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Pediatric Audiology: Interview with Anne Marie Tharpe, PhD

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Douglas L. Beck, AuD, speaks with Dr. Tharpe regarding her role as co-editor of the new textbook, *Comprehensive Handbook of Pediatric Audiology* (by Richard Seewald and Anne Marie Tharpe), as well as the epidemiology of childhood hearing loss, principles of early hearing detection and intervention, assessment and management of hearing loss family counseling, and much more.

Academy: Good morning, Anne Marie. Thanks so much for your time today.

Tharpe: Hi, Doug. Thanks for the kind invitation.

Academy: Anne Marie, congratulations on your recent promotion to chairperson of one of the very best audiology programs in the world, Vanderbilt University.

Tharpe: Thanks, Doug. The first year has been great and we're looking forward to many more years of academic and clinical excellence. I have to thank my colleagues in the Department of Hearing and Speech Sciences at Vanderbilt for making the program all it can be. We have an outstanding faculty and staff and they deserve all the credit. I just try to stay out of their way!

Academy: That's very considerate! I must concur, Vandy is simply an amazing place to study and earn your credentials; however, today's topic is the new textbook co-edited by you and Richard Seewald. And I should add that Richard is one of the co-creators of the desired sensation level (DSL) hearing aid fitting protocol (along with my dear friend Mark Ross, PhD) and he recently retired from The University of Western Ontario—although I'm sure we'll be seeing him in other professional capacities! Please tell me how the book came about?

Tharpe: Well, long story. As you know, Doug, our friend and colleague, Dr. Judy Gravel, died two years ago of cancer. This textbook was actually her idea, and so we have included a lovely photo of Judy in the book and we've dedicated the book to her, too. Judy nurtured the idea, signed the contract with the publisher (Plural Publishing), and a couple of weeks after that, she received her diagnosis. Nonetheless, she wanted to push the project forward; it was simply not an option to abandon the book. Soon after Judy's death, Richard turned to me and said, "You know, we've gotta finish this book for Judy."

Academy: Wow...that's a pretty strong motivator—and what a phenomenal tribute to her.

Tharpe: Thanks, Doug. Yes, we really were so appreciative of her vision for this project and this became a labor of love for Richard and me...

Academy: And I always like to ask—how long did it take from concept of the book to the finished product?

Tharpe: Good question. Judy and Richard sat down in July 2006 to outline the text, so that means the whole process took just over four years. Richard likes to say the book had about as many missed deadlines as it does pages!

Academy: Well, the book has just over 800 pages—so that seems like an organizational nightmare, but in the final analysis, well worth the trouble!

Tharpe: I totally agree! The original table of contents included 55 chapters but at the end of the day, we had 49. This includes the efforts of 68 authors who generously contributed their time and expertise. And, of course, the staff at Plural who were very patient with us throughout the entire process.

Academy: Seems to me this book has the potential to quickly become one of the primary textbooks in the pediatric audiology programs across the world. This text is a little different from the most familiar texts in that it takes the core topics and adds more depth and width—while incorporating the newest technologies into the familiar topics. In other words, pediatric texts from just a few years ago certainly don't have the current thoughts, ideas, and knowledge relating to pediatric audiology and cochlear implants, FM, auditory neuropathy spectrum disorder, hearing aid fittings, otoacoustic emissions, ASSR and ABR and on and on...in other words, this book starts in 2010 and refers to the tools we're all using now.

Tharpe: Right. And it includes the science that supports our field—something that was very important to Judy. For example, we start at the very beginning with an excellent chapter on embryology, which covers general human embryology with a focus on the auditory system, and end with family and educational issues. It is our hope that the book can be used not

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only for pediatric audiology courses but also to supplement aural habilitation courses. All chapters attempt to introduce and highlight new scientific findings—and this is how the profession evolves, by pushing through the science, by testing and validating what we do and what we know—so the science informs our clinical practice.

Academy: I love to hear you say that, because when I hear people say things like audiology, or hearing aid fittings are more or less “art forms,” that resonates (to me) of bad science and less-than-excellent clinical practice. In other words, I suspect you could argue that audiology and hearing aid fittings involve art *and* science because when you work with people, you certainly must take human issues into consideration; such as emotions, the patient’s needs and desires, the educational and/or occupational considerations etc.—and that is the “art” part—the human part.

However, hearing aids and hearing aid fittings and audiology are clearly sciences. For example, DSL represents a scientific protocol for fitting hearing aids. It’s a process, that has been tested and validated, there are known outcomes and it has evolved over time. Yet, some colleagues don’t use scientifically based fitting protocols—they practice with less of a scientific foundation and more of a philosophic approach. And I don’t mean to downplay their successes and insights that work some or even most of the time (depending on what they’re doing, when and to whom)—but I think moving forward, it’s of maximal importance to use protocols that are validated and that involve physical verifications.

