00:00:00.24 >> Well, why don't we get started? Um.

00:00:05.73 Yeah. Okay. Welcome, everybody. My name is Will Isermann, and I'm the director of the Early Childhood Hearing Outreach Initiative, also known as the Echo Initiative at Utah State University. The Echo initiative is housed within the National Center for Hearing, Assessment and Management at Utah State. Um, and since 2001, uh, for about 20 years or a little more, the Echo initiative served as a national resource center for early hearing detection and intervention, with a specific focus on helping early Head Start and Head Start programs develop and implement evidence based hearing, screening and follow up practices, and we are delighted to be able to continue to make those resources and learning opportunities like this one available to staff from Head Start programs, as well as anyone in other early care and education settings who can put these to use. And that includes part C early intervention providers, school nurses, home visitors, health care providers, a whole gamut of of those of you who work with young children, all with a commitment to make sure that children are ready to learn and and develop without any disruptions that might be related to a compromise and their hearing abilities, which is core to being able to grow and develop, um, in ways that we desire. Um, I am joined today by Doctor Terry Faust. And, uh, there you see our our mugs again on the on the screen. Terry is a pediatric audiologist and a speech language pathologist who has served as a consultant and trainer with the Echo initiative and me since our very beginning. Terry.

00:02:15.10 Can't hear you. Thank you. William.

00:02:19.71 >> It's a pleasure to be here with all of you this afternoon. As William mentioned, he and I have had this wonderful opportunity, along with other Echo staff members as well as local partners and collaborators, to provide training in almost every state. We've been able to work with thousands of Early Head Start, Head Start, um, American Indian and Alaska Native and Migrant Head Start programs, as well as other early care and education programs over the years. And we are really always encouraged, just as we are today, by the huge amount of interest that there is in an establishing evidence based hearing screening programs so that children with hearing related needs can be identified and served.

00:03:04.02 >> Yeah. So before we go any further, I just want to make sure I let you know of a few logistics for today. We're going to first of all record this webinar. And so when we're done we will post this webinar on our website at Kids Hearing. Org. And we'll also send you a link to that so that if anything disrupts your attention today, you'll be able to view it again later, or share it with people that you think might benefit from the the information that we covered today. When we're done with today's webinar, at the very end, we're going to ask you to complete a very short evaluation of how we did. And that evaluation will generate a certificate of attendance of today's webinar, should you need that for your own internal purposes. So know that that will that opportunity comes at the end of today's webinar. Um, so with that said, the work of the Echo initiative is based on the recognition that each day young children who are deaf or hard of hearing are being served in early childhood education and health care settings, often without their hearing related needs even being known. Hearing loss is often called the invisible condition, so how can we reliably identify which children have what we would consider normal hearing from those that may not? And you know what? I'm going to turn my video off so you aren't distracted by my face.

00:04:56.39 >> Thank you. William. Um, really, the short answer to that question, William, is that early care and education providers can be trained to conduct evidence based hearing screening, just like you see depicted in the pictures on your screen. Now, the ultimate outcome of a hearing screening program really, is that we can identify children who are deaf or hard of hearing who have not been identified previously. So if you look, the procedure on the left is called Otoacoustic emissions or OAE screening, which is the recommended method for children birth to three years of age and is increasingly recommended for children 3 to 5 years of age as well. Now on the right you'll see the procedure pure tone audiometry, hearing screening. And that's historically been the most commonly used screening method for children three years of age and older, which you'll still see in many early care and education Providers using. And we'll be talking about both of these methods today.

00:05:57.21 >> So let me give you a quick overview of what we want to cover today. While this presentation is not a training per se, 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. And we're going to we're going to 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 that we're going to be talking about today actually work. We're going to then talk about why we screen for hearing loss, and what even makes it possible for us to be able to seriously be engaged in systematic screening for hearing. and we'll talk about two the two methods that Terry just went over. OAE or Otoacoustic emissions 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're going to address the important question of what do we do when a child doesn't pass a screening. We'll summarize the follow up steps that are undertaken when a child doesn't pass a hearing screening on one or both ears. And then we're going to wrap up by showing you how to access resources to support the process of developing and maintaining your hearing screening program, and any questions that you might have. So that's where we're headed today. And you can follow our progression through these topics by referring to the left side of the screen like you see here. And since this is being recorded. This left side menu can be useful if you return to this webinar and want to navigate to a specific portion of our presentation to review it again, or to share it with others. So keep that in mind 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. Because really, everything we're discussing today is available in other formats there. So, um.

00:08:36.28 >> Sorry, William, can I just add to what you just said?

00:08:39.32 >> Yeah, please.

00:08:40.25 >> Um, I just wanted to let everyone know that one of the things that you'll hear us say several times today and that we really want to make sure everyone understands is that implementing evidence based hearing screening practices is more than using the designated piece of equipment, or the specific method to really implement the evidence based practice. The recommended equipment or the methods will be talking about today really need to be used according to a prescribed set of steps under carefully controlled conditions, each step of which is carefully documented in detail. And this will be true whether you're using OE screening or pure tone audiometry screening. And, um, you know, I just would say that over the years, the Early Childhood hearing outreach initiative known as the Echo initiative, um, we have really developed a wide, free range of resources to help you achieve the goal of being able to implement these evidence based hearing screening practices. And so our goal for today is primarily to help you find all of the information and the resources that you need.

00:09:51.77 >> Thanks, Terry. Yeah. So let's let's make sure right off the bat that you know where to go, why you will go there and what you'll find. So let's take a look at our website. This is the landing page for Kids Hearing 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 into a larger context of identifying children who are deaf or hard of hearing, expanding the traditional focus on newborn screening to include a focus on identifying hearing loss throughout childhood. Now, if we scroll down, this is where you'll find all of the practical resources most relevant to early childhood screening, starting with planning resources. So under planning resources, you'll see that there is a place to find an audiologist. Um, which is we something we stress. Having a consultant to your program who is a pediatric audiologist is very valuable. There's information about screening equipment for both of our methods. So if you're needing to acquire equipment, whether for the first time or maybe you need to replace equipment, we have some resources there in the next group of of resources, we have information about how to access training for OE or pure tone audiometry, including direct links to the online curricula for both of those courses on OE screening and pure tone audiometry, which we would encourage. If you're not getting quality, comprehensive training somewhere, this is one one place where you can be sure to get standardized, comprehensive training. The next group of resources is all related to the actual processes of screening. How to prepare for screening letters you might send out to family members, or to other staff, or to health care providers whom you would be referring children to should they not pass our protocol. Follow up forms and guides. In the next section, there's a follow up resources related to tracking a group of children through the screening process and monitoring your screening practices for quality over time. So keep that in mind as well as just our general website address which is kids hearing. Org if you don't remember anything else from today, remember this website and you'll be able to tap into the resources you need to go forward. So let's put all of these resources into context. And we'll start by giving you a quick overview of the auditory system or what is essentially the hearing system. And we're going to have Terry, our in-house pediatric audiologist, walk through this for you.

