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>> Donna Fisher Smiley: I'm Donna Smiley. I'm an audiologist at Arkansas Children's Hospital in Little Rock, Arkansas. I have the privilege of coordinating a program called the EARS Program where we provide contract school-based audiology to schools and preschools across the state of Arkansas.

Today's case study is about using effective modes of collaboration in order to address auditory access issues in schools.

My financial disclosures for this presentation include that I receive royalties from Plural Publishing for a textbook that I co-wrote called, "School-Based Audiology" which may contain some material that's referenced today. I also will be receiving a financial compensation for doing this presentation for ASHA. And my nonfinancial disclosures are that I recently completed a term on the ASHA Board of Directors.

Most of us are interested in having collaborative relationships with the individuals that we work with. I think speech pathologists and audiologists are particularly good at this, because we understand the need for communication and communicating with lots of different people. However, I do think that collaboration has some barriers to it, and we experience those barriers in our everyday work. So I want to talk for just a minute about some of the barriers, and then this case study is going to focus on what are ways that we can overcome some of those barriers.

In this display that you see in the PowerPoint, in this graphic, you will see a continuum of collaboration. Most of us think that we operate into the continuum that's labeled collaborating and integrating. However, I would argue that at least in my own case I often am operating more at the other end where what I'm really doing is networking or coordinating.

Collaboration is difficult in some cases and some of the barriers include the fact that it takes time to collaborate. It also takes a level of trust. And it also takes an ability to do some releasing of a role and/or turf. And so as we think about collaborating and more effective models of collaborating today, I want you to think about this graphic, and I hope that you'll go back to it and look at it again.

When we have high levels of true collaboration around student needs and when we're truly integrating across professions to meet student needs, what we see is that we have high levels of trust between professionals, that we do have some substantial time commitments that

we have to address, and that we have to be willing to share turf.

So let's look at some case examples today. The first challenge that I want to share with you is one that kind of demonstrates some ineffective models of collaboration. Our example here is a student named Cade. Cade is in the seventh grade. He has profound sensorineural hearing loss and wears bilateral cochlear implants. He's struggling in school and some of his struggles include areas like language, spelling, some issues with reading, and in general he has difficulty following directions in the classroom.

Now if we look at Cade in a traditional model, if we really see him in the way that we might think of him as individual professionals, then here's what I think happens. I think the teacher sees a student who's academically struggling, and the teacher may be frustrated because Cade's not performing at grade level, and he's having difficulty even when it appears that he has the materials that he needs to progress; however, he's not making the progress that she expects.

Of course from the parent's perspective, the parent sees Cade certainly as their baby and as their child, and they may have some levels of frustration when they view Cade because the information that they have when he gets home seems to be disconnected. He doesn't seem to know what he's supposed to do or how he's supposed to do it. And so the parent sees it from the student's perspective and from the level of frustration.

The speech language pathologist sees Cade as having some language and articulation issues. And so he or she is looking at the student, may be in an ineffective model, the speech pathologist may be looking at the student as: I need to work on the articulation; I need to increase his speech intelligibility; I need to increase his vocabulary; I need to increase his ability to use appropriate syntax.

Of course the audiologist, which I feel like I represent, often sees Cade as technology: Are his implants working; does he need assistive listening technology; is he getting appropriate auditory access in the classroom, if I'm looking at him only with the lens of an audiologist.

The school psychologist who may be involved with Cade may see him as a kid who has normal cognition, he should be performing better, especially if the school psychologist does not have a lot of background in understanding hearing loss. And then the school counselor may get involved because Cade may have some behavior issues because of his language issues and because of his lack in academic progress.

So if we continue to see him through these individual lenses, and we don't look at him as an intercollaborative team, then we certainly can't expect Cade to make the progress that he should make. However, if we will try to see this challenge or this student through the lens of interprofessional practice, then I think that we have a better opportunity and a better chance to help Cade achieve his optimal outcomes.

