PEDIATRIC PACKET
TABLE OF CONTENTS

1. Potential Candidate Letter

2. “What is a Cochlear Implant?”

3. “Why the Koss Cochlear Implant Program?” *(1 page - 2 sided)*

4. “Pediatric Cochlear Implant Evaluation Process”

5. “Pediatric Cochlear Implant Surgery & Follow-up Process”

6. Pediatric Patient History Form *(9 pages)*

7a. Information about Dr. Friedland *(1 page - 2 sided)*

7b. Information about Dr. Wackym *(1 page - 2 sided)*

8. Information about the Cochlear Implant Team *(3 pages)*

9. Maps and Directions

Authorization for Release of Information
1. Half sheet: Exchange of Information

2. Authorization form

Educator/Therapist Handout
1. Half sheet: Give Packet to Educator/Therapist

2. Cover letter: Staff Working with Child

3. Educator/Therapist Information Sheet *(2 pages)*

4. “What Is a Cochlear Implant?”

5. “Why the Koss Cochlear Implant Program?” *(1 page - 2 sided)*

6. “Pediatric Cochlear Implant Evaluation Process

7. “Pediatric Cochlear Implant Surgery & Follow-up Process”

8. Resources for Working with Children with Cochlear Implants *(2 pages)*

Dear Parent/Guardian:

Thank you for inquiring about our cochlear implant program. Please find enclosed the following information:

- What is a cochlear implant?
- Why the Koss Cochlear Implant Program?
- Cochlear implant evaluation, surgery, and follow-up process
- The cochlear implant team members
- Patient History Form
- Packet for child's educator/therapist
- Release of information form
- Maps and directions to the Otolaryngology Children's Office Building Clinic

Please review the information and fill out the "Patient Information Form." **Return the form along with any past aided or unaided audiograms.** This information is very beneficial when we talk with you regarding cochlear implantation.

If you have any questions, feel free to contact us at 414-805-5586.

Koss Cochlear Implant Program
Medical College of Wisconsin
Department of Otolaryngology and Communication Sciences
Froedtert West Clinics
9200 West Wisconsin Avenue
Milwaukee, WI 53226

Working in conjunction
Children's Hospital of Wisconsin - Pediatric Patients
Froedtert Hospital - Adult Patients

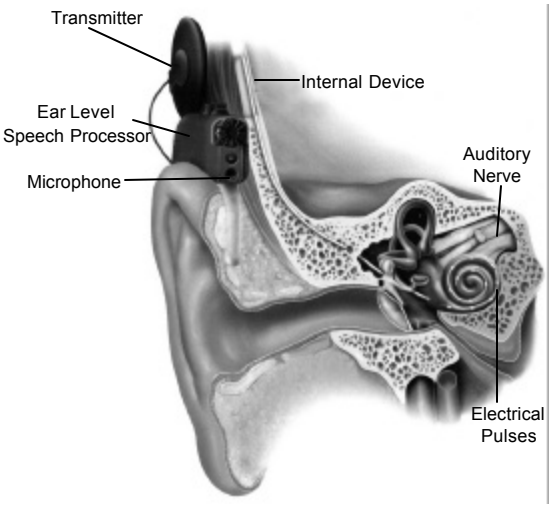
WHAT IS A COCHLEAR IMPLANT?

A cochlear implant is designed to provide electrical stimulation to the hearing nerve fibers by by passing the hair cells in the cochlea that are damaged or absent for individuals with sensorineural hearing loss. The function of the cochlear implant is to use this electrical stimulation to provide individuals who have severe to profound sensorineural hearing losses with an auditory signal that they interpret as sound. It is a prosthetic hearing device, not a hearing aid.

How does a cochlear implant work?

A cochlear implant consists of both externally worn and surgically implanted components.

- The microphone picks up sound and sends it to the speech processor.
- The speech processor (body worn or ear-level) analyzes and codes the signal.
- The coded signal is sent to the transmitter that is worn in the hair.
- The transmitter sends the signal across the skin to the internal device and stimulates the auditory nerve fibers. The brain interprets the signal as sound.



Who can benefit from a cochlear implant?

- Adults and children with severe to profound sensorineural hearing loss in both ears.
- Children who are 12 months (younger in some cases) to 18 years of age and adults of any age.
- Individuals who receive insufficient benefit from hearing aids.
- Children who can receive family and educational support.
- Individuals and families with appropriate expectations and an understanding of the necessary follow-up.

What cochlear implant systems are available?

At the present time there are three manufacturers of cochlear implants for children and adults:

- Advanced Bionics
- Cochlear Americas
- Med-El Corporation

All three companies have excellent implant systems. As a part of the evaluation process, we discuss the function and benefits of each device with the candidate and their family.

Who can I call if I have questions?

Feel free to contact any audiologist or speech-language pathologist on the cochlear implant team. If they can't answer your question, they will be able to get you in touch with someone who can.

Adult Cochlear Implant Audiologist	Adult Cochlear Implant Speech-Language Pathologist	Pediatric Cochlear Implant Audiologist	Pediatric Cochlear Implant Speech-Language Pathologist
414-805-5586	**414-805-5586**	**414-266-2685**	**414-266-2685**
Linda Burg, AuD, CCC-A Jamie Jensen, AuD, CCC-A	Mary Brawley, MA, CCC-SLP	Karla Balko, MS, CCC-A Sarah Drake, MS, CCC-A	Dione Langley, MS, CCC-SLP Jay Berghaurer, MS, CCC-SLP

Koss Cochlear Implant Program
Medical College of Wisconsin
9200 West Wisconsin Avenue - Milwaukee, Wisconsin 53226
Pediatric (414) 266-2685 - Adult (414) 805-5586 - Email: cochlear.implant@mcw.edu

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Froedtert Hospital - Adult Patients

WHY THE KOSS COCHLEAR IMPLANT PROGRAM?

Advanced Technology
The Koss Cochlear Implant Program is the only program in the state of Wisconsin that has been selected by all three cochlear implant manufacturers to participate in their investigational trials. This allows our patients access to the most recent technology as well as a large selection of devices. The program is the largest in the state of Wisconsin. We currently follow over 400 patients from Wisconsin and the surrounding states.

Experienced Staff
The staff on the Koss Cochlear Implant Team has extensive experience working with individuals with hearing loss, in particular, those with cochlear implants. The years of experience range up to 15 years, and include both pediatric and adult expertise.

Comprehensive Patient Care
In addition to offering patients the latest technology and device selection, we have an emphasis on comprehensive patient care. Patients and their families receive this care throughout the evaluation, surgical, and initial post-implant process. In addition, we provide long-term follow-up care, as clients become experienced cochlear implant users. This care includes:

- Device programming
- Aural rehabilitation
- Speech-language evaluation
- Patient and family support groups
- Educational consultation & collaboration
- Post-implant communication assessment
- Coordination with local service providers

Research
Another important component of the program is the ongoing hearing research. Here is a brief sample of our investigational trials and other areas of ongoing research:

- The use of a "hybrid" device that is a combination of cochlear implant and hearing aid. This device is designed for individuals with profound sensorineural hearing loss in the high frequencies. The cochlear implant portion provides electrical hearing for the high pitches and the hearing aid provides amplification for the low and middle pitches.
- Cochlear implantation in a deaf ear when the other ear is normal or has mild hearing impairment.
- Effects of cochlear implantation on suppression of tinnitus.
- Relationships between genetics and hearing loss in families and in clinical populations.

See article: "Koss Endows $1 Million Chair; College Names First Recipient" on next page.

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Koss Endows $1 Million Chair; College Names First Recipient

Article from the World, the Medical College of Wisconsin newsletter for faculty and staff - July 17, 2000

P. Ashley Wackym, MD, is the first recipient of the John C. Koss Professorship of Otolaryngology and Communication Sciences at the Medical College of Wisconsin. He became Professor and Chairman of Otolaryngology and Communication Sciences in 1998.

The chair is endowed by a $1 million combined gift from John C. Koss and the Milwaukee-based Koss Corporation. John Koss is credited with creating the high-fidelity stereo headphone industry in the late 1950's.

"We are pleased and very grateful that the Koss family has strengthened its long term relationship with the Medical College of Wisconsin through this endowment," said T. Michael Bolger, JD, President and CEO. "A chair is the highest honor the College can bestow on a physician or scientist. Dr. Wackym has many accomplishments to his credit deserving of the honor."

"The John C. Koss Chair will allow major expansion of our work in cochlear implantation," Dr. Wackym said. I am passionate about caring for these patients, and am humbled on a daily basis by what these prospective devices can provide to people with significant hearing loss, particularly children."

A growing number of people are no longer isolated by profound hearing loss thanks to the Koss Cochlear Implant Program, according to Dr. Wackym. His surgical teams at Froedtert Hospital and Children's Hospital of Wisconsin are the only ones in the state capable of implanting all three of the cochlear implant devices currently on the market. The implants restore hearing by directly stimulating the ear's cochlear nerve, and his team is now researching methods to offer the implants to a wider range of candidates.

"I have personally had the opportunity to observe Dr. Wackym's dedication to his patients," says Michael Koss, president and CEO of Koss Corp. "I have witnessed two cochlear implant surgeries performed by Dr. Wackym within the Koss Cochlear Implant Program. The revolutionary new techniques used to treat these patients are surpassed only by the personal care given them by the team. The sum total of both has been awe-inspiring."