00:13:15.94 >> Thank you William. Well, let's let's start with talking about the three main parts of the auditory system. And those are the outer ear, the middle ear and the inner ear or the cochlea, that snail shaped portion. Now this is how the auditory um, while this is how the auditory system typically functions, you can see, the sound goes through the outer ear, the middle ear into the inner ear. Um, when sound enters the outer ear, it causes the eardrum to vibrate, which then moves three small bones in the middle ear. And this movement then stimulates thousands of tiny, sensitive hair cells in that snail shaped portion of the inner ear, which is called the cochlea. And from the inner ear, then the sound signal is carried along special nerves to the hearing centers of the brain. And then the individual experiences the sensation that we call sound.

00:14:21.10 And so while this is how the auditory system typically functions, there can be exceptions. There can be temporary issues like a wax blockage, or there can be fluid in the middle ear that's caused by ear infections that we may discover, actually discover and get addressed during a hearing screening process. But the primary target condition of hearing screening is actually the functioning of that inner ear, or cochlea, the snail shaped portion of the ear.

00:14:51.78 >> So, Terry, let me just interrupt you for a minute and make sure that we make that point really clear where we may find wax blockage, we may find a child with an ear infection or the residue of fluid in the middle ear. But that's not our ultimate goal. If it was, we'd be screening the same children over and over and over again all year long, because those things can happen repeatedly. We're really looking at the permanent function of the inner ear, the cochlea.

00:15:24.86 >> Exactly. Yeah, that's the others are temporary or transient things. But let's talk about them just a little bit. Um, you know, in some instances, the sound travels through that outer and middle ear, but when it reaches the cochlea there, the signal is not transmitted to the brain. And that results in what we would call a sensorineural hearing loss. And that's the primary target that we're looking for. Now this condition is usually permanent. And like I just said, it's the primary condition for which we're screening in these mass screening efforts. Now it may come as a surprise to you, but it's really an important fact for us to to know. And that is that sensorineural hearing loss is the most common birth defect in the United States.

00:16:18.40 >> Yeah. In fact, about three children in a thousand are born with a permanent hearing loss, sensorineural hearing loss. Most newborns in the US are now screened for hearing loss using evidence based methods, most before even leaving the hospital after they've been born, but screening at the newborn period isn't enough. The research suggests that the incidence of permanent hearing loss doubles between birth and school age from that 3 in 1000 at birth to about 6 in 1000 by the time children enter school, and in the subsequent years throughout the school age years, that number goes up steeply. So, Terry.

00:17:13.40 >> Yeah. So. So what we're really getting out there is that we can't only screen for hearing loss at birth. We need to screen throughout early childhood because, as William noted, hearing loss can occur at any time. It can occur as the result of illness. It can occur as a result of physical trauma or environmental or genetic factors. This kind of hearing loss is often referred to as late onset hearing loss, simply meaning it's acquired after the newborn period.

00:17:47.94 >> You know, it's 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 early childhood settings, probably the one that you're working in. Think about how much emphasis is always placed on early language development, counting the words children can produce. ET cetera. It's also important to note that hearing health is at the heart of typical language development, and that if we're going to be conscientious, truly conscientious about promoting language development As a part of our commitment to school readiness and overall development, we need to be equally conscientious about monitoring the status of hearing throughout this period because, as we just said, it can change at any point, and if hearing is compromised, then typical language will ultimately be compromised as well. And we don't want to wait for a language delay to become apparent, to then discover that the child has a hearing loss.

00:19:09.25 >> This is why we see so much emphasis being placed on monitoring the status of hearing in young children and programs like Head Start, which for years has served as a model of comprehensive health and educational programing for young children and their families. They have required hearing screenings for all of their children even before we had the excellent methods that we now have to do this.

00:19:34.73 >> You know, sometimes we use a term like screening, and we neglect to make sure that everybody really understands what that really means. So as an audiologist, Terry, how would you describe what screening is or in this case hearing screening.

00:19:55.99 >> Yeah, that's a really good point. Um, so screening can be thought of as kind of a sorting process. It helps us separate the children who are at risk of having a condition from those who are far less likely to have the condition. So those in the first, um, higher risk group. There they are then followed with additional steps implemented by pediatric audiologists and health care providers to continue to help refine the sorting process until we definitively identify that small group of children that actually have a hearing loss. And I guess to just be really blunt, we screen because we simply cannot provide a comprehensive audiological evaluation on each and every child.

00:20:42.36 >> Yeah. If we could, that would be awesome. But we're fortunate to be able to get screening in done. And even at that, there are many children that don't get what they need. So screening when followed by appropriate audiological assessment and then early intervention can dramatically improve the options and outcomes for children who have a hearing loss, who are deaf or hard of hearing. When hearing loss is identified early, we can make sure that the child has access to language.

00:21:21.82 >> And that's actually just the best part of all of this, because as a result, children who are deaf and hard of hearing. They are really just thriving in ways that used to be rare. And by providing hearing, screening, all of you can be really part of creating these amazing and life changing outcomes. So let's take a minute and look at several examples of children that have severe to profound hearing loss, who've had the benefits of early identification and quality information. And as you as you'll see, these children are learning, thriving. And most of all, they're communicating.

00:21:56.37 >> Yes. So here are two girls. They both have bilateral hearing loss, significant hearing loss in both ears. And they wear hearing aids and listen to them communicating with each other as they play with their their dolls.

00:22:16.29 >> We're having a party over here. You're gonna miss it. Okay. Are you guys talking? You.

00:22:30.73 Know? Look, this is the water she's breathing on the water. You.

00:22:43.50 Talk to me. You talk to me. No, I will talk to you. Okay. And I will talk to you. And I will talk to you. And I will talk to you, and I will talk to you.