So what I'd like to do today is I'd like to show you three cases where we take this information and instead of using an ineffective model of collaboration, let's look at some ways that we might overcome some of the barriers and use a more appropriate and effective model of collaboration.

Let's start with this student. This student's name is Maggie. And on the face this case may look very simple. Maggie has been referred for special education testing. But in order to complete that testing by lots of professionals on Maggie's team, she needs to be able to have a passed hearing screening. And she for whatever reason cannot participate in a traditional pure tone hearing screening which in her case was being administered by her local school nurse.

So we have a team right now that consists of the special education teacher, of the speech language pathologist, and of the school nurse. And the three of them as a team and as individuals need help. They need to know something about Maggie's hearing status, and they're not able to achieve that on their own.

The ineffective practice that we often see happen in schools is that there's a decision that's made that this child just can't be tested for hearing. And so one of two things happens, either the process becomes bogged down because the school knows they need to know something about the child's hearing or the team knows that, and so the process gets slowed down because no one in the team is able to get the hearing screening. Or in some cases we will see students who go on into the special education testing realm without the team having any knowledge of how the student is hearing. And so neither one of those is really, certainly not best practice, and certainly not an effective practice.

So we have some opportunities here for interprofessional practice. One, the opportunity for the audiologist to be involved. Hopefully if you're one of the other professionals on this team or serve in those roles, it will occur to you or you will think that possibly an audiologist could add value to the team's decision or to the team's testing.

As you all probably know, remember audiologists have some other

tools in their tool kit that may allow them to be able to screen this child's hearing. Certainly the use of otoacoustic emissions and acoustic reflexes is an option. Maybe the audiologist can use a play audiometry technique and be able to get a good hearing screening on this student. Possibly the student has hearing loss and that could be identified with the help of an audiologist and the child could be referred on for further testing in terms of hearing.

So the interprofessional practice opportunity is certainly that you can include an audiologist in this case example. Even if the student ends up not having hearing loss, the audiologist may have something to contribute to the team. And then I would say to those of us on the audiology side, we have an opportunity here to help the other professionals on the team understand that audiologists have other options for hearing screening. And we also have an opportunity to share some of the techniques that we can use, such as play audiometry, with the other professionals on the team.

This is one of those places where being willing to forego turf wars is of benefit, certainly to the student, and certainly to the team. Sometimes I find audiologists are not interested in making sure a school nurse or a speech pathologist know how to do play audiometry, but honestly, it is a technique that is very effective and very useful. And so it is something that the audiologist cannot only provide, but then can share some of her skills with the rest of the team.

So I would encourage you as you think about students who you're going through the process of evaluation or reevaluation or you're unsure of the student's hearing status, be sure to reach out on the audiologist that might be available to you in your school district. And if you don't have an audiologist in your school district, this is certainly a great example that you might use with administration to encourage them to think about using school based audiology services.

So let's look at this case. This is Matthew. Matthew's in the third grade. He has severe sensorineural hearing loss, and he wearing hearing aids in both ears. He's new to this district. He transferred in from out of state. And for those of you, again, who work in schools and have worked in different states, you understand that when you know one state, you know one state. Because every state is different and state special education agencies have opportunity to interpret some of the law in their own way and to apply those things in a state.

And so Matthew has transferred from another state where he was

receiving services. So, the staff in his new school are unsure about how to utilize his technology; how to maximize his listening environment; and how to plan appropriately for remediation and his remediation for speech language and learning deficits.

So let's see how we might work better together in Matthew's behalf. Our ineffective practices are when we go back and we look at the first case that I talked to you about where we all practice in silos. So the teacher thinks about Matthew, the speech pathologist thinks about Matthew, the school psychologist, the audiologist, all of the team members are really thinking about how do we help Matthew, but they're thinking about it on their own and in silos. And so we know that that practice is ineffective, and often we would laugh at that example that I gave at the beginning of this case study, except that many of us know that that's how we practice.

