

Physician Update



Lucile Packard
Children's Hospital
at Stanford

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Packard Children's Opens New Hearing Center

COMPREHENSIVE CARE PROVIDED FOR DEAF AND HARD- OF-HEARING CHILDREN

When a deaf child receives a cochlear implant to improve hearing, the work doesn't stop with the operation. The implant must be programmed correctly, which can require months of follow-up evaluations and adjustments. The process is often more complex for children than for adults, who typically had hearing before losing it.

"An adult can tell you, 'I can't quite hear; can you fix the program a little?'" said John Oghalai, MD, medical director of the Children's Hearing Center at Lucile Packard Children's Hospital. "A kid who has never heard before doesn't even know what it's supposed to sound like."

That's just one reason why comprehensive, multidisciplinary care is so important for children undergoing this procedure. Packard Children's has embraced this approach with the new Children's Hearing Center, which offers cochlear implants and a wide range of other services for deaf and hard-of-hearing children. The center treats all forms of hearing loss, temporary or permanent; diseases of the ear canal, middle ear and mastoid; and skull base tumors. Services are based at Packard Children's, ensuring a kid-friendly environment,

and the team includes specialists in audiology; ear, nose and throat (ENT) medicine; speech and language pathology; and other key disciplines.

"We're drawing from the excellence that already exists at Packard and bringing it together into a cohesive team of pediatric specialists to assess and treat the child," said Jody Winzelberg, AuD, the center's administrative director and chief of audiology at Packard Children's.

The center is also a focal point for cutting-edge studies on hearing loss. Oghalai, who specializes in otology, neurotology and skull base surgery, joined Packard Children's in 2010 with extensive clinical and research experience in this area. His team is now investigating questions such as the effect of cochlear implants on children with developmental delays. These studies, along with other hearing-related research at the Stanford University School of Medicine, could lead to better care for patients. "We see the Children's Hearing Center as the ultimate outlet for discoveries made in the basic science lab," Oghalai said.

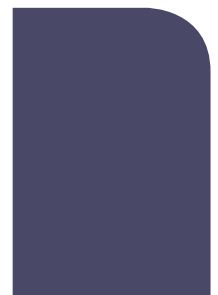
Multidisciplinary Team

The center sees children from birth, including infants identified through the newborn hearing

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screening program at Packard Children’s, and takes patients up to 21 years old. One to two children in 1,000 are born deaf, and another 17 per 1,000 will develop significant hearing loss by age 18.

Depending on the patient’s needs, the child may see an audiologist or ENT physician first. Hearing evaluations are performed at the Audiology Clinic at 1000 Welch Road. The audiologist determines the type and degree of hearing loss and, if needed, may fit the child with a hearing aid or other assistive device and perform further assessments. To manage routine issues such as common ear infections, the audiologist works closely with the referring physician. If the evaluation reveals more complex problems, the child may be referred to other team members.

ENT physicians at the Pediatric Ear, Nose & Throat Clinic at 730 Welch Road perform medical exams and order tests, which may include blood work, genetic tests and imaging studies; surgeries take place at the state-of-the-art Ford Family Surgery Center at Packard Children’s. In addition to Oghalai, the ENT team at the Children’s Hearing Center includes Packard Children’s pediatric otolaryngologists Anna Messner, MD, and Kay Chang, MD. Speech and language evaluations occur at 321 Middlefield Road in Menlo Park.

If the team is concerned about the possibility of developmental delays, the child may be evaluated by a developmental pediatrician, a psychologist or both. Patients may also undergo vision tests by a pediatric ophthalmologist. Genetic testing and counseling can often help determine whether the condition is inherited and inform parents about the risk of hearing loss in the patient’s siblings.

Once a week, a core team of specialists meets to discuss patients and decide the best course of action. If the child is deaf and can’t benefit from hearing aids or assistive devices, the team usually recommends a cochlear implant. The implant converts sound to electricity, which stimulates the auditory nerve. The center’s cochlear implant coordinator, Annie Vranesic, AuD, counsels the families and prepares the child for implantation. After the surgery, she performs follow-up evaluations to program the cochlear implant and assess progress with other members of the care team.

The center also works with outside therapists and educators to ensure that patients receive the services they need in their communities. In-state residents aged 0 to 3 with hearing loss are referred to California’s Early Start Program, which offers a variety of early intervention services. For older children, the center coordinates with the patient’s school district.

Cutting-Edge Research

In addition to providing top-notch clinical care, the center is exploring new strategies for improving hearing loss diagnosis and treatment.

In a clinical trial, Oghalai is testing a noninvasive method to ensure that a cochlear implant is programmed correctly. The child listens to a story while wearing a cap that measures oxygen levels in blood going to the brain’s auditory cortex. Oghalai’s team then reconstructs 3D images of the brain. By testing children immediately after cochlear implants are turned on, Oghalai hopes to determine if the auditory cortex is responding properly.

Oghalai is also investigating whether children with severe developmental delays can benefit from cochlear implants. While many of these children are so delayed that they likely will not be able to speak even after receiving a cochlear implant, Oghalai wants to find out if the treatment could result in other improvements, such as better quality of life or higher intelligence. His team is monitoring children after implantation and recording all verbal and nonverbal communications. Children under age 3 are eligible to enter.

The Stanford University School of Medicine has a large research effort investigating regenerative strategies to restore hearing. For example, Alan Cheng, MD, a pediatric otolaryngologist at the Children’s Hearing Center, is studying whether hair cells in the inner ear could be regenerated. Typically, people lose hearing when these cells die.

Some research is already making its way to the clinic: Oghalai’s team has developed an imaging technique that uses laser light to detect subtle changes in the cochlea, which will allow physicians to better determine the cause of hearing loss. The team expects to have the technique available for the center’s patients in about a year.

“When patients see a doctor at the Children’s Hearing Center, they can feel confident the doctor is up-to-date on the latest technologies and treatments,” Oghalai said.

For more information about the Children’s Hearing Center, visit <http://hearingcenter.lpch.org>. For more information about audiology services, call (650) 498-HEAR. For more information about pediatric ENT services, call (650) 724-4800. If prior authorization for insurance is required, call (800) 995-LPCH (5724).