STUDENTS WITH COCHLEAR IMPLANTS

Guidelines for Educational Program Planning

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Deaf and Hard of Hearing Program

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AT A GLANCE

INTENDED USE

These guidelines are designed to facilitate discussion among professionals and families for the purpose of monitoring educational programming and supports for communication access for students with cochlear implants. This document is a tool to assist in the development of a student's Individualized Family Service Plan (IFSP), Individualized Education Program (IEP), 504 plan, or other educational planning document with the goal of complementing comprehensive assessments of language, communication, and other competencies that influence programming decisions.

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PRODUCT OVERVIEW AND INSTRUCTIONS FOR USE

Students with Cochlear Implants: Guidelines for Educational Program Planning includes three main sections and associated appendices to assist with guiding educational program planning. Effective use of these guidelines is based on designating a *Guidelines* coordinator to organize the planning process and lead any planning meetings among the educational planning team. Follow the directions for each section as indicated below within the Quick Steps section.

SECTION 1: STUDENT BACKGROUND SUMMARY

Section 1 contains the Student Background Summary form. It is recommended that this form be completed by an identified team member referred to in this document as the *Guidelines* coordinator. This person will lead the meeting and guide discussion among the educational planning team members.

SECTION 2: SCHOOL-BASED LANGUAGE COMPETENCY CHECKLISTS

Section 2 contains the School-Based Language Competency Checklists, a tool that each member of the student's educational planning team can use to record observations of the student's use of language in the current school setting. This section addresses receptive, expressive (e.g., spoken, signed, cued), and pragmatic language skills based on the language of instruction currently used in the educational placement. Pragmatic language, or the child's ability to use and understand the social rules for language, provides children with the ability to interact and engage others during communication exchanges; this ability has been linked to improved academic success.

SECTION 3: TEAM DISCUSSION TOOL AND TEAM SUMMARY SHEET

Section 3 includes both the Team Discussion Tool and the Team Summary Sheet. The *Guidelines* coordinator compiles the School-Based Language Competency Checklists and summarizes the educational considerations and the particular needs of the student. It would be ideal if this summary could be done during the educational planning team meeting.

QUICK STEPS

1. Identify a *Guidelines* coordinator—a professional from the student's educational setting—to coordinate the team's completion of the *Guidelines*.
2. This *Guideline*s coordinator completes the Student Background Summary found in Section 1.
3. Each member of the student's educational planning team completes the following forms found in Section 2:
    - School-Based Language Competency Checklists (receptive, expressive, and pragmatic skills)
    - Individual Summary Form
4. The *Guidelines* coordinator either calls a meeting of the student's educational planning team or gathers the team's summary forms. The *Guideline*s coordinator summarizes the main points and completes the Team Summary form found in Section 3. The summary form will help guide educational planning discussions and assist in the development of a student's IFSP, IEP, 504 plan, or other educational planning decisions.
5. The appendices are provided for clarification and expansion of information integral to the educational planning and success of students with cochlear implants.

SECTION 1: STUDENT BACKGROUND SUMMARY

THIS SECTION SHOULD BE COMPLETED BY THE GUIDELINES *COORDINATOR.*

STUDENT'S NAME:		DATE COMPLETED:
DOB:	AGE:	GRADE:
PERSON COMPLETING THIS FORM:		
WITH INPUT FROM (NAME AND RELATIONSHIP TO STUDENT):		

I. Pre-Cochlear Implantation *(Please refer to the Glossary in Appendix F for clarification of terms.)*

Age at which hearing loss was identified:
Age at which first fit with amplification:
Ear fit with amplification: ☐ Right ☐ Left ☐ Bilateral
Describe consistency of amplification use pre-implant:
Describe communication history pre-implant. Describe any languages or modalities used:
Use of assistive listening devices pre-implant (e.g., frequency-modulated [FM], infrared, Direct Audio Connect)? ☐ Yes ☐ No If yes, then type of assistive listening devices:

II. Home Communication *(This section should be completed with parent input.)*

Primary language used in the home:
Other languages used in the home:
Describe how the child communicates at home:

III. Post-Cochlear Implantation (CI)

Age at implantation:	Right ear:	Device:
	Left ear:	Device:

If the child wears one cochlear implant, is the other ear aided? ☐ Yes ☐ No

Currently, when is the CI typically worn?

Describe the consistency of CI use:

Use of assistive listening devices: ☐ Yes ☐ No

If yes, then type of assistive listening devices:

Describe language supports which provide access to the academic program:

Describe how the current technology provides access to the academic program:

IV. Documented additional IFSP/IEP or 504 plan disability and/or medical concerns or other factors:

SECTION 2: SCHOOL-BASED LANGUAGE COMPETENCY CHECKLISTS

THIS SECTION SHOULD BE COMPLETED BY EACH EDUCATIONAL PLANNING TEAM MEMBER.

STUDENT'S NAME:	STUDENT'S AGE:
YOUR NAME:	YOUR ROLE:
YOUR SETTING (CLASSROOM, HOME, OT/PT ROOM, AND LANGUAGE USED):	
ACCOMMODATIONS PROVIDED FOR YOUR SETTING:	

PART 1 RECEPTIVE LANGUAGE SKILLS

This section asks you to record your observations of the student's ability to access and understand language. Please refer to the Glossary in Appendix F for clarification of terms.

THE STUDENT SHOWS EVIDENCE OF THIS SKILL FOR THE FOLLOWING LANGUAGE(S): CIRCLE ALL THAT APPLY. IF A DIFFERENT COMMUNICATION SYSTEM IS USED, PLEASE WRITE IN THE TYPE.	NEVER	OCCASIONALLY	FREQUENTLY	ALWAYS	**GENERAL COMMENTS:** CONSIDER THE ENVIRONMENT, EQUIPMENT, ACCOMMODATIONS PROVIDED, AND STRATEGY SUPPORTS USED
ATTENDS TO ONE-ON-ONE COMMUNICATION					
American Sign Language	0	1	2	3	
Spoken English	0	1	2	3	
Spoken English with Sign Support	0	1	2	3	
Other:	0	1	2	3	
ATTENDS TO COMMUNICATION IN GROUPS					
American Sign Language	0	1	2	3	
Spoken English	0	1	2	3	
Spoken English with Sign Support	0	1	2	3	
Other:	0	1	2	3	

PART 1: RECEPTIVE LANGUAGE SKILLS *(CONTINUED)*

THE STUDENT SHOWS EVIDENCE OF THIS SKILL FOR THE FOLLOWING LANGUAGE(S): CIRCLE ALL THAT APPLY. IF A DIFFERENT COMMUNICATION SYSTEM IS USED, PLEASE WRITE IN THE TYPE.	NEVER	OCCASIONALLY	FREQUENTLY	ALWAYS	GENERAL COMMENTS: CONSIDER THE ENVIRONMENT, EQUIPMENT, ACCOMMODATIONS PROVIDED, AND STRATEGY SUPPORTS USED
Demonstrates the receptive language skills to:					
UNDERSTAND SINGLE WORDS AND SHORT PHRASES					
American Sign Language	0	1	2	3	
Spoken English	0	1	2	3	
Spoken English with Sign Support	0	1	2	3	
Other:	0	1	2	3	
UNDERSTAND MULTIPLE DETAILS IN SENTENCES AND THE MAIN IDEA OF STORIES OR NARRATIVES					
American Sign Language	0	1	2	3	
Spoken English	0	1	2	3	
Spoken English with Sign Support	0	1	2	3	
Other:	0	1	2	3	
UNDERSTAND A VARIETY OF QUESTION FORMS (E.G., "YES/NO" OR "WH" QUESTIONS)					
American Sign Language	0	1	2	3	
Spoken English	0	1	2	3	
Spoken English with Sign Support	0	1	2	3	
Other:	0	1	2	3	

