>> SPEAKER: Good morning, everybody. I am Shelley Moats. I'm a pediatric audiologist in Louisville, Kentucky. I am here today with my colleagues, Lauren Durinka from Nationwide children's -- about all the things you don't learn when you're testing little ones when you're in school. Um, these are our disclosures, in case you're interested in that. So, how, as a pediatric audiologist, do you get any information at all on a screening 2-year-old, on a crying 2-month-old? We like to say it's magic. We have lots of tricks up our sleeve and, I think when you're, um, an audiology student, you learn a lot about the mechanics of testing, and you learn how to condition, and you learn the premise of the testing that you're doing and what constitutes a response, but what you don't always learn is those nice on-the-job tricks that help you to get the information that you need. This requires creativity, flexibility, persistence, sometimes, a set of mental ear plugs, if you've got a real screamer, but, really, we have a lot of ways that we can do things that, I think, are surprising, sometimes, even to us. We're going to start out by talking about unsedated ADR testing, and the most important thing that we have to remember is that we need a baby who is in an either extremely quiet state or, ideally, sleeping, um, for about 60 to 90 minutes in order for us to complete what we need to do. So, in this particular case, pre-instruction before the appointment is key. Your schedulers should be trained to provide, um, information at the time the appointment is scheduled and again at confirmation. Um, we like to tell our schedulers, if you don't remember anything else, you want to tell the parents, we need a baby that is hungry, but not starving, and tired, but not exhausted, because we all know that a starving, exhausted baby is a recipe for disaster. Um, and another thing that we've done in our clinic is we've had our written instructions, um, that we can send through our medical record translated into some of our more common languages, which is really helpful for our families. Um, then the patient arrives, and it's time to set the mood. Um, you need a room that is quiet and either dark or with dimmable lights. Um, we need to provide a comfortable way for the parent to hold the child, maybe, with some support, like a boppy pillow. Sometimes, when parents are feeling a little bit nervous about the testing, sometimes, it's actually better, if they don't hold their baby during testing and we place them in a swing or some other supportive place of rest, so that they don't, kind of, pick up on the tension from mom or dad when they're being held. So, these are just a few examples, um, of things that have been effective in some of our clinics. Um, always be prepared to change your plan. Um, sometimes, if the baby comes in and they're, um, super-duper wakeful, um, sometimes, you talk to the parents and prep the baby for testing first and, then, let them feed and then come back and do everything after the fact. Um, sometimes, you do tympanograms, and the baby starts to scream, and we take a little break and switch gears. Um, if the baby is already asleep in the car seat and you can get everything situated, um, sometimes, we just get right down to business, but it's very important to be flexible about the order in which you do things. Um, swaddling is huge. How many of you are parents or have interacted with very young infants? So, we're talking right now about the baby burrito. Um, there is actually a technique that, if you Google the super swaddle, there's a video, and I, actually, was not aware of this particular technique until I Googled, and I was like, wow. This, I mean, this baby is, like, a burrito supreme. It's, really, I would fall asleep, if you swaddled me that way. Really. The other trick that we have used sometimes, at least in our clinic, and I know this isn't feasible everywhere, but because of where we're located and how our parking structure looks, um, sometimes, we'll get the baby ready, we'll get the electrodes attached, we'll check impedances and, then, we'll tell the parents to put the baby back in the car seat and drive around the parking lot for 15 minutes and, then, when you come in, hopefully, you've got a baby that's asleep in their car seat, they're prepped, they're ready to go, and you can just attach all your stuff, and the baby doesn't even have to come out, which is great. So, we are going to switch gears now and talk a little bit about older kids. Still little, but a little older than these babies.

