Well, I want to welcome everybody to today's webinar, which is entitled, Build on Your Previous Experience and Training with Evidence-Based Hearing Screening. Uh, for children birthed through the school age. My name is Will Iserman, and I'm the affiliate Associate Director of the National Center for Hearing Assessment and Management, known as NSAM at Utah State University. And NCAM is housed within the Institute for Disability Research. policy and practice at Utah State, which is a federally funded university center for excellence in Developmental Disabilities. With a critical nationwide focus. Since 2001, I've also served as the director of the Early Childhood Hearing Outreach Initiative, which is known as the ECHO Initiative, and for 20 years after that, the ECHO initiative served as. a national resource center on early hearing detection and intervention. With a focus first. on supporting early Head Start, and then Head Start program staff in implementing evidence-based hearing screening and follow-up practices.

And that just has continued to evolve over the years, um, to include, um. providing training and support and resources to a variety of early care and education programs, and those in educational settings who can put our resources and trainings to use. Including those in early intervention programs, healthcare settings, private practices. and schools. Now, I'm joined today by my good friend and colleague. Dr. Terry Faust. Terry is a pediatric audiologist and a speech-language pathologist. who has served as a consultant and a trainer with the ECHO Initiative since its very beginning, so thank you, Terry, for being with me yet again. Yeah, thank you, William.

You know, as you mentioned, um, you know, William and I have, along with other ECHO team staff. As well as local collaborators, we've really provided in-person training in nearly every state, and I say in-person because I'm used to saying we've provided training in nearly every state, but really thinking about the reach of our webinars, we've really provided training in every state. And we're so grateful for the continued interest. Um, we've, um, you know, trained thousands of staff from all types of early childhood and childhood programs, from Early Head Start, Head Start, American Indian, and Alaska Native. programs, Migrant Head Start, and other early care and childhood programs in schools over these years that we've been. involved. Yep, thank you, Terry. So today's webinar is primarily intended for those of you. who have already had some experience implementing evidence-based hearing screening for children either in the birth to 3 age range, in the 3 to 5 age range, or even in older populations in school-based training screenings. a number of you have submitted questions to us in advance, and our responses to those have been, at least we've tried to incorporate those into what we've planned to share with you today.

And we should have ample time to take additional questions if. others come up during our presentation, but hopefully we've. We will be addressing a lot of your questions as a part of the flow of our presentation. We did notice that some of the questions we received were from folks for whom evidence-based hearing screening is new. And if you are a newcomer, by all means, you are welcome to

hang out with us during today's webinar, but we also want to alert you to the fact that tomorrow, February. uh, 26th? Did I get that wrong? On the slide. make it, yep. Now, to the 25th, tomorrow.

Good morning. Um, we're in. We have an introductory webinar that will present the topic of evidence-based hearing screening throughout the age ranges, starting at the very beginning. So, if you're a newcomer, or if you know of anybody who. is new to this content area, that's the webinar that you want to have them or yourself attend. So the information is on the screen right there. It's also going to be posted in the chat here in a moment, um, so that you can copy that information down and register for tomorrow. it will also be recorded, so anybody who needs that. That orientation to this content area can. can get it, uh, either live or in our recorded sessions.

So, we're going to organize our time today largely around many of the questions that you've submitted. We're going to present information about each of these topics, and we're going to start with a brief. review for our newcomers to evidence-based hearing screening practices. On the purpose of hearing screening and what the recommended methods are. And. One of the reasons why we think it's worth taking a few minutes to do that is because even if that is not new to you. Being able to explain the big picture to other people. your colleagues, to parents. decision makers. is an important skill set and information base in and of itself.

So we're going to give you a quick walkthrough of that and show you some resources that might support you in creating. more support for the work that you do related to hearing screening. We're then going to review the screening and follow-up protocol that applies to whether you're using OAE or PureTone screening, no matter what age child you're screening. We're then gonna turn our attention, uh, to a review of. of issues pertaining specifically to pure-tone audiometry. And then we're going to move on to issues pertaining to how to do otoacoustic emission screening and some helpful hints for screening. particularly when you encounter children that may be difficult to screen. We've received a number of questions about that, which is, only natural, you're not the only one that has those occasional children that are tough. So we're going to talk about some tricks that we've learned over time. And then we're gonna wrap up our conversation with making sure you're aware of other technical assistance resources that are available to you.

Um, so. let's just dive in and get started. So, big picture. You know, I'm gonna turn my video off now so you don't have to be distracted by. my mug. Alright. So, the work of the ECHO initiative, the Early Childhood Hearing Outreach Initiative, has been based on the recognition. that every day, there are children who are deaf or hard of hearing, being served in various. early childhood, school, and healthcare settings. often without their hearing-related needs being known.

the question is, you know, how can we identify which children have normal hearing. And which may not. You know, hearing loss is often referred to. as the

invisible condition. So, how exactly do we identify children. who have normal hearing. Compared to those that don't. And you know, the short answer to that question, William, is that early care and education providers, um, just like most of us here today, we can be trained to conduct evidence-based hearing screening, just like you see depicted in these photos right here. The ultimate outcome of a hearing screening program is that we can identify children who are deaf or hard of hearing, who have not been identified previously, like newborn screening. You'll recognize the procedure on the left as being otoacoustic emissions, or OAE hearing screening.

And again, that's the recommended method for children birthed to 3 years of age, and increasingly recommended for children 3 to 5 years of age as well. And then, if you go over to the right, you'll see the procedure pure tone audiometry hearing screening. which has historically been the most commonly used screening method for children 3 years of age and older, which you'll still see many early care and education providers using. Now, as Willie mentioned, we're going to talk about both of these methods today, but keep in mind that hearing screening pros. The hearing screening process does not diagnose a hearing loss, but it. does identify children who need further follow-up evaluation, either by healthcare provider. are an audiologist with that ultimate aim of diagnosing hearing loss if, in fact, that exists. And then, connecting those children with the intervention services that they need. So, your screening process is really the first important step in the bigger process. So, some of you have asked us.

how do we more effectively encourage parents to follow up. when a child hasn't passed a screening. I mean, that's a. That is one of the. points in this whole process. That is both so critical and also where the process can break down. And one way is to share information about the prevalence or incidence of. of hearing loss. And the fact that a child's hearing ability, like vision as well. can change at any time without us even recognizing.

