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## Say It Loud:

### NIDCD Grantee's Innovative Voice Treatment Gives People with Parkinson's Disease a Voice

Lorraine Olson Ramig, Ph.D., has been telling her patients to speak up for the past 15 years. But her hearing is fine.

Ramig and her colleagues are using a behavioral treatment for people with Parkinson's disease (PD) who have an accompanying voice disorder. A professor in the department of speech, language, and hearing sciences at the University of Colorado at Boulder and a senior scientist at the National Center for Voice and Speech in Denver, Ramig asserts that by speaking more loudly, individuals with PD will gain control of their speech and improve their ability to communicate with others. More than 75 percent of individuals with PD have voice and speech disorders, yet historically, only three to four percent receive any type of speech therapy and an even smaller percentage of these individuals are successful at improving their speech over the long run.

Ramig hopes to change that statistic. An NIDCD grantee, she and her colleagues are the developers of the Lee Silverman Voice Treatment (LSVT) program, an approach designed specifically to address the challenges faced by people with PD who also have voice disorders. She knows too well what these individuals face. "Many of my PD patients with voice disorders speak with a soft, breathy, hoarse voice and have reduced loudness and imprecise articulation, all of which affect speech intelligibility and oral communication."

PD affects about 1.5 million Americans and belongs to a group of motor system disorders marked by tremors in the extremities and face, rigidity of the limbs and trunk, slow movement,

and impaired balance and coordination.

As these symptoms become more pronounced, patients may have difficulty walking, talking and performing other simple tasks. Problems with voice and speech are believed to be related to the motor and sensory deficits of the disease, but the neural mechanisms behind these problems are not well understood.

Traditional methods of speech therapy, namely those focusing on articulation and rate of speech, largely have been unsuccessful in PD patients, especially in the long run.

Enter Lee Silverman—a woman with speech and voice deficits accompanying PD. In 1987, Silverman's family mused to Dr. Ramig, "If only we could hear and understand her." Inspired by Lee, the Silverman family established the Lee Silverman Center for Parkinson's Disease in Scottsdale, AZ. It was at this center that Ramig and her colleague, Carolyn Mead Bonitati M.A., began to develop the innovative treatment that now is known globally as LSVT.

"The development of LSVT was motivated by the recognition that the reduced ability to communicate is one of the most difficult aspects of PD," says Ramig. "For those with PD, voice disorders can contribute to their isolation from others and can adversely affect their social, economic, and psychological well-being."



Dr. Lorraine Olson Ramig

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



## How LSVT Works

In a manner of speaking, LSVT is to the voice what sit-ups are to the “abs”: a focused workout. LSVT concentrates on a simple set of tasks designed to improve voice and respiratory functions. Speech-

language pathologists instruct and constantly stimulate patients to produce a louder healthy voice by using increased effort. Patients also are continually reminded to monitor the loudness of

their voice and the effort it takes to produce it. The treatment is intensive, requiring four one-hour sessions per week for four consecutive weeks.

The loud and effortful tasks are aimed at stimulating increased movement in the respiratory and laryngeal systems to improve air movement and vocal fold closure as well as vocal tract function involved in speech. The physiological changes that take place as a result of the treatment have been found to improve voice quality and loudness,

articulation, and speech intelligibility. When coupled with appropriate feedback and auditory self-monitoring, LSVT can help those with PD retrain motor output during speech production and learn the relationship between increased loudness and improved speech.

According to Ramig, it is challenging for individuals with PD who normally speak softly to comprehend fully the impact of their reduced loudness and to learn to regulate this in normal conversation. Patients often feel as if the whole world needs a hearing aid and that they are shouting. However, during the course of daily treatment, they learn that if they don’t feel as if they are talking too loudly they are not talking loudly enough. Patients learn that what feels “too loud” to them is a level that helps listeners hear and understand them.