00:22:57.03 >> Imagine what their communication would be like had their hearing loss not been identified. And, you know, sometimes that happens where the lack of communication, if they're if their hearing has not been considered, maybe thought of as a different problem, a learning disability being on the autism spectrum, any number of other things. And so we want to make sure that before any other kinds of conclusions are drawn about a child whose communication is not typical, that a hearing evaluation is happening, the best way to make sure that happens is by screening all of the children. So in this next example, we've got two children whose parents have elected to use sign language as their primary mode of communication, and we're going to see them communicating with each other during a family drive.

00:24:38.08 So they are interacting with each other because they've been given another way to access language, which is the key here. And in this next example we're going to see two boys who both are deaf. And they have what are called cochlear implants, which you may have heard about. These are new medically based devices that simulate hearing and assist with communication. Let's meet these guys.

00:25:07.34 >> Hi I'm AJ. Hi. My name is Gibson. People are special in different ways. One of the things that makes me feel special is time to go. I'm deaf too. And that means that your ears can't hear. AJ and I have special things to show. You are called cochlear implants. They help us hear. Cochlear implant is a big word, so I call them psi.

00:25:42.36 >> So those children remind us of our goal. We want to make sure that all children have access to language one way or another, regardless of whether they have a hearing loss. Keeping in mind that hearing loss can really be thought of. Like we think about vision in all degrees and types and laterality. So it's not just a what they can hear or not. There are all degrees. And in fact, the majority of children who have hearing loss have mild or moderate hearing loss, but that is just as important to identify as children who have more severe or profound hearing loss. And the way to achieve that, the way to identify them is by being fully committed to quality, periodic hearing screening.

00:26:40.68 >> As we mentioned a moment ago, OAE or Otoacoustic emissions and pure tone audiometry are the recommended methods that we're going to be talking about here today. In the availability of OAE. And pure tone screening really means that it's no longer appropriate to rely solely on subjective methods that have been used in the past, the past, um, these would be methods such as, um, ringing a bell behind a child's head or solely depending on caregivers perceptions of a child's hearing. Now, don't get me wrong. Observations of a child's response to sound, especially the lack of a response, can be helpful, and we should pay attention to how children's do, how they do or do not respond to their environment. But these sorts of observations, they do not constitute a hearing screening because they're far too crude and unreliable. And frankly, we can do so much better than that because of our current available technology.

00:27:43.72 >> It's also important to know that although some health care providers have incorporated evidence based hearing screening into well-child visits, we really can't say that that is yet a standard practice. There is there are a lot of competing demands on the time, the limited time that health care providers have with children, especially children less than four years of age.

00:28:12.48 >> Yes. You know, you see this a lot of parents may report with a lot of certainty that their health care provider did perform a hearing screening, but it's really important to understand. Um, so please understand this, and I can't really emphasize it enough as an audiologist. And that is that routine examinations of ears by health care providers should not be mistaken as actual hearing screenings. It's really precisely because screening isn't yet happening consistently in that context that programs like yours are adopting hearing screening practices, because there's this obvious increased recognition of the importance of monitoring hearing, and that it's now feasible to do this in programs like yours and by people like you.

00:29:01.49 >> So the take home message here is this unless a child's health or medical records include complete documentation of ear specific hearing screening results and which includes the screening method used. We should just never assume that a hearing screening was complete. Eat completed even if the health care provider may have indicated next to ears something like within normal limits, that's a common thing. We'll see. But unless they're really indicating what method was used, it's better to assume that they just made a subjective judgment, and that is never considered adequate.

00:29:54.47 >> Another important thing to remember is this. And that's while OE and pure tone screening are highly reliable screening methods, there's no perfect screening method. And that means that 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 their language development, even if they've received and passed a hearing screening using one of these methods, that child should be referred for an evaluation from an audiologist.

00:30:30.07 >> So before we go on, let me say one more thing about newborn hearing screening results specifically for those of you who are serving children in those birth to three, um, that birth to three age range. When children enter your system or program, especially during that first year of life. Always be sure to ask for and collect their newborn hearing screening results. And if the results are anything other than a pass on both ears, you'll want to make sure that the follow up evaluations have occurred. If you don't see or can't get evidence that they did complete those follow up evaluations. You want to help the family circle back to their health care provider to make sure that that's accomplished. If you are in a program that requires an annual hearing screening, you can use the newborn hearing screening result for that first year of a child's life. But you'd want to rescreen after that for sure. And if you can rescreen that first year, all the better. Okay, so now let's talk about the two hearing screening methods that are used during early childhood. If you're responsible for children who are under three years of age, the recommended method is otoacoustic emissions or Owa screening, which you see on the left here. And if you're responsible for screening children three years of age or older. Historically, pure tone audiometry 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 each time they hear a sound that is presented into the earphones. You see this method being used on the right.

00:32:34.14 >> There's a growing recognition that, for a variety of reasons, as common as the pure tone method has been, that it may not always be the most feasible method to use with some of these younger children. In fact, the research shows that about 20 to 25% of children in that 3 to 5 age group can't be screened with this methodology because they just aren't developmentally able to follow the directions reliably. And that's really been our experience as well. So in those instances, OE screening is the preferred method for those children, those children that can't be reliably screened with pure tone.

00:33:10.89 >> So what that means is, at a minimum, if you're establishing evidence based practices for 3 to 5 year olds, and if you're considering using pure tone screening, you'll also need to be equipped and prepared to do OAS on that 20 to 25% who won't be able to be screened with pure tone audiometry. Or alternatively, you could plan to systematically refer all of those children to audiologists who can perform the screenings, which, frankly, would be pretty challenging to accomplish. That would probably overwhelm the audiologists that you would have available.

00:34:03.90 >> You know, to simplify things, more and more, audiologists are recommending the use of oaes uniformly, with all children 3 to 3 years of age and older. Um, because it's quicker than pure tone screening both to do um, to learn to do and actually to implement. But it's really it's far more likely to be a method that will work across the board with all children in that 3 to 5 age group that you'll be screening. And it's equally as effective.

00:34:32.76 >> If you or your program are still undecided about which method to use for children three years of age and older. We want to encourage you to take a look at a document that we have on our website that compares OAE screening and pure tone screening for this population. So it's it's in that very first section under the big picture. And I'll show you it again in a moment when we look at our website again. Um, so be sure to do that. And also note that if you are considering using OAS uniformly for 3 to 5 year olds, you want to check with your state regulations to see if there are any regulations that might stipulate that pure tone has to be used as the first method. So just you'll want to check that out.

