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Back to School with Cochlear Implants
The Top Ten Things Parents Need to Know

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>> Donna: This is Donna Sorkin from Cochlear Americas.
We will be starting in about five minutes at the top of the hour.

I do want to remind everyone we will be offering captioning at this event, and we're very pleased to be able to offer this. In fact, all of our events going forward will be captioned. And

please let your colleagues and friends who need that access feature know about it. It is a new offering as part of our HOPE series.

I also wanted to mention the fact that we -- we offer these HOPE Online programs about twice a month. And this one, of course, is in collaboration with AG Bell. But we have about 40 previously recorded HOPE offerings that are up on the HOPE website. I'm going to tell you more about that later. So if you learned a lot, if you learn a lot today and would like to come back and take more of these, there is a whole variety of topics and different speakers that we have available to you. So we'll look forward to talking to you in just about four minutes. We'll be ready to start at the top of the hour. Thank you. We'll be starting in about a minute or two. I just want to remind everyone there are handouts for today's session. And you can download them to your computer if you just go below the screen. You'll see two items, back to school, the handout and the feedback form. If you can just save those to your computer, that will give you the handout for today and, also, the mechanism to generate a certificate of participation. Is he so we would love for you to have both of those. We will be starting in just about one minute. I also want to let you know that we do have captioning at this session. You can access this by going to that website, logging in and you'll see the captioning on the lower right side. So we'll be starting in just a minute.

Good afternoon, everyone. This is Donna Sorkin from Cochlear Americas. I would like to thank the Alexander Graham Bell Association for partnering with us today. Gary Yates for AG Bell was intending to introduce me but he's having difficulty with his speaker. So, Gary, we all appreciate the thought. I'm going to go ahead and introduce myself.

I am Vice-President of Consumer Affairs at Cochlear, and there is a picture of me so you'll have a visual image of who is talking today.

In my capacity at Cochlear, I address a variety of public policy issues that impact our recipient community, including education and rehab and access to insurance coverage. I also conduct research and write on consumer issues for children and adults. And some of you may remember me from my time as Executive Director at AG Bell and, also, The Hearing Loss Association of America. So thank you very much for being with us today.

My talk today is designed to address the issues that I most frequently hear about from parents so I'm just going to go through each one of these questions and then answer them for you. We will be reserving some time at the end for questions. We'll talk about how to send me a question at the end of the session.

I'm going to start out with why my child may need an FM system, and it is really interesting. Very often parents will see how well their children are doing at home in a one-on-one setting or in a family situation and they ask why they might need to use an FM system at school.

Let's start with why before we start -- before we start with the why, let's talk about the what. An FM system is really a wireless amplification system that transmits the speech signal from a microphone that is worn by the speaker or by an FM radio signal to an FM receiver. And we talk about the teacher, but the microphone can also be worn by a parent or a soccer coach, really anyone that is the primary speaker that the child is attempting to hear. Then the student wears the FM receiver, and that connects with his or her sound processor directly.

And the reason we might need to use an FM system is that ironically classrooms are often very difficult listening environments. And a number of factors can contribute to the difficulties that we have in an educational environment. First is noise. We define that as the ambient noise levels in the room and that can be caused by heating and ventilation systems which are the most common source of noise in schools, fluorescent lights, the students themselves who are often moving around in their chairs or dropping pencils or

talking to each other. There can be noise from outside of the classroom. There can be such things as aquariums in the classroom that are contributing to this noise level. All that noise adds up and makes for background noise and makes it difficult for the student with hearing loss to hear the teacher or his peers.

And then the second factor is reverberation and that just refers to the fact that classrooms have a lot of hard surfaces. Very often the floors are not carpeted. We don't have curtains on the Windows or soft furniture like we do at home. So the sound bounces around. We have a prolongation of sound as it -- as the sound bounces off those surfaces.

Those of us who have hearing loss do have more difficulty in any space where there is reverberation. In fact, recently a physician friend of mine who experienced a sudden hearing loss and now has a mild to moderate hearing loss told me that the place he has the most difficulty hearing is in a large area auditorium, and it is because of the reverberation.

The third issue is distance, and some loudness decreases with distance from the speaker. It is really quite extraordinary the degree to which that happens. I'll give you an example. If you are four-and-a-half inches from the speaker, the sound pressure level of the speaker's voice, let's just say it is 84-decibels and as you move out from that speaker to 3 feet it

decreases to 46. At 6 feet it is 40, and at 12 feet it is 34 dB HL, so a very dramatic change as you move out from the speaker.