So, our opportunity here for interprofessional practice is that we can really harness the knowledge and the skills of many professionals to improve the outcomes for this student. One example that I would give you is that the speech pathologist in Matthew's case, if a speech pathologist were on his team, and I would suspect there would be, the speech pathologist has a great understanding about how Matthew's language, what his language skills are like, and the audiologist has some understanding about how the hearing loss affects his ability to gain new language.

If those professionals are able to interface with the teacher and explain to the teacher, these are the deficits that Matthew has in language, and these are the speech sounds that are difficult for Matthew to hear because of his hearing loss, then it might explain a lot for the teacher in terms of Matthew's difficulty with things like plurality. He doesn't always hear the ends of the words. He doesn't hear the 'S' on the end of a word. He doesn't hear the 'S' on the end of the word when it's a possessive. And so if he doesn't have context, he may not be able to complete the task. And it's not because he's not willing to or because he can't follow directions, it's because he's missing those pieces of information that would make the picture complete for him.

That's just a small example of how if a team can communicate with each other, and that takes time, but if everyone comes to the table with their piece of information and if we're all willing to listen to what the other professionals have to contribute, then our planning and remediation for Matthew will be improved more than if any one of us works with Matthew individually. So I would encourage you to think about that when you look

at students like Matthew.

In addition to thinking and working together as professionals, sometimes there are opportunities for us to prepare materials beforehand or leave behind when we're not in the school building. Those of us who are school-based audiologists will be very familiar with this idea. Most of us that practice school-based audiology are very itinerant. We're not in a building for very long, and we certainly aren't in the same building with the same students every day. So one of the contributions that audiologists can make to team efforts that deal with students like Matthew, would be to develop some things that they can leave behind and that they can use over and over again.

So for example our team at Arkansas Children's Hospital has developed several how-to guides, these are one page, they talk often about technology; how to troubleshoot; how to operate an FM system or a DM system or a hearing aid or a cochlear implant; how to make the sound field system work. So sometimes putting those things in writing in language that is not too technical from an audiology perspective is a great way for an audiologist to be able to actually extend their services beyond the time that they're physically in the building. And this is something that is a value to the team. You make yourself more valuable because you've left things for the other staff to use when you're not there.

Another example of an extension of audiology services would be to schedule a technology timeout or a time to ask the expert. Our team at Arkansas Children's Hospital has done this a couple of times. We've used technology. Technology timeouts can be done with something like Google Hangout or even Facetime. Of course we want to be careful when we think about a student's privacy, and we don't want to necessarily use an insecure means of communicating across technology and use the student's name or even have the student visible on camera if that might violate that student's privacy. But if a teacher needs to know how to troubleshoot a hearing aid, this might be an option that you could use where you tap into a time that you can actually see the device, but you don't necessarily have to travel to the school building. So this is just another example of an extension.

The other thing that we've done with some effectiveness at Arkansas Children's Hospital is to utilize graduate students who are either in an AUD program or graduate students in a speech pathology program, even undergrads in communication sciences and disorders make great volunteers, or even paid interns, as well as students are often looking for practical experience. And so we've utilized students which have allowed

us to do some troubleshooting when we've been able to send a student or an intern out to do that troubleshooting with us available by technology, and again, it's just a way for us to extend our services when we can't physically be there.

One of the other things that we've done and had some pretty good success with this last year is that we have developed a couple of very short video clips. And we did it in a way that did not take high-tech technology, but these video clips are examples of how to do some of the most common things that a teacher or a speech pathologist or a counselor or a secretary or a school nurse might need to do on campus. And so these video clips include some things like how to insert an ear mold; how to clean a hearing aid; how to do hearing screening on a preschooler; how to do a hearing screening on a school-aged child. And we have made these video clips available on YouTube, through a YouTube channel, and we share this channel with our school contracts as well as others in our state.

And with permission from two wonderful audiologists who worked on this project, Dr. Darby Jackson and Dr. Jessica Newman, in just a moment I want to show you two examples of these video clips. Notice that they are short. So if a teacher needs to know how to listen to a hearing aid, she doesn't have to weed through 13 minutes of video in order to get to that part. She can go straight to this channel, pick the video she wants, and look at that. Or if she's having some problems with an FM/DM system, she can look at that and go straight to that part.