00:35:32.97 >> Well, let's start with otoacoustic emissions or OAE screening, which as we said is the recommended hearing screening method for children birth to three years of age. Now you see it depicted in these photos here. Um, but so if you're serving children birth to three again, OAE is the one and only evidence based method recommended by the American Academy of Audiology and the American Speech Language Hearing Association. Um, also known as Asha.

00:36:03.26 >> Oae screening is the most appropriate method to identify young children at risk for permanent hearing loss. Because it's accurate and it's feasible, it doesn't require that behavioral response from the child, and that allows us to screen children under three years of age or with various developmental abilities. It's quick and easy. Most children can be screened in just a minute or two sometimes if they're cooperative in as little as 30s per ear. It's a flexible tool, and what that means is that we can screen in a variety of environments, including the classroom, the home, or in health care settings. You see in this photo right here, they're screening this little guy at his snack table, just taking a little break to get his hearing checked out so we can go to them where they're already happily engaged.

00:37:06.00 >> And most important of all, it's effective. It's 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 hearing loss. In addition, it really can be helpful in drawing attention to a broader range of hearing health conditions that may need further medical attention. OE screening can also help identify children who have a temporary hearing loss, a hearing loss that can be the result of middle ear infections. Um, and although that's not the primary goal of OE hearing is screening, as we talked about, it's definitely an additional benefit of screening with this method.

00:37:50.33 >> Take a look at this. These photos here. You see these children are being screened with the OE method. And what do you notice? Take a good look. They're not being pulled out into into a foreign or strange environment. Pulled away from some other fun activity the other kids are doing. They're being screened right in the middle of where they're already actively involved in their everyday educational environments, where they're already happily spending their time. And importantly, those people that you see doing the screenings are people they usually already know. It's their teachers or home visitors or health specialists at their programs.

00:38:47.89 >> In fact, you know, the screening just it just works best when children are familiar and comfortable with the adult who's doing the screening and where they can play with the toy, they can be held or even sleep while the screening is being conducted.

00:39:03.17 >> So, Terry, let's take a minute and walk us through how the OE screening procedure works so people can get at least a general sense of what this is like.

00:39:14.63 >> Yeah. So to conduct an OE screening, we're first going to take a thorough look at the outer ear that you see here, the outer part of the ear, just to make sure that there's no visible sign of infection or blockage. And then we're going to take a small probe on which a disposable cover has been placed. That probe is then inserted into the canal, and the probe then delivers a low volume or quiet sound stimulus into the ear. Now the cochlea, or again, that inner snail shaped portion of the ear, a cochlea 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 30s or so. The result will appear as either a pass or refer.

00:40:16.19 And every normal, healthy inner ear produces an emission that can be recorded in this way.

00:40:22.39 >> So that whole idea of the fact that an ear produces a sound that can be measured by a little device is really pretty amazing, and is the reason why we can screen children so young, or children with disabilities, or who speak a language different from our own. So let's watch an actual real time screening. This is unedited, in which we're going to see two adults, which is always It's nice, um, helping a child get screened. The one on the right is actually performing the screening. You see in that still image there. A the probe is in her hand that's going to go in this little guy's ear. So let's watch this as it unfolds.

00:41:14.27 >> Are you ready? Let me see.

00:41:23.01 This.

00:41:31.63 >> So that clapping means they got a result. Either a pass or referral. That was pretty.

00:41:38.52 >> Quick.

00:41:41.84 >> Now, he was very quiet, right. And he was very still. That was. That was key to why that went so fast. There you see the handheld device.

00:41:55.48 >> If you already did it.

00:41:57.82 >> And again, it's a pretty quick response followed by praise. And you know that praise doesn't mean he passed. It means they got a result. Um, and we like to always encourage that kind of response to reinforce children through this. Now, like many skillful tasks, competent screeners can make it look very easy, just like what we saw. And often, you know, it is easy. Um, but once you've been trained, um, and have a little practice, you may experience those easy screens yourself. But it takes practice and it takes training. And to assist screeners in keeping all of the different steps of the screening process in mind, we have created and have on our website the Screening skills checklist for OE Screening and that's on kids hearing. Org. And this checklist guides a screener through the process from beginning to end. It's also helpful if, um, you are an experienced screener and need a refresher, or if you're a manager of those doing screenings. This gives you a competency based, uh, observation, um, tool that you can use for supervising and monitoring the quality of your screening. So this checklist is really worth looking at and having as a part of your, um, set of materials that accompany your OE device. You'll also see on here that there is a supply list that is is helpful as a reminder of what you would put together each time you go to do screenings. So as we've emphasized, evidence based screening is more than just using a designated piece of equipment. I mean, obviously, you need to have a decent piece of equipment and you can look for equipment information on our website. You need to be trained, though, to use that equipment and have a screening and follow up process built around the use of that equipment. Um, but you do indeed need appropriate equipment. So let's talk for a moment. Um, you should be aware that OE equipment is available from several different companies, and models designed specifically for screening by lay individuals are available. Um, for which is what most of you would want. You would want to make sure that you get the most basic model and they're currently what Terry about. I mean, this is always changing. The costs of everything is always changing. But I, I think the simplest models are now about what, $4,800.

00:45:03.54 >> They are.

00:45:04.28 >> Mhm. Yeah. And we know that that is a gulp for, for those of you and we'll talk about in a moment a few ideas we have about coming up with the money for that. Um but tell us more about the equipment. Terry.

00:45:19.66 >> Yeah. You know, to follow up with the point you just made is, um, you know, there there are other equipment models of OE that are intended for use by audiologists like myself. They're designed and have extra capacity for diagnostic purposes, and they're more complicated and more expensive. So just we just want to make sure that, you know, that you don't need or want those more expensive or complicated models. So as non an audiologist. Be careful to not purchase more than you need by getting the simpler automated models, and you just simply don't want to pay for thing, um, of stuff that you're not going to need.

00:46:02.24 >> Now, in addition to the cost of the upfront equipment, um, each time you screen a child, there is that disposable cover that goes over the probe that goes into the ear, and they come in a variety of sizes to ensure a really good snug fit in the child's ear. And you'll need to have a good selection of those in different sizes and shapes. Here's the here's another gulp. They cost about a dollar to $1.50 each, and while they can be reused on a given child, you can't reuse them across children, so you'll have that cost. And then you'll also want to be sure, um, that you'll have adult size probe covers. And I know this is a point you always try to make, but I'm going to make it on your behalf today that during your learning process, um, as well as on a regular basis, before you use the equipment each day, you always want to be able to test it on your own or another adults ears that typically pass. And so you want to get some adult size probe covers as well. And you'll have to write a rationale, maybe in for the budget request of why you need an adult size probe covers. And it's because you need to test the equipment and you need to learn on it, using it on yourself. When you meet with an equipment distributor or a sales person, they may mention that they will offer you training and it's important to understand that this training is rarely sufficient to meet the actual training needs that you that you have.

