



OSU ADULT COCHLEAR IMPLANT GUIDE



THE OHIO STATE UNIVERSITY
WEXNER MEDICAL CENTER

TABLE OF CONTENTS

CONTACT & CLINIC INFORMATION

- ◆ Welcome Letter Page 2
- ◆ Adult Cochlear Implant Team Reference Page 3
- ◆ Clinic Contact Information Page 4
- ◆ Driving Directions Page 5-10
- ◆ Parking Information Page 9

GETTING STARTED

- ◆ What to Bring Page 11
- ◆ Evaluation Process Page 12
- ◆ The Audiogram Page 13

ALL ABOUT SURGERY

- ◆ Pre-surgery Information Page 14-15
- ◆ Day of Surgery Page 16
- ◆ Risks with Surgery Page 17

AFTER SURGERY

- ◆ Post-Surgery Information Page 18-19
- ◆ Warnings with a Cochlear Implant Page 20
- ◆ Personal Record of Cochlear Implant Information Page 21
- ◆ What to Expect at Initial Activation Page 22-23
- ◆ Routine Follow-up Appointments Page 24

FUTURE REFERENCE

- ◆ What to Do if Your Equipment Breaks Page 25-26
- ◆ Bilateral Cochlear Implantation Page 27
- ◆ Tips for Traveling with a Cochlear Implant Page 28-29
- ◆ Cochlear Implant Companies Page 30
- ◆ Device Warranty Information Page 31

MENINGITIS VACCINATION

- ◆ Meningitis Vaccination Information Page 32

AURAL REHABILITATION

- ◆ Aural Rehabilitation Page 33-34

WELCOME TO OHIO STATE

WELCOME TO OSU!

Welcome to the adult cochlear implant program at OSU! This guide should help you navigate the cochlear implant process. Cochlear implantation involves a thorough hearing evaluation with and without hearing aids, surgical implantation of an appropriate choice of device if you are a candidate, and routine clinical follow-up for fine-tuning of the device. Despite the complexity of the process, the use of cochlear implants is one of the most effective implantable technologies used by patients today. Our goal is to provide you with complete information on this approach and further help you make the best decision regarding your hearing health.

The OSU adult cochlear implant program has been assisting patients with hearing loss in Ohio since the early days of cochlear implantation, a period of greater than 25 years. The goals of our program are to provide the most outstanding and comprehensive patient care, while advancing the field of cochlear implantation through research and innovation. We have special expertise in the management of residual hearing, combined electric acoustic stimulation, and postoperative rehabilitation.

To achieve these goals, a team approach is essential. Our expert team includes audiologists (the clinical doctors who test your hearing and subsequently program the device after implantation), ear surgeons (who perform the cochlear implant surgery), and our cochlear implant program coordinator (who assists in the overall process). Most importantly, you and your family play vital roles in determining your overall success with the cochlear implant. Receiving a cochlear implant is an early step on the road to hearing and communicating better. **Success with a cochlear implant requires dedication on your part!** This dedication involves your routine use of the cochlear implant, your willingness to engage in listening opportunities, and an overall commitment to return for follow-up appointments. With your active participation and our clinical skills and knowledge, we feel confident we can help you achieve a truly successful outcome with your cochlear implant.

Thank you for choosing OSU to help you through this journey to better hearing. We look forward to working closely with you!

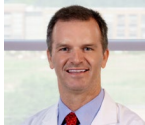
ADULT COCHLEAR IMPLANT TEAM

PHYSICIANS



Oliver Adunka, MD, FACS

Professor & Director, Division of Otolaryngology/Neurotology and Cranial Base Surgery



Ed Dodson, MD

Associate Professor, Division of Otolaryngology/Neurotology and Cranial Base Surgery



Jameson Mattingly, MD

Assistant Professor, Division of Otolaryngology/Neurotology and Cranial Base Surgery



Aaron Moberly, MD

Assistant Professor, Division of Otolaryngology/Neurotology and Cranial Base Surgery

CLINICAL AUDIOLOGISTS

OSU EYE & EAR INSTITUTE

Brenda Hall, AuD

Debby LaPrete, AuD

Meghan Hiss, AuD

Melissa Schnitzspahn, AuD

Lauren Johnson, AuD

Kara Vasil, AuD

DUBLIN

Brenda Hall, AuD

GAHANNA

Laura Feeney, AuD

Lauren Johnson, AuD

CLINIC INFORMATION

OSU EYE & EAR INSTITUTE

915 Olentangy River Road, 4TH floor

Columbus, OH 43212

Audiology Appointments: (614) 366-2040

Audiology Fax: (614) 293-6179

DUBLIN

555 Metro Place North

Suite 475

Dublin, OH 43017

Audiology Appointments: (614) 366-2040

Audiology Fax: (614) 293-6179

GAHANNA

5175 Morse Road

Gahanna, OH 43230

Audiology Appointments: (614) 366-2040

Audiology Fax: (614) 293-6179

DIRECTIONS

EYE & EAR INSTITUTE

From the North (Sandusky, Delaware and Cleveland)

Take any major highway to I-270.
Take I-270 West toward Dayton.
Merge onto 315 South toward Columbus.
Take the Goodale Street/Grandview Heights exit.
Turn right onto Olentangy River Road.
The Eye and Ear Institute will be on your left.

From the South (Circleville, Chillicothe and Cincinnati)

Take any major highway to I-71.
Take I-71 to SR 315 North.
Take Goodale Street/Grandview Heights exit.
Turn right onto W. Goodale Street.
Turn right onto Olentangy River Road.
The Eye and Ear Institute will be on your left.

