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## Building Babies' Musical Brains using BabyBeats September 2nd, 2020

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AudiologyOnline.com Course #35253  
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- [Julia] Welcome everyone and thanks for joining Advanced Bionics Professional Live Webinar Series. Today's webinar is titled Building Babies Musical Brains using BabyBeats. Before we get started, I have a few housekeeping items. If you need technical support please contact AudiologyOnline at 1-800-753-2160 or email at CustomerExperience@Continued.com Any opinions of non AB employees are their own, and not those of the company. And this webinar may be recorded. Welcome everyone to our live webinar. With social distancing, we have a real need to share with parents what they need for their children at this time. We know they're doing their very best to support their child and Advanced Bionics is here to help. We also understand that parents are their child's first and best teachers. And it's important for us to provide them with the resources and support they need. My name is Julia Biedenstein, and I am a Cochlear Implant Consumer Specialist with Advanced Bionics. I have been with AB for six years, and support the South Central region. Prior to coming to AB, I served in the field of deaf education for over 30 years as a classroom teacher, school administrator, and a researcher. Today, I will be presenting with my colleague Jane Ledingham. Why don't you introduce yourself, Jane?

- [Jane] Hi, everyone. As Julia mentioned, my name is Jane Ledingham. And just like Julia, I'm also a Cochlear Implant Consumer Specialist in the Northeast region. I cover the areas of New York and New Jersey. And, also like Julia, in the past I was a teacher of the deaf and hard of hearing, a speech and language pathologist, as well as a listening and spoken language therapist. So I'm sure all of us here today have a lot in common, and I'm looking forward to sharing what we have about BabyBeats.

- [Julia] Thanks, Jane. We also have Gretchen with us today, who is manning our Q and A pod. Gretchen is also a Cochlear Implant Consumer Specialist covering the Great Lakes region. What we're gonna cover today is building the musical brain. We're gonna do a BabyBeats hands on, and we're also going to talk about how to implement BabyBeats into your setting. And then we'll follow up with a Q and A. So without much

further ado, let's go ahead and get started. Before we get started, I always like to know who my audience is. So, I'm gonna show you how to use the Q and A pod. Over on the left bottom side of your screen you should see a little box and in that box, you can write in your comments and questions for us. And we're happy to answer them. But to get started, and to test it out. If everybody could just type in there where you're coming from today, and also what kind of a professional you are, whether that be a audiologist, and SLP, a teacher of the deaf, or an early interventionist. Okay, so I'm seeing someone from California, who's an SLP and also works in early intervention. I see somebody who's an occupational therapist, and does clinical research. Great, welcome. Somebody else who's an educational audiologist from Los Angeles. We've got an early interventionist. Got a lot of people from California here today. We've got another teacher for the deaf from Los Angeles. Very good. Well, welcome to everybody. And we're glad to have you here with us today. So let's go ahead and get started on building the musical brain. Did you know that music assists with early listening skills and developing the hearing centers in the brain that are responsible for language and learning? This is why Advanced Bionics developed BabyBeats. But why is teaching families to use music with a baby or toddler important? Well, let's start learning about understanding hearing as a brain activity. So research states that singing songs and reciting rhymes with babies is good for their brain. It helps them to learn the language of the home. But what about babies with hearing loss? Carol Flexer, whom I'm sure most of you are familiar with, is an AB Phonek thought leader. And she's coined the phrase, ears are the doorway to the brain. What does this mean? And why is it important? When we have conversations about hearing loss, it helps us to focus on where hearing actually occurs. In the brain, not the ears. So imagine the ears as the doorway to the brain. Sound has to pass through the ears and travel to the brain, where meaning is associated with the sound. Carol described hearing loss as a doorway problem. Cochlear implants and hearing aids are designed to break through the doorway, and deliver the auditory information to the brain. So when you think of a child's ears, and how a child will hear, and how a child will learn, I want you to think of