00:47:58.89 >> Yeah. Can I just, um, you know, support that? William, the, uh, the training offered by the dealer or the salesperson is really intended to acquaint you with the various functions of the equipment, the buttons to push and, um, and to be able to run the equipment. But they're not going to train you on how to screen young children under a variety of conditions. They're not going to train you how to document your results, communicate with parents, or what the follow up protocol should be when a child doesn't pass. And this has been a point of confusion for some people. So we just want to make it really clear.

00:48:36.10 >> I always like to make this analogy that a car salesman at the dealership may train you about all the various functions of the car, which can be helpful, but that person is not going to teach you to drive or how to parallel park. And it's the same with purchasing hearing screening equipment. You'll need another way to learn how to screen, and as we'll point out, one way is to access the online courses that we have available through our website. So we'll show you where to find that again in a moment.

00:49:12.36 >> Yeah, you can do that. And also if you can, you can have a local audiologist who can then screen alongside you when you're just getting started. They can give you some helpful, helpful pointers. That's really a great way to make sure that you get the training you need. And this will be true. You know whether. Sorry, William, I was just going to mention it be true whether you need training for OAC or the other method we're going to talk about now, which is pure tone audiometry.

00:49:41.22 >> Yeah, yeah. Using the standardized curriculum for everybody, learning the basics of the screening and then having a live audiologist. Or maybe if that kind of person is not available, somebody who is already an expert at screening to screen with you and give you pointers along the way, that's a great combination to get all of your learning needs met. So on our website, kids hearing org, you'll find under the header equipment you'll find information about equipment available there. So take a look. Okay so that's OE screening equipment and how it works. Now let's take a moment now and talk about pure tone screening for for those of you who may be considering this or may already be using this with 3 to 5 year olds, now we want to make sure it's really clear that we're all pure tone. Screening is never recommended for children under three, as we mentioned earlier. Pure tone screening has traditionally been the most commonly recommended method for children 3 to 5 years of age, and even some of them we can't screen with the pure tone method. You'll probably recognize this method if you're not already using it either, because you do in fact use it, or because you've had your own hearing screened or or tested this way in this procedure. Musical like tones are presented to children through headphones, one ear at a time, and children behind provide a behavioral response, like raising a hand to indicate that they've heard the tone. Pure tone screening gives us a good idea of the functioning of the entire auditory system, in fact, all the way to the brain with the child showing us with a physical or behavioral indication that they perceive the sound. It's a relatively affordable method with the screening equipment costing. What does that go in for these days, Terry?

00:52:04.43 >> Yeah, I actually just purchased one. And so they are about 800 to $1500 depending on what you're you're purchasing. I'd also maybe just mention here that there are some several pieces of new equipment that combine both methods that would have OAC and Puretone built into the same piece of equipment.

00:52:29.47 >> Yeah. In fact, on this page right here. Well, wait, are you seeing that those two devices right there, the Audix and the Santiago. They both have OE and pure tone capacity. There's a model that has both of those, and I think it's for the same price of about $4,800. So that's just something to be aware of. If you're looking at equipment and needing both OE and pure tone capacity, which, as we've pointed out before, if you're doing pure tone, you really do need to have a backup plan for that group of children that you're not going to be successful screening. Um, but, you know, audiometers are durable and they're portable allows allowing you to go to multiple sites, um, and having a wide range of individuals who could potentially be trained to perform the pure tone screening method. So, Terry, Tell us how pure tone screening works.

00:53:41.06 >> Yeah. So let's walk through this one to conduct a pure tone screening. We're going to start the same way as we did before. We're going to first take a look at the ear to make sure that there's no visible sign of infection or blockage. Again just like we do prior to OE screening. And then if the ear looks normal, then we're going to the screener is going to instruct or condition the child in how to listen for a tone, and then respond by raising a hand or placing a toy in a bucket, some kind of response. This step can take some time, so that we are sure that 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 like the screener instructed, that's when the actual screening is started. So during this 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. Then, if the child responds appropriately and consistently to the range of tones that we've presented to each ear, then the child passes the screening.

00:55:02.14 >> There are two especially important ways pure tone audiometry differs from OE screening in that, and those are in that the process requires children not only to be cooperative, but to be full participants in the process, following directions and responding as they were instructed in a reliable way. And as we mentioned, that means completing an initial process we refer to as conditioning, or teaching the children and carefully determining whether you're able to get a reliable series of responses from them before even attempting to screen.

00:55:47.83 >> The other difference between pure tone and OE screening is that the screening itself is not automated as OE is, so instead, in pure tone screening, you as the screener have to manually step through the presentation of each tone multiple times for each ear, recording and noting each response, and then following a very specific protocol, you, as the screener, determine whether the ear passed or not. Now, with pure tone screening, as you can probably see, there's considerably more potential for screener error to produce inaccurate results. And so that's really why there's a need for thorough training and oversight to make sure all screeners are adhering to the prescribed screening protocol. So this is an example of the actual screening steps, the actual screening steps that must be documented for each year that you screen. And so through the training process, you'll learn all of the steps of the conditioning and the screening process, and then all of the environmental conditions that we need to monitor and watch and make sure are met as we complete a child's screening. Based on those on these results, the screener determines whether each air passes or not. So again, the device itself won't produce the result as in the case with screening.

00:57:18.74 >> Yeah. So there's lots of steps in this kind of screening. And as Terry said potential for air. Now I don't want this to sound like we're negative on pure screening. Um, it can work great, but it does require a lot of manual individual stepping through the process and documentation and interpretation of the results. So to help with that, we have a screening skills checklist, just like we do with OAS that you'll find on kids hearing.org. And it's part of the constellation of resources that we have that can accompany your training, and then your ultimate implementing and monitoring of the quality of your screening process practices in your program. So we've given you an overview of the two methods. I know one of the questions, Terry, that is always asked because people can be a little overwhelmed seeing the equipment. Maybe they're a little technological hesitant. is there something else we can do other than zeros or pure tone? Is there another? Are there any other evidence based methods we can use?