From the East (Newark, Zanesville and Pittsburgh)

Take any major highway to I-70.
Take I-70 West to SR 315 North.
Take the Goodale Street/Grandview Heights exit.
Turn right onto W. Goodale Street.
Turn right onto Olentangy River Road.
The Eye and Ear Institute will be on your left.

From the West (Springfield, Dayton and Indianapolis)

Take any major highway to I-70.
Take I-70 East to I-670 East.
Take I-670 East to SR 315 North.
Take the Goodale Street/Grandview Heights exit.
Turn right onto W. Goodale Street
Turn right onto Olentangy River Road.
The Eye and Ear Institute will be on your left

DIRECTIONS

DUBLIN

From the North (Sandusky, Delaware and Cleveland)

Take any major highway to I-270 West
Take I-270 to OH- 161E/US 33 East exit toward Dublin.
Turn right onto Frantz Rd.
Turn right onto Metro Place North.
Building is on the left.

From the South (Circleville, Chillicothe and Cincinnati)

Take I-270 West to the SR 161E/US 33 E exit toward Dublin.
Take I-270 to OH- 161E/US 33 East exit toward Dublin.
Turn right onto Frantz Rd.
Turn right onto Metro Place North.
Building is on the left.

From the East (Newark, Zanesville and Pittsburgh)

Take I-70 West to I-270 North
Take I-270 to OH- 161E/US 33 East exit toward Dublin.
Turn right onto Frantz Rd.
Turn right onto Metro Place North.
Building is on the left.

From the West (Springfield, Dayton and Indianapolis)

Take I-70 East to I-270 North
Take I-270 to OH- 161E/US 33 East exit toward Dublin.
Turn right onto Frantz Rd.
Turn right onto Metro Place North.
Building is on the left.

DIRECTIONS

GAHANNA

From the North (Sandusky, Delaware and Cleveland)

Take any major highway to I-270.
Take I-270 East toward Wheeling.
Take the Morse Road exit.
Turn left onto Morse Road.
Travel 2.4 miles on Morse Road.
OSU Ear, Nose & Throat Surgeons will be on your right.

From the South (Circleville, Chillicothe and Cincinnati)

Take any major highway to I-270.
Take I-270 East toward Wheeling.
Take the Morse Road exit.
Turn right onto Morse Road going East.
Travel 2.4 miles on Morse Road.
OSU Ear, Nose & Throat Surgeons will be on your right.

From the East (Newark, Zanesville and Pittsburgh)

Take any major highway to I-70.
Take I-70 East to I-270 North toward Cleveland.
Take the Morse Road exit.
Turn right onto Morse Road going East.
Travel 2.4 miles on Morse Road.
OSU Ear, Nose & Throat Surgeons will be on your right.

From the West (Springfield, Dayton and Indianapolis)

Take any major highway to I-70.
Take I-70 East toward Columbus.
Take I-670 East toward Airport.
Take I-270 North towards Cleveland.
Take the Morse Road exit.
Turn right onto Morse Road going East.
Travel 2.4 miles on Morse Road.
OSU Ear, Nose & Throat Surgeons will be on your right.

DIRECTIONS

OSU WEXNER MEDICAL CENTER

**410 W. 10th Avenue
Columbus, OH 43210
614-293-8000
wexnermedical.osu.edu**

From the North (Sandusky, Delaware and Cleveland)

Take any major highway to I-270
Take I-270 to SR 315 South
Take SR 315 South to the King/Kinnear Exit
Turn left onto Kinnear Rd (Kinnear turns into Olentangy River Rd.)
Take Olentangy River Road to King Avenue (third traffic light)
Turn left onto King Avenue
Take King Avenue to Cannon Drive
Turn left onto Cannon Drive

From the South (Circleville, Chillicothe and Cincinnati)

Take any major highway to I-71 North
Take I-71 North to SR 315 North
Take SR 315 North to the Medical Center Drive/King Avenue Exit.
See "Parking Directions-Continued from SR 315 North"

From the East (Newark, Zanesville and Pittsburgh)

Take any major highway to I-70 West
Take I-70 West to SR 315 North
Take SR 315 North to the Medical Center Drive/King Avenue Exit
See "Parking Directions-Continued from SR 315 North"

From the West (Springfield, Dayton and Indianapolis)

Take any major highway to I-70 East
Take I-70 East to SR 315 North
Take SR 315 North to the Medical Center Drive/King Avenue Exit.
See "Parking Directions-Continued from SR 315 North"
OSU Wexner Medical Center

DIRECTIONS

OSU WEXNER MEDICAL CENTER PARKING

PATIENT VALET

Continued from SR 315, take Medical Center Drive past the intersection of Medical Center Drive and 9th Avenue. Continue to go straight on Medical Center Drive to the front of University Hospital (Rhodes Hall) and Ross Heart Hospital. Pull into Patient Valet on your right.

SAFEAUTO Hospitals Garage

Continued from SR 315, take Medical Center Drive to Westpark Street. The SAFEAUTO Hospitals Garage is located on your left and is connected to the Medical Center with a walkway bridge on the 2nd floor.
1585 Westpark Street Columbus, OH 43210

EYE & EAR INSTITUTE

Surface lot parking is available at no charge in front of building.

DUBLIN

Surface lot parking is available at no charge.

GAHANNA

Surface lot parking is available at no charge.

