

EAR, NOSE AND THROAT ASSOCIATES OF CHESTER COUNTY

Alexander C. Keszeli, D.O. **Alfred J. Mauriello, II, M.D.**
Michael A. Picariello, M.D. **Joseph L. Smith, II, M.D.**
Daniella D. Benson, PA-C
Nicole A. Walstein, PA-C

COCHLEAR IMPLANTATION

Cochlear implantation is a surgical procedure in which an electrode array is threaded into the cochlea or spiral organ of the inner ear through a surgical procedure. This can be a life-changing event for many patients who have profound hearing loss that cannot be effectively managed with traditional amplification (hearing aids). As a result of the surgery, most implant users are able to understand spoken speech in the everyday world. Some patients are even able to enjoy music or hold conversations on the telephone.

It is important to understand that the implant does not restore normal hearing. Many patients describe the sound as mechanical. However with time and practice, the brain adapts to the new "sound." Thereafter speech signals and noise in the environment begin to sound more natural.

The ideal candidates for cochlear implantation are adults and children with profound hearing loss as well as young children whose hearing loss is identified very early in life. People with prior hearing experience adjust very well; they often quickly learn to hear with a cochlear implant. They report significant satisfaction and improved quality of life. Deaf children implanted before the age of 5 also do very well. With time and rehabilitation, they develop very good speech understanding as well as speech production skills. The majority of these children are able to attend mainstream schools. Children who are implanted before the age of 2 seem to do better than those implanted between 2 and 5 years old.

Cochlear implantation surgery is performed under general anesthesia and takes approximately two hours. An incision is made behind the ear. With the aid of an operating microscope, the surgeon drills away a portion of the mastoid bone (the hard skull bone behind the ear) to gain access to the inner ear. A small opening is created into the cochlea (spiral organ of hearing of the inner ear). The electrode array is then threaded into the cochlea and its outer end is attached to the bone of the skull. The incision is closed and the head bandaged. Most patients go home the morning after surgery. Patients return the following week for suture removal.

For one (1) week prior to surgery, you should not take any aspirin or aspirin containing drugs, nor any ibuprofen or ibuprofen containing drugs. Examples of these include Advil (Motrin), Naprosyn (Naproxen), or Fiorinal. Also, supplements which should be avoided include Vitamin E capsules, omega 3 (fish oil), or glucosamine chondroitin. If you are required to be on any of these medications, discuss this matter directly with your ENTACC provider before stopping. If you are on Coumadin (Warfarin), Aspirin, or Plavix, please discuss with the prescribing physician about how to adjust this medication prior to your surgical procedure.

At approximately one month following the surgery, the patient begins to use the sound processor. This is "hooked-up" and programming is performed by the audiologist. The initial program may take upwards of a few hours. During this visit, the audiologist and patient design a "MAP." This MAP is the set of parameters of electrode stimulation that give the patient the best hearing. In the next few months, there are a series of visits to the audiologist to test and adjust the signal levels for the electrodes in the array.

These settings can be updated at each visit over a period of weeks or months, as the patient becomes more comfortable with experiencing sound. At first, sounds may be quite different than those remembered prior to the hearing loss. Environmental sounds are usually the first to be identified or relearned. With training and experience, the patient's perception of speech improves. This can be a very gratifying surgical procedure for patients who are candidates for this procedure.