

July 2012

Volume XII, Issue 3

# NCRAR Newsletter

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

## Special points of interest:

- Progressive Tinnitus Management at the Portland VA
- Meet Garnett McMillan, NCRAR Biostatistician
- 2012 Seminar Series
- NCRAR: Out and About

## Note from the Director: Patrick Feeney



On June 14<sup>th</sup> we held an all-staff strategic planning retreat. Gaby Saunders, Pat Helt, Bonnie Becker and I spent several months planning the session with Kevin Willmarth from the VHA National Center for Organization Development in Cincinnati, who joined us to lead the all-day session. In the morning we conducted a SWOT analysis that evaluated our Strengths, Weaknesses, Opportunities and Threats. We engaged in group activities such as imagining future headlines we would like to see about the Center. The afternoon was spent in small-group brainstorming sessions to develop strategies for Center development. A highlight of the afternoon was a series of skits presented by each group to emphasize their ideas. The skits revealed several staff with amazing

latent acting ability! However, they intend to keep their day jobs.

We are still working with Dr. Willmarth to give structure to a 5-year Strategic Plan. One of our first goals is a program to improve grant writing using mock study sections. This will be accompanied by other sessions in which investigators present new ideas for grants in an open forum where they will receive feedback from fellow investigators. Erick Gallun has volunteered to organize this effort.

Another of our plans for the future took shape recently with the installation of a rotary chair in our new Balance Lab. The lab will also house our balance platform. We will have more details on the lab following our open house in October for which we will have a ribbon-cutting ceremony. An ongoing Career Development study [Continued on page 2](#)

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## Portland VA Implements Progressive Tinnitus Management

By: C. Kaelin, MBA & J. Henry, Ph.D.

In the January 2012 Newsletter (Volume XII, Issue 1), we described the methodology of Progressive Tinnitus Management (PTM), which was developed at the NCRAR. PTM has been endorsed by VA Central Office for use at all VA medical centers, and we can now report that PTM is being implemented at the Portland VA Medical Center (PVAMC). This clinical implementation is a collaborative effort between the PVAMC Audiology and Mental Health Clinics, and

the NCRAR.

Patients complaining of tinnitus at the PVAMC Audiology Clinic can now receive a brief evaluation to determine if they would benefit from tinnitus-specific intervention. If so, they are recommended to attend a series of five weekly group workshops that provide self-help information to manage reactions to tinnitus. These workshops comprise the PTM Level 3 Group Education. Two of the five workshops are

[Continued on page 4](#)

## Note from the Director (continued)

by Center Investigator Michelle Cameron on balance function in MS patients, and her new study on the use of methylphenidate to improve walking in MS patients are the first studies planned to take place in the lab.

Finally, we have had some new recent additions to the NCRAR family. On July 6, Keri O'Connell-Bennett

gave birth to a beautiful baby girl, Madeline Marie. She weighed in at 7 lbs. 2 oz. and 20.5 inches long. On July 23, Kelly Reavis gave birth to a handsome little boy, Nathan Hugh who weighed 7 lbs. 11 oz. and is 21 inches long. Congratulations to both happy families!

## NCRAR Seminar Series

*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](mailto:Bonnie.Becker@va.gov)

- August 10:** [Brian Fligor, Ph.D.](#) Children's Hospital, Boston/Harvard Medical School, MA.  
Title: Diagnosis and Management of Music-Induced Hearing Disorders
- September 14:** [Curtis Billings, Ph.D.](#) National Center for Rehabilitative Auditory Research, Portland OR.
- October 19:** [Peter Jacobs Ph.D.](#) National Center for Rehabilitative Auditory Research, Portland OR.
- November 2:** [Nina Kraus, Ph.D.](#) School of Communication, Northwestern University.
- December 7:** [Margaret Wallhagen, Ph.D.](#) Department of Physiological Nursing, UCSF.