In 1980, Koss Corp. helped fund the Medical College Koss Hearing and Balance Center. Koss Corporation is also developing noise-canceling headphones that can be worn by patients undergoing MRI scans. These phones minimize the loud clicking noises made by the scanner, which can make the experience of an MRI unpleasant. The phones will be tested at the Medical College.

Dr. Wackym's department conducts research in and treatment for a variety of disorders of the head and neck, sinus, throat and ear, including cancer, as well as surgery for hearing, balance or facial nerve disorders.

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Children's Hospital of Wisconsin - Pediatric Patients
Froedtert Hospital - Adult Patients

PEDIATRIC COCHLEAR IMPLANT EVALUATION PROCESS

Initial inquiry or referral can be made by:

- Family Member
- Audiologist
- Therapist
- Teacher
- Pediatrician
- Other

Information sharing:

- An information packet will be mailed to the family.
- Complete the history information form included in the packet.
- Return this form along with copies of the child's most recent audiograms to:
  Jane Kellerman, Administrative Assistant
  Department of Otolaryngology & Communication Sciences
  Koss Cochlear Implant Program
  9200 West Wisconsin Avenue
  Milwaukee, WI 53226
- If there are questions, call 414.805.5586 or e-mail: jkellerm@mcw.edu
- An audiologist will review the information sent to us.
- You will be contacted for an appointment.

Consultation with cochlear implant audiologist:

- Audiological and speech perception testing
- Discuss how cochlear implants work
- Explain the latest technology
- Discuss factors that can affect the candidate's performance with a cochlear implant
- Discuss reasonable post-implant expectations
- Review post-implant follow-up appointments

CT and surgeon appointments will be made.

Medical exam with surgeon:

- History and physical examination
- Review of audiologic testing data
- Review and interpretation of CTs
- Medical diagnosis of the hearing loss
- Discussion of appropriateness of candidacy
- Review of surgical procedures

Cochlear implant decision-making:

- Decisions regarding surgery are made by the candidate along with the cochlear implant team.
- Device discussion with audiologist to choose which cochlear implant device you will be implanted with.

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PEDIATRIC COCHLEAR IMPLANT SURGERY & FOLLOW-UP PROCESS

Once the decision is made to have cochlear implant surgery:

- Pre-authorization from the insurance company for the surgery is needed. Most commercial insurance companies, as well as Medicare and T19, cover cochlear implants. This may take up to six weeks to authorize.
- Once we have received a hard copy of the insurance approval, a surgery date is scheduled.
- Surgery is usually an inpatient procedure which involves an overnight hospital stay.
- The typical cochlear implant surgery takes about two to five hours. This includes testing the device itself, to confirm each patient has a functioning unit. Electrophysiologic testing is done to evaluate each person's responsiveness to stimulation via the cochlear implant.

Post-operative appointments:

- "Hook-Up" is about four weeks after the surgery (3 hour appointment)
  - Patient will receive the external equipment and will have the initial programming of the speech processor
  - Overview of the implant function and accessories
  - Registration, warranty, loss and damage insurance information
  - Suggestions for initial rehabilitation activities to work on at home

- Two-Week Check (2 hour appointment)
  - Audiogram
  - Adjustment and fine tuning of the programs on the speech processor
  - Answer questions regarding equipment and use

- One-Month Evaluation (2 hour appointment)
  - Audiogram
  - Speech perception testing in the audio booth to determine post-implant progress and to provide information for device programming decisions
  - Adjustment and continued revision to the programs on the speech processor

- Three-Month Check (2 hour appointment)
  - Audiogram
  - Speech perception testing in the audio booth
  - Adjustment and fine tuning of the programs on the speech processor

- Four-Month Electrophysiological Testing (2 hours appointment)
  - Electrophysiological testing with the cochlear implant

- Six-Month Evaluation (2-3 hour appointment)
  - Audiogram
  - Speech perception testing in the audio booth
  - Adjustment and continued revision to the programs on the speech processor

- Nine-Month Check (if needed) (2 hour appointment)
  - Audiogram
  - Adjustment and fine tuning of the programs on the speech processor

- One-Year Evaluation Along with Continued Annual Evaluations (2-3 hour appointment)
  - Audiogram
  - Speech perception testing in the audio booth
  - Adjustment and continued revision to the programs on the speech processor

Note: This is the standard set of appointments post-implant. Depending on schedules and each child's situation, there may be revision to this schedule.

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KOSS COCHLEAR IMPLANT PROGRAM

PEDIATRIC PATIENT HISTORY FORM

CONFIDENTIAL MEDICAL RECORD FORM

Please complete and return this form to:

Jane Kellerman, Administrative Assistant
Department of Otolaryngology
& Communication Sciences
Koss Cochlear Implant Program
9200 West Wisconsin Avenue
Milwaukee, WI 53226

If you have any questions:

Phone: 414.805.5586
Email: jkellerm@mcw.edu

Please check your coverage & check if Primary (P) or Secondary (S).

☐ T19/No HMO	☐ *(P)*	☐ (S)
☐ Medicaid	☐ *(P)*	☐ (S)
☐ Badger Care	☐ *(P)*	☐ (S)
☐ Forward	☐ *(P)*	☐ (S)
☐ Katie Beckett	☐ *(P)*	☐ (S)
☐ Other: _____ (If other, please note coverage.)	☐ *(P)*	☐ (S)

Date: _____

Person Completing this Form: _____

☑ ***Please include past aided and unaided audiograms when you return this form.***

Information About Child

Name: _____

Birthday: _____

Sex: _____ Lives With: _____

Address: _____

_____

_____

*MCW #: _____

*FMLH #: _____

*CHW #: _____

*MCW=Medical College of Wisconsin, FH=Froedtert Memorial Lutheran Hospital, and CHW=Children's Hospital of Wisconsin

Information About Parents/Guardian(s)

Name: _____

Address *(If different from child's)*:

_____

_____

_____

Name: _____

Address *(If different from child's)*:

_____

_____

_____

KOSS COCHLEAR IMPLANT PROGRAM

PEDIATRIC PATIENT HISTORY FORM

Contact Information

HOME

Person's Name: _____

Phone: _____

Fax: _____

Pager: _____

Cell: _____

Other: _____

WORK

Person's Name: _____

Phone: _____

Fax: _____

Pager: _____

Cell: _____

Other: _____

HOME

Person's Name: _____

Phone: _____

Fax: _____

Pager: _____

Cell: _____

Other: _____

WORK

Person's Name: _____

Phone: _____

Fax: _____

Pager: _____

Cell: _____

Other: _____

Please circle the numbers above that are the best ways to communicate with you. If there is anything else we should know about reaching you, please let us know. _____

FAMILY

	NAME	AGE	EDUCATION	OCCUPATION
MOTHER				
FATHER				
STEP/FOSTER MOTHER				
STEP/FOSTER FATHER				
OTHER				

	NAME	DOB	GRADE	HEALTH/LEARNING PROLEMS
SIBLING				
SIBLING				
SIBLING				
SIBLING				

KOSS COCHLEAR IMPLANT PROGRAM

PEDIATRIC PATIENT HISTORY FORM

Professional Contacts

Please provide the following names, addresses, and phone numbers for individuals and agencies involved with your child. **Put and * by the one who referred you to this facility.**

PHYSICIAN

Name: _____
Specialty: _____
Address: _____
_____
Phone: _____

PHYSICIAN

Name: _____
Specialty: _____
Address: _____
_____
Phone: _____

AGENCY INVOLVED WITH YOUR CHILD

Name: _____
Specialty: _____
Address: _____
_____
Phone: _____

AGENCY INVOLVED WITH YOUR CHILD

Name: _____
Specialty: _____
Address: _____
_____
Phone: _____

AUDIOLOGIST

Name: _____
Specialty: _____
Address: _____
_____
Phone: _____

SPEECH/LANGUAGE PATHOLOGIST

Name: _____
Specialty: _____
Address: _____
_____
Phone: _____

THERAPIST

Name: _____
Specialty: _____
Address: _____
_____
Phone: _____

THERAPIST

Name: _____
Specialty: _____
Address: _____
_____
Phone: _____

SCHOOL

Name: _____
Specialty: _____
Address: _____
_____
Phone: _____

TEACHER

Name: _____
Specialty: _____
Address: _____
_____
Phone: _____

The rest of this form asks for information about your child's hearing, birth, development, education, etc. Please feel free to use the back of pages if you need more space.