DIRECTIONS

OSU OUTPATIENT SURGERY CENTER (OSC)

From the North (Sandusky, Delaware and Cleveland)

Take any major highway to I-270.
Take I-270 West toward Dayton.
Merge onto 315 South toward Columbus.
Take the Goodale Street/Grandview Heights exit.
Turn right onto Olentangy River Road.
The Eye and Ear Institute will be on your left.

From the South (Circleville, Chillicothe and Cincinnati)

Take any major highway to I-71.
Take I-71 to SR 315 North.
Take Goodale Street/Grandview Heights exit.
Turn right onto W. Goodale Street.
Turn right onto Olentangy River Road.
The Eye and Ear Institute will be on your left.

From the East (Newark, Zanesville and Pittsburgh)

Take any major highway to I-70.
Take I-70 West to SR 315 North.
Take the Goodale Street/Grandview Heights exit.
Turn right onto W. Goodale Street.
Turn right onto Olentangy River Road.
The Eye and Ear Institute will be on your left.

From the West (Springfield, Dayton and Indianapolis)

Take any major highway to I-70.
Take I-70 East to I-670 East.
Take I-670 East to SR 315 North.
Take the Goodale Street/Grandview Heights exit.
Turn right onto W. Goodale Street
Turn right onto Olentangy River Road.
The Eye and Ear Institute will be on your left

WHAT TO BRING

EVALUATION

- Current hearing test – if one is available
- Current hearing aids and earmolds
- A family member to help ask questions, help make equipment decisions and remember information

INITIAL STIMULATION

- Your hearing aid for your non-implant ear
- A family member for support and to help you remember information. We will cover a lot of equipment and maintenance information that day.

FOLLOW UP VISITS

- Your remote control/s
- Your second complete processor – We will program it with the new information as a back-up.
- Any components of your activation kit that you have questions about

EVALUATION PROCESS

GOAL OF A COCHLEAR IMPLANT EVALUATION

- Decide if getting a cochlear implant is a good option for you
- Review test results
- Provide recommendations based on results
- Provide information about cochlear implant technology
- Answer questions