You know, it's often called an invisible condition. About 3 children in a thousand. are born with a permanent hearing loss, death, or hard of hearing. mild all the way to severe or profound hearing loss. Most newborns in the U.S. Are now screened for hearing loss using evidence-based evidence-based methods. Oae screening is, in fact, one of those that is used in the hospital, and they often get that screening before. Even leaving the hospital. But, you know, screening at the newborn period isn't enough. And the reason it isn't enough.

is because the research has shown. that the incidence of permanent hearing loss actually doubles between birth and school age. From that 3 in 1,000 at birth to about 6 in a thousand. By the time children enter school. And that incidence only continues to increase during the school years. up to about 50 in 1,000. During the school year. So. wow, right? That is a dramatic change.

And how are we going to know that those children are developing those hearing losses? So, the answer to that is clear. You know, they need to be seen. They need to be identified. But this really shows us that we can't only screen for

hearing loss at birth, or even just one time after that. We really need to screen throughout childhood because hearing loss can occur at any time. It can occur as the result of illness. um, physical trauma. Or environmental or genetic factors. And this is.

This type of hearing loss that comes later is often referred to as late-onset hearing loss, and that just simply means that it's acquired after the newborn period. Again, very similar division. You can have subtle changes in vision that can occur for any of us. So a child can also experience a change in hearing ability that we want to identify so that they have full access to language and all of the information they're being exposed to as they learn and grow. Um, and just on a personal note, I have a grandchild who's just experienced at 9 years of age a pretty significant change or drop in her hearing. So. Um, it really, really does happen. Now, this information is on our website, um, as is a letter for parents that you're welcome to use. Because being able to fluently discuss this with parents and your colleagues can help strengthen that overall support that you need for your screening and follow-up efforts. You know, any conversation that we have about screening and follow-up should always begin with a reminder that screening methods aren't perfect.

And that whenever a parent or a caregiver expresses a concern. about language or hearing, children should be referred for a more thorough evaluation, and that's true even if the child passes the hearing screening. And that's true even with the highly reliable hearing screening methods that we're talking about today. And we also want to acknowledge right up front that for any number of reasons, there's going to be that occasional child that you just can't manage to screen. So, after you've tried everything you can do, and you've had a colleague try as well, if possible, um. you're gonna be faced with the dilemma of what to do with this particular child. So here's our recommendation about that question. that I know most. Many of you have had. If you aren't successful in screening a child through multiple attempts, having somebody else.

Refer the child to someone who can, and often that's going to be a pediatric audiologist. Just keep in mind that sometimes the children, you may actually have the most difficult, um, screening that may be the most difficult to screen, may be the very ones who have a hearing loss. So, we really don't want to skip them and then, you know, just try again next year, for example. Yeah. Yeah, and this isn't a criticism, but something. we do kind of cringe about, right, Terry? That when we hear people struggling and they say, well, we just say we're gonna screen them, we're gonna try again next year. we don't really want to ever see that. want to see them referred, and have somebody, an audiologist, really, be the one. to determine, um.

they're hearing status. So, we just mentioned a pediatric audiologist being in the picture. Now, a pediatric audiologist, which. Terry is, um, is a, if you don't know, is a professional who specializes in the diagnosis and non-medical treatment of hearing-related and other disorders associated with the ear or the auditory system. a pediatric audiologist specializes in. As you'd guess, children.

So, having access to a local pediatric audiologist can really be helpful. Even though we'll acknowledge there aren't a lot of them. Um. they can help with things like equipment questions you might have, they can consult with you about specific children who.

aren't passing your screenings. And importantly, maybe one of those valuable resources when you do, in fact, need to refer a child. for further evaluation. Now, how do you find a pediatric audiologist? Well, one way is through our website on kidsHearing.org. You'll find a. And I'll show you this all, um, later on, but on our website, you'll find a tab that. says, find an audiologist, and you'll find several different directories there that might help you guide yourself to local pediatric audiologists. Now, one question that is a perfect question for a pediatric audiologist, and which some of you have submitted questions about, is whether they should screen children. Now, we're going into the weeds a little bit here, so.

Come along with me. You've asked the question. Should we screen children that we know have PE tubes? So, let's just answer that question right now. Terry, you're the pediatric audiologist here. What do you say to that question? Yeah, so yes, you absolutely can and should screen children who you know have PE tubes. It's actually one way to find out if the tubes are doing the job that they've been put in to do. Children with PE tubes should pass hearing screenings if the rest of their auditory system is functioning normally. So, for those of you that are using the, um, autoacoustic emissions, or OAE method.

You'll want to look at your equipment manual, because you want to be. You want to see if you have to do an extra button push or so to adjust the setting for screening an ear that has PE tubes. Some equipment requires the adjustment, others does not. So be sure to check that out. Um. And for those doing pure tone, you'll complete the screening just as you would for any other child. So, yes, you can and should screen children with PE tubes. Okay, so we have the two screening methods we want to talk about today. By way of big picture. If you're responsible for children who are under the age of 3, the only recommended evidence-based 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, quote, 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's presented into the earphone. And you see this method on the right. Now, several of you have asked about why some programs. are no longer using pure-tone audiometry with a 3-5 population, or even those older, and have switched primarily to ode acoustic emissions, or OAEs. And that's because there's growing recognition that although the PureTone method has been the most widely used. um, used method historically, it may not always be the most feasible method to use with some of these younger children. Research has shown that about 20-25% of children in that 3-5 age group can't be screened with this methodology.

Um, because they just aren't developmentally able to follow the directions reliably or respond reliably. And that's been, um. That's really been our experience as well. So in those instances, OAE screening is the preferred method for these children. Um, as we emphasized a moment ago, we want to be sure we screen every child, even the ones we find challenging to screen, right? So, what this means. is, at a minimum. If you're using, um, and doing 3- to 5 year olds or olders, and you're using the PureTone method. You'll need to have a plan, a backup plan, for those that you just can't successfully screen that way. And.