00:58:40.84 >> There really are not. These are really the two evidence based methods that we're able to take advantage of now. And so no, the simple answer is no.

00:58:50.01 >> Yeah. I mean you can and should observe children. You should and can ask about the adults perceptions of the child's hearing ability or any concerns about that. But those things do not stand alone as a hearing screening. Okay. So we've got these two methods. They are the methods you need to consider regardless of which method you use, you're going to eventually have a child who doesn't pass the screening on one or both ears. So what then, in order to be evidence based. And this is just as important about being quote unquote, evidence based as using the equipment is. In order to be evidence based, your screening process has to have and follow up protocol for when children don't pass. And we have to emphasize that our screening efforts are only as good as our ability to systematically follow up on children who don't pass the screening on one or both years. So let me give you a quick walkthrough of the protocol that has been developed and recommended for both of these methods. They're the same methods. They're the same protocol for both methods. Um, and this was developed from data on, um, over 10,000 children that we initially followed up really closely on, um, and particularly on zero screaming. So we screen all of the children in a program. 100% of the children get an initial screening, and we always are referring to them needing to pass on both ears. About 75% are going to pass on both ears and they'll be considered done, but 25% won't pass on one or both ears. And we recommend that those children be screened a second time within about two weeks. So interesting.

01:01:00.38 >> Oh. Sorry. William.

01:01:01.78 >> Yep. Go ahead.

01:01:02.98 >> I was just going to mention the interesting thing at this point is that a good many of the children who didn't pass that first screening, like you said, will pass the second screening. Um, so only about 8% then of the total number of children screened will not pass that second screening. And these are the kids that will need to be referred to a health care provider for a mid layer evaluation.

01:01:26.48 >> And once that middle ear evaluation has been completed and any ear problems have been resolved and you get medical clearance, you're going to screen that 8%. So we're just to keep perspective. We're talking about eight children out of 100. You're going to screen that third time.

01:01:47.79 >> And then we expect that less than 1% of the total number of children being screened will not pass this third screening. And these children will be referred to a pediatric audiologist for a full, complete audiological evaluation.

01:02:03.25 >> Yeah. And so although a small subset of children will indeed need follow up referral and further screenings after the initial screening, we have monitored programs using this program for many years over thousands and thousands of of children and various early childhood programs, and found that it's a feasible program protocol for for most to implement because it doesn't overwhelm health care providers and audiologists with unnecessary referrals or families having to make visits like right off the bat. But making sure that those children that do in fact need to get follow up are getting that follow up in a timely way.

01:02:54.52 >> Once you're underway with your screening program, check to see if you're getting similar pass and refer percentages. This can almost be a great way to assess the quality of your program. If you find that your pass and refer rates percentages are significantly different than what we would expect at any point in the protocol, then you may want to seek some technical assistance.

01:03:17.57 >> Let me show you this protocol just in another way, in a flowchart sort of manner. And as I said at the beginning, we're not attempting to train you right now. And this is incorporated into the training. You'll find, for example, on our website, as well as other resources about the protocol. Excuse me, that you'll find on the website, but this gives you an idea, and I want to particularly draw your attention to this overarching rule that you see here at the bottom, that the process of a screening for a child is complete. When you've gotten the past result on both ears, whether that's at the first or some subsequent screening, or the child has gone to an audiologist and you've gotten the results of a complete evaluation, any of these other steps, particularly that referral for a middle ear evaluation or consultation, is not the end of the road. It's only complete under these two conditions that you see here.

01:04:27.08 >> You know, there's one important exception to this protocol that we could point out or that's important to point out. And we've mentioned this a little earlier in the webinar today, but that is whenever a parent or a caregiver expresses concern about a child's hearing and language development, that child should be referred for an evaluation from a pediatric audiologist, even if they've passed a hearing screening. And this is true because if you recall from what we said earlier, you know, even the best methods are not 100% accurate or perfect. So to be on the safe side, whenever there's an explicit concern about hearing or language, go ahead and make a direct referral. Of course, you can and probably ought to still screen the child and send those results along, but make the referral regardless. When there's a concern about hearing or language development that has been raised.

01:05:21.85 >> So we're going to open up for questions in a minute. But before we do that, let's look at our website one more time, which is kids hearing org and Rivera review again where you're going to find some of the things that we've been referring to. We want to encourage you to go take use of all of the implementation tools. And certainly before you sit down to write a letter or create a form for documenting your results, check out what we have here. Because we have some very carefully created and designed forms that follow the protocol. Exactly. And these resources that you'll find in our website were developed through a long back and forth process with programs who were helping create Ways to document, and be sure to follow all of the steps in a way that was feasible for them. So we've simply made the outcomes of all of their efforts available for you. Um, so be sure to check that out. Um, our goal was to really create all of the components that any given program would need so that they can just learn how to screen, focus on that, and use the resources that are always already available are the letters. And some of the forms that we have are available in both English and Spanish. You're free to revise those. Um, you'll also well, let's take a look at the website and just make sure you can see where everything is. That's the landing page. And the first group you're going to find big picture resources where to find an audiologist Just an information about screening equipment. And in that screening equipment category, you're going to find a, um, a grant template on that you can use to write a request for funds and submit to a local charity, or, um, like the Lions Club, which has a big interest in hearing. Maybe you can get your equipment paid for from them in the Head Start world, equipment costs are considered an allowable expense. So, um, you know, think about some of the different ways you can request money from local charities if it doesn't fit into your overall budget. The next category is, you know, the addresses this important need that we've been, you know, harping on. And that's about where to get standardized training in evidence based practice. And we have two online courses. They are available if you need those. Combining those with, as Terry emphasized, onsite training or the support in actual screening with an audiologist or experienced screener is a great way to combine the standardized training with somebody just screening alongside you. In the next group of screening resources, you'll find tools for just planning your program, preparing for a given day of screening like a checklist. Um, you'll see in that second bulleted drop down, that's where you'll find information about our protocol and forms that correspond with the protocol. And then they're sharing results. There's letters to parents, health care providers and audiologists and even a page of scripts of what to say to parents at different points in the follow up protocol as you share results of screenings with them. In the next group, you'll find a tool for tracking a group of children through the screening protocol, and then some tools for monitoring the quality of screening. And under there you'll find those checklists that we showed you earlier. And then a variety of archived resources reside underneath that on the website. So this is all on kids hearing.org. Now if you're a Head Start program, um, there's also information on Head Start and from the Technical Resource Center. Um, so you can also check out those resources there, but they direct you largely back to our website. So you may not have ever quite thought of it like this, but monitoring the status of children's This hearing is not some extra thing to do in your program. It's actually central to the quality of early childhood programs that are committed to language development and school readiness. It's right dead center to your goals. When children have a hearing loss and it's identified, even if it's a mild or moderate hearing loss, they can be connected with support and intervention services that they need so they can thrive. And you can have the satisfaction of knowing that you are a part of that outcome. Think soberly about what it would mean

