

Cochlear Implants: The Role of the Early Intervention Specialist

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February 25, 2008



Case Scenario

- 3 month old baby with a confirmed severe to profound HL



Counseling the Family Includes What?



Let's Look at the FACTS!

Why Early Identification Matters

- Every day, 33 Babies are born in the U.S. with a permanent hearing loss
- In, 1988, the average age that children with congenital hearing loss were identified was 2 ½ - 3 yrs.
- Undetected hearing loss has serious negative consequences



Why Early Intervention Matters

- The effects of hearing loss can be minimized via early identification, early intervention, and appropriate habilitation.
- Newer hearing technology, such as digital hearing aids and cochlear implants, make it possible for children with hearing impairments to demonstrate speech/language and academic skills similar to those of children with normal-hearing (Robbins et al, 2004; Geers et al, 2003)



After the Identification: The Ideal

- Once a child's hearing impairment is identified:
 - Immediate referral to an audiologist for follow-up testing and amplification fitting if needed.
 - Immediate referral to early intervention program to discuss hearing loss, communication options, and cochlear implants.
 - Child receives early intervention services within weeks after hearing loss is identified from a qualified professional trained in working with infants and children with hearing loss.



What is the Reality?

- Many professionals are unaware of the benefits of early identification and early intervention. T/F
- Many children are still lost to follow-up. T/F
- Children continue to be referred late, identified late, and have intervention begin later than it should. T/F
- Many professionals have not been appropriately trained to work with new technology, particularly with infants and young children. T/F



Why Early Cochlear Implantation Matters

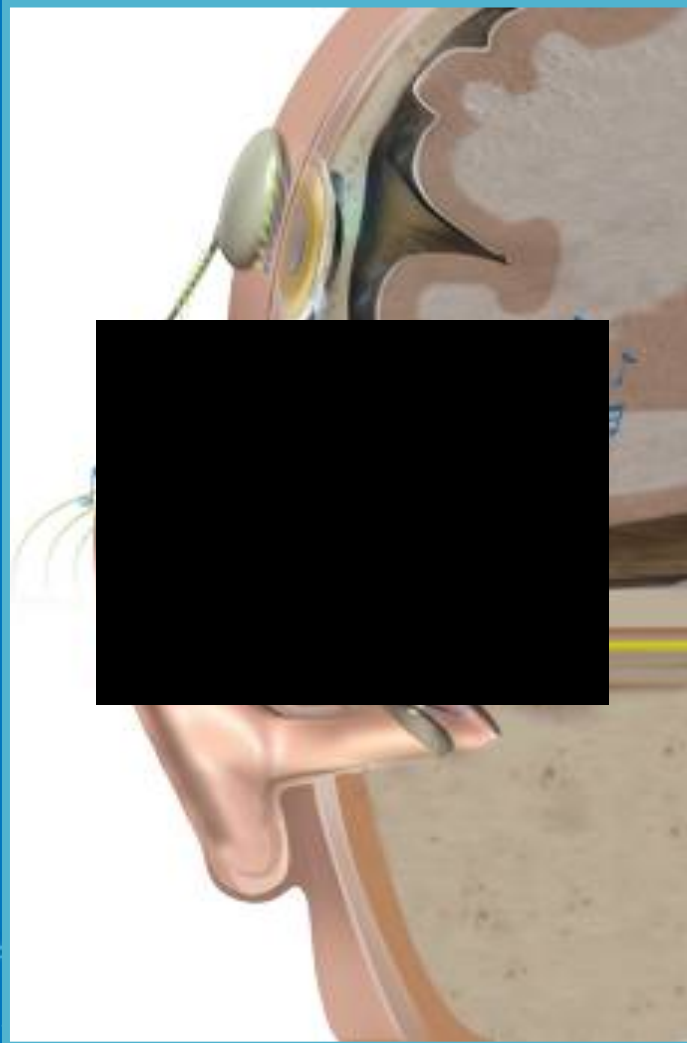
- Age at onset of hearing loss & Age at implantation are the 2 factors that have the greatest impact on the child's performance.
- Critical age for learning language
 - Babies learn spoken language by hearing it before they can speak.