## NCRAR Lending Library

Clinicians and researchers can now borrow DVDs of previous presentations, including presentations from previous NCRAR conferences. For a list of DVDs available, check out the website:

[http://www.ncrar.research.va.gov/Education/Clinician\\_Resources/Index.asp](http://www.ncrar.research.va.gov/Education/Clinician_Resources/Index.asp)

and contact [ncrar@va.gov](mailto:ncrar@va.gov) with the title of the DVD you would like to borrow.

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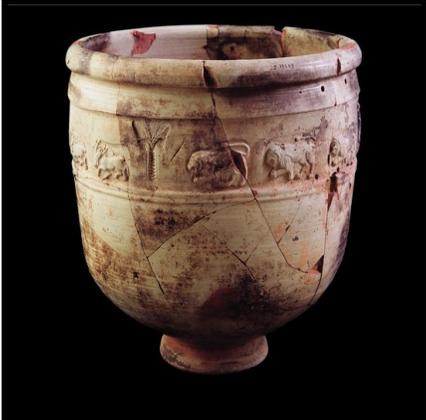
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<http://www.ncrar.research.va.gov/>

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## Meet Garnett P. McMillan, Biostatistician

I came to the world in the Cleveland, Ohio suburbs of the late 1960s. The wide, tree-lined streets and visceral obsession with Cleveland Browns football offered a strong contrast to Paris, France, where I spent every summer with my mother and her family. The main disadvantage to this was that I never saw any summer movies, including "ET" and "Star Wars." As a child, French food and culture could never compensate for missing all that terrific sci-fi. But there were advantages that any kid could appreciate. I was obsessed with history and archaeology, and recall exploring the ruins of many medieval castles, megalithic monuments, and subterranean crypts throughout France.



I carried this interest to Case Western Reserve University, where I majored in anthropology and minored in music, religion, and geology. I participated in numerous archaeological excavations in the Midwest, and traveled to Jordan for a summer to excavate an ancient mound in the Jordan Valley. There, I discovered a beautiful pot from the 7<sup>th</sup> century BC depicting the hermaphrodite Bes, Egyptian god of mothers and children, along with Assyrian style trees, lions and deer. The vessel now sits in the Amman Archaeological Museum, so you can see the real thing for yourself.

Despite such discoveries, or perhaps because they are so incredibly rare, I also toyed with idea of becoming a professional musician since I could actually get paid to play music in bars. While this was certainly more lucrative than hard labor in the hot sun, I decided to attend graduate school at the University of New Mexico to complete a PhD in medieval archaeology. When you study archaeology at the graduate level you focus considerable attention on epistemology and the philosophical concept of evidence. An archaeologist works with artifacts, really just garbage in various states of deterioration, and tries to distill some meaningful statements about the lives of long dead people. Accordingly, I became interested in how evidence of any kind can be combined, interpreted, and presented to draw conclusions about almost anything. I was drawn to statistics courses and computational methods, which use examples from many different scientific fields to show how scientific questions are answered with evidence.

Archaeology is back-breaking work, and so I made the comparatively easy switch from studying bones and pottery to chasing hunter-gatherers around the jungles of South America. I was working on an evolutionary theory of social group formation, attempting to observe the lives of modern hunter-gatherers to infer the conditions of the remote past that may have led to contemporary social order. Despite such highfalutin intentions, spending a year eating larvae, monkeys, and lizards in the Amazon rain forest while running from jaguars and Fer de Lance vipers taught me much more about human digestion and endurance than human evolution. Nevertheless, my work in South America gave me a doctorate in anthropology, which I completed at the same time as a Master's thesis in mathematics on the costs of breast cancer treatment. My combined experience with tribal societies and cancer research made me eligible for a post-doc in Lyon, France with the World Health Organization where I was to study the effects of cannabis on cancer risks among Congolese pygmies. However, as is often the case when one works with traditional societies, war broke out in the Congo, and I changed my research to lymphoma among injecting drug users infected with HIV.



