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NCHAM
UNDERSTANDING YOUR CHILD'S HEARING LOSS
AND THE IMPORTANCE OF THE LINK 6 SOUNDS TEST
MARCH 14, 2018

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Note From Captioner: Captioner is standing by.

So, again, we will start in eight minutes and we thank you for being here and stay tuned until then. Thanks. Hear to Learn. Hear To Learn.

Note From Captioner: Please stand by for captions.

>> Some information about who is in our audience. If you can respond to this poll, we like to get a sense how we would like to direct our message today based on those who are tuning in. Looks like we have a good mix of audiologists and early interventionists and parents and others. We got about 20 or so with us. I anticipate others will join as we commence. Thank you, again, for participating in that poll. We appreciate it.

>> Good day, everyone. My name is Alex Meibos. I would like to welcome you to our webinar brought to you by national center from hearing assessment management at Utah state university. Today presentation is understanding your child's awe I don't gram and importance of the ling 6 sounds test. It will be presented by Ana Caballero and Renee Lucero. They are facilitating these webinars.

At conclusion, I will open a text field to ask any questions that you might have for owe presenters -- our presenters. I would like to welcome our presenters and look forward to what they have to share.

>> Good morning, everybody. I'm Renee Lucero. I know that Ana and I are happy to have this opportunity to speak with you about this important topic. The Ling 6 Sounds test. It's a simple way to check if someone can hear the sounds that are needed for listening and spoken language skills. Important for parents to do this and ideally parents should be able to troubleshoot the child listening or hearing devices at home.

During the webinar, we will review basic terminology to understand the importance of and learn how to perform a Ling 6 Sounds test. These are learning objectives for today. It's our hope at end of today's session you will be able to, one, describe the basic technology. And explain the response of the ling 6 sound test. We hope that you will be able to explore the troubleshooting strategies and finally understand some of important speech information for each of the 6 phonemes of the ling 6 sound test. I'm going to pass this over to Ana.

>> Thank you. Good morning, everyone. I'm going to start to talk about audiogram interpretation. This is important information that sometimes we tend to forget to explain parents what all of that terminology and symbols and letters and colors means.

So we will start explaining what those symbols mean. What I want you to understand, let's look at the graph on right side. First thing, you can see that it shows up on the top of that graph, we have the frequencies. Frequencies go from low until 8,000 which is high frequency. On left side, we are hearing levels or volume or intensity

that goes from soft to loud.

Before I forget, remember in our website, there is a tutorial that goes into more detail on how to understand the audiogram. Make sure to share that with anyone that might be interested in learning more.

As I was saying, let's go back to what are the different degrees of hearing loss. We have on the right side, normal hearing is between negative 10 until 20. For kids, we go a little bit lower on that. Minus 10 to around 15-decibels.

Then we have the mild hearing loss and moderate, severe, and profound. What I want you to understand is that not all the degrees of hearing loss for each kid are the same. Depending on that degree, that's how hearing aids are programs and how a lot of recommendations will be more specific.

Also, the audiogram represents the level to get a respond. Child should be able to respond to softest sound as soft as 11-15-decibels. If they cannot hear at that level, we have increase until we obtain a response. We can see on the left side, we have one type of hearing loose. You cannot see the red circles. Red circles normally mean the right ear and blue are referring to left ear. As you can see on one of these graphs, we have a flat, mild hearing loss because most of those responses are within that 40 to 50 hearing level range.

So then when we go to the other slide to the next slide, this is a better representation of that speech banana. You can see on the chart how that is representing the conversation levels and how they are different sounds that are at different levels and different frequencies. So you learn how to explain what speech banana means and why those speech sounds are so important for developing listening and spoken language skills.

So the ling-6 sounds represent various speech sounds from low to high pitch which is known as frequency. You see on audiogram. These sounds approximately range from 250 to 4,000-hertz and represent speech in low, mid- and high frequencies. Help to test your child's hearing and check they have full access to full range of speech sounds that are necessary for learning spoken language.

On this slide, you will see an audiogram that shows where all the speech sounds fall within that speech banana. This is where we would like children to have access to sounds. Access to these sounds is important to development of listening and spoken language skills. Ling6 sounds are these above.

So this audiogram highlights the ling-6 sounds along with those plotted on this audiogram. You can see in the red print where these sounds lie in the low frequency or mid frequency and high frequency range. And we suggest talking with your hearing health professional for a full explanation and interpretation of this audiogram and your child's audiogram.

