Riley Hospital for Children
Indiana University Health

Information for Patients and Families

If you or your child currently has/have a cochlear implant, please read the information below on how to optimize day-to-day life while living with a cochlear implant.

Activation and Programming

After a period of healing, the cochlear implant recipient will return to Riley Hospital for Children at IU Health for activation of his or her cochlear implant. At the time of activation, your child will have the first opportunity to hear through the device. Though the sound quality of the cochlear implant is very strange and most individuals do not understand speech at first, this is just the beginning of a new journey of sound. The cochlear implant delivers an electrical signal to the hearing nerve. It is the brain's job to derive meaningful sound from the new signal.

In order for the patient to hear with the implant, the device must be programmed to transmit sounds appropriately for his or her auditory nerve. This adjustment occurs in a process called mapping. An audiologist uses a computer to measure how the auditory nerve responds to sound at each of the implant's electrode contacts. This allows the audiologist to determine the most appropriate listening settings for the cochlear implant user.

As the patient learns and gains hearing experience with his or her cochlear implant, the auditory pathway begins to adapt to the new stimulation. His or her map settings will need to be changed as this adaptation occurs. Through reprogramming and fine-tuning, our audiologists can optimize the patient's perception of sound.

Understanding Electrostatic Discharge

Electrostatic discharge (ESD) is the sudden and momentary electric current that flows between two objects at different electrical potentials. One of the causes of ESD events is static electricity. Static electricity is often generated by the separation of electric charges that occurs when two materials are brought into contact and then separated (friction). Examples of this include walking on a rug, getting out of a car and contact with plastic equipment or some types of plastic packaging.

Conductors like your body, moisture and metal provide a safe path for the static electricity to travel through to the ground. Nonconductors such as plastic, rubber, synthetic cloth and dry air often allow static to collect and build up to significant levels. It is only when static builds up to high levels that it can affect electronic equipment, such as a cochlear implant. In these rare cases, a high discharge of static electricity could damage the electronic components of the cochlear implant and possibly corrupt the programs of the speech processor. The damage can occur even if the electronic equipment is turned off.

To avoid a buildup of static electricity or potential problems with ESD, consider the following precautions:

- Remove all implant equipment when playing on plastic play equipment (including plastic slides, swings, balls, inflatable carnival equipment, etc).
- Try to avoid situations where there is friction between nonconductive materials.
- Consider using a humidifier if you live in an area where the air is dry or are exposed to low humidity environments (e.g., forced air heating or air conditioning).

- Try using fabric softener/dryer sheets or anti-static spray on clothing, carpet or cloth car seats.
- Before touching the implant equipment, touch someone or a conductive object first.
- Use anti-static wrist straps to control static, if necessary.

If you do suspect a problem with electrostatic discharge, contact the Cochlear Implant Program at Riley at IU Health so that arrangements can be made to reload patient maps onto the affected speech processor or replace the processor, if necessary.

If you or your child is/are currently experiencing a problem with his or her cochlear implant equipment, please contact the implant manufacturer's customer service department:

- **Advanced Bionics:** 877.829.0026
- **Cochlear**: 877.883.3101
- **Med-EL**: 888.633.3524