PART 1: RECEPTIVE LANGUAGE SKILLS *(CONTINUED)*

THE STUDENT SHOWS EVIDENCE OF THIS SKILL FOR THE FOLLOWING LANGUAGE(S): CIRCLE ALL THAT APPLY. IF A DIFFERENT COMMUNICATION SYSTEM IS USED, PLEASE WRITE IN THE TYPE.	NEVER	OCCASIONALLY	FREQUENTLY	ALWAYS	GENERAL COMMENTS: CONSIDER THE ENVIRONMENT, EQUIPMENT, ACCOMMODATIONS PROVIDED, AND STRATEGY SUPPORTS USED
Demonstrates the receptive language skills:					
TO LEARN NEW MATERIAL AND NOVEL TOPICS					
American Sign Language	0	1	2	3	
Spoken English	0	1	2	3	
Spoken English with Sign Support	0	1	2	3	
Other:	0	1	2	3	
FOR INCIDENTAL LEARNING (I.E., INDIRECT, SOCIAL, UNPLANNED LEARNING)					
American Sign Language	0	1	2	3	
Spoken English	0	1	2	3	
Spoken English with Sign Support	0	1	2	3	
Other:	0	1	2	3	
FOR ONE-ON-ONE LEARNING					
American Sign Language	0	1	2	3	
Spoken English	0	1	2	3	
Spoken English with Sign Support	0	1	2	3	
Other:	0	1	2	3	
FOR SMALL GROUP LEARNING (IN GROUPS OF 3 TO 4)					
American Sign Language	0	1	2	3	
Spoken English	0	1	2	3	
Spoken English with Sign Support	0	1	2	3	
Other:	0	1	2	3	
FOR LARGE GROUP LEARNING					
American Sign Language	0	1	2	3	
Spoken English	0	1	2	3	
Spoken English with Sign Support	0	1	2	3	
Other:	0	1	2	3	

PART 1: RECEPTIVE LANGUAGE SKILLS *(CONTINUED)*

THE STUDENT SHOWS EVIDENCE OF THIS SKILL FOR THE FOLLOWING LANGUAGE(S): CIRCLE ALL THAT APPLY. IF A DIFFERENT COMMUNICATION SYSTEM IS USED, PLEASE WRITE IN THE TYPE.	NEVER	OCCASIONALLY	FREQUENTLY	ALWAYS	GENERAL COMMENTS: CONSIDER THE ENVIRONMENT, EQUIPMENT, ACCOMMODATIONS PROVIDED, AND STRATEGY SUPPORTS USED
Demonstrates the receptive language skills:					
TO UNDERSTAND FAMILIAR ADULTS (E.G., CLASSROOM TEACHER) AND PEERS IN ROUTINE OR SOCIAL EVENTS					
American Sign Language	0	1	2	3	
Spoken English	0	1	2	3	
Spoken English with Sign Support	0	1	2	3	
Other:	0	1	2	3	
TO UNDERSTAND UNFAMILIAR ADULTS (E.G., SUBSTITUTE TEACHER, GUEST SPEAKER)					
American Sign Language	0	1	2	3	
Spoken English	0	1	2	3	
Spoken English with Sign Support	0	1	2	3	
Other:	0	1	2	3	

PART 2 EXPRESSIVE LANGUAGE SKILLS

This section asks you to record your observations of the student's ability to clearly communicate thoughts, feelings, and knowledge.

THE STUDENT SHOWS EVIDENCE OF THIS SKILL FOR THE FOLLOWING LANGUAGE(S): CIRCLE ALL THAT APPLY. IF A DIFFERENT COMMUNICATION SYSTEM IS USED, PLEASE WRITE IN THE TYPE.	NEVER	OCCASIONALLY	FREQUENTLY	ALWAYS	**GENERAL COMMENTS:** CONSIDER THE ENVIRONMENT, EQUIPMENT, ACCOMMODATIONS PROVIDED, AND STRATEGY SUPPORTS USED

Demonstrates the expressive language skills:

TO COMMUNICATE CLEARLY USING SINGLE WORDS AND SHORT PHRASES

American Sign Language	0	1	2	3
Spoken English	0	1	2	3
Spoken English with Sign Support	0	1	2	3
Other:	0	1	2	3

TO IDENTIFY AND CLEARLY COMMUNICATE THE MAIN IDEA OF STORIES OR NARRATIVES

American Sign Language	0	1	2	3
Spoken English	0	1	2	3
Spoken English with Sign Support	0	1	2	3
Other:	0	1	2	3

TO USE A VARIETY OF QUESTION FORMS TO GAIN INFORMATION (E.G., "YES/NO" OR "WH" QUESTIONS)

American Sign Language	0	1	2	3
Spoken English	0	1	2	3
Spoken English with Sign Support	0	1	2	3
Other:	0	1	2	3

PART 2: EXPRESSIVE LANGUAGE SKILLS *(CONTINUED)*

THE STUDENT SHOWS EVIDENCE OF THIS SKILL FOR THE FOLLOWING LANGUAGE(S): CIRCLE ALL THAT APPLY. IF A DIFFERENT COMMUNICATION SYSTEM IS USED, PLEASE WRITE IN THE TYPE.	NEVER	OCCASIONALLY	FREQUENTLY	ALWAYS	GENERAL COMMENTS: CONSIDER THE ENVIRONMENT, EQUIPMENT, ACCOMMODATIONS PROVIDED, AND STRATEGY SUPPORTS USED

Demonstrates the expressive language skills:

TO SHARE EVENTS, PROVIDE EXPLANATIONS, AND DISCUSS NEW OR NOVEL TOPICS

American Sign Language	0	1	2	3
Spoken English	0	1	2	3
Spoken English with Sign Support	0	1	2	3
Other:	0	1	2	3

TO BE UNDERSTOOD BY FAMILIAR ADULTS (E.G., TEACHER) AND PEERS IN ROUTINE OR SOCIAL EVENTS

American Sign Language	0	1	2	3
Spoken English	0	1	2	3
Spoken English with Sign Support	0	1	2	3
Other:	0	1	2	3

TO BE UNDERSTOOD BY UNFAMILIAR ADULTS (E.G., SUBSTITUTE TEACHER, GUEST SPEAKER) AND UNFAMILIAR PEERS

American Sign Language	0	1	2	3
Spoken English	0	1	2	3
Spoken English with Sign Support	0	1	2	3
Other:	0	1	2	3

PART 3 PRAGMATIC LANGUAGE SKILLS

This section asks you to record your observations of the student's ability to use and understand the roles of social language when interacting with others, as developmentally appropriate.

