http://kidshearing.org).

We're going to be sending out the link to the recorded webinar to everybody who registered, so, you can look for that at the end today.

When we wrap up our comments today, we'll invite you to go to the chat at that point, to ask whatever questions you might have. Am I right, Gunnar, we're going to use chat for questions?

>> GUNNAR: We can use the Q&A field at the end. I've closed the chat since we got started.

>> William: But we won't attend to those questions during our presentation. Save your questions for now. Maybe, if we're lucky, we'll answer your question before you have to raise it with us. I'm going to turn off my camera so you can focus on our slides

I do want to just say to you, I'm going to keep my camera on for a minute. I know that you all are dealing with incredible challenges now. Staffing challenges, not being able to get enough staff to run your programs at the levels that you would like. And all sorts of other things in the, in the aftermath of COVID. And taking the time to talk about this one, small, but very important part of your programming, we really appreciate that.

And so, I hope you feel acknowledged for that. Because we know that you're under a great deal of demand right now.

So, thank you for that. It is noted.

So, let's just start this conversation and the work of the ECHO Initiative, the Early Child and Hearing Outreach initiative is based on a recognition that each day there, are young children who are deaf or hard of hearing being served in Early Childhood Education and healthcare settings, often without their hearing status really being known. Hearing loss is essentially an invisible condition.

So, how can we reliably identify which children have normal hearing, and which may not?

>> TERRY: The short answer to that question is that early care and education providers can be trained to conduct evidence-based hearing screening, just like you see depicted in these photos. And the ultimate outcome of a hearing screening program is that we can identify children who are deaf or hard of hearing that haven't been identified previously.

So, the procedure that you see on the left side of your screen, that procedure is called otoacoustic hearing screening. That is increasingly being recommended for children three to five years of age as well.

On the right, you're going to see the procedure where they're raising their hands, pure tone audiometry hearing screening. That's historically been the most-commonly used screening method for children three years of age and older.

We're going to be talking about both of these methods today.

>> WILLIAM: So, let me give you a quick overview of what we want to cover today. While this presentation is not a training, our goal is to provide an overview of the big picture of what is involved in implementing evidence-based hearing screening for children across the age spectrum birth to five years of age. We will start by giving you an overview of... the auditory system or hearing system which will help lay a foundation for understanding how the hearing screening methods we will be talking about actually work. why we screen for hearing loss - what even makes it possible for us to be seriously engaged in systematic screening for hearing We will then talk about the two methods, OAE and Pure Tone Audiometry, starting with an overview of the OAE screening process followed by an overview of the pure tone audiometry screening process. Next we will address the important question, What do we do next when a child doesn't pass a screening. We will summarize the follow-up steps that are undertaken when a child doesn't pass a hearing screening on one or both ears. We will wrap up by showing you how to access resources to support the process of developing and maintaining your hearing screening program and address questions you might have. So, that's where we are headed. And you can follow our progression through these topics by referring to the left side of your screen and, since this is a recorded webinar, this left side menu can be useful if you return to this and want

navigate to specific portions of our presentation to review again or to share with others.

>> William: Before we launch into our content today, I want to make sure you all know where to go after today's webinar to get additional resources, information and access to training. You will hear us say this several times today. Implementing evidence-based hearing screening practices is more than using a designated piece of equipment or specific method. To implement evidence-based practices, that equipment or method must be used according to a prescribed set of steps, under carefully controlled conditions, each step of which is carefully documented in detail. This is true whether you are using OAE screening or Pure Tone Audiometry screening. Over the years, the Early Childhood Hearing Outreach Initiative, known as the ECHO Initiative developed a wide free range of resources to help you achieve the goal of implementing evidence-based hearing screening. And our goal for today is primarily to help find all of the information and resources you need. So let's make sure right off that bat that you know where to go, why you'll go here and what you'll find.

Let's take a quick look at our website, [kidshearing.org](http://kidshearing.org). We invite you to feel free to use all of these implementation tools and certainly before you sit down to write a letter to parents about your screening efforts, or a referral letter, or forms for documenting your results, check out what we have here. Our goal was to create all of those things so you wouldn't have to make those things yourselves.

>> WILLIAM: This is the landing page for [kidshearing.org](http://kidshearing.org) which provides a wide variety of practical resources and tools to help you implement hearing screening with young children. The first part of the page places early childhood screening in the larger context of identifying children who are deaf or hard of hearing, this is where you'll find all of the practical resources most relevant to early childhood screening, starting with planning resources. Once appropriate planning steps have been completed, this is the point at which it makes sense to seek training.