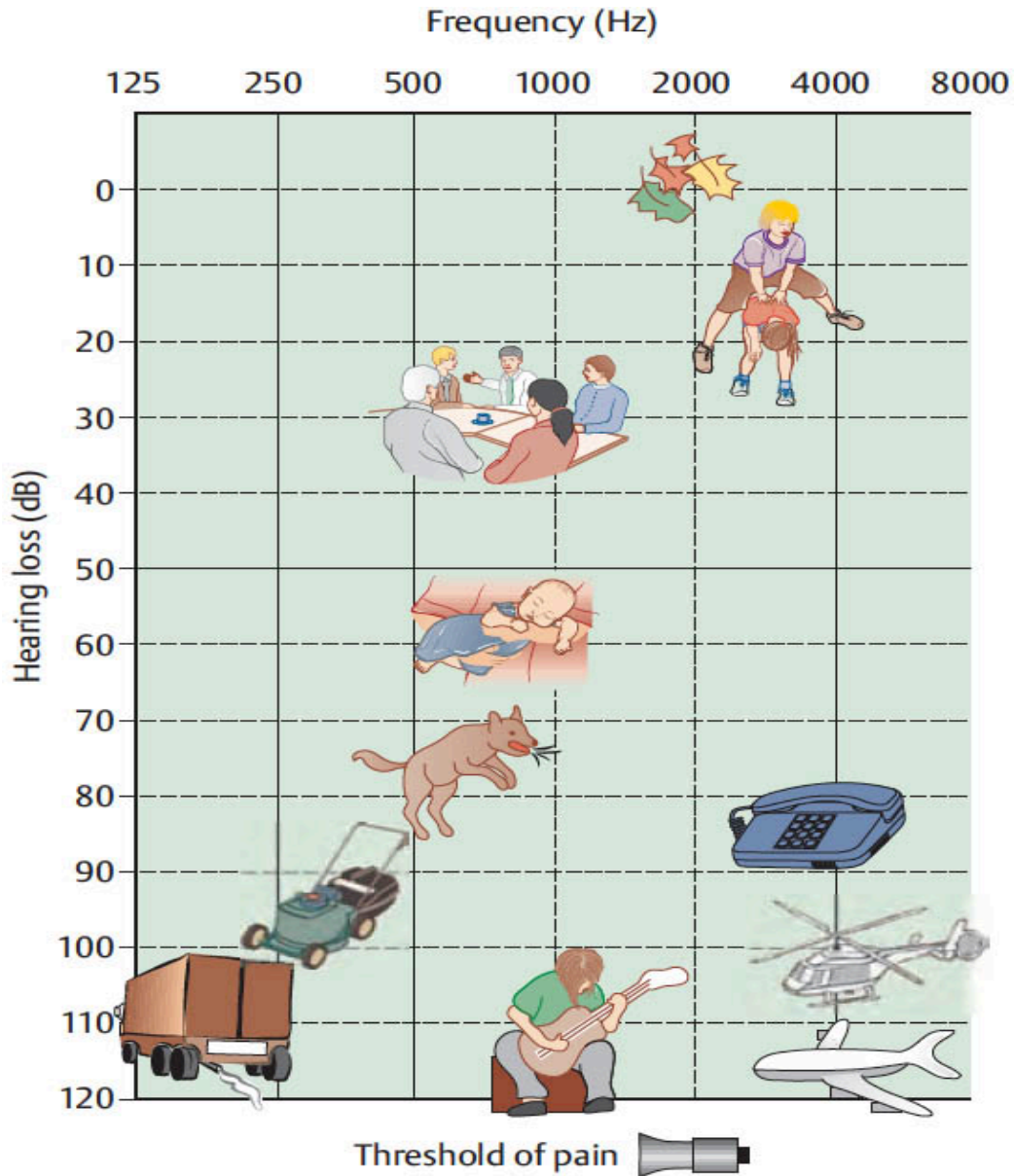
THE EVALUATION PROCESS

- **Hearing Test**
 - Audiologist (hearing specialist) will go over your hearing history
 - Test your hearing and speech understanding without hearing aids if you have not had a recent hearing test
 - Test your hearing and speech understanding with hearing aids
- **Medical Check**
 - An Otologist (ear surgeon) will review your medications and health history
 - A CT scan or MRI will most likely be done to look at the inside of your ear
 - The physician will talk about surgery and surgical risks
 - If you decide to proceed; clearance for surgery may be needed from other specialists

WHO IS A COCHLEAR IMPLANT CANDIDATE

- Substantial sensorineural hearing loss (sensorineural; when there is damage to the inner ear to the nerve pathways from the inner ear to the brain) in both ears
- Little or no benefit with hearing aids
- Clear understanding of cochlear implantation and typical results
- Commitment to the rehabilitation process and follow-up appointments

THE AUDIOGRAM



An audiogram is a graph which shows the levels you can hear. The tones that you listen for during a hearing test range from low-pitch to high-pitch. The loudness of the sound is measured in decibels (dB). The pitch or frequency of the sound is referred to in Hertz (Hz). The graph shows how your hearing differs from normal hearing and the degree of hearing loss that you have in each ear.

PRE-SURGERY

SCHEDULING

- Your physician's assistant will set up these visits for you:
 - Pre-op with ENT physician
 - Surgery
 - Post-op with ENT physician
- Your physician's assistant will set up your "initial activation" and follow-up appointments for the first year. This is when you get the external sound processor and start to hear sound with the implant.
 - The audiology appointments will be set up before surgery
 - The "initial activation" is normally scheduled for three to four weeks after surgery
 - You may wear your hearing aid in the opposite ear
- Please make sure your phone number, email and mailing address are correct in the hospital system. Hospital staff may need to contact you.

PRE-OP

- Pre-surgical clearance (if needed)
 - Your physician will determine if you need to be evaluated by anesthesiology or your primary care physician to make sure you are in optimal medical condition for surgery.
 - This may include blood work, Electro-cardiogram (EKG) and chest x-ray (CXR)
 - Results are reviewed before surgery
- You may have visits with other physicians. This will be needed if you have a medical problem that may be complicated by being put to sleep for surgery.

PRE-SURGERY INFORMATION

- The OR will call the day before your surgery.
 - If your surgery is on a Monday, they will normally call on the Friday before.
- They will tell you what time you should come for surgery.
 - The call will not be before 3:00 pm.
- Adult cochlear implant surgeries are performed in the **Outpatient Surgery Center (OSC)** on the 1st floor of the Eye & Ear Institute, or the **Main Operating Room** at OSU Wexner Medical Center.
- Tell us if you are sick or have a fever within 3 days of surgery.
 - You can reach the ENT clinic at (614) 366-3687.
- **Do not take aspirin (or medicines that have aspirin) within 2 weeks before your surgery day.**
- **Do not eat after midnight before your surgery.**
- **You may drink small amounts of clear liquids up to 2 hours before your arrival time.**

DAY OF SURGERY

- Report to your surgery location.
- You will be taken to the pre-op area.
- Your family will be taken to a waiting area.
- The outpatient surgery will last about 2-3 hours.
- The physician will talk to your family after the surgery.
- After you wake up, you will be taken to the recovery area.
- Your family will be able to come to your bedside.
- The nurse will be watching you as you continue to wake up.
 - Checking your vital signs, level of consciousness, bandage.
- Recovery times can vary.
- Some patients may require an overnight hospital stay.
- You will leave with a bandage/dressing over your ear.
 - The nurse will give you instructions on how to care for your ear at home

RISKS WITH SURGERY

RISKS WITH COCHLEAR IMPLANT SURGERY

- Loss of natural (or residual) hearing in implanted ear
- Facial nerve stimulation / involuntary facial twitching
- Swelling, (Inflammation) / Pushing or thrusting out (Extrusion)
- Soreness, redness, breakdown of skin in the area around the device
- Failure of implanted device
- Greater chance for infection in the fluid around the brain and spinal cord (known as meningitis)
- **PLEASE FIND FULL INFORMATION REGARDING MENINGITIS VACCINATION ON LAST PAGES OF THE CI GUIDE**

RISKS WITH ANY EAR SURGERY

- Numbness / tenderness around the ear
- Neck pain
- Injury to the facial nerve
- Taste change (dry mouth or a metal taste in the mouth)
- Leak of inner ear fluid (Perilymph) or fluid that surrounds the brain (Cerebrospinal)
- Dizziness / Vertigo
- Ringing in the ears (Tinnitus)
- Local complications such as blood, fluid or infection at or near the surgery site
- Rashes (skin reactions)

GENERAL RISKS

- Post-surgery pain, scarring, bleeding and infection
- Risks associated with being put to sleep (problems with the heart, lungs, kidneys, liver and brain due to general anesthesia)

POST OPERATIVE INSTRUCTIONS

LEAVING THE HOSPITAL

- You will receive a prescription for pain medicine and sometimes an anti-nausea/dizziness medicine. You will not routinely receive a prescription for antibiotics.
- The bandage will be removed the day following surgery. If an overnight stay is needed, this may be done before you leave the hospital.