Ramig adds that by targeting loudness, people with PD are tapping into well-established centrally stored areas of motor control in the brain involved in speech production. Increasing loudness to improve speech is a common and natural function of normal speech, she says, and does not require concentrating on rate of speech, pauses, or precision in articulation, all of which may be more difficult for persons with PD. The patient has one simple target with a functional impact — to “be loud” — with the benefits extending across the entire speech production system.

## Research on LSVT Shows Benefits

In various clinical studies, LSVT has been shown to be an effective speech treatment for persons with PD. LSVT works well with patients who have cognitive impairments as a result of their PD. “On the surface, the treatment is redundant, simple, and intensive and thus may help compensate for the processing, speed, memory, and executive function problems seen in patients with PD and allow them to learn,” says Ramig.

Other areas of improvement that have been found through LSVT are:

- More stable motor speech output;
- Improved ability to convey emotion through facial expression and voice;

*So far, efficacy studies on just under 100 patients have shown LSVT to be effective over the short and long term.*

- Stimulation of right-brain activity as well as of the centers of the brain known as the limbic system, a driving mechanism behind the ability to speak;
- Improved swallowing ability in a number of patients.

So far, efficacy studies on just under 100 patients have shown LSVT to be effective over the short and long term. While LSVT is being used effectively today in 30 countries, large-scale, multisite clinical trials looking at the effects of different variables such as age, stage of disease, time since diagnosis, and cognitive abilities need to be conducted to provide a more complete picture of LSVT. More comparison studies with persons receiving alternative treatments also need to be done.



Research so far has not been able to isolate the exact reason for LSVT's success: Is it due to the focus on phonation, the intensity of the treatment, or the sensory awareness training? Researchers are exploring ways to improve methods to assist with at-home use and practice of LSVT, thus potentially extending its positive long-term outcomes. Through support from NIDCD, Ramig and her colleagues are turning to technology, including the use of webcam, software programs, and a virtual therapist to help patients receive additional access to treatment that may help improve their communication abilities.

Ramig emphasizes that in speech therapy for PD patients, control rests with the patient. "Effective speech therapy carries the added benefit of improved self-confidence and better quality of life, and some measure of control over a significant symptom of PD." As more information is obtained on LSVT, researchers can find new ways to help people with PD improve their communication abilities.

## Recent Research

### NIH-funded Research on Taste, Smell Featured in Journal *Nature Insight*

Taste and smell research partly funded by the National Institute on Deafness and Other Communication Disorders (NIDCD), one of the National Institutes of Health (NIH), is highlighted in the November 16, 2006, issue of *Nature Insight*. The issue, which is co-sponsored by the NIDCD, includes studies in molecular and cellular biology, genetics, imaging, and biophysics as they pertain to the chemical senses. The National Institute of Dental and Craniofacial Research (NIDCR), another NIH institute, contributed to one of the studies in the issue.

"The chemical senses of taste and smell play an important role in our lives, and disorders of these senses often have a major impact on a person's quality of life, diet, and overall health," says James F. Battey, Jr., M.D., Ph.D., director of the NIDCD. "The contributions made to the study of the chemical senses by these and other researchers have paved

the way for improved diagnosis, prevention, and treatment of taste and smell disorders."

Article titles included in the issue are:

- Comparative Chemosensation: from Receptors to Ecology—Cori Bargmann, Ph.D., Rockefeller University
- Smell Images and the Flavor System in the Human Brain—Gordon Shepherd, M.D., Ph.D., Yale School of Medicine
- Insects as Chemosensors of Humans and Crops—John Carlson, Ph.D., and Wynand Van der Goes van Naters, Ph.D., Yale University
- Pheromonal Communication in Vertebrates—Frank Zufall, Ph.D., University of Maryland School of Medicine; Peter Brennan, Ph.D., University of Bristol
- The Receptors and Cells for Mammalian Taste—Charles Zuker, Ph.D., Howard Hughes Medical Institute and University of California—San Diego (UCSD); Jayaram Chandrashekar, Ph.D., UCSD; Mark Hoon, Ph.D., and Nicholas Ryba, Ph.D., NIDCR