These three factors work together and interact. They're additive. So you really need to look at addressing all three of them and an FM system overcomes these barriers and makes it possible for a child to hear well wherever they are in the classroom.

So I'm just going to make this screen a little bit bigger so you can see it better. What we're looking at here is the impact of noise on vowels versus consonants. What you can see here is that consonants tend to be in these high frequency areas. At lower intensities, lower volume levels, and, you know here you can see the s and the th and the f and the k. So these consonant sounds, which are so important to understanding speech tend to be in just the part of the speech spectrum which is also competing with some of that ambient noise that we're talking about.

The vowels, in contrast, tend to be in the lower frequencies of sound and tend to have a bit more intensity or volume than we see in the consonants.

And noise affects both vowels and consonants, but it affects consonants more than vowels.

Then just to show you, also, the affect that age has on word recognition with distance and noise. We often say that children have immature listening systems until they're about, oh, age 12 or 13. And this shows you the results of a study that was done with children and adults using nonsense syllables. In this first column we're looking at up close in quiet and -- and in this case the adults were able to get 99% of those nonsense syllables. A four-year-old child in this quiet environment was able to identify 88% correctly. If you put that same child in a noisy environment at 7-meters distance from the speaker, you can see what happens to their word recognition scores. It goes down by over 20%. And an adult in that same scenario would go down a couple of percents, but they're staying right up there in the 97% level. So these are normally hearing children.

We know children with hearing loss are going to hear less well than kids that have normal hearing, but this just gives you an idea of the impact of noise and distance on speech perception.

Okay, so let's move on. I'm going to go back to the smaller screen here so we can do some other things.

So the purpose of using an FM system is that it allows us to ensure that the speaker's voice is presented at a consistently

high decibel level and it overcomes the background noise that we talked about that is so common in classrooms. It overcomes the fact that the teacher or the other speakers may be at some distance from the students and it improves listening in rooms with poor acoustics. We also know that it helps not only the child with a hearing loss but other children in the room.

So let's talk about the different kinds of FM systems. There are actually three kinds of FMs, Soundfield, personal Soundfield and personal FM. I'm going to walk through each one of those.

The first one is a room Soundfield FM system and this improves the signal to SNR by producing a loudness level by affecting where the teacher is in the room. Signal to noise ratio just refers to the difference between the speech signal, which is in this case probably the teacher's voice, and the surrounding noise levels. For any child, especially a child with a hearing loss, you want that signal to noise ratio, that difference, to be as large as you can make it.

By providing an FM system, we have less strain on the teacher. It is easier to monitor and troubleshoot what is going on with the Soundfield than some of the other options for FM that I'll talk about in a minute.

It helps everybody in the room, the children who have a hearing loss and those who don't. And we still need to look at room acoustics because if you're amplifying the teacher's voice, but the teacher is in a reverberant environment. You'll have the sound bouncing around more in the room so you have to look at room acoustics before you put a Soundfield in.

And the other thing is a child needs to sit somewhere near the speaker and, I mean, the speaker for the Soundfield system rather than the speaker herself or himself to get the full benefit of this system.

And then the second kind of FM is a personal Soundfield system and this time provides a 10 to 15-decibel signal to noise ratio. Usually a little bit better than the room Soundfield. It is good for very young children in cases where you may not be able to use a personal FM system, no modifications are required to the hearing equipment. It is easy to troubleshoot. But it is really important to have this placed properly. Generally it is placed on the desk and needs to be at ear level of the student for optimal effectiveness.

The third kind of FM system I want to talk about is a personal FM system. In this case the receiver plugs directly into the sound processor or hearing aids. So, for example, with this particular ear level processor -- and this is a 3G, Nucleus 3G. You see where the arrow is. And that is where the receiver

would be plugged in for this particular student's hearing technology.

It provides 15 to 20-decibel signal to noise ratio and that is the best of the three options and it travels with a child wherever they go. If they're in high school or they're changing classrooms, it is very ease for them to take that personal FM with them. And it is very important to have an appropriate teacher and user training to make this most effective. So often when we have difficulty with FM, it is with a personal FM system.

So people often ask me what tips we can offer to ensure the best possible outcome with a personal FM? So the first thing we really need to look at is that the child have approximately 3-6 months of cochlear implant experience and be able to communicate to us, whether they're using sign or oral, but have enough communication skill that they can give us feedback regarding what they're hearing through the FM system.

And you also need someone who is trained to perform daily listening checks and troubleshoot the FM equipment to ensure that it is working properly. There is nothing worse than having this on a child and not having it work right. And it requires that there be a partnership between teachers and educational audiologists and cochlear implant audiologists because those

groups really need to be working together to ensure the best possible outcome for the child.