Tharpe: Yes, I agree. I like to think of pediatric audiology as a science with a strong humanistic component. Furthermore, in considering practice with infants and children, we must remember that they’re not just “little adults.” Their issues, concerns, and needs are quite different from adults and they really need and deserve scientifically based assessments, and management approaches, including hearing technology fitting protocols. Making modifications to adult protocols is not sufficient.

Academy: Okay, very good—here we are preaching to the choir! Okay then, back to the book. When I think of Anne Marie Tharpe and Fred Bess—I naturally think about two topics: unilateral hearing loss in children and the potentially devastating impact of minimal hearing loss. I enjoyed reading chapter 10 by Heather Porter and Fred Bess on unilateral hearing loss. What can you tell me about that?

Tharpe: Well, this is an interesting chapter and it builds on what Dr. Bess previously published decades earlier. That is, a unilateral hearing loss, even if the other ear hears normally, puts a child at risk for academic difficulty, speech and language deficits, difficulties with auditory processing, perceiving speech-in-noise, and more. Some of the listening challenges that children with unilateral hearing loss encounter daily involve head shadow effects, binaural processing, binaural summation, localization and other significant deficits. So, as we mentioned a few moments ago, this new chapter by Porter and Bess looks at unilateral hearing loss from a scientific viewpoint—not just anecdotal information or case studies. Of course anecdotal reports and case studies create a context for us to consider the importance of binaural hearing—but we need to start from a foundation of understanding binaural processes to move toward appropriate interventions.

Academy: I agree entirely. What about the topic of minimal hearing loss? Of course, I think it’s very important to say there are no minimal hearing losses in children...but you wrote the book! What can you tell us about the chapter you wrote (Chapter 11) on minimal hearing loss?

Tharpe: Good point. To me, the term *minimal* refers as much to the configuration of hearing loss as it does to the degree. That is, normal hearing through 2kHz with hearing loss in the higher frequencies is commonly considered to be a minimal hearing loss. But, a profound unilateral hearing loss is also referred to as *minimal*.

There has been considerable discussion and debate about the definition of *minimal hearing loss* and the use of the term itself. As you know, Doug, when parents, teachers, pediatricians, and others hear the term *minimal* they think “inconsequential”—but there is no such thing as inconsequential hearing loss in children.

Frankly, when I hear the term *minimal*, I think “difficult to manage.” Traditional hearing aids are often difficult to fit on these children and because of the significant amount of residual hearing, parents and teachers often have difficulty understanding why these children need other hearing technologies like FM systems. Therefore, families and professionals require a great deal of education about the impact of minimal hearing loss on child development and academic achievement.

Academy: I agree. Children with minimal hearing loss are very likely to have significant problems with regard to speech-in-noise, speech and language, auditory processing, and more. And I would add, that for the readers with normal hearing, imagine placing your fingers in both ears and going through your day with that level of decreased hearing—that represents about a 20–25 dB loss—and that is a horrible way to get through your day! Then imagine you’re a child trying to build cognitive abilities and learn language, vocabulary and improve articulation through that hearing loss filter!

Tharpe: Yes—good point. In essence, the issue is that even minimal hearing losses need to be diagnosed and managed carefully.

Academy: And I think it’s true to say that if you include children with unilateral hearing loss and children with minimal hearing loss—that translates to *some* 10 percent of all children having hearing loss, and these children will be negatively impacted by their hearing deficit.

Tharpe: Right. There is some variability across studies, but about 2.5 percent of school-aged children have permanent minimal to mild hearing loss. It is difficult to estimate the prevalence of bilateral minimal hearing loss in newborns because it is not identified via newborn hearing screening. It is important for parents and physicians to know that minimal hearing losses will typically *not* be found on newborn screenings, as they are designed to find children with greater degrees of hearing loss.

Academy: I think that's a fair statement. I seem to recall the 2008 *Seminars in Hearing* issue that said approximately 8 percent of children in grade school have hearing loss that needs professional, audiology-driven management.

Tharpe: Yes, but as you know, there's much more to managing these children than just audiological management. Successful management of the child with hearing loss generally results from a team approach, also called a multidisciplinary or inter-disciplinary approach. When possible, a team approach allows a child maximal opportunity for success.

Academy: Anne Marie, you are a wealth of knowledge and I learn something every time we speak.

Tharpe: Thanks, Doug.

Academy: My pleasure, Anne Marie. Your new textbook is not just another "me too" sort of pediatric audiology text. It's up-to-date, scientifically-based, comprehensive book that serves as an excellent resource for pediatric audiologists and audiology students. I give it my very highest recommendation.

Anne Marie Tharpe, PhD, is the chairperson of the audiology program in the Department of Hearing and Speech Sciences at Vanderbilt University

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