## NIDCD-funded Teams Find Cells, Receptors for Sour Taste

Your ability to taste the tart and tangy bite of a green apple is made possible by specially tasked “sour” taste cells located in taste buds throughout the tongue, says a team of scientists led by Charles S. Zuker, Ph.D., at the University of California, San Diego, and an investigator with the Howard Hughes Medical Institute, Chevy Chase, MD, who received partial funding from NIDCD, and Nicholas Ryba, Ph.D., of

the National Institute of Dental and Craniofacial Research, one of the National Institutes of Health. In research published in the August 24 issue of *Nature*, the team of researchers has

for their theory that each of the five basic tastes is mediated by distinct, non-overlapping classes of taste receptor cells. To test whether PKD2L1-expressing cells are indeed the mediators of sour taste, the researchers engineered a special strain of genetically altered mice lacking PKD2L1 cells and then tested the mice’s ability to detect the taste of sour. The mice were unable to detect sour, but they were able to continue to detect sweet, bitter, umami and salt, demonstrating that PKD2L1-expressing cells are the mammalian sour taste sensors.

In related work, another team of NIDCD-supported investigators led by Hiroaki Matsunami at Duke University in Durham, NC, also isolated the identical TRP channel receptors, which they describe as “sour-sensing” receptors. In addition to PKD2L1, the Duke University team isolated another protein, PKD1L3, and found that it too was specific to a certain population of taste cells that detect only sour taste. As was the case in the *Nature* study, the receptor cells were distinct



*“The chemical senses of taste and smell play an important role in our lives, and disorders of these senses often have a major impact on a person’s quality of life, diet, and overall health.”*

identified the cells and candidate receptor responsible for detecting sour taste. The ability to detect sour is the primary way that mammals distinguish spoiled and unripe foods. The same team had previously discovered the receptors and cells mediating sweet, bitter, and umami (savory) tastes.

Using bioinformatics—the study of biological information using computer and statistical analyses—and genetic studies, the San Diego researchers identified PKD2L1, as a candidate acid sensor. PKD2L1 is a member of the TRP family of ion channel receptors whose other members are also known to be involved in taste signal transduction. The team chose to study this protein as a possible receptor because it was not found in taste cells that express receptors for sweet, bitter, and umami, but instead was found in a previously unidentified population of taste cells. This was a prerequisite

from the taste cells for bitter, sweet, and umami. In research published in the August 15 issue of the *Proceedings of the National Academy of Sciences*, the Duke team confirmed that the receptors were localized to the taste pore, the site of interaction with sour substances. These receptors were specific for sour taste because they are activated by various acids and not by other types of taste compounds when expressed in tissue culture cells.

The discovery of sour receptors and their taste cells by these two research teams demonstrates that the detection of sour takes place in much the same way that sweet, bitter, and umami are detected—through separate taste-specific cells and their associated receptors. The finding helps refute a belief of some scientists that the detection of sour and salty tastes, which depend on the detection of ions, works differently than with the other tastes. Because the genetically engineered

mice could detect salt, Zuker and his team conclude that salt-sensing cells must also function independently with their own receptors, which sets the stage for investigation into this last of the five basic tastes.

Interestingly, the San Diego investigators discovered that PKD2L1 is found in the nerve cells of the spinal cord, where sensing acidity might be important. According to the team, discovery of a sour receptor in the central nervous system could help explain

how the body monitors the pH of critical body fluids and why defects in this mechanism may underlie a wide range of disorders.

The University of California, San Diego team also received postdoctoral support from the Deutsche Forschungsgemeinschaft (German Research Foundation) and the Human Frontiers Science program. The Duke University team also received postdoctoral support from the Japan Society for the Promotion of Science.