On completion of my post-doc, my wife and I decided to start a family in Portland, Oregon. It is a beautiful, family friendly place that matched our interests in cooking, gardening, knitting, and fly-fishing. For five years I worked as a statistical consultant and non-profit behavioral research scientist. I was (and am) also adjunct faculty at OHSU, where I joined Don Austin on Kelly Reavis' MPH thesis committee. Kelly and Don introduced me to the NCRAR, phone calls were made, and I was hired as biostatistician.

I'm still passionate about archaeology and anthropology. Instead of chasing monkeys in the jungle I chase my three, young children around the house. Instead of digging up ancient pottery, I dig weeds out of the garden. The NCRAR's vigorous and diverse research environment have given me the opportunity to learn much more about statistics and the use of evidence than ever before.

## Portland VA Implements Progressive Tinnitus Management (continued)

conducted by an audiologist, and three by a mental health provider.

PVAMC psychologist Dr. Bret Fuller has joined forces with the Audiology Clinic and the NCRAR to lead the three PTM workshops that are conducted by a mental health provider. He is also serving as the primary point of contact any time an audiologist requires assistance from a mental health provider regarding a patient with

tinnitus. Thank you Dr. Fuller!

To date, two series of the five weekly workshops have been completed at the PVAMC, with one currently in process, and more planned as part of an ongoing program. These workshops are offered to any Veteran whose tinnitus is bothersome and intrusive, and may benefit from this interdisciplinary collaboration.

## VA and Military Audiologists Meet for Training in Tinnitus Management By: C. Kaelin, MBA & J. Henry, Ph.D

ReSound Corp. Government Services recently sponsored a 3-day training event in Portland, OR for VA and military audiologists. The mid-July event focused on Progressive Tinnitus Management (PTM), and was attended by 125 audiologists. Invited speakers included Drs. Jim Henry and Tara Zaugg from the NCRAR, along with Drs. Paula Myers (James A. Haley Veterans Hospital, Tampa, FL), Robert Baldwin (Memphis VAMC), and Cheri Ribbe (Boston VAMC).

The training was designed to provide useful clinical tools to the attending audiologists. In particular, audiologists were given the opportunity to learn more about the psychological components of PTM, with Psychologist Dr. Baldwin walking participants through each component. Dr. Baldwin was asked many questions, demonstrating how critical an interdisciplinary approach is for helping Veterans learn how to manage their reactions to chronic

bothersome tinnitus.

The training was interactive, and the audiologists were given opportunities to apply the new PTM principles they learned, and discuss how it would be incorporated at their respective sites. Challenging case studies were discussed and the audiologists suggested clinical solutions to these cases.

In addition, new PTM training and educational materials were debuted at the meeting, which included video resources for both clinicians and patients. These materials were developed in collaboration with VA Employee Education System, and are now available.

PTM resources can be found at: <http://www.ncrar.research.va.gov/Education/Documents/TinnitusDocuments/Index.asp>

If you have questions or need assistance, please contact [james.henry@va.gov](mailto:james.henry@va.gov).

## NCRAR Conference September 18-20, 2013



Clinicians and researchers are invited to **Save the Date** for the NCRAR's 6th Biennial Conference on September 18-20, 2013 at the World Trade Center in Portland, OR. The topic of this conference will be "Accessing Hearing Health-care through Innovation and Imagination," with anticipated presenters to include: Deborah Ferarri, Harvey Dillon, Terry Chisolm, Jeff Kaye, Bob Margolis, John Kokesh, Elizabeth Krupinski and Jerry Northern. Stay tuned to the NCRAR website (<http://www.ncrar.research.va.gov/>) for conference updates and registration information.

(Above) Attendees listen to the presentation of Dr. Richard Smith during the 2011 NCRAR Biennial Conference.

