

Cochlear Center for
Hearing and Public Health

2019

Annual Report



JOHNS HOPKINS
BLOOMBERG SCHOOL
of PUBLIC HEALTH

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LETTER FROM THE DIRECTOR



As we wrap up the second year of the Cochlear Center since our founding in 2018, we have continued to advance our mission of training researchers and clinicians globally to understand and address the impact of hearing loss in older adults while also carrying out the research that is reshaping perceptions and policies around hearing loss both nationally and internationally. Highlights from 2019 include:

We deepened our training efforts. In addition to 19 trainees conducting mentored research at the Center, we launched several new programs led by Jennifer Deal. In 2019 we held our first Cochlear Center Research Day, and hosted the East Asian Fellows Program in Aging, Hearing, and Public Health, with 31 fellows across East Asia (accepted from over 109 applicants) coming to Baltimore for a week of in-depth, didactic training and mentoring.

We expanded our international collaborations. Several faculty (Lin, Deal, Reed) made trips to Brazil in 2019 to collaborate with investigators to incorporate hearing testing into the Brazilian Longitudinal Study of Adult Health (ELSA), a first-in-kind study of nearly 16,000 adults. We also developed a research collaboration with the Longitudinal Aging Study in India to include hearing testing in the subset (N ~ 3000) of their cohort in which neurocognitive testing is being conducted.

We completed – and exceeded – enrollment for two NIH-funded clinical trials. The Baltimore HEARS study (N = 151) led by Carrie Nieman is testing whether and how an accessible and affordable community health worker hearing loss intervention is efficacious in improving communicative and social functioning; final trial results are slated to be released by 2021. The ACHIEVE study (N=977) is testing if treating hearing loss reduces the risk of cognitive decline and dementia in older adults and will be completed by early 2023. Both are potentially landmark studies that will influence our understanding of the impact of hearing loss treatment and how hearing care can be delivered.

We are focused on policy. We continue to view our efforts to influence policies around hearing care as the most impactful contribution we can make toward sustainable change. Our work has already led to the passage of the Over-the-Counter Hearing Aid Act of 2017, which will go into effect in 2020. Most recently, work led by Amber Willink directly led to the current framework of the Medicare Hearing Act of 2019, which was passed out of committee. While this bill will not advance further in the current session of Congress, we now have the framework for legislation that would reform Medicare in the US, and we will continue this effort in the years ahead. We've also continued our work with the National Academies, and a National Academy workshop on insurance coverage for hearing care is tentatively planned for late 2020. In parallel, Center faculty continue to serve on international initiatives addressing hearing loss, including the WHO report (Nieman, Lin), and the Lancet Commission on Hearing Loss (Lin, Reed).

We are growing. As the training and research footprint of the Center continues to expand, we've recruited additional faculty and staff. Esther Oh, associate professor of geriatric medicine and co-director of the Johns Hopkins Memory and Alzheimer's Treatment Center, officially joined the Cochlear Center Core Faculty in 2019. We've also launched both a formal Audiology Core led by Nick Reed to oversee epidemiological and hearing intervention studies and an Analytical Core led by Josh Betz, and hired Molly Sheehan, an experienced communications specialist, to oversee all aspects of Center-related communications.

Our progress from 2019 to 2020 has been exciting, and now that we've passed the initial hurdles that are part of starting up a new research center we're beginning to shift toward growing our training programs and research collaborations. The year ahead has extraordinary potential, but we are also navigating the unprecedented upheaval created by the global coronavirus pandemic. Creativity and flexibility will be necessary as we all work together to meet these challenges.



We see this crisis as being a pivot point for using technology to scale up our programs and potentially offer access to even more participants. For example, by developing an online format for this year's Latin American Fellows Program in Aging, Hearing, and Public Health, we will be able to use this platform to expand our internationally-focused training programs that can now be locally delivered through a mix of both online and in-person training with just 1-3 faculty members traveling to the host country. Technology will enable us to remotely offer our one-week course in the Epidemiology and Biostatistics Summer Institute, and we are examining its role in offering a dedicated month-long in-depth summer mentored training experience for future early stage graduate students.

It's exciting to consider the potential of technology to help us to expand the scale of these programs and to offer access to an even larger number of participants. We look forward to withstanding this crisis and creating more opportunities for current and future trainees to launch their careers at the intersection of aging, hearing, and public health.

A handwritten signature in black ink, reading "Frank Lin". The signature is fluid and cursive, with the first name "Frank" written in a larger, more prominent script than the last name "Lin".

Frank R. Lin, MD PhD

Director, Johns Hopkins Cochlear Center for Hearing and Public Health
Professor, Departments of Otolaryngology, Medicine, Mental Health, and Epidemiology

ABOUT THE CENTER

HISTORY

The Cochlear Center for Hearing and Public Health is based in the Department of Epidemiology at the Johns Hopkins Bloomberg School of Public Health and is closely affiliated and co-located with both the Johns Hopkins Center on Aging and Health and the Welch Center for Prevention, Epidemiology, and Clinical Research. The Center was launched in 2018 with more than \$20 million in existing grant funding from the National Institutes of Health focused on Center-mission areas, a \$10 million gift from Cochlear Ltd., and other philanthropic funding. The Center draws on the expertise of faculty members and trainees from a broad array of disciplines in order to advance the mission areas of the Center, in the U.S. and globally.

MISSION

Ensuring that older adults can effectively hear and engage with the people and world around them is key to optimizing health and well-being. The Cochlear Center for Hearing and Public Health is dedicated to recruiting and training a generation of researchers, clinicians, and public health experts who can study the impact that hearing loss has on public health, develop and test strategies to address hearing loss, and help implement effective policies for hearing loss at the local, national, and global levels.

VISION

The Cochlear Center for Hearing and Public Health will work to effectively optimize the health and functioning of an aging society and become the premier global resource for ground-breaking research and training on hearing loss and public health.

IMPACT

The Johns Hopkins Cochlear Center for Hearing and Public Health is the only global research institution focused exclusively on issues related to hearing loss and public health in older adults. Our researchers are interested in understanding the impact of hearing loss on public health, crafting and testing solutions, and supporting and working to advance medical, public health, and governmental understanding of these issues all around the world.

The impact of the Cochlear Center for Hearing and Public Health will ultimately be measured by the accomplishments of the individuals and trainees who comprise the Center and whose research, advocacy, and academic pursuits will advance Center mission areas. These accomplishments will take place at the macro level (e.g., public policy legislation) to the micro level (e.g., programs to deliver hearing care to individuals in a particular community) and everywhere in between (e.g., acquiring grant funding for Center mission areas, influential research publications, etc.). Common to all of these accomplishments will be the foundational understanding that strategies and solutions that allow older adults with hearing loss to communicate and effectively engage with their environment are fundamental to optimize human health and aging.



FUNDING

The Cochlear Center for Hearing and Public Health is supported by NIH grants to Center faculty, a gift from Cochlear Ltd., other philanthropic funding, and infrastructural support and resources from the Johns Hopkins Bloomberg School of Public Health and the Johns Hopkins University School of Medicine.

Grants for which Cochlear Center for Hearing and Public Health core faculty are principal investigators:

02/01/19 - 01/31/23

Contribution of sensorimotor function to risk and pathogenic mechanisms of Alzheimer's disease and related dementias

NIA/NIH, R01AG061786; \$ 3,668,824

Co-PI: Frank Lin, Jennifer Schrack, Yuri Agrawal

02/01/19 - 07/30/19

Supplemental Benefit Availability and Uptake in Medicare Advantage

The Commonwealth Fund; \$45,953

Co-PI: Amber Willink and Eva DuGoff

09/01/18 - 05/31/23

Hearing loss, brain aging, and speech-in-noise performance in the ACHIEVE study

NIA/NIH, R01AG060502; \$3,165,191

PI: Frank Lin

08/15/18 - 04/30/23

Accessible hearing care for reduction of disruptive behaviors and caregiver burden in dementia

NIA/NIH; K23AG059900; \$991,505

PI: Carrie Nieman

08/01/18 - 07/31/20

Loan Repayment Program

NIDCD/NIH; \$ 62,000

PI: Nicholas Reed

06/01/18 - 05/31/19

Hearing Care in Low Vision Rehab, Roybal Center (JHU)

NIA/NIH; \$40,000

PI: Nicholas Reed

09/01/17 - 03/31/19

Medicare benefit design and long-term services and supports: Gaps, opportunities, and implications for beneficiaries

Commonwealth Fund; \$295,000

PI: Amber Willink

08/15/18 - 05/31/22

Role and mechanism of hearing impairment in cognitive decline and dementia

NIA/NIH, K01AG054693; \$673,807

PI: Jennifer Deal

06/01/17 - 05/31/22

Aging, Cognition, and Hearing Evaluation in Elders (ACHIEVE) Randomized Trial

NIA/NIH, R01AG055426; \$15,426,522

Co-PI: Frank Lin /Josef Coresh

12/01/15 - 11/30/20

Implementing a Community Health Worker Model of Providing Hearing Health Care Services to Older Adults

NIDCD/NIH, R21/R33DC015062; \$2,494,615

PI: Frank Lin

04/01/19 - 03/31/21

Measurement of Cognitive Function in Older Adults with Sensory Loss

NIA/NIH, R21AG060243; \$204,688

Co-PI: Jennifer Deal and Bonnielin Swenor

09/01/19 - 02/28/21

Services Not Covered by Medicare: Unmet Beneficiary Needs and Potential Policy Reforms

Commonwealth Fund, 20192345; \$362,353

PI: Amber Willink

ONGOING PHILANTHROPIC SUPPORT

Cochlear

A transformational \$10 million gift from Cochlear Ltd. to the Johns Hopkins Bloomberg School of Public Health provides funding for core Center infrastructure and personnel, research trainees, and faculty to carry out the mission areas of the Center.