>> SPEAKER: Okay, so, I'm going to talk about the 6 month to 3 year population. Oftentimes, the first time we're getting a behavioral evaluation is when the kid is in this age group, um, and, so, what we're really going to focus on with these kiddos is those objective measures, because we know that when we try to do behavioral, those results are going to be really, really variable. Um, so, those objective measures can be really, really important. How are we going to get those effectively on a, possibly, screaming 2-year-old? Um, so, the first thing that I like to do is talk to the parent or caregiver. They can give you information about what that child might tolerate. So, um, if they're going to let me put something in their ear or not, um, and, then, they also, if you talk to them first, can be really good helpers for you. If you don't tell them what you're doing, what you expect of them and what you expect of their child, which is generally that we want them to be, kind of, still and quiet, um, they can't help you do that, if they don't know what to expect. So, I will tell them what tests I'm doing, um, when, or what I need them to do and what I need their child to do and, then, they can be much more helpful to me. The second thing I want to do is talk to the kid, um, and it's really important to get on their level. That means, um, physically, so, kneel down on the floor, so that you are eye to eye with that child, lower your seat, if you need to, um, but be eye to eye with them. You're less scary, if you're not towering over them. The second part of that get on their level is speak their language. So, talk to them in words that they understand. We're going to give your ear a kiss, we're going to listen to some robot music. They sound really silly, but that's meaningful to them. I'm going to put this probe in your ear and do an otoacoustic emission doesn't mean anything to a 2 year old. I also want them to know what to expect. Toddlers do much better when they know what's coming. So, the surprise factor isn't a great technique. So, I let them touch the probe, we show them what we're going to do on mom and dad first. If they're really little and, maybe, don't have a lot of conversational skills, I touch their ear first, let them know that I'm coming. I don't want to surprise them. The last thing I like to think about is working backwards, if I need to. So, if you remember, I talk to the parent, and I found out that that child's going to scream bloody murder, if I try to put something in their ear, so I'm going to do VRA first, because I can do that in the sound field, and I need a happy, willing to participate child to do that. So, work backwards, if you need to. One thing I want to point out about working backwards is, if you can at all for a child who might be a little more apprehensive, save otoscopy for last. What, um, where else do they see an otoscope? Their pediatrician. What does their pediatrician do? Gives them shots. Um, so, they know that otoscope, and it will scare the crap out of them, if you, um, pull it out first. So, now, we've got the thing in their ear, we're going to distract, distract, distract. These are some of our favorite ways to do that. Um, the dollar-aisle light-up toys are amazing. We buy them in bulk, I think, from Amazon, so, we call them our magic lights, and we use them daily. We also like to use favorite videos, um, Coco Melon is a magic, like, child-charmer, so, if you have that available to you or if parents can pull it up on their phone or another favorite video, that works well too. Um, bubbles, I know some clinics are still not using bubbles because of the COVID, um, era, but if you can use, like, a bubble gun or something like that, bubbles work great. Stickers, I have covered a patient, like, head to toe in stickers before. Like, the parent, probably, hated me at the end of that appointment, but we got an OAE done, because they were distracted enough, as I'm putting stickers all over them, that they didn't touch the thing in their ear. Then, if all else fails, we are not above bribery, so, snacks, lollypops. Tell parents to bring a snack with them or something like that, if it's their second evaluation and the first one didn't go well. Then, we're going to move on to that behavioral test, um, VRA. So, for this, we want to really think about where the child's sitting. Um, so, um, some babies might be really squirmy, want to get down on the floor and crawl around and not want to sit, so they might do better in a high chair. High chairs are familiar to most infants, and they're contained, so, they will sit a little better for you. It may be that you have an independent 2 and 1/2-year-old, and they want to sit in a little seat by themselves, with mom and dad right behind them. So, this is another good opportunity to talk to parents and find out what might work best for their child. An important thing about seating is you always want that child, especially if you're doing VRA, to be sitting upright. If they're lounging on mom and dad, they're not going to give you a great response. Another good opportunity to find out their favorite things, you may feel really silly, um, singing, when you're doing VRA, um, but it works, especially if you have a kiddo who has, um, or is, maybe, on their way to an autism spectrum diagnosis, um, those kids don't respond to their names in a lot of cases, um, but they will respond to their favorite song. So, sing, that's a big one. This one, you may have learned in school, but still important. Um, keep moving. So, don't harp too long on any one thing. That child's going to get really bored. Keep moving. Um, something that I learned on my fourth year from the person sitting next to me, um, is silence can be really golden too. So, if you're doing, um, a VRA test, give them a break. Don't play a sound for a, like, a few seconds, 30 seconds, and then play something, because, now, that sound is brand new again and interesting. Then, the last thing, um, is if you're a test assist in the booth, which, maybe, not all of us are, um, a lot of the time, but don't be afraid to interact, obviously, when it's appropriate. So, when you want the child to be listening for the sound, be that calm, quiet distracter, but when they do the thing you want them to do, give them all the attention in the world, because toddlers love attention and, so, when you give them that attention, that positive reinforcement for the thing that you wanted them to do, they're going to keep doing it. I'm going to turn it over to Maggie for our little bit older kids.

