

NCRAR Newsletter

National Center for Rehabilitative Auditory Research, Portland, OR
A VA RR&D Center of Excellence

Special points of interest:

- Welcome to Dr. Feeney, NCRAR Director!
- Overview of Progressive Tinnitus Management (PTM)
- 2012 Seminar Series

Note from the Director: Patrick Feeney (continued on page 2)



Welcome to the first NCRAR newsletter of 2012! Here at the Center we have been very busy

since you last heard from us in the commemorative issue last March 2011 honoring the accomplishments of Dr. Stephen Fausti, Founder of the NCRAR. The Center welcomed me as new Director in late April and together we prepared an application for the renewal of the NCRAR VA RR&D Center of Excellence Award that was submitted in June. The application was well received by reviewers, and on January 5th, we had a successful VACO site visit at the end of which Dr. Patricia Dorn, Interim Director for the VA Rehabilitation Research and Development Service,

enthusiastically proclaimed that NCRAR would receive an additional five years of funding . We will continue to emphasize our core areas of research in hearing assessment and diagnosis, audiological rehabilitation, and prevention of hearing and balance problems. Over time we look forward to expanding our research portfolio in certain areas, the first of which will be to strengthen research in vestibular assessment and rehabilitation.

In the summer of 2011, NCRAR was able to obtain VACO special equipment funding for the development of a new balance lab that will include a state-of-the-art rotary chair, and an upgraded balance platform. With the help of Dr. Michael Davey, ACOS for R&D, Portland VAMC, we have developed plans for the incorporation of the balance lab into existing

NCRAR space. Investigators have already submitted applications for two Merit review awards which will utilize the NCRAR Balance Lab for data collection.

I have been seeing patients in the Audiology Clinic of the Portland VAMC for one half day per week since I started in April. I have enjoyed working with John McDermott, Ph.D. Acting Chief of Audiology and Speech Pathology and the other excellent Portland VAMC audiologists. Drs. Jim Henry and Tara Zaugg have started participating in Progressive Tinnitus Management group rehabilitation sessions (see article below) for Veterans at the Portland VAMC Audiology Clinic . This will provide another excellent opportunity for interaction with audiologists in the clinic, enhance the tinnitus management services of the clinic, and allow an (cont'd)

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Progressive Tinnitus Management (continued on page 6)

Progressive Tinnitus Management (PTM) is a comprehensive, interdisciplinary five-level approach to tinnitus care that was developed at the NCRAR. PTM is supported by Central Office as the VA standard of care for tinnitus. The overall intent (philosophy) of PTM is to reduce the reactions to tinnitus, not the tinnitus itself.

A major premise of PTM is that most people who complain of tinnitus do not require

intervention. Those who do have different levels of need. The method thus is "progressive" in that a hierarchical approach is used to provide clinical services only to the degree needed by individual patients. Because of the multiple dimensions of problematic tinnitus, clinical services are optimized by using an interdisciplinary approach (mostly between audiology, psychology, and otolaryngology).

What this might look like in a

"typical" VA setting:

Level 1: Triage. A patient complaining of tinnitus in the Primary Care Clinic is referred to the Audiology Clinic.

Level 2: Audiologic Evaluation. During a standard audiology exam, the 10-item Tinnitus and Hearing Survey (THS) is administered to the patient. The THS helps the Veteran and the clinician together determine if tinnitus-specific services are needed. If there is a need for

Article

opportunity for a first-hand evaluation of the operation of such group sessions in the clinic environment.

I personally welcome two new research audiologists who recently joined the NCRAR. I worked with both at the University of Washington (UW) and both will be working in my lab here. Dan Putterman completed his Au.D. externship at the UW in May and graduated from the Au.D. program at Washington University in St. Louis. Dan will be helping to establish the balance lab and provide startup support for work on laser Doppler vibrometry and wideband reflectance measures of middle-ear function. Angela Garinis, Ph.D. completed post doctoral study on the efferent system in Lynne Werner's lab in the Department of Speech and Hearing Sciences at the UW. Angela will be working on my NIH-R01 grant concentrating on translational research in wideband measures of middle ear and cochlear function.

