



**CHILDREN'S
HOSPITAL**

CHILDREN'S HOSPITAL PEDIATRIC COCHLEAR IMPLANT PROGRAM

General Program Objectives

The pediatric cochlear implant program at Children's Hospital in New Orleans has the tools to bring clear, spoken language and enjoyable musical sounds to the deaf child's silent world. A safe, and proven treatment, the cochlear implant transmits sound beyond the damaged portion of the ear, and enables the child to hear. We have a team of experts to provide comprehensive care for any child with profound hearing loss. Our team consists of otolaryngology surgeons, audiologists, speech pathologists, nurses, infectious disease specialists, geneticists, ophthalmologists, and cardiologists. Working together, we make sure each step of the process is executed well and successfully. Our parents are considered essential team members, and partnering with our parents is in the best interest of the children, and a key part of our program.

Cost utility of cochlear implantation has often been questioned due to the high cost of the surgery and postoperative therapy. However, despite the high initial cost, Niparko et al estimated the life time cost savings to be \$50,000-\$100,000 for pediatric cochlear implant patients. Our program has implanted over 150 children and takes care of 195 cochlear implant recipients at this time.

Early intervention yields the best results

The use of universal newborn hearing screening has led to increased early diagnosis of hearing loss in infants worldwide. The ability to diagnose infants earlier has led to the ability to intervene in the children at an earlier age. Studies by Moeller et al and Yoshinaga-Itano have shown that early auditory rehabilitation (prior to 6 months of age) leads to significant gains in vocabulary, speech intelligibility, language abilities, social-emotional development, parental bonding and parental grief.

Patients Who Benefit from a Cochlear Implant

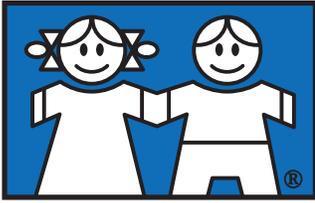
A cochlear implant is a surgically implanted device that helps transmit electrical stimulation to the inner ear to aid hearing. A cochlear implant is an alternative for children with bilateral (in both ears) severe-to-profound sensorineural hearing loss (hearing loss caused by damage to the sensory cells and/or nerve fibers of the inner ear) who do not benefit from conventional hearing aids.

Our team evaluates patients for a cochlear implant based on several criteria, including audiological, medical, developmental, and psychosocial factors. A thorough evaluation to determine if a child is a candidate for cochlear implantation generally requires multiple visits:

- Assessment by a Pediatric Otolaryngologist or Otolologist
- Follow-up and treatment by an Audiologist, including hearing aid trials
- Assessment by a Speech Therapist
- Evaluation by pediatric Ophthalmology
- Evaluation by pediatric Infectious Disease for immunizations
- Evaluation by pediatric Genetics
- Evaluation by Pediatric Cardiology on a case-by-case basis

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We perform between 20 and 25 cochlear implants each year. At any time, the program serves many patients who are at different stages of the cochlear implantation process.

Studies show that early implantation is important for producing optimal results in children with deafness. For example, sensitive hearing is achieved early in the vast majority of these children. However, it is the degree to which restored hearing turns into language that best defines success with a cochlear implant. Speech and language skills develop more readily when a child hears spoken language early in life. From birth through early childhood stages, children's neural pathways develop in a manner that is shaped by their sensory experience. The shorter the period of deprivation of sound, the better the results from cochlear implantation.

After the implant of a cochlear device, the program team continues to support a child and family to help the patient progress successfully in hearing and language development. Post-operative services include:

- Auditory habilitation/rehabilitation
- Language intervention
- Coordination between parents, schools, and the implant center

Rehabilitation maximizes the potential of children who receive cochlear implants

Sensitive hearing is necessary but not sufficient for understanding spoken language and producing speech that is easily understood by others. While the cochlear implant provides access to sound, understanding takes more than just hearing. Rehabilitation provides a structured approach to learning to identify and associate meaning with unfamiliar sounds, thereby allowing spoken language skills to develop.

Families and professionals need to act as a team soon after a diagnosis of deafness in a child.

Children with cochlear implants are more likely to gain sophisticated communication skills when families and professionals collaborate. Our cochlear implant program works in partnership with parents, teachers, therapists, and physicians to facilitate the training into the daily life of the child with a cochlear implant.

Long term strategies/goals

- Continue to provide the most complete/comprehensive care in the Gulf south region
- Generate a network of providers regionally so care can be augmented in the child's local community
- Continue to increase social awareness among communities regarding the long term benefits and outcomes of cochlear implantation and auditory rehabilitation
- Emphasize that children with hearing impairment can have the same choices as their normal hearing counterparts when cared for properly.
- We aim to become the premier cochlear implant and auditory rehabilitation center in the South
- Continue the training of health care professionals (medical students, residents, speech pathology and audiology students) to enable continued high standard care for children with hearing loss.

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