Eleanor Schwartz Charitable Foundation

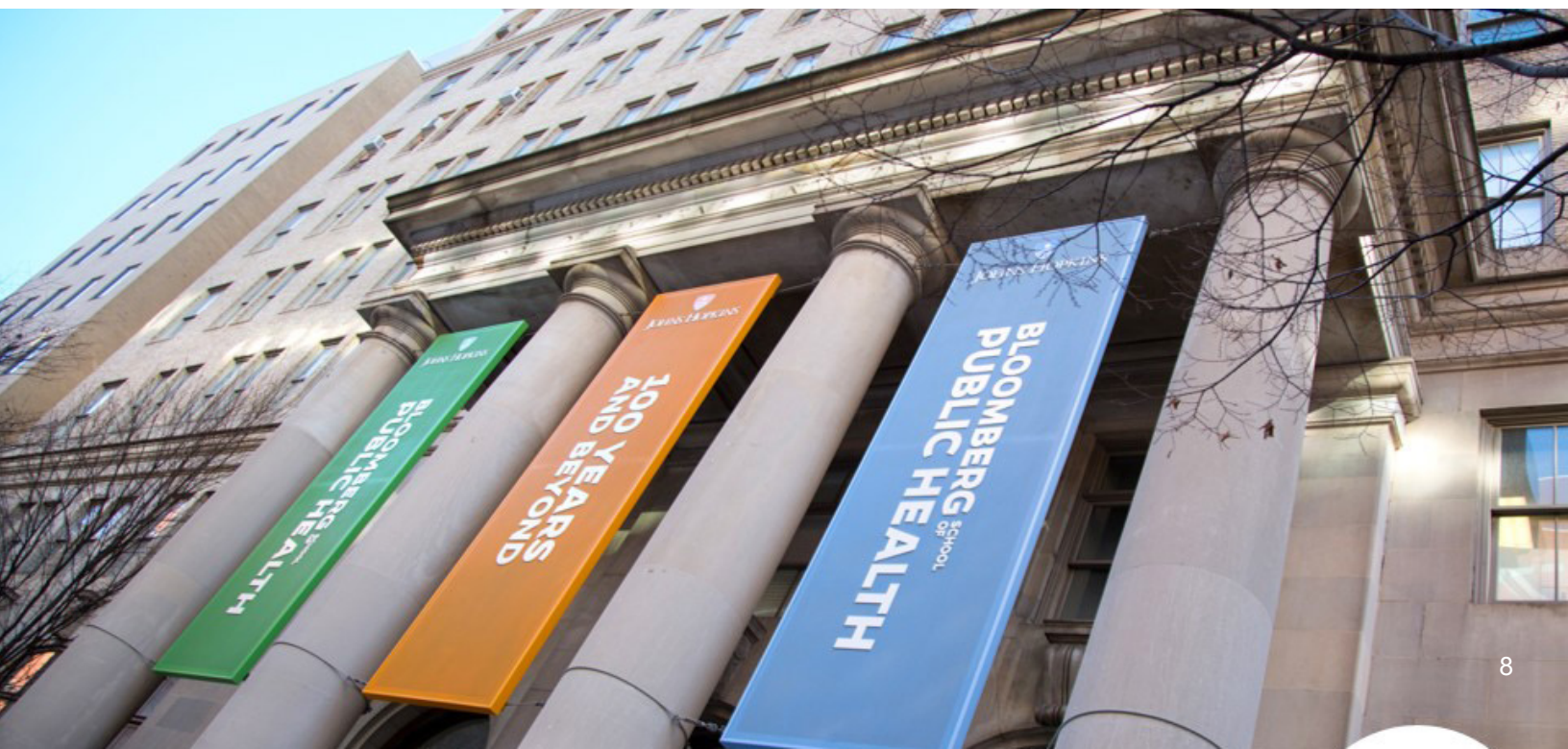
The Foundation provides annual support to Center faculty and trainees to carry out research and training related to hearing loss, public health, and aging.

Estate of Miriam Hardy

Miriam Hardy was a world-renowned speech pathologist and audiologist at Johns Hopkins who, with her husband, William Hardy, revolutionized the process of identifying and educating children with hearing and speech disorders. A gift from her estate continues to support research trainees interested in the interface of hearing and public health.

William and Judith Borten American Delirium Society Junior Investigator Award

Core faculty Esther Oh received the funding to establish the William and Judith Borten American Delirium Society Junior Investigator Award which will provide \$40,000 over 10 years (two \$2,000 awards per year).

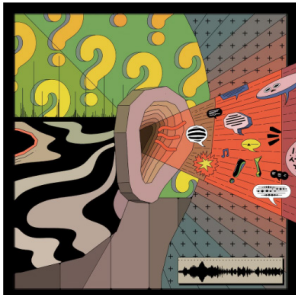


TIMELINE

JANUARY 2019

- Amber Willink's research is published in Health Affairs, distributed via Reuters and featured in US News & World Report and other outlets.

Can Hearing Aids Help Prevent Dementia?



Illustrations by Ori Toor

FEBRUARY 2019

- Nicholas Reed and Jennifer Deal are featured in a Wall Street Journal article on hearing and cognition.
- Carrie Nieman and HEARS featured in Johns Hopkins Medicine.

MARCH 2019

- Inaugural Cochlear Center Research Day.



APRIL 2019

- Amber Willink is featured in a Washington Post article discussing the barriers to using hearing aids and over-the-counter listening devices. "It's not just a health issue, it's also a social issue. Once hearing loss is treated, people are more able to engage with other people."



MAY 2019

- The Cochlear Center is selected as one of three Johns Hopkins Bloomberg School of Public Health centers to present to journalists attending the Association of Healthcare Journalists Conference.
- Director Frank Lin gives a seminar at Australian Hearing Hub and Macquarie University.

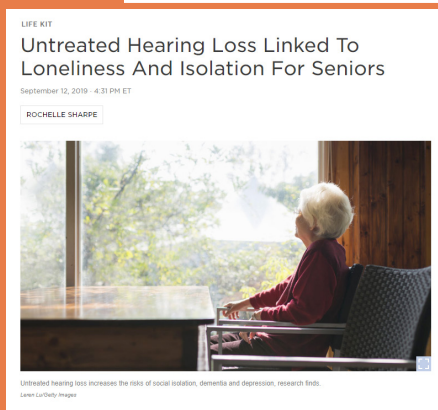


JULY 2019

- The Cochlear Center hosts 30+ healthcare professionals and researchers in the inaugural Summer Fellows Program, training healthcare professionals from East Asia in public health concepts and applications.

AUGUST 2019

- Center trainee Aishwarya Shukla, mentored by Nicholas Reed and Frank Lin, has an article published in The Journals of Gerontology: Series B on "Functional Hearing Loss and Social Engagement among Medicare Beneficiaries."
- Faculty Carrie Nieman visits Geneva as part of WHO hearing experts panel in preparation for the World Report on Hearing releasing in March 2020.



SEPTEMBER 2019

- Baltimore HEARS study is featured in an [NPR article](#).
- Frank Lin and Nicholas Reed are featured in the Wall Street Journal.
- The ACHIEVE study is featured in Forbes.

OCTOBER 2019

- Center trainees Jonathan Suen and Michael Yong have articles published in the monthly WHO Bulletin focusing on hearing loss: building capacity for public health response.
- Frank Lin visits the Eisdell Moore Centre of University of Auckland as a Visiting Professor.
- Frank Lin attends the inaugural meeting of the Lancet Commission on Hearing Loss meeting at Duke University for which he'll lead the non-implantable technologies workgroup for the next 2 years.
- Medicare Hearing Act of 2019 (H.R. 4618), based directly on the framework developed by Amber Willink and Cochlear Center colleagues, is passed out of the Ways and Means Committee of the U.S. House of Representatives.



Translating the Evidence

NOVEMBER 2019

- Trainee Jonathan Suen is featured in [Johns Hopkins Nursing magazine](#).
- Frank Lin, Nicholas Reed, and Jennifer Deal speak at the Gerontological Society of America Annual Conference.
- Trainee Danielle Powell, mentored by Jennifer Deal and Adele Goman, has her commentary, “Reconsidering Individuals with Normal Hearing,” published in JAMA Otolaryngology.

DECEMBER 2019

- Faculty Carrie Nieman and the Baltimore HEARS Study are mentioned in the International Council on Active Aging News.

FEBRARY 2020

- Frank Lin is featured in the New York Times discussing [“Can Hearing Aids Help Prevent Dementia?”](#)
- Amber Willink, Nicholas Reed, and Bonnielin Sweanor have their article “Dental, Vision, And Hearing Services: Access, Spending, And Coverage For Medicare Beneficiaries” published in Health Affairs.

RESEARCH AREAS

OVERVIEW

Effective hearing and communication are critical for optimizing the health and functioning of older adults. However, hearing is rarely the focus of public health research and interventions. The Cochlear Center for Hearing and Public Health aims to change this paradigm not only through research to better understand how hearing problems affect health, but by identifying and implementing viable and scalable solutions. The broad research underway at the Center includes understanding the impact of hearing loss in older adults on public health; developing and testing strategies to mitigate these effects; and helping to implement policies at the local, national, and global levels to address hearing loss. This work spans diverse fields including otolaryngology, audiology, epidemiology, health economics, neuropsychology, cognitive neuroscience and biostatistics.