the child using their brain. So why should we coach parents to use singing and rhymes with their babies? Well, in order to be ready for school, a normal hearing child needs to hear approximately 45 million words by the age of four, and have 20,000 hours of listening in infancy and early childhood as a basis for reading. We know that unlike any other organ, the brain is not fully developed when a child is born. Brain development is completely dependent on environmental experience. Extensive auditory practices in acoustically favorable conditions creates the neuro biological foundation, not only for spoken language and literacy skills, but also for age appropriate social and cognitive skills. So that's why in the first three years of life, the foundation for all thinking and learning is being built through parent talk and interaction. They need true back and forth exchanges with parents and caregivers, and they need to be engaged in conversation. Results from a recent study at MIT showed for the first time, that parental conversation actually influences the biological growth of the brain. We need to feed a child's brain so that it will grow and develop. We need to feed the brain by talking, and reading, and singing. We need to feed, we need to. We need to understand why it's important to use songs and rhymes, and music, in listening and spoken language intervention. Backtrack. There we go. Singing comes natural to a parent, and every culture has their own cultural songs, which allow for natural language rich environments with all family members, and this creates a language rich environment, and opportunities for bonding. It allows parents to speak the language they know. This language needs to be accessible to the child, and parents naturally sing the songs, rhymes, and celebrate the music of their own culture. Parents need to see their babies respond. So hearing technologies are worn 10 to 12 hours a day. When babies respond, parents believe in the benefit of the technology and respond back, laying the foundation for a beautiful conversation. Music is a type of conversation. It encourages turn taking, attention, and eye contact. And all this happens while having a musical conversation. And it uses everyday routines, play and typical interactions to build the child's listening and spoken language skills. And music can be integrated into everything a family does with their baby. There are many

benefits of using songs and rhymes with babies and toddlers, as it helps to create the early foundation for early literacy and language learning. It helps to build vocabulary, once again remembering that we need to, they need to learn 40 million words in four years. Repetition allows the brain to learn. It helps build pattern perception, auditory memory and sequencing. It also helps with storytelling and sequencing. It helps children understand that there's a beginning, middle, and end to stories. And it helps with pre-literacy skills, namely phonemic awareness, which is important for reading and spelling. So are songs and rhymes alone enough to build the musical brain, and gain the early associated benefits for developing, listening, and spoken language? Music has similar benefits as using songs and rhymes, but also builds the musical brain. The benefits to developing the musical brain are certainly, caregiver and child bonding and interaction, definitely a development of the listening brain, development of pre-verbal skills, and development of the musical brain, which helps them learn to match the beat. And there's research out there that shows that children who synchronize the beat are better readers. It also helps to build phonological awareness. It helps them to learn to match the rhythm, which builds pattern perception and auditory memory, which is important for sequencing and encoding the patterning in speech. And it also helps to learn to process and match pitch, which builds understanding and expression of emotion and improved listening in noise. So why is it important to develop the musical brain in children with hearing loss? Well first and foremost, most because we can. Hearing technology has advanced so much in recent years, making music a possibility for children with severe to profound hearing loss. We need to change our attitudes and beliefs around music, and how we approach it with children with hearing loss. We have to use music early on. And if we don't incorporate musical interventions into our practice, we're at risk to limit the opportunity to lay the foundation for listening, language, and literacy, and to improve the ability to hear in noise, and to create opportunities to develop executive functioning skills, like practicing focused attention. So let me just summarize the limitations of just singing without using music, so you can better understand the value of using music. On your