There is no difference between how
Hearing aids and Cochlear Implants work.

True
or
False

Cochlear Implant: What is it?



- Sound waves enter through the microphone.
- The sound processor converts the sound into a distinctive digital code.
- The electrically coded signal is transmitted across the skin through the headpiece to the internal portion of the device.
- The internal device delivers the sound to the electrodes.
- The electrodes stimulate the hearing nerve.
- The hearing nerve sends the signal to the brain for processing.



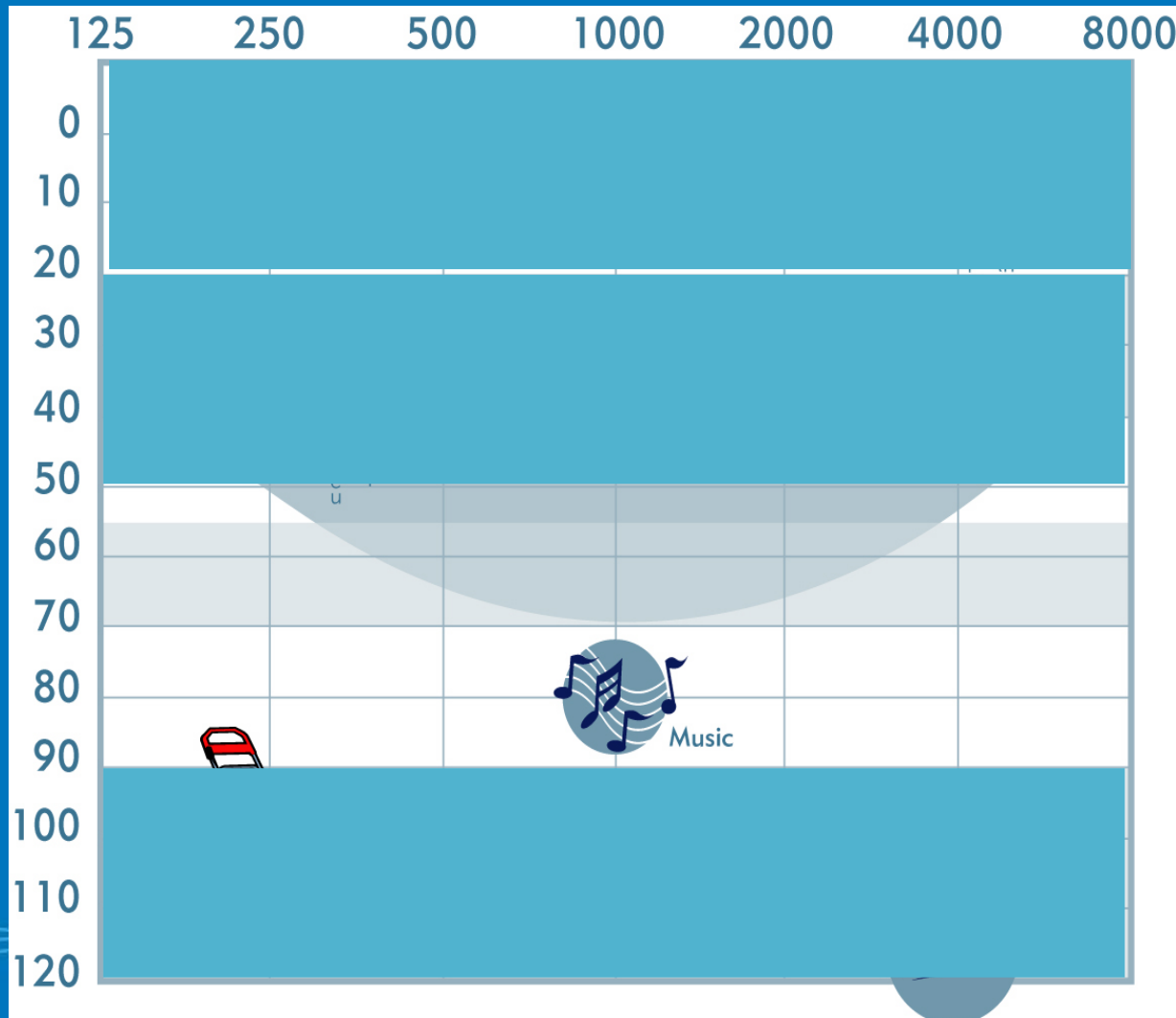
A Cochlear Implant is a surgically implanted device.