There are different connection options for a personal FM. I'm not going to go through them here because it is going to vary very much depending upon which cochlear implant system you have and which FM system that you have but just know that it will vary and there are connections to a variety of FM options. But you do need to have the proper cable. You can find that out by consulting with both the cochlear implant manufacturer and the FM manufacturer. All of us have people on staff whose job it is to help families and schools and cochlear implant centers to making the FM cochlear implant link work properly.

And we need to absolutely do performance monitoring. This should be done by someone at school, an audiologist or speech path or a teacher, but someone needs to perform a functional listening evaluation in the classroom with and without the FM system to measure the benefit and ensure that the child is getting the kind of outcome that we would expect and want with an FM system.

And sometimes one of the problems is the microphones. There are different microphone options to be used with an FM. Probably the best one in terms of ensuring the most consistent signal to noise ratio is a boom microphone. And that is one of

those that is worn on the head. It is really a headband. It provides the most consistent signal to noise ratio advantage because as you move your head, the microphone moves with you.

The other types are lapel microphones that clip on the lapel obviously and a collar microphone that goes around the neck. Those are all fine as long as the speaker is very careful not to turn their head away from the microphone. So booms probably the safest one. Some teachers don't like to wear them and that can be an issue. You have got to work with your teacher to make sure that they're going to wear the microphone consistently.

Some other tips you want to position the microphone about 3-6 inches away from the mouth. Avoid wearing jewelry that may rub or hit the microphone and create an unwanted sound and of course use the on/off control switch so that the student doesn't hear private conversations.

We always hear funny stories about teachers that have gone into the lounge and forgotten to turn off their microphone or gone into the bathroom or whatever. So you have to be careful to use that only in the classroom setting.

So a very frequent question that I get is, who is responsible -- whose responsibility it is to provide the FM system? What

happens if the child goes to a private school or doesn't have an IEP? Is the School District still responsible for providing an FM?

Well, let me just for a minute review the Federal laws related to educational opportunities for children, IDEA being the one that we're all familiar with and it applies to children who require special services with educationally specific disabilities. That term "educationally significant" is actually in the law.

Also in IDEA law is the term Free Appropriate Public Education, or sometimes that is abbreviated as FAPE. That means just what it says that the child be provided with an appropriate education that is free. The family is not expected to be paying for equipment or services. And the child will always have an individual education program if they're covered under IDEA and have an educationally significant disability and the services that the child is to receive such as an FM system would be identified and outlined in that IEP.

Now, the most recent Federal regulations for IDEA mention assistive technology; specifically as a related service. It also mentions the fact that students may need assistive technology outside of school, if needed for FAPE. So, for example, if the parents want to take their child to a library program, something I used to do with my son all the time, and it would be difficult for the child to follow the program if they were not using their

FM. That would certainly be an example of a need to ensure FAPE.

Someone asked us at our noontime session today if I thought it would apply to participation on a sports team. And I would say, yes. That is part of the child's learning/living opportunities, part of their development. So, yes, that would be an example.

Now, a lot of times school districts don't like that very much because they're concerned about the equipment being expensive and breakage and coming back, et cetera. So that is really something that the family is going to have to work with the school on. But according to the regulations, there is that opportunity for a child to use their FM system outside of school.

So what if my child doesn't have an IEP but geez to public school? And if that is the case, and we are seeing kids -- but goes to a public school. And if that is the case and we are seeing kids doing really well with their cochlear implants and some districts are saying they no longer have an educationally significant hearing loss and they don't need an IEP any more. I have some feelings about that, but this isn't the opportunity for me to air them so we're just going to go with the flow here and talk about. If that is the case, are you still covered for an FM? The answer is, yes. Because if there are no special ed

services being provided under IDEA, the child is still covered by Section 504 of the Rehabilitation Act, which prohibits recipients of Federal monies. And, of course, all public schools receive Federal monies to discriminate based on disability. So districts must provide accommodations for a child with hearing loss to allow full access to educational programs. So that requirement to provide an FM applies, even if the child is not receiving other services.

So what about private schools? It turns out that the ADA, the Americans With Disabilities Act, Title III, the portion of it that is the portion of it that addresses public facilities, in a public facility, it doesn't mean that it is a public school. It just means it is open to the public and private schools are open to the public. So ADA applies to public schools and colleges. For example, whether or not they receive Federal money and communications access is required in those locations unless providing such access would pose an undue burden on the facility.

Since FM systems require minimal cost and effort, it would be very unlikely for a court to say that providing an FM system was an undue burden.