left hand side, you'll see those limitations of just singing, such as singing can't provide rhythm practice. But if you add in music, you can see rhythm can be accomplished through music by listening and connecting the beat to the changes in the music. Just singing has a limited vocal range, or pitch range. But if you add in music, you're providing a wide input dynamic range, a complete pitch range, which allows the brain the opportunity to develop a wider pitch range. Just singing has limited pitch representation and clarity. If you add music, there's a broader, clearer pitch representation, and multiple pitch representations, which make the brain learning earlier. There's limited harmony practice in representation. Adding in music, those harmonic pieces allow practice hearing pitches simultaneously, as well as chords and chord progressions. So it's very, very important to not only do singing, but also to add in the benefit of music. So why should we use music? Well, we just went through some very important reasons. But let's take a closer look. Music is the only medium that stimulates multiple areas of the brain simultaneously. Exposing infants to music early, supports the formation of important brain connections that are being established over the first three years of life. Babies brains are pre-wired, and hardwired, to interpret music. Infants have a natural predisposition to music, and there is research that shows that early in life infants are able to process both pitch and temporal patterns. Why does music matter? Well, before babies understand and use words, they focus on their caregivers musical sing-song voice and emotion. I'm sure you've heard it called Motherese, or baby talk. And babies are intuitively tuned in and fascinated by this. They've communicative intention, which is conveyed by the musical aspects of a parent's voice, including intonation and prosody. The super segmental aspects of speech are the same as in music. Music is language independent, and brings pleasure in those difficult first months when parents still have to find their way. And lastly, infants learn about their world through multisensory stimulation. So it makes sense to use music. We're gonna watch a video right now with a mom who's working with her small infant. And I want you to pay attention to the musical conversation that she is having with her baby through music and movement. ♪ Back and forth back and forth

back and forth ♪ ♪ La la la la la la ♪ ♪ La la la la la la ♪ ♪ La la la la la la ♪ ♪ La la  
la la la la la la ♪

- And then as you all are working on different sounds in speech, you can always  
change it up and sing like ♪ Be be be be be ♪ ♪ Be be be be be be be ♪

- [Julia] Something I really liked about that piece is not only did you see parents  
working with their little ones on pitch changes, and having musical conversations. I  
think you saw the first little one actually doing some vocal play with the parent. But you  
also saw a parent working with their little one. You saw a little toddler group, or  
one-on-one session, as well as a bigger group with just maybe a home visit. So music  
really does matter. And research has shown that if immersed in a consistent musical  
experience, developing babies brains are able to absorb a comprehensive world of  
sound, supporting the development of their communication and cognitive abilities.  
Music serves to jumpstart other auditory and cognitive skills. It's all about engaging the  
child in real music, and real authentic communication. Music helps to develop early  
listening and language skills, as well as develop the listening and musical brain. Music  
activities are there to learn rhythm and pitch. And these are important for pre-literacy.  
Music is one way we can really promote more access, and more awareness to those  
critical skills that support early literacy. So how do we use music with families? Well,  
research has shown that children have better outcomes when parents are actively  
engaged in musical activities with their child. So music activities are not just a passive  
listening activity. It's not just putting on Baby Einstein, or turning on music in the  
background. Parents and little ones need to take part in these musical activities  
together. Research shows that those infants who took part in active classes or  
activities demonstrated more behaviors indicative of positive parent and social  
interaction than those who took part in more passive classes. But singing alone is not  
enough. Music teaches a child the basic beat. So when we work on basic beat with  
families, we can guide them by saying, listen to the music. What does the music tell

you to do? So now we've got a fun little activity that we want all of you to participate in, in the safety of your own home. You can either use your hands as your instrument, or pick up a tambourine, or a drum, some other kind of instrument you've got. But what we're gonna do is I want you to listen to the music and clap your hands to the beat. Okay. So what did the music tell you to do? If you can write your answers in the Q and A pod, I'd just like to see what you're thinking. Okay, I'm seeing some people who were saying it told them to speed up and slow down. Exactly. Very good. Clap to match the music. Slow down, speed up. Perfect. Awesome. Okay. So let's talk about the music milestones for establishing basic beat. And we have a really great handout for you. If you look at the bottom left hand side of your screen, we have several handouts there for you. All you have to do is click on it, and you can download them and keep them to use them at your own discretion. But what we're gonna talk about today are musical milestones, and I want you to look at the one for pulse and rhythm, and look down to two to three years of age. By three years of age, a child should be able to listen and imitate or match the rhythm of a basic beat. So in a basic clapping activity the parents and little ones are engaged in, they're teaching their child to match the basic beat by imitating movements and associating them with the beat. Let's watch a video of a five month old child with a profound hearing loss. And this was recorded pre-implant. I want you to watch carefully, and you'll see a fleeting moment of the baby keeping the beat. ♪ Kristy plays ♪ ♪ Mommy plays ♪ ♪ And Baby plays on the tambourine ♪ ♪ Kristy plays ♪ ♪ Mommy plays ♪ ♪ And Baby plays on the tam ba ♪ ♪ Rine ♪ ♪ Mommy plays ♪ ♪ Baby plays ♪ ♪ Kristy plays ♪ ♪ Mommy plays ♪ ♪ Baby plays ♪ ♪ Kristy plays ♪ ♪ Mommy plays ♪ ♪ And ♪ ♪ Baby plays ♪