◀ Cognition and
brain aging



Epidemiology
of hearing loss
and aging ▶



▲ Health
economic
outcomes



◀ Enhancing
patient-provider
communication in
health care settings



Community-based
solutions to
hearing care
provision ▶



▲ Investigating
over-the-counter
hearing technologies

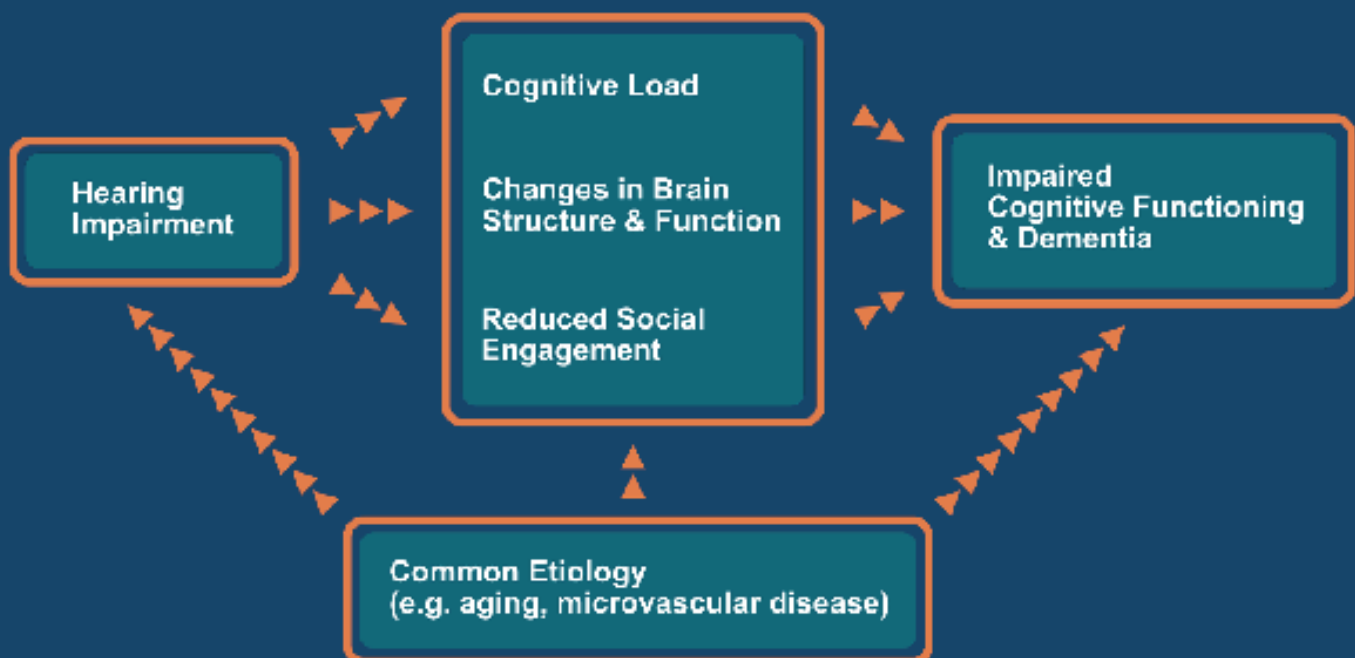
RESEARCH AREAS

COGNITION AND BRAIN AGING

Epidemiologic research over the past several years led by Center researchers has established the contribution of hearing loss to the risk of cognitive decline and dementia in older adults. A 2017 Lancet report that identified hearing loss as the dominant risk factor for dementia was based on three landmark studies, two of which were authored by faculty at the Cochlear Center. This epidemiologic research has led to the Aging and Cognitive Health Evaluation in Elders (ACHIEVE) study which is an ongoing, large-scale randomized controlled trial. This first-in-kind trial led by Center faculty is designed to definitively determine if treating hearing loss in older adults reduces the risk of cognitive decline. This study is sponsored by the National Institute on Aging (Clinicaltrials.gov Identifier: NCT03243422). The original study recruitment target of N=850 was reached on schedule in an

extension of enrollment until October July 2019, but additional NIA funding for 2019 resulted in a final sample size of 977 participants. Final study results are anticipated in 2023.

- Concurrent research by Center researchers, including Jennifer Deal and post-doctoral fellow Nicole Armstrong, is actively focused on the mechanism underlying the relationship between hearing, cognition, and brain aging in population-based studies.
- Ongoing work includes investigating the relationship of hearing to Alzheimer's disease biomarkers and how hearing may affect brain structure and networks, as measured through structural and functional brain magnetic resonance imaging (MRI).



RESEARCH AREAS

HEALTH ECONOMIC OUTCOMES

Cost-Benefit Estimates of Covering Hearing Care Services under Medicare

4.97 million
Medicare Beneficiaries
use a hearing aid

63%

3.12 million
do not access hearing care services

Cost of Coverage

Savings to Medicare


Cost of 2 hearing
care visits
\$160/year

PER PERSON


Gross health-
related savings
\$2513/year


Costs to Medicare
under Part B
**\$667
million/year**

MEDICARE


Net savings to
Medicare
**\$7161
million/year**



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Willink et al. (2019). Cost-Benefit Analysis of Hearing Care Services:
What Is It Worth to Medicare?
Journal of the American Geriatrics Society, 67(4), 784-789.

Hearing loss has both direct and indirect economic implications for individuals and society. The cost of hearing aids is well documented as a substantial barrier to accessing the devices among older Americans. Center Director Frank Lin was instrumental in the passage of the Over-the-Counter Hearing Aid Act of 2017 to make hearing aids more accessible

and affordable, and these regulations will be enacted in 2020-21.

At present, hearing aids can typically be purchased by consumers only when bundled together with associated professional services, which may or may not be needed. Center research, led by Amber Willink, highlighted how many Medicare beneficiaries are now enrolling in Medicare Advantage plans with hearing aid benefits. Another recent publication from the group has shown how out-of-pocket costs for hearing aids remain very high for people in these plans. Center faculty involved in these health economic studies are working closely with policy makers to design a hearing aid benefit that would improve access to hearing treatment under Medicare, while also optimizing the benefits of the Over-the-Counter Hearing Aid Act. This research laid the foundation of the hearing aid benefit (Medicare Hearing Act of 2019) which was later incorporated into the Elijah E. Cummings Lower Drug Costs Now Act (H.R.3) that was passed by the House of Representatives.

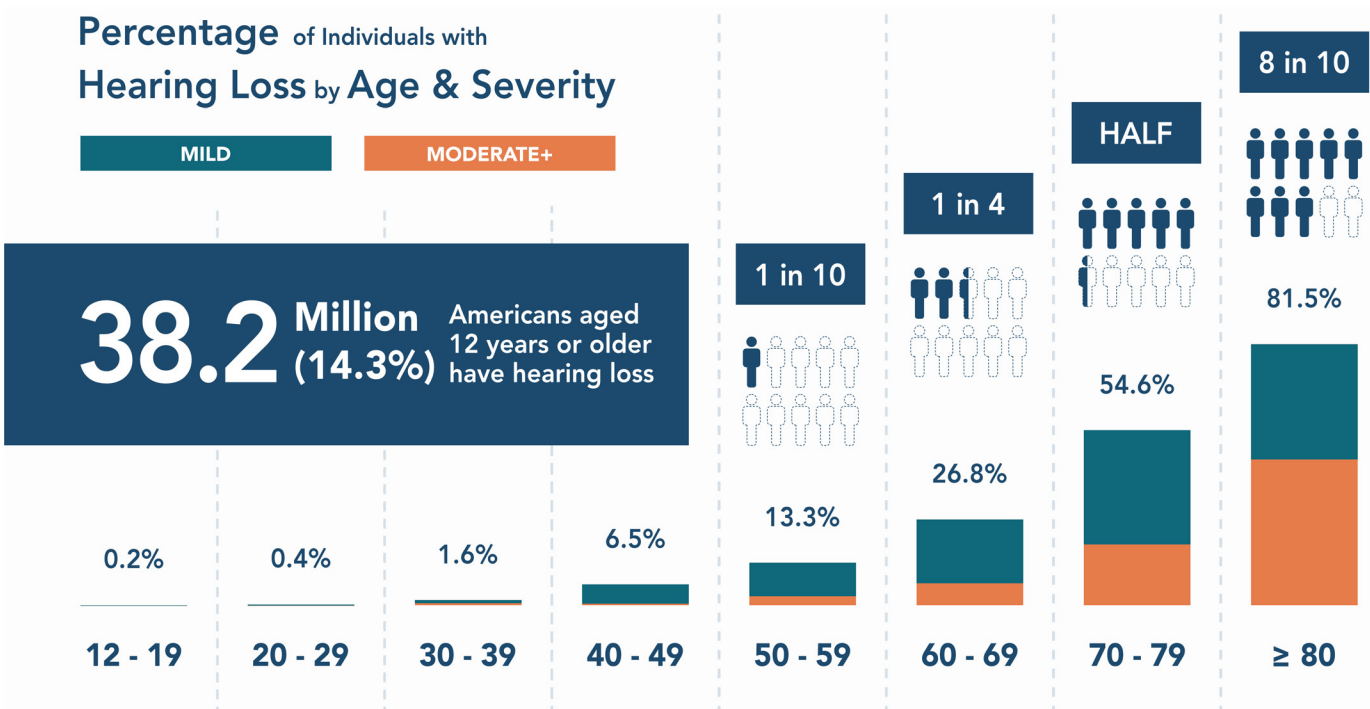
- In 2020, the activities of the health economics outcomes workgroup will continue to explore hearing health services, the health economic consequences of hearing loss and opportunities for better care.
- There is also great policy interest in examining different models of coverage for hearing care services and their effectiveness in providing care at both the federal (Medicare Advantage) and state level.

RESEARCH AREAS

EPIDEMIOLOGY OF HEARING LOSS

Epidemiologic research led by members of the Center has highlighted the substantial impact of hearing loss in society. Center researchers and trainees are continuing to investigate the prevalence of hearing loss and the impact that hearing loss has on functional domains, such as loneliness and physical functioning, using epidemiologic datasets. To support and enrich hearing research in the greater scientific community, the Cochlear Center implements and manages high-quality audiometric data collection in several large epidemiologic studies. The Center has overseen data collection in the Baltimore Longitudinal Study on Aging (n~375) and the Atherosclerosis Risk in Communities Study (ARIC) (n=3626).

In addition, Nicholas Reed has led the protocol development and technician training in the National Health and Aging Trends Study (n~15000), the Baltimore Epidemiologic Catchment Area Study (n~1070) and the BIOCARD study (n~222). Ongoing efforts over the past year by Nicholas Reed have focused on introducing and incorporating hearing testing into the Brazilian Longitudinal Study of Adult Health (ELSA) and the Longitudinal Aging Study in India. Through these efforts, objective auditory information will be linked to health data, including neurological, cardiovascular, claims data, and psychosocial, physical and lifestyle measures.



- Ongoing work led by Jennifer Deal is investigating the modifiable vascular contributors to hearing loss in older adults.
- Jennifer Deal, Nicholas Reed and Frank Lin continued to mentor several trainees in epidemiological analyses of hearing with cognitive, physical, and social functioning outcomes using data from ARIC.

RESEARCH AREAS

ENHANCING PATIENT-PROVIDER COMMUNICATION IN HEALTH CARE SETTINGS

The National Academies of Sciences, Engineering, and Medicine recognize optimal patient-provider communication as a key to improving health care outcomes. Despite the impact of hearing loss on communication, hearing is rarely addressed in the context of patient-provider communication. Patient-provider communication has been associated with improved patient satisfaction, treatment adherence and other health outcomes. Center researcher Nicholas Reed leads initiatives to address hearing loss as a barrier to communication in health care settings via screening and intervention programs embodied in the ENHANCE intervention. These include universal screening of adults admitted to the hospital and the provision of amplification and/or use of communication strategies among hospital providers.

- Nicholas Reed is partnering with outside institutions (Macquarie University Hospital, Massachusetts General Hospital) to execute early pilot studies on the impact of the ENHANCE program.
- Nicholas Reed, and Amber Willink are continuing their efforts to explore hearing loss and patient-centered health care outcomes, such as satisfaction and perception of care, through planned analyses in the Medicare Current Beneficiary Survey, National Health and Aging Trends Study, and Health and Retirement Study.
- ENHANCE is partnering with FutureCare and Johns Hopkins Bayview Medical Center in Baltimore, MD to begin feasibility studies of sustainably addressing hearing loss in a skilled nursing facility setting.

