The following tools/protocols will be discussed during this presentation and can be downloaded from the web address below.

- Functional Listening Evaluation (FLE)
- Functional Auditory Performance Indicators (FAPI)
- Classroom Participation Questionnaire
- PS/K Placement Checklist
- Student Placement Checklist
- Response to Intervention: Levels of Support to Students with Hearing Loss

www.cde.state.co.us/cdesped/sd-hearing.asp

Cochlear Implants: Creating Supportive Educational Environments

Introduction

Cochlear America’s Commitment to Educational Outreach

Cheryl DeConde Johnson, Ed.D. Colorado Department of Education

www.cde.state.co.us/cdesped/sd-hearing.asp

What trends are impacting the education of students with CIs?

- Emphasis on general education placement and access to the general education curriculum
- Accountability and high standards
- Emphasis on listening skill development
- Growing responsibility of school for therapy and amplification
- Increased parent/professional demands for specially trained service providers

What are some challenges for schools for students with CIs?

- Training for general education staff
  - Communication accommodations
  - Instructional modifications
  - ALD technology
- Training for D/HH and other special education staff
- Individualizing IEP services
More challenges for schools...

- Providing current ALD technology
- Limited access to support in rural areas
- Declining staff and resources
- Communication with CI centers

What are issues for students with CIs?

- Expectations: Hearing vs Understanding
- Achieving full communication access in a variety of listening situations
- Consistent use of accommodations by teachers & school staff
- Educational support

What does a “Supportive Educational Environment” look like?

- Provides Access to Communication
- Emphasizes listening skill development
- Provides effective assistive technology
- Provides educational support
- Shares responsibility for therapy
- Assures providers have specialized training
- Supports role of parent as partner
- Communicates with non-school service providers, e.g., implant center and private therapists

What does communication access mean?

- Able to receive information
- Having language to identify what is received
- Interweave of cognition and language to derive meaning
- Able to actively participate in flow of conversation e.g., communication ease

Communication access occurs when there is “shared meaning”.

Communication Access

Functional Communication Continuum

A — Av — AV — Va — V
Auditory Only — Auditory w/ visual support — Auditory/Visual (Simultaneous Communication) — Visual w/ auditory support — Visual Only

- 1:1 communication, therapy
- Small Group
- Classroom – Lecture
- Classroom - Discussion
- Classroom - Cooperative Learning Groups
  - Home
  - Car
  - Theater
**Functional Assessment and Performance Monitoring**

### Student Measures
- Hearing
- Communication
- Listening
- Self-Advocacy

### External Measures
- Classroom acoustics & environment
- Classroom communication
- Instruction
- Administrative support

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**HEARING: Functional Listening Evaluation**
(DeConde Johnson & VonAlmen, 1993)

#### Functional Listening Matrix

<table>
<thead>
<tr>
<th></th>
<th>Close/quiet</th>
<th>Close/noise</th>
<th>Distant/quiet</th>
<th>Distant/noise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auditory</td>
<td>92%</td>
<td>80%</td>
<td>76%</td>
<td>56%</td>
</tr>
<tr>
<td>Auditory</td>
<td>84%</td>
<td>72%</td>
<td>72%</td>
<td>36%</td>
</tr>
</tbody>
</table>

---

**FLE Interpretation Matrix: Effects of Noise**

<table>
<thead>
<tr>
<th></th>
<th>Quiet</th>
<th>Noise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Close-auditory</td>
<td>84</td>
<td>72</td>
</tr>
<tr>
<td>Close-auditory/visual</td>
<td>92</td>
<td>80</td>
</tr>
<tr>
<td>Distant-auditory</td>
<td>72</td>
<td>36</td>
</tr>
<tr>
<td>Distant-auditory/visual</td>
<td>76</td>
<td>56</td>
</tr>
<tr>
<td>Ave. of above scores:</td>
<td>81%</td>
<td>61%</td>
</tr>
</tbody>
</table>

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**FLE Interpretation Matrix: Effects of Distance**

<table>
<thead>
<tr>
<th></th>
<th>Close</th>
<th>Distant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quiet-auditory</td>
<td>84</td>
<td>72</td>
</tr>
<tr>
<td>Quiet-auditory/visual</td>
<td>92</td>
<td>76</td>
</tr>
<tr>
<td>Noise-auditory</td>
<td>72</td>
<td>36</td>
</tr>
<tr>
<td>Noise-auditory/visual</td>
<td>80</td>
<td>56</td>
</tr>
<tr>
<td>Ave. of above scores:</td>
<td>82%</td>
<td>60%</td>
</tr>
</tbody>
</table>

---

**Interpretation Matrix: Effects of Visual Input**

<table>
<thead>
<tr>
<th></th>
<th>Auditory-visual</th>
<th>Auditory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Close-quiet</td>
<td>92</td>
<td>84</td>
</tr>
<tr>
<td>Close-noise</td>
<td>80</td>
<td>72</td>
</tr>
<tr>
<td>Distant-noise</td>
<td>56</td>
<td>36</td>
</tr>
<tr>
<td>Distant-quiet</td>
<td>76</td>
<td>72</td>
</tr>
<tr>
<td>Ave. of above scores:</td>
<td>76%</td>
<td>66%</td>
</tr>
</tbody>
</table>