if we missed the identification of a hearing loss, and the child was thought to have a learning disability instead, or, as we've seen sometimes children being described on the autism spectrum, when in fact it was a hearing loss that was operating under the surface. So we really encourage you to see the value of your hearing screening practices and the profound impact that you can have on children, um, by doing this. So Gunnar is going to put up a, uh, open up our questions field here. And so we invite you to, um, give us some questions about anything that we've covered today. We've covered a lot of territory, as you see on the the left, to review. We've talked about the auditory system. We've talked about the principles of screening and why we screen. We went into the methods of OAE E and pure tone audiometry. We talked about our protocol and our website, so feel free to throw them at us here. Terry, our first question is, can high sensitivity to movement be an indicator of an inner ear issue?

01:12:31.66 >> It can. The organs of balance have some fluid connectivity to their inner ear. And so yes, that that can very much be related.

01:12:43.40 >> Oh I love this next question. Does a child pass overall even if one ear comes up as refer?

01:12:52.67 >> Nope. They do not. An overall pass would be having a screening result of passing screening result for each ear.

01:13:01.66 >> You know why that is? Is because. And Terry, feel free to expand on this, because having a hearing loss in one ear can have real consequences on a child's educational development and communication growth. And so we don't want to pass a child just because they can hear in one ear. Anything to add to that?

01:13:27.21 >> We also want to be aware of conditions that may be with even the ear that's identified, because some things, such as late onset or progressive loss, can eventually affect both ears, including the one that passed. So we want to be aware of all conditions.

01:13:45.67 >> Right. So it might start in one ear but then progress to the other.

01:13:52.06 Are there any resources available for people that don't have insurance? I assume you're talking about for the diagnostic component of this, Terry.

01:14:06.67 >> I think, um, I'm thinking the same. If it's the diagnostic component. Um, most of the state health departments will work with and provide services for families and parents who are uninsured. Um, and as well as, um, especially with, uh, the 3 to 5, the, um, the school districts, um, will also be a resource. And then, um, sometimes community health centers, um, will be able to provide at least the middle ear and, uh, evaluations for your children that, that don't pass. So a lot of those resources will be, um, locally based with the resources that are in your community. But there there should be some resources that can help assist.

01:14:54.85 >> Yeah. And it's not just the 3 to 5. It's also for the part C early intervention intake and evaluation process should be able to cover that diagnostic component of the hearing evaluation.

01:15:11.99 Um. Let's see.

01:15:16.95 Did I hear you correctly? That early intervention birth to age three require a passing screening for our files? Now, um, I'm not sure I understand the question, but let me just riff for a minute on early intervention. Uh, part C world. If a child is referred to part C evaluation, somebody is concerned about something. And so the most common reason why children are referred to part C is because of language, speech development and language. And so in any situation where there is a concern about language. We strongly advocate that a hearing evaluation be a part of that overall evaluation. It wouldn't make any sense to engage in speech and language therapy intervention without knowing that the child is hearing, typically or not. Anything you want to add to this, Terry?

01:16:29.21 >> No, I don't think so. I think you've covered that well. Um.

01:16:36.79 Yeah. No, I can't think of anything else to add.

01:16:39.93 >> Okay. Um, do you have any resources on basic ASL trainings? Um, we do on our on infant hearing.org, there is a which is our overall organizations, the National Center for Hearing assessment and management's website. There is a link to an online course called Sign It and you may find some other resources there on learning ASL.

01:17:16.18 Terry, our next question is, um, can you explain how tubes in the ear can affect OAE results?

01:17:26.47 >> Yes. So tubes in the ear or P tubes are placed to help ventilate that middle ear space. In children that have had chronic middle ear infections or fluid in their ear. And so when those tubes are placed and open and working the way they're intended, then you should be able to screen them with OAE and you should be able to get a result. And if the tubes are open and working and that child has normally functioning inner ears, you'd get a pass. Um, so we recommend that you screen children with p tubes. Um, and in most cases, as you see, most children pass the screening. So you, you go ahead and you would be able to get a passing result. If not, you would follow the, the protocol. And, and those tubes would be evaluated as part of, of their evaluation and see if they're functioning.

01:18:21.56 >> So the next question is a really commonly asked question about what advice can we give about what particular brand of OE equipment is the simplest and the best to use? And, you know, it's hard for us to like make a global recommendation like that. Um, has having been federally funded, we're somewhat constrained around being able to answer that question maybe as candidly as we would like, But we can say that the reason that the devices that you'll see on here on our website, under that equipment option, have met the criteria that we look at for being able to successfully screen that they have they have live versions of that equipment available. We can tell you that the most commonly used devices are the one in the top of the line. That doesn't mean they're the top of the line if they're found in the top of this page. Um, those three right there are perhaps the most commonly used. One of the the elements that you'll find in our criteria for selecting equipment is that they have what's what we call a foam tip. It's a compressible foam cover that allows you to just press it down and then insert it into a child's ear and it expands. Those are so much easier to use. So we always encourage people to look for for equipment that include a compressible foam cover. And that criteria is included in our list that you'll find on that equipment page. If you're screening older children 3 to 5, we mentioned earlier that the the these two devices you see in the green line right here, they both have options that include both Audiometers and OE all in one box. So if it were me, I would be interested in looking at that and giving that a go. Um, the current price that we've been told for this scenario at least, I don't know if that's true for the addicts, Terry, but that it's about $4,800 for both functionalities. So.

01:21:04.73 Um. All right, next question. This is a question about the protocol. Is this part of the 75% who pass or did that mean both ears pass? Yeah. Oh, okay. So we're talking here about the protocol. And let me get over to that. Um, when we were looking at this, um, in the in the first screening, we expect about 75% pass on both ears, and about 25% will have a child that either didn't pass on one or both ears. That's what that meant.

01:21:58.89 The next is.

01:22:05.78 I noticed that you recommend only foam tips, but the karate machine we use only has rubber tips. What do you recommend? Terry, you want to say a few words about that?

