

Developing an App for Auditory Training

Noah Ledbetter, PhD, Department of Biomedical Engineering, Washington University in St. Louis

Hearing aids and cochlea implants help thousands of people with hearing loss to participate in day-to-day life, but they are far from perfect stand ins for our natural hearing, which can detect and hone in on sounds within a wider soundscape, like zeroing in on your friend’s voice in a noisy restaurant. Efficacy of these devices also varies from person to person, reflecting differences in patients’ ability to learn how to use the devices and adapt to the signals they deliver to the auditory system.

In order to help people get the most out of their hearing aids, or cochlear implants, audiologists typically prescribe several different auditory training (AT) exercises. While assistive listening devices amplify sound, it is up to the individual to develop the skills to interpret what they hear and to be able to discriminate between sounds in a natural environment, such as picking out speech in a noisy restaurant. These exercises, performed under the direction of a clinician at his or her office, involve of lots of repetitive listening, are tedious and boring, and total compliance with the training programs are low. Patients adjusting to hearing for the first time with a cochlear implant, must put in hundreds of hours of auditory training to get the most benefit from their new implants, and so the time commitment, and often travel commitments to the office where the training is conducted, can be significant. Surveys have shown that participants in AT deem it tedious and unrewarding. Many exercises involve discriminating between two nonsense sounds, like “ba” and “ma.” Repeated hundreds of times, it’s no wonder compliance is low, even though for those who complete the training, the benefits are high.

Dr. Noah Ledbetter and colleagues will package the auditory training tasks in a more engaging, portable format through developing video games and mobile device apps that incorporate current best practices in auditory training in an engaging format that will encourage, rather than discourage participation.

Drs. Ledbetter and Barbour have already developed several prototype “games” that train in areas like basic phoneme discrimination and recognizing speech in noise. They will use the AHRF to further refine their games. They believe that by putting the tools for training into the hands of the patient and by making the training more fun and engaging, compliance will increase and patients will benefit from the skills they learn faster.

New Hearing-Loss Test for Chemotherapy Recipients

Researchers funded by the American Hearing Research Foundation are investigating the use of a new, highly sensitive test to discern very-early stage hearing loss in patients exposed to certain chemotherapy drugs known to cause hearing loss.

The researchers, led by Sumit Dhar, PhD, Associate Professor in the Department of Communication Sciences & Disorders, Northwestern University, Evanston, Illinois, David A. Klodd, PhD, Professor of Audiology at the University of Illinois, Chicago, and Jonathan Siegel, Associate Professor in the Department of Communication Sciences & Disorders, Northwestern University, Evanston, Illinois hope that their new test will be able to significantly reduce the number of chemotherapy patients who experience hearing loss due to treatment.

The new test is actually a significant improvement on a currently-used testing technique called distortion-product otoacoustic emissions, or DPOAEs. DPOAEs deliver two tones to the ear and then measures the ‘echo’ from the interacting waves emanating from the outer hair cells of the cochlea in the inner ear. This test can assess hearing loss in a wide range of frequencies from low pitches to high pitches, but its efficacy at determining hearing loss in the high frequencies tops out at less than 6 kHz. The AHRF researchers have made dramatic improvements in the test hardware and test algorithm to enable measurement of DPOAEs up to 20 kHz.

Hearing loss in this range is usually not initially noticed, but losses in this range often lead to subsequent losses in hearing in the lower frequencies, so being able to determine hearing loss above 6 or 8 kHz, can help drive treatments and preventive measures to stop the hearing loss from “spreading” into lower frequencies, where they are much more noticeable to the patient and can negatively impact quality of life and communication. “Hearing loss in these ranges often indicates that the loss is going to start expanding through the lower frequencies where hearing loss is actually perceived as a problem. By identifying HL at these high frequencies, steps can be taken to stop its progression,” says Dr. Klodd.

The researchers are investigating the efficacy of their DPOAE test in patients undergoing chemotherapy containing the drug cisplatin, an ototoxic drug known to cause hearing loss that starts in the higher frequencies above 8 kHz. They plan to test the new DPOAE sensor in approximately 20 patients receiving cisplatin chemotherapy treatment (as well as 20 control patients not receiving cisplatin) at the University of Illinois at Chicago. “These are patients who are already undergoing extremely stressful treatment and are coping with the fact that they may have a life threatening, or at the very least, life altering diagnosis. The last thing they need is to develop hearing loss over the course of their chemo therapy, or in the months following treatment, as so often happens in these cases where the patient is sensitive to cisplatin,” says Dr. Dhar. “The goal is to detect the hearing loss before the patient does, and to begin treatment and prevention protocols so that these patients can enjoy a better quality of life once they get better.”

AHRF Symposium on Dizziness & Balance Disorders

The AHRF held a free symposium on dizziness and balance disorders on Saturday, April 6 in Oakbrook Terrace, IL. The free, day-long education symposium was geared towards people living with balance disorders, and featured nine local physicians talking on various aspects of balance disorders. There were more than 90 registrants for this event, and enormous interest. Thank you to all the physicians and board members who helped make this event a reality!

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Contact Information

Kimberly LaBounty
Executive Director

Phone: (630) 617-5079
Fax: (630) 563-9181
E-mail: kimberly@american-hearing.org

www.american-hearing.org

A non-profit foundation dedicated to scientific research, and the preventive care and cure of deafness.