The next category of resources is about accessing training. You'll find access to our nonfederally funded website. [Learntoscreen.org](http://Learntoscreen.org) where you can find online courses. One on OAE screening and the other on pure tone audiometry screening. This web site is where you can access comprehensive training designed

to prepare early care and education providers to learn to screen using evidence-based hearing screening methods for children birth through five years of age or even older.

Some of you may find you have staff entering your program at different times throughout the year who are needing training at different points throughout the year.

The online training available can be done at any time at any pace. It should meet the needs of just about anyone needing quality, comprehensive training on OAE or pure tone audiometry practices.

We encourage you to check that out after this webinar.

The next set of resources are to help you once you've been trained and you're ready to get going with your screening. Documentation forms, letter to the parents, protocol to follow when children don't pass. What to say to parents when children don't pass. Lastly, follow-up resources that have a tracking tool so you can follow a group of children easily through the screening and follow-up process. And even monitoring your program for quality. All of those resources are sitting there, waiting for you to go and explore them once you've completed this webinar today. So, that's [kidshearing.org](http://kidshearing.org). You should be able to find everything you need to get you up and going and maintain a quality evidence-based hearing screening program. [Kidshearing.org](http://Kidshearing.org).

Let's put all of these resources into context. We're going to start by giving a quick over view of the auditory or hearing system.

There are three main parts to the auditory system. The Outer ear, the middle ear and the inner ear or cochlea.

>> WILLIAM: When sound enters the outer ear it causes the eardrum to vibrate which then moves three small bones in the middle ear. This movement stimulates thousands of tiny, sensitive hair cells in the snail-shaped portion of the inner ear called the cochlea. From the inner ear, the sound signal is carried along special nerves to the hearing centers of the brain and the individual experiences the sensation we call "sound."

>> TERRY: While this is how the auditory system typically functions, there can be some exceptions.

>> TERRY: There can be temporary issues like a wax blockage...

>> TERRY: Or fluid in the middle ear caused by ear infections that we may discover and get addressed during a hearing screening process, but the primary target condition of hearing screen is the functioning of the inner ear, or cochlea, the snail shaped portion of the ear. In some instances, the sound travels through the outer and middle ear, but when it reaches the cochlea, the signal is not transmitted to the brain, resulting...in what we call a "sensorineural" loss. This condition is usually permanent. This is the primary condition for which we are screening in mass screening efforts. This may come as a surprise to you, but its an important fact for you to know, that sensorineural hearing loss is the most common birth defect in the United States. In fact about 3 children in every 1000 are born with a hearing loss, deaf or hard of hearing. Most newborns in the U.S. are now screened for hearing loss using evidence-based methods, most before even leaving the hospital. But screening at the newborn period isn't enough. Research suggests that the incidence of permanent hearing loss doubles between birth and school age, from the 3 children in 1,000 at birth, to about 6 in a thousand by the time children enter school.

>> TERRY: So, we can't only screen for hearing loss at birth. We need to screen throughout early childhood because hearing loss can occur at any time as a result of illness , physical trauma or environmental or genetic factors. This is often referred to as late-onset hearing loss, meaning it is acquired after the newborn period.

>> WILLIAM: It is commonly understood that language development is at the heart of cognitive and social-emotional development and school readiness. This drives many of the practices we see in many early childhood settings. Think about how much emphasis is always placed on early language development, counting the words children can produce, etc.

>> WILLIAM: It is also important to note that hearing health is at the heart of typical language development and that if we are going to be conscientious about promoting language development as a part of our commitment to school readiness, we must be equally conscientious about monitoring the status of hearing throughout this period. If hearing is compromised, then typical language development will ultimately be compromised as well. And we don't want to wait for a language delay to discover that the child has a hearing loss.

>> TERRY: This is why we see so much emphasis is being placed on monitoring the status hearing in young children. Programs like Head Start, which for years have served as models of comprehensive health and educational programs for young children and their families, have required hearing screenings for all of their children, even before we had the excellent methods we have now to do this.

