



## 2009 Summer Conference Handout

*Date (Monday, July 20, 2009)*

*Time (10:45-11:45 am)*

Presenter(s):  
Donna L. Sorkin




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## What Cochlear Implant Centers Tell Parents (and a few things they may not tell them)

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**A Caveat:** Just as there is variability in  
the characteristics of your students, there  
is variability in CI centers and the ways in  
which they work with their families.

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## Topics:

1. Expectations on Outcomes
2. Use the Sound Processor Maximally
3. Enjoying Music
4. Empower Parents to Promote Auditory Learning
5. Implants for Teens and Tweens

## PLUS Resources



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## 1 Expectations on Outcomes

- Most children will listen and talk though there is variability in how well they perform due to:
  - Age of implantation
  - Child specific factors including the existence of other issues besides deafness
  - Parent involvement and support
  - Nature of the child's habilitation program
  - Communication option used by child
  - Type of support child receives at school



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## Use the Sound Processor Maximally

### Topics:

1. Collaborate with Mapping Audiologist
2. Sound Processor Options
3. Best Telephone Options
4. Proactive Maintenance



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## Use the Sound Processor Maximally

- Great variability in how CI centers handle this
- Some are proactive about working towards the best possible map; others not so much
- Some push the family to take advantage of the various sound processor options; others do not
- As professionals who see the child frequently and understand her listening challenges, you provide valuable input to parents and clinics



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## Collaborate with Child's Mapping Audiologist

- Parents: Provide regular input regarding what child is consistently hearing or not hearing
- Educators/Therapists: Let parents or CI audiologist know what sounds or words child misses
- Does child respond well to sounds in his/her environment? Can he/she consistently hear the 6 Ling sounds?
- CI Audiologist: Explain mapping changes



## Other Information to Share

- Which program does child use most often?
- Has this changed over time?
- What settings does (s)he use?
  - Are there times you think child needs more volume?
  - Are there times the program seems too loud?
- Does child ever use the other programs?
  - If yes, how often and in what situations?

## Resources on Mapping

- HOPE Online: Audiologists and Therapists (or Teachers) Working Together (Brooks, Aaron)
- HOPE Online: Partnering with Your CI Audiologist: How to Get the Best Map Possible for Your Child (Zwolan)
- HOPE Online: How to Read a Child's Map (Popp, Clark)
- Team Tracking Form (Moog Center)

## Make Full Use of Sound Processor Options

- Depending on age of child and ability to determine benefit, explore use of program options in sound processor
- **ADRO™** especially helpful in dynamic environments typical of what children experience
  - Makes automatic adjustments as sound environment changes
  - Divides sound spectrum into 22 channels and adjusts gain of each channel independently
  - Maximizes sounds recipient wants to hear and softens unwanted noise

## ADRO™ for Changing Environments



## Resources

- HOPE Online “FM and Nucleus Freedom” (includes explanation of ADRO)
- HOPE Online “Maximizing Outcomes with SmartSound™: How, When, Why”
- SmartSound™ materials on the Cochlear Americas website:

[www.cochlearamericas.com/products/22.a  
sp](http://www.cochlearamericas.com/products/22.asp)

## Determine Best Telephone Options

- Telecoil or not?
- Telephone setting louder?
- Help child determine best place to hold the telephone headset
- Mixing level
- Speaker phone?
- Phone preference or not? Identify which telephone works best (including mobile) in combination with above options



## Resources

- “Using the telephone” support materials on the Cochlear Americas website:
- <http://www.cochlearamericas.com/Support/347.asp>
- HOPE Online “Talk to me! Telephone Tips for Cochlear Implant Users”

## Increasing Confidence on Phone

- Purpose: Increase confidence with understanding on the phone
- Call **(800) 458-4999**
- Acoustic • Visual • Acoustic
- <http://www.cochlearcommunity.com/rehab> to check listening
- Listening available in English and Spanish

## Practice Proactive Maintenance

- Perform daily equipment checks (look for breakage, loose connections)
- Know how to troubleshoot the sound processor (parents, daycare, other professionals)
- Have replacement parts on hand (not just batteries) at home, daycare, wherever the child is
- Parents: Use Dry and Store daily. Change “bricks” at appropriate time (especially important during humid summer months)

## Resources

- HOPE Online seminar: “Troubleshooting the Cochlear Implant System”
- Troubleshooting Guide:  
[www.cochlearamericas.com/support/44.aspx](http://www.cochlearamericas.com/support/44.aspx)
- Educator Guide: Chapter 6 (Troubleshooting)  
[www.cochlearamericas.com/Support/2156.asp](http://www.cochlearamericas.com/Support/2156.asp)