RESEARCH AREAS

COMMUNITY-BASED SOLUTIONS TO HEARING CARE PROVISION



The established model of hearing health care delivery in the U.S. and much of the world is based on clinic-based audiologic and hearing needs assessment, rehabilitative counseling and education, and sensory management with the provision of amplification and other assistive devices. This model of care is associated with improvements in communication and overall domain-specific quality of life, but these services are beyond the resources of many older adults. Center researchers, led by Carrie Nieman, are committed to incorporating public health practices in order to develop new models for the delivery of hearing care and provide access to all older adults. One model is through the HEARS program which incorporates over-the-counter hearing technologies as well as key principles in designing materials and technology that are accessible to all older adults, regardless of education, literacy level partnership with Mike Weikert and the Center for Social Design at the Maryland Institute College of Art.

- An NIH-funded randomized trial of the efficacy of the HEARS intervention in improving self-reported communication function is ongoing in Baltimore. Enrollment in the trial closed in October 2019 with 151 participants randomized. Results of the clinical trial will be available in 2020.
- Access HEARS, a non-profit founded by Carrie Nieman, is continuing to provide community-based hearing care services throughout Baltimore and the region with funding from AARP Foundation and other philanthropic partners. In 2019, Access HEARS completed a 4-month project with the Maryland Department of Aging, where hearing care services were provided to 500 low-income older adults in rural Western Maryland.

RESEARCH AREAS

INVESTIGATING OVER-THE-COUNTER HEARING TECHNOLOGIES

- Gold-standard hearing rehabilitative care typically comprises one-on-one sessions with an audiologist for an auditory needs assessment, fitting and programming of hearing aids and related technologies, and educational counseling and rehabilitation. While this model is the gold standard, not all individuals, particularly adults with milder forms of hearing loss, may require or desire this level of care. At present, however, hearing aids in the U.S. and most countries in the world remain medically regulated devices that can only be dispensed or sold through a licensed provider. However, by 2020-21, FDA-regulated hearing aids that meet explicit performance and safety criteria for mild to moderate hearing loss will be available to the public as over-the-counter products. Nicholas Reed, Joshua Betz and Peggy Korczak are currently focused on investigating over-the-counter technologies and how to integrate them into hearing care.

Their research has focused on comparative effectiveness of technologies, the ability of consumers to adjust devices, and approaches to servicing over-the-counter technology in audiology clinics.

- Center researchers have joined a national effort in collaboration with Washington University in St. Louis and the University of Pittsburgh to create a publicly accessible database of electroacoustic, real-ear measure, and speech-in-noise analyses of over-the-counter devices.
- Peggy Korczak and Nicholas Reed are currently mentoring a Towson University audiology doctoral student conducting thesis research on attitudes towards over-the-counter hearing care among audiologists to better understand steps needed to integrate over-the-counter devices into future clinical practice.



RESEARCH AREAS

AUDIOLOGY CORE

- The Cochlear Center Audiology Core, led by Nicholas Reed, supports Center work that spans any aspect of audiology including hearing measurement, hearing device use, and hearing care. The primary responsibility of the Audiology Core is leading the integration of hearing measures into large epidemiologic cohort studies around the globe. This includes the development of customized protocols, staff training, study support and ongoing quality assurance. To date, the Audiology Core has integrated measures into the Baltimore Longitudinal Study of Aging, the BIOCARD Study, the Epidemiologic Catchment Area Study, the Atherosclerosis Risk in Communities Study, the National Health Aging and Trends Study, the Women's Health Initiative Study, the Brazilian Longitudinal Study of Adult Health, and the Longitudinal Aging Study in India. By the end of 2020, we anticipate that the Center will be directly responsible for hearing measures in over 35000 individuals across research studies with longitudinal measures on approximately 5000 individuals. Secondarily, the Audiology Core maintains a database of measures on over-the-counter hearing devices and consults with Cochlear Center trainees and faculty on understanding various hearing measures.

ANALYTICS CORE

- The Cochlear Center Analytics Core brings together expertise from epidemiology (Jennifer Deal), biostatistics (Josh Betz), economics (Emmanuel Garcia Morales), and data management (Tara Thallmayer) to provide data expertise to Center faculty and trainees. Core members support new and ongoing projects across the research lifecycle, including study design considerations and grant preparations; monitoring ongoing data collection; creation of high-quality analytic data and accompanying documentation; data visualization and analysis; and effectively communicating quantitative results. For trainee-led analyses, the Analytic Core provides support and oversight for data management and analysis done as part of thesis and capstone projects, both to supplement didactic training and ensure quality of results. The analytic core also provides a didactic clinic, where trainees can bring questions about various aspects of quantitative research. In addition to serving the Cochlear Center, the Analytic Core will also focus on a broader didactic mission to promote best practices in quantitative research to visiting students and faculty as well as the broader research community.

TRAINING

TRAINING OPPORTUNITIES

At the Johns Hopkins Cochlear Center for Hearing and Public Health, we are training a generation of clinicians and researchers to study the impact that hearing loss in older adults has on public health and to develop and implement public health strategies and solutions for hearing loss. The Cochlear Center provides research fellowships for pre- and postdoctoral trainees, as well as several training programs open to students enrolled in the Johns Hopkins Bloomberg School of Public Health, and to students and faculty from other academic institutions.

Fellowships for postdoctoral trainees, visiting pre-doctoral students and visiting faculty from other academic institutions can range from 1 month to 2 years. Fellows work with Cochlear Center faculty on research projects related to the Center's mission.



17

Center
Trainees



28

Presentations
made



8

Papers published
by Trainees in
Cochlear Center
mission areas



9

Upcoming/close to
submission papers by
Trainees in Cochlear
Center mission areas



16

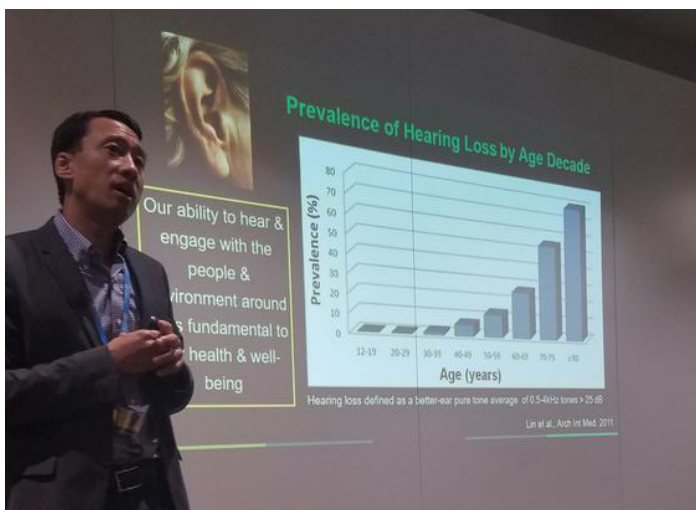
Attendance at 16
different external
meetings and
conferences



SCHOLARS IN HEARING AND AGING RESEARCH (SHARP) PROGRAM

ABOUT

The Scholars in Hearing and Aging Research Program (SHARP) is designed for individuals who are enrolled in a Master's or doctoral degree program (e.g., MPH, MHS, PhD) at the Bloomberg School of Public Health and are interested in aging, hearing, and public health. SHARP trainees are assigned an academic and research mentor at the Cochlear Center and take part in all Center training activities.



WHO

Individuals enrolled in a JHSPH Master's or doctoral degree program with a strong interest in aging, hearing and public health; MPH may be full- or part-time.



THE SUMMER FELLOWS PROGRAM IN AGING, HEARING AND PUBLIC HEALTH

ABOUT

The Summer Fellows Program is designed to provide an overview of public health concepts, methods, and strategies to assist clinicians and researchers in different regions of the world who are pursuing public health research and projects focused on addressing hearing loss in older adults. The one-week program is held once per year, and each year's program is targeted to a specific world region.

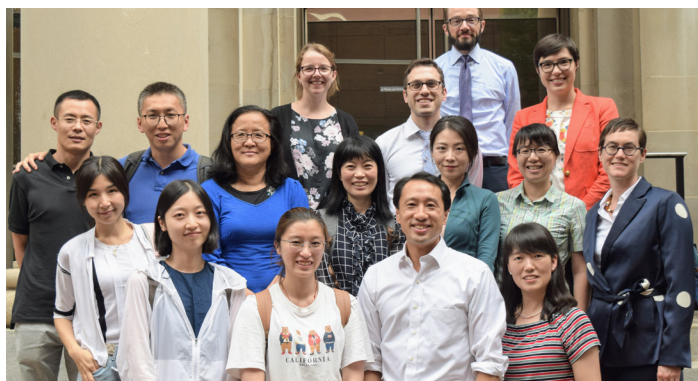
In July, the East Asian Summer Fellows Program in Aging, Hearing, and Public Health took place with 31 fellows across East Asia (accepted from over 109 applicants) coming to Baltimore for a week of in-depth, didactic training and mentoring.

WHO

Established clinicians and researchers in different regions of the world who are interested in an intensive survey program of public health concepts and methodologies related to hearing loss in older adults.

2019 EAST ASIAN SUMMER FELLOWS PARTICIPANTS

Ronald Burgess, Sr., Ng Teng Fong General Hospital, Singapore / **Hayoung Byun**, Hanyang University, Republic of Korea / **Sungwon Chae**, Korea University, Republic of Korea / **Hsiu-wen Chang**, Mackay Medical College, Taiwan / **Kuan-Hua William Chen**, Far Eastern Memorial Hospital, Taiwan / **Yen-Fu Cheng**, Taipei Veterans General Hospital, Taiwan / **Jae Ho Chung**, Hanyang University, Republic of Korea / **Ruoxi Ding**, Peking University, China / **Jiamin Gao**, Peking University, China / **Rebecca Heywood**, National University Health Systems, Singapore / **Chien-Yu Hsueh**, Taipei Veterans General Hospital, Taiwan / **Cao Li**, Sichuan University, China / **Jun Li**, West China Hospital, Sichuan University, China / **Yixin Liu**, West China Hospital, Sichuan University, China / **Zhaoli Meng**, West China Hospital, Sichuan University, China / **Iris Hoi Yee Ng**, The Chinese University of Hong Kong, Hong Kong / **Ma Shwe Zin (Stella) Nyunt**, National University of Singapore, Singapore / **Moo Kyun Park**, Seoul National University, South Korea / **Jae-Jin Song**, Seoul National University, Republic of Korea / **Saiko Sugiura**, National Center for Geriatrics and Gerontology, Japan / **Myung-Whan Suh**, Seoul National University, South Korea / **Nattawan Utoomprurkporn**, King Chulalongkorn Memorial Hospital, Thailand / **Hong Wang**, Peking University School of Public Health, China / **ZhiHui Wang**, China CDC, China / **Yanyan Wang**, West China Hospital Sichuan University, China



Chuan-Song Wu, Taipei City Hospital Zhongxing Branch, Taiwan / **Liu Xiaio**, Geriatric Education and Research Institute, Singapore / **Ruizhe Yang**, Peking University Third Hospital, China /

Tzong-Hann Yang, Tapei City Hospital, Helping Fuyou Branch, Taiwan / **Tadao Yoshida MD, PhD**, Nagoya University, Japan / **Dawei Zhu**, Peking University, China



COCHLEAR CENTER HEARING & AGING MENTORING PROGRAM SUMMER (CHAMPS) PROGRAM

ABOUT

The CHAMPS program is an intensive, multidisciplinary, four-week summer program designed for pre-doctoral AuD, public health PhD and MD students and clinicians early in their clinical training (e.g., medical or surgical residents). This research training program provides a foundation in age-related hearing loss and public health methodologies to inspire the next generation of public health hearing researchers.