So these video clips will give you an example of that. And just to let you know we used an iPad camera. We recorded these in an audiology sound booth, so it wasn't a fancy recording studio. And we used an app called "Splice," which I suspect there are many of these types of apps out there that you can use, and Dr. Jackson and Dr. Newman did all of this on their own. And I hope what you'll see is that they are of great quality, and that they are very useful. So take a look at these two videos.

>> In this video we are going to demonstrate how to troubleshoot a hearing aid if it is not functioning properly. After removing the hearing aid from the student's ear, wipe down the ear mold with an alcohol swab.

Then, clean any debris from the ear mold using a cleaning tool. This particular tool has a wax loop for wax removal and a brush for cleaning debris from the microphones. Visually inspect the ear mold tubing for signs of moisture. An ear mold blower can be used to dry the inside of the tubing. Detach the ear mold from the aid and use the ear mold blower to

remove moisture.

One last thing to check is the battery power. Various types of battery testers are available. If these fail to resolve the issue, contact the child's managing audiologist for additional assistance.

>> In this video we are going to discuss various tips and tricks when using a personal FM or DM system. Keep in mind that there are many different types of systems and configurations available.

Most systems include a transmitter, receiver, and the student's personal amplification. Always ensure that all components of the devices are connected and functioning properly. This might include ensuring that the receivers are placed on the hearing aid or implantable device. Also ensure that you have a functioning battery in the device.

Next, you need to ensure that the teacher-worn transmitter is turned on and connected. Also some students may require that a program be added to their personal amplification device in order for it to function properly. It is necessary to consult with the student's managing audiologist regarding the proper programming needs.

The fitting of FM and DM is only within the scope of practice of an audiologist. Be sure to always include an audiologist when fitting these devices.

>> Donna Fisher Smiley: Let's look at one last case, and you may find this case to be a little different than other case examples, but stick with me here I have sort of a method to my madness.

This challenge or this case is really about all students and how when we all work together we can really benefit all students in schools, not just students that have hearing loss, not just students that have speech and language issues, but all students. In our work in Arkansas, and I suspect this is applicable to many of you across the country, but in our work in Arkansas we often come across a district, a school district that will say, well, we don't really have any students with hearing loss, and so we don't really need school-based audiology services.

And I would argue that school-based audiology services actually have a contribution to any school with any students. So let's look at this as a case example. What we know, at least from an audiology standpoint and a speech language pathology standpoint, is that the listening environment in which we ask students to listen has a definite effect on a student's ability to perceive speech, and your ability to perceive speech



impacts your ability to comprehend the message. And then your ability to comprehend the message, then translates into your progress as a learner.

It is very challenging, and I say this as an audiologist with 26 years of experience, it is still very challenging even for me to truly appreciate what it is like to listen as a student whose auditory system is not fully developed; who may have intermittent middle ear issues; and who may be in an academic listening environment that isn't very conducive to listening. It may have a lot of background noise. It may have a lot of distractions. But as an adult listener with normal speech and language, it's difficult for me to imagine that those things that don't bother me, do bother the student. So I would argue that we have to think often about the listening environments that we ask students to listen in.

So the challenge here is that we want to improve classroom acoustics for all students. The challenge is also that most teachers don't want me to come in as a school-based audiologist and tell them how to set their classroom up. I'm not a classroom teacher. I'm not certified as a teacher. And so I understand that an ineffective model of collaboration is for me to tell you what to do.

And so I've thought long and hard about ways to try to impact this situation, because it has a lasting impact on many students. So one of the options that we have as a school-based audiologist or even as a speech language pathologist who understands some things about classroom acoustics, is to try to involve all school staff in thinking about how to improve listening conditions for all students in the classroom.

