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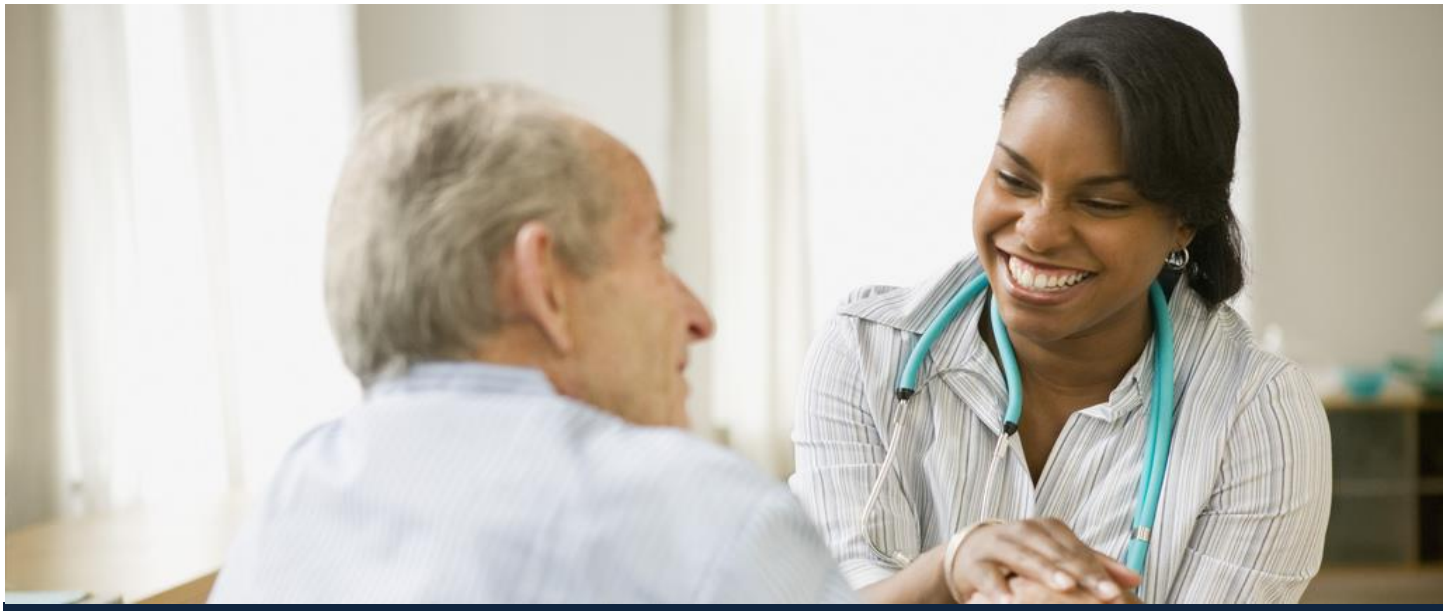

Hearing for Health: Real-Time Screening and Amplification for Doctor-Patient Communication

ID: 4258

Featured Innovators: Catherine Palmer, PhD, Jeffery Vipperman, PhD, and Erik Rauterkus

Hearing loss is an under-recognized and subsequently under-treated problem that is expensive for patients, health care providers, and health systems. Although 60 percent of people over age 65 have hearing loss only 18 percent use personal amplification. Untreated hearing loss creates communication barriers that are pronounced in high stress and complex environments like health care settings, which can be a serious problem if key health communication is missed or misunderstood. Under-recognized and under-treated hearing loss costs the US health system $3.3 billion each year. Currently, there is no way for health care providers to quickly screen hearing and provide immediate amplification for patients. Hearing for Health is a new device that screens hearing in real time and if needed acts as an amplifier to facilitate communication between providers and patients during health care interactions.

Technology Description

Hearing for Health is a small wearable device that is easily clipped to the patient's clothing. Headphones connect the device to the patient. A health care provider administers an easy-to-use hearing screen through the device. The test conforms to World Health Organization standards and works in real – noisy – health care environments. If indicated, the same device can also be used as an amplifier to aid the patient in hearing the provider's voice. Either party can control the volume. Currently Hearing for Health is being tested in real world environments to refine the screening and amplification tools.