In addition to a successful Center renewal application, several new awards have been funded recently.

- Peter Jacobs, Ph.D. and Curtis Billings, Ph.D. both received VA RR&D Career Development Award-1 funding. Peter's

study is titled "*Integrating Auditory and Visual Information to Improve Hearing Aids.*" The study seeks to develop and evaluate a new signal processing approach where audio and visual information are fused together to ultimately improve speech intelligibility in noise for Veterans with hearing loss.

- Curtis Billings' award is titled "*Effects of Speech in Noise Training on Physiology and Perception.*" His goal is to use behavioral and physiological measures to determine the effects of speech-in-noise training to improve perception in noise in older individuals and individuals with hearing loss.

NCRAR Investigators received a number of other awards:

- Erick Gallun (PI), Marjorie Leek (Co-PI), and Co-Is Fausti, Folmer, & Lewis received a VA RR&D merit review award titled "*Central Auditory Processing Deficits Associated with Blast Exposure*" to determine the prevalence of central auditory dysfunction among Veterans exposed to blasts, to identify the functional outcomes associated with abnormal performance on tests of central processing, and to improve understanding of ways in which blast-

exposure resembles and differs from both the normal aging process and non-blast-related TBI.

- Bob Folmer (PI) and Co-Is Nutt, Chung & Billings received a VA RR&D Pilot grant "*Assessment of Auditory Function in Patients with Parkinson Disease*" to assess the peripheral and central auditory functions of patients with Parkinson Disease.
- Patrick Feeney (PI), along with Co-Is Folmer, Margolis, Yueh, Feth, Roup, Whitelaw & McArdle received an NIH NIDCD R21/R33 award "*Community-Based Kiosks for Hearing Screening and Education*" to evaluate a new hearing-screening method that is self-administered and is designed to provide motivation for the individual to seek evaluation by an audiologist.

I am excited to be associated with such a wonderful group of individuals at the NCRAR and the Portland VAMC. On behalf of Gaby Saunders, Associate Director, Pat Helt, Deputy Director, and myself, we hope you will be able to visit the Center this year and experience first hand the exciting array of research studies under way here. Best wishes for a wonderful 2012!

NCRAR Seminar Series 2012

Monthly seminars presented by renowned scientists from around the world.

All seminars take place 12-1 pm Pacific Time in PVAMC Building 101, Room 109. Most are also broadcast live via v-tel to other VA facilities and are available on DVD by request from Bonnie.Becker@va.gov

- January 20:** **Ying-Yee Kong, Ph.D.** Department of Speech Language Pathology and Audiology, Northeastern University. **Title: Understanding the benefit of electric-acoustic stimulation**
- February 10:** **James Phillips, Ph.D.** Department of Otolaryngology, University of Washington. **Title: An implantable prosthesis for vestibular loss.**
- March 23:** **Andrew Oxenham, Ph.D.** Dept. of Psychology, University of Minnesota. **Title: Neural coding and perception of pitch: Implications for music and speech perception by people with hearing impairments and cochlear implants .**
- April 13:** **Shihab Shamma, Ph.D.** Department of Electrical Engineering, University of Maryland. **Title: TBA**
- May 11:** **Terry Takahashi, Ph.D.** Institute of Neuroscience, University of Oregon. **Title: TBA**
- June 22:** **Laura Driesbach, Ph.D.** San Diego State University, CA **Title: TBA**
- July :** **TBD**
- August 10:** **Brian Fligor, Ph.D.** Children's Hospital, Boston/Harvard medical School, MA. **Title: TBA**
- Sept. 21:** **Curtis Billings, Ph.D.** National Center for Rehabilitative Auditory Research, Portland OR. **Title: TBA.**
- Oct. 19:** **Peter Jacobs Ph.D.** National Center for Rehabilitative Auditory Research, Portland OR. **Title: TBA.**
- November 2:** **Nina Kraus, Ph.D.** School of Communication, Northwestern University. **Title: TBA.**
- December 9:** **TBD**

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Ongoing NCRAR Research Studies