So, okay, we have all these requirements for laws but it is still the case that sometimes -- excuse me, I'm sorry, I forgot to unplug my phone -- it is still the case that we sometimes do

have difficulty getting an FM system for a child with a cochlear implant or a hearing loss, in general,. And in fact I attended an IEP meeting. It was probably about 7 or 8 years ago where I was working with the family and discussing the importance of an FM system to me. I don't think I mentioned I'm actually a Nucleus 22 user. I have had a cochlear implant since 1992. I absolutely love FM systems. But at that particular hearing the district felt that the child's hearing loss was too severe to benefit from an FM system. I've also heard instances where a school might feel that the child's hearing loss wasn't severe enough to benefit from an FM system. Sometimes we hear about a school that might want to use an FM system that is left over from another child. That may work or may not work. You just need to evaluate that FM system and ensure that it is appropriate for the child and meets her needs.

We've heard someone say, well, we've improved the acoustic in this room so she won't need an FM system. It is not either/or. We will talk about that later.

Sometimes the comment may be made her speech is perfect. She hears everything. She's on grade level. She doesn't need it. And of course to that we need to say, we need to look at actual functional outcomes for the child in that classroom. Not how well she's doing or whether she's on grade level.

So the gist of this that is Federal laws support children with

hearing loss in use of FM. But it doesn't necessarily ensure access. I think while most families are able to get the services that they need for their children, including FM systems, there are some small number of families that still experience difficulty. If that is the case for you, you should reference the need for your child to have access. If they have an IEP reference FAPE and the child's specific needs. If they don't have an IEP, just remember that Section 504 of the ADA still applies for FMs.

Sometimes it is helpful if we're in a school setting where there are unfamiliar -- where they're unfamiliar with children with hearing loss and it -- it is definitely the case that most of our kids now are attending mainstream schools. We have statistics and actually a recent study showed that 68% of children between the ages of 7 and 13 are in public or private mainstream schools. So they may start out in a supported environment, a special school for hearing-impaired children, but what we see happening over time is these children do end up most of the time with cochlear implants. They do end up in a mainstream school. So you're going to have teachers and personnel that may not be familiar with hearing aids and a cochlear implant. And in these cases it is helpful to demonstrate the impact of hearing loss on being able to hear in different kinds of environments.

And lastly for parents that do have these kinds of difficulties, I

think it is important that you know that you're right. Just keep at it. Keep a positive attitude and demonstrate why your child needs this particular accommodation.

So if we're using FM, do we still need to pay attention to acoustics? And of course the answer is, yes. Acoustics are still important. It is not an either/or proposition with acoustics and an FM system. We know that we talked about the fact that kids have immature listening systems and that poor acoustics can exacerbate word comprehension. We talked about the fact that if it is a Soundfield system and we haven't looked at reverberation in the room, we can be just amplifying that noise and bouncing it around in the room, which makes it very difficult for people with hearing loss to hear.

I think the last point is that children often don't necessarily say they're having a problem. Particularly with something like acoustics, they may not know what's going on. They may not realize why they're having a problem. So we really have to be vigilant in checking on the acoustics for them.

I've had instances where acoustics have -- the poor acoustics in the room have actually overwhelmed the FM system. And where the ambient noise in the room was actually getting into the microphone. So that's -- that's another issue.

And the other thing that, you know, a lot of times for children in

school they're communicating in small groups or informally when the FM is not in use. And these kinds of informal interactions are an important element of what goes on at school. It is not just the formal teaching environment but it is also the kind of back and forth that you have with your friends and the ability to build those kinds of social networks. So we have to ensure that kids can do that in a variety of settings at school.

What should we be looking for in terms of the acoustical environment? And I'm happy to share with you the ANSI standards. And ANSI is a private setting or body that develops standards for all kinds of things from washing machines to refrigerators, and it is basically the way that private companies manufacture products or, in this case, it refers to what a group of people who are knowledgeable about acoustics and architecture and teaching children with hearing loss, what a group of people have determined to be an appropriate environment for classroom acoustics.

So what we found as part of that process was that the background noise, the ambient noise in a classroom should be no more than 35-decibels. 40-decibel in a larger space like a cafeteria or the auditorium. The reverberation that we talked about should be no more than .6 seconds in a small classroom. That .6 refers to the amount of time that it takes for a sound to hit 60 decibels. So the lower this number is, the

better that environment is in terms of reverberation.

So this is just a good thing for you to have. It's a -- it is most readily achievable if we're talking about new construction or renovation project. That is really what this is intended to be used for as districts are building new schools or renovating schools. We want to really encourage them to use this standard as the basis for how they would design the school.

