

Echoes

THE CHILDREN'S HEARING INSTITUTE
www.childrens hearing.org



FEBRUARY, 2008

Superman Hayden Blecher has (Advanced) Bionic(s) Hearing!

Stacey Blecher, proud mother of 5-year-old mainstream Kindergartner *Hayden*, sent us this wonderful update: "At an October 31 in-service with the entire Upper Freehold

(NJ) Regional School District, the discussion addressed the importance of meeting the needs of every student when creating the curriculum maps. The Assistant Superintendent pulled out an empty chair and reminded every staff member to think about a child when developing their curriculum - what will he/she need? Will he/she be able to master these goals? The Assistant Superintendent then suggested that everyone think of 'Superman' - he had visited Hayden's Kindergarten that day, saw him dressed as 'Superman' and had taken a liking to him. Hayden's Kindergarten teacher took this picture and added a special caption to the photo. She printed and framed the picture for the Assistant Superintendent and he is using the picture as the



'spokes model' for the learning principles for the school district. As always, we can thank the Beth Israel Cochlear Implant Center for Hayden's unbelievable progress after being implanted three years ago; he is indeed a 'spokes model' for profoundly hearing impaired children whose parents fear for their future."

Helping Kids Like Hayden Blecher at The New York Eye & Ear Infirmary Ear Institute ***The time has come... The new Ear Institute officially opens in February!***

The Ear Institute will consolidate *The Beth Israel Cochlear Implant Center, The Beth Israel Hearing & Learning Center and The New York Eye & Ear Cochlear Implant Center*. All three of these programs are now located at one, single site at 380 Second Avenue between 21 and 22 Streets. Additional audiologists will also be located at the Ear Institute's second site at 230 Second Avenue. The new *Ear Institute* will enhance the reputation of *The New York Eye and Ear Infirmary* as a unique center of excellence in the northeast, and an international destination for patients. Led by Clinical Director and Practice Manager *Ronald A. Hoffman, MD*, the Ear Institute brings together a collaborative staff of physicians, audiologists, educators of the deaf, vestibular therapists, researchers, and other related professionals who will offer comprehensive care for children, teens and adults with hearing loss, balance disorders, chronic ear disease, acoustic neuromas, skull base tumors, and facial paralysis.

One of the primary focuses of the new Ear Institute will be to build on the reputation of excellence achieved by *The Beth Israel/New York Eye & Ear Cochlear Implant Center* in assisting to successfully mainstream children and teens who are hearing-impaired. We want to see every child like *Hayden Blecher* enjoy a level playing field with their fully hearing peers so they can be fully socialized and attain their life dreams.

For new phone numbers and complete new staff listing at 230 Second Avenue and 380 Second Avenue, please see the listing on the back cover of this issue.

CHI Sponsors International Temporal Bone Course



Temporal Bone Course participants and supporters.

The Children's Hearing Institute supported the second annual *Micro-dissection of the Temporal Bone Course* at The New York Eye & Ear Infirmary on November 29th, 30th, and December 1, 2007. Fifteen course participants from six nations heard didactic lectures from the course faculty about various ear and skull base surgeries and practiced these techniques in the *Jorge N. Buxton, MD* Microsurgical Education Center dissection laboratory at NYEEI. Included also were a didactic session on the *Bone Anchored Hearing Aid (BAHA)* and a laser stapedotomy session held in two operating rooms within the hospital. These types of courses are critical to the learning process for physicians and residents as the hearing and balance organs are found deep within the skull, hidden and protected inside the temporal bone. The micro-dissection element demonstrated during this course allowed surgeons to learn about the causes of ear disorders and to devise new treatments and cures. Course faculty included *Drs. Christopher Linstrom, (Course Director), George Alexiades, Ronald Hoffman, Ana Kim and Simon C. Parisier.* The course was



Dr. Christopher Linstrom assisting a participant

gology- Head and Neck Surgery at The New York Eye & Ear Infirmary wishes to express its sincere gratitude and appreciation for this support.