>> SPEAKER: All right. So, I'm talking about children who are age 3 to 5, which is my favorite age of pretty much all children. Um, these are tiny humans with giant feelings, giant emotions, giant reactions to many things, either positive or negative. These are also kids who have a little bit more life experience. So, like Lauren was saying, they've been to the pediatrician, they've been to, probably, a specialist or two, they know that they don't really like you, or they don't really feel comfortable with you, at least at the beginning. Um, so, really, when you are meeting these patients, what's most important to remember is the moment you lay eyes on that patient is when this appointment starts. So, you want to walk out to the waiting room with a smile and a friendly way, getting down to the kid, talking directly to them. Um, if the patient, the 3 to 5-year-old sees that you are coming out, um, all business, we often don't wear white coats for this very reason at our Children's Hospital, um, they feel very apprehensive, but if the first thing out of your mouth is who is on your shoes or what stuffed animal did you bring today, it changes the dynamic of the appointment and, really, your relationship with that patient. It definitely will help things move forward in the future. Um, we always try to have them bring something back, and we look in bunny's ears or, um, do our OAE tip on the bunny first, just to help them feel very comfortable with it. Again, like Lauren said, we're going to get down on their level as much as we can. So, when we're doing anything to the child, specifically, um, otoscopy or OAEs, we want to be, really, at their level, so that they can look us in the eye, and we can be keeping that relationship with them and explaining to them in words that are common for them, what we're going to do next. I have an ear pillow that's going to sit at the edge of your ear is much better than the ear phone that sits inside your ear, which can be overwhelming for many kids, although most kids, now, listen to, um, air pods and have no fear of this, so, that's one big bonus of technology. It's also really important to look at the toy options that you have in your clinic. One of the things I will say we often have with, um, students that come to Cincinnati Children's, they'll say you have so many toys, these toys are so fun, and we do that with very much intent, right? We want to make sure that we have, um, a wide range of toys. We've all been stuck in the situation where we pull out the piggy bank and the mom's like, oh, no, we have the piggy bank, and we're never going to play anything but the piggy bank, because this is their favorite toy, or getting out the bouncy balls, and we're going to derail with the bouncy balls. Whatever the toy is, it's nice to have another option that's easy to grab and to just, kind of, start over or change. If you do have limited toys, try to figure out different ways to play different games with those toys. So, we have a peg board, because that also becomes a tower-builder and a few things that we can do together, sometimes, we push it down, sometimes, we build it up, um, in order to keep the test going and keep the kids very engaged. Now, hopefully, we never have to go back to, um, pandemic protocols, but you never know what will happen in our future. So, there is some ways that you can do these tests in a very creative way, um, and keep infection down. I think, for our kids who are medically complex or kids with health issues, it really is something that's important to be aware of, even when we're not in a time of big, um, restrictions. So, I'm going to give Shelley the credit for these, because we actually didn't do these at our center and, now that I saw this, I was like, dang, that was a missed opportunity, but what she does is a solo cup with cotton balls, and the patients can throw the cotton balls in, have a very fun game, they can take it with them, they can throw it in the garbage, you aren't left cleaning toys at the end of the day, which sounds wonderful, or even a sticker chart. So, giving patients, um, the chart, as they hear it, they can put the sticker right on to the thing, fill up the board quickly, um, get out of the door with either a prize for themselves or with something that just needs to be thrown in the garbage and isn't an issue. So, again, for our kids who are medically complex, we see the kids often who are, um, on HEMOC protocol, kids with cancer, this is a great opportunity to keep them healthy and safe and, um, minimize your time in clinic. It also is really important to make this fun, because we've all seen the, um, 3 to 5 year olds who just have no interest in any of this. You pull out the toys, and they are like, no, thank you. However, if it's on their terms and if they can be a little bit misbehaving, they might be more willing to do it. So, we have kids throw things around the booth, which they find hysterical, right? So, throw the blocks, throw the stars. You need to be mindful of people getting hurt and, obviously, of the equipment, but within a certain capacity, this is a great way to get a test done, where they feel like they are, like, in control of this situation, and we're still getting the information that we need. Um, it's best, again, if we don't have them clean up, because this is all about them, they're the star of the show, so, at the end of the appointment, we take care of that, um, and get them on their way. Actually, a very popular, um, game for those kids. Another one that is just as popular and very exciting for our patients is buttons and, I will say, I'm not 3 to 5, and I love buttons.

