

## IN THIS ISSUE

### FEATURE STORIES

- ▶1 NIDCD-funded Communication Tool Gives Deaf and Hearing People Something to Talk About

### RECENT NEWS

- ▶3 NIDCD Director is Named First Recipient of International Scientific Organization's Distinguished Service Award
- ▶3 NIDCD Advisory Council Welcomes Five New Members

### NIDCD HIGHLIGHTS

- ▶4 Ability to Listen to Two Things at Once Is Largely Inherited, Says Twin Study
- ▶5 'Holy Grail' of Hearing: True Identity of Pivotal Hearing Structure Is Revealed
- ▶5 Blood Test May Help Signal Tumor's Remission, Return in Throat Cancer Patients
- ▶5 OHCPL Scores Three Plain Language Awards

### MEETINGS AND EVENTS OF INTEREST

- ▶6 American Academy of Pediatrics
- ▶6 Society for Neuroscience
- ▶6 American Speech-Language-Hearing Association
- ▶6 National Hearing Conservation Association
- ▶6 Early Hearing Detection and Intervention National Conference

### NEW RESOURCES

- ▶7 Updated Hearing Aid Fact Sheet Available
- ▶7 Updated Noise-Induced Hearing Loss (NIHL) Fact Sheet Available
- ▶7 Updated WISE EARS!® CD-ROM Available

### BEYOND NIDCD: NEWS FROM OTHER ORGANIZATIONS

- ▶8 AAA Hears from Audiologists about NIHL in Tweens
- ▶9 New National Technical Assistance and Dissemination Center
- ▶9 BHI Unveils Campaign; Offers Documentary on Hearing Loss
- ▶9 NASDSE Offers Workshop for State Directors

## NIDCD-funded Communication Tool Gives Deaf and Hearing People Something to Talk About

Jason Curry is a people person. The minute you shake hands with him, he makes you feel at home—asking questions, cracking jokes, and sharing amusing stories about himself and his wife Missy. But this amiable 37-year-old from Independence, Mo., hasn't always been so talkative with everyone he meets. Deaf since birth, Curry has struggled for much of his life to find a way to communicate face-to-face with his hearing friends, family, classmates, instructors, coworkers, clients, and supervisors, not to mention waiters, bank tellers, taxi drivers, and store clerks.



NIDCD staff members get their hands on the UbiDuo

"Let me ask you this question," he said two or three minutes into our interview. "How important is it for hearing people to strike up a conversation with another hearing person?" He waited a beat for his question to sink in, and then answered it himself. "It is what makes the world go around. And deaf people don't have that power to strike up a conversation face-to-face with [a] hearing person."

Generally, face-to-face communication between hearing and deaf people is accomplished using

sign language, handwritten notes and text messages, or a sign language interpreter. Some software programs are able to translate English into American Sign Language and back again, however, many of these programs are still in the developmental stages.

It was Curry's desire to really communicate with hearing people that led him to devote most of his free time to the creation of a product that would help get hearing and non-hearing people talking. With the assistance of two Small Business Innovation Research (SBIR) grants from the NIDCD, that product—called the UbiDuo—debuted this past January.

### The Ubi What Now?

The UbiDuo is a device that consists of two keyboards and screens—kind of like a laptop, but a lot lighter (it weighs six pounds total) and without the need for an operating system or special software. One person sits with his keyboard while a second person sits with hers and the conversation takes off from there, with both people typing out what they want to say in real time. As with audible conversations, the discussion can be fast and interruptive, since the words you type appear immediately on the other person's screen without your needing to hit the send key. Unlike audible conversations, the result is a transcript that can be saved and downloaded for later review—such as after a doctor's appointment, a business meeting, or, in this case, an interview for a newsletter article. When you're done talking, the keyboards are latched together side-by-side, folded up, and slipped into a case. The rechargeable batteries last roughly as long as the typical workday.

To add your name to our e-mail list, visit [www.nidcd.nih.gov/health/inside/](http://www.nidcd.nih.gov/health/inside/)



Jason Curry and an employee, Lynn Garretson, demonstrate

As with many inventions, the idea had inauspicious origins—after a discussion over eggs and coffee at the local pancake house between Curry and his father, David, who is admittedly weak at sign language.