WHO

Pre-doctoral AuD, MD and public health PhD students, typically after the 1st, 2nd or 3rd year of graduate school. Early career clinicians still in clinical training (e.g., medical/surgical residents) are also eligible.



ABOUT

1-12 month research fellowship with Center faculty.

WHO

Johns Hopkins School of Medicine Scholarly Concentration summer students; visiting doctoral students from other institutions; medical students from Johns Hopkins or other institutions who would like to take time off during medical school to conduct research.

VISITING STUDENT FELLOWSHIP

OTHER OPPORTUNITIES

COURSES, SEMINARS AND JOURNAL CLUBS

Cochlear Center faculty offer two didactic courses each academic year through the Department of Epidemiology at the Johns Hopkins Bloomberg School of Public Health. 340.699.01 Epidemiology of Sensory Loss in Aging is a 3-credit course offered on-site in Baltimore, Maryland from January to March. This course introduces the biologic, epidemiologic and clinical aspects of aging-related declines in the auditory, visual, and vestibular systems, demonstrates methods of assessment of sensory function for epidemiologic studies, and reviews current epidemiologic knowledge of sensory function

and aging-related outcomes in older adults, including the epidemiology and consequences of dual sensory loss. 340.699.11 Epidemiologic Approaches to Hearing Loss and Public Health is a 1-week intensive course offered in June as part of the Graduate Summer Institute of Epidemiology and Biostatistics in Baltimore, Maryland. This course is a subset of 340.699.01 focusing only on hearing and may be taken for academic credit or for non-credit/professional development.

The Cochlear Center offers monthly seminars highlighting faculty research related to the Cochlear Center's core mission. Faculty are from Johns Hopkins University as well as other academic and professional institutions. All seminars are open to the public.

To provide an opportunity for students to engage with Center faculty, fellow students and postdoctoral fellows, Cochlear Center student trainees lead monthly discussions of a peer-reviewed published article, or present ongoing research. Journal clubs/research-in-progress meetings are open to all Johns Hopkins students and faculty, and Cochlear Center trainees.

TRAINING

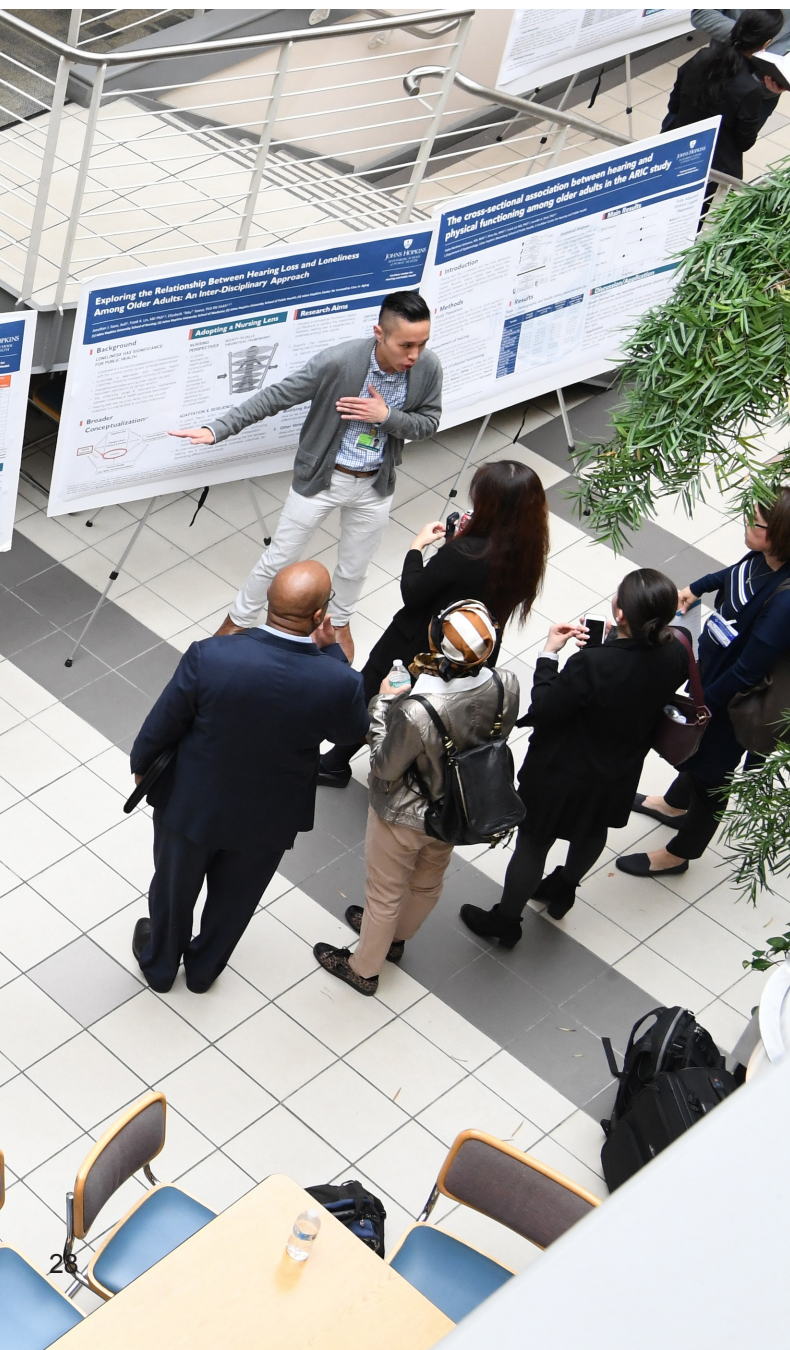
POSTDOCTORAL RESEARCH FELLOWS

The Cochlear Center provides 1-2 year fellowship opportunities for trainees with an AuD, MD, or PhD in epidemiology, biostatistics, or related fields. Trainees work with Core Faculty on existing or newly developed research projects related to the Center's mission.

Nicole Armstrong 2019-2020



Nicole Armstrong is currently in the third year of her postdoctoral training in the Laboratory of Behavioral Neuroscience at the National Institute on Aging. She earned her PhD in Epidemiology from Johns Hopkins Bloomberg School of Public Health and her MPH from Columbia University Mailman School of Public Health. Nicole's research interests include shared contributors to cognitive and physical aging. She has published 25 manuscripts, of which 17 were first-authored. During the reporting period, she had 13 publications. Also, she has presented her work at multiple national and international conferences. Nicole participated in an exchange to Erasmus University Medical Centre where she worked on projects related to the association of the ability to detect speech through noise with brain structure and cognition from May 2019 to June 2019. She also received a travel award at the National Institute on Aging for promising junior scientist from the Women Scientist Advisors committee.



Anna Marie Jilla 2019-2020



Anna Marie Jilla earned both her AuD and PhD degrees at the University of Oklahoma Health Sciences Center. She is currently a postdoctoral research fellow in the Department of Epidemiology in the Bloomberg School of Public Health. Anna's research interests include applications of health economics research in the evaluation of interventions for adult-onset hearing loss. She is also interested in applied health services research and quality improvement projects that employ provider training and rehabilitative devices in inpatient facilities. She is currently conducting a systematic review on hospital-based hearing interventions for overcoming patient-provider communication difficulties that present with hearing loss.

Junghyun Park 2019-2020

Junghyun Park, MSW, is a PhD candidate at the New York University Silver School of Social Work. Junghyun's research interests center around the health and health disparities among the Deaf and Hard of Hearing (D/HH) population and older adults with hearing loss, and his doctoral thesis in his home program is examining the association between hearing loss, social isolation, depression, hearing aid use, and cognitive health among older adults by applying a cumulative (dis)advantage theory and the WHO International Classification of Functioning, Disability, and Health framework. As a visiting student scholar, he worked with Jennifer Deal from September-December, 2020 on a project investigating the cross-sectional relationship between dual sensory (both hearing and vision) impairment and mild cognitive impairment/dementia and cognitive performance in Atherosclerosis Risk in Communities (ARIC) study.

TRAINING JHSPH STUDENTS

The Cochlear Center provides funding for students enrolled in degree programs at the Johns Hopkins Bloomberg School of Public Health, including doctoral and Master's students, who are interested in conducting research related to hearing loss in older adults as part of their training.

DOCTORAL STUDENTS

Pablo Martinez Amezcua
2019-2020



Pablo Martinez Amezcua is a Mexican physician (MD) who graduated from the National Autonomous University of Mexico (UNAM, Mexico City) and earned a Master's in Health Science (MHS) from the Johns Hopkins Bloomberg School of Public Health. Currently, he is a third-year PhD candidate in the Department of Epidemiology. Pablo is interested in aging research, specifically in ways to increase levels of physical activity at older ages, sensory loss, and social determinants of health. His dissertation will focus on understanding the associations between hearing loss and physical activity and function. He is expected to graduate in May 2021.

Allison Huang
2019-2020



Allison Huang is a second year PhD student in the Department of Mental Health. She is interested in social factors related to cognitive decline and poor mental health in older adults. She also works with the Cochlear Center studying the inter-relationships between hearing loss, social isolation and loneliness, and cognitive function. Prior to coming to Hopkins, she worked for several years in social behavioral research consulting at the American Institutes for Research. She currently holds an MPH and a Certificate in Survey Methodology. Her mentors are Drs. George Rebok, Jennifer Deal, and Frank Lin. Currently, she is working on her dissertation proposal and F31 dissertation grant application. Allison is president of her department's Mental Health Student Group, and active in her department's peer mentorship program.

Perry Kuo 2019-2020



Perry Kuo earned his MD degree from National Yang-Ming University (Taiwan) and MPH (quantitative methods) from the Harvard T.H. Chan School of Public Health, and is a fourth-year PhD student in the Department of Epidemiology and concurrent Master of Science student in the Department of Biostatistics.