Sometimes we're asked to provide professional development for teachers, and I think we often assume that what they want us to talk about is a student with hearing loss, let me tell you all that I know about hearing loss. And my experience has been that I often get invited to do those types of things and I go in and they have the cafeteria full of all of the school staff, and I ask the school staff, how many of you have a student with hearing loss? And nobody raises their hand. So I now have three hours in front of me where I'm going to talk all about hearing loss and no one in the room currently has a student with hearing loss.

But if we kind of flip that and we think about what could we talk about or what could we help teachers think about that impacts all students, and I would argue that classroom acoustics is one of those. I want to give a shout out to my class, my school-based audiology class at the University of Arkansas for Medical Sciences, because they came up with this idea that I'm going to share with you about how to do an

intercollaborative type of model when we think about classroom acoustics.

So their idea is that if you have the opportunity to talk to teachers and school staff about classroom acoustics, certainly involve everyone, including administrators, because administrators often can help things have the impact that you want them to have. So my class' idea was that you would give the teachers an opportunity to experience hearing loss, and you can do that in several ways. You can simulate hearing loss for them with ear plugs, if you get some good, high noise rated ear plugs. You could also use some simulations that are available online. But let them have a chance to experience what it's like, even for just a few minutes, to have a hearing loss and to have to listen for an important message when they're not able to hear and have complete auditory access to that message.

And then there are a couple of ways to do the next part. You can set up somewhat of a simulation in a classroom, maybe ask a teacher to be partners with you and set up some poor acoustic situations in that classroom and allow teachers to go in and find those issues and to fix those issues. You could even go as far as challenging the teachers to go look in their own classrooms and to identify four or five things or issues in their classroom that might be contributing to a poor acoustical environment.

And of course in this day and age of social media, you could also give the teachers a challenge where they take some before and after pictures and share those across their teams in their school or across the school itself depending on the size of the school.

So there are ways to get teachers to improve classroom acoustics without just telling them, this is what you need to do and this is how you need to do it. We want to make this an interprofessional practice. We don't want to just make it something where we tell teachers how to do it, but we really want to help them see and identify what the challenges are for themselves. So use those ideas as you think about having an impact on all students in a school building.

So very quickly I want to just sort of review some of the things that I hope have been apparent to you in this case study. As you think about preparing to work on a school team, I think it goes without saying that your ability to work well with others, to have some sense of trust of them, to value the input of others, and to have a little bit of a shared responsibility of the outcomes for the student, those qualities and characteristics are

very important.

I think it's also important to be a continual learner. I have learned so much in the last 10 years, not just about audiology but also about the education process. And if I am closed off to learning new things, then it makes me an ineffective team member. So be open to learning, be aware that there are lots of blind spots that you have, and that there are ways to fill those blind spots.

Knowledge of the educational process I find to be very helpful. If I can talk the talk, if I can talk a little bit about Common Core State Standards which is something that we use in Arkansas and many of you use across the country, I think it gives me a little bit of credibility with the teachers. I don't think I have to know everything about it, but if I'm totally oblivious to the curricular process in a school, then I don't necessarily have as much credibility and the other team members don't trust me as much.

And then last, I think it's important for us to have some content knowledge, especially from an audiology standpoint in terms of assistive technology, special education regulation, as well as classroom acoustics. So those are just some things that if you're a professional and you're interested in participating in school-based audiology practice, these are some areas in which you can prepare yourself that might allow you to be a more fully functioning member of the team.

So as I wrap this up, I think it's pretty obvious, hopefully you see here on the screen a picture of silos. And I tease that this is actually something that we see a lot in Arkansas. We produce a lot of rice in Arkansas. So we see lots of silos. And what I would tell you is that from a professional standpoint we really don't want to be in these types of silos. What we really want to be, we want to be more effective, and we want to work together as a team. And if we do that, then we are more likely to help our students move forward in success.

I do want to point out here at the end that this presentation is related to part of the ASHA strategic objectives, and specifically strategic objective two which is to advance interprofessional education and interprofessional collaborative practice. And if you're interested in that model and the entire strategic plan for ASHA, go to the website that you see here at the bottom of the screen.

Thanks, and I hope that you will have a few things that you can take out into your practice tomorrow as you go back to work.

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