---

**COMMUNICATION: Classroom Participation Questionnaire**
(adapted from Braeges, Long, & Stinson, Perceived Communication Ease Questionnaire, NTID)

- Student access to teacher and peer communication
- 4 areas
  - Understanding teacher
  - Understanding students
  - Positive effect
  - Negative effect
- Counseling tool
**Classroom Participation Questionnaire**

<table>
<thead>
<tr>
<th>Normal</th>
<th>Concern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understanding Teacher</td>
<td>84.5%</td>
</tr>
<tr>
<td>Understanding Students</td>
<td>76.4%</td>
</tr>
<tr>
<td>Positive Effect</td>
<td>82.8%</td>
</tr>
<tr>
<td>Negative Effect</td>
<td>86.6%</td>
</tr>
</tbody>
</table>

**LISTENING: Functional Auditory Performance Indicators (FÁPI)**

Stredler-Brown & DeConde Johnson, 2001, 2004

- **Awareness and Meaning of Sounds**
  - Aware that sound is present
  - Demonstrates that sound is meaningful through association of sound and sound stimuli
- **Auditory Feedback and Integration**
  - Monitors own vocal productions and uses auditory information to produce utterances that approximate or match stimulus
- **Localizing Sound Source**
  - Searches and finds auditory stimulus

**FÁPI Categories (cont)**


- **Auditory Discrimination**
  - Distinguishes characteristics of different sounds (environmental, non-true words, true words)
- **Auditory Comprehension**
  - Demonstrates understanding of linguistic information by identifying what is said, critical elements, and following directions
- **Short-term Auditory Memory**
  - Hears, remembers, & repeats sequences
- **Linguistic Auditory Processing**
  - Utilizes auditory information to process language; sequence, use of morphemes, syntax, comprehension

**FÁPI Conditions**

Considers a skill in different conditions

- near vs. far
- in quiet vs. in noise
- prompted vs. spontaneous
- A+V vs. auditory only
- closed set vs. open set
- familiar words vs. unfamiliar words
- words vs. sentences
- single activity vs. competing activities

**Mykala - Recommendations for Listening Skills**

- **Auditory Awareness & Meaning of Sounds**
  - Auditory only, distance, noise conditions
- **Auditory Feedback & Integration**
  - Self-identification of vocal productions
  - Monitoring amplification
Mykala - Recommendations for Listening Skills

- **Localizing Sound Source**
  - Searching for & locating all types of stimuli
- **Auditory Discrimination**
  - begin with basic linguistic vs non-linguistic moving quickly into speech
- **Auditory Comprehension**
  - Comprehension of basic directions
- **Short-term Auditory Memory**
- **Linguistic Auditory Processing**

SELF-ADVOCACY: Listening Development Profile

(adapted from Rizak, 1994)

4 Stages of Listening Development

- Beginning Listener
- Intermediate Listener
- Advanced Listener
- Sophisticated Listener

Outcomes: Sophisticated Listener/Communicator

(adapted from Rizak, 1994)

Skills

- Participates in groups using appropriate language and conversation rules
- Discriminates and self-corrects between correct and incorrect productions
- Understanding oral messages using communication repair strategies when appropriate

Auditory Outcomes: Sophisticated Listener/Communicator

Self-Advocacy Skills

- Demonstrates knowledge of audiograms
- Knowledgeable regarding amplification options and assistive devices
- Uses amplification systems appropriately including troubleshooting
- Advocates for services including communication/listening environment accommodations
- Utilizes professionals and agencies
- Educates others about hearing loss and its implications

CLASSROOM ACOUSTICS & ENVIRONMENT: Acoustic Accessibility

**Activities**

- Analyze the listening environment
  - Noise
  - Reverberation
- Improve the listening environment for all students
  - Acoustical modifications
  - Accommodations

**Variables**

- Reverberation
- Distance
- Noise – S/N ratio, type of noise

CLASSROOM COMMUNICATION, INSTRUCTION, ADMINISTRATIVE SUPPORT

Placement Checklists

- Teacher Interview and Observation Checklist
- PS/K & School-Age Protocols

Content

- Classroom Physical Environment
- General Learning Environment
- Instructional Style
- Individual Student Considerations
- School Culture
**Summary: Need for Accountability**

- Measurable
  - Decisions must be data-driven
- Performance – based (functional)
  - Continuously track skill level, PERFORMANCE MONITORING
  - Adapt strategies to accommodate child’s skills
- Comprehensive
  - Internal (Hearing, Listening, Communication, Self-Advocacy) and External factors (Environment, Communication, Instruction, Administrative Support)
  - FAPI, LDP: Range of skills: Beginning ➔ advanced