KOSS COCHLEAR IMPLANT PROGRAM

PEDIATRIC PATIENT HISTORY FORM

Hearing Information

How old was your child when you first suspected a hearing loss? _____

How old was your child when the hearing loss was identified? _____

When do you think the loss first occurred? _____

What was the cause of your child's hearing loss? _____

_____

Who else in the family has a hearing loss? *(grandparent, parent, sibling, aunt/uncle, cousin, etc.)* _____

_____

Has your child's hearing changed over time? *(please explain)* _____

_____

How many ear infections has your child had? _____ When was the most recent? _____

Has your child ever had ear tubes? _____ Number of times? _____ Most recent: _____

Does your child seem to hear better with one ear than the other? _____ If so, which one? _____
Examples of behaviors that make you think one ear hears better: _____

_____

_____

Hearing Aids

	RIGHT EAR	LEFT EAR
Brand Name & Model Number	_____	_____
Date of Purchase	_____	_____
Usual Volume Setting	_____	_____
Feedback Difficulties	_____	_____

At what age did your child begin wearing hearing aids? _____

Does your child wear the hearing aids willingly? _____ How many hours each day? _____

At what age did your child begin to wear hearing aids consistently? _____

What kind of benefit does your child receive from hearing aids? _____

_____

KOSS COCHLEAR IMPLANT PROGRAM

PEDIATRIC PATIENT HISTORY FORM

Communication Skills

Does your child's speech improve with the use of hearing aids? _____

What is your child's communication mode: *(ASL, Total Communication, Oral, Auditory/Verbal, Cued Speech)*

_____

Does your child use gestures rather than speech or formal signs/cues to communicate? _____

Please check the two left hand column boxes and add comments to best describe your child's speech and listening skills. **Please comment if there are skills your child used to have but no longer has.**

HEARING AIDS ON	HEARING AIDS OFF		COMMENTS & EXAMPLES
		Does not use voice	
		Does not react to any sounds	
		Seems to be responding to some sounds	
		Babbles or plays vocal games	
		Uses voice all the time	
		Says no words that are understood by others	
		Says a few words that family members understand	
		Many words are understood by non-family members	
		Turns to name when not looking at speaker	
		Understands a few words without looking at speaker	
		Understands many words without looking at speaker	
		Puts 2-3 words together with speech	
		Uses sentences that are understood by family	
		Uses sentences that are understood by non-family	
		Understands sentences without looking at speaker	
		Understands non-family members without looking	
		Other:	
		Other:	

KOSS COCHLEAR IMPLANT PROGRAM

PEDIATRIC PATIENT HISTORY FORM

Sign Language / Cued Speech Skills

(Please skip this section if your child does not use signs or cued speech)

Please list the family members who sign/cue with your child. _____

_____

What is the signing/cueing skill level of the family members who do sign/cue with your child? _____

_____

Do you have resources to help you improve your sign/cue skills? _____

Please indicate whether or not your child has the following language skills using signs/cues and the age at which you first noticed your child using this skill.

YES	NO		AGE FIRST SEEN
		Uses single words with signs/cues	
		Uses two-word combinations with signs/cues	
		Uses short sentences in signing/cueing	
		Uses sign/cue word endings (ing, ed,s, etc.)	
		Uses voice all the time while signing/cueing	
		Understands single words that are signed/cued	
		Follows simple signed/cued directions	
		Follows two-step directions that are signed/cued	
		Follows & participates in conversations with signs/cues	
		Understands most of what is said to him/her if signs/cues are used.	

Other comments about your child's use of signs/cues:

KOSS COCHLEAR IMPLANT PROGRAM

PEDIATRIC PATIENT HISTORY FORM

School Information

Name: _____

Address: _____

_____

Grade: _____

Phone: _____

School contacts *(please list the individuals involved with your child's education):*

Name	Position	Phone Number

Please explain the type of school setting your child is currently in *(e.g. Neighborhood with classmates who have normal hearing, self-contained class in building with students who have normal hearing, mainstreamed for math and health etc.).* _____

_____

_____

Please indicate the types and amount *(e.g. 2 times a wk / 20 min. sessions)* of therapy your child receives at school and outside of school.

Type of Therapy	In School - Amount	Outside of School - Amount

What other school settings has your child been in? Please list school type, location, and years attented.

_____

_____

_____

KOSS COCHLEAR IMPLANT PROGRAM

PEDIATRIC PATIENT HISTORY FORM

Health Information

Length of pregnancy: _____

Medications taken during pregnancy: _____

_____

Complications during pregnancy (illness, x-rays, bleeding, high blood pressure, accident, etc):

_____

_____

Complications during delivery: _____

_____

Birth weight: _____

Describe any problems as an infant in the nursery or in the first few weeks at home: _____

_____

Has your child been hospitalized? If so, please describe? _____

_____

Has your child had any surgery? If so, please list types and dates. _____

_____

Is your child on any medications? If so, name and dosage. _____

_____

Does your child have any other medical conditions? If so, please list. _____

_____

_____

_____

DOES YOUR CHILD HAVE . . .	EXPLANATION
☐ Difficulty with vision:	_____
Vision had been checked by:	_____
☐ History of seizures:	_____
☐ Trouble with balance or coordination:	_____
☐ Allergies:	_____
☐ Feeding:	_____
☐ Motor problems:	_____

KOSS COCHLEAR IMPLANT PROGRAM

PEDIATRIC PATIENT HISTORY FORM

Health Information

Has you child been diagnosed with any delays or do you suspect any delay in areas such as sitting alone, crawling, walking, talking, toilet training, cognitive skills, other? Please explain:

Has your child been diagnosed with or do you suspect any disabilities or condition other than hearing loss such as autism, pervasive developmental delay, cerebral palsy, learning disability, etc? Please explain:

OTHER

How does your child get along with siblings and other children?

Does your child play with other children who have hearing loss? Who have normal hearing?

Do you have any concerns about your child that you have not already mentioned?

Is there any additional information you think we should know?

Thank you for taking the time to provide this information.

It will help us serve your child better.

Working in conjunction
Children's Hospital of Wisconsin - Pediatric Patients
Froedtert Hospital - Adult Patients

David R. Friedland, MD, PhD
Associate Professor, Otologist, and Neuro-otologic Skull Base Surgeon
Koss Cochlear Implant Program
Department of Otolaryngology & Communication Sciences

Dr. Friedland is a board-certified otolaryngologist head and neck surgeon with fellowship training at Johns Hopkins University in adult and pediatric otology, neurotology, and cranial base surgery.

He has specialized training in surgery for hearing restoration including the placement of cochlear implants, bone-anchored aids, brainstem implants, and implantable hearing aids. He also has an extensive training in the diagnosis and treatment of balance and vestibular disorders including Meniere's disease, vestibular migraine, and superior canal dehiscence.

Dr. Friedland's clinical interests include the use of intratympanic medical therapy in the treatment of hearing loss, dizziness, and tinnitus (ringing in the ears). In addition, his clinical emphasis at the Medical College of Wisconsin is on surgical rehabilitation of hearing loss in the adult population and the diagnosis and management of vestibular disorders. He also maintains a research program studying the molecular biology and neuroanatomy of the auditory brainstem.

Dr. Friedland's practice style reflects the team approach to providing you with the best care. Working closely with dedicated Nurse Practitioners, Audiologists, and support staff a full assessment of the patient's problem is performed through careful listening and specialized testing. Dr. Friedland believes education is a major key to treatment and will patiently explain the diagnosis and therapy in everyday terms using models and diagrams for clarity.

Education/Training

- Bachelor of Arts (BA) - University of Chicago, Chicago, IL, 1987
- Doctor of Philosophy (PhD) - City University of New York, New York, NY, 1993
- Doctor of Medicine (MD) - Mount Sinai School of Medicine, New York, NY, 1995
- Residency - Otolaryngology-Head & Neck Surgery, Mount Sinai School of Medicine, New York, NY, 2000
- Fellowship - Otology, Neuro-otology & Cranial Base Surgery, Johns Hopkins School of Medicine, Baltimore, MD, 2002

Board Certification

- American Board of Otolaryngology

Society Memberships

- Alpha Omega Alpha
- American Medical Association
- Association for Research in Otolaryngology
- Fellow, American Academy of Otolaryngology-Head and Neck Surgery
- Milwaukee Society of Otolaryngology-Head and Neck Surgery
- Society of University Otolaryngologists
- Wisconsin Society of Otolaryngology-Head and Neck Surgery
- The Triological Society

Clinical Interests

- Acoustic Neuroma
- Adult Hearing Loss and Rehabilitation
- Auditory Brainstem Implants
- Bone Anchored Hearing Aids
- Cancer of the Ear
- Cholesteatoma
- Chronic Ear Disease
- Cochlear Implants
- Facial Nerve Paralysis
- Implantable Hearing Aids
- Meniere's Disease
- Migraine Associated Dizziness
- Neurotology
- Otology
- Presbycusis
- Skull Base Tumors
- Superior Canal Dehiscence
- Tinnitus
- Vestibular Disorders

Clinical Practice

- Patient Age: All
- Joined MCW Faculty in 2002

Research Interests

- Electrical Stimulation for the Treatment of Tinnitus
- Neuroanatomy of the Auditory Brainstem
- Molecular Biology of Auditory Neurons
- Vestibular Disorders and Associated Medical Conditions

Honors/Awards

- Faculty Teaching Award
- America’s Top Physicians, Consumer Research Council of America Best Doctors in America, Best Doctors, Inc.
- Honors Awardee, American Academy of Otolaryngology-Head and Neck Surgery
- Alpha Omega Alpha
- Lange Medical Publications Award
- Ortho-McNeil Resident Travel Award
- Association for Research in Otolaryngology Travel Grant Award
- AAO-HNS/Herbert Silverstein Neurotology Grant Award

Administrative Duties

- Associate Professor
- Chair, Patient Care Committee
- Chair, Resident Research Review Committee
- Chair, Physician Research Training Committee, Association for Research in Otolaryngology
- Secretary-Treasurer, Wisconsin Society of Otolaryngology
- Director, Vestibular Program
- Director, Temporal Bone Lab Otolaryngology Representative
- Hearing and Speech Examining Board, State of Wisconsin

Working in conjunction
Children's Hospital of Wisconsin - Pediatric Patients
Froedtert Hospital - Adult Patients

P. Ashley Wackym, MD, FACS, FAAP
John C. Koss Professor and Chairman
Medical Director, Otologist and Neuro-otologic Skull Base Surgeon
Koss Cochlear Implant Program
Department of Otolaryngology & Communication Sciences

Dr. Wackym is a board-certified otolaryngologist head and neck surgeon with fellowship training in adult and pediatric otology, neurotology, and cranial base surgery.