>> TERRY: But what actually IS screening? Screening can be thought of as a kind of sorting process, helping us separate the children who are at risk of having a condition from those who are far less likely to have the condition. Those in the first, at-risk group, are then followed with additional steps, implemented by pediatric audiologists and health care providers to continue to refine the sorting process until we definitively identify the small group of children with a hearing loss. And to be blunt, we screen because we simply cannot provide a comprehensive audiological evaluation on each and every child.

>> WILLIAM: Screening, followed by appropriate audiological assessment and early intervention, can dramatically improve options and outcomes for children who are deaf or hard of hearing. When hearing loss is identified early, we can make sure a child has access to language. As a result, children who are deaf or hard of hearing are thriving in ways that used to be rare. And by providing hearing screening, you can be a part of creating these amazing, life changing outcomes. Let's take a look at several examples of children with severe to profound hearing loss who have had the benefits of early identification

and quality intervention. These children are learning, thriving.  
. . And communicating!!

These two girls are profoundly deaf. They wear bilateral hearing aids. And as pre-schoolers, they're playing here. Let's listen though their language as they play with one another. These children are using sign language to communicate, but they're also proficient communicators. In our last example, these children are both deaf and they have cochlear implants allowing them to access language through the use of that technology.

>> WILLIAM: So, those children remind us of our goal. We want to make sure all children have access to language one way or another regardless of whether they have a hearing loss. And the way to achieve that is to be fully committed to quality periodic hearing screening.

>> TERRY: As we mentioned a moment ago, OAE and Pure Tone Audiometry are the recommended methods we will be talking about today. The availability of OAE and pure tone screening means that it is no longer appropriate to rely solely on subjective methods that have been used in the past such as... TERRY ...ringing a bell behind a child's head or depending solely on caregivers' perceptions of a child's hearing. Don't get me wrong, observations of a child's response to sound, especially a lack of response, can be helpful and we should pay attention to how children do or do not respond to their environment. But these sorts of observations do not constitute a hearing screening because they are far too crude and unreliable and, frankly, we can do so much more than that because of our current available technology.

>> WILLIAM: Its also important to note that although some health care providers have incorporated evidence-based hearing screening into well-child visits, this is not yet standard practice, especially for children less than 4 years old.

>> TERRY: Some parents may report with a lot of certainty that their health care provider did perform a hearing screening.

CLICK But please understand this and I can't emphasize this enough as an audiologist. Routine examinations of ears by health care providers should not be mistaken as hearing screenings. It is precisely because screening ISN'T yet happening consistently in that context that programs like yours are adopting hearing screening practices, because obviously there is an increased recognition of the importance of monitoring hearing and it is now feasible to do this in programs like yours and by people like you.

>> WILLIAM: So, the take home message here is this. Unless a child's health or medical records include documentation of ear-specific hearing screening results and the screening method used, we should not assume a hearing screening was completed.

>> TERRY: Another important point to remember is this. While OAE and Pure Tone screening are highly reliable screening methods, they are not perfect. And that means there may be some rare conditions that are not identified through these screenings. So, whenever a parent expresses a concern about a child's hearing or language development, even if the child received and passed a hearing screening using one of these methods, that child should be referred for an evaluation from an audiologist.

>> WILLIAM: Before we go on, let me say one more thing about newborn hearing screening results. When children enter your program or system, especially during the first year of life, always be sure to collect their newborn hearing screening result. If the result is anything but a pass on both ears, you want to make sure the follow-up evaluations occurred. If you don't see evidence of that, you'll want to help the family circle back to their health care provider to accomplish that. If you are in a program that requires an annual hearing screening, you can use the newborn hearing screening result for the first year of the child's life, but you'd want to rescreen after that.

You'd always want to rescreen in subsequent years.

>> William: Ok so now let's talk about these two hearing screening methods that are used during early childhood. If you are responsible for children who are under three years of age, the recommended method is OAE Screening which you see on the left here. If you're responsible for screening children 3 years of age or older, historically, pure tone audiometry has been considered the recommended method for this age group.

Terry, why are we seeing older kids being screened uniformly with OAEs instead of pure tone audiometry?

>> TERRY: There is a growing recognition that for a variety of reasons, as common as the pure tone method has been, it may not always be the most feasible method to use with some of these younger children. Research has shown the 20-25% of children in the 3-5 age group can't be screened with this methodology because they just aren't developmentally able to follow the directions reliably. And that has been our experience as well. In those instances, OAE screening is the preferred method for these children.