So why do we do the ling-6 sound test? As we will discuss later, all listeners have to progress through hierarchy of listening skills to be able to identify the sounds. A listening check can be done quickly in as little as 30 seconds or less. And these 30 seconds can be crucial to ensuring that your child has access to all of the speech sounds. It is a quick and easy test that allows us to know if child can detect and identify sounds across the speech spectrum and help monitor changes in hearing that can be due to middle ear issues or progressive hearing loss in extreme cases or simply, a need to change batteries of child's hearing technology.

As mentioned earlier, six sounds entire speech spectrum. Chart is taken from cochlear website. Highlights the key features of each of the six ling sounds. We will discuss each of them briefly in next few slides.

So starting with m. It's a low frequency sound. And low frequency information is information that belows 500-hertz carries a lot of information that is important to understanding of speech and speech development such as super segmental information like rate at speech and information. Vowels are powerful sounds that have low frequency information that occur between 250 and 500-hertz. Low frequency information is important because carries the melody of speech. When child is not able to hear M correctly, they are unlikely to hear other low frequency sounds in this same range and that may result in poor prosody with speech. And have errors with vowel production and demonstrate nasalized speech.

U. This is also used to make sure that child has access to low frequencies information that include the same important information that was discussed in previous slide.

The next sound is a. A is considered Amid frequency sound and at center of speech range and central sounds tend to be louder because the mouth is open wider during production. If a child cannot hear this sound, they are likely to have more difficulty with hearing unstressed words. So, for example, if someone were to say, I went to the park, they may only hear, I went to park. Next sound is i. This is low and high frequency information. If a child were to say -- when doing the ling-6 sound test, if you were to say i and child were to repeat or give you instead, this may tell you that they don't have enough access to the low frequency range. On the other hand, if presented with i and child says ooo. This means they may not have access to high frequency sounds.

Next sound is sh. It's moderately high frequencies sounds. May not be available to someone who does not have a cochlear implant. High frequency sound. Like with the sh phoneme. May not be accessible to someone with severe or profound hearing loss that does not have a cochlear implant. There is a lot of important information that is carried in high frequency range such as possessive.

Jose's shoes plurals that would be car versus cars. Walked versus walk. So if I child does not have access to high frequency

information, this has implications for how would impact their listening and spoken language development.

>> Okay. So now, we are going to talk about how to perform that ling-6 sound check with your child. This is something that earlier intervention is my practice at home during home visits. This is just simple research that you can also share with the parents. So the way we do or perform this test is pretty straightforward. We say these sounds one at that time in a random order. What we are doing is two things. One, we are checking if listener is able to hear each of those sounds which tell us if they can hear the sounds of speech. And second will check with hearing aid is working properly. You can present each sound individually and randomly. Say the sound at a distance of 20-centimeters from the microphone. Make sure environment is calm. Once child is consistently responding at that distance, you can increase it to 3, 6 or 9 feet. Use normal speaking voice or did beside or behind the child. When child responds, give them positive reinforcement such as you heard that, good listening. If child does not respond to a sound, try saying the sound again with some information and longer. If you are presenting the sound, ah, and you notice that child is not responding, you can say like, ah, ah, ah or ahhhh. Trying to see if that helps. If your child still does not respond that second time, move too another sound -- and make sure you keep note so you can discuss later with your audiologist.

Another important information that parents need to understand is considerations for different ages.

When we are talking the ling-6 sound check can be used with children of different ages and changes depending on auditory skill levels. Babies and very young children can recognize the presence or absence of sound. So they may respond through a behavioral cue such as eye widening or turning a head or displaying a change in sucking behavior if using a pacifier or having a bottle. Baby must be able to consistently repeat this type of behavior response when sound presented for response to be considered valid.

When working with older children, they can respond by pointing to a picture card that represents each of the sounds or by simply repeating what they heard. Children can be expected to repeat sounds by two years old. And, again, this also depends when a child was implanted. So if we have a child recently implanted or recently fit with hearing aids, we need to remember that process will start since detection auditory skill level and progressing until auditory sound.

>> This is a daily check form. And I have shared this resource with you guys so you can access this form. And basically it shows you how you record those responses. So I have an example in the next slide. So if you do -- let's look at example on the right side where it says interpreting their results. Notice how we have the same of the child. Type of technology that they are using. If only a cochlear implant or hearing aid or both. We also kind of recorded

distance, tested and presentation level. Also indicate whether it's quiet or noisy information, doesn't have to be complicated. May take about 30 seconds to perform this chest, notice how checkmarks indicate that child able to recognize or respond back that sound. And then there is a kind of like a negative sign that means no response on Tuesday when we were testing that oo sound. If you notice the rest of the days, he was on his tent. We can -- consistent. We can consider maybe that day, he was tired or he was not paying attention.