HOME CARE – THE FIRST FEW DAYS

- The auricle (outer ear) can be wiped gently with a soft cloth or cotton swabs to remove dried blood, but if the ear is tender this is not necessary.
- You may wash your hair 2 days after surgery.
- The incision behind your ear should be cleaned gently with peroxide once or twice daily until no crusting is noted. A thin layer of antibiotic ointment (Neosporin, Polysporin, Bacitracin, etc.) is helpful for the first few weeks.
- Do not bend over for 1 week after surgery. If you must bend, bend from the knees, not head-first from the hips. This will prevent pressure build-up in the head.
- Do not blow your nose for 2 weeks after surgery. Sniffing is okay. This is particularly important should you develop a cold. After 2 weeks you may blow your nose gently, one side at a time.
- Sneeze or cough with your mouth open during the first week following surgery.
- You may fly 3 days following surgery. Whenever you fly, take an over-the-counter decongestant 30 minutes before take-off. Before the airplane begins to descend, spray your nose with Neosynephrine or Afrin nasal spray. Use this procedure whenever you fly in the future. You may use the same treatment when traveling by car in a mountainous region.
- No vigorous physical activity, including sports, until seen for your post-op visit. With the exception of these restrictions, you may return to work or school as overall condition permits.
- After 3 week you may resume all activities, including sports and physical exercise while adhering to the restrictions recommended by the implant manufacturer.
- You may hear a variety of noises in your ear such as cracking or popping. This is part of the normal hearing process.
- Dizziness or lightheadedness is normal for up to one week after surgery.
- Tinnitus (ringing in the ear) is also noted by some patients.

HOME CARE – AFTER THE FIRST FEW DAYS

- Pain should begin to subside. You may continue taking Tylenol or Ibuprofen for relief of mild pain.
- It is normal for the top ½ of the ear to feel numb and this will take several months to return to normal.
- There may be a change in taste (usually described as metallic) on one side of the tongue and this usually improves within several months.

FIRST FOLLOW-UP APPOINTMENT

- Call the office for a follow-up appointment at the time recommended by your physician.
- Don't be anxious about the first appointment. Your physician will check the incision and check the ear canal for infection.

CALL OFFICE IF:

- Increased pain not relieved by prescription medications.
- Large amounts of bleeding from the ear area.
- Pus/foul smelling drainage from the ear.
- Redness in the ear area.
- Temperature over 100° on 2 consecutive readings.
- Severe dizziness.

IMPORTANT PHONE NUMBERS

- 614.366.3931 Dr. Adunka's office – Laura (follow-up appointments)
- 614.366.7181 Drs. Dodson and Mattingly – Mollie (follow-up appointments)
- 614.293.6926 Dr. Moberly's office – Maigen (follow-up appointments)
- 614.366.3687 Hospital Operator (after hours questions, ask for ENT resident on call)

WARNINGS WITH A COCHLEAR IMPLANT

- Be careful when playing sports and in certain activities (contact sports, bicycling, and rollerblading) without a helmet
- Try not to hit head during activity (football, soccer, etc.)
- Wear a helmet for sports like riding a bicycle
- If the inside piece is not working, then you may need another surgery. This is called a “revision surgery”.
- The US Food and Drug Administration (FDA) does not allow or limits certain imaging (MRI – Magnetic Resonance Imaging) with a cochlear implant. This differs between manufacturers. Please check with your physician or audiologist.
- The use of high-frequency electric current to cut tissue during surgery (Electrosurgery) and electroshock therapy can permanently hurt the device.
- Electrically induced heat (Diathermy) or spinal cord stimulation (Neurostimulation) cannot be used over the implant. This can hurt the tissue and the inside piece.
- A treatment for some types of cancer (Ionizing radiation) will hurt the inside piece.
- **If you have a medical problem or questions, please contact your cochlear implant physician.**

COCHLEAR IMPLANT INFORMATION

Date Implanted: _____

CI Company: _____

Ear Implanted: _____

Processor Type: _____

Speech Processor

Serial Numbers: _____

Warranty Ends: _____

Initial Stimulation: _____

Magnet Strength: _____

Physician: _____

Secretary: _____

Contact Number: _____

Audiologist: _____

Contact Number: _____

Contact Email: _____

WHAT TO EXPECT AT “INITIAL ACTIVATION”

You can keep using your hearing aid in the other ear until you come to your “initial activation” visit. This is when you get the outside part of your implant and start to hear sound.

About 3 to 4 weeks after surgery, you will be fit with the outside part of the cochlear implant. This time allows your ear to heal. The main outside piece is called the speech processor. It has to be “mapped” or programmed for you to hear sound through the cochlear implant. During the first six months of hearing with your implant, reprogramming or remapping is done about five times. As your hearing and understanding with the cochlear implant gets better, less reprogramming visits are needed.

To begin, the speech processor is put behind your ear. The outside magnet (Coil) is put on your head. The outside magnet and the inside magnet connect to each other. The coil is connected to the speech processor by a transmitting cable.

Next, the programming or “mapping” of the speech processor begins. The speech processor is connected to the audiologist’s computer. Individual electrodes of the implant are stimulated. You will hear a series of “beeps”. You will hear different pitches or tones. The audiologist will measure your response to these sounds. We will determine the levels that are loud but comfortable. We may also measure sounds that are very soft.