“We were trying to converse with each other as we ate our breakfast,” explained Curry. “Then Dad said, ‘I am so frustrated trying to talk to you like I do with my other sons who are hearing.’ So we both got up and headed home. Then Dad drew this design of the UbiDuo on the white board and when I saw that drawing, I screamed at the top of my lungs and said, ‘that is going to change the world for millions of deaf and hard-of-hearing people.’”

Curry, who has a bachelor’s degree from Central Missouri State University (now the University of Central Missouri), and a remarkable head for business, set out to make his dad’s sketch reality. He received \$100,000 from the NIDCD to test the feasibility of such a product by jury-rigging two laptops together to find out if they improved face-to-face communication between deaf and hearing

people. He and his research team also asked the tester-participants what they wanted to see in a communication device and incorporated those ideas into their prototype. In 2005, he received a second grant from NIDCD for \$1.3 million for the development of what is now called the UbiDuo. “Ubi” is derived from the word ubiquitous—it can be used anywhere—and “Duo” refers to the fact that one device facilitates a conversation between two people.

Curry notes that two UbiDuos can be integrated so that four or more people can take part in a team meeting. And even though it was primarily designed for face-to-face communication, the UbiDuo can be used over phone lines in place of a TTY machine—also in real time and allowing up to four people to converse simultaneously. Other features he hopes to add over time are a Braille reader, speech output, translation to foreign languages, and a camera to capture a user’s face in live video.

In 2006, Curry’s company sComm was awarded the Governor’s Technology Company of the Year by the Missouri Department of Economic Development in recognition of the UbiDuo.

As for how his product has changed his life so far, Curry smiles.

“My wife, who is hearing, and I have been married 13 years. For 18 years, when I went to her mother’s house for Christmas, I would sit in the living room, kind of left out. Just this Christmas, I was able to sit in the living room and chat with Missy’s brother for three long hours.”

He added, “I have my UbiDuo on the desk all day long and hearing people simply walk in and sit down, then start talking to me. I no longer depend on an interpreter.”

## Recent News

### NIDCD Director is Named First Recipient of International Scientific Organization's Distinguished Service Award



James F. Battey, Jr., M.D., Ph.D., NIDCD director, is the first recipient of the Distinguished Service Award from the Association for Chemoreception Sciences (ACheM<sub>S</sub>), an international body of scientists that advances understanding of the senses of taste and smell. Researchers are working to learn more about taste and smell because these senses can have a major impact on a person's quality of life, food preferences, diet, and overall health. The newly created award, to be conferred on special occasions, recognizes individuals "with a record of outstanding service to the chemical senses research community."

"As director of the NIDCD, Dr. Battey has moved far beyond the role of administrator by his genuine interest in the chemical senses," said Dr. Diego Restrepo, president-elect of AChem<sub>S</sub>, citing Dr. Battey's participation at international meetings, his leadership in trans-NIH scientific efforts such as NIH's Knockout Mouse Project, the stem cell research program, and his support of promising young investigators. "Dr. Battey is the perfect example of the outstanding scientific administrator—an astute scientist/administrator intimately engaged in the affairs of science," Dr. Restrepo said.

"One of the most distinguished honors that a scientist can receive is the recognition of his or her peers," said Elias A. Zerhouni, director of the NIH. "James Battey's ability to make significant contributions to the study of the chemical senses while effectively serving as director of the NIDCD demonstrates a rare combination of leadership and scientific expertise that have served the NIH well. In addition, during the time that he was chair of the NIH Stem Cell Task Force, Dr. Battey demonstrated extraordinary insight in advancing our knowledge about this exciting and challenging area of research."

Dr. Battey received his B.S. degree in physics from the California Institute of Technology, and his M.D. and Ph.D. in biophysics from Stanford University School of Medicine. After receiving training in pediatrics, he pursued a postdoctoral fellowship in genetics at Harvard Medical School. Dr. Battey is widely recognized for his work on G-protein coupled receptors (GPCRs), a large family of proteins important in cell-to-cell communication, and integral to an array of physiological processes, including taste and smell. His laboratory is collaborating on a large-scale project to identify molecules that are important for taste. He has held a variety of positions at the NIH, including serving in the National Cancer Institute, the National Institute of Neurological Disorders and Stroke, and NIDCD, before being named director of the NIDCD in 1998.