True
or
False

Cochlear Implants: The Parts

- A microphone
 - picks up sound from the environment
- A speech processor
 - selects and arranges sounds picked up by the microphone.
- A transmitter and receiver/stimulator
 - receive signals from the speech processor and convert them into electric impulses.
- An electrode array
 - a group of electrodes that collects the impulses from the stimulator and sends them to different regions of the auditory nerve.

Cochlear Implants: Who is a Candidate?



- 12 Months of age
- Bilateral Severe to Profound SNHL
- Minimal Benefit from Conventional Amplification



Cochlear Implants restore a child's hearing to normal.

True
or
False

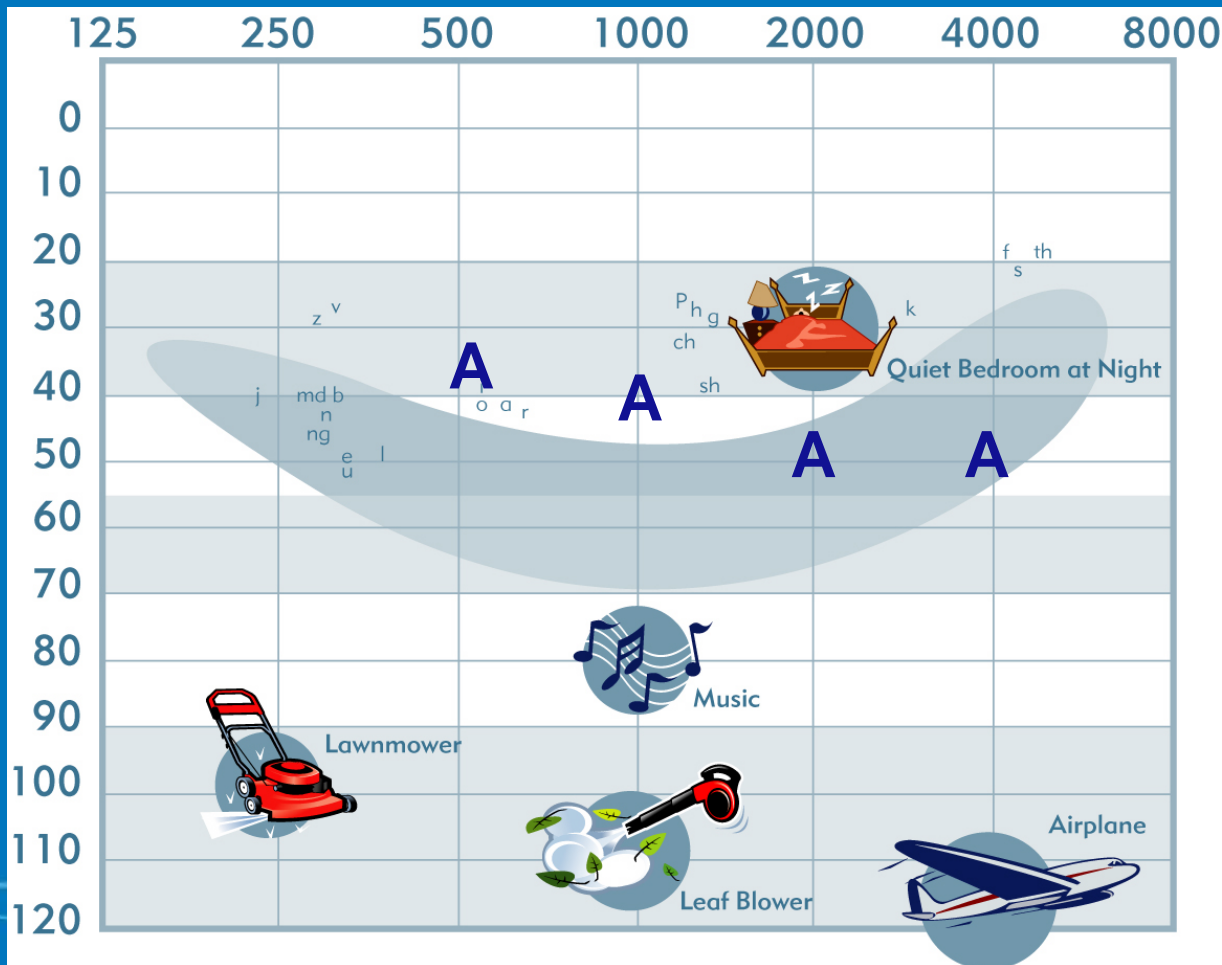


Children with a unilateral hearing loss may be a candidate for a cochlear implant.

True
or
False



How do you counsel?



Cochlear Implants: The Benefits

- Ability to learn to listen
- Ability to learn to talk
- Ability to hear music
- Opportunity to be educated in classrooms along with normal-hearing peers
- Opportunity to read and write (literacy skills) on grade level with normal-hearing peers