>> WILLIAM: So, at a minimum, if you are establishing evidence-based practices for 3-5 year olds and if you are considering using pure tone screening, you'll also need to be equipped and prepared to do OAEs on the 20-25% who can't be screened with pure tones...or, alternatively you'll need to have a means for systematically referring all of those children to audiologists who can perform the screening, which is often quite challenging to accomplish.

>> TERRY: To simplify things, more and more audiologists are recommending the use of OAEs uniformly with all children 3 years of age and older. Its quicker than pure tone screening, both to learn to do and to actually implement, its far more likely to be a method that will work across the board with all children in the 3-5 age group you'd be screening and its equally as effective.

>> WILLIAM: If you or your program are still undecided about which method to use primarily for children 3 year of age and older, we encourage you to carefully review a document we have on our website that compares OAE screening and pure tone screening for this population.

>> TERRY: Let's start with Otoacoustic Emissions or OAE screening which, as we said, is the recommended hearing screening method for birth to 3 y/o children. You see this depicted in the photos here. So, if you are serving children birth to three, OAE is the one and only evidence-based method recommended by the American Academy of Audiology and the American Speech Language Hearing Association also known as ASHA.

>> William: OAE screening is the most appropriate method to identify young children at risk for permanent hearing loss because it is: Accurate

Feasible--does not require a behavioral response from the child, thus allowing us to screen children under three years of age

>> William: Quick & easy most children can be screened in just a minute or two sometimes in as little as 30 seconds per ear.

>> William: It's a flexible tool that can be used in a variety of environments, including classroom, home, or health care settings.

>> TERRY: And most important of all, its effective in identifying children who may have a mild hearing loss, or a loss in just one ear, as well as those who have a severe, bilateral loss.

>> TERRY: In addition, it can be helpful in drawing attention to a broader range of hearing-health conditions that may need further medical attention. OAE screening can also help to identify children who have a temporary hearing loss as a result of middle ear infections. Although this is not the primary goal of OAE hearing screening, it is definitely an additional benefit of screening with this method .

WILLIAM take a good look at these pictures. The children you see here are all being screened using the OAE method. What

do you notice about where they are being screened. They aren't being pulled out into an environment that is foreign or strange to the children. They are being screened in every-day educational, home and health care environments where children are already happily spending their time. Those doing the screening are often people they already know - their teachers, home visitors, or health specialists

>> TERRY: In fact, The screening works best when children are familiar and comfortable with the adult doing the screening and where they can play with a toy, be held, or even sleep while the screening is conducted.

>> TERRY: To conduct an OAE screening, we first take a thorough look at the outer part of the ear to make sure there is no visible sign of infection or blockage.

>> TERRY: A small probe, on which a disposable cover has been placed, is then inserted into the ear canal ...

>> TERRY: ... that probe delivers a low-volume sound stimulus into the ear. A cochlea, or the inner, snail shaped portion of the ear, that is functioning normally will respond to this sound by sending the signal to the brain, while also producing an "acoustic emission!" This emission is analyzed by the screening unit and in approximately 30 seconds, ...

>> TERRY: A result appears as either a PASS... Or a REFER

>> TERRY: Every normal, healthy inner ear produces an emission that can be recorded in this way.

>> WILLIAM: Here's a realtime look. You know when they got their result because they'll celebrate it. This little guy is very cooperative, mind you. Now we'll put the probe in the other ear. That gives you an idea how quickly that can go. Like many skillful tasks, competent screeners can make it look so easy. And it often is easy, once you've been trained and have had a little practice. To assist screeners in keeping all of the

different steps of the screening process in mind...we have a Skills Checklist for OAE Screening on [kidshearing.org](http://kidshearing.org). The checklist guides a screener through the OAE process. This checklist is helpful whether you are a new screener, or an experienced screeners needing a refresher or, if you are a manager, it can be used as a competency-based observation for those that you're supervising.