The best plan would be to have OAEs, uh, an autoacoustic emissions device that you've been trained on to use with all of those children that you can't successfully screen with Puritone. The only other alternative to being able to do OAEs yourself. is that you have a mechanism for referring all those children to an audiologist who can perform the screening, which. frankly. would be pretty challenging to implement in its own right if you're referring, like 20. percent of your children to an audiologist just for a screening. So really, to simplify things, more and more of us, um, audiologists are recommending the use of OAEs uniformly with all children 3 years of age and older. It's because it's quicker than pure-tone screening, both to learn to do and to actually implement. But really, it's far more likely to be a method that'll work across the board with all children in that 3 to 5 age group and older that you'll be screening, and it's equally as effective. If you or your program are grappling with this question of method, um, for use of.

particularly for the 3 years of age and older. We want to encourage you to look at a document that we've. developed that's on our website at kidsHearing.org, and I'll show you where to find it, that compares OAE screening and pure tone screening. Now, here's an important point, though. Some states have regulations about the specific methods that are to be used. Based on age, requiring PureTone, for example, for children 3 years of age and older. at least as the primary or first method that is used. So, you do need to check with your state if you're considering OAEs for this 3- to 5-year-old age group. And you can do that by contacting your state's newborn hearing screening program, which you can find a link to on our website. No, you just need to know that.

Sometimes those regulations haven't even been looked at or updated since the 1990s. before OAEs were really a viable consideration. So, um, the reason why they're still in there is not because of an enduring evidence that Puritone is better, it's just that the regulations haven't been updated. On another note, we have a question about whether there are any other recommended evidence-based methods other than OAE or PureTone that could or should be considered. So, Terry, wanted to give the definitive answer on that. There's only one answer, William, and it's no. There are no other recommended evidence-based. methods for the populations that you're screening. You can augment these methods with parent questionnaires or questions, and your observations of a child. Um, those things are absolutely important to note, but they do not and can't stand alone as hearing screenings.

Yeah, so what you're saying, Terry, is that, yeah, by all means, get parents' input. do your own observations, and listen to that. In fact, and we said earlier, even if a child passes and there are serious questions. about a child's language development or hearing, then you should still. recommend and refer those children for a complete audiological evaluation. Yep, absolutely. Okay, so we have our evidence-based methods, which are key. to fulfilling the purpose of the hearing screening effort. But, you know, our best screening efforts, efforts are only worthwhile. If we follow up effectively.

And a lot of you have expressed frustration in making sure that. There is follow-up, and you know, you can only do so much, and then you're dependent on parent follow-up, or others who are designated to play a role in that, so. Before we get into how to strengthen those follow-up activities, let's take a good look at what the recommended follow-up protocol is. and see if there are any questions about that. I just want to say, um, before we do that, one of the good things to remember is that the steps of the follow-up protocol, they're going to be the same, regardless of the screening method you're using or, um, the child's age. Okay, so regardless, Terry, of whether we're talking about OAE or pure tone screening. The follow-up protocols. protocol is identical. And also, regardless of what the age of the child is. All right, all right, very good.

So, there's one main rule to remember. Absolutely, yep. about your screening and follow-up process. And that is this. It's complete. When either the child passes the screening on both ears. That's pretty obvious. or the child receives an evaluation from an audiologist, and you've obtained the results. Any other referrals, like to a healthcare provider, to manage a middle ear dysfunction or an ear infection, any of that other stuff is not a complete screening process. In fact.

It's only when they fast on both ears. or a referral to an audiologist had been made, and you've gotten the results. So, here is how the screening and follow-up process unfolds. Keep in mind, again, we're talking about screening both ears. And that they each need to fulfill the past criteria in order for the child to pass. So, if an ear passes the screening right off the bat. then the process is complete for that year. Simple enough. Now, if the ear doesn't pass. we can't be absolutely sure why.

Yeah, sometimes an air may not pass due to screener error, or. a temporary condition, like a head cold. So it wouldn't usually be practical for every child who doesn't pass this first initial screening to be referred to a healthcare provider or, um, an audiologist. So, in the birth to 3 age group, we. We have seen that up to 20 to 25% of children that we screen with OAEs, they don't pass on at least one year the first time we screen them. So several of you have asked about how a head cold or congestion, um, can affect screening outcomes. And this is right where we might see that. Um, and. Yeah. And Terry, Terry, even though it's probably not as high as $20 to 25%.

The 3- to 5 year old age group and even older children, there's going to be a

percentage that don't pass that initial screening, probably for the same sorts of reasons, right? Oh, exactly. In fact, many of my colleagues who, um, who work in the school system. just. Just try to stay away from cold and flu season when they're doing screening. But what that tells you is, yeah, absolutely, those same kind of factors, um, affect, uh, children of all those ages. So, if an ear doesn't pass that first screening, instead of making an immediate referral. We wait a couple of weeks, two weeks. If you want a solid guideline. And then we screen again.

mhm. And that screening, that waiting period allows for, you know, the cold to go away, the fluid to dissipate, even the earwax to wiggle its way out of the ear. And by the way, if one ear passes the first screening, and the other doesn't. You don't need to re-screen the ear that passed again. Just focus now on the one that didn't already pass. That first one met the past criteria. If the ear then passes that second screening. This screening is then considered complete for that ear. If, however, the ear still doesn't pass the screening. Now, it's not passed twice.

This is the point at which further evaluation is needed. We expect from our data, at least for those younger children. It goes down to about 8%. that still don't pass the second screening. And those are the ones that will need to have their ears evaluated by a healthcare provider using a method called tympanometry. or pneumatic otoscopy. Yeah, this is such a key thing. You've gone from 20% to 25% down to 8%, so. 8 out of 100 children or fewer will be the ones that, um, that we refer. And, um, you know, it's not uncommon that a wax blockage.

or fluid or inflammation in the middle ear, was what prevented the screening of the inner ear from being completed, and that could have caused that non-passing result. You know, Terry, let me just introduce something. What. You just said something really important. So, oh, go ahead. It's that that fluid, or the wax blockage, prevented the screening. of the inner ear from being completed. Which is the focus, the target of what we are screening. Exactly. In hearing screening.