THE STUDENT SHOWS EVIDENCE OF THIS SKILL FOR THE FOLLOWING LANGUAGE(S): CIRCLE ALL THAT APPLY. IF A DIFFERENT COMMUNICATION SYSTEM IS USED, PLEASE WRITE IN THE TYPE.	NEVER	OCCASIONALLY	FREQUENTLY	ALWAYS	**GENERAL COMMENTS:** CONSIDER THE ENVIRONMENT, EQUIPMENT, ACCOMMODATIONS PROVIDED, AND STRATEGY SUPPORTS USED
Demonstrates the skills to participate in conversation (e.g., initiate conversation, take turns, stay on topic):					
DURING ONE-ON-ONE LEARNING					
American Sign Language	0	1	2	3	
Spoken English	0	1	2	3	
Spoken English with Sign Support	0	1	2	3	
Other:	0	1	2	3	
DURING SMALL GROUP LEARNING (IN GROUPS OF 3 TO 4)					
American Sign Language	0	1	2	3	
Spoken English	0	1	2	3	
Spoken English with Sign Support	0	1	2	3	
Other:	0	1	2	3	
DURING LARGE GROUP LEARNING					
American Sign Language	0	1	2	3	
Spoken English	0	1	2	3	
Spoken English with Sign Support	0	1	2	3	
Other:	0	1	2	3	

PART 3: PRAGMATIC LANGUAGE SKILLS *(CONTINUED)*

THE STUDENT SHOWS EVIDENCE OF THIS SKILL FOR THE FOLLOWING LANGUAGE(S): CIRCLE ALL THAT APPLY. IF A DIFFERENT COMMUNICATION SYSTEM IS USED, PLEASE WRITE IN THE TYPE.	NEVER	OCCASIONALLY	FREQUENTLY	ALWAYS	GENERAL COMMENTS: CONSIDER THE ENVIRONMENT, EQUIPMENT, ACCOMMODATIONS PROVIDED, AND STRATEGY SUPPORTS USED

Demonstrates the skills to:

USE LANGUAGE FOR A VARIETY OF PURPOSES WITH DIVERSE COMMUNICATION PARTNERS (E.G., GREETING, INFORMING, REQUESTING)

American Sign Language	0	1	2	3
Spoken English	0	1	2	3
Spoken English with Sign Support	0	1	2	3
Other:	0	1	2	3

RECOGNIZE AND REPAIR COMMUNICATION BREAKDOWNS (E.G., REPHRASING, REPEATING)

American Sign Language	0	1	2	3
Spoken English	0	1	2	3
Spoken English with Sign Support	0	1	2	3
Other:	0	1	2	3

ASK QUESTIONS TO GAIN INFORMATION (E.G., ASK FOR CLARIFICATION, ASK TO LEARN THE MEANING OF SPECIFIC WORDS)

American Sign Language	0	1	2	3
Spoken English	0	1	2	3
Spoken English with Sign Support	0	1	2	3
Other:	0	1	2	3

UNDERSTAND AND USE NON-LITERAL LANGUAGE (E.G., FIGURATIVE LANGUAGE, SARCASM, WORDS WITH MULTIPLE MEANINGS, JOKES, RIDDLES)

American Sign Language	0	1	2	3
Spoken English	0	1	2	3
Spoken English with Sign Support	0	1	2	3
Other:	0	1	2	3

UNDERSTAND AND USE SOCIAL AND CULTURAL VOCABULARY (E.G., POP CULTURE VOCABULARY, IDIOMATIC EXPRESSIONS)

American Sign Language	0	1	2	3
Spoken English	0	1	2	3
Spoken English with Sign Support	0	1	2	3
Other:	0	1	2	3

PART 4 INDIVIDUAL SUMMARY FORM

This section should be completed by each educational planning team member. Please refer to the glossary in Appendix F for clarification of terms.

1. Based on these language competency areas, overall is the student fully accessing the educational curriculum in the setting (e.g., your classroom, home visits, OT/PT room) and/or during your interaction with the student?
   ☐ Yes ☐ Somewhat ☐ No

   Please explain:

2. Based on your interactions and observations, describe both the student's strengths and needs when accessing the educational curriculum which may not have been identified in these checklists.

3. Describe any accommodations, strategies, and/or environmental factors to be considered in the educational setting in order to support the student's full access to learning.

SECTION 3: TEAM DISCUSSION TOOL AND TEAM SUMMARY SHEET

THIS SECTION SHOULD BE COMPLETED BY THE GUIDELINES *COORDINATOR.*

THIS CHECKLIST IS INTENDED TO GUIDE DISCUSSION REGARDING:

A) IS THE EDUCATIONAL PROGRAM (CURRENT OR ALTERNATE ONE BEING CONSIDERED) PROVIDING THE SUPPORTS NECESSARY TO MEET THE NEEDS OF THIS STUDENT?

B) IF THE PROGRAM(S) DOES NOT MEET THE STUDENT'S NEEDS, WHAT MODIFICATIONS ARE RECOMMENDED AND CAN BE MADE TO MEET THEM?

C) IF RECOMMENDED ACCOMMODATIONS CANNOT BE MADE, WHAT ARE THE CHARACTERISTICS OF AN EDUCATIONAL PROGRAM TO BETTER MEET THE STUDENT'S NEEDS?

DESCRIBE THE SETTING BEING REVIEWED:

☐ CURRENT EDUCATIONAL PROGRAM

☐ ALTERNATE EDUCATIONAL PROGRAM BEING CONSIDERED

LANGUAGE AND COMMUNICATION

1. Does the educational setting provide accessible language for the development of academic achievement? ☐ Yes ☐ No

   If no, can a program modification be made? ☐ Yes ☐ No

   Describe possible program modification:

   Comments:

2. Does the program provide direct instruction (i.e., not through a third party, such as an interpreter, transliterator, or realtime captioning) to this student? ☐ Yes ☐ No

   If yes, is direct instruction provided all day? ☐ Yes ☐ No

   If no, does the student perform equally well with direct and third party instruction? ☐ Yes ☐ No

   Comments:

3. Does the program provide habilitation services to facilitate listening and spoken language skill development as recommended on a student's IFSP/IEP/504 plan? ☐ Yes ☐ No

If no, can a program modification be made? ☐ Yes ☐ No

Describe possible program modification:

Comments:

4. Does the program provide other recommended supports to facilitate a student's access to the curriculum as determined by the IFSP/IEP/504 plan (e.g., CART, communication facilitators)? Refer to the classroom strategies/accommodations appendix. ☐ Yes ☐ No

If no, can a program modification be made? ☐ Yes ☐ No

Describe possible program modification:

Comments:

STAFF AND TRAINING

5. Are the services of an educational audiologist available to oversee and monitor a student's cochlear implant technology needs? ☐ Yes ☐ No

If no, can a program modification be made? ☐ Yes ☐ No

Describe possible program modification:

Comments:

6. Are supports from other specialists (e.g., teacher of the deaf, certified educational interpreter) experienced in working with students who use cochlear implants available as recommended in a student's IFSP/IEP/504 plan? ☐ Yes ☐ No

If no, can a program modification be made? ☐ Yes ☐ No

Describe possible program modification:

Comments:

7. When listening and spoken language skill development services are recommended, does the service provider have training and experience working with students who have cochlear implants? ☐ Yes ☐ No

If no, can a program modification be made? ☐ Yes ☐ No

Describe possible program modification:

Comments:

8. Are teachers and staff members trained in understanding the needs of students with cochlear implants and implementing recommended accommodations and strategies? ☐ Yes ☐ No

If no, can a program modification be made? ☐ Yes ☐ No

Describe possible program modification:

Comments:

9. Is there consistent collaboration among educational professionals (e.g., teachers of the deaf, classroom teachers, special educators, other specialists) involved with the student? ☐ Yes ☐ No

If no, can a program modification be made? ☐ Yes ☐ No

Describe possible program modification:

Comments:

EQUIPMENT AND TECHNOLOGY

10. Is the acoustic environment (e.g., classroom and non-classroom settings) appropriate for a student with a cochlear implant? (Refer to the Accommodations appendices.) ☐ Yes ☐ No

If no, can a program modification be made? ☐ Yes ☐ No

Describe possible program modification:

Comments:

11. Are there appropriate hearing assistive technology systems (HATS) available and supported (e.g., FM systems, infrared systems)? ☐ Yes ☐ No

If no, can a program modification be made? ☐ Yes ☐ No

Describe possible program modification:

Comments:

12. Are there staff members identified, trained, and responsible for daily troubleshooting of the cochlear implant and associated HATS to confirm their proper functioning? ☐ Yes ☐ No

If no, can a program modification be made? ☐ Yes ☐ No

Describe possible program modification:

Comments:

13. Is there a mechanism for ongoing home-school collaboration related to the cochlear implant (e.g., changes in mapping, maintaining spare parts at school, follow-up regarding functioning of the equipment)? ☐ Yes ☐ No

If no, can a program modification be made? ☐ Yes ☐ No

Describe possible program modification:

Comments:

OTHER INTEGRAL CONSIDERATIONS

14. Does the program provide an appropriate peer group and opportunities for social interactions? ☐ Yes ☐ No

If no, can a program modification be made? ☐ Yes ☐ No

Describe possible program modification:

Comments:

15. Does the program have a mechanism in place to help the student build a positive self-image as a child who is deaf (e.g., meeting/interacting with other students and adults who are deaf or hard of hearing)? ☐ Yes ☐ No

If no, can a program modification be made? ☐ Yes ☐ No

Describe possible program modification:

Comments:

16. Does the program facilitate student and/or family advocacy skills related to the use of a cochlear implant (e.g., informing others of the purpose and benefit of the device)? ☐ Yes ☐ No

If no, can a program modification be made? ☐ Yes ☐ No

Describe possible program modification:

Comments:

17. Does the program facilitate student/family advocacy skills (e.g., informing others when the educational program is not accessible for learning and/or social interaction) in an effort to build self-advocacy independence? ☐ Yes ☐ No

If no, can a program modification be made? ☐ Yes ☐ No

Describe possible program modification:

Comments:

TEAM SUMMARY SHEET

☐ The educational program meets the student's needs. No modifications are recommended.

☐ The educational program can make the following accommodations to meet the student's needs. List the number(s) associated with the recommended practice described in the Team Discussion Tool.

☐ An alternate educational setting could better meet the student's needs. List the recommended practices described in the Team Discussion Tool that cannot be offered in the placement under review.

Comments:

APPENDIX A ACCOMMODATIONS: AUDITORY

Please refer to Appendix F for glossary definitions.

Students with cochlear implants, similar to those with hearing aids, require specific auditory accommodations in order to appropriately make use of the communication used in the classroom to be able to access the curriculum in the educational setting. Attending to auditory information for learning requires a great deal of energy and can result in auditory overload. These accommodations are offered as a way to reduce the students' need to divide their attention between teachers, peers, handouts, slides, etc.

Students who use cochlear implants may experience significant difficulty accessing spoken information in learning environments, especially where background noise is present. Consideration of classroom acoustics is crucial. Accommodations may be necessary to improve listening conditions in order to avoid auditory fatigue and improve a student's ability to listen for meaning.

The following guidelines for auditory accommodations are provided as a support to the educational teams as they identify the specific accommodations best suited to an individual student's access needs when developing the IFSP/IEP/504 plan. As is developmentally appropriate, educate and involve the student in these discussions and decisions regarding accommodations. Additionally, appropriate accommodations for a student may change over time. As such, it is critical to monitor the student's access needs on an ongoing basis.

CLASSROOM ACOUSTICS

Reverberation and Noise

School teams can successfully manage the acoustics in the learning environment by addressing reverberation (echo), noise, and distance through:

- using acoustic tiles on ceilings (ideally no higher than 10 feet);
- using sound-absorbing floor treatments (e.g., carpeting);
- using window treatments to reduce background noise;
- using sound absorption panels or acoustic wall coverings to reduce reverberation of low HVAC noise levels;
- monitoring noise from sources such as the water fountain, the aquarium, computers, HVAC systems, and fans;
- closing classroom windows and doors to dampen ambient noise from hallways; and
- placing rubber guards at the base of doors to reduce noise from the hallway.

In addition, settings such as the school auditorium, cafeteria, gym, and art room can be monitored by the educational audiologist, who can then make recommendations for accommodations that enhance communication access. The gym, for example, is a loud environment where use of sound-absorbing materials (e.g., rugs, curtains) may not be possible.

Distance and Noise

- The distance between the teacher and the student can be adjusted to reduce the weakening of the auditory signal.
- Consider preferential seating, keeping in mind on which side of the student's head the implant processor microphone is located if the student has a single implant. It is important to include the student's input, whenever possible, when making these seating decisions. In general, being seated at the front of the classroom, in the center of the class, is not the most appropriate placement. Seating in a semi-circle is optimum, with the student seated at one end with his or her best ear towards classmates, thereby allowing both seeing and hearing the teacher and classmates.
- Offer natural listening breaks throughout the day to reduce auditory overload.
- Institute a "one-voice rule" in the classroom, meaning only one person is allowed to speak at a time and the person speaking is identified by name.
- Provide in-service training to all specialty area teachers regarding strategies to ensure access to communication and instructions in challenging listening environments.
- Identify and train a staff member on how to troubleshoot any auditory equipment utilized by the student.
- Recommendations can be sought from the student's audiologist regarding the fitting of an FM system that is compatible with the student's speech processor. Provision of a personal FM system, and/or a classroom/sound field infrared or FM system, can reduce the negative effects of background noise, reverberation, and distance from the teacher during instruction. This microphone can be passed to each speaker in the classroom to allow the student to hear peer input as well as time to visually locate and attend to peers when they speak.
- Broadcast the Internet, movies, and/or music through the student's FM system when using a computer, SMART technology, or a CD player.
- Assistive devices are appropriate to use during special classes and events (e.g., gym, assemblies), not just in the classroom.

RESOURCES

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

Classrooms

Quiet Classrooms—www.nonoise.org. This site offers an on-line version of a booklet called *Classroom Acoustics: A Resource for Creating Learning Environments with Desirable Listening Conditions*.

Acoustical Society of America— http://asawebdev.devcloud.acquia-sites.com. This site offers additional technical information about classroom acoustics.

APPENDIX B ACCOMMODATIONS: VISUAL

Please refer to Appendix F for glossary definitions.

Students with cochlear implants, similar to all students who are deaf or hard of hearing, require specific visual accommodations in order to appropriately access the curriculum and language of the educational setting. These students must maintain visual attention to the teacher, the interpreter, and their classmates to support understanding. Attending to visual information for learning can result in an overload of visual information, leading to fatigue. These accommodations are offered as a way to reduce the students' need to divide their attention between a teacher, peers, handouts, slides, etc.

The following guidelines are provided for educational planning teams to consider when designing specific accommodations to best suit an individual student's visual access needs when developing his or her IFSP/IEP/504 plan. As is developmentally appropriate, involve the student when making decisions regarding all accommodations. Additionally, appropriate accommodations for a student may change over time. As such, it is critical to monitor the student's access needs on an ongoing basis.

LIGHTING

- Stand away from windows when speaking as glare may make speechreading, seeing sign language, or seeing Cued Speech difficult.
- When activities require the dimming of lights, such as watching a film, ensure that appropriate lighting is available to spotlight either the interpreter or the person speaking so that the student maintains access to communication.
- Offer visual breaks throughout the day.

SEATING/SIGHT LINES

- Provide seating that reduces the distance between the student, the teacher, and the student's classmates so that the student can easily see both the teacher and the other students speaking.
- Gain the student's visual attention by flashing the lights (two or three times), tapping the student lightly on the shoulder, etc.
- Allow the student to switch seats if the teacher's or other speaker's location changes.
- Stand in front of a visually uncluttered background when teaching.
- Provide clear sight lines to the teacher, the interpreter, and the text support.
- Consider wearing solid-colored clothing to reduce visual distraction while teaching.
- Consider placing a mirror at the front of the classroom so the student can see the classmates in the back of the room (depending upon the age, maturity, and attention skills of the student).