## NCRAR publications and presentations April 2012 to June 2012

### Publications

- Berlow, Y, Pollaro, J, Krisky, C, Snodgrass, M, Kohout, K, Lewis, MS, Wilmington, D, Hutter, M, Casiana, L, Fitzpatrick, M, Lilly, D, Fausti, S, Folmer, R, Bourdette, D, Rooney, W. MRI correlates of dichotic listening performance in multiple sclerosis. *Seminars in Hearing*, 2012; 33(3): 283-294.
- Folmer, R, Hutter, M, Lilly, D, Shannon, J, Casiana, L, Wilmington, D, Lewis, MS, Billings, C, Krisky, C, Berlow, Y, Pollaro, J, Rooney, W, Bourdette, D. Electrophysiologic measures of auditory processing in patients with multiple sclerosis. *Seminars in Hearing*. 2012; 33(3): 274-282.
- Folmer RL, Saunders GH. Preface to Special Issue of *Seminars in Hearing* – Proceedings of the 5<sup>th</sup> Biennial NCRAR Conference: Expanding our Horizons: Medical Conditions and Audiology. *Seminars in Hearing*. 2012; 33:213-216.
- Folmer RL, Saunders GH, Dann SM, Griest SE, Porsov E, Fausti SA, Leek MR. A Computer-based Hearing Loss Prevention Education Program for Veterans and Military Personnel. Guest Editorial, *JRRD* 2012; 49(4):vii-xv.
- Fonareva I, Amen AM, Ellingson RM, Oken BS. Differences in stress-related ratings between research center and home environments in dementia caregivers using ecological momentary assessment. *Int Psychogeriatr*. 2012 Jan;24(1):90-8. Epub 2011 Jul 22.
- Galvez G, Turbin MB, Thielman E, Istvan J, Andrews JA, Henry JA. Feasibility of ecological momentary assessment to assess hearing difficulties encountered by hearing aid users. *Ear and Hearing*. 2012; 33(4): 497-507.
- Hanson, T, McMillan, GP. Scheffe Style Simultaneous Credible Bands for Regression Surfaces with Application to Ache Honey Gathering. *Journal of Data Science*. 2012; 10(2): 195-224.
- Jacobs PG, Silaski G, Wilmington D, Gordon S, Helt W, McMillan G, Fausti S, Dille M. Development and evaluation of a portable audiometer for high frequency screening of hearing loss from ototoxicity in homes/clinics. *IEEE Trans Biomed Eng*. 2012. (e-Pub ahead of print Jul 11).
- Lewis, MS, Wilmington, D, Hutter, M, McMillan, G, Casiana, L, Fitzpatrick, M, Lilly, D, Bourdette, D, Folmer, R, Fausti, S. Preliminary identification of central auditory processing screening tests for individuals with multiple sclerosis. *Seminars in Hearing*. 2012; 33(3): 261-273.
- McMillan G. Response to Barnett et al. Small N designs for rehabilitation research. *J Rehabil Res Dev*. 2012;49(1):175-86.
- McMillan GP, Konrad-Martin D, Dille MF. Accuracy of distortion-product otoacoustic emissions-based ototoxicity monitoring using various primary frequency step-sizes. *Int J Audiol*. 2012. (e-Pub ahead of print Jun 7).
- Saunders, GH, Forsline, A. Hearing aid counseling: Comparison of single-session informational counseling with single-session performance-perceptual counseling. *International Journal of Audiology*. 2012. (e-Pub ahead of print).
- Seixas NS, Neitzel R, Stover B, Sheppard L, Feeney P, Mills D, Kujawa S. 10-year prospective study of noise exposure and hearing damage among construction workers. *Occupational and Environmental Medicine*. 2012. (e-Pub ahead of print Jun 12).
- Souza PE, Hoover E, Gallun FJ. Application of the Envelope Difference Index to spectrally-sparse speech. *Journal of Speech, Language, and Hearing Research*. 2012; 55(3): 824-837. PMID: 22232401.
- Stecker GC, Gallun FJ. "Binaural hearing, sound localization, and spatial hearing" in *Translational Perspectives in Auditory Neuroscience: Normal Aspects of Hearing*, edited by

## Recent publications and presentations (April 2012-June 2012) continued

K. Tremblay and R. Burkhardt. 2012. Plural Publishing, Inc., San Diego.

### **Publications in Press**

Billings C, Papesh M, Penman T, Baltzell L, Gallun F. Clinical use of aided cortical auditory evoked potentials as a measure of physiological detection or physiological discrimination. *International Journal of Otolaryngology*, in press.