Together with internationally recognized leaders in neurology, neurosurgery, rehabilitation medicine, and cranial base surgery, Dr. Wackym's specific clinical interests have led to the establishment of multidisciplinary programs for cochlear implantation, hearing preservation in acoustic neuroma surgery, neurofibromatosis type 2, and vestibular disorders. Also included are new clinical trials in cochlear and auditory brainstem implantation prostheses at the Medical College of Wisconsin (Froedtert Hospital and the Children's Hospital of Wisconsin).

Although Dr. Wackym's practice includes the entire scope of adult and pediatric hearing, facial nerve and balance disorders, his clinical emphasis at the Medical College of Wisconsin is on the surgical rehabilitation of congenital hearing losses including aural atresia and microtia repair; cochlear implantation; vestibular disorders; in hearing preservation in acoustic neuroma surgery; and removal of complex tumors of the skull base.

He also directs a basic science research program in the molecular biology of hearing and balance disorders and in gene discovery in acoustic neuromas.

Education/Training

- Bachelor of Arts (BA) - California State University, Fullerton, CA, 1980
- Doctor of Medicine (MD) - Vanderbilt University School of Medicine, Nashville, TN, 1985
- Residency - Head & Neck Surgery, University of California, Los Angeles, CA, 1985-1991
- Fellowship - Otology, Neurotology & Cranial Base Surgery, University of Iowa, Iowa City, IA, 1991-1992

Board Certification

- American Board of Otolaryngology
- Neurotology, American Board of Otolaryngology (4-25-04)

Society Memberships

- Collegium Oto-rhino-laryngologicum Amicitiae Sacrum, an international organization of otolaryngologists clinician-scientists, established in 1926, The Netherlands: worldwide membership-over 300 from 50 countries; 20 members from the United States.
- American Otological Society, Member (129 Active Fellows in the USA)
- American Neurotology Society, Member
- Fellow, The American Laryngological, Rhinological and Otological Society
- Fellow, American College of Surgeons
- Fellow, American College of Pediatrics
- Fellow, American Academy of Otolaryngology-Head and Neck Surgery
- Member, Wisconsin Society of Otolaryngology-Head and Neck Surgery
- Sir Charles Bell Society
- Paul H. Ward Society
- Politzer Society (International Otology Society)
- Association for Research in Otolaryngology
- Bárány Society (International Basic Science and Clinical Vestibular)
- American Medical Association

Clinical Interests

- Cochlear Implants
- Acoustic Neuroma
- Auditory Brainstem Implants
- Gamma Knife Radiosurgery

Clinical Practice

- Patient Age: All
- Joined MCW Faculty in 1998

Research Interests

- Molecular Biology of Vestibular Efferent/Afferent Interactions
- Molecular Biology of Acoustic Neuromas
- Cochlear and Brainstem Implant Clinical Trials

Honors/Awards

- Honor Award, The American Academy of Otolaryngology-Head and Neck Surgery
- Edmund Prince Fowler Award, The American Laryngological, Rhinological and Otological Society
- Shirley Baron Research Award, The American Laryngological, Rhinological and Otological Society, Western Section
- Nicholas Torok Vestibular Award of the American Neurotology Society
- Clinical Investigator Development Award
- UCLA Head and Neck Surgery Teaching Award
- First Place Award, Basic Science Category, American Academy of Otolaryngology-Head and Neck Surgery / Association for Research in Otolaryngology
- Shirley Baron Research Award, The American Laryngological, Rhinological and Otological Society, Western Section
- Second Place Award, Basic Science Category, American Academy of Otolaryngology-Head and Neck Surgery / Association for Research in Otolaryngology
- Vice President's Research Award, The American Laryngological, Rhinological and Otological Society, Western Section
- William H. Call Research Award, Pacific Coast Oto-Ophthalmological Society

Administrative Duties

- Professor and Chairman, Department of Otolaryngology and Communication Sciences
- Chief, Division of Otology and Neuro-Otologic Skull Base Surgery
- Medical Director, Koss Cochlear Implant Program
- Medical Director, Koss Hearing and Balance Center

Working in conjunction
Children's Hospital of Wisconsin - Pediatric Patients
Froedtert Hospital - Adult Patients

COCHLEAR IMPLANT TEAM

P. Ashley Wackym, MD
John C. Koss Professor and Department Chairman
Medical Director, Cochlear Implant Program

Dr. Wackym is a nationally known researcher and clinical specialist in hearing and balance disorders. Over the past eight years while at the Medical College of Wisconsin, he led the development of the cochlear implant program into a nationally recognized center, both for its strong clinical services and research component. Dr. Wackym's clinical emphasis is on cochlear implantation, aural atresia and microtia repair, hearing preservations in acoustic neuroma surgery, removal of complex tumors of the skull base, and vestibular disorders. Dr. Wackym is experienced with both children and adult cochlear implant candidates as well as all the currently available cochlear implant devices, including bilateral cochlear implantation and the auditory brainstem implant.

Christina Runge-Samuelson, PhD
Assistant Professor
Co-Director, Cochlear Implant Program

Dr. Runge-Samuelson graduated from the University of Iowa receiving her Bachelor's degree in 1993, Master's degree in 1996, and Doctor of Philosophy degree in Audiology in 2002. Her doctoral work was in auditory neurophysiology, particularly with electrical stimulation of the ear. Chris is also interested in physiologic responses of the cochlea to acoustic stimulation. She joined the College to expand her research areas to include cochlear implant patients.

David Friedland, MD, PhD
Otolaryngologist

Dr. Friedland has specialized training in surgery for hearing restoration, including the placement of cochlear implants, bone-anchored aids, brainstem implants, and implantable hearing aids. He also has an extensive training in the diagnosis and treatment of balance and vestibular disorders including Meniere's disease, vestibular migraine, and superior canal dehiscence. Dr. Friedland's clinical emphasis is on surgical rehabilitation of hearing loss in the adult population and the diagnosis and management of vestibular disorders. He also maintains a research program studying the molecular biology and neuroanatomy of the auditory brainstem.

Linda S. Burg, AuD, CCC-A
Audiologist
Coordinator, Cochlear Implant Program

Dr. Burg graduated with her Bachelor's degree in Communication Sciences and Disorders from the University of Wisconsin-Whitewater in 1982 and her Master's degree in Audiology from the University of Wisconsin-Stevens Point in 1984. She came to the Medical College in 1986. Dr. Burg received her Clinical Doctorate from the Arizona School of Health Sciences in 2002. Dr. Burg works with both children and adults, but has an emphasis on adults and adult aural rehabilitation. She also has a special interest in electrophysiology. In 2005, Dr. Burg became the Coordinator of the Koss Cochlear Implant Program.

Cochlear Implant Team

Karla A. Balko, MS, CCC-A
Audiologist

Karla graduated with her Bachelors of Science in Speech Language Pathology from Northern Arizona University in 1983 and her Master's degree in Audiology from Purdue University in 1985. Karla has 19 years as a nationally certified clinical audiologist and 15 years in the field of cochlear implants. Over the years, she has worked with over 250 cochlear implant recipients of all ages and their families. She has spoken locally and nationally on various topics regarding cochlear implants.

Sarah E. Drake, MS, CCC-A
Audiologist

Sarah graduated from the University of Wisconsin with Master's degree in Audiology. Prior to joining the Medical College of Wisconsin, she worked with the cochlear implant teams at the University of Iowa Hospitals and Clinics and at the University of Illinois, Chicago. Sarah is pleased to use her clinical and research background from these two programs here at the Medical College of Wisconsin.

Jamie Jensen, AuD, CCC-A
Audiologist

Dr. Jensen graduated with her Bachelor's degree in Communication Sciences and Disorders from the University of Wisconsin-Stevens Point in 2002. She completed her Doctor of Audiology at Vanderbilt University in 2006 and then came to the Medical College. Since coming here, Dr. Jensen managed the cochlear implant research projects, including participant recruitment and data collection. In November, 2006, she joined the clinical team to work with the adult implant patients, as well as continuing her role in research.

Mary Brawley, MA, CCC-SLP
Speech Language Pathologist

Mary Brawley is the Program Manager for the Center for Communication and Swallowing Disorders section of the Otolaryngology Department at the Medical College of Wisconsin. Mary has 30 years of experience in the diagnosis and treatment of children and adults with communication impairments and is the newest member of the cochlear implant team.

Jaye Berghauer, MS, CCC-SLP
Speech/Language Pathologist

Jaye received her degree in Communicative Disorders – Speech Language Pathology from the University of Wisconsin-Madison. Since 1985, Jaye has worked in the Milwaukee area and has had extensive experience with the school system as well as outpatient clinics. Jaye works with children of all ages, involving their families, caregivers, and other health and school staff to help each child meet his or her potential.

COCHLEAR IMPLANT TEAM

Dione C. Langley, MS, CCC-SLP
Speech/Language Pathologist

Dione received her undergraduate degree in Communicative Disorders from the University of Wisconsin-Stevens Point and her graduate degree from the University of Southwestern Louisiana. She has worked in the school system, outpatient clinics, and a birth-three program. She has pediatric experience with all ages in both diagnostics and therapy. Her strengths are working closely with families, caregivers, and other health and school staff to provide the best opportunity for each child to succeed.