(Laughing.)

>> SPEAKER: I think the easy button is the, like, super fun. So, of course, so do our little guys. So, um, the bottom button here is actually when it lights up, when you hit it, so that's fun for everybody to turn on and turn off. This is good for kids who are, you know, transitioning out of the basic games, but, also, again, really good for infection control, because instead of having numerous toys and 25 stars to wipe down, you just pick up a button, wipe it down and, then, move on. Um, so, all of the pediatric clinics really should have access to a button, um, in order to keep this going. You can even use the button to turn on the VRA. So, you're sitting there, watching as they hit it, light it up, to give that real combination approach and to really keep the kids engaged. So, for the kids who are in this age group, a lot of times, we need extended testing on them. So, either they've come to our clinic a few times and we need to, um, keep this going, we need to fill in these gaps, we are trying to keep them away from a sedated ABR, or they're kids with devices, hearing aids, cochlear implants, and we really do want to make sure that we get all the information we can. So, we're standing on our heads often, trying to get all the information we need to for this one. One of the things that's really great to do is talk to their therapist or even just to the parents and say bring a toy that's familiar, something that you work on in therapy, something that they like to play. That can really be the difference of making them feel more comfortable in the group, or in the room. Same thing with food. So, we do not provide food, or we don't eat in our clinic, but, if you can, that's something that's really nice to do, because people are motivated by food, little kids are very motivated by cheerios or skittles, whatever they can do to get a little reward in there is something that is, um, a great way to bridge that gap for those complicated tests. We like to race our patients. I am very competitive in spirit, so, it's hard for me not to win, but I will allow the 3 to 5 year old to win when we're doing the testing, if it is important for the results. Then, just like I said before, variety is key. So, you're not going to play one game the entire time, you're going to be switching it up, you're going to be ready to play something different, um, move to that next game. I have a video here. I do not have a video here. All right, I apologize, the video's not playing. This is just a child who is, um, with a test assist, um, having a CPA test in our clinic, and what I will say about it, it's really nice, is the, um, test assist does a couple of things that I think are important to note. One is that we don't hold things to our ears at our clinic, because when they hold it to their ears, they just consistently knock off their headphones, intentionally or not intentionally. So, we usually hold our toys to our heart or to our tummies. So, when we're listening, we hold it to our heart, our tummy, so, that way, our ears are clear for what we need to do. This kid here has extended high-frequency headphones on, so, we can assume that he's had a pretty long test. Usually, if we're doing that much testing, um, we are doing some extra tricks. She's just very encouraging with him, um, consistently providing that positive feedback. All right, I will pass it over to Charlotte.

>> SPEAKER: So, I get the big kids. Um, so, I think the key with testing even the kids that are 5 years and older is there's no hard and fast rule. You are now 5, so thou shalt raise your hand, when you hear it. Again, it's that flexibility. My colleagues in Boston often tease me that I'll have an 8, 9, 10 year old still doing play audiometry, because if I need to get a full un-aided audiogram, I need bone conduction, I need aided testing, I need to hold their attention for, maybe, 45 minutes. So, if playing a game is what's going to do it, that's what I'm going to do. Um, I did have a 10-year-old the other day who was a little annoyed at me, that I wouldn't let him play the games anymore. He kept looking for the toy box and, when are we going to do that? I said, no, you're big now. Um, but, again, you want to get --

(Laughing.)