01:22:20.55 >> Yeah. So I know we've talked about the foam tips just previously and our preference for those. And there's a couple reasons, you know, that William expressed for that. But tips are not interchangeable between machines. So they've um, they're all calibrated and made to work with the tips that are manufactured for that machine. So they're not interchangeable, um, that way. So for the GSI karate, which is in the question We do need and recommend that you use the tips manufactured for that machine, which unfortunately at this time would not include a foam option.

01:23:01.01 >> But wait a minute, aren't foam options available for the Corgi?

01:23:08.10 >> Let me move my Q&A from the top.

01:23:10.37 >> Look at look at that. That screen. It's.

01:23:14.35 >> Yeah, they are available. Yeah.

01:23:16.43 >> It's hard to stay up on top of all these these little features that equipment companies have.

01:23:22.91 >> Well and we've recommended to each of them the development of a foam option for as we've worked with their equipment. So um, yeah, I would contact those distributors to see if we can get a foam tip available for that. Yeah.

01:23:37.99 >> So you should ask about that foam tip for the quality, because the last time we checked we were told that they have that. So check that out. Um, all right, so the next question and we're going to be wrapping up here. Oh, we have so many questions. Um, we're not going to get to everything, but in the moment in the chat, you're going to see a, um, a link to the evaluation for today that will also generate your certificate of attendance in today's webinar. So we'll stay on for a few more minutes to answer questions. But if you need to run, be sure to do that before you go. And then watch for an email from us with the with the link to the the recording of today's webinar that will appear on our website. Also, be sure to go to learn to screen.org, which is where you will be able to find information um about, um, training so you can get it through our website. Or you can also look at learn to screen.org. Um, so the next question during the pure tone audiometry you say that two responses clarifies a pitch pass. Can you go more in depth. Why a pitch pass? And does that pass. Um, not be referred. Oh, you know what? Um, Olivia, this is a great question, but it's really diving into the level of training, um, which is beyond what we're going to be able to adequately really address today. This is the kind of stuff that is addressed as a part of the training. Um.

01:25:42.84 Um, Terry, the next question, I've noticed that ROE has settings of 3000, 4000, and 5000, but I'm wondering if we should be checking other frequencies like we do in pure tone screening. Is this a matter of changing default settings? We use the Welch Allyn model.

01:26:05.56 >> Yeah, that's a great question as well. And I think that also goes into some of the depth that we would do in in training. But the quick screens are all set to be screening the the frequency range that OE needs to look at. So I would not go in and change those settings.

01:26:31.16 >> And related to pure tone and a pure tone audiometry. The next question is the conditioning is automatically set to 50dB but can be changed manually. Is this the standard setting for hearing screening?

01:26:48.93 >> It is a default because you want to condition at what we would say super threshold, or at a level that we are going to anticipate. The child can easily hear and learn the task. And so 50dB is a common default to start that training.

01:27:07.60 >> Next question can I print the results on an OE machine? Yes. OE machines can come with a printer if if that function is something that you want to have. The next question is if a family does not want to follow through with the middle ear or complete hearing assessment, would that be a reasonable.

01:27:36.27 You know what that is, Terry? I don't see why a referral that's an acronym that we don't use. I don't know what that means. Sorry. Um. Yes, sir. The next one is Sertoma, which is a, um, really, um, great organization, and we'll post it. Gunnar, would you mind moving that link over into the chat for Sertoma? Under Michelle's, um, question here. Um, that's an organization that funds hearing related things. And we have had programs get money for equipment and supplies from their local sertoma clubs. Um.

01:28:31.91 And this is Gunnar.

01:28:32.66 >> What link are you wanting me to put there?

01:28:34.60 >> Michelle Pearson submitted a question in the Q&A about Sertoma, and it has a link that she provided for us there.

01:28:51.39 The next question is how many ear infections does a child need to have in order for it to be a concern for a hearing testing to be conducted? As a home visitor, I had a mom be told that four infections within a couple of months was not concerning enough for a hearing screening to be done, or if referral to be made.

01:29:18.18 >> And that with that that question, um, you would as far as what we're talking about today with hearing screening, we want to go ahead and screen that child because the APS, if the child refers, which we may, um, attribute to those ear infections, but we're able to say they are not passing a hearing screen. so whatever is going on is affecting the ability for us to get a normal hearing screening result, and that can often help push that process along. There's going to be some differing opinions on, um, what um, providers will think is meets the definitions for chronic middle ear disorder. And then, um, the treatment patterns, as we know sometimes that is now slower because of antibiotic resistance in the, um, the wanting to see if they resolve which most will resolve on their own over, over time. And so there's going to be some individual factors with the provider managing that case. But often your results can help push that along.

01:30:28.30 >> We're going to answer two more questions. And then we're going to have to wrap it up. Um, this next question is can you explain a middle ear evaluation. Um, is this something done by a pediatrician or an ENT? And are they looking at structure to make sure everything is structurally correct as well as functioning appropriately?

01:30:54.09 >> Yes, that's a great question. So when we have somebody that refers on through our protocol and we're going to refer them for middle ear evaluation, we want to have that middle ear system checked out to make sure that it's functioning normally. So that will include looking at the structure physically looking in the ear. Often a test with pressure. So there could be pneumatic otoscopy where they put some air in and move that eardrum. They want to see if it's moving appropriately. Or they may use tympanometry, which is a machine that will, um, put some pressure in and make sure that middle ear system is functioning normally if they have what we want them to pay attention to is if it's functioning normally or if there's fluid or active infection. We want to have that treated and cleared before we rescreen.

01:31:48.51 >> So we are sorry we can't be can't answer all of your questions. But if you need some more follow up from us, feel free to contact us through the website at. Contact us and submit your question there and we'll do our best to respond. Um, the last question is when a child passes a birth hearing screening, a newborn hearing screening, when should hearing be tested again? Obviously, if there is a concern, we would screen, but if no concern is a screen at a year. Okay, Terry, what's your advice?

01:32:32.34 >> Yeah. For those newborn screenings, um, um, you may recall it when we talked about that earlier in the webinar, that we can use those screening results for about a year, and then after that we want to be starting to screen them manually.

01:32:51.96 >> There's one more question that came up here that just I really feel like we need to answer. And somebody talked about getting a foam tip and using it on their device. We have to really emphasize that you can only use the the foam or the probe tips, including the foam tips that were designed for your specific brand of equipment. That is how they've been calibrated to function. If you interchange for other probe covers from other devices on yours, you can very likely get inaccurate results.