## NIDCD Highlights

### It Takes Two: New Hearing Loss Study Has NIDCD Scientists Doing Double Duty

For a fifth consecutive year, the NIDCD took part in the world's largest annual gathering of twins, this time to learn more about the genetics behind age-related hearing loss, or presbycusis. Nearly 2,000 sets of twins, triplets, and perhaps higher multiples attended the legendary Twinsburg, OH, festival—Twins Days—which celebrated its 31st anniversary this past August. The study is the first to address definitively an observation that most hearing health professionals and researchers have made but have yet to

prove: that people tend to lose their hearing as they age and that this type of hearing loss seems to run in families.

"Hearing can decline over the years from a variety of factors, including noise, chemotherapy, ear infections, head injuries, and overall health," said Carmen Brewer, Ph.D., NIDCD's chief of audiology and lead investigator on the study. "And hearing loss can also occur in families. We want to obtain a more precise picture of the role heredity plays in hearing loss as a person ages."

**Read the article in the NIH Record ([http://www.nih.gov/nihrecord/09\\_22\\_2006/09222006\\_Record.pdf](http://www.nih.gov/nihrecord/09_22_2006/09222006_Record.pdf)).**



Twin volunteers relax in the NIDCD sign-up booth before having their hearing tested.

### Zeroing in on Generation "Z": Conference on Hearing Health Targets Children, Teens

On October 19–20, 2006, 120 participants representing five countries took part in a conference to discuss hearing safety among children, teens, and workers. But not today's workers. The group that convened is particularly concerned about the workers of 2016, 2017, 2018, and beyond.

"When we think of workplace safety, we think of big, burly electricians, carpenters, steel workers, and the like, but by the time a person reaches that stage, it's almost too late," says William (Billy) Martin, Ph.D., a hearing researcher at Oregon

Health & Science University and the co-organizer of the event. "One of our goals is to teach children to be safe listeners when they are young so that, as adults, they will be safe workers."

It wasn't just about work though. Titled "Noise-Induced Hearing Loss in Children at Work and Play," the conference offered a real-time snapshot of the state of our understanding of noise-induced hearing loss (NIHL) in children and teens in all facets of their young lives. More than 50 basic and applied researchers, health professionals, and

educators presented findings on topics ranging from epidemiology to cellular biology to safe sound levels for portable stereo systems to educational curricula to theoretical models for influencing behavioral change in kids, a topic that resonated with Martin.

"No matter how much we know about the science of NIHL, it's equally important to know how to take a health message and reach a target audience effectively," said Martin. "Unless we actually change a kid's behavior, all of our efforts are useless."

Patricia Blessing, chief of NIDCD's Office of Health Communication and Public Liaison, agrees Blessing presented findings of a recent evaluation of **WISE EARS!**® (<http://www.nidcd.nih.gov/health/wise/>), NIDCD's campaign against NIHL that began in 1999. After conducting an environmental scan of existing programs, resources, and media stories on NIHL as well as interviews with WISE EARS! coalition partners, the researchers made recommendations designed to provide new direction and momentum to the program. These include giving an NIHL campaign higher priority within NIDCD's communication plan, focusing on tweens (ages 9–13), and selecting partners and delivery channels with the highest potential to attract and engage the target audience.

"The prospect of developing new partnerships in the campaign to prevent NIHL is especially exciting for us at NIDCD," said Blessing. "In this day of tightening budgets, it makes sense for groups with a common goal to join forces and carry the message forward in ways that are not possible if we work individually."