- [Julia] Did you see it? Well, it's important to start noticing this stage of development. It's also important to notice how much fun they were having. And the more experience she gets with doing that, she'll start to associate that beat with what she's hearing. I also want to point out that she, we're maximizing the child's hearing pre implant. Can't emphasize enough how important is to start working on these listening skills before



they get their cochlear implant. Getting all these behaviors into place prior to the CI, just makes that little one much more ready to take off once he or she gets access to sound. So after we master the basic beat, we can group beats into patterns. And this is called rhythm. The right auditory cortex is being used to keep a steady beat, and the left auditory cortex is grouping the beats together and processing rhythm. To match rhythms you rely on pattern perception and auditory memory. You'll see how repetition in this piece improves our listening, and how we quickly develop our auditory memory in order to follow the sequence. So we're gonna try something a little more challenging. I want you to either use your hands or your instrument, and I'm going to ask you to clap along, or beat along your instrument, to see if you can follow the rhythm. Okay. So at what point were you able to match the rhythm? If you'll type in the Q and A pod, I'd like to get your ideas on that. Okay, I'm seeing a few repetitions. Let's see. Three times. Very good. What we, second time. Very good. Okay. After the second or third time. Awesome. You guys are advanced listeners. It usually takes on average three times to listen to a pattern until we're able to get it. And one reason we emphasize patterning in music is that it's important for patterning in speech. So let's take a look at the music milestones for establishing rhythm. Around three to four years of age, children are beginning to imitate more complex rhythmic patterns, and it continues to refine as they get older. We have an opportunity to introduce rhythm activities really early on, even with infants. And with the powerful advances in hearing technology, and what the research shows about the benefits of early consistent musical experiences, we have to change the way we think about teaching music to little ones with hearing loss. So let's take a look at this video of infants working on rhythm activities.

- While you hear it. Shake, shake, shake. Shake, shake, shake. Shake, shake, shake. Shake shake shake shake shake. Would you like red or yellow? I don't know. I thought it was gonna. Which one would you like? The yellow. Definitely yellow. ♪ Shake shake shake ♪ ♪ Shake shake shake ♪ ♪ Shake shake shake ♪ ♪ Shake shake shake shake shake shake ♪ ♪ Shake shake shake ♪ ♪ Shake shake shake ♪

And then she goes ♪ Shake shake shake shake shake shake shake shake ♪ ♪ Shake shake shake ♪ ♪ Shake shake shake ♪ ♪ Shake shake shake ♪ ♪ Shake shake shake shake shake shake shake ♪

- [Julia] So those are some good examples of using rhythm in all kinds of settings, home visits, toddler, our infant toddler classes. At this point, it's still may be just an exposure. But it's all that practice, and listening, and associating with what they're hearing that really tends to help them grasp this concept. So why is the basic beat so important? Well, children who can synchronize to a beat are better at reading related skills, such as phonological awareness, short term auditory memory, rapid naming, synchronizers, and encoding of speech sounds. So when we talk about pitch, we're thinking about pitch perception for children with hearing loss. And long ago this was not even a possibility. But today with digital hearing aids and cochlear implants, our children with hearing loss do have access to pitch perception, and therefore we should be emphasizing this in their daily routines. When we think about pitch, could there be a potentially different outcome? If so, how do we work on maximizing the potential of listening and working on pitch early on? Could we help children with hearing loss develop their musical brain, which in turn will impact their overall development. So let's take a look at the musical milestones for pitch. By five years of age, a child should be able to imitate songs with better pitch accuracy, if they have had consistent musical experiences. So how do we work on pitch with our babies? Well, let's watch this video, and you'll get some ideas on modeling and scaling pitch.