>> WILLIAM: As we've emphasized, evidence-based screening is more than just using a designated piece of equipment. You have to be trained to use that equipment and have a screening and follow-up process built around that equipment. The training you will access through [kidshearing.org](http://kidshearing.org) was designed to help you acquire these essential skills. So yes, to be evidence based, you need more than just the right equipment. But you do need appropriate equipment, so let's talk about this for a moment. You should be aware that OAE equipment is available from several different companies and in models designed specifically for screening by lay individuals such as most of you who are participating today. (These are simpler and less expensive models.) Basic OAE equipment currently costs around \$3800. There are also other equipment models intended for use by audiologists for diagnostic purposes and these are more complicated and more expensive. As non-audiologists, be careful not to purchase more than you need by getting the simpler models. In addition to the costs of the equipment, each time you screen someone there is a disposable cover that goes over the probe that needs to be inserted snugly into the ear canal and which come in a variety of sizes to ensure a really snug fit. You'll need a good selection of those and they cost about \$1 to \$1.50 each. You'll also need some adult size probe covers as well because during your learning process as well as on a regular basis you'll be testing the equipment on your own ears or those of another adult to make sure it is functioning properly before screening children. Since you will not always select the proper size on the first try and could end up using several probe covers for a given child, We recommend you purchase twice as many probe covers as you have total number of children to be screened. When you meet with an equipment distributor or salesperson, they may mention that they will offer you training. It is important that you understand that this training is rarely sufficient to meet the training needs you have. They will acquaint you with the various functions of the equipment, but they are not going to train you to screen young children, how to document your

results, communicate with parents, etc. This has been a point of confusion for some people so we want to make it very clear. The like to make this analogy. A car salesperson may train you about the various functions of the car, which can be helpful, but that person is not going to teach you to drive, how to parallel park, etc. It's the same with purchasing hearing screening equipment.

There are certain skills you'll need. Think about that. The training offered by equipment salespeople is not going to be sufficient, that is, in fact, why the office of Head Start helped us develop these training resources over the years and why we now have continued to make a training, online training program available to you. This is never recommended for children under 3. Pure tone screening has traditionally been the common method for 3 to 5-year-olds. In this procedure, musical note-like tones are presented to children through headphones. Children respond with a behavioral response, like raising a hand to indicate they heard the tone. Pure tone screening gives us a good idea of the functioning of the entire auditory system. All the way to the brain with the child showing us with a physical or behavioral indication that they perceived the sound. It's a relatively affordable method, the equipment costs 800 to \$1,000. The equipment is durable and portable and a wide range of individuals can be trained to perform pure tone screening. Terry, tell us how pure tone screening is done in brief

>> TERRY: To conduct Pure Tone screening, we first take a look at the ear to make sure there is no visible sign of infection or blockage, just like we do prior to doing OAE screening. If the ear appears normal...

>> TERRY: ...the screener then instructs, or "conditions" the child how to listen for a tone and respond by raising a hand or placing a toy in a bucket. This step can take some time so that we are sure the child is able to reliably complete the screening task. Once the screener has observed that the child reliably responds to sounds that are presented just as the screener instructed, the actual screening is started.

>> TERRY: During the screening process, this "listen and respond game" is repeated at least twice at three different pitches on each ear, noting the child's response or lack of

response after each tone is presented. If the child responds appropriately and consistently to the range of tones presented to each ear, the child passes the screening.

>> WILLIAM:

It's not automated though. You have to step through each of the presentations, which is different from OAE screening.

>> TERRY: Yeah, exactly. The other difference is the screening, it's not automated, but then, following -- we have to follow a specific protocol. With pure tone screening, there's more potential for screener error to produce inaccurate results. We have to watch such things as are they watching you and getting visual clues to the response? There's a wider opportunity to produce inaccurate results. There's a real need for thorough training and oversight so we make sure all screeners are adhering to the prescribed screening protocol.

Really can't emphasize enough the importance of training and periodic oversight, even some of the most-experienced screeners can make errors that inadvertently, invalidate screenings in ways that they're not aware of. >> William: We've heard stories that have been sad because there were screeners who thought they were doing a good job and it was hard for us to correct them because they've been doing it that way so long. Then to reflect on the fact that maybe they have been making mistakes and missing children who actually didn't pass, who they thought had.

>> TERRY: This is an example of the actual screening steps that must be documented for each ear as you screen. Through the training process you'll learn all of the steps of the conditioning and screening process and all of the environmental conditions that must be monitored and met as you complete a child's screening. Based on these results the screener determines if each ear passes or not - the device itself does not product that result as is the case with OAE screening.

These are our screening forms that walk you through the process. As we go through each pitch in the left and right ear, you can see we get those, either a response or no response. And the green checks show we have enough response to consider a pass at that pitch.

