CHAPTER 4

Listening at school

• Basic practices
• Role of parents
• Auditory skills
• Assessments
• Amount and type of therapy

Getting started

As an educational professional you may be part of the team assisting a child with a cochlear implant. This chapter presents information to help you in successfully supporting a child in an educational setting. By understanding some basic assumptions and practices related to hearing impairment and deafness, you will find that your experience with a child with a cochlear implant can be rewarding and productive.

• Start with a positive and supportive attitude and foster ways to maintain it.
• Think beyond the child’s ears. Realize that you are not training ears, but rather the mind to interpret what the child hears through the cochlear implant(s). Since hearing is a foundation from which speech, language and academic skills are built, listening can and should be incorporated into all classroom, therapy and social activities.
• Consider the impact of deafness on a child’s speech, language, academics, literacy and socialization. Listening also helps a child to foster relationships with his/her family, peers, teachers and adult friends. Through listening (s)he hears the nuances of language and social interactions, which in turn, advances competency in spoken language. Having a foundation in spoken language assists a child in attaching meaning to what someone reads aloud, what (s)he reads silently, and what (s)he writes. Comfort in reading and writing are key if a child is to continue to acquire general information about the world in which (s)he lives and to form opinions and expressions. Reading also helps with the acquisition of vocabulary and advanced language structures.
• The more you know about deafness and cochlear implants the more confident you’ll feel about dealing with challenging situations. You will find a list of references at the end of this book, which will help you continue to learn. Organize these materials so that you can refer to them as needed.

• Build a strong alliance with other members of the team by recognizing and appreciating each person’s area of expertise. A team that complements one another by bringing different levels of knowledge, skills and abilities, is better able to support the student in a multi-dimensional manner. Team members may educate, support and challenge one another to best serve the interests of the student.

• Remember that the student is a child first and foremost. Create motivating and practical auditory learning experiences that are interwoven with communication, thinking and learning. Plan for activities, materials, books and units based on the child’s chronological age, language age, auditory levels, cognitive abilities and interests.

The critical role of parents

Parents are a child’s primary case manager. One of the first and most important roles of parents is to work with team members to help them develop and achieve the goals they have for their child. They must develop trusting relationships with members from the medical, intervention and educational professions to assist in the specialized issues they need to address. They are the only members of the team who have a complete historical, social and emotional perspective on their child’s development.

Intervention and school professionals should encourage parents to take a major role in teaching vocabulary in natural settings and creating situations for their child’s spontaneous use of spoken language. Parents are also responsible for reinforcing and fostering auditory development at home, facilitating communication among team members, informing team members of other professionals working with their child and family, attending appointments and meetings, alerting team members to priorities and changes in the implant(s) and assistive devices, providing current information about the child, and making final decisions.
Auditory development: Terminology, perspectives and stages

Several perspectives or “hierarchies” of auditory development have been presented over the years – most based on stages of auditory development in children with normal hearing. Terminology commonly seen in materials related to auditory development for children with hearing loss and their basic definitions include:

- **Auditory detection or awareness**: To indicate the presence of sound.
- **Auditory attention**: To anticipate or pay attention to auditory signals, especially speech, over a short to longer period of time.
- **Distance hearing**: To attend to sounds at a distance.
- **Localization**: To search for and turn to the source of sound.
- **Auditory discrimination**: To perceive and differentiate differences in sounds.
- **Auditory self-monitoring/auditory feedback**: To monitor information through listening and modify speech productions based on what was heard, especially as it relates to duration and rhythm, pitch, loudness, vowels and consonant sounds.
- **Auditory identification**: To associate or select an object, picture or situation based on spoken word(s) or label(s).
- **Auditory memory**: To store, remember and recall information and language from listening.
- **Auditory sequential memory**: To store, remember and recall auditory information and language in the order in which it was presented.
- **Auditory processing**: To make cognitive judgments about what was heard.
- **Auditory comprehension or understanding**: To synthesize the global meaning of language heard through listening, either deliberately or incidentally, and relate it to known information in a variety of situations.