*Dr. Battey received the award during the opening ceremony at the AChem<sub>S</sub> annual meeting in Sarasota, Fla.*

### NIDCD Advisory Council Welcomes Five New Members

The National Deafness and Other Communication Disorders (NIDCD) Advisory Council has added five new members to its roster. The Council advises the secretary of the U.S. Department of Health and Human Services, the director of the NIH, and the director of the NIDCD on matters relating to the conduct and support of research and research training, health information dissemination, and other programs with respect to disorders of hearing and other commu-

nication processes. The term for Council members is four years.

**Dr. Karen Cruickshanks** is director of the graduate program in population health and professor at the University of Wisconsin School of Medicine and Public Health. Her research interests include epidemiology of age-related sensory disorders and the epidemiology of diabetes and its complications;

and functional implications of multimodal sensory impairments in older people. She is the principal investigator of a large cohort study on age-related hearing loss and other sensory impairments.

**Dr. Albert Feng** is professor of the Beckman Institute, and professor of the University of Illinois at Urbana-Champaign. His professional interests cut across the broad area of neuroscience. He is studying the neural basis of sound communication, using the frog and bat auditory systems as models. He also leads a team of researchers in the development of biomolecular high-resolution cochlear implants. Dr. Feng is also involved in translational research. A recent project involved transferring knowledge of biological signal processing strategies to guiding the design of intelligent hearing aids. Working with an interdisciplinary team at the Beckman Institute, he helped develop advanced hearing aid technologies with the ability to extract sound embedded in noise. He currently leads a team of researchers that is developing biomolecular high-resolution cochlear implants.

**Dr. Charles Greer** is professor and director of the interdepartmental neuroscience graduate training program and vice chairman for research at the Department of Neurosurgery, Yale University School of Medicine. He is internationally recognized for his

work on local synaptic circuit organization in the olfactory system and the capacity of the nervous system for plasticity. His current research involves understanding the basic mechanisms that contribute to the establishment of orderly topographic maps within the central nervous system, during both normal development and following injury or disease.

**Dr. Charlotte Mistretta** is a William R. Mann professor and associate dean for research and Ph.D. training, and director of the oral health sciences Ph.D. program at the University of Michigan's School of Dentistry. Her field of study is on the development of the sense of taste; current emphasis is on regulation of taste papilla development and innervation to the tongue. Her current research is trying to understand how mammals develop the sense of taste.

**Dr. William Yost** is chair of speech and hearing sciences at Arizona State University. Formerly, he was with the Parmlly Hearing Institute at Loyola University. His research interests include auditory perception and psychoacoustics in areas of pitch perception, sound localization, processing sounds with modulated waveforms, sound source determination and segregation, computational modeling with respect to time-based neural models of complex sounds, and hearing impairment and hearing aids.

## NIDCD Highlights

### Ability to Listen to Two Things at Once Is Largely Inherited, Says Twin Study

Your ability to listen to a phone message in one ear while a friend is talking into your other ear—and comprehend what both are saying—is an important communication skill that's heavily influenced by your genes, say NIDCD researchers. The finding, published in the August 2007 issue of *Human Genetics*, may help researchers better understand a broad

and complex group of disorders—called auditory processing disorders (APDs)—in which individuals with otherwise normal hearing ability have trouble making sense of the sounds around them.

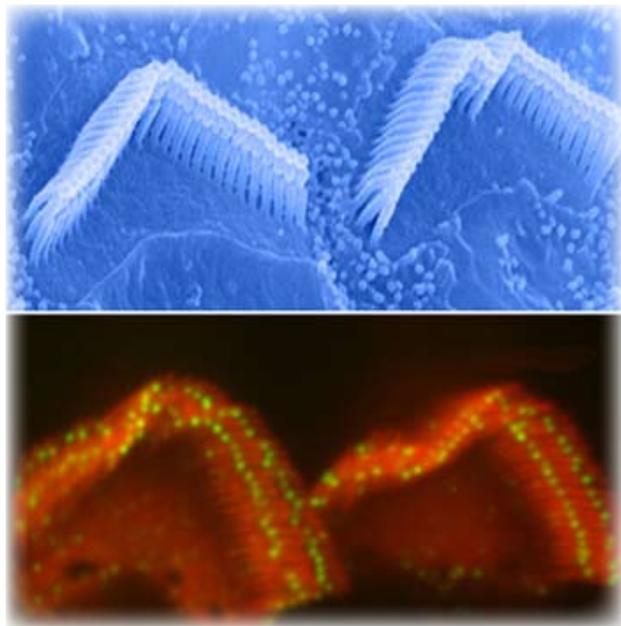
Read the press release: [www.nidcd.nih.gov/news/releases/07/07\\_17\\_07.htm](http://www.nidcd.nih.gov/news/releases/07/07_17_07.htm)

