

Research Seeks to Prevent Hearing Loss during Chemotherapy

Researchers at the University of Illinois at Chicago and Northwestern University are collaborating to develop a device to prevent hearing loss in patients undergoing chemotherapy. Chemotherapy patients are often caught unaware when they find themselves dealing with hearing loss following treatment, according to David Klodd, professor of audiology in the UIC College of Medicine.

“Some commonly used chemotherapy drugs are ototoxic — that is, they can damage structures in the inner ear involved in hearing,” Klodd said. Klodd is directing the trial of a new device that may be able to detect hearing loss early in chemotherapy, so doctors may be able to change medications or dosages to minimize damage to the inner ear, and an audiologist can begin rehabilitation.

Chemotherapy-related hearing loss usually begins in the highest frequencies, where it often goes unnoticed. The patient only realizes something is wrong when damage affects the part of the inner ear that detects lower frequency sound. Unlike tests that rely on patients to signal when they hear a tone, the device — developed by Northwestern University’s Sumit Dhar and Jonathan Siegel, professor and associate professor, respectively, of communication sciences and disorders — can detect changes in inner-ear function even before the patient is aware of any change in ability to hear at the highest frequencies. “We were interested in evaluating inner ear function out to the limits of human hearing,” said Dhar.

The device delivers two tones to the ear and measures the echo as the interacting waves return from the inner ear. These sounds, known as otoacoustic emissions, were discovered 35 years ago, but have never before been recorded clinically at these extremely high frequencies. The researchers will enroll 20 patients at UI Health age 10-65 who are undergoing chemotherapy with cisplatin, a drug known to cause hearing loss that begins in the higher frequencies. Gayla Poling, a clinical audiologist and postdoctoral fellow at UI Hospital, will assess participants’ hearing before and during chemotherapy. Twenty patients who are not receiving cisplatin will serve as controls. “Our primary goal is to prevent progressive and permanent sensorineural hearing loss and help patients maintain their quality of life after chemotherapy,” said Klodd.

The research is supported by a grant from the American Hearing Research Foundation. See more at: <http://news.uic.edu/research-seeks-to-prevent-hearing-loss-during-chemotherapy#sthash.jOt8jGyQ.dpuf>

Frequently Asked Questions about Hearing Aids

For many, purchasing hearing aids is a daunting and sometimes expensive endeavor. It is difficult to make sense of all of the spam we receive in the mail, the ads we see on TV, and mixed reviews from friends and family members with hearing aids. This article is intended to address frequently asked questions about hearing aids, their purchase, indications for use, benefits and limitations of these devices, where hearing aids are dispensed, and who can dispense them.

Who is a candidate for hearing aids?

Many types of peripheral hearing loss - sensorineural, conductive, or mixed- are treated with hearing aids. Your audiologist or hearing instrument dispenser will perform an audiogram, often including speech testing and loudness discomfort levels to determine if you are a candidate for hearing aids and to rule out medically treatable hearing loss.

Who dispenses hearing aids?

Hearing aids can only be obtained through a licensed hearing instrument dispenser or licensed dispensing

audiologist. Hearing aids are dispensed in a number of different settings: audiology private practice, ear nose and throat clinics, privately owned hearing aid dispensaries, franchise hearing aid stores, large hospitals, VA hospitals, in school systems, and others. Your insurance benefits, personal comfort level with providers, cost, and geographic location are determining factors when choosing where to obtain your hearing aids and who to obtain them from.


Can hearing aids help the ringing in my ears?

Those with tinnitus (ringing or buzzing in the ears, perceived only by the listener) may benefit from hearing aid use based on the principles of sound enrichment therapy, whereby stimulation of the auditory system using additive auditory input can reduce the impact of tinnitus. Some hearing aid manufacturers have masking sounds, narrow or wide band noise that can be embedded in the output of the hearing aid. Those who show benefit from at-home masking remedies may be good candidates for hearing aids with these features.

What are reasonable expectations for hearing aid outcome?

The benefits of amplification vary greatly (Wilson et al. 2003), and it can take several weeks or even months before hearing aid benefit can be fully realized. Hearing aids aim to provide better access to soft sounds, and most hearing aids place an emphasis on maintaining or enhancing speech information.