- Up. And down. Up, up, up, up. Down.

- Up. Down. Here we go. Up, up, up, up. Down.

- Up, up, up, up, up. And down.

- [Julia] Did you notice the parent modeling, and how the baby starts to perceive the pitch variations? I love how they're doing, matching a lot of music and movement with those pitch variations. Some say that singing is a workout for the brain, and here's why. The words stimulate the left hemisphere, and the rhythm stimulates the right hemisphere. The Corpus callosum is exercised by crossover called interhemispheric transfer. So when we sing, we exercise both sides of the brain. Pitch contours are exaggerated through singing, and this is because we slow up when we are singing, making the pitch definition clearer. So if we encourage parents to sing some of the books they read to their child, they're not only exercising the brain, but incorporating many of the super segmentals, which highlight emotion and characterization. Some good examples of books that lend themselves to this are, "Going on a Bear Hunt," "Five Little Monkeys," and, "I'm a Little Teapot," just to name a few. Singing alone is a great start to building a musical brain, but it is not enough. Our vocal ranges are limited, and only music can provide that wide dynamic range of multiple and accurate pitches. Music provides the child's brain practice to process the widest range of pitches. Advanced Bionics has developed a great tool for parents to use with their little ones with hearing loss. It's called BabyBeats. And now Jane is going to tell you more about it.

- [Jane] Thank you so much, Julia. Now we're going to take an in depth look at BabyBeats. And before we start, maybe you can use the Q and A to let me know how many of you have been using BabyBeats. Okay. I see one person hasn't. So I'm glad we're going to be able to share that information with you today. Well, the BabyBeats Early Intervention Resource opens the world of sound, music, and voice for a child who has hearing loss. During my own years of providing early intervention, BabyBeats was truly my go-to resource. I loved sharing it with my families, and I'm sure that you're going to love it too. As Julia has explained, music assists with early listening skills, and develops the hearing centers in the brain that are responsible for language learning. The value of music to the development of bonding, listening, and language is just

unbelievable. And using BabyBeats is going to address all of these skills. This is why AB developed BabyBeats. BabyBeats has been packaged using what the research has taught us. It is a hierarchy of music structure for the non-professional, so you don't have to search for all of those missing pieces. Music is very directed, and has clear goals behind it. Each piece is composed with a target in mind for a parent or professional who is supporting a child with hearing loss, because we know music matters in the development of these infants, babies, and toddlers. So let's take a look at BabyBeats.

- [Narrator] This is a precious time in a baby's life, and yours. Talking and singing is the most natural way to bond with your baby, and to develop that communication. But if you've recently learned that your baby has a hearing loss, you might be unsure how to do that. BabyBeats Early Intervention Resource is an app specifically designed for this optimal development period. Bond through musical experiences together. Play together through fun musical multisensory activities, Learn through music and movement. Make the most of this special time together from the comfort of your own home, to start developing your baby's listening and communication skills. Download the BabyBeats app today.

- [Jane] So as you can see, BabyBeats is an app that guides parents and professionals through musical activities to help a baby bond, play, and learn with their parents. When Advanced Bionics developed BabyBeats we had the following goals in mind for both before and after a child receives hearing aids or a cochlear implant. We wanted to be sure that we addressed the skills of early parent child interaction, early listening behavior, communication skills, and of course, social and emotional development. BabyBeats is actually a free app with musical activities for parents to use with their child that was developed specifically for babies and toddlers who have hearing loss. Developed by an expert in music for children with hearing loss, the musical activities in BabyBeats are specifically designed to encourage language rich parent child