VISUAL ALERTS/PRINT/PICTORIAL SUPPORT

- Providing paper and pencil tasks (e.g., note taking) or other tasks such as locating materials (e.g., finding a page in a textbook) can draw visual attention away from where it should be so avoid them when possible. Provide "write time" to allow the student to visually disengage with the teacher or the video to write notes.
- Post a daily visual schedule in the classroom.
- Provide a printout of each morning's announcements to the student.
- Provide the student with a copy of all outlines, notes, and PowerPoint slides.
- Consider using visual support (e.g., an iPad, a computer with Google images for vocabulary preview) when introducing new vocabulary.
- Avoid speaking while your back is to the class as speechreading cues are critical to supporting understanding.
- Provide visual alerts to signal the bell ringing for changing classes.

TECHNOLOGY

- Provide access to captioned media for all films and videos. The website with information for school districts is www.dcmp.org.
- Consider providing CART (Communication Access Realtime Translation), which gives an immediate translation of the spoken word into English text.
- Consider incorporating an interactive whiteboard that utilizes touch detection for user input as well as other visual classroom technology tools (e.g., SMART Board) when possible.

EDUCATIONAL INTERPRETING/TRANSLITERATION

If the student requires support from an interpreter or transliterator, provide teachers and classmates with guidance related to how to work with an educational interpreter. An in-service training given at the beginning of each year is recommended, during which this professional is introduced to the educational team and shares information regarding his or her role in the classroom. The educational team often needs to clearly define the role of this professional in facilitating classroom communication.

RESOURCES

Students with Cochlear Implants

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

Sign Language Interpreters

Classroom Interpreting for Students Who are Deaf or Hard of Hearing—http://clerccenter.gallaudet.edu

Registry of Interpreters for the Deaf—www.rid.org

Classroom Interpreting website—www.classroominterpreting.org

Cued Speech Transliteration

National Cued Speech Association™—www.cuedspeech.org

APPENDIX C ACCOMMODATIONS: EDUCATIONAL ACCESS

Please refer to Appendix F for glossary definitions.

Students with cochlear implants, similar to all students who are deaf or hard of hearing, can be expected to access the curriculum and achieve academically on par with their classmates when appropriate educational supports are provided. The strategies listed in this appendix are designed to facilitate or improve access regardless of the mode or language utilized. Strategies are to be based on the individual needs of the student and monitored as they may change over time.

ANNUAL IN-SERVICE TRAINING

In order to build a foundation of understanding among the teaching team working with the student, the provision of in-service training is recommended. This in-service training can be provided by a professional with expertise in working with children with cochlear implants in school settings. The training is recommended at least annually and should be repeated whenever the student transitions to a new grade or a new team of service providers. Topics to be addressed may include:

- the proper use and care of the cochlear implant processor(s), hearing aid (if used), and FM/infrared listening system (if used);
- the role and purpose of an interpreter, transliterator, or note-taking device (if used) in the classroom;
- a discussion of the effects of the student's language, communication, learning, and social skills; and
- a discussion of the recommended strategies to support the documented accommodations or modifications that will ensure the student's access to language and communication.

CLASSROOM OBSERVATIONS

Classroom observations done several times throughout the school year by the teacher of the deaf, the educational audiologist, or the speech-language pathologist who is experienced in working with children who are deaf or hard of hearing are recommended to gain a clear understanding of how the student is accessing education and what accommodations or modifications are most effective.

Observations are recommended in all settings (e.g., academic classroom, special subject areas such as art and gym, auditorium, cafeteria), followed by consultation with the teaching staff to implement appropriate accommodations or modifications for ensuring communication access in each setting.

STRATEGIES FOR ACADEMIC SETTINGS

Educational planning team members should use the following strategies to enhance classroom learning:

- previewing and reviewing content vocabulary and concepts. As with all other students in the class, spot-check the student with a cochlear implant for comprehension of instruction by asking for repetition or an explanation of what has been discussed, describe what the class will do next, or explain the meaning of a word or concept in a natural manner.
- providing the parent or appropriate school specialist (e.g., speech-language pathologist, teacher of the deaf) with prior access to key vocabulary to prime and prepare the student.

- repeating and rephrasing questions and comments from any secondary speaker or contributor to classroom instruction and discussion.
- allowing additional processing time for the student to receive, comprehend, and respond to information presented in spoken language.
- maintaining a natural rate of speaking, articulation, and loudness level while adding additional pauses to allow for processing.
- placing the student in a group with one or two other children in a quiet setting away from competing background noise when breaking up into small groups for class projects.
- using a pass-around microphone not only for the teacher but also for the students in the class and instituting a one-voice rule (i.e., only one person is allowed to speak at a time).
- signaling or cueing the entire class to listen before instructions or directions are given.

COMPREHENSION AND CLARIFICATION STRATEGIES

Educational planning team members should consider the following strategies to enhance comprehension and clarification:

- asking questions of the student with a cochlear implant as the teacher would for all students in the class.
- encouraging the student to request repetition or clarification to ensure comprehension.
- repeating questions and comments from the student's classmates as well as announcements made over the public address system.

ACROSS-SCHOOL SETTINGS AND INTERACTIONS

Educational planning team members should consider the following strategies to enhance success across all school settings:

- training all specialty area teachers (e.g., art, physical education, music) in how to ensure access to communication, particularly for challenging communication environments.
- creating a plan for access to emergency information (e.g., lock-down, fire drill).
- ensuring appropriate access to assemblies and performances. This includes previews of content, a transcript or script, preferential seating, provision of an interpreter, instruction regarding use of an FM system for the presenter, post-teaching, and summarizing what was presented (especially if there is a link to content).

ENHANCING SELF-ADVOCACY SKILLS*

*(*See Appendix E: Self-Advocacy Skills for more information.)*

Educational planning team members should consider the following strategies for fostering self-advocacy skills:

- providing the student with an opportunity to tour the school and meet the staff prior to the start of the school year so that the student can anticipate navigating the school space, ask questions of staff, and more comfortably assume responsibility appropriate for the student's age and grade level.
- teaching the student the type of questions to ask when there is a need for clarification (e.g., "Could you repeat that? I don't understand because I missed that last word.") and training staff to notice

the indicators of misunderstanding and confusion.

- using neutral and positive language to describe and refer to the student while avoiding such words as "impairment," "disorder," and "disabled."
- creating small group opportunities (e.g., lunch bunch) in order to support the student in developing social connections with peers (e.g., learning names, discovering shared interests).
- collaborating with the student's counselor (preferably a counselor who has experience working with children who are deaf or hard of hearing).
- identifying the student's needs and developing strategies coordinated with a social skills curriculum.
- encouraging the student to be involved in extracurricular activities and the parents to be active in the Parent-Teacher Association.
- monitoring play and social interactions among the student's peers to facilitate age-appropriate social language and to support turn-taking, conflict resolution, and the development of communication repair strategies.

FAMILY/SCHOOL COMMUNICATION

Educational planning team members should consider the following strategies for strengthening family and school communication:

- maintaining a communication system—such as setting up a home-to-school notebook; e-mail; teacher websites; and Google documents between school and home with regular entries from family, teacher(s), and allied professionals (e.g., educators of the deaf, speech-language pathologists, occupational and physical therapists)—regarding content vocabulary and concepts, stories and books read in class, audition, and language.
- providing parents and specialists (e.g., speech-language pathologist, ASL specialist) with an overview of class lessons and listing activities, content vocabulary and concepts, and books on the subject. This allows for preview, review, and carryover of classroom language.