Tammy Schumacher-Monfre, MSN, APNP
Advanced Prescriber Nurse Practitioner

Tammy graduated with a Master's degree as an advanced nurse practitioner in 1998 and has extensive experience in medical/surgical education. She specializes in medical management issues and came to the Medical College in 1999 to work with Dr. Wackym. Tammy is involved with patients during the pre-implant evaluation as well as the post-surgical follow-up. She is an excellent resource for patients with medical questions related to their cochlear implants.

Robert Schum, PhD
Pediatric Psychologist

In 1977, Dr. Schum began working with children with hearing loss and by the late 80's with children receiving cochlear implants. Bob has published extensively in nationally known professional journals dealing with the topic of communication disorders. He has specific expertise in psychoeducational testing of children with communication disorders, including hearing loss, and is a valuable resource to families as well as the implant team.

Karen Knopf, M. Ed.
Auditory/Oral Early Childhood Teacher

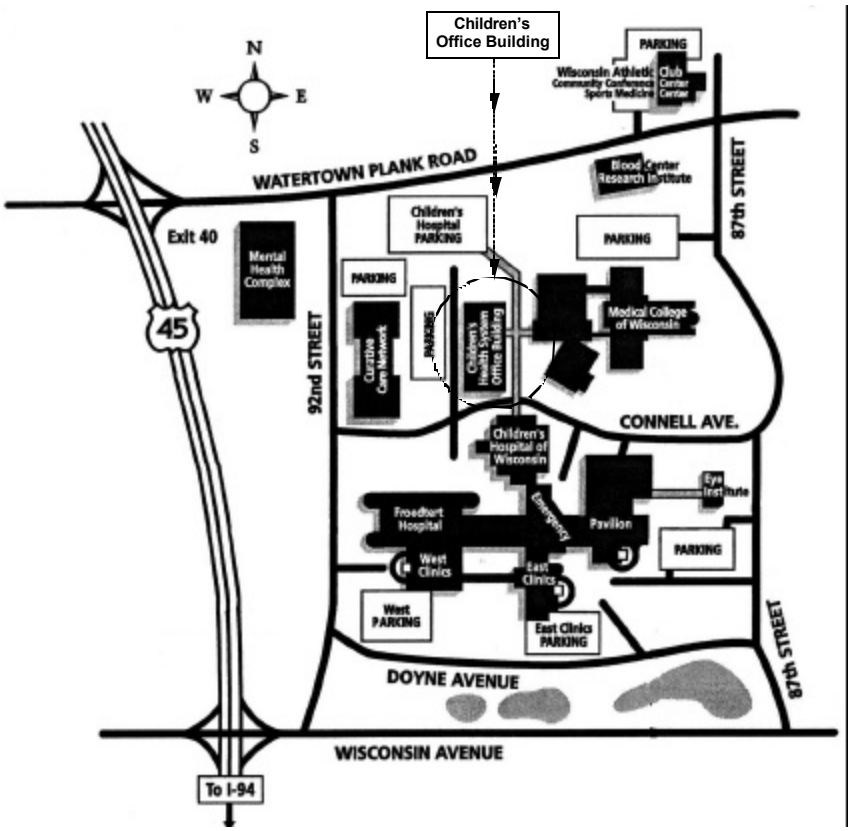
Karen graduated with a communication disorders major from Truman State University and a masters in Deaf Education from Portland Oregon. In 2002, she accepted her position as auditory/oral early childhood teacher in Waukesha, WI. Her responsibilities include helping educators throughout the state grow in their knowledge of teaching children with cochlear implants. To enhance her abilities, Karen completed in 2004 the Educational Consultant Training Program from Children's Hospital of Philadelphia.

Jane Kellerman
Administrative Assistant

Jane started at the Medical College in 1999. She provides support for the day-to-day operation of the cochlear implant program. For cochlear implant information packets, equipment needs, and/or scheduling of appointments, contact Jane at any one of the phone numbers or the e-mail listed below.

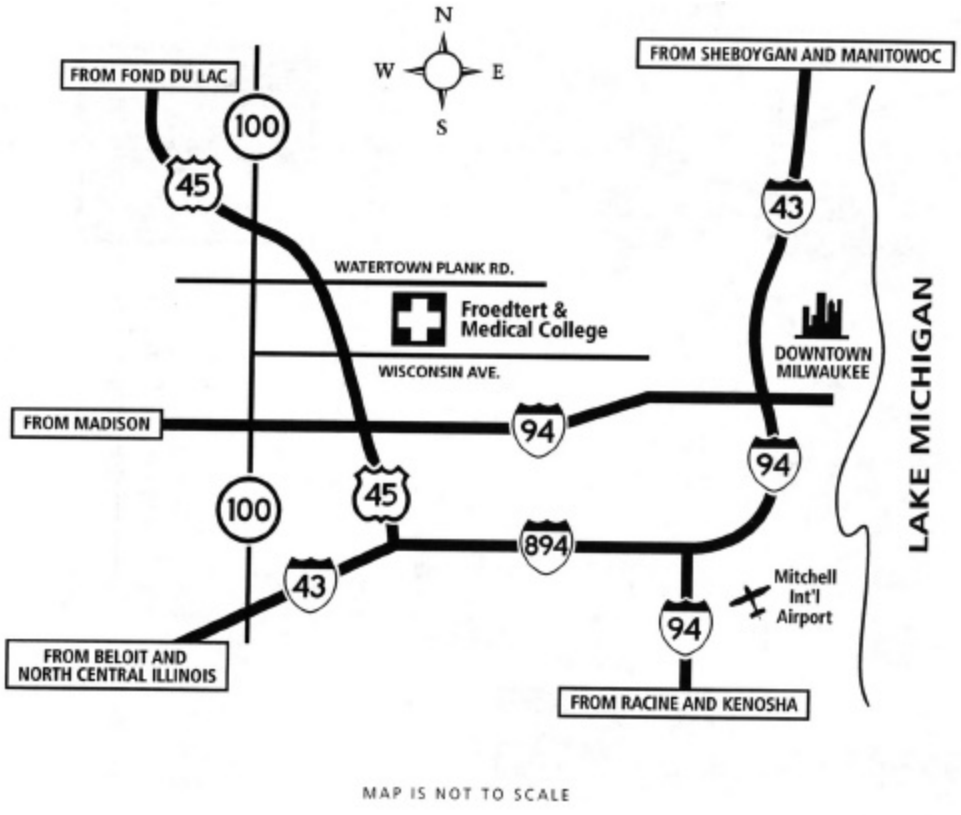
Koss Cochlear Implant Program
Medical College of Wisconsin
9200 West Wisconsin Avenue - Milwaukee, Wisconsin 53226
Pediatric (414) 266-2685 - Adult (414) 805-5586 - Email: cochlear.implant@mcw.edu

Maps and Directions



Children's Office Building
The Master Speech and Hearing Clinic is located on the third floor of the Children's Office Building. The building is located at 9000 W. Wisconsin Avenue. Parking is available across the street and in the Children's Hospital Parking structure. When you arrive at the clinic check in at the registration desk.

If you need additional directions, call the Master Speech and Hearing Clinic at 414.266.3317.



MAP IS NOT TO SCALE

From Sheboygan & Manitowoc
Follow I-43 South to Milwaukee. As you approach downtown Milwaukee, take I-94 West toward Madison (exit 10). Continue on I-94 West past Miller Park. Take US Hwy 45 North toward Fond du Lac (exit 305B). Travel approximately one mile north and exit on Watertown Plank Road (exit 40).

From Racine & Kenosha
Take I-94 West (actually heads north) toward Milwaukee. Shortly past the airport, take the I-894 bypass (Madison/Fond du Lac, exit 316). Follow I-894 to US Hwy 45 North. Take US Hwy 45 North to Watertown Plank Road (exit 40).

From Beloit & North Central Illinois
Take I-43 North (Rock Freeway) to US Hwy 45/I-894. Continue north on Hwy 45 (Fond du Lac). Approximately one mile north of the Milwaukee County Zoo, exit on Watertown Plank Road. (exit 40).

From Fond du Lac
Follow US Hwy 45 South to Milwaukee. Approximately one mile past North Avenue, exit on Watertown Plank Road (exit 40).

From Madison
Take I-94 East (Milwaukee) to US Hwy 45 North (exit 305B, Fond du Lac). Follow 45 North for about one mile, and exit on Watertown Plank Road, (exit 40).

Exchange of Information Forms

In order to gain a better picture of your child's auditory and communication skills, we would like to obtain information/records from the program and individuals who are working with you and your child. In addition, as we go through the evaluation process we would like to be able to share test results and have an open dialog with you and the program/individuals who work with you. Please complete a release of information form for each program/person we should be communicating with and exchanging information. This may include your child's audiologist, speech-language pathologist, early childhood specialist, birth to three program, school, and/or physician. If you need more forms, feel free to copy these. You can return these release forms with the completed questionnaire.

Thank you. We look forward to working with you and your child.

Exchange of Information Forms

In order to gain a better picture of your child's auditory and communication skills, we would like to obtain information/records from the program and individuals who are working with you and your child. In addition, as we go through the evaluation process we would like to be able to share test results and have an open dialog with you and the program/individuals who work with you. Please complete a release of information form for each program/person we should be communicating with and exchanging information. This may include your child's audiologist, speech-language pathologist, early childhood specialist, birth to three program, school, and/or physician. If you need more forms, feel free to copy these. You can return these release forms with the completed questionnaire.