interactions through fun play activities that are developmentally appropriate. Youth activities were developed to lay the foundation for early listening and communication skills beginning in the pre verbal stages, when children are first identified with hearing loss, and awaiting cochlear implantation. In the app you'll find instructional videos, a parent guide, a music playlist, and transportation and animal picture cards. And when we move on a little bit further in this presentation, we're going to talk about BabyBeats notes and how to track progress. When you see the ES on any of our resources, that means it is also available in Spanish. The goals of BabyBeats resources are multifaceted. As soon as a child is diagnosed with hearing loss, during the waiting period for hearing aids and cochlear implantation, we want to start using BabyBeats. We want BabyBeats to encourage the development of confidence in consistent use of the child's hearing technology. BabyBeats can also be used in both the home, and early intervention settings, or in a one-on-one or small group setting. It's also designed to address the development of listening in noisy situations as well. During this period of time as well. Let me just go back one minute. As we're all working from home, and I have many colleagues who are early interventionists right now, BabyBeats can also be used for telepractice. So if you haven't downloaded BabyBeats, and you're doing early intervention, certainly do that today, and practice using it with your families through the telepractice. Here's a quote describing how a father felt after discovering and using BabyBeats with his child. "I feel hope when I see my child respond." And if that's what we can gain from using BabyBeats with our parents, well, then we've really tackled the goals that we're trying to address. Parents and professionals don't need any knowledge of musical activities for infants and toddlers with hearing loss. AB has put together an expert program. BabyBeats is a free app, and it will guide parents on how to use musical activities to assist with developing early listening skills, and developing the hearing centers in the brain responsible for language and learning. The BabyBeats app is going to guide parents to bond, play, and learn what their baby using musical activities together. And as I noted earlier, it is also available in Spanish. When you download the app, the first thing you'll need to do is register. And then reopen the app

and sign in. And you can guide the families that you're working with to do the same. So just think about those registration steps. They're very easy. Download the app for free. Register. You'll receive an email verification. And then you can go and sign in to the app. And I hope some of you are doing that right now as you're listening to this presentation. So let's walk through the app together. When you sign into the app, you'll land on the home page. At the bottom of that homepage, you're going to see all of the instructions that are needed in the navigation bar. At the top, you'll see instructions. It comes in a dropdown box. And for me, when I was using this app with families, it's a great way to train your parents about why BabyBeats is so important. So reading those instructions is a great way to start. Then you'll see these four squares on the homepage. These are the musical trails in BabyBeats. They include movement and music, exploring instruments, exploring animals, and exploring transportation. After selecting an activity, you will choose activities according to the child's developmental age. As you can see on the app, there is a section to choose babies or toddlers. So choose one of those, depending on the child's developmental age. You will see a quick summary of the activity. There's a wonderful demonstration video to guide parents. There are tips to try and also a section called what's next. You will also have an area where you can download the musical tracks. What I love about the app as well, is that parents are able to access the guide. The guide icon allows a parent or professional to request a copy of the guide by email. You can actually send it out to your parents. It provides detailed descriptions of the activities, but it's not really necessary to use because the app has guidance built right into each of the activities. The music icon takes you to the music library. And then the picture, the picture icon will take you to the picture cards that you can use with some of the activities in exploring animals, and exploring transportation sections. When you're doing therapy, this is great because you can download the picture cards onto tag board, and then share them with your family, and keep them as a resource for yourself as well. There's also a section called why. The why icon highlights four significant areas that are important for a child's development, and how BabyBeats supports those areas. And these areas include

bonding, communication, developmental progress, and hearing technology. These notes can be emailed as well, just as the parent guide can be emailed out to your parents. And we're going to talk a little bit more in depth about how notes can be used to reach some of your goals. Right now we're just gonna show you two videos of how music plays a part in the development of children. ♪ Row row row your boat gently down the stream ♪ ♪ Merrily merrily merrily merrily life is but a dream ♪ ♪ Row row row your boat gently ♪ ♪ Twinkle twinkle little star ♪ ♪ How I wonder what you are ♪ ♪ Up above the world so high ♪ ♪ Like a diamond in the sky ♪ ♪ Twinkle twinkle little star ♪ ♪ How I wonder what you are ♪

- [Parent] Very good. Now can we sing?