>> William: Each of those checkmarks represent an action that the screener is taking in looking for a response from the child. So, they're all -- each one of those steps represents an opportunity to either do the right thing or make a mistake. That's what we're always emphasizing why it's so important to be sure that if you're doing pure tone screening, you really had quality training in doing this. So, we have a skills checklist you can follow for which the training has been built

The next question that comes up, that is incorporated into any good training process is what happens next? What happens when a child doesn't pass?

There's always a protocol. The good thing is, regardless of which method you're using, whether pure tone or OAEs, the protocol is essentially the same. You're going to do screening on 100% of your children.

We expect, especially with the little ones, about 75% will pass. On both ears off the bat. That leaves about 25% of children who won't pass. Those children need screened a second time before we refer them to a healthcare provider.

We screen those children a second time and many pass the second time, two weeks later. Still there's about 8% that still won't pass. Those children, we send to a healthcare provider because we think maybe they have a middle ear infection or something that may be causing the non-passing result. Or we'll rule it out. Regardless of what happens. Once the healthcare provider says their ear oughta be clear, we screen those children one more time.

If they still don't pass, we send them to an audiologist for a complete audiological evaluation.

That protocol is detailed in the training process and is obviously really important.

Our screening efforts are only as good as our ability to follow up on those that don't pass.

So, that's every bit as important, if not more important than implementing the screening processes themselves. This is an important part of the training process. Kidshearing.org is where you want to go as you look for more resources.

As mentioned before, you'll find planning resources there. How to find an audiologist, screening equipment information.

You'll find information about the training that we've been talking about. You'll find information for all of those tools for implementing a screening program, preparing to screen, letters to parents, documentation forms, the protocol, what to say to parents at different points in the follow-up process. And you'll find a tracking tool that's useful in tracking children through the follow-up process.

Remember that, if you're in a Head Start program, the Head Start center is another resource for you to be aware of. And remember these children. It's all about making sure that children have uninterrupted access to language. And to know how central that is to their social development, their academic achievement, their school readiness, all of it.

Keep them in mind. Now, we can use the Q&A box, if you have any questions for us today. When we're done with this webinar today, in a few minutes, there'll be a certificate generator put on the screen, along with a short evaluation survey, so you can give us feedback and in response, you'll get a certificate of participation for today's webinar. So, hang on a minute so you can get that.

And remember that this webinar has been recorded. So that if you want to review any of this again, or if you want to share this with a supervisor or with peers who weren't in attendance today, they can do that.

And you can jump ahead in that webinar too, if you need to just go to a particular point or area that we were discussing and don't want to review it again. Remember that left column menu can help facilitate you're doing that.

So, let's see if we have any questions. We know that one of the common questions that we get, and Gunnar, if I'm missing some questions, can you please help me with that?

>> GUNNAR: No problem. If you open the Q&A field, you should see ones that have started to come in now.

>> William: Oh, okay, there we go. We have a program that involves a one time encounter that is designed to serve children five years of age. Is there anything that would be needed if the child fails, they follow-up with a pediatrician?

You know, one time contact with, with families and children are tricky, for sure.

But they're better than nothing, right? So, we'd want to make sure you had a way to refer those children to a healthcare provider, but recognize, you'll be referring you know, a fair number of children to, to healthcare providers in those instances.

>> TERRY: I agree. We go from 25% that referred down to that 8%. That gives you the idea of those that would improve in two weeks of that second screening. I'm also wondering if, perhaps, the school district and some of their early childhood programs or early intervention may be able to assist with getting some diagnostic services, might be worth checking that out.

>> William: There's the Head Start Center on Health website that somebody asked about. What if there are no audiologists that will accept low income?

>> TERRY: That's a hard situation. The -- so, some of those resources -- there's a portal through the American Speech Language and Hearing Association where in every state, providers that, number one, have some expertise in working with children and then, are located and then your state EHDI coordinator is part of -- let me back up. I used an acronym that, every state has an Early Hearing Detection Intervention program coordinator and one of their jobs is to keep the audiology resources with those that see children in what kinds of payment or nonpayment or sliding fee, types of service they provide. I'd try to connect with that EHDI coordinator and see if they can find resources for people having a hard time finding an accessible audiologist.

I see one question that asks if we can show the website.

>> William: I did that already

>> You did? Okay, thank you.

>> Do you have resource handouts based on treatment status? Yes. There is, on our website, where there is the information about protocol, the protocol has a more-detailed -- let's see if I can show you here. Where it says protocol guides and forms, there are, is a detail of what to do at different steps in the follow-up process.