It's the inner ear. So if there's something that is in the way of screening the inner ear, we've got to first get that addressed so that we can really do the screening. of the target area, which is that inner ear. Yeah, exactly. That's the target. So now, at this point, then, you're going to want to intensify your monitoring of the child's follow-up. So. They've referred twice, we've referred them on, and so now we want to consult with that healthcare provider to find out the results of the middle ear evaluation and any treatment that's being provided. So always document the results of the middle air evaluation. And keep in mind that since the ear.

actually hasn't yet passed the screening, because we're wanting to know if the inner ear of the cochlea is functioning properly. Um, that hasn't been done. Most healthcare providers do not have hearing screening equipment, and therefore cannot complete that screening process. So we'll need to confer with a

healthcare provider about when that ear should be rescreened. This right here is probably from our experience and data collection. The single most significant breakdown in the follow-up process, where a referral to a healthcare provider is made. And there's a mistaken assumption. that this child has now been passed on to the healthcare provider, to complete the whole screening process. But they're really not going to complete it in most cases. like Terry just said, they don't do hearing screening usually.

in healthcare providers' offices. So that's why, after the screening, After the middle ear consultation, We need to do the re-screen. But keep in mind, you know, I know this sounds like, wow, I'm screening, and then I'm screening again. This is only a small fraction of the total number of children you're screening, so… Even in the younger population, which has the highest rates of referral, we're talking about Around 8 out of a… 100 children who will need these follow-up steps, but these are essential steps, so you rescreen them after they've been to the healthcare provider. And what would you suspect happens at this point? they pass. Most of them will pass at this point. The most common reason for a child to not pass those two times before? was because they, in fact, did have a middle ear condition. But we haven't really screened that inner ear until this point.

And now, you know, so if they pass, they're complete. But if they don't pass… After all of these steps, This is when the child should be referred to a pediatric audiologist for an evaluation. And it's really important that when you make that referral to the healthcare provider, for that middle ear consultation. that you inform them of your protocol, and that you are going to rescreen them. After you get medical clearance from them, And that you may, in fact, need a referral from them for an audiologist. We have a letter on our website that explains, um, to the healthcare provider your protocol. So, Terry, wrap this up in a bow here. Yeah, yeah, so really, if the air still does not pass, that child needs to be referred to a pediatric audiologist for evaluation. And again, this is when our level of concern is heightened, because now they've repeatedly not passed, and we really don't think there's a middle ear condition now. To explain why that child's not passing, like William said, because that's what typically gets addressed or ruled out by that middle ear consultation.

it's really less than 1% who will typically go this far in your protocol follow-up and be referred to an audiologist. But what an important one percent that is. When you make, again, when you make that initial referral for the healthcare provider, uh, for the middle-year evaluation, convey to them what will be a potential follow-up to this, which is your rescreening, And the need for a referral if they still don't pass. So, we'll show you when we look at our website where to find those letters to help you with this, um, part of the follow-up process. So, That gives you an overview of the complete screening and follow-up protocol from start to completion. Keeping in mind that overriding rule that the screening and follow-up process is complete, When either A The child passes the screening on both ears, That's pretty obvious. Or B… The child receives an

evaluation from an audiologist, and you've gotten the results. And any other referral along the way is just simply a little detour, but it's not the end destination. Remember, Although screening can lead to the identification of the most common types of permanent hearing loss. What we're doing here is only a screening.

Anytime a parent, caregiver, or a teacher, or even yourself, has a concern about a child's hearing, or language development, even if the child passes the screening, A referral for an audiological evaluation is warranted. So I really want to make that clear. We know that a number of you have had questions about how to move this process along once referrals are made. You've asked both about how to support parents in the follow-up, as well as what to do when healthcare providers don't appear to support, the ongoing follow-up steps. Terry, you have… decades of experience dealing with this. You want to take a minute or two and talk about, first, How to encourage parents about the… importance of follow-up, and then what else we can do to make sure that healthcare providers… are aligned with our… hearing screening and follow-up efforts and protocol? Yeah, thank you, William. You know, one of the things that's been most helpful is, you know, really helping parents to understand how hearing is really similar to other other disorders, and especially with vision. Because hearing can be not only the invisible condition that William talked about, but it can be kind of tricking because it's very much like vision. Rarely are children completely deaf or completely blind, but there's a range.

of hearing ability, just like a range of ability to see. And when we talk about the importance of. communication development, as well as academic achievement, the ability to hear across the frequency range, all of the sounds from lows to highs is important. It's important for speech development and for academic performance, just the same way as vision is. So we often walk them right through that process. We'll give them some. examples of how sounds are hard to hear with background noise for kids that are hearing impaired, just like certain things are not clearly in focus for vision. And what about… Terry, you're gonna say this, but what about, like, just how… The other thing… oh, go ahead. Easily, children can kind of fool us, because they might be following the examples of their peers that makes it look like they've heard the instruction that was just given. But they're really just… following the leader, if you will, And… They get very skilled at reading context and using contextual cues.

Sometimes I have used something where some kind of the old typewriter. test where you have some letters that don't work, and when you read them, most of us are able to fill in and guess or figure out what the word is. It's kind of similar with sound. They can get the contextual cues. Of the conversation. They may not hear the word clearly, but they guess and try to, um… fill that information in, but it's taxing and takes a toll, and it's not always accurate for them. And so… but there are ways that we try to help educate parents to understand the impact of the hearing loss. And that, um, can help motivate them for follow-up. We also try to make the referral process as easy as we can, and part of that is

the relationships that we build with other providers to. make an easy handoff for that.

And so, we sure appreciate all the efforts that, um, you put into follow-up with each of these kids. You know, another really important concern that… warrants a thorough… conversation has to do with… The tendency that… I think a lot of folks can make, To assume that, certainly, somewhere along the way, somebody would have already identified a hearing loss, particularly, like, if a child was already getting speech therapy? Certainly, somebody has… evaluated their hearing. Now, That's a fair enough assumption, but it's not a good assumption. In that, not all children who are getting speech therapy have, in fact, had their hearing evaluated. So, When you find yourself, or you hear somebody making an assumption, that hearing had been evaluated, Dig into that, find out, well, where are the results? I want to see those results. Is it one of these evidence-based methods? Did follow-up And a complete evaluation occur, If the child didn't pass, We found, early on, In our work with Head Start, And this is not an indictment of Head Start at all. Awesome.

But there were a number of children who were receiving early intervention, Speech and language-related intervention and therapies that had not had their hearing evaluated. And so assumptions were made that that was, in fact, done when it wasn't. or the assumption that it was happening as a part of well-child visits with healthcare provider. healthcare providers, and it didn't happen there either. It rarely does. So… Really, you know, engaging the family in those assumptions and saying, Let's just be sure, and let's not assume that there isn't a mild or moderate hearing loss that may help to… if we help to explain any of the challenges a child may be having, or may start to have in the future. So, those are some initial thoughts about how to… improve the follow-up process. So, let's take a look at our website, because I've referred to some resources for you. And so this is kidshearing.org, and if you look in this first group of resources that are called planning resources, you'll find information first under that header, Big Picture Resources. You'll find some of this information that will help Um, communicate to families what you're doing, to your colleagues, um, explaining why hearing screening is really central to achieving the mission of schools, and… Early childhood development, um, you'll… you'll see that second bullet, find an audiologist.