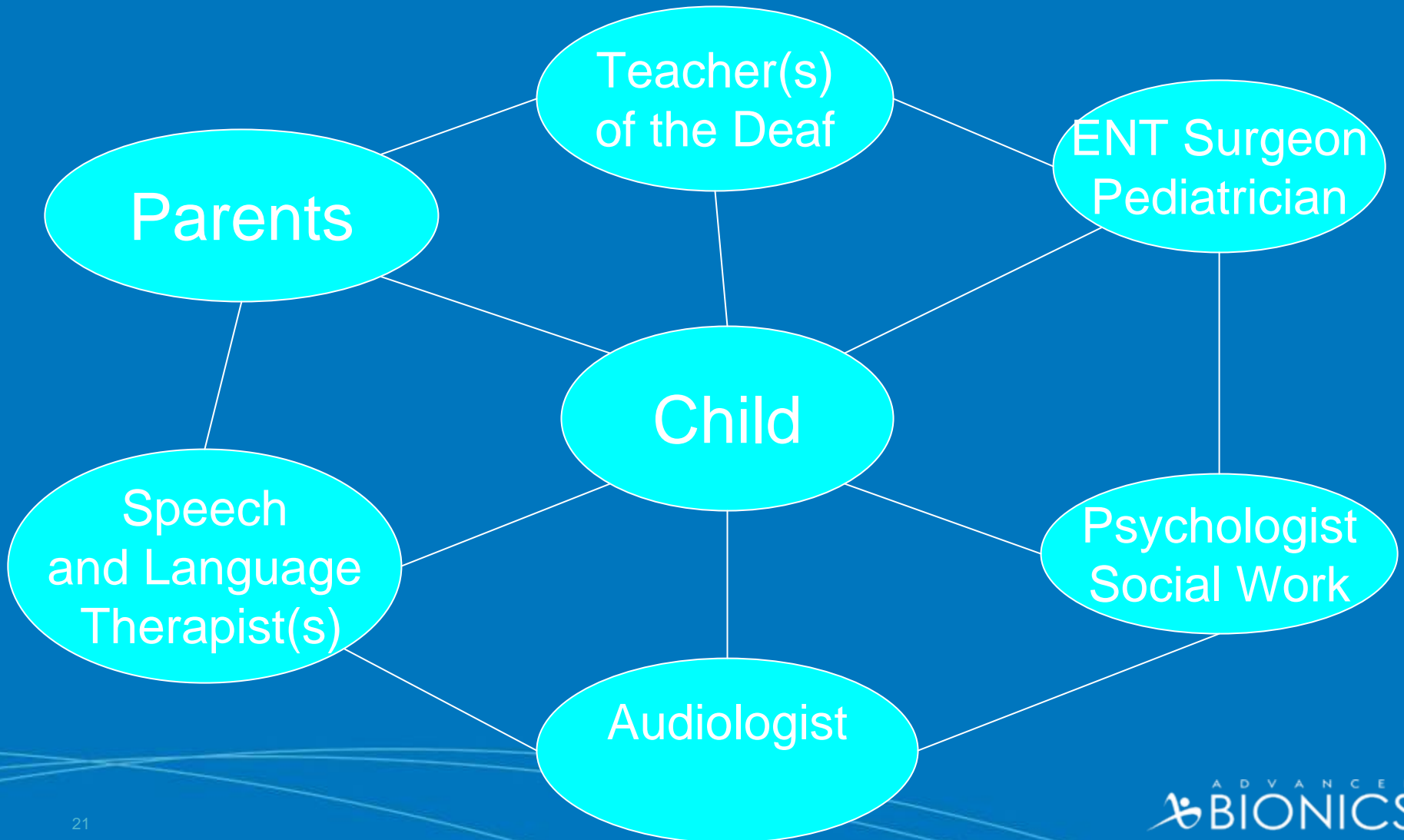
Cochlear Implants: The Process

Begins with YOU!

Cochlear Implants: How can you help?

- Know where to find resources
- Stay informed
- Refer
- Remember you are an important part of the child's team

Team Approach



The Process

- Audiologic Evaluation
- Medical Evaluation
- Speech Language Evaluation
- Psychological Evaluation
- Educational Evaluation

Audiological Evaluation

- Determine the type and degree of hearing loss
 - Air & bone conduction thresholds for each ear
 - ABR & OAEs
- Assess the child's current amplification system
 - Aided sound field testing
 - Aided speech perception testing
- Counseling
 - Address realistic expectations
 - Device selection
 - Post-operative follow-up

Medical Evaluation

- Determine cause of hearing loss (if appropriate)
- Assess status of middle ear & cochlea
- CT scan/MRI
- Counseling
 - Hearing loss
 - Surgical procedure
 - Surgery is usually out-patient
 - Average time is 2.5 hours
 - Typical incision is small
 - Post surgical considerations
- Determination of ear to implant

Speech & Language Evaluation

- Areas assessed
 - Vocabulary - knowledge of single words
 - receptive
 - expressive
 - Language - word combinations, grammar
 - receptive
 - expressive
 - Articulation/Intelligibility
 - Reading skills
- Provides baseline information

Psychological Evaluation

- Assessment of non verbal & verbal IQ
 - Verbal IQ assessed when appropriate
- Counseling for family
 - Impact of hearing loss on the family unit
- Assessment of child's learning style