Thank you. We look forward to working with you and your child.

Children's Hospital of Wisconsin
9000 W. Wisconsin Avenue
Milwaukee, WI 53201
414.266.2301

Office Use Only:

MR #
Phone Number:
Fax Number:

☐ Mailed ☐ Pick-up/ID verified ☐ ☐ Faxed
Date: _____ Initial: _____

AUTHORIZATION FOR RELEASE OF INFORMATION FROM HEALTH CARE RECORDS

1. I, Name of Patient _____ Date of Birth _____ hereby consent to the release of information from my health care record by:
   A. ☐ Children's Hospital of Wisconsin
   (0R)
   B. ☐ Name _____
   Address _____
   City _____ State _____ Zip _____

2. Type of information to be released (check one or more of the following)

	Visit Date		Visit Date
☐ Discharge Summary	_____	☐ All Patient Records	_____
☐ History & Physical	_____	☐ Emergency Dept. Report	_____
☐ Consultation Report	_____	☐ Laboratory	_____
☐ Operative/Pathology	_____	☐ X-ray / CT / MRI Films	_____
☐ Outpatient Visit	_____	☐ X-ray / CT / MRI Reports	_____
☐ Alcohol/Drug Abuse	_____	☐ Rehab (PT/OT)	_____
☐ CPC / Abuse Records	_____	☐ EKG (Report)	_____
☐ Mental Health Records	_____	☐ Other	_____
☐ HIV (AIDS) Test Results	_____		_____

(HIV (AIDS) Requires Your Signature Here)

3. Release information to:
   A. ☐ Name _____
   Address _____
   City _____ State _____ Zip _____
   (0R)
   B. ☐ Children's Hospital of Wisconsin

4. Purpose of release (Check one)

☐ Medical Care
☐ Legal Investigation*
☐ Personal Use*
☐ Social Security/ Disability Determination
☐ Payment of Insurance Claim*
☐ Application for Insurance*
☐ School
☐ Military*
☐ Other (Please Explain) _____

* ***Standard Fees Apply***

5. I understand that I may revoke this consent at any time; except that information may have been released before receipt of notice revoking this consent. Unless otherwise specified on the line provided, this consent will expire one year from the date signed. Expiration Date: _____

6. A photocopy or facsimile of this authorization is as valid as the original.

7. **Further redisclosure of this information without written consent is prohibited by law.**

8. Date consent is signed _____

9. Signature of person giving consent _____
   ☐ Patient ☐ Parent of Minor ☐ Legal Guardian ☐ Foster Parent
   ☐ Person Authorized by Patient _____
   Specify Relationship to Patient

PLEASE GIVE THIS PACKET TO YOUR CHILD'S EDUCATOR/THERAPIST.

PLEASE GIVE THIS PACKET TO YOUR CHILD'S EDUCATOR/THERAPIST.

To: Staff working with _____

The above named child has recently been referred to us as a potential candidate for cochlear implant. As a part of this process, we would like to provide you with information about cochlear implants and the evaluation process. In addition, we would like to obtain your input about the child's communication skills and learning environment.

In this packet, you will find some information about cochlear implants, the members of the cochlear implant team, and the pre and post-implant process. In addition, we have included some resource information that you might find useful.

You are an important component in the cochlear implant evaluation process because of your experience with the child and your understanding of his/her communication skills and needs. We have enclosed a brief form for you to complete to give us a better idea of how this child uses his/her aided hearing for communication. In addition, we would appreciate a copy of the most recent IEP and any evaluation reports or other information that you think might be helpful.

Through this process, please feel free to contact us with specific concerns and questions as well as more general questions about cochlear implants or the evaluations that are taking place.

If you have any questions, feel free to contact Jane Kellerman, Administrative Assistant for the Koss Cochlear Implant Program, via e-mail: jkellerm@mcw.edu or via phone 414.805.5586.

Koss Cochlear Implant Program
Medical College of Wisconsin
Department of Otolaryngology and Communication Sciences
Froedtert West Clinics
9200 West Wisconsin Avenue
Milwaukee, WI 53226

Working in conjunction
Children's Hospital of Wisconsin - Pediatric Patients
Froedtert Hospital - Adult Patients

KOSS COCHLEAR IMPLANT PROGRAM

EDUCATOR/THERAPIST INFORMATION SHEET

Child's name: _____ Date: _____

Person completing this form: _____ Position/Title: _____

How long have you worked with/known this child? _____

Based on your knowledge, does this child wear his/her hearing aids consistently without resistance at

school? ☐ Yes ☐ No
therapy? ☐ Yes ☐ No
home? ☐ Yes ☐ No

If marked no, please describe: _____

_____

How would you characterize this child's current auditory abilities without any visual cues such as lipreading or signs? *(check 1 or 2)*

☐ Does <u>not</u> consistently detect speech
☐ Does consistently detect speech
☐ Beginning pattern perception
☐ Consistent pattern perception
☐ Unsure
☐ Closed set word recognition from a set of _____ words
☐ Understands a few open set words and sentences *(without choices)*
☐ Consistent open set word and sentence understanding
☐ Is able to converse easily without lip-reading or sign cues
☐ Other comments _____

How would you characterize this child's current speech abilities? *(check 1 or 2)*

☐ Does <u>not</u> consistently use voice/speech
☐ Does consistently use voice/speech
☐ Produces correct number of syllables
☐ Produces variations in pitch
☐ Unsure
☐ Produces some words that are easily understood
☐ Uses a number of phrases an sentences that re easily understood
☐ Most speech is understood by familiar listeners
☐ Most speech is understood by unfamiliar listeners
☐ Other comments _____

What is your level of knowledge and comfort with cochlear implants? *(check 1)*

☐ Very limited ☐ Some ☐ A working knowledge ☐ Fairly knowledgeable ☐ Very knowledgeable

What is your level of knowledge and comfort with development of auditory skills? *(check 1)*

☐ Very limited ☐ Some ☐ A working knowledge ☐ Fairly knowledgeable ☐ Very knowledgeable

Koss Cochlear Implant Program
Medical College of Wisconsin
9200 West Wisconsin Avenue - Milwaukee, Wisconsin 53226
Pediatric (414) 266-2685 - Adult (414) 805-5586 - Email: cochlear.implant@mcw.edu

KOSS COCHLEAR IMPLANT PROGRAM

EDUCATOR/THERAPIST INFORMATION SHEET

What are the most efficient ways for us to communicate with you?

Phone: _____

Fax: _____

E-mail: _____

Best Times: _____

Is there anything else you think we should know about this child and their communication skills?

Do you have any specific questions about cochlear implant?

In addition we would appreciate receiving a copy of the child's most recent IEP and any pertinent reports. A release form is attached. You can return this form and any additional information to the address below.

If you have additional information or questions that you would like to discuss with us, contact Jane Kellerman, Administrative Assistant, for the Koss Cochlear Implant Program via e-mail: jkellerm@mcw.edu or via phone 414.805.5586.

Return this form and any additional information to:

Jane Kellerman, Administrative Assistant
Department of Otolaryngology
& Communication Sciences
Koss Cochlear Implant Program
9200 West Wisconsin Avenue
Milwaukee, WI 53226

Thank you for providing this valuable information.

Working in conjunction
Children's Hospital of Wisconsin - Pediatric Patients
Froedtert Hospital - Adult Patients

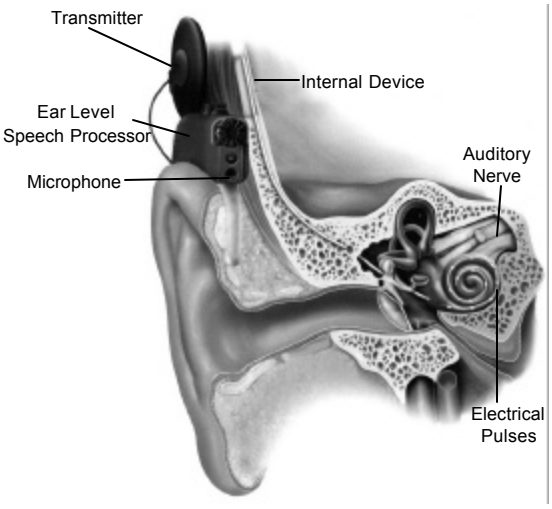
WHAT IS A COCHLEAR IMPLANT?

A cochlear implant is designed to provide electrical stimulation to the hearing nerve fibers by by passing the hair cells in the cochlea that are damaged or absent for individuals with sensorineural hearing loss. The function of the cochlear implant is to use this electrical stimulation to provide individuals who have severe to profound sensorineural hearing losses with an auditory signal that they interpret as sound. It is a prosthetic hearing device, not a hearing aid.

How does a cochlear implant work?

A cochlear implant consists of both externally worn and surgically implanted components.

- The microphone picks up sound and sends it to the speech processor.
- The speech processor (body worn or ear-level) analyzes and codes the signal.
- The coded signal is sent to the transmitter that is worn in the hair.
- The transmitter sends the signal across the skin to the internal device and stimulates the auditory nerve fibers. The brain interprets the signal as sound.



Who can benefit from a cochlear implant?

- Adults and children with severe to profound sensorineural hearing loss in both ears.
- Children who are 12 months (younger in some cases) to 18 years of age and adults of any age.
- Individuals who receive insufficient benefit from hearing aids.
- Children who can receive family and educational support.
- Individuals and families with appropriate expectations and an understanding of the necessary follow-up.