After measuring these sounds, the speech processor microphone is turned on. This will let you hear sounds that are around you, including speech. The volume will be turned up slowly. Hearing speech through your cochlear implant may sound unnatural at first. The sound you hear on the first day of listening is different for every patient. For some, speech may sound like “beeps”. For others, speech may sound like a voice. Typically if it sounds like a voice, it is not a normal voice. Patients often describe speech as sounding “mechanical”, “cartoonish”, “Mickey Mouse”, “Donald Duck”. The quality of sound will get better with time and practice.

Finally, your “map” is saved to the speech processor. We will counsel on how to use, troubleshoot, care for and maintain your outside equipment.

With each day, with each week, you will hear and make out more sounds as you listen. Learning to listen again and understand what you are hearing takes time and practice. Be patient. Your family and friends should speak to you normally. They do not need to raise their voices. Having others read books, magazines, and newspapers aloud are good ways to practice listening. Listening to audio books while you follow along in reading is a good way to practice on your own. Please ask your audiologist for other ways or ideas that you can learn and practice at home.

COCHLEAR IMPLANT FOLLOW UP APPOINTMENTS

You will learn and adjust with the cochlear implant more quickly in the beginning. For this reason, several mapping changes are needed in the first year.

We will see you for multiple follow-up testing and mapping sessions in the first year.

- 2 weeks after initial activation
- 1 month after initial activation
- 3 months after initial activation
- 6 months after initial activation
- 12 months after initial activation

After one year, patients are normally seen once a year. These yearly visits are important. We want to make sure you continue to do well with your cochlear implant.

WHAT TO DO IF YOUR EQUIPMENT BREAKS

At some point your outside equipment may stop working. When this happens, your equipment may need to be repaired or replaced. Please keep in mind that you should have back up equipment that you can use. You received this backup equipment at your initial activation. It should be in your kit. Hopefully you will never have to be “off the air”.

Please take the follow steps:

- 1) Pull out your user manual. Look over the troubleshooting section.
- 2) Visit your cochlear implant company’s website. They have troubleshooting tips, guides and/or videos.
- 3) If you cannot fix the problem yourself, call or email your cochlear implant company. They can help you troubleshoot the problem and work out what parts need to be replaced. All companies have audiologists who can respond quickly.

**We ask that you call your company first before calling the clinic. This will likely save you time and help in getting you back to hearing more quickly.

ADVANCED BIONICS (MONDAY - FRIDAY, 8AM – 8 PM EST)

PHONE: 1-877-829-0026

EMAIL: CUSTOMERSERVICE@ADVANCEDBIONICS.COM

ONLINE TROUBLESHOOTING:

[HTTP://WWW.ADVANCEDBIONICS.COM/COM/EN/SUPPORT/TROUBLESHOOTINGGUIDES.HTML](http://WWW.ADVANCEDBIONICS.COM/COM/EN/SUPPORT/TROUBLESHOOTINGGUIDES.HTML)

COCHLEAR AMERICAS (MONDAY – FRIDAY, 8AM -8PM & SATURDAY 10AM – 2 PM EST)

PHONE: 1-800-483-3123

EMAIL: CUSTOMER@COCHLEAR.COM

ONLINE TROUBLESHOOTING:

[HTTP://WWW.COCHLEAR.COM/WPS/WCM/CONNECT/US/RECIPIENTS/NUCLEUS-6/NUCLEUS-6-SUPPORT-AND-COMMUNITY/SELF-SUPPORT](http://WWW.COCHLEAR.COM/WPS/WCM/CONNECT/US/RECIPIENTS/NUCLEUS-6/NUCLEUS-6-SUPPORT-AND-COMMUNITY/SELF-SUPPORT)

MED-EL CORPORATION

PHONE: 1-888-633-3524

EMAIL: CUSTOMERSERVICE.US@MEDEL.COM

ONLINETROUBLESHOOTING:

[HTTP://WWW.MEDEL.COM/US/USER-SUPPORT-TROUBLESHOOTING/?TITEL=TROUBLESHOTING-GUIDE&](http://WWW.MEDEL.COM/US/USER-SUPPORT-TROUBLESHOOTING/?TITEL=TROUBLESHOTING-GUIDE&)

Call the clinic at (614) 366-3687 if you are still having a problem. Ask for a cochlear implant audiologist. If we are not available, please leave a message. Tell us what is happening and which parts (and serial numbers) you are having problems with. We will contact you as soon as possible.

IN WARRANTY REPAIRS

The company can send replacement parts to your home. If your equipment is in warranty, there should be no cost to repair/replace external parts (does not apply to accessories). These parts are normally shipped via Fed-Ex. **DO NOT** throw the bad parts away. The company will want the bad parts back. Your replacement equipment will come with a pre-paid, pre-addressed Fed-Ex label. Use this label to ship the broken parts back to the company.

OUT OF WARRANTY REPAIRS

If your equipment is out of warranty, there will most likely be a cost to you to replace or repair parts. In some cases, insurance plans may cover some of this cost. Requests normally have to be approved through insurance first. This means the process of repairing or replacing equipment may take longer.

If you have *Medicare*:

- Contact the company to figure out what parts need to be replaced. You can order these parts from the company.
- The company should contact you when insurance approval has been received. They will let you know if and how much money you owe.
- Medicare normally covers 80% of the cost of a repair or replacement.
- Parts can normally be shipped to your home. Again, you will need to ship the broken equipment back to the company.
- If you have Medicare or Medicaid, you do not need to extend your warranty.