New Hearing Mechanism Discovered That Fundamentally Changes Current Understanding of Inner-Ear Function

MIT researchers have discovered a hearing mechanism that fundamentally changes the current understanding of inner ear function. This new mechanism could help explain the ear's remarkable ability to sense and discriminate sounds. Its discovery could eventually lead to improved systems for restoring hearing. MIT Professor *Dennis M. Freeman* and his team found that the tectorial membrane, a gelatinous structure inside the cochlea of the ear, is much more important to hearing than previously thought. It can selectively pick up and transmit energy to different parts of the cochlea via a kind of wave that is different from that commonly associated with hearing. It has been known for over half a century that inside the cochlea sound waves are translated into up-and-down waves that travel along a structure called the basilar membrane. But the team has now found that a different kind of wave, a traveling wave that moves from side to side, can also carry sound energy. This wave moves along the tectorial membrane, which is situated directly above the sensory hair cells that transmit sounds to the brain. This second wave mechanism is poised to play a crucial role in delivering sound signals to these hair cells. In short, the ear can mechanically translate sounds into two different kinds of wave motion at once. These waves can interact to excite the hair cells and enhance their sensitivity, which may help explain how we hear sounds as quiet as whispers. The interactions between these two wave mechanisms may be a key part of how we are able to hear with such fidelity - for example, knowing when a single instrument in an orchestra is out of tune. "We know the ear is enormously sensitive" in its ability to discriminate between different kinds of sound, *Freeman* says. "We don't know the mechanism that lets it do that." The new work has revealed "a whole new mechanism that nobody had thought of. It's really a very different way of looking at things." This research was funded by the *National Institutes of Health.*

Maria and Tom Petrone Host "Murder at the Birthday Bash" Fundraiser



Andrew (Cochlear implant recipient) Tom, Maria and Alexander Petrone.

On November 17, *Maria and Tom Petrone* hosted a very special fundraiser for CHI. In celebration of *Tom's* 50th birthday, and with gratitude to *Drs. Ronald Hoffman and Jane Madell* for

restoring their son *Andrew's* ability to hear, the couple generously decided to organize a "murder mystery" event in their historic turn-of-the-century home. Guests were invited to wear 1920's cocktail attire and all complied with enthusiasm. Shortly into the party, the butler announced that someone had been found "dead" in the pool. The original mystery, written by a friend, *David Ceci*, was carried out by enlisting select guests as "suspects" with the remainder participating in the investigation. Casting professional actors who happened to be friends in key roles, the event went according to the plan created during the single pre-mystery gathering. Attention was given to hiring musicians with rich experience in tunes of the period. Music of the 20's filled the air and *Tom* had the chance to dust off his trombone in his role of "*Johnny Dorsey*." The mystery culminated in prizes for the most accurate and creative solutions. Instead of gifts, the *Petrones* encouraged their guests to write checks to CHI, and they raised a remarkable \$12,825! We thank *Maria and Tom* for their creativity and wish *Andrew* all continued success achieving his life dreams.

Cochlear Implant Teen Starts His Own Foundation www.lendanearlongisland.com

Jake Spinowitz, age 16, has a profound hearing loss. He has gained recognition for his efforts to help the hard of hearing. Some of the awards he has won include: *Young Achiever Award* presented at the *Eleanor Roosevelt Honor and Humanitarian Awards Breakfast* by the *League for the Hard of Hearing*, the *Oticon Focus on People Awards* and the *Town of Oyster Bay Kids of Distinction Award*. He has provided us with this essay:

"It is not unusual for people, at some point in their lives, to take certain things for granted. I may be guilty of that at times, but I believe that I try to be aware of that and to be appreciative for what I do have, including my implant and hearing aid.

Growing up with 2 older brothers, many toys would be stored in our basement toy closet. Each year, our tradition was to collect the toys not so worn out and donate them to charities. Later on, this led to collecting our books, even the cherished ones, and donating them to our local library. At an early age, I realized the benefits of recycling, helping our environment and adding to the joy of others. Approximately two years ago I accompanied my mom into the office of my local audiologist's office when she paid the bill for my hearing aids. When I saw how expensive they were, I went home and made a flyer to hand out to local audiologists, asking for donations of used hearing aids. I knew there would be someplace who could refurbish them for me and give them to hearing impaired children and adults who could not afford them. After my initial research, I quickly found 2 places that did exactly this and would appreciatively accept my donations. I handed out the flyers to friends, family, people in my community and local audiologists. And so began my own organization called "Lend An Ear Long Island" with the donation of my own hearing aids. As quickly as the aids would come in, I would send them in to



be refurbished and given out to the needy.