Positive outcomes have been demonstrated with newer technology, as with devices that include multiple memories, multiple channels, and wide dynamic range compression (Jerram et al. 2001). Noise reduction technology is available in most modern hearing aids, and it often comes at a premium. While there is less evidence to support the efficacy of digital noise reduction features, there is substantial evidence to suggest benefit with the use of directional microphones for noise reduction (Bentler et al. 2005).

Your hearing healthcare specialist can provide you with a good indication of expected benefits based your personal expectations, audiometric configuration, speech recognition ability, and device preferences. 

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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, 2013

With Comparative Totals for the Year Ended December 31, 2012

ASSETS

	2013	2012
Cash	\$ 189,231	\$ 57,527
Marketable Securities		
(Note 2)	6,314,653	5,608,183
Accrued Interest and Dividends	21,160	19,275
Prepaid Expenses and Other Assets	10,491	14,773
<i>Total Current Assets</i>	6,535,535	5,699,758
Equipment		
Office Equipment		21,540
Website Development Costs		45,000
<i>Total</i>		66,540
Less - Accumulated Depreciation		(66,540)
<i>Net Fixed Assets</i>		
Total Assets	\$ 6,535,535	\$ 5,699,758

LIABILITIES AND NET ASSETS

	2013	2012
Accounts Payable and Accrued Liabilities	\$ 446	\$ 435
Grants Payable	140,000	80,000
<i>Total Liabilities</i>	140,446	80,435
Net Assets, Unrestricted	6,395,089	5,619,323
Total Liabilities and Net Assets	\$ 6,535,535	\$ 5,699,758

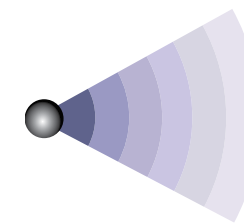
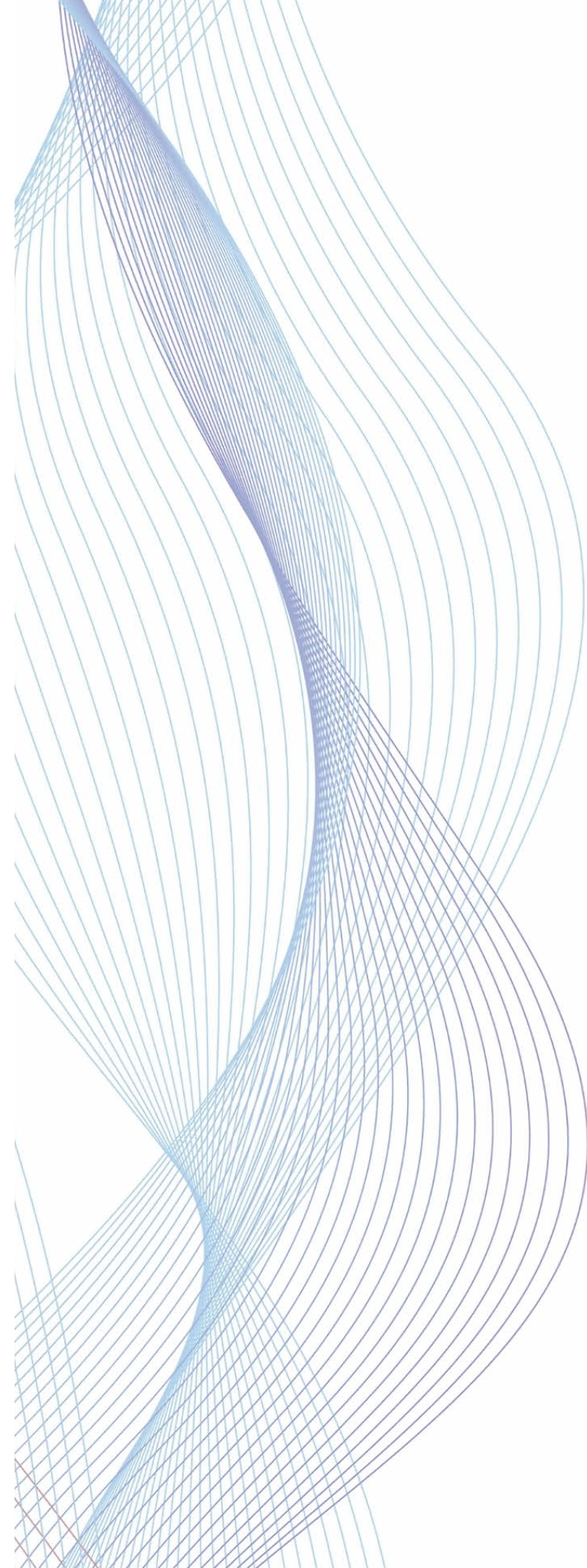
American Hearing Research Foundation
Statement of Activities and Changes in Net Assets