- A Hearing Loss Prevention Program for Veterans
- A portable audiometric monitoring device (the Otold)
- Auditory Rehabilitation from the Perspective of the Significant Other
- Central auditory processing disorders associated with blast exposure
- Clinical applications for time-compressed speech tests
- Clinical trial of transcranial magnetic stimulation for relief of tinnitus
- Determinants of Word Recognition Speed in Older Listeners
- Development of an automated test to assess the presence of tinnitus
- Effects of aging and hearing loss during rapid sound processing
- Effects of Training on Central Auditory Function in Multiple Sclerosis
- Electrophysiology and perception of speech in noise
- Evaluation of approaches to auditory rehabilitation for mild traumatic brain injury
- Frequency tuning and word recognition speed in older adults
- Hearing loss and the perception of complex sounds
- Improving vowel perception by hearing-impaired listeners
- Individualized Objective Techniques for Early Detection of Ototoxicity
- Integrating auditory and visual information to improve hearing aids
- Joint DoD-VA Hearing Loss Prevention Program
- Longitudinal Changes in Auditory Function Among Veterans with Diabetes
- Mechanisms of imbalance and falls in Multiple Sclerosis
- Modeling auditory integration in people with impaired hearing
- Multi-site Evaluation of Progressive Tinnitus Management
- Multi-site Study of the Efficacy of Speech Perception Training for Hearing-Aid Users
- Neural Encoding of Signals in Noise: Effects of Hearing Impairment and Age
- Pre-doctoral summer training program in auditory research
- Prevention of cisplatin ototoxicity with the antioxidant α -lipoic acid
- Self-Management Groups for Veterans with Dual Sensory Loss
- Telephone Tinnitus Education for Patients with TBI
- Temporal resolution of cochlear and auditory nerve responses in older adults
- The ability to make multiple auditory judgments about non-speech stimuli
- The effects of aging and hearing loss during rapid sound processing



NCRAR Conference 2011

The 5th NCRAR biennial conference and pre-conference workshop took place Oct 12-14th 2011 in Portland, OR. The pre-conference workshop “Patient-Centered Audiologic Rehabilitation” was attended by about 65 clinicians, scientists, and educators, while the main conference “Expanding our Horizons: Medical Conditions and Audiology” had about 155 attendees.

The workshop was run by Sue Erdman, J-P Gagne, Elizabeth Mauze, David Wark and Mary Beth Jennings. They provided a superb description of the importance of patient-centered AR, and provided an overview of the World Health Organization’s International Classification of Functioning, Disability and Health (ICF), ideas for how to incorporate patient-centered AR into clinical practice, some excellent ideas for Au.D. student projects focusing on AR, and a library consisting of AR publications.



The main conference began with a marvelous keynote address by Karen Cruickshanks. She engaged the audience with her description of epidemiological evidence suggesting that hearing loss may signal risk for negative psychological impacts and that there are unmet needs for hearing screening and hearing healthcare.



Thursday morning began with a welcome from Patrick Feeney, the Director of the NCRAR, followed by fascinating presentations from Bob Frisina and Richard Smith. Bob Frisina presented data showing that hormone replacement therapy and testosterone can diminish peripheral and central auditory function, while Richard Smith described how

phenomic data complement genomic data and he addressed current genetic counseling practices. The afternoon presentations were from the NCRAR multiple sclerosis (MS) research team (M. Samantha Lewis, Bob Folmer and Bill Rooney) and Dennis Trune. We learned that electrophysiological and imaging data show MS to be associated with dysfunction of auditory pathways, while from Dennis Trune we learned about the current theories about mechanisms and treatments for autoimmune hearing loss.



Ivan Lopez opened Friday morning’s presentations with a fascinating overview of hearing loss and vestibular dysfunction due to abuse of opiates. This was followed by Nina Dronker’s superb presentation on neural correlates of auditory comprehension deficits in stroke patients. She demonstrated the utility of new imaging techniques for localizing damage and used patient videos to illustrate the function of areas of the brain, and to illustrate how stroke-related damage impacts both speech understanding and

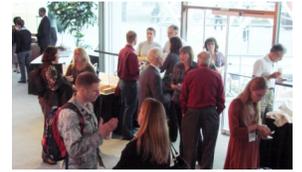


early central auditory processing deficits and dementia, while Cynthia Wible explained her new model of schizophrenic hallucinations, and the associated areas of the brain in which abnormal function is found.