- Assessment of any other underlying issues
- Serves as a baseline evaluation

Educational Evaluation

- Areas to consider:
 - Communication Methodology
 - Support services
 - Speech/language and auditory skill development
 - Professional training

Audiologic Management

“Initial Stimulation” or “Hook Up”



Audiologic Management “Initial Stimulation”

- External equipment placed on child
- The sound processor is programmed
- Speech is introduced through the sound processor
- Informal assessment of child’s initial responses to sound
- Counseling
 - Care & maintenance of equipment
 - Follow up appointments
 - Importance of therapy & auditory integration

Rehabilitation

Rehabilitation is KEY

A cochlear implant is NOT a “cure” for hearing loss.

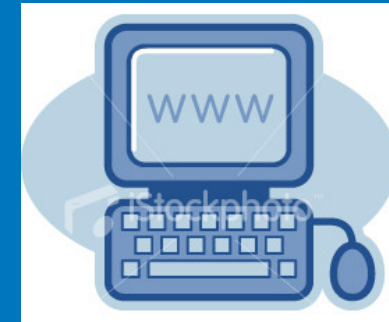


Parent Commitment



Cochlear Implants: Resources to support you

- www.BionicEar.com
- eLearning Courses
- The Listening Room
- Tools For Schools
- On Call Support



**No one option is
right for every child or situation.**



Counseling Families

- When counseling families whose child has just been identified with a hearing loss:
 - It is important to understand basic and current information regarding cochlear implants.
 - Parents should be provided with information regarding cochlear implants regardless of the degree of hearing loss, as candidacy may change.
 - Parents and professionals should understand the changing expectations regarding performance outcomes.

Life is either a daring adventure...or nothing.

Helen Keller

