Canadian Audiologist
The Official Publication of the Canadian Academy of Audiology

Children: They are not just little adults

Published July 12th, 2022

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I will approach this festschrift for Dr. Susan Scollie by providing some of the history of her work as I view it from the lens of a pediatric audiologist over the last several decades. I will also start by saying that I think of Susan as an integral yet distinct limb of the strong and productive 'family tree' that is the National Centre for Audiology (NCA) at the University of Western Ontario. In the 1980s, Dr. Richard Seewald developed the Desired Sensation Level (DSL) Method for fitting hearing aids to young children with hearing loss. This was a significant advancement in the management of children with hearing loss resulting in the field of audiology becoming aware of the importance of accounting for individual ear canal acoustics of children. As audiologists know, ear canal acoustics are highly individualized and change over time as ears grow, particularly in the first six months of life. This individualized approach to patient care is generally referred to in some circles today as *personalized medicine* (a term unfamiliar to most of us at that time).

Before the publication of this work by Dr. Seewald and his colleagues, audiologists were fitting children using the same procedures that they used to fit adults; thus, putting children at risk of over amplification and increased hearing loss. Ironically, as more audiologists became aware of this risk, some took what was considered a 'cautious' approach to fitting hearing aids on children by simply cutting the level of amplification by 10 to 15 dB across the frequency range, thus, resulting in under amplification of children in some cases.

Around the time that Dr. Seewald and colleagues were developing procedures for pediatric hearing aid fitting, there was also a move towards universal newborn hearing screening in developed countries. In 1993 in the United States, the National Institutes of Health published a consensus statement recommending that all newborns be screened for hearing loss before one month. This statement was followed shortly after by the Joint Committee on Infant Hearing Position Statement (JCIH, 1994), the American Academy of Pediatrics endorsement (1999), and others concurred with that recommendation. In 2000, the JCIH provided guidelines for early hearing detection and intervention programs, which were readily accepted by the pediatric and audiologic communities. Releasing these public policies rapidly led to an unprecedented number of newborns being identified with hearing loss. However, there was little to no guidance on how to fit amplification on these newly identified babies. Before this time, audiologists were accustomed to fitting hearing technologies on children of approximately two years of age and above – not during infancy. And only a handful of audiologists were trained to work with infants. Thank goodness for the NCA, which provided the evidence-based guidance pediatric audiologists needed to manage the hearing aid fittings for these children. The team that Richard recruited, trained, and mentored (including Dr. Scollie, Drs. Bagatto, Moody, and Glista, among others) was poised to continue this work.

The University of Western Ontario audiologists developed a step-by-step approach to measuring

ear canal acoustics and used this information to inform the DSL method for setting hearing aid output. The seminal and transformative body of work by the entire team served as the foundation for establishing the NCA in 2001 and allowed that work to flourish over the next two decades. Susan began working with Richard in 1996 and quickly became an essential part of the laboratory. One of Susan's early roles was collaborating with Dr. Leonard Cornelisse to develop a new algorithm for multichannel WDRC instruments (DSLv5). Of interest to this discussion, DSLv5 included different protocols for infants, children, and adults. The addition of the infant-specific protocol represented a significant advancement in hearing healthcare that included using estimated thresholds from frequency-specific auditory brainstem response. It also updated normative data for the RECD, a step that was critical to hearing aid fitting in infancy. Finally, this approach recognized and responded to the clinical challenge of getting very young children to cooperate while incorporating probe-microphone measurements in the hearing aid fitting process.

Under Susan's leadership as the current Director of the NCA, the 'family tree' is flourishing and maintaining the culture of translational research and supporting new offshoots whose mission is improving the care of those with hearing loss. Susan's efforts have sustained a clear theme of concern for and evaluation of the impact of hearing loss on the population – not just a focus on the auditory system but on the human as a whole, integrated being, and the family constellation. In addition, she has expanded the research goals of the NCA beyond its initial concentration on pediatric hearing aid fitting to the development of best practice and evidence-based guidelines for pediatric hearing assessment and management.

I have witnessed the enormous impact Susan's work has had on improving the uptake of evidence-based pediatric hearing assessment and hearing aid fitting protocols around the world. There is no current textbook in pediatric audiology today that does not feature the work of Susan and her colleagues. It should be noted that her work, although highly technical at times, is not esoteric – she has purposely and painstakingly crafted a process and message accessible to busy clinical audiologists. Susan is highly sought after as a speaker at almost every major professional conference across the globe on the topic of childhood hearing loss. The best-practice guidelines Susan and her colleagues have developed and continue to refine are widely used and considered the gold standard in our field. It is not hyperbole to state that children with hearing loss around the world can listen better, maximize their speech and language development, and access educational goals specifically because of the work completed and disseminated by Susan and the team at NCA – she has truly 'spread the seeds' of her work throughout the world.

In addition to knowing Susan through her work, I have been fortunate to get to know her personally as our professional paths have frequently crossed. From working together at various conferences, professional meetings, and on research projects, I have had many opportunities to socialize with her over the years – what a treat! Susan is as fun-loving as she is serious about her work. I am proud to call Susan my friend and colleague. May she continue to benefit children with hearing loss and their families, inspire young clinicians and researchers, and maintain passion for her work for many years to come!