About a year ago I began a web site to spread the word and to give the donors a quick place to contact me. After learning how to design a web page, I developed www.lendanearlongisland.com. I felt a great accomplishment after doing this. I couldn't believe I had my own web page and I probably visited myself about 5x per day to check my mail. It did take a while though for people to become aware of my website and after a few months, emails asking where they could send their used aids started to come in. Lend an Ear Long Island has recently been very fortunate to receive new hearing aids donated by Widex with lifetime warranties."

Sometimes when I wake up in the morning, put on my cochlear implant and hearing aid, hear my clock ticking or even the birds chirping, I think of the people who received hearing aids from "Lend An Ear" and hope they are now hearing the same things."

Donations can be sent to: Jake Spinowitz, "Lend an Ear Long Island," P. O. Box 733, Woodbury, N.Y. 11797

Start the New Year with a Hearing Check-Up

Hearing loss is the third most common health problem in the United States, affecting more than 31 million Americans. Most people wait seven to 10 years before seeking help for hearing-related issues. *The American Academy of Audiology* encourages friends and family to look for signs of hearing loss and to talk with their loved ones about scheduling a hearing check-up with an audiologist. To get the word out about hearing loss, the Academy has announced an initiative to increase awareness about healthy hearing. The "Hearing Great in 2008!" program features family-focused television spots encouraging consumers to make a New Year's resolution to visit an audiologist for a hearing check-up. According to Academy member *Lisa Nelson, Au.D.*, Hearing Professionals, Inc., in Laurel, Bowie, Waldorf, and Southern Maryland, "Hearing problems can be more than frustrating, they can actually be dangerous. They make it difficult to understand and follow doctors' advice, respond to warnings, and hear doorbells and alarms. Hearing problems that are ignored or untreated can get worse." An audiologist can help determine if a hearing aid, or other device, is the right treatment. Take a family member or friend to visit an audiologist with you for the gift of hearing.

Dangerous Toy Coverage Missing an Important Health Threat: Risk of Hearing Loss

As consumers snap up electronic toys as gifts for all ages, another, very real danger is being overlooked, according to the *American Speech Language Hearing Association (ASHA)*. To date, this health threat has been largely overlooked as news reports have focused on the lead content of toys, and other serious concerns. In its November 20, 2007 news release "CPSC Delivers the ABC's of Toy Safety", hearing damage from noisy toys or electronic devices is completely absent from the list of dangers to children, according to the *U.S. Consumer Product Safety Commission*. Yet electronics are among the fastest-growing segment of the toy market, and are being marketed to younger and younger children. "It is up to adults to safeguard our children and protect them from dangers that we can easily avoid, including lead, choke hazards and hearing damage from loud toys or playing video games and music too loud, too long," said *Noma Anderson, Ph.D.*, president of ASHA. Loud toys and personal listening technologies that aren't used safely pose a threat to ears of all ages. Once damaged, ears do not heal. For children, hearing loss can also lead to other problems, including difficulties in academic and social development. As younger and younger children are asking for and receiving electronic toys and music devices like MP3s and iPods, it is critical that parents learn how to protect their children's hearing and teach them safe listening habits. Here are some simple guidelines:

How to Maintain Healthy Hearing

- *If you must raise your voice to be heard, it is loud enough to damage hearing.*
- *When evaluating toys for small children, bear in mind that their arms are short and they tend to hold toys close*

Dr. Ana H. Kim Wins Grant Award



Ana H. Kim, MD, Director of Otolologic Research in the department of Otolaryngology-Head and Neck Surgery at The New York Eye & Ear Infirmary, has received a research grant of \$40,000 to support her study on the "Role of Gap Junctions in Inner Ear Hair Cell Ototoxicity and Regeneration." The award was given by *The Triological Society* in recognition of otolaryngologists-head and neck surgeons who have made a commitment to focus their research endeavors on patient-oriented research such as clinical trials, translational research, outcomes research and health services research. The Children's Hearing Institute is also a proud sponsor of *Dr. Kim's* advanced research. Learn more about *Dr. Kim* in our October 2007 *Echoes*, online at: www.childrenshearing.org

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to their face, making noises even louder.