It is probably pretty difficult to get to these numbers if we're talking about a retrofit, if we're talking about a classroom where your child is going to be placed next year and you go in and realize that it is a really unfriendly classroom environment. But the thing to do is realize that any classroom can be improved. You can take a really bad classroom and make it better. You may not be able to get it to this standard. But I think it is useful for you to have these numbers as the bases for what you're looking for.

So for acoustics at school, it is appropriate to look at acoustics as part of a child's IEP. A number of parents are doing that and asking for it and getting acoustics addressed in their child's classroom. And in the larger rooms that they may participate in. As I said, you may not be able to attain ANSI but you can improve it. We have given you a website address to actually get a copy of that standard and to learn about some of the background that went into formulating it. I really

encourage you if you're interested in looking at acoustics further to go look at that.

So what tips should we give the mainstream classroom teacher about working with our child? We which want to overwhelm her, but can you identify some items for her or for him that will really make a difference for our child?

Recall that I said most of our kids with cochlear implants, 68% in the year when we collected the data, which was 2003, kids that are 7 to 13, most of these kids are in public or private mainstream schools so it is very likely that their classroom teacher is going to encounter a child with a cochlear implant for the first time. They may not know about hearing loss much less the cochlear implant. Probably they're a little bit nervous about this and afraid that they're not prepared and up to the challenge. So it is really, really important to communicate with that teacher early on in the process.

If you have a child that is going to be attending school in a mainstream classroom in September and if you haven't started talking to the school and that teacher about your child and what she needs, you better get on the stick because this process that really should be started really early.

The other thing to think about is that teacher may be concerned that the entire burden will fall on him or her. I think

it is part of the process of getting her ready. You want to provide the training that they need. As this little picture demonstrates, you want to make sure that they know and that they will have support and we will follow through in providing that support so they're not put in the position of trying to do it all themselves.

We want to facilitate and encourage a team approach and ensure discussions between the various people and organizations. We should be having regular team meetings and that classroom teacher as well as the parents and the child should definitely be part of that team. We want to highlight the role of every one and demonstrate that it is not just the classroom teacher. In fact, we should be training every one who is going to be in contact with that child.

This just gives you an idea of all the various individuals who would -- we would expect to be members of the child's team. Certainly the classroom teacher in a special teacher, a teacher of the deaf or a teacher of children with disabilities, an auditory/speech therapist, an educational audiologist. Someone from the cochlear implant or hearing aid center or clinic, the principal or administrator. Wow, that is a really key one that we sometimes forget. But that person can really make a big difference in terms of getting everybody on board and allocating resources and showing leadership for what we want to accomplish. A tutor, aid, school nurse, others. The

parents and child and classmates and we'll talk more about classmates in a moment. And an interpreter and notetaker.

I have mentioned here that we actually have an entire HOPE Online seminar just like this online that we offer through Cochlear's HOPE program that is just on this topic. We recorded and archived those courses. There is some 40 of them that are up and online. If you want to learn more about this team approach, you can go back and take that course at another time.

It is really important to share hearing loss basics with that classroom teacher. You want to show them the child's audiogram and explain what that means. In general, help them understand the benefits as well as the limitations of personal hearing technology.

I would bring the child's technology in or an extra speech processor. Let the child actually talk about what their cochlear implant does for them. Explain why the FM is important. You can share these slides if you want to. And then very important, determine who is in charge of troubleshooting and develop a plan for how that will work. We're going to talk about that in more detail later. But that is a really key part of this process as well.

You want to ensure proper classroom seating. And talking

from personal experience, if I do this talk in a room with people live, I usually will walk into the room and show you where I personally would sit in that room. But this is something you really have to work on with the child and understand their preferences.

Personally I don't like to sit in the front row in the center because I feel I don't get enough connection with the rest of the room. My preference is usually to sit in the second or third row back. If it is a small room maybe the second row back. I don't particularly like to be right in the middle. I like to be off to one side. So I can turn and look back and see what is going on in the rest of the room.

You always want to seat the child away from noise generators so if there is a fan that is in the room, or a door to the hallway that is noisy because the sound is creeping underneath the door, you want to seat the child away from that noise generator. If they're a unilateral cochlear implant user you want to think about seating them so their CI ear is away from the sound source. So if the HVAC sound is on the left side, and their cochlear implant is on the left side, you definitely want to get them away from that side of the room. Move them towards the center. Absolutely no aquariums. I can't tell you how many times parents have asked me, is it okay for there to be an aquarium in the room? And the answer is always no. Ask them to please put the aquarium out in the hall. It is an

unnecessary noise generator.