There are four basic auditory stages typically ranked in a specific hierarchy. (Pollack, Goldberg, Caleffe-Schenck, 1997). In this hierarchy of auditory development, illustrated in the graphic below, listening becomes more sophisticated and complex as it develops from the top to the bottom. Listening expands in depth and width as auditory information becomes more meaningful. Often it is appropriate to start at the beginning.
An educator's guide

stages and continue through an auditory hierarchy. Keep in mind that a child with a cochlear implant(s) typically progresses faster through the auditory stages and achieves higher levels than a child with a comparable hearing profile with hearing aids. Once a solid auditory foundation is established, a child tends to learn spoken language in a natural way while integrating previous stages with more complex processes.

Assessment of child's level of functioning to determine needs

A profile on a child's current level of functioning can be developed by incorporating the various tests and measurements that each professional on the child's “team” uses related to his/her area of expertise. Parents should contribute information from observations and interactions with the child in family and social settings. All of this information can be valuable for establishing baselines, monitoring progress, determining new objectives, reporting concerns to the team, changing the therapy approach, communication methodology or educational setting, and making appropriate referrals for additional services. Decisions about how much visual information to use, such as lipreading cues and/or sign language, are determined by the team and relate to the child's unique needs at any point in time. Some of the areas that should be assessed and considered when determining a child's needs include:

• **Speech perception.** These tests are used by the cochlear implant center audiologist or educational audiologist to determine a child's candidacy for implant(s) and to measure his/her progress over time when compared with previous results for the same child. This information can be useful to the teacher or therapist in determining the starting point on any of the auditory curriculums available. The audiologist will report how a child performed in a closed-set or open-set condition. There are a finite number of choices for closed-set or no choices for open-set so a child must rely totally on what(s)he heard. Audiologists administer the tests using either live voice or recorded voice. The most common speech perception tests assess the following auditory skills (defined above): Auditory discrimination, identification, and comprehension.

Speech perception for awareness of sounds should also be assessed daily by parents, therapists, and/or teachers using the Ling 6-sound test. These 6-sounds extend across the different pitches needed for understanding speech.

The Ling test is quick and easy to administer. The adult says one of these sounds at a time in random order: ah, oo, ee, m, s, sh. The child, without looking at the tester, indicates that (s)he heard the sound using activities such as clapping or dropping a block, depending on the age of the child.

• **Language.** The speech-language therapist, teacher or auditory-verbal therapist administers these assessments to determine a child's current use of semantics or vocabulary, syntax or grammar, morphology or word endings, and pragmatics or use of language. Often there are separate scores
for receptive language or what a child understands versus expressive language or what a child says. A large discrepancy between receptive and expressive language indicates a need to address the weaker area. Typically a child’s scores are compared to standardized scores of children with normal hearing. From these results, specific areas can be targeted for intervention.

- **Speech production or phonology.** The speech-language therapist, teacher of the deaf or auditory-verbal therapist usually assesses a child’s articulation of sounds and voice quality. The child either says the sounds, words or sentences spontaneously by looking at pictures, or imitates what the professional has modeled. Spontaneous expressions of language provide a more accurate profile of the child’s intelligibility in conversation. Results are compared to what is developmentally expected. Some deaf children also have oral-motor disabilities. A speech-language therapist can assess this. If a child who is deaf also has difficulty moving his/her mouth or tongue as accurately or rapidly as expected for his/her chronological age, this will impact the intelligibility of his/her speech. This additional challenge may not necessarily be related to his/her deafness, but it may be more difficult to diagnose and treat because of the overlapping impact of deafness on speech development.

**Considerations for determining individualized therapy and educational needs**

When you are determining a child’s future (re)habilitation needs, it is helpful to re-evaluate your expectations of children with implants.

View the child with an implant as a child who hears, although this (s)he does not have normal hearing. Raise your expectations as you follow auditory development so that the child is successful at each stage and challenged to move on to higher levels. Quite simply, move the child through the stages of auditory development as quickly as you can and as slowly as you must.
Each child comes from a different background and has unique needs, so set realistic expectations based on:

- **Age of identification.** In general, a child who is born deaf makes faster auditory progress when deafness is identified in the first few months of life. If hearing is lost progressively, better outcomes are also associated with quicker identification.

- **Age when implanted and length of time between identification of deafness and implantation.** The sooner after identification that a child receives appropriate medical care and technology, such as hearing aids and/or cochlear implant(s), linked with intervention with a strong auditory focus, the better the prognosis with implant(s).