- [Jane] On a side note, some of you may have not have noticed aside from what the effect music had on these two little toddlers. But also the fact that our little one on the left was able to use her waterproof technology while taking a bath, something that I talk about all the time with our parents, how you can incorporate speech, and language, and music throughout the entire day, without that fear of the processor being ruined or destroyed because of water. But these two videos, I can look at them all day long and still smile. And hope that you realize the tremendous impact that music has on the development of our little ones. You can really help and encourage your parents to make the instruments that go along with BabyBeats, from items they may have in their own pantry. We worked with the center of hearing and speech in Houston to develop a Pinterest board full of ideas. So please share this with your families. You will also find short video clips of Carol Flexer and Christine Roca discussing the value of musical intervention. So for those of you who are not familiar with BabyBeats notes, you can access the BabyBeats notes from the why section in the app. And notes is the monitoring piece for BabyBeats that is provided to help a professional and parents work together to monitor a child's early listening and communication development. Notes can be used to establish a baseline of where a child is at, and then used to

monitor progress at different intervals. You can request a digital version of notes within the BabyBeats app in the why section. At the front of the notes is a summary chart that shows the specific listening and early communication skills that you will work on while using different musical trail activities in BabyBeats. So you can see on this chart that at each musical trail, the skills that you're addressing are checked off. I found that this chart, in conjunction with the skills that we'll talk about in the next slide, have been really helpful when I was developing goals for IEPs, or IFPs as they're called in New Jersey. So when you're doing early intervention, this is a fabulous tool to help you really develop those goals before your meeting with the parent, or meeting with the child study teams you're working with. So on the next slide, this is extremely helpful in terms of monitoring the development of the toddlers and babies that you're working with. And if you look at the chart, you'll see. It's a little difficult to read it, but when you download BabyBeats notes, you'll find that the numbers coincide with the skills that you're developing. For example, number one is sound awareness. If you look back at the previous chart we were talking about number three is for discrimination and number eight is attention. And then there's a code which will help you really track the level of mastery that your infants have met. So many people are not aware that BabyBeats notes is available to them in the app. So certainly, play around with the app when you go home today. Go to the why section, and email BabyBeats notes to yourself so that you can read through it and really see how it's going to help you in your practice. Another aspect of BabyBeats notes, it's a great way for professionals to learn more, and also for you to teach your parents and to guide them in terms of why certain aspects of the musical trails are important. And here is just an example of why the rocking segment of the trails is important. We are have inquisitive parents, and it's always important to be able to explain to them why we are doing the activities we're doing. We also wanted to leave with you today some lesson plans that, as Julia had mentioned earlier, you can download. You can download them, and in your practice use them to think about what musical trail you're using, and just incorporate what movement ideas you're going to use and all the different activities and goals that



you're addressing during that session you're having with a family. BabyBeats can also be adapted. How many of you are working with families that speak another language? Yes. I can see that many. Many of us come in contact with families that have Spanish as a second language, or speak Spanish predominantly in their homes. And also other language, especially in my area. We have so many different families speaking different languages. And research suggests that one in five homes in the United States speak a language other than English. It also suggests that as proficiency in English decreases, so does positive health care outcomes. Which really makes sense, doesn't it? Because if infants and children are not understanding the information that's being presented, or maybe not understanding it completely, then it is really difficult for them to follow instructions or conversations presented to them. For this reason, it is important that we connect the families with resources that are in their native language. We know that it is essential to encourage the development of personal, family, cultural and academic areas. At AB, we are aware of the demand and the importance of a bilingual approach. I would have loved to listen to the entire video, but in the interest of time and giving you a chance to ask, to answer, ask and answer questions. But you can see that you can use other languages because the music tracks and instrumentals do not depend on words. So you can use it in any different language. The app and parent guide are available in Spanish. Suggested lyrics are only a starting point. And you can ask your families about the important vocabulary being used in their home to really reinforce that speech and language development for them. BabyBeats is working in early intervention settings across the globe. Here's just a short summary of what some of the parents we have worked with are saying. Overall, the parents saw improvements in all pre verbal areas, and early vocalization behaviors as a result of using BabyBeats with their child. And these are just some of the responses we received. Improvements in early listening and communication skills. Improvement in interest in sounds, attention. More confident to interact with their infant. Has become more relaxed when playing, and more nonverbal communication and face to face interaction took place. And overall, they greatly enjoyed all of the musical trails. Professional observations of parents of newly