TESTING MODIFICATIONS

Testing modifications are often dictated by the state or school district. (Refer to testing guidelines for your specific educational district or state.) Modified testing may include, but is not limited to:

- untimed standardized tests at the onset of transition;
- a quiet, separate setting;
- test instructions read or signed to the student;
- an opportunity to be exposed to a variety of testing situations; and
- extra time for essay tests.

RESOURCES

Educating Students Who are Deaf or Hard of Hearing: A Guide for Professionals in General Education Settings—http://clerccenter.gallaudet.edu

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

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

APPENDIX E SELF-ADVOCACY SKILLS

Please refer to Appendix F for glossary definitions.

Self-advocacy is an individual's ability to effectively communicate, convey, negotiate, or assert one's own interests, desires, needs, goals, and rights. Self-advocating involves making informed decisions and taking responsibility for those decisions (e.g., the student knows what accommodations are needed and how to ask for them). These skills may include the ability to identify one's own strengths and needs and being actively involved in setting goals and developing plans to achieve them, thus allowing for successful navigation of academic, home, and social settings. Students with cochlear implants, similar to all students who are deaf or hard of hearing, benefit from developing and mastering self-advocacy skills. The area of self-advocacy is a key educational component for a student's educational plan regardless of age.

Students are never too young to start on the path to becoming strong self-advocates. Educational planning teams, professionals, and parents are ultimately responsible for ensuring a student receives appropriate educational instruction and modifications. One component of educational instruction often overlooked is supporting the positive development of a student's self-advocacy skills both at home *and* at school. A child who early on can learn to self-advocate is better prepared for future independence at school, at home, and in the community.

Self-advocacy skill development is often considered a key component to transition and educational planning. Self-advocacy skills develop over time with practice and guidance. Students need opportunities to practice their skills in a range of settings and with various people.

Parents and educators can support students in developing self-advocacy knowledge and skills by:

- educating them on their needs, rights, and responsibilities by practicing needs identification and goal setting;
- assisting them in understanding a problem or a challenge and selecting strategies to try;
- providing them with opportunities to practice strategies to problem solve, get needs met, or progress toward goals; and
- involving them in planning for the future.

Situations in which students can practice self-advocacy related to their cochlear implant use may include:

- malfunctioning or ineffectively-used assistive hearing technology,
- inadequate auditory and visual access during communication interactions, or
- a need for clarification of communication or repairing communication breakdowns.

Self-advocacy skill development will allow students to become more successful in their daily interactions and in getting their needs met.

RESOURCES

"Fostering Skills in Self-Advocacy: A Key to Access in School and Beyond" (Luckner & Becker, 2013), *Odyssey* magazine—http://clerccenter.gallaudet.edu

Guide to Self-Advocacy Skill Development (Anderson, 2012)—https://successforkidswithhearingloss.com

Hands & Voices Advocacy Academy (Hands & Voices, n.d.)—www.handsandvoices.org

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

Tips for More Effective Advocacy (National Association of the Deaf, n.d.)—www.nad.org

SELF-ADVOCACY SKILLS CHECKLIST

KNOWLEDGE OF SELF AND NEEDS

	NEVER	OCCASIONALLY	FREQUENTLY	ALWAYS (INDEPENDENTLY)
Identifies when technology is not working				
Demonstrates understanding of his or her hearing loss				
Uses the correct terminology for auditory technology				
Is responsible for the care of technology				
Demonstrates appropriate use of the interpreter or transliterator				
Demonstrates understanding of his or her own strengths and weaknesses as a student				
Is able to explain his or her hearing loss, technology, and accommodations to adults				
Is able to explain his or her hearing loss, technology, and accommodations to peers				
Recognizes when information being received via an interpreter or transliterator is not being conveyed clearly				

COMMUNICATION AND ENVIRONMENTAL ACCESS

Identifies when there is interfering background noise impacting communication access				
Is able to report to a specific staff member challenges in communication access				
Is able to report to a specific staff member when technology, amplification, or assistive listening devices are not working				
Demonstrates understanding of the accommodations and modifications that may assist in learning				
Identifies a communication barrier and suggests a solution				
Recognizes when information or communication is unclear and when repetition is needed				
Asks questions to obtain information when repetition or clarification is needed				

UNDERSTANDING OF RIGHTS AS A PERSON WHO IS DEAF OR HARD OF HEARING

Demonstrates an understanding of the components of self-advocacy				
Understands the role of the interpreter or transliterator (if applicable)				
Is able to identify barriers and provide solutions to them (not limited to communication)				

APPENDIX F GLOSSARY

504 plan A plan based on Section 504 of the Rehabilitation Act. Section 504 is a civil rights law that ensures individuals with disabilities are not excluded from participation in programs that receive federal financial assistance, such as public schools. A 504 plan ensures that a student will receive the necessary accommodations to guarantee access in the academic learning environment and other school activities.

Accommodation An alteration of the environment, curriculum format, or equipment to allow a child the opportunity to gain equal access to information and resources. An accommodation may be required as part of a 504 plan or an IFSP/IEP. This is different from a modification, which is a change in the content of the curriculum. See *Modification*.

Acoustics The qualities of a room or environment (such as its shape or size) which make it easier or more difficult for people to hear sounds clearly. Acoustic factors that impact a school setting (e.g., classroom, cafeteria, auditorium) might include the level of background noise in the room and the reverberation (echo) in the environment.

American Sign Language (ASL) A visual language used by members of the North American Deaf community. ASL has its own unique rules of grammar and syntax. The shape, placement, and movement of the hands, as well as facial expressions and body movement, all play an important role in conveying information. ASL is not a universal language; similar to spoken languages, signed languages develop naturally in their own regions or countries.

Americans with Disabilities Act (ADA) A federal law that prohibits discrimination and ensures equal opportunity for individuals with disabilities. As it relates to students who are deaf or hard of hearing, the ADA addresses the removal of barriers and the provision of effective communication and needed services within school programs and activities.

Amplification Any listening technology used to increase the loudness of sound (e.g., hearing aid, FM system).

Assistive Listening Devices (ALDs) Devices, other than personal hearing aids and cochlear implants, which improve listening in noise by reducing the auditory distance between the speaker and the student. ALDs include devices such as infrared and FM systems, audio loops, and telephone amplifiers. (Also referred to as hearing assistive technology systems, or HATS.)

Audiologist A credentialed professional trained in evaluating hearing, fitting hearing aids and other listening technologies, and facilitating development of auditory communication skills. Audiologists who focus their practice on children are referred to as *pediatric audiologists*. Audiologists who specialize in providing supports to enhance classroom learning are referred to as *educational audiologists*.

Auditory supports The availability of resources, services, or accommodations such as listening technologies and environmental modifications that provide students with auditory access to the classroom.

Bilateral hearing loss Hearing loss occurring in or affecting both ears.

Bilingual This term refers to the development of linguistic fluency in two languages (e.g., ASL and English, Spanish and English).

Bimodal technology In the context of auditory technology, this term refers to the use of both a hearing aid (acoustic hearing) and a cochlear implant (electric hearing).

Cochlear implant A technological device designed to provide access to sound for deaf individuals. It provides electrical stimulation to the cochlea instead of acoustical stimulation. Part of the device is surgically implanted and part of it is worn externally.

Communication The sending and receiving of thoughts and ideas between individuals with the goal of understanding what has been conveyed. Communication is usually achieved through language, but it can also occur through symbols, codes, drawings, body language, and facial expressions.

Communication Access Realtime Translation (CART) See *Realtime captioning*.

Communication/language facilitator A professional who provides communication support and language enhancement to facilitate communication between children who are deaf or hard of hearing and their peers, teachers, and other school personnel.