That's where you can go to find some directories of local pediatric audiologists. Underneath that, information about screening equipment. So you can look, um, for that. In the next group, If you or any of your colleagues are needing Real thorough, standardized training in either OAE or Pure Tone. Um, audiometry screening. It's available right there, and you can do it whenever you need it. Everybody will get exactly the same training. Um, and if you're looking for CE credits, continuing education credits, those are now available through, um, those online training courses as well. Then, screening resources. Lots of practical tools here about how to get ready to screen, checklists, a review of the protocol that we just went over, um, documentation forms that we'll be showing you in a

minute here are available there.

Um, letters to send to parents or to healthcare providers are beneath that, and then, um, whoops, and then, uh, follow-up resources, including a tracking tool to stay on top of on the status of each child's follow-up steps. So, As I said at the beginning, have a look at kidshearing.org and the resources that are available there. almost every resource you see there was developed in collaboration, or maybe even primarily, by people just like yourselves, who shared them with us. And we tried to format them in ways that, um, others could pick up, adapt, and use as well. So, have a good look at those things. Okay, so we appreciated a lot of various questions that we received from you in advance. asking us, could you just go over the screening methods again, walk us through the screening processes, and the documentation of results, just so that we're sure we're really abiding by what is recommended evidence-based practices. I'm going to take a little sip of water here. excuse me, okay. So, let's start with Pure Tone Audiometry, keeping in mind that while the two methods, pure tone and OAE, are different, They follow many of the same steps, and they do that because they're following the same overall protocol.

So, as I just showed you, there are a number of tools on our website for our screening efforts. So, for each method, we have a screening skills checklist, which is on that tracking tools, um, Here, I'll go back and show you where that is. I kind of skimmed past it. Where are we here? Yeah, at the bottom there. OAE screening skills checklist. Um, that's where you'll see the OAE and Pure Tone Checklists. that are really helpful in making sure that you've adhered to them. So, Um… This is what the checklist looks like, and it helps with a step-by-step guide for conducting any screening on a child. And not only can it be useful in reviewing as you prepare and complete a screening, it can also be used for monitoring the quality of your screening.

If you need to evaluate the quality of yours or someone else's screening practice. So, this checklist can be a helpful tool. Now, keep in mind that we also have documentation forms that directly correspond with the recommended screening and follow-up protocol. And these are the forms that you see right here for the pure tone method, In which, after recording the identification information of the child being screened, you document the screening results of the first screening. In most cases, children will pass on both ears at the first screening, This first portion of the form is all you'll need to use in those cases. But in cases where the child doesn't pass on one or both ears, the form includes fields to record subsequent results. And we also have a second form, Um, which is when the child is referred for a middle ear consultation and subsequent steps in the protocol. Together, these two forms include space to indicate the results for completing the entire possible protocol for a given child. Having good documentation like this is really useful in knowing where a child is, In the follow-up process, As well as for overall program fidelity. If you were to show any reviewer of your screening practices, This documentation strategy.

It would really, um… show them that you are implementing evidence-based

practice. So let me walk you through how you might put these to use. So, as you prepare to screen, the screening skills checklist reminds you of the steps for Um, your complete screening process, from setting up the environment, the whole process, the listening check, All of it is right there. So, The first step for any screening is to document who you're screening. And then to do a visual inspection of the ear. Terry, what are we looking for in a visual inspection of the ear that might tell us whether to continue or not? Yeah, what we're wanting to do is to take a look at the air to make sure that there's no visible sign of infection or blockage. You know, anything that would indicate that we don't want to proceed with the hearing screening, then if the ear appears normal, which will be most of the time, then we'll proceed with the next step. Now, that next step is to prepare the child for screening by doing what we call conditioning the child. And this means teaching the child the process Whereby the, um… Child learns the behavioral response each time they hear a sound.

Yeah, exactly. This is where you, as the screener, instruct or condition, as William said, the child in how to listen for a tone, and then respond. They respond by raising a hand or placing a toy in a bucket. You do this by presenting tones at the 60 and then the 40 decibel levels. And while you're conditioning the child, you're usually facing them, making sure that you're carefully assessing whether they're understanding your instructions or not. And when you think that they understand, then you turn them around so they can no longer see you to see if they continue to respond just like you instructed. Once you've observed that the child reliably responds to the sounds that are presented, just like. you instructed them, that's when the actual screening can get started. So, let me interject, Terry. We have received some questions about how long should that conditioning process take?

Yeah, let me answer that. The conditioning process, that conditioning should not take much more than 5 minutes, hopefully less. Children who are going to be successfully screened using this pure tone method, they ought to be able to be screened in 10 to 15 minutes max, including that conditioning step that we just talked about. If you can't condition a child in 5 minutes or less. Then we need to consider using your backup plan, which is either to do the OAE, hopefully right then while you have the child there. You could also try on another day, if you have the flexibility to do that. Just remember, um, that if you can't screen the child. You'll need to either do an OAE or refer the child as someone who will be able to successfully screen them, which in most cases will be a pediatric audiologist. And then, as I mentioned earlier in our discussion, just remember that some children who have hearing loss. could be the very ones who are most difficult to condition to do the screening.

So, one way or another, we want to get every child screened. I know we've said it over and over, but it's just not acceptable to conclude that if a child can't be screened, we'll just wait till next year. Again, these might be the very kids that have hearing loss. Okay, so then, 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 their lack of response after each tone is presented. If the child responds appropriately and consistently to the range of tones presented each year, the child passes the screening. Now, assuming that the child is successfully conditioned, they understand the task, the screening process begins. Note that the form here provides space to record the results for each ear. Begin with the right ear by repeating the conditioning tone one more time, and noting that the child responded as desired. Now, the actual screening then starts up to 4 presentations of the tone can be made for each frequency level, starting at 2000, then 4000, and finally 1000Hz. Two responses are needed for the ear to pass for a given tone.