## 'Holy Grail' of Hearing: True Identity of Pivotal Hearing Structure Is Revealed

Our ability to hear is made possible by way of a Rube Goldberg-style process in which sound vibrations entering the ear shake and jostle a successive chain of structures until, lo and behold, they are converted into electrical signals that can be interpreted by the brain. Exactly how the electrical signal is generated has been the subject of ongoing research interest.

In a study published recently in the journal *Nature*, researchers of NIDCD and the Scripps Research Institute in La Jolla, CA, have shed new light on the hearing process by identifying two key proteins that join together at the precise location where energy of motion is turned into electrical impulses. The discovery is described by some scientists as one of the holy grails of the field.

Read the press release: [www.nidcd.nih.gov/news/releases/07/09\\_05\\_07.htm](http://www.nidcd.nih.gov/news/releases/07/09_05_07.htm)



**Top:** Scanning electron microscopy shows the stair-step pattern of stereocilia. **Bottom:** Fluorescence microscopy image shows the presence of CDH23 (green) at the point where each short

## Blood Test May Help Signal Tumor's Remission, Return in Throat Cancer Patients

A blood test that detects proteins commonly released by a growing tumor could one day become a useful tool for monitoring the effectiveness of chemotherapy and radiation treatment in people with advanced throat cancer, according to a study published in the June 1, 2007, issue of *Clinical Cancer Research*. Scientists in the NIDCD, National Cancer Institute (NCI), and University of Michigan found that throat cancer patients who showed a decline in several cancer-related proteins following chemotherapy

and radiation treatment were more likely to remain in remission, while those who experienced a large rise over time in those proteins frequently exhibited a return of throat cancer. The findings could help doctors detect the recurrence of throat cancer early on, when there is still time to pursue a second line of treatment, such as surgery or drug therapy.

Read the press release: [www.nidcd.nih.gov/news/releases/07/06\\_01\\_07](http://www.nidcd.nih.gov/news/releases/07/06_01_07).

## OHCPPL Scores Three Plain Language Awards

A feature story and two publications produced by staff of NIDCD's Office of Health Communication and Public Liaison were recognized in several categories

of the National Institutes of Health's (NIH's) Plain Language Awards. The annual competition is part of the federal government's effort to ensure that all forms

of communication for the public are written in clear, concise, and understandable language. Award-winning health journalist and columnist Rita Rubin of USA Today was the guest speaker at this year's event, Celebrating Plain Language at NIH, which took place April 17 at the Lipsett Amphitheater on the NIH campus.

Awards were given to the following:

In the Excellent category, the article 'Tanzanian Children of the Moon' Bring Rare Brand of Sunshine to NIH, which appeared in the NIH Record on December 2, 2005, tells the story of two young Tanzanian boys with a rare genetic disease, and the collaboration among six NIH institutes to provide them with clinical treatment. The award was presented to Jennifer Wenger.

Also, in the Excellent category, the NIDCD Tip Sheets for Press Kit were developed for distribution to health editors of women's magazines to inform them of NIDCD research related to women's health, particularly the prevention and early detection of noise-induced hearing loss. The award was given to OHCP chief Patricia Blessing, Jennifer Wenger, and Mary Sullivan.

In the Honorable Mention category, the NIDCD 2006-2007 Resources Directory features up-to-date information on nearly 150 nonprofit and federal organizations committed to improving the lives of people with communication disorders. The award was given to OHCP's Patricia Blessing, Lonnie Lisle, Mary Sullivan, and Jennifer Wenger and to Charlotte Ball of the NIDCD Information Clearinghouse.