Communication repair strategies Strategies used when there has been a misunderstanding or breakdown in a communication interaction. These strategies may include asking a direct question, rephrasing, or repetition.

Cued Speech Cued Speech (sometimes referred to as *cued language*) is a visual communication system. There are eight handshapes with four different placements near the face which, when combined with movements of the mouth, make the sounds of spoken language look different from each other. Cued Speech can be used with any spoken consonant-vowel language (e.g., English, French, Spanish); however, it is not a language itself.

Cued Speech transliterator A Cued Speech transliterator (sometimes referred to as a *cued language transliterator*) is a professional, often certified, who uses a cueing system to facilitate communication between individuals who use spoken language and those who use Cued Speech. A *transliterator* conveys everything said by teachers and classmates, as well as sounds in the environment, through the use of cues.

Deaf (audiologic) A term typically used to describe the inability to hear at a level sufficient to process linguistic information through listening. (Note: An individual's hearing levels are determined through audiologic evaluation. See *Hearing levels*.)

Deaf (cultural) An individual who is either deaf or hard of hearing and who self-identifies as a member of the Deaf cultural community.

Direct audio input (DAI) A feature of a hearing aid, cochlear implant, or other personal amplification device that allows the device to directly connect to an external audio source (e.g., CD player, computer, cell phone).

Direct instruction Instruction that occurs without the involvement of a third party (e.g., interpreter, transliterator, realtime captioning).

Early Hearing Detection and Intervention (EHDI) The collaborative effort of national stakeholder groups and agencies to increase the number of babies who:

- complete the newborn hearing screening by 1 month of age;
- if referred, receive an audiologic evaluation by 3 months of age; and
- if identified as deaf or hard of hearing, are enrolled in appropriate early intervention services by 6 months of age.

Early Interventionist A professional (e.g., educator or support service specialist, such as a speech-language pathologist) who is part of a team of professionals who collaborate with families to assess, plan, and implement programs and services for infants and toddlers with disabilities (including children who are deaf or hard of hearing).

Educational supports The availability of resources, services, or accommodations which optimize classroom access. Examples may include classroom seating, providing materials in print, or controlling classroom discussions through turn taking.

Frequency Modulated (FM) system An assistive listening device (see definition above for ALD) that improves listening in noise or in large group environments by transmitting sound via FM radio signals from a microphone used by the person speaking (or the sound source, such as a television) to a student. A student may receive the signal through strategically placed speakers (i.e., sound field system) or through a direct connection to his or her personal listening device (i.e., DAI).

Hard of hearing (audiologic) A term typically used to describe individuals with a hearing loss at levels sufficient to process linguistic information through listening. (Note: An individual's hearing levels are determined through audiologic evaluation. See *Hearing levels.)*

Hearing Assistive Technology Systems (HATS) A term used to identify types of assistive listening technologies beyond the use of a personal hearing aid or a cochlear implant. These technologies typically improve listening by reducing the auditory distance between a listener and a sound source, competing noise in the environment, and poor room acoustics. Some of these devices include FM systems, infrared systems, loop systems, and other listening accessories. (See also *ALDs*.)

Hearing impaired A term commonly used to refer to people who are deaf or hard of hearing. While this term is used in federal laws and definitions, organizations and institutions representing deaf and hard of hearing people have rejected it as it is pathology-centered. The recommended terms are *deaf* and *hard of hearing*.

Hearing levels The average decibel level used to describe varying degrees of hearing loss based on audiologic evaluation.[1]

Degree of hearing loss:	*Hearing loss range:*
Hearing within normal limits/No hearing loss	-10 to 15 dB
Slight	16 to 25 dB
Mild	26 to 40 dB
Moderate	41 to 55 dB
Moderately severe	56 to 70 dB
Severe	71 to 90 dB
Profound	91 dB+

Hearing loss A medical term used to describe an individual's inability to hear. This can range from mild to profound. See *Hearing levels*.

Incidental learning Learning that is not directly taught but which occurs through natural, spontaneous, or daily experiences. Most often this occurs via interactions or when communicating with peers or adults (whether through auditory or visual input).

1 Table retrieved from the American Speech-Language-Hearing Association website, www.asha.org

Individualized Education Program (IEP) A written plan or program developed to ensure that a child (age 3-21) who has a disability and is identified as eligible under the law receives specialized instruction and related services. An IEP is developed by a team of professionals (e.g., teachers, therapists) and the child's parents. This document describes the child's present levels of academic achievement and functional performance, learning needs, and necessary services/supports required for academic progress. The IEP is reviewed and updated yearly, at a minimum.

Individualized Family Service Plan (IFSP) A written plan that is developed to ensure that a child (from birth through age 2) who has a disability and is identified as eligible under the law receives specialized instruction and related services. An IFSP outlines all of the early intervention services and equipment that a family and child will need as well as how the family will get those services and that equipment. There are specific procedures outlined in the IDEA as to who is to be involved and what to include in the plan.

Individuals with Disabilities Education Act (IDEA) A federal law that governs how states and public agencies provide early intervention, special education, and related services to children with disabilities. Part C of the IDEA addresses services and outcomes for infants and toddlers with disabilities up through age 2 and their families. Part B of the IDEA addresses services and outcomes for children ages 3-21.

Infrared sound system An ALD (refer to glossary) that improves listening in noise or large group environments by transmitting sound via infrared light waves from a microphone used by a speaker (or a sound source such as a television). A student may receive the signal through strategically placed speakers (i.e., sound field system) or through a direct connection to his or her personal listening device (i.e., DAI).

Intelligible speech An individual's production of spoken words understood by others in everyday situations.

Interpreter A skilled professional who renders the messages of speakers who need to communicate with each other but are separated by a language barrier.[2]

> **Federal definition of sign language interpreter:** *Qualified interpreter* means an interpreter who, via a video remote interpreting (VRI) service or an on-site appearance, is able to interpret effectively, accurately, and impartially, both receptively and expressively, using any necessary specialized vocabulary. Qualified interpreters include, for example, sign language interpreters, oral transliterators, and Cued Language transliterators.[3]
>
> **Oral interpreter:** A skilled professional who facilitates communication between individuals who are deaf or hard of hearing and those who are hearing. Oral interpreters work within a continuum of service provision from solely using mouth movements to the inclusion of natural gestures, fingerspelling, or writing key terms.
>
> **Sign language interpreter:** A skilled professional who works to ensure clear and effective communication between individuals who use sign language and those who use spoken language. Sign language interpreters deliver the signed and voiced messages of speakers.

Language A rule-governed set of arbitrary symbols that is socially shared among people within a culture or community. Language can be encoded through spoken words, symbolic and meaningful visual/manual signs, and written form.

> **Expressive language:** This term refers to how an individual expresses thoughts, wants, or needs. They can be spoken or signed. Expressive language does not mean the person's ability to speak or produce

2 Napier, J., McKee, R., & Goswell, D. (2010). Sign language interpreting. Theory & practice in Australia & New Zealand. Sydney Federation Press.

3 Definition retrieved from the Electronic Code of Federal Regulations website, www.ecfr.gov

speech; instead, it is the ability to communicate, share ideas, request information, and express thoughts or feelings.

Receptive language: This term refers to how an individual understands and comprehends what is heard, signed, or read (e.g., comprehends questions, statements, and stories).

Language and communication approaches Practices which may be used within the field of deaf education to facilitate language and communication competence for children who are deaf or hard of hearing.

ASL/English bilingual approach: An approach that facilitates the acquisition and use of both ASL and English while stressing the importance of developing each as a separate language. This approach may be implemented to support the acquisition and use of ASL and English through reading and writing, or the acquisition and use of ASL, spoken English (according to an individual child's abilities and needs), and reading and writing.