diagnosed babies. Following the use of BabyBeats over 12 months noted an increase in vocalization, attention, and anticipation from the infant. Increased verbal and nonverbal communication between parents and infants. And ideas were carried over to the family daily routines. The Elizabeth Foundation in England looked at the practical application of BabyBeats, and monitored progress with BabyBeats. Parent groups consisted of children waiting for Cis, and waiting for the activation of the cochlear implant. And the children ranged in age from less than one year to 24 months. The parents completed a survey after using BabyBeats over 12 months. In summary, across the board parents of pre implanted children saw improvements in all pre verbal areas, and early vocalization behaviors as a result of using BabyBeats with their child. And as Julia mentioned early, we want families to understand that BabyBeats is not just for screen time. It's an interactive program that is meant to be used by professionals and families. There's demonstration videos, as I mentioned earlier, in the app to help give you ideas of fun activities, and what you should be doing with the music. It's intended for parent education, and not for the child to sit and watch, but for a child to learn and develop. So I hope you are all ready to have fun with BabyBeats. And you'll have to get back to us and let us know if you've downloaded the app, and if you're planning on using it with your families. But one thing to keep in mind, are some of these checklists. Look at the listening environment. Check hearing devices daily to make sure they are working. Wear you're hearing devices during every waking hour. Limit the background noise in the environment, and distractions. And consider using some of the Roger technology. Think about positioning. And of course, as we all know as therapist, follow your child's lead. And of course, most importantly have fun. The whole family can participate. And there's no right or wrong way to use BabyBeats. Just do it. And these are some of the references that Advanced Bionics has used. And I truly hope that all of you have enjoyed the presentation today. If you would like to connect with one of your local consumer specialists, the email here at Advanced Bionics will help you to do that. And I think we should take some time, as well as looking at the [ABRehABPortal.com](http://ABRehABPortal.com) for some of our resources. And right now, if we

could take some time to post any questions that you might have for myself and Julia, we'd be happy to answer those for you. Oh, one person is asking can BabyBeats used in telepractice? Yes, this is something we mentioned earlier. BabyBeats can be used in a one-on-one situation, in a small group toddler setting, or a babies and mommies group. And now, during this very difficult time that we're all experiencing, of course. I've already recommended BabyBeats to many of my colleagues who are doing early intervention. And they are using it in a telepractice. And, oh you're welcome. Someone mentioned it was a great webinar. So you're so welcome. At Advanced Bionics we are all so happy that we're able to reach out and help our professionals and our families during this time. Well, let me give you another ask while you're thinking of some questions. How many of you will go home today and download BabyBeats? And I see some answers popping up. That's great. Thank you, Karen. You'll have to let us know if you enjoy it, and all the rest of you. I have one person who's asking a question about notes, and can it help you to plan a therapy session. Yes, of course. I would look at the BabyBeats notes when you download the app. And as I mentioned earlier, there are so many different aspects of notes that you can look at in terms of what your specific goals for that child are. And then if you look at the goals, and the reasoning behind those goals, and what skills you're developing, I would also use the lesson planner that we have that you can download, and that would certainly help you to plan a therapy session. And I always found it very helpful. Sometimes you plan a therapy session, and you get to the home and everything goes by the wayside. So it's important to think about the family as well, and planning your sessions around what's important to them, to their culture, and what's happening there in their home at the immediate present time. I hope that helps. All right, everyone. Julia, I want to thank you for your partnership on this presentation. And I'm hoping that if we don't have any more questions that we'll somehow be in touch with all of you in the future, and hopefully you will enjoy BabyBeats, and using it with your families. Have a great day, everyone.