According to Martin, now that the conversation has started among the key players, it's important to keep it going. The next step is to

publish a compendium of what's being done in the study of NIHL and youth in two peer-reviewed journals: The American Speech-Language-Hearing Association's American Journal of Audiology is dedicating a supplement to the analytical and scientific work in this field, while Seminars in Hearing will feature an overview of issues in the field. A 2008 National Hearing Conservation Association (NHCA) conference in Portland, OR, is the suggested venue for a follow-up meeting, this one featuring tours of the Dangerous Decibels® museum exhibition and workshops to teach participants how to lead classroom activities in NIHL. **Dangerous Decibels** (<http://www.dangerousdecibels.org/>) is a public health partnership for the prevention of NIHL through exhibits, educational outreach, and research and was partially funded by NIDCD and the National Center for Research Resources' Science Education Partnership Award.

"In the area of hearing health, noise-induced hearing loss is the lowest fruit on the branch," says Martin. "It's the absolute easiest topic we can tackle to protect our hearing and it's nearly 100-percent preventable."

The conference, held in Cincinnati, OH, was made possible by a grant from the National Institute for Occupational Safety and Health, the part of the Centers for Disease Control and Prevention tasked with conducting research and making recommendations for the prevention of work-related injury

and illness. Other sponsors were NIDCD, NHCA, the Marion Downs Hearing Center, the University of Northern Colorado, and Oregon Health & Science University.

Download a Microsoft PowerPoint file of Patricia Blessing's presentation **Wising Up About NIHL: Public Education Efforts To Prevent NIHL in Children** (<http://www.nidcd.nih.gov/staticresources/health/inside/fall06/nihl.ppt> 4MB). Learn more about the conference at [hearingconservation.org/conf\\_childrenconf.html](http://hearingconservation.org/conf_childrenconf.html).



Patricia Blessing, Chief of NIDCD's Office of Communication and Public Liaison, presented findings of a recent evaluation of WISE EARS!®, NIDCD's campaign against NIHL

*The conference offered a real-time snapshot of the state of our understanding of noise-induced hearing loss (NIHL) in children and teens in all facets of their young lives.*



Billy Martin and Deanna Meinke, co-organizers of the conference, answer questions from conference participants



## NIDCD Participates in NIH Study on Hispanic Community Health

NIDCD is participating in the largest, long-term epidemiologic study on Hispanic health. As many as 16,000 participants of Hispanic/Latino origin—located at four sites around the country—will undergo a series of physical examinations and interviews to help identify the prevalence of and risk factors for a wide variety of diseases, disorders, and conditions. The NIH-wide study also will determine the role of cultural adaptation and disparities in the prevalence and development of disease. The four field study sites awarded contracts are: Bronx, NY; Chicago, IL; Miami, FL; and San Diego, CA.



With NIDCD support, a hearing examination and questionnaire will be included in the study. The goal is to determine the prevalence of hearing loss, including noise-induced hearing loss, by age and to identify other risk factors that may play a protective or harmful role in adult-onset hearing loss. Potential associations between hearing loss and other chronic diseases, such as cardiovascular and lung disease, will also be investigated.

For more information on the study, [see the press release \(http://www.nih.gov/news/pr/oct2006/nhlbi-12.htm\)](http://www.nih.gov/news/pr/oct2006/nhlbi-12.htm).

## Meetings and Events of Interest

### **Association for Research in Otolaryngology 30th Mid Winter Meeting**

February 10–15, 2007  
Denver, Colorado

### **National Hearing Conservation Association**

February 15–17, 2007  
Savannah, Georgia

### **AudiologyNOW! (American Academy of Audiology)**

April 18–21, 2007  
Denver, Colorado

### **Council for Exceptional Children Annual Convention & Expo**

April 18–21, 2007  
Louisville, Kentucky

Note: Twenty sessions will be devoted to deafness and communication disorders.

### **Combined Otolaryngology Spring Meeting**

April 26–29, 2007  
Manchester Grand Hyatt Hotel  
San Diego, California

Note: Participating organizations include the American Broncho-Esophagological Association,

American Head and Neck Society, American Laryngological Association, American Neurotology Society, American Otological Society, American Rhinologic Society, American Society of Pediatric Otolaryngology, and Triological Society.