If you have *Private Insurance*:

- The company **may** be able to ask for approval from your insurance provider, but you may have to pay up front. If your insurance approves, you may get repaid from the insurance provider.
- All three companies offer extended warranties. The price of these “service contracts” varies. Your insurance will not cover the cost of the extended warranty. It is in your best interest to buy an extended warranty when the original warranty ends. Please contact your cochlear implant company for more information.

BILATERAL COCHLEAR IMPLANTATION

Views on having a cochlear implant in both ears (bilateral cochlear implantation) have changed in recent years. It is more common to implant both ears. If a patient has limited benefit from a hearing aid in the other ear, we may talk about the option of a second cochlear implant. If a patient still has usable hearing in the other ear, we may recommend a hearing aid in this ear along with the cochlear implant. This decision is unique to each patient.

Research shows that two ears are better than one. In order for a patient to do his/her best, bilateral cochlear implantation may be recommended.

There are several benefits of having two cochlear implants:

- Better speech understanding in noise
- Being able to know where sounds come from (localization)
- Never being without sound. If the internal or external parts from one cochlear implant side need repair or replacement, patient can still hear with the other side.

Many insurance providers support bilateral cochlear implantation.

Determining candidacy for bilateral cochlear implantation would be made by the CI team – CI audiologist, surgeon, and patient/family. Certain criteria must be met in order to be considered a candidate for a second side implant.

- Successful and consistent use of the first device
- Active participation in follow-up care
- No physical contraindications for placement of the implant (any medical reason for not getting implant, ie.- CT scan results)
- Medically cleared for surgery
- Realistic expectations and commitment to follow-up appointments

TIPS FOR TRAVELING

- Take extra parts (like a back-up speech processor, battery pack, coil and cables) with you in case of emergency.
- Take plenty of batteries (disposable or rechargeable). If you use rechargeable, do not forget your battery charger (and adapter if needed).
- Remember to take your drying jar or Dry & Store box with you so you can put your processor in it overnight. This is important if you will be somewhere with high humidity.

Will anything happen to my cochlear implant when I walk through airport security?

Not normally. You should leave your speech processor on so you can hear what is going on around you. If your processor is set on the telecoil "T" setting, you may hear some buzzing. This is normal.

If the metal detector alarm goes off, what should I do?

Metal detectors and scanners will not hurt the inside piece or outside speech processor. If you pass through the security metal detector, your cochlear implant may set the alarm off. If the alarm goes off, security may use a handheld wand to screen you. The wand will not harm your cochlear implant, but it will beep when it passes over your implant.

Show your patient ID card and explain that you have a hearing implant. Tell them that the speech processor is a hearing device that you must wear in order to hear through the implant.

What should I do with my back-up speech processor when I fly?

Turn your spare speech processor OFF and keep it inside a carry-on bag. Place the bag onto the conveyer belt at airport security. Never place your processor right onto a conveyer belt. Static electricity may build up and harm your MAP or program. The x-ray machine should not affect your MAP if the processor is turned off.

Note: A low level x-ray is used to screen carry-on luggage. The x-ray will not harm your processor or the MAP. Never put your spare processor into a checked bag as this could expose it to damaging x-rays.

Will my implant send signals that can interfere with the plane's navigational instruments?

Your implant cannot get in the way of the plane's systems. Your implant sends out radio frequency (RF) signals. They are very short range (less than five feet from the outside coil). Your remote assistant or Fine Tuner (if applicable) does send out high frequency radio waves and should be turned off during take-off and landing. If your remote does not have an "off" switch, do not use it.

Like other electronic devices, should I turn off my speech processor during take-off and landing?

No. Cochlear implant patients DO NOT have to turn off their speech processors when instructions are given to turn off cell phones, music players, or anything with an on/off switch. The FAA views a cochlear implant in the Hearing Aid category. If you have a remote control for your speech processor, this should be turned off or not used during this time.

How can I listen to the in-flight music or watch a movie?

You can plug your speech processor into the plane's audio system. You will need to use your audio cable accessory. (See your user manual on how to connect the Audio Adaptor Cable to your speech processor).

Further questions regarding the TSA's guidelines for airport screening and how it relates to your hearing loss and cochlear implant, may be found at:

<http://www.tsa.gov/traveler-information/travelers-disabilities-and-medical-conditions>

Resource: <http://www.cochlear.com/wps/wcm/connect/us/recipients/recipient-support/nucleus-5/living-with-your-device/traveling-tips>

COCHLEAR IMPLANT COMPANIES



Advanced Bionics Corporation

28515 Westinghouse Place

Valencia, CA 91355

<http://www.advancedbionics.com/us/>

1.877.829.0026



Cochlear®

Cochlear Corporation

13059 E. Peakview Avenue

Centennial, CO 80111

www.cochlearamericas.com

1.800.483.3123

MED⁹EL

MED-EL Corporation

2511 Old Cornwallis Road, Suite 100

Durham, NC 27713

<http://www.medel.com/us/>

1.888.633.3524

DEVICE WARRANTY INFORMATION

“In warranty” means there is no cost to repair or replace broken parts.

- **Advanced Bionics** offers a **5-year** warranty for the sound processor, headpiece (magnet & cable), T-mic and charger. The rechargeable batteries and accessories are covered for **1 year**.
- **Cochlear Corporation** offers a **5-year** warranty for the sound processor, transmitting cable, coil, and Remote Assistant. The battery holder (for disposable batteries) and the rechargeable batteries are covered for **1 year**.
- **MED-EL** offers a **5-year** warranty for the external sound processor, transmitting cable, coil, battery packs (all types), rechargeable batteries and Fine Tuner.