The other thing that I think is really important is to just give the teacher a sense of how to speak, which could have an enormous impact on the child's ability to understand you.

Speak from experience I can just tell you there are some people who were just so easy for me to understand. I don't have to look at them many I can take notes. It is just not a problem ever to hear them and to understand them. And yet others who either talk fast or slur their words together are so very difficult for me. So you want to try to work with the teacher to understand what she can do.

There are a couple of rules that are important. Always face forward when talking. If you're going to stop and write on the board then you've got to not be talking when you're writing on the board because when you do that, you're not only removing the child's visual clues from the face of the speaker but that means they're also projecting to the Blackboard as opposed to out and they're not using an FM system that. Will be an absolute killer.

You want to stay within the child's vision so that he or she can see you. Closer is always going to be better. So if you can, try not to, you know, get too far from the child.

You want to try to encourage the teacher, particularly if they're an enthusiastic teacher not to bounce around too much. Because if there is a lot of movement while they're talking, it is always a lot harder to understand speech.

Encourage them to speak clearly and naturally and directly to the child and try to make sure that he or she is looking at you when you start to speak. Some teachers are really good about this. You know, they'll throw in just some unnecessary talk at the beginning before they're actually talking seriously. That is a great warm-up for all the kids in the room. That will give them time to understand that something is being said and to start paying attention.

You want to make sure that your volume is appropriate. You don't want to be screaming but, of course, you don't want to be too soft. And I like to encourage people to speak just a little bit slower. Not too much. Because if you're too slow it is not natural. It will make understanding more difficult.

I want to call your attention to another HOPE Online program that we did in May of this year. We had a linguist from Northwestern University who has done research on a method of speaking called "clear speech" and she looked at adults and children with hearing impairments and looked at the affect of using clear speech, what it had on speech understanding. It actually had a significant important impact. So that is

another one that you can take if you want to see the results of that research. Her name is Ann Bradlow, and she's a very wonderful hearing scientist there.

So what if she doesn't understand what is being said? Try to encourage the teacher not to ask the child directly, "Did you understand that?" Because that is a really difficult thing for a child to constantly be having her hearing loss brought out in front of all the other students. Certainly I don't like that. I don't like people to ask me that directly all the time. So try to instead to just look at the child and get a sense of when you think they aren't understanding. Learn to recognize what I call "the look" which means that he didn't get it. If you see "the look" you want to repeat once. If that doesn't work then you want to paraphrase or try to explain things in a different way.

I know for myself sometimes if I'm not getting a particular word, for whatever reason, I'm just repeating, repeating, repeating that same word is not going to help it. It just makes me frustrated. So you want to try to get them to do something a little bit different.

Of course we want to encourage the child to ask. Speak up if they hasn't heard or they don't understand and to get them to do that as much as they will. But sometimes it is hard. I mean, you do have to recognize that sometimes they just won't do it as much as they should.

One of my favorite stories involves a little boy who heard me doing a talk at some event. He raised his hand at some point. He told me about the fact that his teacher had developed this system for them. She used a secret sign -- excuse me -- he used a secret sign. The teacher encouraged him to use that sign if he missed something. And then that was her signal to go back and paraphrase or repeat what she had said. That was really cute. He really liked it. It was is a nice proactive step the teacher had come up with herself.

Lastly, you want to write difficult key words on the Blackboard. That is a really nice way of providing a bit extra for the child as well as the other children in the classroom. In so some other communication strategies that work nicely is to provide key new words and concepts to parents or team members in advance of introducing them in class. To use concrete materials or natural gesture to say illustrate points, write assignments and directions on the board. Point to the speaker. You know, some of us who have unilateral hearing, I had a cochlear implant on one side and one of the things that I have difficulty with is localizing the speaker in a large group. Children have that same difficulty. But if you point to the speaker, the child will be able to immediately see who is speaking and focus in on them.

If you think he or she might have missed comment that is

made by a classmate it is great to rephrase or restate what that other child has contributed. And, of course, do it through the microphone if you're using an FM microphone.

Very important, these are strategies that help every child perform better. So it is not something that you're just doing for the hearing-impaired child. You're doing it as a teaching tool to help everybody in the classroom.

And I think it is really important to set the child up for success and to do that we need to pre-teach some of those lessons and share lesson plans before the child encounters a new segment in class and provide key new words and concepts to parents or team members in advance.