### **National Spasmodic Dysphonia Association Annual Symposium**

May 5, 2007  
White Plains, New York

Contact:  
E-mail: [NSDA@dysphonia.org](mailto:NSDA@dysphonia.org)  
Voice: (800) 795-6732

## New Resources

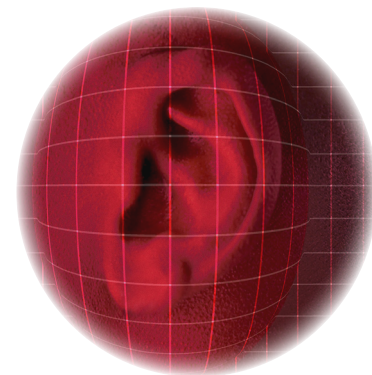
### Fact Sheets on Enlarged Vestibular Aqueducts, Pendred Syndrome

Two new NIDCD fact sheets—one on enlarged vestibular aqueducts (EVA) and another on Pendred syndrome—now are available online.

Vestibular aqueducts are bony canals that travel from the inner ear to deep inside the skull. Inside the vestibular aqueduct is a fluid-filled tube called the endolymphatic duct, which ends at a balloon-shaped endolymphatic sac. When the vestibular aqueduct is enlarged, the endolymphatic duct and sac grow large with excess fluid in comparison to their normal sizes. Although scientists do not think that EVA causes hearing loss, research suggests that most children with EVA will develop some degree of hearing loss.

The presence of EVA can also be a symptom of a genetic disorder called Pendred syndrome, a cause of progressive childhood hearing loss that also can affect the thyroid gland and a person's sense of balance. According to an NIDCD study, approximately one-third of individuals with EVA and hearing loss have Pendred syndrome.

To read these two fact sheets, go to [www.nidcd.nih.gov/health/hearing/eva.htm](http://www.nidcd.nih.gov/health/hearing/eva.htm) and [www.nidcd.nih.gov/health/hearing/pendred.htm](http://www.nidcd.nih.gov/health/hearing/pendred.htm).



## Beyond NIDCD: News from Other Organizations

### AAA Updates Its Brochure on Hearing Aids

The American Academy of Audiology (AAA) has updated its brochure, "Selecting Hearing Aids That Are Right for You." Quantities of 100 are available for \$40 for Academy members; \$50 for nonmembers, plus shipping.

Contact:  
Web site: [www.audiology.org/academystore/](http://www.audiology.org/academystore/)

For a single, free copy send a self-addressed, stamped envelope to the following address:

American Academy of Audiology  
11730 Plaza America Drive, #300  
Reston, VA 20190  
Attn: Hearing Aid Brochure



### Upcoming eAudiology Seminars

**January 18, 2007**

**Precepting: The Opportunities—the Challenges**

**February 7 and 14, 2007**

**A Framework for Resolving Ethical Dilemmas:  
The Academy's Code of Ethics**

Contact:  
Web site: [www.audiology.org/education/eaudiology/](http://www.audiology.org/education/eaudiology/)

### NARIC Unveils New Research Tool

The National Rehabilitation Information Center (NARIC) has developed a new tool for presenting current literature about rehabilitation topics. reSearch is a collection of research reviews on specific topics and is based on real-world queries from researchers, educators, and rehabilitation professionals around the world. See their first five issues of reSearch, including the July issue on aphasia and stroke rehabilitation, at [www.naric.com/public/reSearch](http://www.naric.com/public/reSearch).



## Info to Go

Gallaudet University sponsors Info to Go, a Web Site offering information on deafness and hearing loss in children and young people under age 21. The site includes:

- Information on professional conferences in the deaf education field
- Information and resources for educators, professionals and families who work with deaf and hard-of-hearing children from birth to age 21
- Educational materials for deaf children from birth to age 21

Contact:

Web site: <http://clerccenter.gallaudet.edu/InfoToGo/about.html>

## John Tracy Clinic 2006–2007 Workshops Los Angeles, CA

John Tracy Clinic, a center for early childhood oral deaf education, is sponsoring the following Teacher In-Service and Educational support workshops in 2006–2007. The workshops are offered free of charge and continuing education units are available.