The conference ended with a roundtable discussion of the principles that our speakers raised during their talks. This discussion as well as those that followed each presentation were enlightening and

really highlighted the insightful questions of audience members and the thoughtful response provided by the speakers. The audience especially enjoyed the fact that all of the presenters managed to provide a clinical message from their sophisticated research.



No description of the conference would be complete without a thank you to all who



helped out with tasks big and small - to Carl Swicord and Ann Strong of VA

Employee Education Service for organizing the videotaping of the event, and to all NCRAR employees who gave time before and during the event. We must also thank our sponsors, the NIH-NIDCD, VA Rehabilitation research and Development, GNResound, Oticon, Etymotic Research Inc., Phonak, and Frye Electronics Inc., for their generous support of this meeting.

The VA Employee Education system generously filmed the main conference and keynote address. They will broadcast the presentations sometime in 2012. EES will also be sending us copies of each presentation that we will lend to you if you are interested. Please email ncrar@va.gov if you would like to borrow a DVD. We will likely receive them from EES sometime in Feb 2012.

Email Gabrielle.saunders@va.gov if you have any thoughts about the focus of the next meeting.



PTM (cont from Page 1)

hearing aids, they should be provided as appropriate. For some patients with hearing loss and bothersome tinnitus, combination instruments (hearing aid and sound generator combined) are recommended. Approximately one month after using new hearing aids, if the Veteran still experiences bothersome tinnitus, the Veteran should be enrolled in the next Audiology clinic's tinnitus Level 3 Group Education series of workshops. If new hearing aids are not indicated, the Veteran could be enrolled in the next series of workshops without waiting one month.

Level 3: Group Education. Both audiologists and psychologists offer important contributions for patients who need assistance in learning how to manage reactions to tinnitus. The Group Education series consists of five weekly workshops—two conducted by an audiologist and three by a psychologist (or other mental health provider). Each workshop focuses on helping patients learn skills enabling them to self-manage their reactions to tinnitus. The audiology workshops focus primarily on teaching patients different ways to use sound as therapy for tinnitus. The mental health workshops teach selected components of cognitive-behavioral therapy (CBT): (1) stress management via relaxation; (2) distraction from tinnitus via pleasant activity planning; and (3) cognitive restructuring.

Most patients who attend Level 3 workshops do not feel that further intervention is needed for their tinnitus. Those who do, however, are advised to receive the Level 4 evaluation. (cont. below)

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Level 4 Interdisciplinary Evaluation. Level 4 consists of assessment appointments with both an audiologist and a psychologist. The audiologist primarily performs an interview, using the Tinnitus Interview form. The psychologist evaluates: (1) patients' current use of coping skills taught during the Level 3 workshops, and (2) co-morbid mental and physical health symptoms that may be contributing to overall distress (e.g., the psychologist administers depression screeners, inquires about alcohol and drug use, and identifies barriers to learning). Through collaboration with the patient and audiologist, this brief mental health evaluation informs recommendations regarding progression to Level 5.

Level 5 Individualized Support. Level 5 involves individual sessions with an audiologist and/or a mental health provider. As in the Level 3 workshops, the Level 5 sessions provide education designed to facilitate self-management of tinnitus. The Level 5 individual sessions are

flexible to focus on the specific needs of the individual patient.

Clinical Implementation of PTM. A variety of materials have been developed in conjunction with VA Employee Education System to implement PTM in the clinic. These materials include books, videos, CDs, brochures, and online training. Information for obtaining or accessing these materials can be found at the NCRAR website www.ncrar.research.va.gov, or by emailing james.henry@va.gov.

Instructions for how VA audiologists can order "How to Manage Your Tinnitus: A Step-by-Step Workbook" and the tinnitus brochure "Tinnitus: Questions & Answers" can be found at: <https://www.tms.va.gov>

Use the Catalog search box to find the product.

- How To Manage Your Tinnitus: A Step-by-Step Workbook; Item # **VA9647**
- Tinnitus: Questions & Answers; Item # **VA9824**

Please limit requests to 100 copies—either for the book or for the brochure.