Once you've completed the presentations across all three frequency levels, then the form will remind you how to determine if the child passes for that ear. The child needs to have at least 2 successful responses out of no more than 4 attempts at each frequency level in order to have an overall ear pass. Once that's recorded, then the left ear is screened in the same way. Recording each presentation result as you go. Now, if the child responds at at least 2 times at each frequency level on both ears, they pass the screening. Sometimes you'll have an ear or even both ears, though, that don't meet the criteria for passing. Like we see in this example here for the right ear. That little red box. See how the child only responded successfully? 1 out of four attempts at the 2,000 Hertz level.

If one or more ears do not meet that pass criteria, such as you see here, then a second screening of a previously non-passing air is conducted. Just like with OAE, in approximately 2 weeks, like the form indicates. You'll do a second screening two weeks later on the ear or ears that didn't pass that first time. In this case, you'll only need to re-screen the right ear, If the child passes at this point, the screening is complete, because you've re… you've received passing results. on both ears, across your two screening sessions. But if that previously non-passing ear still doesn't pass, as we see here, then you'll need to have, uh, you'll need to record that, and the form points you to the next step, which is a middle ear consultation from the healthcare provider. And that's what this form is for here. Yes, yeah, for any child that's referred for a middle ear consultation from a healthcare provider, you'll want to use this diagnostic follow-up form, on which you'll now document the remaining steps in this child's screening and diagnostic process, starting with the results of the middle ear consultation. Since the child was referred to the healthcare provider to see if there's any middle ear health-related problem that may have prevented the child from passing the screening on either ear during your first 2 screening sessions, you're going to want to find out what the results of this consultation are and record them here. Then, once the healthcare provider indicates that the ears are healthy and clear, that's when we'll re-screen the child's ear or their ears that have not yet passed.

So all children that have been referred for middle ear evaluation must receive the rescreen on any ear that did not previously pass. And then we'll document

the rescreening results back on the screening form that we started with. If the air passes now, then the screening is complete. If at this point there's still an air that is not yet passed, that's when the child is referred for a complete audiological evaluation. And this is where we'll want to support the family in completing this important step, and be sure to get the results and document them on this form. We'll also want to collect any supporting additional supporting documentation from that audiological evaluation, especially if a permanent hearing loss is identified. And in most cases, this will include additional referrals for intervention services that you'll want to be aware of and that so that you can help support the family in obtaining those services. Upon getting all of the results, that's when we'll consider the child's screening and follow-up process complete. So, that gives you an overview. of the complete screening and follow-up protocol from start to completion, keeping in mind the overriding rule.

that the screening and follow-up process is complete. When the child passes the screening on both ears, or the child receives an evaluation from an audiologist, and you've obtained those results. And remember, although screening can lead to the identification of the most common types of permanent hearing loss. It is, even with all of that, only a screening. So, anytime you, a parent, a caregiver, or a teacher, has concerns about a child's hearing, or language development, referral to an audiological evaluation is warranted. Now, Just in presenting that, I know that was overwhelming. Remember, This webinar is being recorded, and you can go review that again. Yeah. It's also… reviewed in depth. In the courses that you can take online, As well as some of the other supportive resources that are on kidshearing.org.

But those steps that are articulated in the use of that form that correspond directly to the recommended protocol. really are what makes evidence-based practice evidence-based. It's not just using the right equipment. So, that's the screening process there. Terry, I'm going to jump forward in the interest of time, to otoacoustic emission screening now. And let's go through some of the information that we've gotten about that. And, you know, It's precisely all of those manual steps that are required by pure tone screening. that is driving why so many people are saying, can we just do OAE screening with all of the kids? Because it isn't as complicated as what we just saw. So, let's shift gears over here and look at OAE screening, and remind us, Terry, how does the OAE screening process unfold?

Okay, so exactly the same way as we started with pure tone. To conduct an OAE screening, we're first going to take a thorough look at that outer part of the ear, again, to make sure that there's no visible sign of infection or blockage. Then, if the ear appears to be normal and healthy. Then we're going to place a small probe in which we've put a disposable cover on. We're going to place that and insert that into the ear canal. And then we push a button on our equipment. It's pushed to start the automated screening process. That probe, which sits independently in the ear, delivers a low-volume sound stimulus into the ear, and a cochlea, or that inner snail-shaped portion of the ear. A cochlea

that's functioning normally will respond to this sound by sending the signal to the brain, while also at the same time producing an acoustic emission. This emission is analyzed by the screening unit, and in approximately 30 seconds or so.

A result will appear as either a pass or a refer. And every normal, healthy inner ear produces an emission that can be recorded in this way. So, just like we showed you with pure tone screening, we have a screening skills checklist for OAE screening that can be used to make sure that you're going through all of the steps that are, um, required in order to be evidence-based Now, one of the things to highlight is that in addition to these steps, you also want to make sure you have all of your supplies in advance. You want to be sure to test your equipment and, um, go through all of the items that are on this checklist. So, Have a look at that as a sort of self-evaluation. Am I really following all of the steps required? Now, Terry, some… some people have asked us how to prepare children for screening. Do you want to say a few words about that? Yeah, really, our main recommendation up front is just to keep it fun, regardless of which method you're using. Um, there's a lot of little things, like, other than, like, rather than referring to the activity as a screening or a hearing test, we'll call it a listening game.

And you can engage teachers or parents in some activities that include things like. Maybe noticing the child's body parts, eyes, nose, ears, or we can expound on the idea of what animals have ears too. Things like that. Yeah, we have a little video that you can find on our website that is fun for kids to see, um, so you might want to check that out. It's called Listen Up. So, you see here our screening form that is also corresponds with, um, the the, um, protocol, just like we have with, um, OAE screening with pure tone screening. Let's just take a quick look at that form. Um, these are much simpler to follow than the pure tone forms, because, frankly, the process is easier to follow, because it's automated, allowing you to just record the outcome for each screening. Now, these forms correspond directly with the protocol. Um, you can record the results of the first screening.

And then if there's needed a second screening, if the child didn't pass the first time. And then if needed, if they still don't pass, you can record the results of the middle ear consultation, just like we saw with Pure Tone. then a follow-up screening is done after the middle ear consultation. And if they don't pass and need to be screened, uh, and need to be referred to an audiologist, the results from the audiologist are reported there. So, on these two forms, again, you have all of the steps of the recommended protocol, Um, documented. So, one of the things you'll notice… is that OAE screening can be conducted in a wide variety of environments. As you see here, you know, it can be done. You don't have to be pulling children into unusual places that they don't normally spend time. You can go to where they are, and um… And so, we hope that you're aware that you could… you know, any decent piece of OAE equipment will allow you to screen. in these kinds of settings.