## Meetings and Events of Interest

We plan to bring our exhibit and materials to several meetings and conferences. Look for us at:

### **American Academy of Pediatrics (AAP)**

October 27-30  
San Francisco, CA

The 2007 National Conference & Exhibition offers education and networking opportunities for general pediatricians, subspecialists and other pediatric health care professionals of all ages and career stages.

### **Society for Neuroscience (SFN)**

November 3-7  
San Diego, CA

Neuroscience 2007 is the 37th annual meeting of scientists from around the world to exchange ideas about cutting-edge research on the brain, spinal cord, and nervous system.

### **American Speech-Language-Hearing Association (ASHA)**

November 15-17  
Boston, MA

This year's convention theme is Honor the Past - Forge the Future. ASHA will be celebrating the National Student Speech Language Hearing Association's (NSSLHA) 35th anniversary during the convention and welcoming more than 2,000 students who will be helping to forge the future of the profession.

### **National Hearing Conservation Association (NHCA)**

February 21-23  
Portland, OR

The 33rd annual conference brings workshops, presentations, and exhibits ranging from "big-picture"

presentations about hearing loss prevention to practical talks on such topics as field verification of hearing protection and hearing loss prevention for kids.

### **Early Hearing Detection and Intervention (EHDI) National Conference**

February 24-25  
New Orleans, LA

This national conference provides a forum to present the most up-to-date information regarding EHDI programs and to promote information sharing and exchange of ideas between states, private industry, advocacy and partner groups, and education organizations regarding the implementation and enhancement of EHDI programs.

## New Resources

### Updated Hearing Aid Fact Sheet Available

Only one out of five people who could benefit from a hearing aid actually uses one.

NIDCD's updated fact sheet on hearing aids helps answer the questions that many people have on their minds when considering this technology. The fact sheet describes the three basic styles of hearing aids, the differences between analog and digital aids, and other issues to consider when

selecting, adjusting to, and caring for a hearing aid. In addition, you'll learn about current NIDCD-sponsored research in such areas as signal processing and directional microphones.

To read the fact sheet, go to [www.nidcd.nih.gov/health/hearing/hearingaid.asp](http://www.nidcd.nih.gov/health/hearing/hearingaid.asp)

### Updated Noise-Induced Hearing Loss (NIHL) Fact Sheet Available

Approximately ten percent of Americans between ages 20 and 69—or 22 million people—already may have suffered permanent damage to their hearing from excessive noise exposure.

NIDCD's updated fact sheet on NIHL describes how loud noise can damage a person's hearing as well as steps a person can take to prevent NIHL. In

addition, you'll learn about current NIDCD-sponsored research in such areas as gene therapy and hair cell regeneration, as well as the use of antioxidants to prevent hair cell death.

To read the fact sheet, go to [www.nidcd.nih.gov/health/hearing/noise.asp](http://www.nidcd.nih.gov/health/hearing/noise.asp)

### Updated WISE EARS!® CD-ROM Available

For the past eight years, NIDCD's WISE EARS!® program has been a popular public education campaign to raise awareness about NIHL. Our WISE EARS! Tool Kit contains many of the materials developed for the WISE EARS!® program, including fact sheets, brochures, games, posters, and even radio scripts.

To order a copy, contact the NIDCD Information Clearinghouse at:

1 Communication Avenue  
Bethesda, MD 20892-3456  
Toll-free Voice: (800) 241-1044  
Toll-free TTY: (800) 241-1055  
Fax: (301) 770-8977  
E-mail: [nidcdinfo@nidcd.nih.gov](mailto:nidcdinfo@nidcd.nih.gov)

## Beyond NIDCD: News from Other Organizations

### Feature story

#### AAA Hears from Audiologists about NIHL in Tweens

The American Academy of Audiology (AAA) recently asked its members to share their views about the extent, causes, and prevention of noise-induced hearing loss (NIHL) in children ages eight to 12, aka the “tweens.” More than 800 members took part in an online survey conducted in March, with the results posted at the annual AAA conference.