>> SPEAKER: Yeah, 10 is big. You want to get creative, um, again, with your responses. Even if I have, maybe, a 6 or 7 year old that is perfectly capable of raising their hand, maybe, it's a kid coming for an audiogram after having PE tubes placed, I might turn on the video reinforcer, um, every so often. Um, you can, instead of raising your hand, it can be a thumbs-up/thumbs-down, you can have them put stickers on a page when they hear it. I've had kids just say I heard it, I heard it. Um, the VRA can actually be a really motivating, um, many of our booths have the video VRA, um, so, a random short clip of a fish or an airplane or something comes on, and that can really hold their attention, and you don't necessarily need to do it with every presentation, you do it randomly and, so, that keeps them going. Again, just lots of verbal encouragement, you're doing great, just a little bit more, uh-oh, here comes a new one. Things like that will really keep the kids going. We will use the button on some of the older kids, again, maybe, if they're feeling a little too mature for playing games, um, the button and adding the reinforcer, and we actually use that lower one, the tap light, we don't put batteries in it intentionally, so that when the kid hits it, then we control the VRA response, so they're not getting anything visual, so that when they're sitting there, going bang, bang, bang, they're not getting anything out of it, and it just reinforces that wait and listen. So, again, just lots of flexibility. You know, again, I think if you're thinking about kids that are coming for chemotherapy monitoring, those poor kids are coming, maybe, every two, three, four weeks for testing, um, and they get sick of the toys, so, having, um, backup supply of toys, um, and thinking of the, you know, nine ways that you can play with stacking cups is great, and the throwing things on the floor, I learned that as a graduate student, um, the supervisor I had at the time had those little hollow pop beads that you can make into, like, a necklace and things, those are great for throwing. Anything with foam, um, kids loving making a mess, so, um, working with the big kids, that's a great way to go. All right, we already determined those aren't running. So, that was just another video of adding, um, CPA with, um, visual reinforcement and lots of information. Then, here's a video link to the YouTube video on the super swaddle. Are there any questions? We have just about 5 minutes, or if people have some other thoughts, um, I think we have --

>> SPEAKER: Um, something I have found, I'm a teacher of the deaf, and one thing I have found, for my little kiddos, is if we make a social story or a visual schedule of what's going to happen in the sound booth, that's really helpful. You just have to make sure you have permission from the audiology to take such photos, um, and respect everybody's privacy along the way, but, also, thinking about the cotton balls, having kiddos who are really moving and grooving and have sensory needs, I have found that, instead of putting a cotton ball in, sometimes, they like to, like, have a spoon and stir cotton balls, like it's soup and, then, they, like, hold it to their chest and stir it. So, that's been successful.

>> SPEAKER: That's a good idea. Yeah, the social stories, especially for, um, children who are on the autism spectrum, that can be a God-send for parents or, um, providers, to go through the story with them, so that they're a little bit more comfortable for this strange place that they're coming.

>> SPEAKER: Thank you so much for those great tips. Um, this is a little more diagnostic question, but, um, for the babies with ABR, what's your thoughts on doing the ABR if tymps are flat?

>> SPEAKER: Oh, good question. You know, I mean, I can only speak to our clinic. In our clinic, typically, if it's the first test after a newborn screen, we will still do it and attempt to get bone conduction responses as well and, then, plan a pretty quick follow-up.

(Off mic.)

>> SPEAKER: Yeah. So, the response from Maggie was that if the second ABR, the family comes in and the tympanograms are still flat, suggesting fluid, they get an immediate referral to ENT with, then, again, a plan for follow-up.

>> SPEAKER: To Charlotte's point about trying to get bone conduction, if I have a baby with two flat tympanograms, I'm, probably, going to skip OAEs in favor of having more time to do bone conduction.

>> SPEAKER: On average, for the kids under 2 years of age, how much time, start to finish, do you have before the child has had enough and just stops responding?

>> SPEAKER: Depends on the kid. Um, you know, I can get some 2 year olds to go for half an hour or more, um, again, with that flexibility of changing up games and, then, you'll get the other 2 year old that, you know, they've done 2 and 1/2 minutes and all done.

>> SPEAKER: Under 2?

>> SPEAKER: You know, under 2, they can be tricky. You know, again, it depends. I've gotten as little as a couple of minutes and, sometimes, 9 or 10 or 15.

>> SPEAKER: You know, sometimes, having a test assist can make a big difference on keeping that going. I think single testing, um, at least from my experience, the attention is much smaller, right, because you don't have somebody in there to change games and move things around, but once you can bring in that second person who is able to feel that room and feel that child out and make those changes, you're able to get much more testing and have more time for the appointment to get what's needed, and taking breaks, especially, for longer appointment times is also something, we do programming and come back to the booth to fill in gaps as well.

>> SPEAKER: Anyone else? I think we've got, like, 45 seconds.

>> SPEAKER: Well, thank you all for coming.

(Applause.)