Yeah, I just love all these pictures. These are real experiences that we've had with these screeners and have taken these pictures. In fact, you know, the screening works best when children are familiar and they're comfortable with the adult that's doing the screening. And where they can play with a toy, they can be held, or even sleep while the screening is being conducted. So we have a lot of options to work with. Now, some equipment is more effective than others when attempting to screen in these natural environments, but most of them can work just fine under these conditions. There are several keys to successful screening, though, to keep in mind. Um, and these four right here are really important. We need to get a good probe fit in the ear. We want to minimize movement, the child's movement, and we want to minimize internal noise as well as the external noise in the nearby environment.

You know, Terry, a number of people have asked us about the various error messages they get on their OAE devices, and what to do, and do they do something different depending on which error message they get? It really is just comes back to these four keys, right? Absolutely. In fact, you know, the error messages can vary in what they say, but what we do to get to, um… have better success screening are these four things, no matter what the error message says. So, um, if you don't get a passing result, um, we're gonna… we're gonna try these things. We're gonna try to reposition the probe. We're gonna try to… screen in a quieter environment, reduce that external noise. You want to check your probe, look at it. Did we, by putting it in the air, did we pull out some wax and we need to clean the probe, or replace it with a new cover? Internal noise really refers to quieting and reducing the movement of the child itself.

Um, and we can do that by trying to use unique and quiet toys to distract the child. Um, we… it's always helpful if we can elicit the help of another adult or screener. Now, with probe placement, the goal for proper probe placement is that we have a really snug fit. Um, what that does is it seals out all of the background noise from the environment, but what that means is that we need to select as large a possible probe cover. So that when we insert that probe into the child's ear, you can totally let go of it. It should be self-seeding and stay in place. In fact, you need to let go of it, because if you hold onto it, your touch can loosen it as they move, it can allow more noise to get in, and it can disrupt the screening process. They're actually designed that we don't hold them in the ear. So, as you select probe covers, always aim for the biggest ones that'll fit in that child's ear canal. There's no great secret, aside from experience, in being able to make that good probe cover choice selection.

You will get good at it. What about that clip you see on the boy's collar there? That's an important one too, right? It really is. It takes the weight of the cord off of the probe. And so you don't have that weight pulling the probe and helping it to get loose or to fall out. So we always recommend that you… we clip it up out of the way of the child's hands and take the weight off that probe. We're going to continue to talk through some Various strategies. There's an endless number of them. But while we do that, why don't we open up the chat

field as well, so that If you have some questions that we haven't addressed yet, we'll have a chance to do that.

So, Gunner, if you could do that, and then I also want to let you know that when we end up at the bottom of the hour today, um, we're going to ask you to open up a quick link to evaluate us, And once that… you've answered the four questions that are there, it will generate a certificate of attendance for you today, so you can document that you did attend this webinar. Alright, so let's just look at a few strategies here. One of them is about what you said before, Terry, right? About having a fun feeling, like, Using words that are encouraging and… Uh, doing things like telling children they have to wait their turn, rather than it, they have to go do this now. By just using the right wording, it's not your turn yet, it creates a different kind of vibe around it. What would you add to that, Terry, about creating a fun feeling. Yeah, it, um, this is really an important one. Like, first thing that comes to mind is, as William talked about, careful wording. We never want to clue them that it's going to be unpleasant in any way. We don't say, this won't hurt, or, um, we're going to test your ears.

We actually want to keep it really positive. We ask, for example, we'll ask what. Um, the classroom or those that were working with the children, who's the most likely to, um, engage with us so we can set this kind of fun example for all the rest of the kids? We've done that before, where they're actually lined up, wanting… wanting their turn. And so we want to tell them what we're going to do rather than ask. We don't want to give them the opportunity to say no. We want you to direct the screening. And we want to use terms that describe the activity as fun and interesting, and uh… because. If we don't, we might get a response that we don't want. Terry, what about, um, any suggestions on, uh, Jenny asked the question about Screening children who are in special education that don't easily tolerate things in their ears, any thoughts about creating less sensitivity.

Yeah, that's really a great question, and it's really a valid concern or a challenge in screening. So William mentioned earlier, we have our little listen up video, and we've had programs that will spend a couple weeks playing the song, touching ears. Using the ears of stuffed animals and other things, just to try to socialize that concept. We've, um, brought the machine in, and we've had the. Um, the probes, and we've danced it up their arm and up to their ear, and just touched their ear. We don't try to put it in, and we do that over the course of several days, and then one day we slip that probe in the ear, and we try to get the test. We also look at other ways of testing the child. Some of these. things, um, you know, the toys and the distractors and rewards are really important because we, um, for example, I love toys where I can get several different types of reinforcement out of it, so maybe. the toy lights up, and we… we use the light as a distractor, and then the toy will, if we hold the button down more, the toy actually moves, and then maybe it vibrates.

So, um, you'll learn to find great toys and distractors, um, that you can use when you need the child's cooperation. Also, I've been pretty successful with

screening during sleep. I had parents who have driven in, their child's fallen asleep on the ride in, and so I've gotten in the car and they continue to drive around the block while I've done the screening. So nap times, um, we can try to keep them a little sleep deprived and then try to get them during sleep. It's challenging, and so you'll have to pull out your full repertoire of things in order to try to get that screening complete. Terry, we have a few people talking about the challenges associated with Keeping the probe in the ear, you know, having it fall out. Um, what's the key to getting a good seal and probe placement? Yeah, that is the key to getting a good screening completed. So I'm going to just review, you know, the bigger the probe cover, um, that will… the biggest probe cover that'll fit in that ear is important. And when we talk about that, in our experience, or my experience, it found that the compressible foam covers tend to work better for more children than the harder, more silicone-based or rubber type tips.

They, uh, we compress them down, we put in, they expand, and I feel like we get a better seal and stability of the probe with that. We clip the probe up, but we want the. chord really clipped maybe at the back of their collar so that that cord's not in front for an easy grab to pull it out. We want to keep both hands occupied. This is where, if you've got a screening assistant, they can put a fun toy into those hands, they can grab those hands and clap, various little things like that. We want to keep those hands busy. In some instances, um, sucking on a bottle or chewing, we can still get the screening complete, even though those things contribute to movement. When the child pauses in the sucking, for example, on a pacifier, when they pause, that test will run, and we can often get the test completed. Yeah. Caveat there is that if you get a passing result while the child is sucking or chewing, that's great.

