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The Changing Needs of Students with Severe to Profound Hearing Loss

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Pam Millett, PhD, Reg CASLPO

The body of published research on the implications of pediatric hearing loss (and approaches to intervention) dates back to the first issue of American Annals of the Deaf in 1847 (many years ago, I found a copy of this first issue, which listed known etiologies of congenital hearing loss as “fits,” “dropsy,” and “marking” – a pregnant mother interacting with a deaf person). Before the age of pediatric cochlear implants, there was essentially a direct relationship between communication and literacy outcomes and degree of hearing loss – the greater the hearing loss, the poorer the spoken language and academic outcomes, as a general rule. However, the situation for deaf students today (defined here as those with severe to profound hearing loss) has completely changed. Due to universal newborn hearing screening and the availability of cochlear implantation, students with the most severe hearing losses now have access to spoken language that is at least as good, and, sometimes better, than for those with hearing aids. In fact, outside of cochlear implant programs, many clinical audiologists today may rarely see children with severe to profound hearing loss past the initial identification and trial with hearing aids. With these positive changes, however, come new challenges and questions in education.

Heterogeneity of the Population of Deaf Students

The research on students with cochlear implants is increasingly indicating (on average) speech, language, literacy and academic outcomes which are commensurate with hearing peers.[1–3] Today's population of deaf students consists of a large majority of students who have, and consistently use, cochlear implants, and who are doing well in acquiring spoken language and literacy. However, there is a small number of deaf students who do not have, or do not demonstrate much benefit from, cochlear implants, and for these students, the challenges for acquisition of typical spoken language and literacy are essentially unchanged from students who attended school 30 years ago. There are new immigrant children who, because of their age and lack of experience with any amplification, are not considered good candidates for cochlear implants. Even in Canada, deaf children do not always have access to cochlear implants (e.g., in remote communities in Nunavut) or, equally disturbing, have received implants but ceased wearing them because of issues as simple as not having batteries, not being able to access repairs, or lack of support for parents. There are some children for whom the auditory information they receive from their implants does not seem to be meaningful or useable, and some for whom anatomical or medical reasons exclude them from candidacy. And (in Ontario at least), in the schools for the deaf, amplification is often not used or encouraged. It is important to recognize that these days, most deaf children in Canada have very good access to auditory information through cochlear implants, but there is still a small group of deaf children who require what Mayer describes as a multimodal, comprehensive approach.[4]

Perceptions and Expectations of School Staff

Today, school staff are very likely to meet an incoming junior kindergarten student with cochlear implants who has age appropriate speech and language, and can carry on a conversation with the teacher with little difficulty. Although we know this not to be true, most teachers tend to assume that if a child is able to hear well enough to learn to talk intelligibly, he/she has normal hearing with implants. While the fact that people now may underestimate the effects of deafness because children function so well, is not a bad problem to have, nonetheless, it does create issues in education. In Ontario at least, special education funding is not tied to degree of hearing loss anymore, and because these students are perceived to function as hearing students, many school boards are reducing the number of teachers of the deaf and hard of hearing through attrition without replacement or replacing full time positions with part time positions. It is assumed that these students no longer require specialized support, and that whatever is needed can be provided by the school's resource teacher. In fact, the opposite is true – while these students may not need intensive support for language and literacy development, they rely completely on their technology (CIs and HATs) working optimally, and their technology is complicated and very specialized. And, as discussed above, there are deaf students who still require significant language and literacy support from a teacher of the deaf and hard of hearing. Perhaps surprisingly in 2018, as professionals, we do need to continue to advocate for deaf and hard of hearing services in schools.

Continued Challenges with Auditory Access for Students with Unilateral Implants

For students who use hearing aids, audiological research and practice essentially mandates the fitting of bilateral hearing aids for bilateral hearing loss. We would all agree that two hearing aids are better than one, and research is clear that the same holds true for cochlear implants.[5] In Canada, the reason for unilateral cochlear implantation is generally related to availability of funding for the cochlear implant programs and audiologists are advocating for change in this area but currently there are still fewer students with bilateral implants than unilateral.[6] There are two challenges

associated with having one versus two cochlear implants, one obvious and the other less so. The benefits of two cochlear implants (or two hearing aids) in complex listening environments has been clearly demonstrated and so, students with two cochlear implants will predictably have better listening performance in the difficult and complex listening environments encountered in school classrooms, than those with one CI. However, in quiet situations, there may not be much observable difference – this is a real problem when school staff assume that just because a student with one CI is able to communicate easily in quiet, that they can communicate equally well in noise.