Gallun, FJ, Diedesch, AC, Beasley R. Impacts of age on memory for auditory intensity. *Journal of the Acoustical Society of America*, in press.

Gallun FJ, Diedesch AM, Kubli L, Walden T, Folmer RL, Lewis MS, McDermott DJ, Fausti S, Leek MR. Performance on tests of central auditory processing by individuals exposed to high-intensity blasts. Invited paper, *Journal of Rehabilitation Research and Development*, in press.

Gallun FJ, Lewis MS, Folmer RL, Diedesch AC, Kubli LR, McDermott DJ, Walden TC, Fausti, SA, Lew HL, Leek MR. Implications of blast exposure for central auditory function. Invited paper, *Journal of Rehabilitation Research and Development*, in press.

Hoover E, Souza PE, Gallun FJ. The consonant-weighted Envelope Difference Index (cEDI): a proposed technique for quantifying envelope

distortion. *Journal of Speech, Language, and Hearing Research*. In press, PMID: 22411284.

Saunders, GH, Chisolm, TH, Wallhagen, MI. Older adults and hearing help seeking behaviors. *American Journal of Audiology*. In press.

### **Submitted**

Henry JA, Roberts LE, Ellingson RM. Computer-automated tinnitus assessment: noise-Band matching, maskability, and residual inhibition. *Journal of the American Academy of Audiology*. (In review).

Henry JA, McMillan GP, Thielman EJ, Galvez G, Zaugg TL, Porsov E, Silaski G. Evaluating psychoacoustic measures for establishing the presence of tinnitus. *Journal of Rehabilitation Research and Development*. (In review).

Lewis MS, McMillan GP, Hutter M, Folmer RL, Wilmington D, Casiana L, Fitzpatrick M, Lilly DJ, Bourdette D, Fausti S. Does Interferon Beta-1a Impact Pure-Tone Hearing Sensitivity Among Individuals with Multiple Sclerosis? *Journal of Neuroscience Nursing*. Submitted June, 2012.

McMillan, GP, Hanson, TE, Saunders, G and Gallun, FJ. A Two-Component Mixture Circular Regression Model for Repeated Measures Auditory Localization Performance Data. *Journal of the Royal Statistical*

*Society, Series C (Applied Statistics)*. (In review).

McMillan GP, Reavis KM, Konrad-Martin D, Dille MF. The statistical basis for serial monitoring in audiology. *Ear and Hearing*. Submitted June, 2012.

Molis MR, Diedesch A, Gallun F, Leek MR. Vowel identification by amplitude and phase contrast. *Journal of the Association for Research in Otolaryngology*. Submitted April 20, 2012.

Pope, DS, Gallun, F, Kampel, S. Speech intelligibility and recall: Are patients impaired by hospital noise? *Research in Nursing and Health*. Submitted June 8, 2012.

Theodoroff SM, Folmer RL. Repetitive Transcranial Magnetic Stimulation (rTMS) as a Treatment for Chronic Tinnitus: A Critical Review. *Otol Neurotol*. Submitted June 2012.

### **Presentations**

Billings C. Finding solutions to hearing difficulties using measures of brain and behavior. Podium presented at: Portland VA Medical Center Research Day 2012; 2012 Apr 27; Portland, OR.

Gallun, FJ. Assessing central auditory processing in a Veteran population. Invited talk presented at: UC Berkeley Psychology Dept. Auditory Sciences Seminar Series (the

## NCRAR: Out and About



### Winner of Portland VA Cancer Survivor's Day Basket Competition

Congratulations to the NCRAR staff who contributed items to the Portland VA Cancer Survivor's Day Basket Competition. The basket entered by the NCRAR was named winner of the Best Pacific Northwest "Home Grown-Oregon" category.