And then you can see on the oo sound, the child tend to confuse that sound every single day that we tested the sound. Instead of repeating that oo, he was repeating u. This is something that you can record in the form. What it worries us is that we need to make sure that child has full access to those sounds. If that's not happening, we might have to look into changes in his hearing or changes that we might need to have to do on the programming of hearing devices. Which are three responses that I'm pretending or hoping to get from the ling-6 sound daily check. I want to know what speech sounds does my child respond to or detect. I want to know what speech sounds can my child repeat if we are at that level of identification. And we also need to know at what distances does my child detect or discriminate those speech sounds.

So now let's talk about hearing aid listening check.

Why -- basically why, who and when. Let's go and understand why the hearing aid listening check is something super important for passionate to understand -- parents to understand when you have young children with hearing loss wearing hearing devices. Why? We want to help you to know if your hearing aids are working properly and amplifying the sounds that helps to reduce the amount of time that that child is not hearing well. Who will do or perform this hearing aid listening check. It could be parents and speech and language pathologist, early interventionists or teachers. These are resources and I have shared some lings and handouts that you can share with your child's teachers or anyone you guys would like to train on how to do it.

So what do we need for that hearing aid listening check? We need a stethoscope and battery tester and wire loop and brush to remove wax and air blower to remove moisture from the earmold tubing.

Everyone's kit looks a little bit different. Always make sure you ask your audiologist how to get one of these care kits.

So what do we do first? So the first thing we want to do is just make sure that we follow this simple and easy list on a daily basis. We need to test the battery with battery tester. We need to check the volume control and need to make sure that earmolds, ear hooks, hearing aids are not broken or dirty. Look at hearing aids to see if there are cracked areas or block on of openings or moisture in the tubing or if battery has some kind of corrosion in that compartment. After you look at external part, you can go and check the sound quality.

>> For the sound quality, you can -- and there is a video that

shows each of these steps so you can learn by seeing it. So you have to attach the earmold to listening stethoscope, check if microphone is not blocked at this point when you performing that ling-6 sound test to make sure those sounds -- how do they sound? Are they clear to you. This is something you have to do every morning before you put the hearing aids on your child. Making sure they are working okay or fine or excellent and that they are amplifying correctly with sound being clear.

Here are some troubleshooting steps that share a resource that has every single step in case hearing aid is not working. What you can do. If you try every single step and feel they are not working or sound quality is not the way how it's normally, used to be you can also check with your audiologist and get a hearing aid loaner in the meantime while we send them in for repair.

Another piece of information that we wanted to add is general maintenance tips for cochlear implants. You can see that same kind of concept kind of looking at exterior of the cochlear implant and then making sure that there are not any damages in the headpiece cable or cracks or damage in that headpiece. This is hard because depends on brand or model. This is something that you can request from your audiologist.

Why do we think that hearing aid listening check is so important. We want to make sure that they are working properly and amplifying the speech sounds and there are not any changes on hearing loss. Parents are ones to need to remember to perform these hearing check every morning before they wear the devices to make sure that child is really getting the best benefits from the hearing aid use at school or at child care.

>> As I mention before, there is a link to a video from our website Hear To Learn and they have a useful video that you can watch that talks about management and care of hearing aids and how to perform a test. Hear the steps to follow to access the tutorial hearing aid care guide in our website. And resources links so you access the information and handouts that we used to prepare this webinar for today.

One more time. Thank you very much for participation in today's webinars. To request materials. Visit our website under that contact us section. Thank you and hope to see you guys next month.

>> All right. Thank you very much. I will now open up the question box. If there are questions or comments that we have for presenters. We are close to end of half hour. We want to respect your time and if you do need to go, that's completely fine. We appreciate your attendance today. One to two weeks of today, recording of today's presentation will be made available to you at Hear To Learn.org. You will be able to watch for future webinar topics as they come up. At conclusion of closing this recording, you will be asked to participate in a brief survey that will take no longer than a moment or two. And that will help us to understand what we can address in future webinars.

>> Okay. Doesn't look like any questions have come through.

So we will go ahead and call that a wrap and wish you all a happy pi day and hope you get some pie on March 14, 2018. Thank you for your participation. We hope to see you next month.

Note From Captioner: Meeting is over. Thank you.

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