Perry's research interests include metrics of aging, physical activity, physical performance, and cognitive functioning. He has completed a preliminary analysis on hearing loss and physical function and physical activity in the Baltimore Longitudinal Study of Aging. Using the data from the same cohort, he is investigating the longitudinal trajectory of hearing ability and the determinants of these trajectories, examining the potential impact of hearing aid on the physical performance, and planning to further discover the relationship between hearing and genetics, DNA methylations, and metabolomics. To understand the burden associated with hearing nationally, he also estimated the prevalence of sensory loss, and evaluated the association between sensory loss and incident dementia using The National Health and Aging Trends Study (NHATS). He presented the preliminary results for the longitudinal trajectories of hearing in BLSA at the Gerontological Society of America, November 2019 Annual Scientific Meeting in Texas. Currently, he's working on his thesis with an expected graduation date of May 2020. In the reporting period Perry has co-authored 3 publications.

Danielle Powell 2019-2020



Danielle Powell earned her AuD from the University of North Carolina at Chapel Hill in 2013. She practiced as a clinical audiologist in Washington D.C. from 2013-2017, and she is now a 3rd year PhD candidate in the Department of Epidemiology. Danielle's research interests include hearing impairment and mental health outcomes for older adults. In particular, she is interested in the association of hearing impairment and cognition or depression for older adults and the identification of subgroups most at risk for these negative health outcomes. She has completed additional work on the association of peripheral hearing impairment and depression in the Health and Body Composition Study as well as on the association of the QuickSIN (a speech in noise perception test) and depression in older adults in the Atherosclerosis Risk in Communities Study (ARIC). Currently, she is completing her dissertation research with an expected graduation date of May 2021. In the last reporting period, Danielle first-authored 1 publication and has presented work at 2 conferences, with another presentation in early 2020. Danielle received a Department of Epidemiology Travel Award in support of travel for academic and research related to dissertation.

MASTERS STUDENTS

Haley Lin 2019-2020

Haley Lin received her MD degree from National Yang-Ming University in Taiwan, and her goal is to become an otolaryngologist. She is a Master of Public Health student at Johns Hopkins Bloomberg School of Public Health. Haley's research interests include hearing loss impacts on patient-physician communication, short- and long-term health outcomes, patient behavioral changes, and overall quality of healthcare. She has completed a study that investigates healthcare-seeking behaviors among older adults with hearing loss using data from the Medicare Current Beneficiary Survey. Currently, she is working on her MPH capstone project studying the association between hearing handicap and speech-in-noise perception ability with an expected graduation date of May 2020.

Daniel Pupo 2018-2019



Daniel Pupo earned his MPH degree from the Johns Hopkins Bloomberg School of Public Health. Since then he has begun working toward his PhD in gerontology, while working in the Auditory and Speech Sciences Lab at the University of South Florida. Daniel's research interests revolve around understanding the connection between human motion and hearing. He has completed a capstone project examining the relationship between hearing loss and gait mechanics in the Baltimore Longitudinal Study of Aging. Currently, he is investigating

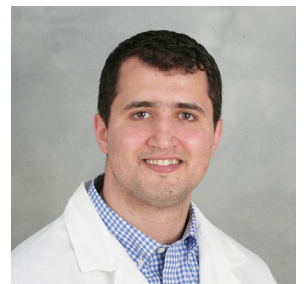
the possible effect of cognition in moderating the relationship between hearing loss and gait speed.

Aishwarya Shukla 2018-2019



Aishwarya Shukla is a medical student at the Johns Hopkins School of Medicine and graduated with an MPH degree from the Bloomberg School of Public Health in May 2019. For her capstone project, Aishwarya completed an analysis on hearing loss and depression in the Atherosclerosis Risk in Communities (ARIC) Study which has since been published in The Journals of Gerontology: Series B and she was awarded a Capstone Award from the Johns Hopkins Bloomberg School of Public Health for outstanding achievement. She also first-authored a systematic review on hearing loss, social isolation, and loneliness which has been accepted for publication in Otolaryngology–Head and Neck Surgery.

Osama Tarabichi 2018-2019



Osama Tarabichi earned his MD degree from Royal College of Surgeons in Ireland- Bahrain and completed an MPH degree 2018-2019 at the Johns Hopkins School of Public Health. Osama first developed a background in hearing research when he completed a postdoctoral research fellowship at the Massachusetts Eye and Ear Infirmary Auditory Brainstem Implant

laboratory after graduating from medical school. At the Cochlear Centre, Osama studied neighborhood disadvantage as a predictor for hearing aid use in the ARIC study. Osama received a 3rd place poster prize, 12th annual research on aging showcase. Osama is now a resident in otolaryngology at the University of Iowa, and is a first-year dual degree student in the Master of Public Health and Master of Business Administration programs. During his time at Johns Hopkins, he has completed a Policy and Practice manuscript commissioned by the World Health Organization that compares hearing care regulations across 8 countries. Michael's Capstone project will be on his cost-effectiveness analysis of a school hearing screening protocol in Alaska with an expected graduation date of May 2020.

Michael Yong 2018-2019



Michael Yong earned his MD degree from the University of British Columbia (Canada) and is now a 4th year Otolaryngology – Head and Neck Surgery resident at the University of British Columbia. As a part of a two-year research fellowship during his residency, he is also currently earning his Master of Public Health and Master of Business Administration at Johns Hopkins University. Michael's research interests lie in evaluating hearing aid access in older adults, and economic evaluations of health interventions such as the implementation of hearing screening. He was recently the primary author on a study examining innovative policies to increase hearing aid access, published in the World Health Organization Bulletin in 2019.

TRAINING NON-JHSPH TRAINEES

DOCTORAL STUDENTS

Jonathan Suen 2019-2020



Jonathan J. Suen, AuD, is a second year PhD student at the Johns Hopkins School of Nursing where he is the first audiologist in the program. He is focusing his dissertation on the relationship between age-related hearing loss and loneliness among older adults and its implications for public health. He is particularly interested in health equity programs and extending the emphases on healthy aging and well-being to incorporate hearing health. Jonathan earned a clinical doctorate in audiology from Gallaudet University, and completed an interdisciplinary postdoctoral fellowship with Dr. Frank Lin where he developed interests in gerontology, novel interventions, and innovative care delivery models. During his fellowship, he worked closely with Dr. Carrie Nieman and Baltimore community partners to co-develop the Baltimore Hearing Equity through Accessible Research and Solutions (HEARS) program, which addresses social determinants of hearing health disparities for targeting hearing health equity. In this reporting period, Jonathan was invited and inducted into Sigma Theta Tau International Honor Society of Nursing (Dec 2019), and guest

lectured in the Johns Hopkins and guest lectured in the Johns Hopkins School of Nursing on “Communicating Effectively with Older Adults: Accommodating Hearing and Vision” for Master’s Entry into Nursing (MEN) curriculum (Promoting Health in Older Adults), (June 2019). He also recorded a webinar that will be used moving forward as lecture content in the core curriculum for all Master’s Entry into Nursing students at Johns Hopkins.

MEDICAL STUDENTS

Alexander Kim 2019-2020



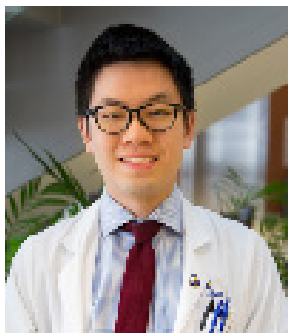
Alexander Kim is a medical student taking a research year at the Cochlear Center between his third and fourth year of medical school at Johns Hopkins. He earned his Master of Translational Medicine joint degree from the University of California, San Francisco and Berkeley, and his undergraduate degree in public health and immunology from UC Berkeley. His current research ranges from the epidemiology of and risk factors for eustachian tube dysfunction, the association of hearing loss and neuropsychiatric symptoms, and the usability of hearing devices among older adults with cognitive impairment. Alex will be applying for residency positions in otolaryngology in the fall of 2020.

Corinne Pittman 2019-2020



Corinne Pittman is a medical student from Howard University College of Medicine, who is taking a year off between her third and fourth years of medical school to serve as a graduate research assistant with the Baltimore HEARS study and under the mentorship of the Baltimore HEARS investigators. Corinne’s research interests include disparities in hearing healthcare, minority representation in age-related hearing loss clinical trials, and increasing minority representation in otolaryngology. Through hands-on experience as well as didactics in epidemiology, biostatistics, community-based clinical trials, and qualitative methodology, she intends to translate her training and research experience in community-delivered hearing care to a successful application to an otolaryngology residency program. She is currently working on 5 research projects studying minority/racial representation in age related hearing loss in older adults. She has submitted abstracts for oral and poster presentations at 3 upcoming conferences and is currently working on 3 manuscripts for publication. Corinne was the recipient of the National Institute on Deafness and Other Communication Disorders (NIDCD) Pre-Doctoral Fellowship Diversity Grant Award (December 2019).

Alan Shan 2018-2019



Alan Shan is a fourth-year medical student at the Johns Hopkins University School of Medicine. Alan's research interests include the epidemiology of eustachian tube dysfunction, and he has co-authored three publications in the reporting period. He is expected to graduate in May 2020, with plans to start residency in otolaryngology shortly after.

UNDERGRADUATE STUDENTS

Raul Roura 2018-2019



Raul Roura is a senior completing his undergraduate degree in Public Health Studies at Johns Hopkins University. Raul has been taking the lead in translating the HEARS intervention to Spanish in partnership with collaborators at the University of Arizona. He is funded through a Provost's Undergraduate Research Award (PURA).

James Ting 2018-2019



James Ting earned his BS in Biomedical Engineering from Yale College, and is currently in his last year of his MD training at Johns Hopkins School of Medicine. James' research interests include cardiovascular risk factors for hearing loss and the impacts of hearing loss on brain volume. He is finalizing a manuscript understanding the association between sustained hypertension over decades and hearing loss in the ARIC cohort, and another understanding the association between hearing loss and loss of brain volume in specific portions

TRAINING VISITING SCHOLARS

The Cochlear Center hosts visiting students and faculty from other academic institutions as visiting faculty who are interested in learning about the Center's programs, working or training with Center faculty, and developing potential collaborations. Some visiting fellows may also choose to enroll in summer institute courses at the Bloomberg School of Public Health.

Pauline Croll



Pauline Croll earned her MSc from Leiden University (the Netherlands) in Clinical Neuropsychology and from Erasmus University Medical Center (the Netherlands) in Clinical Epidemiology and is a 4th year PhD student in the departments of Otorhinolaryngology, Epidemiology and Radiology at the Erasmus University Medical Center. Pauline's research interests include the direct and indirect relation between hearing loss, brain health, cognitive functioning and dementia. She worked with Frank Lin and Jennifer Deal for three months in early 2019 on a project investigating the association between hearing loss and microstructural integrity of the brain within the Atherosclerosis Risk in Communities (ARIC) study. Pauline has finished her thesis and will defend it in May 2020. In the reporting period Pauline has co-authored 11 publications.