For the Year Ended December 31, 2013

With Comparative Totals for the Year Ended December 31, 2012

2013 ————— 2012
 Unrestricted

	General	Board Designated	Total	Totals Only
Public Support:				
Contributions and Bequests	\$ 133,275		\$ 133,275	\$ 56,593
Other	9,622		9,622	0
<i>Total Public Support</i>	142,897		142,897	56,593
Revenues:				
Interest and Dividends	163,001		163,001	143,029
Investment Advisor Expenses	(7,601)		(7,601)	(34,439)
<i>Total Revenues</i>	155,400		155,400	108,590
Total Public Support and Revenues	298,297		298,297	165,183
Expenses:				
Program Services:				
Research Grants		165,000	165,000	117,500
Educational	60,256		60,256	102,737
<i>Total Program Services</i>	60,256	165,000	225,256	220,237
Support Services:				
General and Administrative	36,338		36,338	15,070
Fundraising	8,617		8,617	38,907
<i>Total Support Services</i>	44,955		44,955	53,977
Total Expenses	105,211	165,000	270,211	274,214
Change in net assets before realized losses on investments sold and change in market value of investment held.	28,086		28,086	(109,031)
Realized Gains on Investments Sold	811,596		811,596	578,438
Change in Market Value of Investments Held	(63,916)		(63,916)	(107,843)
Change in net assets before return of grant				
Change in net assets	775,766		775,766	361,564
Net Assets:				
Beginning of Year	5,619,323		5,619,323	5,257,759
Transfer				
END OF YEAR	\$ 6,395,089		\$ 6,395,089	\$ 5,619,323



AMERICAN HEARING RESEARCH FOUNDATION

SOUNDINGS NEWSLETTER

Research Update from Professor Michael Lovett, 2011 AHRF Grant Award Recipient

Two significant recent publications describe the results of funding provided by AHRF for innovative inner ear research. In 2011 AHRF provided a grant to Professor Michael Lovett of Washington University in St. Louis, along with his collaborators, to investigate the “tonotopic gradient” of the auditory organ in birds. This gradient of frequency responses is set down during embryonic development and specifies how specific cell types send the signals from specific sound frequencies to the brain. Professor Lovett, now Chair in Systems Biology at Imperial College, London, and his colleagues used cutting-edge Next Generation DNA sequencing technologies to explore the entire spectrum of changes in gene expression that happen across the tonotopic gradient, as it develops in chicks. They were able to observe, for the first time in any species, all of the genes that change as this frequency gradient is set up. Professor Lovett and his group then identified the major differences and major pathways that are significantly altered between one end of the gradient and the other.



Armed with this unique set of data, Lovett’s collaborators Professor Jeffrey Corwin at the University of Virginia and Dr. Mathew Kelley at the National Institutes of Health (NIH) were able to test these pathways and prove that they are indeed central to setting up the tonotopic gradient. In addition to these insights into specific genes and pathways, this AHRF study was funded to derive a comprehensive set of data of the gene expression changes across the whole tonotopic gradient. That goal has been completely met. All of the data has been validated and deposited with NIH to enable complete access for all researchers. All investigators can access and test these data and further explore the pathways to hearing and hearing restoration. This study means that a new and rich source of well validated research targets has been provided for the entire research field.



Katie’s “Run Because” Initiative Supports the American Hearing Research Foundation

Katie Mayer has committed to running a half-marathon in each state, plus Washington D.C. by age 50 to raise money and awareness of Meniere’s disease. This illness, with no known cause or cure, affects her mother. Funds raised by Katie’s “Run Because” initiative go towards AHRF research grants. Visit Katie’s Facebook page at www.facebook.com/runbecause.

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