Students with a single cochlear implant will experience all of the listening challenges associated with a student with a unilateral hearing loss (although with the added challenge of not having typical hearing in the "aided" ear). However, these challenges are often not identified or understood by classroom teachers because in my experience, the average person often misunderstands the student to have normal hearing in the ear without the cochlear implant. This seems surprising to professionals, but the average person (unsurprisingly) does not know much about the criteria for cochlear implantation. Therefore, it is not unusual that a classroom teacher mistakenly believes that a student has normal hearing in the ear without the CI and his/her observations are that the student hears well in a quiet situation one to one. Without educational audiologists and teachers of the deaf and hard of hearing to support and educate school staff, these misunderstandings can lead to inappropriate expectations, frustrated teachers, students and parents and sometimes, inappropriate referrals for learning disabilities, ADHD, etc. based on the conclusion that a student's academic challenges are "not because of his hearing."

New Challenges For HAT

As described in previous columns, there are many factors to be considered in selecting the most effective Hearing Assistance Technology (HAT). It is particularly important, then, for educational audiologists and teachers of the deaf and hard of hearing to have a variety of options available. With hearing aids, there is usually an option for some type of receiver (integrated or used with an audio shoe) to provide direct input into the hearing aids (in fact, on behalf of educational audiologists and teachers of the deaf/hard of hearing, we ask clinical audiologists to ensure that this is an option whenever possible). However, if direct audio input is not possible or a student/parent prefers something different, there is usually an option for a body worn receiver with a telecoil or (at times) a personal HAT device integrated with a hearing aid streamer. Increasingly, however, these options are not being provided by cochlear implant manufacturers, leaving only the option of a wireless remote microphone streaming to the CI (the same is true for some bone anchored hearing aid devices). Because they were not specifically designed for classroom use, however, these remote microphones do not offer features such as the use of passaround microphones, adaptive gain, adaptive microphones, etc. In addition, the pairing of the microphone to the CI or bone anchored hearing aid device is often unstable (requiring the student to re-pair the devices frequently) and the Bluetooth streaming drains the device batteries, so that students may have to change batteries during the school day. Challenges in fitting personal HAT systems for students with cochlear implants or bone anchored hearing aid devices are significantly greater than for students with hearing aids.

Self Concept and Identity

Speaking from personal experience, issues of "identity" in terms of one's deafness are less contentious or concerning than has been discussed in the literature. The vast majority of students with cochlear implants that I work with do not feel that they are inherently members of the Deaf community, that they need to learn ASL or that their lives have been diminished by having a CI

and growing up in the “hearing” world, and this is in line with emerging research.[7] However, the paradigm shifts that have occurred with cochlear implantation are highlighted when we work with deaf children whose parents have significant congenital hearing loss and who grew up with hearing aids which often did not provide much meaningful access to spoken language and who were educated at schools for the deaf. While for all of us, today’s school is a different place for our children than it was for us, the educational and life experiences of deaf parents are really vastly different from the typical education and life experiences of a deaf child born today who has cochlear implants. Even something as simple as HAT is vastly different – for example, parents who remember body worn auditory trainers strapped to their chest with earmolds and button receivers likely still have negative attitudes towards the idea of HAT for their children. Helping parents and school staff understand the changes in deaf and hard of hearing that have occurred in a relatively short period of time is sometimes challenging.

As someone who has been working with students with severe to profound hearing loss from before the days of newborn screening and cochlear implantation, I continue to be truly amazed by the outcomes of most of today’s deaf students, compared to those I saw in the mid-1980s as a new graduate. However, new issues and challenges have emerged which require that we continue to be vigilant in advocating for services for these students.

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