EVENTS



EVENTS

COCHLEAR CENTER JOURNAL CLUBS

04/8/19

Hearing Impairment and Gait Mechanics in Older Adults

Daniel Pupo, MPH student, Cochlear Center for Hearing and Public Health Trainee

Eustachian Tube Dysfunction in U.S Adults: Demographics and Risk Factors

Alan Shan, BS, Cochlear Center for Hearing and Public Health Trainee

Relationship Between Longitudinal Patterns of Change in Blood Pressure and Age-Related Hearing Loss in ARIC

James Ting, BS, Cochlear Center for Hearing and Public Health Trainee

05/3/19

Hearing Loss, Social Engagement and Depression in Older Adults

Aishwarya Shukla, BA, Cochlear Center for Hearing and Public Health Trainee

The Impact of Neighborhood Socioeconomic Status on Hearing Aid in the ARIC Cohort

Osama Tarabichi, MD, Cochlear Center for Hearing and Public Health Trainee

Innovative Policies and Technologies to Increase Access to Hearing Aids for Adults in Middle to High Income Countries

Michael Yong, MD, Cochlear Center for Hearing and Public Health Trainee



09/9/19

Welcome to the Cochlear Center for Hearing & Public Health: Academic Program Overview and Expectations

Danielle Powell, AuD, Cochlear Center for Hearing and Public Health Trainee

10/14/19

Hearing Loss and Late-Life Mental Health

Danielle Powell, AuD, Cochlear Center for Hearing and Public Health Trainee

10/21/19

The Association Between Age-Related Hearing Loss and Physical Activity and Function

Pablo Martinez Amezcua, MD, PhD Student, Cochlear Center for Hearing and Public Health Trainee

11/25/19

Associations Between Self-Reported Sensory Impairment and Risk of Cognitive Decline and Impairment in the Health and Retirement Study Cohort

Niranjani Nagarajan, MBBS, MS Ophthalmology, MPH, Wilmer Eye Institute Postdoctoral Research Fellow

Association of Sensory and Cognitive Impairment with Healthcare Utilization and Cost in Older Adults

Varshini Varadaraj, MD, MPH, Wilmer Eye Institute Postdoctoral Research Fellow

12/9/19

Association between Dual Sensory Impairment and Cognitive Performance, Mild Cognitive Impairment and Dementia in Older Adults: The Atherosclerosis Risk in Communities Neurocognitive Study

Junghyun Park, Ph.D. Student, New York University Silver School of Social Work; Visiting Fellow, Cochlear Center for Hearing and Public Health

02/10/20

The Business Side: Insights from Summer Internships at Two Hearing Aid Companies

Michael Yong, MD, MPH/MBA Candidate, Cochlear Center for Hearing and Public Health Trainee

03/9/20

Correlates of Hearing Aid Use in UK Adults: Self-Reported Hearing Difficulties, Social Participation, Living Situation, Health and Demographics

Anna Marie Jilla, AuD, PhD, Cochlear Center for Hearing and Public Health Trainee



Disrupt Aging, Disrupt Hearing Loss: Purpose to People to Possibilities

01/28/19

Charlotte Yeh, MD., Chief Medical Officer AARP Services, Inc.



Early Phase Trials of Novel Hearing Therapeutics: Avenues, Opportunities

02/11/19

Professor Anne Schilder, MD, Director, University College of London Ear Institute



Preventing Progression in Mild Cognitive Impairment: The Treating Auditory Impairment and Cognition (TACT) Pilot Trial

02/11/19

Sergi Costafreda-Gonzalez, Clinical Senior Lecturer Division of Psychology, University College of London Ear Institute



Thinking Global and Acting Local for Hearing Health

02/12/19

David McAlpine, PhD, Director, The Australian Hearing Hub, Macquarie University



Cochlear Center Research Day

03/25/19

Measuring and Overcoming Cognitive Challenge in Speech Comprehension

04/29/19

Jonathan Peelle, Ph.D., Associate Professor, Department of Otolaryngology, Washington University

Hearing Loss and Behavioral Changes Associated with Cognitive Impairment

09/23/19

Esther Oh, MD, PhD, Core Faculty, Cochlear Center for Hearing and Public Health; Associate Professor, Division of Geriatric Medicine and Gerontology

Preventing Hearing Loss: It's Not Just the Noise - CHEARS: The Conservation of Hearing Study

10/28/19

Sharon G. Curhan, MD, ScM, Physician, Epidemiologist, Channing Division of Network Medicine, Department of Medicine; Brigham and Women's Hospital, Harvard Medical School

Gary Curhan, MD, ScD, FASN, Professor of Medicine, Harvard Medical School; Professor of Epidemiology, Harvard School of Public Health; Channing Division of Network Medicine/Renal Division, Brigham and Women's Hospital

Medicare Benefit Design: Translating Research into Action

11/18/19

Karen Davis, PhD, Professor Emerita, Roger C. Lipitz Center for Integrated Health Care, Department of Health Policy and Management, Johns Hopkins Bloomberg School of Public Health

Cognitive Consequences of Vision Loss: Examining the Complex Relationship Between Visual Impairment and Cognition

01/27/20

Bonnielin Swenor, PhD, MPH, Associate Professor, The Wilmer Eye Institute, Johns Hopkins School of Medicine, Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health, Johns Hopkins University Center on Aging and Health

Hearing Loss as a Shared Contributor to Dementia and Disability

02/24/20

Nicole Armstrong, PhD, MPH, Postdoctoral Research Fellow, Laboratory of Behavioral Neuroscience, National Institute on Aging



NEWS & MEDIA



SELECT NEWS AND MEDIA APPEARANCES



1 APRIL 2019

Amber Willink featured
in Washington Post

11 AUGUST 2019

CC CBS Sunday clip
is rerun



safaribrowser

 **Johns Hopkins Bloomberg School of Public Health** ✓
@JohnsHopkinsSPH

@JenniferADeal, from @JHSPH_Hearing, discusses research on hearing loss, memory problems and dementia.



Can Hearing Aids Prevent Memory
Hearing loss may raise dementia risk
memory problems? Consumer Rep
consumerreports.org



5 SEPTEMBER 2019

Jennifer Deal featured in
consumer reports



11 SEPTEMBER 2019



ACHIEVE (Adele Goman,
Frank Lin) featured in Forbes

safaribrowser

≡ **Forbes**

EDITORS' PICK | 15,821 views | Sep 11, 2019, 05:30pm EDT

Listen Up: Hearing Aids May Do More Than Just Treat Hearing Loss

 **Kristen Gerencher** Contributor 
Healthcare
I write about chronic diseases, treatments and patients' experiences.

f Age-related hearing loss is rarely dramatic, happening slowly over time, robbing older people of snippets of conversation and leaving them unable to filter out background noise as well as they once could. Early signs can include routinely cranking up the TV volume and having trouble with phone dialogue. Left

tw

in



12 SEPTEMBER 2019



Baltimore HEARS
(Carrie Nieman,
Frank Lin) featured
in NPR



16 SEPTEMBER 2019


Nicholas Reed quoted
in WSJ

safaribrowser


 **NPR** 
@NPR

As hearing declines, loneliness can intensify — which increases the risks of depression, dementia and early death, research shows.

But Medicare treats hearing loss as a normal part of aging and doesn't pay for hearing aids.




Untreated Hearing Loss Linked To Loneliness And Isolation For Seniors
Hearing loss often happens gradually and earlier than expected. Getting hearing aids can help stave off side effects like depression and even early ...
[npr.org](https://www.npr.org)

 **JHU Cochlear Center for Hearing**
@JHSPH_Hearing

NEW: Cochlear Center Faculty
in a recent article by [@WSJ](#) on the newest technology of hearing aids

Read more:

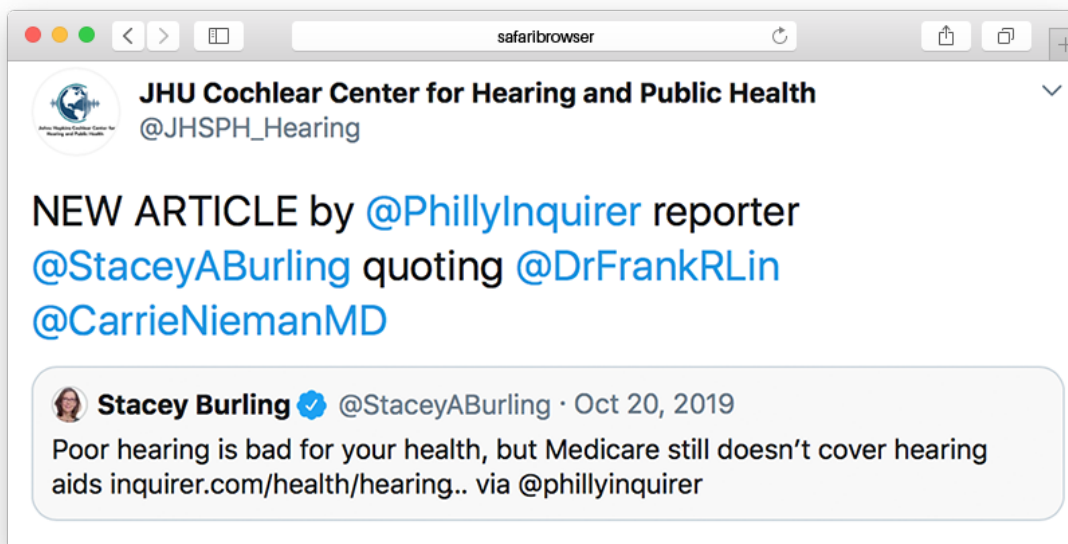


Hearing Aids Are Getting Smarter
The new devices are part medical device, part consumer electronics. And they may be more socially acceptable as well.
[wsj.com](https://www.wsj.com)