What cochlear implant systems are available?

At the present time there are three manufacturers of cochlear implants for children and adults:

- Advanced Bionics
- Cochlear Americas
- Med-El Corporation

All three companies have excellent implant systems. As a part of the evaluation process, we discuss the function and benefits of each device with the candidate and their family.

Who can I call if I have questions?

Feel free to contact any audiologist or speech-language pathologist on the cochlear implant team. If they can't answer your question, they will be able to get you in touch with someone who can.

Adult Cochlear Implant Audiologist	Adult Cochlear Implant Speech-Language Pathologist	Pediatric Cochlear Implant Audiologist	Pediatric Cochlear Implant Speech-Language Pathologist
414-805-5586	**414-805-5586**	**414-266-2685**	**414-266-2685**
Linda Burg, AuD, CCC-A Jamie Jensen, AuD, CCC-A	Mary Brawley, MA, CCC-SLP	Karla Balko, MS, CCC-A Sarah Drake, MS, CCC-A	Dione Langley, MS, CCC-SLP Jay Berghaurer, MS, CCC-SLP

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WHY THE KOSS COCHLEAR IMPLANT PROGRAM?

Advanced Technology
The Koss Cochlear Implant Program is the only program in the state of Wisconsin that has been selected by all three cochlear implant manufacturers to participate in their investigational trials. This allows our patients access to the most recent technology as well as a large selection of devices. The program is the largest in the state of Wisconsin. We currently follow over 400 patients from Wisconsin and the surrounding states.

Experienced Staff
The staff on the Koss Cochlear Implant Team has extensive experience working with individuals with hearing loss, in particular, those with cochlear implants. The years of experience range up to 15 years, and include both pediatric and adult expertise.

Comprehensive Patient Care
In addition to offering patients the latest technology and device selection, we have an emphasis on comprehensive patient care. Patients and their families receive this care throughout the evaluation, surgical, and initial post-implant process. In addition, we provide long-term follow-up care, as clients become experienced cochlear implant users. This care includes:

- Device programming
- Aural rehabilitation
- Speech-language evaluation
- Patient and family support groups
- Educational consultation & collaboration
- Post-implant communication assessment
- Coordination with local service providers

Research
Another important component of the program is the ongoing hearing research. Here is a brief sample of our investigational trials and other areas of ongoing research:

- The use of a "hybrid" device that is a combination of cochlear implant and hearing aid. This device is designed for individuals with profound sensorineural hearing loss in the high frequencies. The cochlear implant portion provides electrical hearing for the high pitches and the hearing aid provides amplification for the low and middle pitches.
- Cochlear implantation in a deaf ear when the other ear is normal or has mild hearing impairment.
- Effects of cochlear implantation on suppression of tinnitus.
- Relationships between genetics and hearing loss in families and in clinical populations.

See article: "Koss Endows $1 Million Chair; College Names First Recipient" on next page.

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Pediatric (414) 266-2685 - Adult (414) 805-5586 - Email: cochlear.implant@mcw.edu

Koss Endows $1 Million Chair; College Names First Recipient

Article from the World, the Medical College of Wisconsin newsletter for faculty and staff - July 17, 2000

P. Ashley Wackym, MD, is the first recipient of the John C. Koss Professorship of Otolaryngology and Communication Sciences at the Medical College of Wisconsin. He became Professor and Chairman of Otolaryngology and Communication Sciences in 1998.

The chair is endowed by a $1 million combined gift from John C. Koss and the Milwaukee-based Koss Corporation. John Koss is credited with creating the high-fidelity stereo headphone industry in the late 1950's.

"We are pleased and very grateful that the Koss family has strengthened its long term relationship with the Medical College of Wisconsin through this endowment," said T. Michael Bolger, JD, President and CEO. "A chair is the highest honor the College can bestow on a physician or scientist. Dr. Wackym has many accomplishments to his credit deserving of the honor."

"The John C. Koss Chair will allow major expansion of our work in cochlear implantation," Dr. Wackym said. I am passionate about caring for these patients, and am humbled on a daily basis by what these prospective devices can provide to people with significant hearing loss, particularly children."

A growing number of people are no longer isolated by profound hearing loss thanks to the Koss Cochlear Implant Program, according to Dr. Wackym. His surgical teams at Froedtert Hospital and Children's Hospital of Wisconsin are the only ones in the state capable of implanting all three of the cochlear implant devices currently on the market. The implants restore hearing by directly stimulating the ear's cochlear nerve, and his team is now researching methods to offer the implants to a wider range of candidates.

"I have personally had the opportunity to observe Dr. Wackym's dedication to his patients," says Michael Koss, president and CEO of Koss Corp. "I have witnessed two cochlear implant surgeries performed by Dr. Wackym within the Koss Cochlear Implant Program. The revolutionary new techniques used to treat these patients are surpassed only by the personal care given them by the team. The sum total of both has been awe-inspiring."

In 1980, Koss Corp. helped fund the Medical College Koss Hearing and Balance Center. Koss Corporation is also developing noise-canceling headphones that can be worn by patients undergoing MRI scans. These phones minimize the loud clicking noises made by the scanner, which can make the experience of an MRI unpleasant. The phones will be tested at the Medical College.

Dr. Wackym's department conducts research in and treatment for a variety of disorders of the head and neck, sinus, throat and ear, including cancer, as well as surgery for hearing, balance or facial nerve disorders.

Working in conjunction
Children's Hospital of Wisconsin - Pediatric Patients
Froedtert Hospital - Adult Patients

PEDIATRIC COCHLEAR IMPLANT EVALUATION PROCESS

Initial inquiry or referral can be made by:

- Family Member
- Audiologist
- Therapist
- Teacher
- Pediatrician
- Other

Information sharing:

- An information packet will be mailed to the family.
- Complete the history information form included in the packet.
- Return this form along with copies of the child's most recent audiograms to:
  Jane Kellerman, Administrative Assistant
  Department of Otolaryngology & Communication Sciences
  Koss Cochlear Implant Program
  9200 West Wisconsin Avenue
  Milwaukee, WI 53226
- If there are questions, call 414.805.5586 or e-mail: jkellerm@mcw.edu
- An audiologist will review the information sent to us.
- You will be contacted for an appointment.

Consultation with cochlear implant audiologist:

- Audiological and speech perception testing
- Discuss how cochlear implants work
- Explain the latest technology
- Discuss factors that can affect the candidate's performance with a cochlear implant
- Discuss reasonable post-implant expectations
- Review post-implant follow-up appointments

CT and surgeon appointments will be made.

Medical exam with surgeon:

- History and physical examination
- Review of audiologic testing data
- Review and interpretation of CTs
- Medical diagnosis of the hearing loss
- Discussion of appropriateness of candidacy
- Review of surgical procedures

Cochlear implant decision-making:

- Decisions regarding surgery are made by the candidate along with the cochlear implant team.
- Device discussion with audiologist to choose which cochlear implant device you will be implanted with.

Working in conjunction
Children's Hospital of Wisconsin - Pediatric Patients
Froedtert Hospital - Adult Patients

PEDIATRIC COCHLEAR IMPLANT SURGERY & FOLLOW-UP PROCESS

Once the decision is made to have cochlear implant surgery:

- Pre-authorization from the insurance company for the surgery is needed. Most commercial insurance companies, as well as Medicare and T19, cover cochlear implants. This may take up to six weeks to authorize.
- Once we have received a hard copy of the insurance approval, a surgery date is scheduled.
- Surgery is usually an inpatient procedure which involves an overnight hospital stay.
- The typical cochlear implant surgery takes about two to five hours. This includes testing the device itself, to confirm each patient has a functioning unit. Electrophysiologic testing is done to evaluate each person's responsiveness to stimulation via the cochlear implant.

Post-operative appointments:

- "Hook-Up" is about four weeks after the surgery (3 hour appointment)
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Advanced Bionics
Clarion Cochlear Implant System
Web site available in Spanish
http://www.cochlearimplant.com

Sound-bytes
The Hearing Enhancement Resource Company
Assistive devices, cued speech software, and "American Sign Language Dictionary" on CD-ROM
http://www.soundbytes.com

Hearing Aid Manufacturers
In addition to product information, several have information about hearing loss and other related subjects.
http://www.oticonus.com
http://www.phonak.ch
http://www.resound.com
http://www.siemens-hearing.com

Index to Hearing Health Resources
A wealth of information and related links
http://www.visi.com

HIP Pbulishing Group
HIP Magazine - For children who are deaf or hard of hearing; ages 8-14. Back issues are available.
http://www.hipmag.org

Oral Deaf Schools
Links to private oral schools
http://www.oraldeafed.org

Central Institute for the Deaf
School for the deaf resources
http://www.cid.wustl.edu

Gallaudet University
Admission information, interesting links
http://www.gallaudet.edu

Better Hearing Institute
Famous people with hearing loss and a guide to your child's hearing
http://www.betterhearing.org

Self Help for Hard-of-Hearing People
Publishes a journal
http://www.shhh.org

Auditory-Verbal International
Free membership for one year for families of children with hearing loss
Parent's page - links with other parents
http://www.auditory-verbal.org

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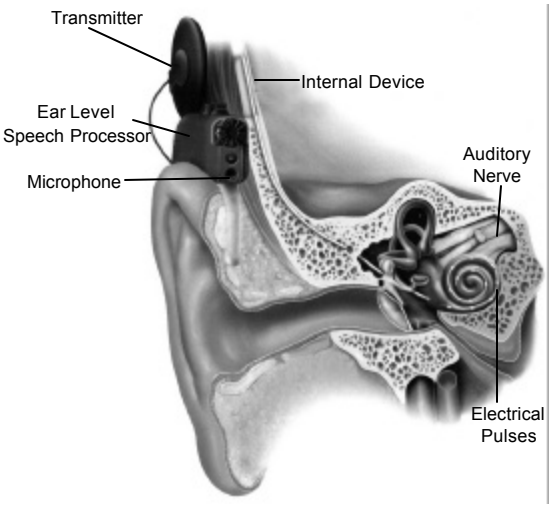
WHAT IS A COCHLEAR IMPLANT?