Forty-four percent of survey respondents believe that NIHL is increasing in tweens. (Thirty percent reported no change, and 26 percent hadn’t seen NIHL in this age group.) The impression that NIHL is increasing is strongest among audiologists who practice in a rural area, with more than 52 percent of this group reporting an increase. The greatest perceived risks to the hearing of children are entertainment, such as video games and portable music players; sports recreation, such as hunting and shooting; and one-time exposure to acoustic trauma, such as a gunshot or explosion at close range.

According to most respondents, parents and children lack sufficient knowledge about the causes and prevention of NIHL. Sixty-five percent of audiologists describe children’s knowledge of the steps they could take to protect their hearing in noisy situations as “nonexistent.” Respondents submitted numerous suggestions about ways to fill the knowledge gap. The most frequently men-

tioned opportunity was the schools, with their potential to incorporate hearing education into curricula from kindergarten through high school. Greater use of public service announcements, particularly through television and other mass media, was another common suggestion. The audiologists also frequently identified themselves as having both the opportunity and the responsibility to help educate parents and children in their community about NIHL.



Results of the NIHL survey were posted at the AAA conference for attendees to view.

Survey results were posted at the annual AAA conference, which was held April 19–21, 2007, in Denver, CO. At the conference, AAA offered for the first time a “SuperTrack” of seminars on hearing loss prevention and also invited local school children to visit its DiscovEARy Zone, which featured the Dangerous Decibels interactive curriculum on NIHL prevention.

NIDCD thanks the AAA for sharing its survey analysis with the institute. NIDCD is developing a national public education campaign about NIHL that will target tweens and their parents.

## New National Technical Assistance and Dissemination Center

The National Consortium on Deaf-Blindness (NCDB) is a newly funded project for children and youth who are deaf-blind. Funded by the U.S. Department of Education's Office of Special Education Programs, NCDB brings together the resources of three agencies with long histories of expertise in the field of deaf-blindness: the Teaching Research Institute at Western Oregon University, the Helen Keller National Center, and the Hilton/Perkins Program at the Perkins School for the Blind. NCDB works collaboratively with families and federal, state, and local agencies to provide technical assistance, information, and personnel training. For more information about NCDB, visit the Web site at: [www.nationaldb.org](http://www.nationaldb.org)

## BHI Unveils Campaign; Offers Documentary on Hearing Loss

The goal of the Better Hearing Institute (BHI) is to elevate the importance of hearing in America through public and medical education. To this end the BHI has unveiled its print public service announcement campaign to 7,000 magazines and newspapers across America. There are seven print ads, all recommending that people with hearing loss visit a hearing health professional. To view the seven ads, visit [www.betterhearing.org/press/PSA](http://www.betterhearing.org/press/PSA)

BHI's documentary, *Spotlight on Hearing Loss*, is now available for viewing and download (in multiple resolutions and formats) from the BHI Web site. In addition, it is now available in home DVD format. To order the documentary, go to: [www.betterhearing.org/professionals/](http://www.betterhearing.org/professionals/)

## The National Association of Directors of Special Education (NASDSE) Offers Workshop for State Directors

### Meeting the Needs of Students who are Deaf or Hard-of-Hearing

The Deaf Education Initiative Project will train local and state personnel with responsibility for students who are deaf or hard-of-hearing, their families, and consumers in such areas as federal statutes, policy guidance, and promising practices from the field. This project helps participants adapt nationally recognized practices to their state-specific needs.

The dates for the seminars are set by the state in collaboration with NASDSE.

Contact:

Gaylen S. Pugh, Ph.D.

Project Director

Blindness Training Initiative & Deaf Education Initiative Project

NASDSE

Phone: 256-772-4350

E-mail: [gaylenp@knology.net](mailto:gaylenp@knology.net)

*Inside* is produced by the Office of Health Communication and Public Liaison, NIDCD. The text in this newsletter is not copyrighted, and we encourage its use. For more information about this newsletter, please contact the editor at [nidcdinfo@nidcd.nih.gov](mailto:nidcdinfo@nidcd.nih.gov). For general health information about communication disorders, contact the NIDCD Information Clearinghouse at:

**Voice: (800) 241-1044**

**TTY: (800) 241-1055**

**E-mail: [nidcdinfo@nidcd.nih.gov](mailto:nidcdinfo@nidcd.nih.gov)**