Advantages

- The only device on the market that screens and amplifies hearing
- The only portable hearing screening device that meets WHO guidelines in real world communication environments and provides an amplifier for immediate use
- Cost-effective for health care providers – traditional portable hearing tests are 20x the cost of Hearing for Health's product
- Easy to use screening and amplifier that allows any health care provider to quickly administer

Applications

- Primary care and geriatric outpatient care settings
- Hospice care settings
- Palliative care settings
- Inpatient settings
- Veterans Administration health care settings
- Assisted living and skilled nursing facilities

Stage of Development

Prototype development, validation testing, and market assessment

IP Status

Invention disclosure filed with the Innovation Institute in May 2017

Notable Mentions

- Pitt Ventures 1st Gear Funding - $3,000
- Chancellor's early stage commercialization fund - $5,000

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Innovators

Catherine V. Palmer, PhD

Associate Professor
Communication Science & Disorders
Otolaryngology
University of Pittsburgh

Dr. Palmer directs the clinical Audiology program for the UPMC integrated health system and teaches future audiologists at the University of Pittsburgh. She also supervises the Auditory Processing Research Laboratory at the University of Pittsburgh where her research focuses on matching technology to individual patient needs and impacting health outcomes through improved communication. Dr. Palmer is nationally and internationally recognized for her work in Interventional Audiology with innovative programs to improve communication through better hearing at all points of inpatient and outpatient care. She is the recipient of Chancellor's Early Stage Commercialization Award for Hearing for Health and the 2015 Provost's Award for Excellence in Mentoring.

Education

PhD Audiology and Hearing Science
Northwestern University

Publications

- Palmer, C, Mulla, R, Dervin, L (2017). HearCARE: Impact of ongoing hearing intervention in a senior living facility. Seminars in Hearing, 38,184-194.
- Jorgensen, L, Palmer, C, Pratt, S, Moncrieff, D., Erikson, K (2016). The potential impact of undiagnosed hearing loss on the diagnosis of dementia. Journal of the American Academy of Audiology, 27(4), 311-323.
- Rauterkus, E, Palmer, C (2014). Hearing Aid Effect in 2014. Journal of the American Academy of Audiology, 9(25), 893-903.

Jeffrey S. Vipperman, PhD

Professor and Vice Chair of MEMS
Bioengineering
University of Pittsburgh

Dr. Vipperman is the lead engineer for Hearing for Health. His work focuses on medical device development, particularly devices that incorporate acoustics and signal processing as well as surgical aids. He also works in the area of hearing loss prevention and has developed an acoustical noise classifier that is used commercially by the Department of Defense. He currently holds three patents and has filed two more. Dr. Vipperman is a two-time recipient of the Pitt Innovator Award for Technology Translation and a two-time recipient of the Chancellor's Early Stage Commercialization Fund.

Education

PhD Mechanical Engineering
Duke University

Publications

- Dumm CM, Vipperman JS, Carvajal JV, Walter MM, Czerniak L, Ruane AS, Ferroni P, Heibel MD (2016). Thermoacoustic power sensors: Principles and prediction. The Journal of the Acoustical Society of America;140(4):3002.
- Shelton CM, Vipperman JS, Nykaza ET, Valente D. Six noise type military sound classifier. InASME 2012 Noise Control and Acoustics Division Conference at InterNoise 2012 2012 Aug 19 (pp. 127-136). American Society of Mechanical Engineers.
- Vipperman JS, Bauer ER, Babich DR (2007). Survey of noise in coal preparation plants. The Journal of the Acoustical Society of America;121(1):197-205.

University of Pittsburgh
Innovation Institute

130 Thackeray Ave
Pittsburgh, PA 15260

innovation.pitt.edu

Contact

Robert Racunas, JD MS
Intellectual Property and Licensing Associate
412-648-2220
rracunas@innovation.pitt.edu