

APPENDIX D

STRATEGIES FOR EFFECTIVE COCHLEAR IMPLANT USE

Please refer to Appendix F for glossary definitions.

Access to spoken language and other environmental information in the classroom is dependent on consistent functioning and use of the student's cochlear implant technology as well as any other hearing assistive technology systems (HATS). This may include a hearing aid on the opposite ear, an FM system, or other technologies utilized in the classroom.

An educational audiologist within the school or district may be contacted for guidance in learning about the cochlear implant technology and other HATS a student may be using. If an educational audiologist is not available, other professionals who are able to provide this assistance should be identified, such as an audiologist from the student's hospital implant center.

CHECKING THE TECHNOLOGY

When monitoring cochlear implant technology, it is important to include both an equipment check and a functional check. If other HATS are used, it is also necessary to check the functioning of those devices. A teacher or other professional should be identified who can take a few minutes per day to ensure that all of a student's devices are working and providing access to auditory information. To facilitate monitoring and troubleshooting of the equipment, it is helpful to develop a form to document daily checks. Helpful information to include on the form would be the manufacturer, model, internal settings, recommended volume, and battery type of the technologies as well as a chart to document the daily condition of the device(s) and the student's functioning with them.

Equipment Check

When completing an equipment check of a cochlear implant, a staff member can ensure the batteries are working (weak batteries will make a difference) and the device is set as recommended. Basic supplies to check and monitor the equipment (e.g., batteries, a battery tester or other signal check device sold by implant manufacturers to check whether or not a processor's microphone circuits are functioning) can be requested from the parents or may be supplied by the school district.

The designated staff member should report to a student's family or audiologist if the student complains of any discomfort with the implant (e.g., there may be concerns that arise associated with the magnet that couples the processor to the internal implant or with the programming of the speech processor). To learn more about the functioning and troubleshooting of the devices made by the three cochlear implant manufacturers used in the United States, see the on-line troubleshooting guides of MED-EL, the Cochlear Corporation, and Advanced Bionics.

Functional Check

After the designated staff person completes a physical check of the device, a complete check can be done of how the student is functioning while wearing the device and performance monitored daily. One such check, the Ling-6 Sound Test, involves presenting a series of specific speech sounds (i.e., *u* as in *who*, *a* as in *papa*, *ee* as in *bee*, *sh* as in *shoe*, *s* as in *see*, and *m* as in *mom*) at a consistent loudness and distance from the student to document sound awareness. The first step in doing this check is to obtain a baseline identifying the quietest level at which a student is aware of each sound. If the student's responses change from those previously established, there may be a problem with any of the above-mentioned components: the battery, microphone, settings, or processor.

A noted change in functioning warrants follow-up. The designated staff member should contact either the student's audiologist or family. The speech processor may need to be repaired or reprogrammed

or, in rare situations, there may be a malfunction of the surgically implanted portion of the cochlear implant device. If a malfunction occurs during the school day and cannot be rectified readily (resulting in a student being unable to access sound), development of a backup plan for the student's continued participation in classroom activities will best support student learning.

ADDITIONAL CONSIDERATIONS

Static Electricity

Cochlear implant manufacturers currently design their devices to minimize possible damage from electrostatic discharge (static electricity). There are still precautions, however, that can be taken to minimize the possibility of damage to the speech processor from excess static electricity, including avoidance of highly static environments (e.g., plastic play structures, trampolines, science experiments involving electrostatic discharge) and providing supports to reduce the static in the environment (e.g., using static guard sprays on highly static equipment).

Water Resistance

Cochlear implant design has improved in relation to speech processors being waterproof or water resistant. However, not all students are using waterproof or water resistant technology. There are precautions that can be taken to avoid water damage, including removing the speech processor for water activities (unless you confirm that the equipment is waterproof) or covering the equipment to avoid direct contact with water or excess moisture.

Contingency Plans

Have a plan in place and rehearse fire drill procedures with the student prior to the first scheduled drill. Review other possible alarm signals (e.g., severe weather, lock-down drills) with the student, and make sure a plan is in place to ensure student safety. Consider having visible signals, a buddy system, and audible/visible alarms in spaces students may be (e.g., classrooms, hallways, lavatories, offices, therapy rooms, gym, cafeteria).

Sports

Both the internal and the external components of a cochlear implant are vulnerable to blows to the head. Discuss sports concerns with parents to develop a plan for sports participation. Precautions (e.g., the student wearing a helmet) should be taken as warranted.

RESOURCES

Ling-6 Sound Test information

<http://hope.cochlearamericas.com>

General cochlear implant information

Students with Cochlear Implants: Guidelines for Educational Program Planning—<http://clerccenter.gallaudet.edu>

Cochlear Implants: Navigating a Forest of Information ... One Tree at a Time—<http://clerccenter.gallaudet.edu>

Medical devices and cochlear implants—www.fda.gov

Current FDA-approved cochlear implant manufacturers

Advanced Bionics Cochlear Implants—www.advancedbionics.com

Cochlear Corporation—www.cochlear.com

Med-El Corporation—www.medel.com

General information on hearing assistive technology systems (HATS)

American Speech-Language-Hearing Association—www.asha.org