I can tell you as an adult that works so well for me. If I'm going to go to a play at the Kennedy Center and it is a story I don't know, I will always read the play in advance. That helps me so much in understanding the dialogue.

You want to send words to new songs home in advance so parents can help the child learn new words and melody and build her confidence by asking questions you think she can answer. And then work up to more difficult challenges. And just really what you're doing is helping the child shine in areas where he has competency so he then has the confidence to speak up at other times during the classroom day.

So what about classmates? How can they help in this process? I think one of the really important aspects of this is to ensure that all of the adults in that school have a belief system which is that having a child with different needs is beneficial for all the children. And if adults have that perspective, it will definitely filter down more readily to children and definitely you want the kids to see the technology and learn about it. You want to have time in class where you're talking about difference and special needs of all people. I think it works really well if you can get a professional in deafness to come and visit and talk to the children about that. Or if you could find a "cool" adult with hearing loss to come and do -- make a visit, that is a really need thing to do.

And, in general, it is just really nice to help the child to know how to talk about his or her technology. And I knew -- I know one little boy that says, "These are my super computers." I've heard children say, Children with cochlear implants say, "I'm the bionic boy" or "I'm the bionic girl."

Assign a hearing buddy to help the child keep on task and show him where the class is, if needed. And of course make it a privilege to be the hearing buddy. If the child is old enough, that child can also share notes.

What about teasing? Likely your child will get teased. When

I've done this talk in person I've often asked audiences how many of them have had children who have experienced teasing in school? And usually it is about two-thirds/one-third. So you can assume that something like this might happen. And I think the best thing is just to listen and put yourself in your child's shoes. Help them deal with that so that they feel like, okay, I can handle this. And give them some tool to say handle it. That can be humor. They can deflect it or they can ignore it. Some kids just agree with it and that puts the teaser off balance. I know one little guy who has an absent external ear. He had to undergo a series of surgeries to build him an ear. His ear looked pretty funny while that was going on. So his parents helped him with that. And when kids asked him questions about what was going on and why his ear looked so funny, he had a stock answer which was, "It is a work in progress." The other thing I think that is important to know is that most kids with or without hearing loss experience teasing at some point in their lives. And the best thing that you can do is follow these steps. If teasing becomes harassment or bullying, then that is a point in which we want to step in and put a stop to what is going on.

This is a picture of Lt. Colin S. Barry, United States Marine Corps. He looks like he's a tough guy and somebody wouldn't want to mess with him. But it turns out Colin is my son. As I was putting this talk together I remember that he was -- when he was a little guy he used to get teased. He was a little bit

nerdy and boys, in particular, used to make fun of him. So it is something that even young men that grow up to be pretty tough guys might have experienced this in children.

So what suggestions can you make about troubleshooting to minimize down time? And this is a real important part of the whole process to ensure that the child's processor is working every day, you know, 24 hours and when they're up and around. And the first steps you want to go through is check for visible breakage or loose connections and check that the processor is actually on and that it is set on the appropriate user setting. Change the batteries. That is sometimes the problem. Check the microphone and check the transmission coil. We have in our package kit a little wand that allows you to check the coil.

I think it is a really good idea for kids to just understand how long their batteries are going to last and then back up five, six or seven hours and just change them automatically. For adults like myself I just carry batteries around with me. When my batteries go, I change them. But for children, we really need to set up a schedule so they don't have to worry about changing their batteries.

For preventative maintenance you want to use the Dry Aid Kit on a daily basis and establish a schedule. As I said, changing batteries and keep batteries at school in case you do have

them. Go out and consider the Nucleus troubleshooting kit for school if your child does have a Nucleus device. I'm going to talk just a minute about that.

We do have a little booklet that looks like that, and you can purchase the glossy one for \$15. Or if you want it for free, you can download it from the website. It has exactly the same content and the same drawings.

Then the troubleshooting kits. I believe these should be purchased through the child's IEP and they just follow the child around as he moves from grade to grade. This is what the kit actually looks like. It is specific to each sound processor. The kits actually range in price, depending on which processor the child has. Those can be purchased through Cochlear's personal service.

I would like to at this point if you have questions to go ahead and type them to me. Now, you just click on my name. Then type me a question. That way those can be coming in as I finish up this last set of slides for you.

I wanted to share with you some resources that we have that we hope you'll share with school professionals. One of them being the HOPE program. Wherever you see this little logo, that is an indication that it is something for school professionals. HOPE is a program that we developed to

improve educator knowledge about the needs of children with hearing loss. We conduct online training two times a month. We have over 40 archived and recorded courses. I mentioned two of them today. But there is lots more up there. They're all free. They all offer CEUs, and we also offer regional one-day rehab workshops. These are live workshops around the country. We'll be posting those up to the website very soon.