Auditory-oral approach: An approach that focuses on training children to use their hearing abilities (with or without the benefit of speechreading). The ultimate goal is for children to communicate via a spoken language. Signs are not used in an auditory-oral approach; however, natural gestures that are used in typical conversation may be included.

Auditory-verbal approach: This approach is currently referred to as *listening and spoken language* (LSL). See *Listening and spoken language*.

Bilingual-bicultural (BiBi) approach: An approach that reflects the cultural and identity needs of deaf learners. It focuses on facilitating ASL as a child's first language and primary means of communication, with English addressed primarily through reading and writing.

Cued Speech approach: An approach that utilizes a visual communication system to clarify the phonemes of spoken language. See *Cued Speech*.

English-based signing approaches: Approaches that utilize signs to represent the English language in a manual/visual form. English-based signing supports the vocabulary and syntax of English and is not a signed language. These approaches may incorporate either formalized English-based sign systems or various non-standardized uses of sign to support and clarify English.

Listening and spoken language (LSL): Previously referred to as the *auditory-verbal approach*. LSL focuses on facilitating spoken language through listening. LSL practices are guided by specific principles and practices that focus on enhancing the auditory feedback system. These practices do not encourage reliance on speechreading or other visual supports.

Ling 6-Sound Test A quick and easy test used to check a student's access to sound. It can be used with or without amplification. The test uses various speech sounds, ranging from low to high frequencies, which are representative of the full spectrum of speech frequencies.

Linguistic competence The ability to use language to facilitate communication, critical thinking, problem solving, reading, and writing.

Modification A change in the content of the curriculum for those students who are unable to comprehend the content in the educational setting. For example, assignments might be reduced in number and changed for a student to understand the curriculum content.

Neckloop A miniature audio induction loop worn around a user's neck. It transmits sound electromagnetically from a sound source (i.e., iPod) directly into a personal amplification device equipped

with a telephone coil. An individual's cochlear implant or hearing aid can be set to "t" (telecoil) to receive this signal.

Novel topic New information that the student has not come into contact with in the past.

One-voice rule A rule allowing only one individual to talk at a time during group activities; other individuals in the room may not talk amongst themselves as the teacher is instructing.

Pragmatic language This term refers to the way language is used and understood within social communication interactions (e.g., initiating a conversation, using appropriate eye contact, knowing when to change a topic, knowing how to politely interrupt or join a conversation).

Realtime captioning A technology used to provide an immediate translation of spoken English into written English text. The text can be displayed on an individual's computer monitor, projected onto a screen, combined with a video presentation to appear as captions, or be made available using other transmission and display systems. Realtime captioning services may be delivered on location or remotely. There is a variety of realtime captioning programs commonly used, including:

Communication Access Realtime Translation (CART): A service which provides a verbatim (word-for-word) translation.

C-Print™: A service which provides a meaning-for-meaning (not verbatim) translation of the spoken English content.

Typewell: A service which provides a meaning-for-meaning (not verbatim) translation of the spoken English content.

Self-advocacy An individual's ability to effectively communicate, convey, negotiate, or assert his or her own interests, desires, needs, goals, and rights. Self-advocating involves making informed decisions and taking responsibility for those decisions (e.g., the student knows what accommodations are needed and how to ask for them).[4]

Service coordinator A service coordinator (also known as a *case manager*) is a professional who communicates with the family to learn about their concerns, resources, and priorities. He or she oversees a student's programming to ensure that services are coordinated and implemented according to the plan devised by the service delivery team.

Service delivery team (case management team, IEP team) An interdisciplinary team of professionals and family members who collaborate with one another to make decisions about educational services and programming. This is individualized based on each student's needs.

Special education administrator An administrator who supervises a district's or county's special education programs and who is responsible for students with special needs and determining how the school system can support their learning.

Special educator A teacher who has specialized training to work with students who have a wide range of learning, behavioral, cognitive, emotional, and/or physical disabilities. He or she ensures that lessons and teaching strategies are modified to meet the students' needs.

4 Van Reusen, A. K., Bos, C. S., Schumaker, J. B., & Deshler, D. D. (1994). The self-advocacy strategy for education and transition planning. Lawrence, KS: Edge Enterprises.

Speech-language pathologist A certified professional trained both in understanding how children learn language and in strategies to facilitate speech and language development. Some speech-language professionals have received additional training in working with individuals who are deaf or hard of hearing related to their communication needs.

Speechreading The process of determining the intended meaning of a speaker by utilizing all visual clues accompanying speech, such as lip movements, facial expressions, and bodily gestures.

Teacher of the deaf/deaf educator A teacher who has specialized training in the education of children who are deaf or hard of hearing. This professional has specific training in language acquisition and the unique learning and communication needs of students who are deaf or hard of hearing. Often this is an itinerant teacher who may travel to various schools providing educational resource support.

Transition services A coordinated set of activities and services for a student with a disability that focuses on facilitating the move from secondary to postsecondary education. Included are transitions to college, vocational education, integrated employment (including supported employment), continuing and adult education, adult services, independent living skills, and community participation. Transition can also apply to the time when a child moves from Part C of the IDEA (for students from birth through age 2) to Part B (for students ages 3–21).

Transliteration The process of taking a message and expressing it in a different form of the same language (e.g., a message that is expressed in spoken English which is transliterated into signed English).[5]

Unilateral hearing loss Hearing loss occurring in or affecting only one ear.

Visual supports The availability of resources, services, or accommodations (e.g., clear sight lines, proper lighting, sign language interpreters, speechreading cues) that provide access to the classroom.

5 Humphrey, J., & Alcorn, B. (2007). *So you want to be an interpreter? An introduction to sign language interpreting* (4th ed.). Seattle, WA: H & H Publishing Company, Inc.

APPENDIX G AUTHORS AND PRODUCT EVOLUTION

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*Bolding denotes contributors to the 2003 and/or 2010 version AND the 2015 version.

PRODUCT EVOLUTION

Students with Cochlear Implants: Guidelines for Educational Program Planning (2015) evolved from *Children with Cochlear Implants Who Sign: Guidelines for Transitioning to Oral Education or a Mainstream Setting*[1] (2003, 2010) which was originally published through the Boston Children's Hospital. These documents were developed in collaboration with a team of professionals convened by the Deaf and Hard of Hearing Program of Boston Children's Hospital.

Students with Cochlear Implants: Guidelines for Educational Program Planning reflects the collaboration between the Laurent Clerc National Deaf Education Center and the Deaf and Hard of Hearing Program of Boston Children's Hospital. This partnership emerged when the Clerc Center, through its national strategic planning process, identified *Children with Cochlear Implants Who Sign: Guidelines for Transitioning to Oral Education or a Mainstream Setting* as an important resource that could be refined and expanded to include the range of languages and communication modalities available to students with cochlear implants. This revised version includes expanded appendices to support classroom access and learning. The Clerc Center approached the Deaf and Hard of Hearing Program to collaborate in updating and expanding the original guidelines and sharing them nationally.

The revised guidelines are now designed to facilitate discussions during the planning process when determining programs and services for all students with cochlear implants regardless of their educational placement. The goal of this guide is to assist in thoughtful consideration of educational environments for children with cochlear implants so they will have the opportunity to effectively access the curriculum and instruction for learning and become socially involved as active participants in their school community.

1 Children's Hospital Boston. (2003, 2010). *Students with cochlear implants: Guidelines for educational program planning.* Boston: Boston Center for Deaf and Hard of Hearing Children

This product was a collaboration between the Laurent Clerc National Deaf Education Center and Boston Children's Hospital

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