Some of the items comprising the basket included: a Timbers soccer ball and apparel, a Trailblazers hand towel, Nike apparel, a Pendleton blanket, local smoked salmon, berries, jam, chocolate, and more. Thank you for your generosity, and for the reminder of the many great things the Pacific Northwest has to offer!



(Above) Research Audiologist, Dr. Tina Penman working the Healthy Hearing booth at the Special Olympics.

### 2012 Special Olympics Oregon Summer State Games

On July 14, 2012, NCRAR Research Investigator, Curtis Billings, and Research Audiologists, Tina Penman and Angie Garinis took part in the Oregon Special Olympics Summer Games in Newberg, OR. The trio worked the Healthy Hearing booth, where they spent the day testing athletes hearing. Nice work!



(Above) NCRAR Staff, Drs. Curtis Billings and Tina Penman.

## In Other News...

- Congratulations to NCRAR Research Audiologist **Keri O'Connell Bennett** and her husband James, on the birth of their daughter on July 6, 2012.
- Congratulations to NCRAR Research Audiologist **Kelly Reavis** and her husband Kevin, on the birth of their son on July 23, 2012.
- Congratulations to 2011-2012 NCRAR 4th-Year Externs, **Sarah Blankenship** and **Melissa Papesh**, on receiving their Au.D.'s.
- Welcome NCRAR Summer Interns: **Brittney Dullard**, **Gwen Dillman**, **Sarah Weidman**, and **Louisa Conwill**.
- Welcome 2012-2013 NCRAR 4th-Year Extern **Michelle Hungerford**.

## Recent publications and presentations (Jan 2012-March 2012) continued

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| <p>“Ear Club”); Berkeley, CA, April 9, 2012.</p> <p>Henry JA. Tinnitus and Progressive Tinnitus Management. Teleconference lecture for AuD students at Northwestern University, Evanston, IL, May 10 and 17, 2012.</p> <p>Henry JA. Introduction to the Tinnitus Functional Index. Invited lecture for the Tinnitus Update Lecture Course, Bristol, England, June 25, 2012.</p> | <p>Henry JA. Progressive Tinnitus Management Workshop. Invited lecture for the Tinnitus Update Lecture Course, Bristol, England, June 25, 2012.</p> <p>Saunders GH. Auditory training, neural plasticity and audiologic rehabilitation. Invited presentation for the Oregon Hearing Society Summer Meeting, Bend, OR, June 29-30, 2012.</p> <p>Saunders GH. Dual Sensory Loss. Presenter for Concurrent Breakout Session: Special</p> | <p>Senses Evaluation and Management. New Horizons in Rehabilitation Care, Department of Veterans Affairs, Employee Education System and Office of Rehabilitation Services Program. Atlanta, GA June 19-21, 2012.</p> <p>Saunders GH. Be Beyond Amplification: Options for Audiologic Rehabilitation. ReSound Government Services National Seminars 2012 San Francisco June 8-9, 2012.</p> |
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## Ongoing NCRAR Research Studies

- A Hearing Loss Prevention Program for Veterans
- Assessment of Auditory Function in Patients with Parkinson Disease
- Auditory Rehabilitation from the Perspective of the Significant Other
- Central auditory processing disorders associated with blast exposure
- Clinical trial of transcranial magnetic stimulation for relief of tinnitus
- Community-based kiosks for hearing screening and education
- Determinants of Word Recognition Speed in Older Listeners
- Effects of aging and hearing loss during rapid sound processing
- Effects of speech in noise training on physiology and perception
- Electrophysiology and perception of speech in noise
- Evaluation of approaches to auditory rehabilitation for mild traumatic brain injury
- Expanding Our Horizons: Medical Conditions and Audiology
- Hearing loss and the perception of complex sounds



- 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
- Multi-site Evaluation of Progressive Tinnitus Management
- Multi-site Study of the Efficacy of Speech Perception Training for Hearing-Aid Users
- Predicting the Benefits of Spatial and Spectrotemporal Cues
- Telephone Tinnitus Education for Patients with TBI
- Wideband clinical diagnosis and monitoring of middle ear and cochlear function.