## Helping Children Enjoy Music with their Cochlear Implant(s)



## Helping Children Enjoy Music

- Many children enjoy music with their cochlear implant
- Children have no preconceived notions regarding what music should sound like
- Music is subjective for everyone—some people with “normal” are not musical
- Would expect variation in any population—  
hearing or hearing



## Variability in Adults

- Some carryover from what adults tell us
- Music outcomes/enjoyment varies
- May be related to the individual's ear anatomy
- Greater nerve survival enables one to make use of a more complex signal inherent to music
- CI's are designed for *speech* perception
- Speech and music share some acoustic characteristics but there are differences
- Pitch and tone are harder to convey
- Research suggests practice helps

## Components of Music

- Rhythm is easiest to perceive via a CI
- Research suggests CI users recognize rhythm as well as normally hearing people 75-90% of the time\*
- Timbre or resonance helps us perceive unique qualities of instruments and makes tones distinct
- Pitch is the most difficult to perceive for CI users
- Pitch provides the high/low = melody

Kong et al. Music perception with temporal cues in acoustic and electric hearing. *Ear and Hearing* 2004, 25(2):173-185.

## What Helps Children Enjoy Music

- Listen in quiet environments with good acoustics
- Keep the music volume down
- Obtain the words to songs and teach them to the child before playing the music
- Certain kinds of music or instruments may be more enjoyable
- Try different kinds of music
- Watch how the child responds to music and take cues from her

## CI Kids Vary

- **Many children enjoy informal music activities**
- **Some may ask for a formal music experience (i.e., taking lessons)**
- **Capabilities vary (as is the case with all children)**
- **If they enjoy it—regardless of their skill or ability—go for it!**
- **Know that certain activities may be difficult**
- **Let the music teacher at school know and share information**
- **KEY! Most adults (and children) improve with practice**

## Tips for Improving Music Perception

- **Music may take time and practice**
- **If a hearing aid is used in the contralateral ear, it will help with music**
- **Sing along with the child to help her learn the placement of lyrics**
- **Start with simple tunes with a strong beat (children's music!)**
- **Keep track of what works and what doesn't**

## Experiment

- Try accessories that provide direct input
  - Personal Audio Cable to iPod or any MP3 player
  - TV/HiFi Cable with stereos, TV, computers
  - Silhouettes
  - Headphones
- Sample songs at websites such as Apple's I-Tunes website ([www.apple.com/itunes](http://www.apple.com/itunes))
- Try using ADRO or Autosensitivity when listening to music



## Lost and Found



## Resources

- **Music and Implants: Piecing the Puzzle Together by Kate Gfeller (Cochlear)**
- **Tips for Improving Music Listening Skills (Cochlear)**
- **Sound and WAY Beyond, an interactive rehabilitation training tool from Cochlear, has music modules including tunes, instruments, melodic contour training**
- **Gfeller KE. "Accommodating children who use cochlear implants in the music therapy or educational setting." *Music Therapy Perspectives*. 2000. 18(2) 122-130.**

## 4 Empower Parents to Promote Auditory Learning

- Model language lesson to set parents up for success: Everyone learns through models
- Ask parent to give examples of implementing similar lesson in home environment
- Give parent or sibling turn to practice
- Encouraging waiting for response
- Give feedback (sandwich with positive, negative, positive)

## Create Thematic Lessons

- Big picture teaching: language in everyday activities
- Carryover is stronger
- Increased participation of child
- Incorporate Strategies:
  - Increase wait time for response
  - Present information as Acoustic • Visual • Acoustic
  - Acoustic Highlighting
  - Note-taking to summarize session for carryover in home environment

## HOPE Resources on Auditory Learning

- Variety of resources for parents in the HOPE area of the web site: [www.cochlear.com/HOPE](http://www.cochlear.com/HOPE)
- HOPE Online Learning Module: “Parent Friendly” contains many one-hour seminars for parents on auditory learning
- *Listen Learn & Talk*: 3 CDs and book covering birth-48 months
- *Start Listening - Parents* (free DVD and related brochure)
- *Speech Sounds*: guidance on everyday activities, games, songs, books to promote a strong auditory foundation

## Speech Sounds

- Units for 20 English consonant sounds
- For parents of children 1-5 years under direction of teacher or therapist
- Suggests activities and books to encourage progress
- Printed book for therapist/online version for parents at [www.cochlear.com/HOPE](http://www.cochlear.com/HOPE)
- Encourages auditory learning as part of child's day—not as therapy
- Developed by Nancy Caleffe-Schenck, Cert. AVT and Dian Baker, Cert. AVT

### Excerpt from the "T" Unit

#### Child-friendly "T" Words

Initial	Medial	Final
table	after	about
taco	bath tub	ant
teddy	butterfly	hat
turtle	party	wet

#### Daily Routines

##### Moving through the day

- **Tiptoe**, **turn** and **tap** dance around the house.
- **Tickle** your family members.