- *If you can hear music from someone else's earphones three feet away, it's too loud.*
- *Give your ears a break from continuous listening.*
- *Upgrade headphones so that they isolate music from background noise. Lower volumes can then be used.*
- *Set volume limiters before allowing children to use electronic items.*

How to Recognize Hearing Loss in Children

- *If you suspect hearing loss, seek the care and advice of a certified audiologist.*
- *Frequently misunderstands what is said and want things repeated*
- *Difficulty following verbal instructions*
- *Turns up the volume of the television, radio, or stereo*
- *Difficulty listening or paying attention when there is noise in the background*
- *Trouble identifying and/or localizing sounds*
- *Reading, spelling, and other academic problems*
- *Feelings of isolation, exclusion, annoyance, embarrassment, confusion, and helplessness*
- *Behavior problems*
- *Pulling or scratching at ears*
- *A history of three or more ear infections*

Visit www.asha.org for materials on hearing loss; view animated video of how sound damages the ear's hair cells at <http://www.asha.org/about/news/convention06/1106animationEar.htm>

The Children's Hearing Institute

For information regarding donations and Echoes please contact:

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Visit our award-winning website:
www.childrenshearing.org

Lend Me Your Ears — And The World Will Sound Very Different

Recognizing people, objects or animals by the sound they make is an important survival skill and something most of us take for granted. But very similar objects can physically make very dissimilar sounds and we are able to pick up subtle clues about the identity and source of the sound. Scientists funded by the UK's Biotechnology and Biological Sciences Research Council (BBSRC) are working out how the human ear and the brain come together to help us understand our acoustic environment. They have found that the part of the brain that deals with sound, the auditory cortex, is adapted in each individual and tuned to the world around us. We learn throughout our lives how to localize and identify different sounds. It means that if you could hear the world through someone else's ears it would sound very different to what you are used to. The research could help to develop more sophisticated hearing aids and more effective speech recognition systems.

The research team at the University of Oxford, led by *Dr. Jan Schnupp*, has studied the auditory cortex of the brain and discovered that its responses are determined not merely by acoustical properties, like frequency and pitch, but by statistical properties of the sound-scape. In the world loudness and pitch are constantly changing. The random shifts in sounds are underpinned with a statistical regularity. For example, subtle and gradual changes are statistically more regular than large and sudden changes. *Dr. Schnupp's* team has found that our brains are adapted to the former; the neurons in the auditory cortex appear to anticipate and respond best to gradual changes in the soundscape. These are also the patterns most commonly found in both nature and musical compositions.

Dr Schnupp, a research leader at the University of Oxford Auditory Neuroscience Group, says: "Our research to model speech sounds in the lab has shown that auditory neurons in the brain are adaptable and we learn how to locate and identify sounds. Each person's auditory cortex in their brain is



CHI 2007-2008 Events Calendar

For further information about these events, please call
Melissa Willis at: 212-979-4523

Educational Conferences for Professionals

February 28/29

Controversial Issues in Pediatric Audiology
The Graduate Center

For information please call: Melissa Willis, 646-438-7858

February 28

Auditory Verbal Day

February 29

Audiology Day

adapted to way their ears deliver sound to them and their experience of the world. If you could borrow someone else's ears you would have real difficulty in locating the source of sounds, at least until your brain had relearned how to do it."

Dr Schnupp has also found that the auditory cortex does not have neurons sensitive to different aspects of sound. When the researchers look at how the auditory cortex responds to changes in pitch, timbre and frequency they saw that most neurons reacted to each change. *Dr Schnupp* explains: "In the closely related visual cortex there are different neurons for processing colour, form and motion. In the auditory cortex the neurons seem to overwhelmingly react to several of the different properties of sound. We are now investigating how they distinguish between pitch, spatial location and timbre. If we can understand how the auditory cortex has evolved to do this we may be able to apply the knowledge to develop hearing aids that can blot out background noise and speech recognition systems that can handle different accents.

Courses, Papers, Presentations

■ **Kim, Ana H., MD; Nilesh Shah, Jim Pearson, Michele Gandolfini, Yufei Yu, Renato Rozental:** *Role of Gap Junctions and Gap Junctional Coupling in Aminoglycoside Ototoxicity*, Association for Research in Otolaryngology) Feb 16-21, 2008, Phoenix, AZ.

■ **Linstrom, Christopher MD; George Alexiades, MD; Ronald Hoffman, MD; Ana Kim, MD; Simon C. Parisier, MD:** *Micro-dissection of the Temporal Bone*, The New York Eye & Ear Infirmary, November 29th, 30th, and December 1, 2007.

■ **Parisier Simon C. MD:** *Chirurgie de l'Implant Cochléaire, Traitement des Complications*. Invited Guest, French Society Of Otolaryngology Annual Meeting, Oct. 14, 2007, Paris, France.

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