I really hope you'll keep an eye out on the HOPE area of the Cochlear website where we have a lot of materials, also. You can sign up there for our online eNews letter which comes out about every four weeks or so.

And then this program, of course, is being sponsored with AG Bell, but we also have just an on-going program of online sessions. These are three that are coming up through mid-August. This one on Literacy for Littles and is a really great one. It is on pre-literacy skills. And then on August 7th we have Transition to Preschool for Children with Cochlear Implants, and this one Using Experience Books to Promote Early Literacy. These are all designed for professionals, but many of them are also appropriate for parents.

And then with AG Bell, we have this program of online events that are significantly for parents. So we have two more of those coming up through September.

This one is by Terry Zwolan from University of Michigan.

Terry is a CI audiologist and she does a great job discussing how to partner with your audiologist to get the best map for your child.

And this one is from Don Goldberg and will be on Maximizing Outcomes with Minimal Resources, and it is tips for families who don't have access to an auditory-verbal therapist.

Another resource that I wanted to just alert you about is HOPE Notes. This is what they look like and these are 12 topics. We ought to get inquiries about. We actually have six more on the way. There will be 18. And what we attempt to do with these is crystallize key issues and highlight questions to ask, especially those where there is no one right answer. It provides understanding on a topic without being definitive. So you can download those from the website. These are really nice resources for educational professionals. And another resource is our Educator Guide which is new, and you can download that from the website. It covers a variety of topics that are useful for educational professionals and also for parents.

This is a resource guide that is designed to be used for the key person in the school. As you can see it is a loose-leaf notebook and it is organized by topics. So there is materials for all these different topics. And all the authors gave

permission to copy their materials. The lead person can take one or two things out and make a copy of it and give it to the right person in school.

And then I'm just going to end with some of my favorite books for teachers. The first two there are actually AG Bell publications, and I think they are now offered through Singular, but those are great books. They're just short books. Not very expensive. That covers many of the same issues that I talked about today. And then I also just love Tips for Friends that is available from the Moog Center for Deaf Education in St. Louis, and you can order that directly from the Moog Center. I went the wrong way there. I'm so sorry. Here is exact information for Cochlear's website for me if you have any questions or comments. And then if you would please fill out a participation form then we will -- if you would fill out a feedback form, I should say, we will send you a certificate of participation. You can do that by going down and downloading that from the area just below where the PowerPoint is on the screen.

So I think we have time for a few questions. Let me see what I've got here. Here is one. Good question. She says, do I need to tell the public school teacher that she shouldn't let the student go down the plastic slide at recess time? I've heard that.

Okay. All of you may or may not know that plastic slides create a lot of static electricity. One of the things that we really try to avoid with cochlear implant processors is exposing the child to static electricity. What that means in a practical way -- for example, when you're getting dressed in the morning, particularly in the wintertime when things are so dry -- and I always put my sweater on or whatever I'm going to pull over my head first and then put my processor on. Same thing with kids, obviously. If your child wants to go down the slide, it is probably a better idea if they take their processor off when they're going down the slide. The worst thing, if they happen to go down, the very worst thing that can happen is you blow them up and you have to go back to the clinic to have them redone. Nothing terrible or horrible is going to happen. You're not going to damage the internal device or hurt the processor. What it may mean is annual extra trip to the clinic. So we do recommend that you take the processor off, turn it off, take it off before you go down the plastic slide.

Here is just a comment. And she says, the ANSI standard applies to an unoccupied classroom, right? Yes, absolutely. When you take these readings and actually when you do any reading in a classroom, you can -- and you can get a sound meter. They have inexpensive sound meters that you can buy at RadioShack. You can use those to get a very rough idea of what the ambient noise level should be in the room. When you take that reading, you do it before the children arrive in

the morning but with everything on that is going to be on for that day. So the air conditioning, if it is air conditioning day, it should be on. If the teacher is going to use an overhead projector, you put that on. If there is an aquarium bubbling in the room you turn that on. All the noise generators ought to be in the room but the kids have not arrived for the day yet. That is a good question.

Any more questions? I think I've hit the end of the questions. Any more questions? Looks like we're just at 4:02 so we're perfect in terms of the ending time. If I don't see any more questions, I'm going to just thank all of you very much for joining us today. And I hope to see you at HOPE Online one day soon. And please e-mail me if you have any other questions or comments you would like to share. Thank you so much for being with us and thanks to AG Bell for hosting this. Bye-bye now.

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