Cochlear Implant Program

Ear Institute at
New York Eye and
Ear Infirmary
of Mount Sinai

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Our Difference

Few hearing centers around the country can marshal the level of expertise and resources of the Cochlear Implant Program run by the Ear Institute at New York Eye and Ear Infirmary. As an academic teaching institution, we surround each individual—adult or child—with an experienced team of otolaryngologists, audiologists, speech-language pathologists, social workers and, in the case of children, an educational consultant. Because of the large volume of cases we handle – many of them referrals from other states and internationally—we've been able to assemble under one roof a team of professionals whose day-to-day focus is evaluating, treating and supporting individuals with cochlear implants. Many of our specialists are also actively involved in research and clinical trials.

We offer cochlear implants from all three of the FDA-approved implant manufacturers. Our knowledgeable professionals sit down with each cochlear implant candidate and their family members to discuss in detail the benefits of the surgery and the device. There are no age restrictions on cochlear implants. They can help infants and toddlers as well as people in their seventies and older to improve their hearing experience and increase their awareness of sounds.

Contact us at: www.nyee.edu/earinstitute

About Hearing Loss

Hearing loss may be unilateral (occurring in only one ear) or it may be bilateral (occurring in both ears). Bilateral hearing loss may be symmetrical (the same in both ears) or asymmetrical (the degree, severity and/or type of the hearing loss may be different in each ear).

There are three types of hearing loss:

Conductive hearing loss results from disorders of the outer and/or middle ear. The mechanism that conducts sound from our environment to the inner ear, where it is processed into an electrical signal, is not working properly.

Sensorineural hearing loss almost always happens when the hair cells within the inner ear are not working properly. Examples include genetic hearing loss that most commonly occurs in new born children and the hearing loss common as we all age.

Mixed hearing loss results from disorders of the outer, middle, and inner ear.

Regardless of the type of hearing loss, hearing is useful only if you can understand what you are hearing. The two key aspects to our ability to communicate are the ability to hear a sound and understand words. The cause of hearing loss will determine whether cochlear implants alone are sufficient or if a combination of a cochlear implant and a hearing aid is needed for optimum hearing experience.

Frequently Asked Questions

What is a cochlear implant?

A cochlear implant is a small electronic device that helps to partially restore hearing to people with severe to profound hearing loss who receive only limited benefit from hearing aids. While cochlear implants do not return hearing to normal levels, the majority of people who receive them are able to hear well enough to understand speech. Most young children will be able to hear well enough to learn spoken language and to be successfully mainstreamed for school and play.

How does a cochlear implant work?

Most people suffer hearing loss because the microscopic hair cells in the inner ear that convert mechanical sound to electrical energy are damaged. The cochlear implant bypasses those damaged hair cells and directly stimulates the nerve endings under the cells that enable you to hear. It accomplishes this feat through two basic components:

- an external part that is similar to a hearing aid that rests behind the ear, and
- an internal part (known as the receiver-stimulator) that is surgically implanted in the bone behind the ear.

The external part contains a battery-powered processor with a microphone that captures sound and turns it into digital code. The processor then converts that digitally-coded sound to electrical impulses which are transmitted to the internal receiver. The receiver in turn sends these signals to electrodes that's been implanted in the snail-shaped cochlea in the inner ear. The electrodes stimulate the cochlea's hearing nerve endings, and send the impulses to the brain where they are interpreted as sound.

Who is a candidate for a cochlear implant?

A cochlear implant is not right for everyone.

Factors include:

- Hearing loss that is not helped with hearing aids
- Severe to profound hearing loss in both ears
- Difficulty understanding speech, even with hearing aids
- Heavy dependence on lip reading, even with hearing aids

What is the process for getting a cochlear implant?

At the Ear Institute, cochlear implant candidates undergo a medical and audiological evaluation.

During a medical exam, one of our otolaryngologists will examine the anatomy of your ear to make sure there is no infection, tumor or other abnormality that would prevent successful cochlear implantation and use. This evaluation may include a CT scan or MRI of the inner ear.

The audiologic exam includes:

- Comprehensive hearing tests with a licensed audiologist to confirm the degree of hearing loss. Once it's determined that hearing aids are not providing sufficient benefit, cochlear implants are discussed.
- Speech-language pathologists' evaluation to assess all aspects of a child's ability to comprehend and formulate verbal communication.
- Educational consultation with the parents of hearing impaired children to explain and help them secure government-funded educational services and placements that are most appropriate for their child.
- Social worker will meet with patients and families of children considering implantation to answer their questions and discuss their concerns.

At the conclusion of these evaluations, members of the cochlear implant team will develop a customized plan to best meet your hearing needs. If a cochlear implant is appropriate, patients and their families will meet with our team to discuss the available devices. Unlike many hearing centers, the Ear Institute offers cochlear implants from all three of the FDA-approved manufacturers.

What does cochlear implant surgery involve?

Cochlear implant surgery is an same-day procedure that usually takes about two hours.

The surgeon makes an incision behind the ear to gain access to the inner ear and inserts a series of tiny electrodes into the cochlea. These electrodes connect to the internal receiver, which is implanted under the skin above the ear.

The overriding goal of our surgeons during this procedure is hearing preservation. Many patients undergoing a cochlear implant surgery may still have residual hearing. By preserving some or all of your residual hearing during surgery, you may be able afterwards to use a hearing aid together with the cochlear implant in the same ear, a technique known as electroacoustic stimulation. This helps to optimize your hearing by allowing the hearing aid to acoustically amplify low frequencies while the cochlear implant electrically stimulates the middle and high frequencies. Another option for some patients is a cochlear implant in one ear and a hearing aid in the other. This is known as bimodal hearing.

What happens after cochlear implant surgery?

About three weeks after surgery you will be seen by your audiologist at the Ear Institute to activate and program the cochlear implant. This means customizing it to your needs based on your auditory perceptions in response to electrical stimuli.

Just as important as the surgery is the care that's provided in the months and years that follow. That's why the relationship you form with your audiologist is so important. You will continue to see that professional at regular intervals to reprogram your cochlear implant and ensure maximum performance. In cases of children who have received cochlear implants, they also benefit from ongoing speech therapy.

At the Ear Institute, we take great pride in the long-term relationships our dedicated specialists have built with patients and their families – relationships based on the confidence and trust they have in us.

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