American Hearing Research Foundation

Statement of Financial Position

For the Year Ended December 31, 2012

With Comparative Totals for the Year Ended December 31, 2011

ASSETS

| | 2012 | 2011 |
|--|---------------------|---------------------|
| Cash | \$ 57,527 | \$ 147,925 |
| Marketable Securities | | |
| (Note 2) | 5,608,183 | 5,191,179 |
| Accrued Interest and Dividends | 19,275 | 17,934 |
| Prepaid Expenses and Other Assets | 14,773 | 2,991 |
| <i>Total Current Assets</i> | 5,699,758 | 5,360,029 |
| Equipment | | |
| Office Equipment | 21,540 | 21,540 |
| Website Development Costs | 45,000 | 45,000 |
| <i>Total</i> | 66,540 | 66,540 |
| Less - Accumulated Depreciation | (66,540) | (65,972) |
| <i>Net Fixed Assets</i> | | 568 |
| Total Assets | \$ 5,699,758 | \$ 5,360,597 |

LIABILITIES AND NET ASSETS

| | 2012 | 2011 |
|--|---------------------|---------------------|
| Accounts Payable and Accrued Liabilities | \$ 435 | \$ 2,838 |
| Grants Payable | 80,000 | 100,000 |
| <i>Total Liabilities</i> | 80,435 | 102,838 |
| Net Assets, Unrestricted | 5,619,323 | 5,257,759 |
| Total Liabilities and Net Assets | \$ 5,699,758 | \$ 5,360,597 |

American Hearing Research Foundation
Statement of Activities and Changes in Net Assets

For the Year Ended December 31, 2012

With Comparative Totals for the Year Ended December 31, 2011

2012 Unrestricted 2011

| | General | Board Designated | Total | Totals Only |
|--|---------------------|------------------|---------------------|---------------------|
| Public Support: | | | | |
| Contributions and Bequests (Note 2) | \$ 56,593 | | \$ 56,593 | \$ 73,447 |
| <i>Total Public Support</i> | 56,593 | | 56,593 | 73,447 |
| Revenues: | | | | |
| Interest and Dividends | 143,029 | | 143,029 | 137,574 |
| Investment Advisor Expenses | (34,439) | | (34,439) | (35,078) |
| <i>Total Revenues</i> | 108,590 | | 108,590 | 102,496 |
| Total Public Support and Revenues | 165,183 | | 165,183 | 175,943 |
| Expenses: | | | | |
| Program Services: | | | | |
| Research Grants | | 117,500 | 117,500 | 125,000 |
| Educational | 102,737 | | 102,737 | 58,436 |
| <i>Total Program Services</i> | 102,737 | 117,500 | 220,237 | 183,436 |
| Support Services: | | | | |
| General and Administrative | 15,070 | | 15,070 | 17,101 |
| Fundraising | 38,907 | | 38,907 | 72,431 |
| <i>Total Support Services</i> | 53,977 | | 53,977 | 89,532 |
| Total Expenses | 156,714 | 117,500 | 274,214 | 272,968 |
| Change in net assets before realized losses on investments sold and change in market value of investment held. | 8,469 | (117,500) | (109,031) | (97,025) |
| Realized Gains on Investments Sold | 578,438 | | 578,438 | 18,467 |
| Change in Market Value of Investments Held | (107,843) | | (107,843) | (174,465) |
| Change in net assets before return of grant | | | | (253,023) |
| Change in net assets | (479,064) | (117,500) | 361,564 | (253,023) |
| Net Assets: | | | | |
| Beginning of Year | 5,257,759 | | 5,257,759 | 5,510,782 |
| Transfer | (117,500) | 117,500 | | |
| END OF YEAR | \$ 5,619,323 | | \$ 5,619,323 | \$ 5,257,759 |

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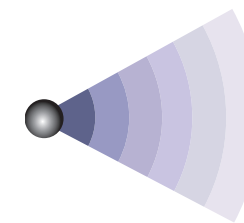


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AMERICAN HEARING RESEARCH FOUNDATION

SOUNDINGS NEWSLETTER



Dear Friends of the American Hearing Research Foundation

Along with the changes and renewal brought by the Spring season, the AHRF is also undergoing some important changes. At the end of April, our long-time Executive Director, Sharon Parnet left the Foundation for a new opportunity at the University of Illinois in their media relations department. We will miss her and applaud all the work she has done for us in the last six years, and she has assured me that she will do everything she can to help the AHRF in this time of transition.

As we went over our budget, and as Sharon and I talked about how hard it would be to find a replacement that would be able to run the Foundation on their own (as Sharon did) or with a little part time help, we were made aware of an alternative option for managing the Foundation that we believe makes a lot of sense from both a management and budgetary perspective.

Instead of hiring a new executive director and continuing to rent an office at 8 S. Michigan, the Board has decided that the AHRF will be administered by a non-profit management firm. scenario, the AHRF will be able to stick to its mission at a fraction of the cost. The AHRF will continue to fund cutting-edge research into hearing loss at the same level we have been doing for the past many years. Our website will continue to feature articles on hearing and balance disorders, and we will still gratefully accept donations. Things that will change will include our mailing address, and the newsletter will likely get shorter. Everything that appears in our newsletter has always been posted on our website, so for the latest news on the Foundation and our funded research, you can always visit our website at www.american-hearing.org. To avoid mislaid checks in our transition to a new address, I encourage you to send donations through our online donation page. Just click the "Make a Donation" button at the top of our homepage.

Moving to a management firm will allow the AHRF to operate at a much reduced cost, and will allow us to fund more grants in the long run and stick to our mission: better hearing through research.

We are happy to announce that the AHRF will now be managed by Kim LaBounty, founder and owner of Apex Management. She will serve as our executive director. The new address of the foundation will be 310 Lake Street, Suite 111, Elmhurst, IL 60126. Phone number: (630) 617-5079

Sincerely,

Richard Muench, Chairman of the Board of Directors