So, if that's what you're looking for, I would go look there. Under protocol guides and forms.

>> TERRY: I also see a really great question here that says, many children with tubes in their ears complain when we try to use the OAE. Is the OAE safe to use for those children? Really great question. It is safe to use and actually can give us great information.

If you get a pass on an OAE with a child with known tubes, then we know those tubes are open and functioning and we have a normal response.

If we get a refer on a child that has tubes in their earrings, then we are going to be suspect that something is not working correctly with those tubes. One of the most-common reasons could be that those tubes are plugged, for example, or perhaps, they've fallen out of place.

But you know, if we follow our protocol, we'll send them to the provider and find out.

But it is safe to use for those children.

>> William: Terry, if you look into the ear and see stuff inside a child's ear, what do you do? Should you keep going with the screening?

Now, this is a training question, but and it is addressed in our trainings. Terry, what's your first response to that?

>> TERRY: I think, initially, we look in there and go "we can't screen because that's there. But what we've found over the course of working with you is that attempting to screen, either we, the ear canal will be open enough that we can get a screening completed, or often, we put the probe in, can't quite get it, take the probe out and it pulled the wax plug out, it's stuck to the probable, we then, remove that probe, do any cleaning we need to do, put a new one on and we're able to screen.

So, we've learned that it's worth the attempt, even if we see some visible wax in the ear.

>> We're at the top of the hour, but we're going to continue for those who can hang on for a moment. In the chat, we've posted the link to the survey that will also generate a certificate of completion. We hope to see you looking at our website and also, when you're ready for training, going into [learntoscreen.org](http://learntoscreen.org) to access the training opportunities there, if that is what you would like.

But let's, let's continue to -- I'm going to jump over to this other slide here. Whoa. I think I just -- what are you all seeing right now?

>> TERRY: I now see a Zoom demo.

>> Will: Yeah, sorry. Let's see.

>> TERRY: There's several national companies. You can order them through school health and just be sure to match the brand of pro cover to the brand of your OAE equipment

There's also E3 Diagnostics that carries the probe covers for almost all the variety of machines out there.

So, those are two more, kind of, national resources you can look at and then you probably are able to get them through your local distributor, who, through whom you purchased your equipment.

>> Will: Are you seeing my screen again?

>> TERRY: I'm not.

>> I'm seeing it, William

>> TERRY: Okay, great.

>> Will: Is it appropriate?

>> Yes, kidshearing.org.

>> Will: Okay. So, let's see.

>> TERRY: Okay and I've got it back as well now.

>> Will: Okay there, was a question about how reliable the screening is. I feel like I could do a couple screens on a child and even myself and get different results. What are your thoughts about this?

>> TERRY: One of the reasons to keep screening myself, I know exactly what my response should be and I should expect that response every time.

If you're getting a variety of responses, my first thought is that we need to check the calibration on that machine.

Because it should be consistently giving you the expected response.

Now, obviously, if I have a change and cold and some fullness feeling in my ear, I may not expect to pass like I normally would. That's my initial response. The OAE is a highly reliable screening method. We want your equipment to be performing consistently and well. Another question I see, William, how often do children need to be rescreened? Do you want to take that one?

>> William: Yeah, so, you know, that is -- our recommendation as a center would be to do annual screenings.

Obviously you need to look at your own program's guidance on that. But as we said, the status of hearing can change. And we wouldn't want to miss that, especially during those years when children are so actively acquiring language. Annual screenings are a great idea during these early childhood years.

And remember, children aren't going to be telling us that their hearing has declined somewhat. So, we would encourage that. I'm afraid we won't get through all of these questions, but if you go to our website and still can't find answers to these questions, feel free to e-mail us through the website.

The Contact Us button and we'll respond in writing that way.

I think a lot of these questions are questions that come up and are addressed in, as part of training, so, it looks like maybe some training is a good idea for some of you.

And I'm just scanning through here. I think we're going to need to wrap up today, our captioner needs to go, but thank you, everybody, for your attention and your excellent questions. Feel free to contact us. Remember kidshearing.org, as well as the learntoscreen.org for additional information and we'll be sending you a link to today's webinar so that you can review it again or share it with others. Thanks, everyone.

>> Thank you.

>> William: Terry, thank you.

>> William: Remember to click on the link to get your evaluation and certificate generated.

[Presentation concluded at 3:08 p.m. ET]

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