##### Getting dressed

- Look in your **closet**. What will you put on? Maybe a **t-shirt**, **hat**, **belt**, **underpants** and **pants**. What did you put on first? **Last!** You look so cute!

#### Activities

- Find lots of **things that turn**. "T-T-T-turn."
- Listen for the clock: **t-t-ticking**.
- Cut **fruits and vegetables**.

#### Games and Toys

- Tic Tac Toe Game
- Hot Potato Game
- Tag Game
- **Teddy Bear Says** – a variation of Simon Says



#### Book: Where's My Teddy!

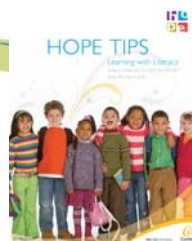
Follow a little boy named Eddie who lost his teddy and is searching in the woods for it.

#### Building communication with this book

- **Emotions** scared, surprised, sad, happy
- **Rhyming** Eddie/teddy/Freddie/already; somewhere/there; until/still; surprise/size
- **Past tense verbs** lost, said, made, thought, did, came, was ran, scared, tiptoed, gasped

## HOPE Tips: Learning with Literacy

- Designed for parents
- Easy to follow and implement "tip" format
- Initial offerings include three booklets on literacy, school issues, learning at home
- Literacy covers reading aloud, building vocabulary, using experience books, choosing audio books
- Approach: Integrate language into the child's life 24/7; use objects at home
- Online at [www.cochlear.com/HOPE](http://www.cochlear.com/HOPE)



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# 5 Teens and Tweens



## Are numbers of recipients 10-19 years increasing?

# surgeries 2006-2008	Increase over Prior Pd Growth 2006-2008	Increase over Prior Pd Growth 2004-2006
1700	20%	10%

Source: Estimates are across all manufacturers derived from Cochlear Americas database

## Survey of 17 Clinics in US and Canada

- Queried on increases in older pediatric patients
- 60% of US clinics reported increases in this demographic; 40% of Canadian clinics
- Posed questions on etiology of older recipients and on therapy options

Source: Sorkin DL. (Re)Habilitation for Teenage Cochlear Implant Recipients. Poster at CI2009, Seattle, WA, 6/2009

## Etiology of “Older” Pediatric Patients

- Most Common Reasons
  - First implant—child had a progressive hearing loss
  - Received a 2<sup>nd</sup> cochlear implant
- Less Common Reasons
  - Prelingually deafened—parents opted to wait until the child was older
  - Sudden deafness

## Therapy for Older Pediatric Patients

- **Is therapy encouraged?**

- Yes: 88%; Sometimes: 12%; No: 0%

- **Is therapy provided at the clinic for patients of this age group?**

- Yes: 53%; Sometimes: 29%; No: 18%

## What are impediments to providing one-on-one therapy to older children?

- Patients are busy with school and extracurricular activities
- Monetary expense
- Patients of this age group don't think they need therapy
- Patients of this age group are resistant to having formal therapy

## What are the alternatives?

- Interactive computer software products (94%)
- Listening exercises with a parent or family member (88%)
- Audio books (69%)
- Group therapy with other teens/tweens (56%)

## HOPE Resources

- HOPE Online seminars on teen (and adult) topics
- Cochlear Implant Rehabilitation: It's Not Just for Kids
  - Reviews types of adult/teen therapy, tools, involving family
  - Encourages utilizing a rehab professional to guide/get the person started
- All available at [www.cochlear.com/HOPE](http://www.cochlear.com/HOPE)

## Sound and WAY Beyond

- Interactive computer software product for adults and teens
- Re-launched April 1—expanded content, lower price
  - Designed to improve speech perception, listening in difficult environments (music, noise, telephone)
  - Great for bilateral 2<sup>nd</sup> side training
  - Children age 10+ who had oral language prior to CI
  - Printing of results feature facilitates sharing of results with child's team



## Summary

- Variability exists in the way clinics advise families on all of these issues
- Great variability in the way families process and apply information they receive
- Constants: It is always valuable for educational professionals to (1) interact regularly with child's clinic and share what you observe and (2) provide families with support