A cochlear implant is designed to provide electrical stimulation to the hearing nerve fibers by by passing the hair cells in the cochlea that are damaged or absent for individuals with sensorineural hearing loss. The function of the cochlear implant is to use this electrical stimulation to provide individuals who have severe to profound sensorineural hearing losses with an auditory signal that they interpret as sound. It is a prosthetic hearing device, not a hearing aid.

How does a cochlear implant work?

A cochlear implant consists of both externally worn and surgically implanted components.

- The microphone picks up sound and sends it to the speech processor.
- The speech processor (body worn or ear-level) analyzes and codes the signal.
- The coded signal is sent to the transmitter that is worn in the hair.
- The transmitter sends the signal across the skin to the internal device and stimulates the auditory nerve fibers. The brain interprets the signal as sound.



Who can benefit from a cochlear implant?

- Adults and children with severe to profound sensorineural hearing loss in both ears.
- Children who are 12 months (younger in some cases) to 18 years of age and adults of any age.
- Individuals who receive insufficient benefit from hearing aids.
- Children who can receive family and educational support.
- Individuals and families with appropriate expectations and an understanding of the necessary follow-up.

What cochlear implant systems are available?

At the present time there are three manufacturers of cochlear implants for children and adults:

- Advanced Bionics
- Cochlear Americas
- Med-El Corporation

All three companies have excellent implant systems. As a part of the evaluation process, we discuss the function and benefits of each device with the candidate and their family.

Who can I call if I have questions?

Feel free to contact any audiologist or speech-language pathologist on the cochlear implant team. If they can't answer your question, they will be able to get you in touch with someone who can.

Adult Cochlear Implant Audiologist	Adult Cochlear Implant Speech-Language Pathologist	Pediatric Cochlear Implant Audiologist	Pediatric Cochlear Implant Speech-Language Pathologist
414-805-5586	**414-805-5586**	**414-266-2685**	**414-266-2685**
Linda Burg, AuD, CCC-A Jamie Jensen, AuD, CCC-A	Mary Brawley, MA, CCC-SLP	Karla Balko, MS, CCC-A Sarah Drake, MS, CCC-A	Dione Langley, MS, CCC-SLP Jay Berghaurer, MS, CCC-SLP

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WHY THE KOSS COCHLEAR IMPLANT PROGRAM?

Advanced Technology
The Koss Cochlear Implant Program is the only program in the state of Wisconsin that has been selected by all three cochlear implant manufacturers to participate in their investigational trials. This allows our patients access to the most recent technology as well as a large selection of devices. The program is the largest in the state of Wisconsin. We currently follow over 400 patients from Wisconsin and the surrounding states.

Experienced Staff
The staff on the Koss Cochlear Implant Team has extensive experience working with individuals with hearing loss, in particular, those with cochlear implants. The years of experience range up to 15 years, and include both pediatric and adult expertise.

Comprehensive Patient Care
In addition to offering patients the latest technology and device selection, we have an emphasis on comprehensive patient care. Patients and their families receive this care throughout the evaluation, surgical, and initial post-implant process. In addition, we provide long-term follow-up care, as clients become experienced cochlear implant users. This care includes:

- Device programming
- Aural rehabilitation
- Speech-language evaluation
- Patient and family support groups
- Educational consultation & collaboration
- Post-implant communication assessment
- Coordination with local service providers

Research
Another important component of the program is the ongoing hearing research. Here is a brief sample of our investigational trials and other areas of ongoing research:

- The use of a "hybrid" device that is a combination of cochlear implant and hearing aid. This device is designed for individuals with profound sensorineural hearing loss in the high frequencies. The cochlear implant portion provides electrical hearing for the high pitches and the hearing aid provides amplification for the low and middle pitches.
- Cochlear implantation in a deaf ear when the other ear is normal or has mild hearing impairment.
- Effects of cochlear implantation on suppression of tinnitus.
- Relationships between genetics and hearing loss in families and in clinical populations.

See article: "Koss Endows $1 Million Chair; College Names First Recipient" on next page.

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Koss Endows $1 Million Chair; College Names First Recipient

Article from the World, the Medical College of Wisconsin newsletter for faculty and staff - July 17, 2000

P. Ashley Wackym, MD, is the first recipient of the John C. Koss Professorship of Otolaryngology and Communication Sciences at the Medical College of Wisconsin. He became Professor and Chairman of Otolaryngology and Communication Sciences in 1998.

The chair is endowed by a $1 million combined gift from John C. Koss and the Milwaukee-based Koss Corporation. John Koss is credited with creating the high-fidelity stereo headphone industry in the late 1950's.

"We are pleased and very grateful that the Koss family has strengthened its long term relationship with the Medical College of Wisconsin through this endowment," said T. Michael Bolger, JD, President and CEO. "A chair is the highest honor the College can bestow on a physician or scientist. Dr. Wackym has many accomplishments to his credit deserving of the honor."

"The John C. Koss Chair will allow major expansion of our work in cochlear implantation," Dr. Wackym said. I am passionate about caring for these patients, and am humbled on a daily basis by what these prospective devices can provide to people with significant hearing loss, particularly children."

A growing number of people are no longer isolated by profound hearing loss thanks to the Koss Cochlear Implant Program, according to Dr. Wackym. His surgical teams at Froedtert Hospital and Children's Hospital of Wisconsin are the only ones in the state capable of implanting all three of the cochlear implant devices currently on the market. The implants restore hearing by directly stimulating the ear's cochlear nerve, and his team is now researching methods to offer the implants to a wider range of candidates.

"I have personally had the opportunity to observe Dr. Wackym's dedication to his patients," says Michael Koss, president and CEO of Koss Corp. "I have witnessed two cochlear implant surgeries performed by Dr. Wackym within the Koss Cochlear Implant Program. The revolutionary new techniques used to treat these patients are surpassed only by the personal care given them by the team. The sum total of both has been awe-inspiring."

In 1980, Koss Corp. helped fund the Medical College Koss Hearing and Balance Center. Koss Corporation is also developing noise-canceling headphones that can be worn by patients undergoing MRI scans. These phones minimize the loud clicking noises made by the scanner, which can make the experience of an MRI unpleasant. The phones will be tested at the Medical College.

Dr. Wackym's department conducts research in and treatment for a variety of disorders of the head and neck, sinus, throat and ear, including cancer, as well as surgery for hearing, balance or facial nerve disorders.

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PEDIATRIC COCHLEAR IMPLANT EVALUATION PROCESS

Initial inquiry or referral can be made by:

- Family Member
- Audiologist
- Therapist
- Teacher
- Pediatrician
- Other

Information sharing:

- An information packet will be mailed to the family.
- Complete the history information form included in the packet.
- Return this form along with copies of the child's most recent audiograms to:
  Jane Kellerman, Administrative Assistant
  Department of Otolaryngology & Communication Sciences
  Koss Cochlear Implant Program
  9200 West Wisconsin Avenue
  Milwaukee, WI 53226
- If there are questions, call 414.805.5586 or e-mail: jkellerm@mcw.edu
- An audiologist will review the information sent to us.
- You will be contacted for an appointment.

Consultation with cochlear implant audiologist:

- Audiological and speech perception testing
- Discuss how cochlear implants work
- Explain the latest technology
- Discuss factors that can affect the candidate's performance with a cochlear implant
- Discuss reasonable post-implant expectations
- Review post-implant follow-up appointments

CT and surgeon appointments will be made.

Medical exam with surgeon:

- History and physical examination
- Review of audiologic testing data
- Review and interpretation of CTs
- Medical diagnosis of the hearing loss
- Discussion of appropriateness of candidacy
- Review of surgical procedures

Cochlear implant decision-making:

- Decisions regarding surgery are made by the candidate along with the cochlear implant team.
- Device discussion with audiologist to choose which cochlear implant device you will be implanted with.

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PEDIATRIC COCHLEAR IMPLANT SURGERY & FOLLOW-UP PROCESS

Once the decision is made to have cochlear implant surgery:

- Pre-authorization from the insurance company for the surgery is needed. Most commercial insurance companies, as well as Medicare and T19, cover cochlear implants. This may take up to six weeks to authorize.
- Once we have received a hard copy of the insurance approval, a surgery date is scheduled.
- Surgery is usually an inpatient procedure which involves an overnight hospital stay.
- The typical cochlear implant surgery takes about two to five hours. This includes testing the device itself, to confirm each patient has a functioning unit. Electrophysiologic testing is done to evaluate each person's responsiveness to stimulation via the cochlear implant.

Post-operative appointments:

- "Hook-Up" is about four weeks after the surgery (3 hour appointment)
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