**Management Tools**

Use of AT in schools
 Communication between schools and CI Centers

**Reasons for not using FM**

- Incompatibility of FM with CI
- Child hears well with CI – doesn’t need FM
- Professional judgement – child needs to learn how to hear with CI, not become dependent on FM
- Lack of appropriate FM system
- No validation data
- Cumbersome to wear
- Student refuses, doesn’t want to pass transmitter

**Reasons for not using FM**

- Cost
- Students in ASL settings
- No experience/knowledge with coupling FM to CI
- Liability of school if CI map altered by coupling of FM

**Communication among schools, CI centers, home, private providers**

- Everyone communicates
- Information Exchange
  - Contact information
  - CI programs
  - Observation data

**Cochlear Americas Resources**

- Cochlear Implant Resource Guide: Meeting Children’s Needs at School
- A Teacher’s Guide to the Nucleus Cochlear Implant System
  - Chapter 4: Preparing the Classroom
Educational Strategies

Accommodations
Instructional Support
Response to Intervention

Response to Intervention: School-wide Supports for Student Success

All Students

1-5% of HL

5-10% of HL

80-90% of HL

Home-School-Community

Universal Supports

Targeted Supports

Intensive/individualized Supports

Recent Case Law

Themes: Mapping, Qualified Provider

- In the matter of D.D. v. Foothills SELPA 38 IDELR 29 (CA, 2002)
- Avon Local School District 38 IDELR 254 (Ohio, SEA 2003)
- Megan C v. ECI Life Path Systems (Texas, ECI Docket No. 001-ECI-0803)
- E.N. vs St. Johns County School Board (St. Augustine, FL)

IDEA 2004 Proposed Language

300.5(a) ASSISTIVE TECHNOLOGY DEVICE - The term ‘assistive technology device’ means any item, piece of equipment, or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve functional capabilities of a child with a disability. The term does not include a medical device that is surgically implanted, or the replacement of such device.

34CFR300.34(b) RELATED SERVICES Exception.

Related services do not include a medical device that is surgically implanted, the optimization of device functioning, maintenance of the device, or the replacement of that device.
2003 Case Law: IDEA & Audiology Services
Stratham Sch. District v. Beth and David P
State of Ohio Department of Education (Hearing Officer)

RE: Definition of Audiology Services: cochlear implant mapping

Issues:
- Personal vs medical device
- Qualifications
- Insurance reimbursement
- Continuity of care
- Medical liability
- Training of audiologists
- Programming vs Accommodations
- Proper functioning
- Cost

Ruling: School to provide mapping service

Colorado Projects to Build Supportive Educational Environments

- Colorado Cochlear Implant Consortium
- Colorado Cochlear Implant Mentorship Program
- Grants to School Districts
- Training

Colorado Cochlear Implant Consortium
- Colorado Cochlear Implant Mentorship Program
- Grants to School Districts
- Training


- Visit www.cochlear.com/HOPE
- Upcoming sessions:
  - Monday, December 5, 3pm ET
    Benchmarks of Performance for Children with Cochlear Implants
    HOPE Specialists: Mary Ellen Nevins, Ed.D and Ashley S. Garber, CCC-SLP
  - Monday, December 12, 2pm ET
    Audiologists and Teachers (or Therapists) working together
    Betsy Moog Brooks, MS CED and Roxanne Aaron, MA CCC-A, FAAAA
    The Moog Center for Deaf Education, St. Louis, MO
  - Thursday January 12, 3pm ET
    Assessing Spoken Language, It’s Role in Teaching More Effectively
    Jean Sachar Moog, MA
    Director, The Moog Center for Deaf Education, St. Louis MO

Would you like to participate in in-depth discussion?

- New this year, Cochlear Americas is offering live chat sessions for selected online topics
- Speakers are available for real time question and answer
- All past presentations are archived and can be accessed prior to chat for topic review
- Next up...

Monday, January 9, 3:00-3:45 pm ET
Live Q&A: Technology to Maximize Hearing in Children (archived session)
Ginger Grant, MS CCC-A Cochlear Americas

Contact Cochlear

- More on Cochlear’s HOPE program
  - www.cochlear.com/HOPE
- For inquiries and comments regarding HOPE programming, please contact: Donna Sorkin
  - dsorkin@cochlear.com
- Please send your feedback form to
  - hopefeedback@cochlear.com
Notes For Online Events

To Obtain CEU Credit For This Event:
You must be logged in for the entire event to be eligible for credits! You will receive an email from AudiologyOnline.com once you have taken your credited CEU class. The email will explain how to take your test. You will have 72 hours to take your test on AudiologyOnline.com

To Send Notes/Questions During Event:
Right click on any member of the participant list to your right and select Private Note. This is the most typical way to send a question to the Moderator(s).

To View/Download Handouts of Event:
If you have a Links Button in your upper toolbar for this event, it means that the Moderators have allowed to have a copy of their slides or have including other materials for you as well. Go ahead and click on Links Button above and select the Handout links available to you. From here you can print or save these documents to your computer.