*****Parts are replaced due to “normal wear and tear” only.*****

The warranty for the outside parts starts the day you get your equipment. A one-time replacement for loss and damage (beyond repair) is offered during this warranty period. You can buy coverage through the company after the initial warranty ends.

The warranty for the internal device starts the day of your surgery. Cochlear implants are man-made medical electronic devices. The internal devices are made to last a long time, but they may not last a lifetime. All three CI companies offer a **10-year** warranty for the inside piece.

MENINGITIS VACCINATION

Dear Cochlear Implant Candidate:

We are writing to tell you about getting a vaccination (shot) for an infection called meningitis. Shots can help protect you from pneumococcal infections. This infection may become meningitis. It is an infection in the fluid around the brain and spinal cord. Meningitis is serious and life threatening.

The Food and Drug Administration, Centers for Disease Control and health departments looked at meningitis rates with children with cochlear implants. They found children with cochlear implants at a higher risk for getting meningitis than those without. We believe this is important for adults as well. It is suggested that adults with cochlear implants get the recommended shots to help reduce their change of getting meningitis.

There are two types of meningitis: viral and bacterial. Bacterial is the more serious type. Two types of bacterial meningitis have been found in people with cochlear implants. These types are *Streptococcus pneumonia* ("Pneumococcus") and *Haemophilus influenza* type B. The symptoms, treatment and results depend on the cause of the infection.

The Center for Disease Control recently changed the guide for meningitis shots for adults with cochlear implants. The new guide is for users to get both the 23-valent pneumococcal polysaccharide vaccine (Pneumovax 23, PPSV23) and the 13-valent pneumococcal conjugate vaccine (Prevnar 13, PCV 13). Please talk to your doctor about your need for the vaccination/s.

Preventing this infection is important. You can get this shot from your general doctor or your local county health department.

For more information, please visit the Center for Disease Control's website at: http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6140a4.htm?s_cid=mm6140a4_w

AURAL REHABILITATION

Once you have received a cochlear implant and have begun using it, you will likely notice that sounds do not initially seem natural. Moreover, speech probably will not be easy to understand at first. **Over time, your brain has to learn to hear again.** That learning requires **consistent practice** using your device. For many people, that learning also can occur more quickly and completely by performing training exercises that encourage your brain to adjust to the implant. Research has shown that rehabilitation approaches help adults make more progress in learning to recognize speech and other sounds, as well as learning to enjoy music again. **Adult aural rehabilitation is a major research focus for Dr. Moberly, so please contact his office at (614)293-6926 or at Maigen.Rainey@osumc.edu if you are interested in participating in studies related to this topic.**

Aural rehabilitation is defined as the entire process of diagnosing your hearing loss and proceeding with cochlear implantation, but also includes the postoperative rehabilitation support and techniques used to optimize your abilities with your cochlear implant. Aural rehabilitation can help you to improve your communication skills when talking with others. Improving these skills may help you feel more satisfied with your implant.

Aural rehabilitation can also include **auditory training** exercises. Similar to the idea of doing physical therapy training after a hip replacement surgery, auditory training should be viewed as a key element in your postoperative treatment plan. Your surgeon and audiologist will work with you to help you achieve the best outcome possible, but, ultimately, it will take dedication on your part to learn to listen again through your implant.

In general, auditory training can consist of a number of different types of exercises. These exercises may focus on the following abilities:

- Recognizing the differences between tones
- Recognizing speech sounds, whole words, and sentences in quiet and in noise
- Recognizing environmental sounds
- Recognizing and enjoying music

Some speech language pathologists (SLPs) offer aural rehabilitation services to patients with cochlear implants. During this visit, the SLP will determine what skills you have and what skills still have room for improvement. For example, the SLP may evaluate and make recommendations to help you with the following:

- Improving your own speech
- Improving your speech recognition
- Developing skills that help you in listening and communicating with others

There are a number of **free resources** available online which you can listen to and practice with at home. Some of these programs include the following:

- Angel Sound™ is a free, upgraded version of “Sound and WAY Beyond,” an auditory rehabilitation program based on CAST technology and distributed by Cochlear Americas. Available at: <http://angelsound.tigerspeech.com/>
- The Listening Room sponsored by Advanced Bionics has free activities and resources to support the development of speech, language and listening. Available at: http://hearingjourney.com/Listening_Room/preview.cfm?langid=1
- SoundScape sponsored by MED-EL has listening activities for various age groups. Available at: <http://www.medel.com/us/resources-for-success-soundscape/?titel=SoundScape&>
- Immersion Reading with Kindle Fire HD- can synchronize Kindle text with companion Audible audiobooks with real-time highlighting.
- LACE-Listening and Communication Enhancement- <http://www.neurotone.com/lace-interactive-listening-program-->
- Rosetta Stone Language- Learning Software-US English—<http://www.rosettastone.com>
- Randall’s ESL Cyber Listening Lab
- Hope Hearing Rehab Tools, Cochlear Americas
- ESL Gold, ESLGold.com
- English as a Second Language Randall’s ESL Cyber Listening Lab, ESL-Lab.com
- American English Pronunciation Practice, ManyThings.org
- The English Listening Lounge, EnglishListening.com
- Rudenko Software, The BookReader, Rudenko.com
- PBS Kids, PBS Kids.org
- CLIX is the first installment in a suite of rehabilitation applications that make up the Advanced Bionics Listening Exercises (ABLE). This free program available through iTunes for the iPad is designed to help adult cochlear implant recipients or hearing aid users practice listening for word differences in both quiet and noise.
- Starkey Hear Coach