- **Therapy and educational experiences.** Therapy approaches range from relying completely on listening to develop speech and language; to including lipreading and other visual cues; to using sign language with or without an auditory component. Educational options range from full mainstreaming for children with normal hearing; to varying amounts of instruction for other children with hearing impairment; to education in residential schools where all children are deaf. A child who works with skilled professionals, has a strong auditory foundation plus an abundance of opportunities to communicate using spoken language, and tends to be more likely to receive optimal benefit from cochlear implant(s).

- **Parent/caregiver involvement.** Parents who integrate listening and spoken language in activities throughout the day and also advocate effectively for their child can positively impact their child's experience and use of the implant(s).

- **Characteristics of the child.** Factors such as intelligence, health, processing abilities, learning style, behavior, oral-motor and sensori-motor development and attention deficit disorder contribute to the amount and type of therapy that a child with cochlear implant(s) needs.

There is no set rule for the amount and type of therapy needed after cochlear implantation. In general, auditory (re)habilitation is more intensive in the initial months following the activation of the implant(s). A child who has used implant(s) successfully over time usually does not need as much intensive therapy as a child who is newly implanted, unless there are complicating factors as discussed in the previous section. During this period of focused auditory therapy, a child develops a strong auditory foundation on which subsequent skills are built. It is from this basis that a child with implant(s) gains confidence and develops spoken communication, whether solely through listening, using listening and lipreading or using listening, lipreading and signing to communicate.

Feedback from each team member is important to the development of long-term and short-term goals. Professionals who work individually with an implanted child must consistently assess the student's present level of functioning, immediate
and priority goals, rate of progress and effective strategies for that particular child. This type of diagnostic therapy will help the team to determine the quantity and type of therapy needed at any point in time.

Therapy needs for children with cochlear implant(s)

Set the child up for success by starting at the child’s current stage of auditory development and communication competence and progressing through more advanced stages. A hierarchy of auditory development that builds upon earlier auditory perceptions is typically predictable. Consider the child’s chronological age (CA) and age or length of time the child has been implanted (CI age). Follow typical stages of development in all areas of child development, as much as possible. Work on more challenging goals early in the session or day and finish with a “confidence builder.”

If a child does not respond to auditory information after three tries, there are several strategies to try, such as:

• Make the task easier and more familiar.
• Get closer to the microphone of the implant, or use the external microphone included in the accessories kit.
• Slow down your presentation of the information, without exaggerating your speech.
• Allow “thinking time” for the child.
• Provide a visual communication cue, such as lipreading or sign language. Be sure to present the auditory model again after the visual cue to reinforce the auditory message.

• Use motivating materials, such as toys or games.
• Schedule an appointment to return to your cochlear implant center if you suspect that the child’s unresponsiveness is related to how the implant is programmed or functioning.

It is important to remember that listening is only one aspect of the communication process, so link listening with associated language and thinking. Audition, speech, language and cognition should be developed simultaneously and throughout the day, rather than working only on listening or speech or language in separate and discrete periods of time. In other words, listening is not developed in isolation from other modes of communication.

The ultimate goal of auditory (re)habilitation for a child with cochlear implant(s) is that listening becomes a way of life where (s)he becomes confident in learning language and expanding knowledge of general information through hearing and interacting with spoken language to the fullest extent possible.
Strategies for the classroom teacher

- Encourage the child to respond to his/her name through listening.
- Call the child’s name to get his/her attention before talking with him/her.
- Speak directly to the child even if there is an interpreter present in the classroom.
- Engage in rich verbal communication with the child by using a natural voice. Acknowledge and expand upon the child’s verbal attempts. Talk more clearly, not louder, and use different language for the same concept.
- Use pause time and allow time for the child to process auditory information.
- Point to or call out a child’s name when (s)he is contributing to class discussion, so the implanted child can turn toward the child who is talking.
- When another child in the class makes a comment, paraphrase, repeat or narrate what is happening.
- Model verbal and social interactions with peers, if this is an area of difficulty for the child.
- Communicate to other team members the content or themes covered in the classroom so they can be integrated in individual sessions with the child.
- Use the FM or sound field system as specified in the child’s IEP.
- When talking to the child closely and/or without the use of an FM, be sure to talk to the child’s implanted ear; if the child has two implants, try to speak into the better-performing ear.
- Make the room as quiet as possible by closing doors and windows and reducing distracting noises from within the classroom. Noise is generated from common objects such as pencil sharpeners, fish tanks and fans, and should be minimized as much as possible.