You can consider that complete. But if you get a non-passing result, You'll need to redo the screening without the sucking or chewing going on, as it may be the reason why you got a non-passing result. Terry, we also have several people talking about their frustrations with their equipment being too sensitive to be able to screen. Um, because of noise in the environment. And we know that not all OAE equipment is the same. Some equipment really is a lot better at screening in regular Not overly noisy, but moderately noisy active environment. Um, on the screen right here, you see some of the equipment that's available. Um, we know that some of these are particularly suited. Um, we've… I mean, we're not gonna recommend a particular device here. But I will tell you that the devices that are in columns A and B We know work well in, um, early childhood environments, Uh, would you… would you agree with that, Terry?

You do? Yeah. So we've had good experience with those in those 2 columns. And those are actually probably the pieces of equipment that we used in the photos of those natural environments that you saw on our earlier slides. Yeah. Yeah, I don't want to, um, downplay how difficult it can be with a wiggly toddler. It takes some patience, some skill, and you may not be successful on one day, but we want to keep… we want to keep trying. Um… We also want to make

sure that, you know, when you talk about probe placement, that goes hand-in-hand, right, with your perceptions of it being a noisy room, or the equipment being to sensitive, um, A good probe placement should be able to offset some of the noise of the environment. Um, so you want to always make sure that You know, many… many shy screeners who are new will be, oh, they don't want it to be too… far in, or they don't want it to feel too tight, but actually, that's what creates the condition that we need. Yeah, and, um, you know, just one comment there, William, you know, the… these probes are designed and have been standardized to fit in those ears, so, um, you know, we won't, we won't hurt them.

But I also, you know, on the positive side, have seen that this is the one area that the more kids you screen. You rapidly grow more comfortable with probe placement the more you do it. For those of you who are, um… Struggling with this, you know, um… We would encourage a couple of things. And again, we don't want to minimize how Frustrating that is, when you can't satisfactorily get your screenings done. And so we do want to make sure that, one, you've had adequate training, and A couple of you have asked about where can we get that? And this, on our website, is where you can go to get training that walks you through these different strategies. I mean, we're… you can tell, we're talking pretty fast here. Um, so… Make sure that you are getting the training you need. A really good part of training. is if you have an experienced screener, or a pediatric audiologist who can come and not only, you know, you not only do this training, but then after you do, they can go screen a few children with you.

And, you know, look at the way you're getting the probe in. Make sure that you don't have too much tension on that cord, that you've clipped the cord to the child's shirt. Um, and allowing that probe to stay, um, sealed and placed in the ear. Getting that kind of input can be really a game changer in your completion rates. Anything that add there, Terry? I think that was great. You know, some of you have talked about sensory deficits. And that you're… you're… inclined to think, well, gosh, you know, this child is so sensitive to The probe in the ear, Um, maybe this suggests something more about what might be going on with this child that they… might have a sensory disorder, or even be on the spectrum, possibly. You know, children, uh, we want to make sure that children don't get misdiagnosed. And so, figuring out a way to adequately screen them, but it is true.

that some children, especially those that have had ear infections, or other ear-related, um, conditions, um, may be hypersensitive to getting a screening done, and you may need to desensitize them to this. Terry, can you talk a little bit about what desensitization might be before you even try to do a hearing screening with some of these kinds of children. Well, I think that's… it's mostly centered around some of those strategies that we've mentioned before, where we, um… We spend time with the probe, we touch it, we try to screen, you know, we can screen toy animals, other things. But it takes time and patience, and

I acknowledge the… Challenge. Yeah, so showing them, you know, what the probe… like you see in the image here, This… this woman is… putting the probe on the child's fingers, letting them squeeze it, maybe touching their face with it. And maybe that's all they do that day. They don't try to put it in the child's ear that day. They might… Right. put it in the ear of their stuffed animal. or their parent, or the caregiver, but they don't do it with the child.

right that first time. I know that requires the luxury of time. Um, but that is… kind of what it takes sometimes with those exceptions of children that Um, have… have… struggled with that. Let's see if there are any other questions before we go on. It looks like some people have some good suggestions themselves about… Um… Oh, right. So… Before we end here… Um, I want to remind you of a couple of things. One is, again, to take a look at the website kidshearing.org for the various resources that we have there, not only for accessing Training, but for the practical tools associated with screening and documentation, and our tracking tools that are there. This webinar has been recorded, so you know that you can go back and look at this again, along with our other resources. Tomorrow, we're doing an introductory webinar, so… If that would be helpful to you or anyone else that you are aware of that could benefit from an introduction, to evidence-based practice. Um, come join us tomorrow!

And, uh, you can register for that webinar at this place right here. It's also, um, posted earlier in the chat. And then, before we go, um, Uh, Connor… or Gunnar, how do you want to go about giving people the website for… um… are… our evaluation and certificate of attendance today. Should we just put it in the… Um, chat? Yeah, I mean, you can show it on the screen, and I can put it in the chat. Okay, alright, and then… so that would be here. So, thank you to everybody. We know we covered a lot of information that can be overwhelming. Um, but… Hearing screening doesn't need to stay overwhelming. If you've had the proper, um, guidance in selecting equipment.

If you're using the appropriate equipment for the developmental level and age of the children you're screening. that you have the appropriate follow-up or backup for when a child can't be screened with the initial recommended method, Whether that's going from pure tone to using OAEs, Or if you can't screen a child to refer them to a pediatric audiologist. To make sure that you have a documentation strategy, not only for the initial screening, But for all of the other steps. And that, together, you're able to report on Not only the numbers of children that you screened, But those that pass, those that didn't, those that needed follow-up, and what that follow-up was, And then, most importantly, those that were identified with… some kind of hearing health-related condition, And the intervention that they were provided, And the number of children ultimately identified with a permanent hearing loss. All of that is what sets up children to have success in school. To not be misdiagnosed with other conditions that are actually impacted by a mild, moderate, or significant hearing loss. So, you can change the lives of kids by playing this role. And, um… we just… really, our hats are off to you for all the different things you do in your current positions.

And the impact that you can make on children's lives by, um, getting this part right. Um, Terry, any closing thoughts?