### December 5, 2006

**Multi-Cultural Aspects of Working with Parents**  
*Perspectives on working with parents from diverse backgrounds.*

### January 16, 2007

#### Sharing Our Stories

*Parents of children with hearing loss share their stories of creating relationships with professionals.*

### February 13, 2007

#### Legal Aspects of Working with Parents

*Working within the Individuals with Disabilities Education Improvement Act (IDEA) regulations to create partnerships with parents.*

### March 30, 2007

#### Creating a Parent Education and Support Module in Your School

*The process of creating a module in a public school system.*

### May 1, 2007

**Building Parent Participation in Your Classroom**  
*Strategies that teachers have used to create an environment that encourages parent participation.*

Contact:

Web site: [www.jtc.org/ties](http://www.jtc.org/ties)

## CID 2007 Workshops St. Louis, MO

The Central Institute for the Deaf (CID), a nonprofit organization that helps deaf children learn to speak, listen, and read with proficiency without the use of sign language, is sponsoring the following workshops for educational and health professionals for 2007:

### March 7–8, 2007

**Tools and Techniques for Assessing and Teaching Language**

### March 9, 2007

#### Make it and Take It!

*Teachers of children with hearing loss create teaching materials and learn how to use them in the classroom.*

### March 28, 2007

**Early Intervention for Children with Hearing Loss**

### March 29–30, 2007

**SPICE-Plus: Auditory Training for Children with Cochlear Implants**

Contact:

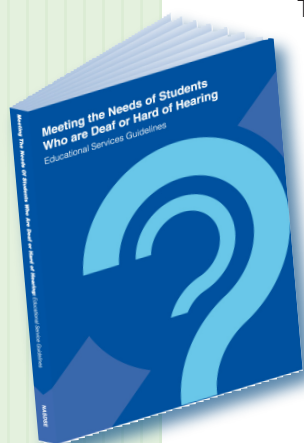
Diane Gushleff

Toll-free: ( 877) 444-4574, ext.133

E-mail: [dgushleff@cid.edu](mailto:dgushleff@cid.edu)

Web site: [www.cid.edu](http://www.cid.edu)

## NASDSE Updates Book on Educational Service Guidelines



The National Association of State Directors of Special Education's (NASDSE's) "Meeting the Needs of Students Who Are Deaf and Hard of Hearing: Educational Service Guidelines" describes the essential program elements and features that must be considered when designing appropriate services for students who are deaf or hard-of-hearing, including those with multiple disabilities. The book discusses a full continuum of options and best practices from the field and is intended to be used as a

resource for communication and coordination among organizations and systems on behalf of students who are deaf or hard-of-hearing and their families.

Contact:

Web site: [www.nasdse.org](http://www.nasdse.org)

## NTID Receives National Honor

The National Technical Institute for the Deaf (NTID), a college of Rochester Institute of Technology, received the New Freedom Initiative Award from U.S. Secretary of Labor Elaine Chao. This prestigious honor recognizes exemplary and innovative efforts to recruit, hire, and promote people with disabilities and to incorporate the principles of President George W. Bush's New Freedom Initiative. The award was presented by Secretary Chao at a ceremony at the Renaissance Hotel in Washington, D.C.

Contact:

Web site: [www.rit.edu/ntid](http://www.rit.edu/ntid)

## National Association of the Deaf Has Moved!

The National Association of the Deaf now is located at the following address:

8630 Fenton Street, Suite 820  
Silver Spring, MD 20910-3819

Other contact information remains the same as before:

Voice: (301) 587-1788

TTY: (301) 587-1789

Fax: (301) 587-1791

Web site: [www.nad.org/](http://www.nad.org/)

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

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

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