16 SEPTEMBER 2019

Frank Lin quoted in WSJ



20 OCTOBER 2019

Frank Lin and Carrie Nieman featured in Philly Inquirer



6 NOVEMBER 2019

Jon Suen featured
in JHUNursing
Magazine



4 DECEMBER 2019

Nicholas Reed
and Jennifer Deal
mentioned in Forbes





2 JANUARY 2020

Frank Lin featured in
New York Times

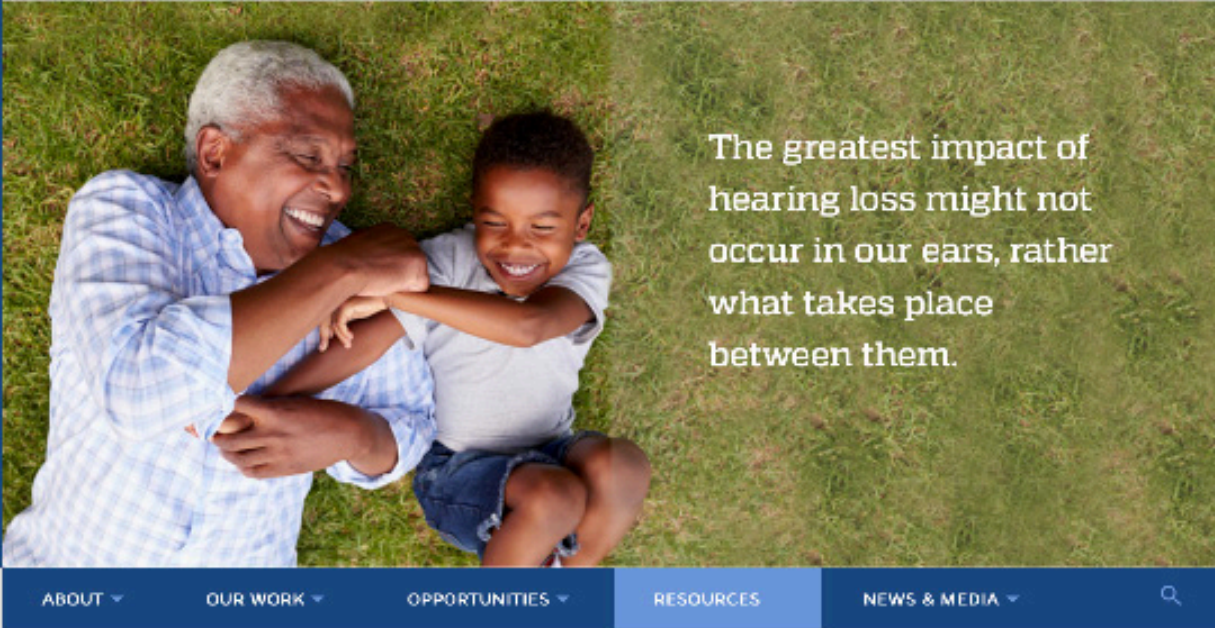


20 FEBRUARY 2020

Frank Lin featured in
NYTimes

COCHLEAR CENTER WEBSITE

COCHLEAR CENTER *for*
HEARING *and* PUBLIC HEALTH



In 2019:

Cochlear Center Website launched

More than **30,000** page views

More than **10,600** new viewers



70% viewers from United States



Other viewers from Brazil, Australia, India, UK, Canada, Germany, China, and Japan

GLOBAL REACH

- Postdoctoral research fellow Dr. Armstrong participated in an exchange to Erasmus University Medical Centre where she worked on projects related to the association of the ability to detect speech through noise with brain structure and cognition. Dr. Willink is actively working with colleagues at Macquarie University in Sydney to consider opportunities to transform hearing care in Australia.
- Dr. Nieman serves as a member of the core group of expert consultants for the World Health Organization's World Report on Hearing. The report will be debuted at the 2020 World Health Assembly and is the first of its kind related to ear and hearing care. The report aims to elevate ear and hearing care as a both political and public health priority. Dr. Nieman also serves as the Cochlear Center representative for the WHO's World Hearing Forum, which is a global network of organizations and stakeholders working in ear and hearing care.
- Dr. Nieman serves as the Lead Strategic Advisor for New Brunswick HEARS, which is an international extension of the HEARS program. As the poorest province in Canada, HEARS is being adapted and delivered throughout New Brunswick to provide access to low-income older adults. The project is funded via a grant from the Public Health Agency of Canada, in partnership with the Hearing Foundation of Canada and Baycrest.
- Dr. Goman visited the University of Edinburgh in Scotland and collaborated with Professor Ian Deary and other investigators of the Lothian Birth Cohorts to investigate the relationship between hearing loss and psychosocial wellbeing in older adults.
- Dr. Lin is a commissioner and chairing the workgroup on technology and innovations for the Lancet Commission on Hearing Loss. <https://globalhearinglosscommission.com/>
- Dr. Lin has given international talks in Brazil, Switzerland, New Zealand, and Sweden.
- Dr. Deal presented her research in Sao Paulo, Brazil. <https://twitter.com/clausuemoto/status/1161088965946040320?s=20>
- The Cochlear Center is collaborating with the Brazilian Longitudinal Study of Adult Health (ELSA-Brasil) to integrate measures of hearing loss.
- Dr. Reed is leading the integration of hearing measures in the National Health Aging and Trends Study (n=15000).
- Dr. Reed is working with the Longitudinal Aging Study in India (LASI) to integrate measures of hearing loss (n=4000).
- Dr. Reed is collaborating with Macquarie University Hospital to implement a quality initiative addressing hearing loss in outpatient and inpatient settings.

COCHLEAR CENTER CORE FACULTY



Frank R. Lin



Frank R. Lin, MD, PhD, is the director of the Cochlear Center for Hearing and Public Health and an otologic surgeon & epidemiologist who has translated his clinical experiences caring for patients with hearing loss into foundational public health research and federal policy in the U.S. His pioneering epidemiological research from 2010-2014 established the association of hearing loss with cognitive decline & dementia, and his research served as the direct basis for the 2017 Lancet Commission on Dementia conclusion that hearing loss is the leading modifiable risk factor for dementia. Based on this early research, he now leads two ongoing, NIH-funded randomized trials that are establishing the efficacy of hearing interventions. In parallel, Dr. Lin has collaborated with the National Academies, the White House, and Congress to develop policies to ensure hearing loss can be effectively and sustainably addressed in society. These efforts directly resulted in bipartisan passage of the Over-the-Counter Hearing Aid Act of 2017 which Dr. Lin testified on before Congress. This law will allow for increased competition in the hearing aid market from consumer technology companies (e.g., Bose) beginning in 2020-2021 to enable Americans to have access to more affordable and innovative hearing aids. Dr. Lin founded the Cochlear Center for Hearing and Public Health in 2018, and this Center is dedicated to training researchers globally to study and address the impact of hearing loss on older adults and public health. Dr. Lin currently serves as a member of the Board on Health Sciences Policy at the National Academies.

Joshua Betz



Joshua Betz, MS, is biostatistician in the Johns Hopkins Biostatistics Consulting Center and is a research associate in the Department of Biostatistics at the Johns Hopkins Bloomberg School of Public Health. He obtained his MS in biostatistics from the University of Maryland Baltimore County in 2012 and joined Johns Hopkins shortly afterwards. He works on epidemiological studies, clinical trials, software for data visualization and study design, and provides statistical consulting to public health researchers. Much of his work has involved studying associations between hearing loss and health outcomes in older adults, as well as developing pilot studies for hearing loss interventions. His interests are in statistical education and practice in science, understanding and mitigating the impact of hearing loss, public health, gerontology, and clinical trials.

Jennifer A. Deal



Jennifer A. Deal, PhD, is an epidemiologist and gerontologist with expertise in cognitive aging. She is an assistant professor in the Department of Epidemiology at the Johns Hopkins Bloomberg School of Public Health. At the Cochlear Center, Deal is the Associate Director of Academic Training and oversees the training and didactic programs for trainees at the Center. Trained in the epidemiology of aging, Deal studies the effects of hearing loss on an aging brain and how hearing loss influences cognitive function to inform strategies for the primary prevention of cognitive decline and dementia in older adults.

Adele M. Goman



Adele M. Goman, PhD, is an Associate in the Department of Epidemiology at the Johns Hopkins Bloomberg School of Public Health. She holds a doctorate in psychology from the University of York, UK and completed postdoctoral training in epidemiology and clinical trials at Johns Hopkins University. Her research focuses on the epidemiology of hearing loss with respect to the prevalence of hearing loss and the impact hearing loss is expected to have in the coming decades. Her current research is examining the impact of hearing loss on psychosocial wellbeing in older adults. Adele Goman was the lead project manager of the ACHIEVE trial between 2017-2019 and she maintains an active involvement with the study.

Carrie L. Nieman



Carrie L. Nieman, MD, MPH, is an assistant professor in the Department of Otolaryngology-Head and Neck Surgery at the Johns Hopkins University School of Medicine, Core Faculty at the Cochlear Center for Hearing and Public Health and Principal Faculty at the Center for Innovative Care in Aging. Dr. Nieman is also a co-founder of Access HEARS, a non-profit committed to the delivery of affordable, accessible hearing care. As a clinician, researcher, and social entrepreneur, her commitment to social justice is inseparable from her drive to provide innovative solutions to address disparities in hearing care. Her epidemiological work documents widespread disparities in hearing health care. In order to move toward innovative, evidence-based and sustainable solutions, Nieman works across disciplines and translates research and approaches in gerontology, social design, behavioral intervention research, community-based participatory research, and human factors to advance hearing health equity and bring innovation to underserved communities.

Esther Oh



Esther Oh, MD, PhD, is an associate professor in the Division of Geriatric Medicine and Gerontology, and a co-director of the Johns Hopkins Memory and Alzheimer's Treatment Center. Oh's research interest is in Alzheimer's disease and related disorders including delirium. Oh actively collaborates with members of the Center on projects related to enhancing communication and improving hearing care for older adults with dementia and hearing loss. She is also one of the investigators of the Johns Hopkins Precision Medicine Center of Excellence – Alzheimer's disease (PMCoE-AD), and will be examining hearing loss as an integral part of risk assessment for incident AD.

Nicholas S. Reed



Nicholas S. Reed, AuD, is an assistant professor in the Department of Epidemiology at the Johns Hopkins Bloomberg School of Public Health with a joint appointment in the Department of Otolaryngology-Head and Neck Surgery at the Johns Hopkins University School of Medicine. He is core faculty at the Cochlear Center for Hearing and Public Health. He completed his clinical doctorate at Towson University and clinical fellowship at Georgetown University Hospital. Dr. Reed directs the Cochlear Center's Audiology Core which oversees hearing data collection in several large epidemiologic studies. At the Johns Hopkins Hospital, he oversees quality care initiatives to address hearing in the inpatient setting to address patient-provider communication. His research focuses on over-the-counter amplification devices and delivery models, understanding and addressing hearing in patient-provider communication, and the relationship between hearing and health care quality and safety outcome patterns. His research on understanding over-the-counter hearing technologies and the need for separating devices from audiologic services has been published in JAMA.

Amber Willink



Amber Willink, PhD, is an associate professor at the University of Sydney's Menzies Centre for Health Policy having recently relocated from her position in the Department of Health Policy and Management at the Johns Hopkins Bloomberg School of Public Health. Her research focuses on the economic and health service utilization implications of gaps in health insurance benefits on older adults. At the Cochlear Center for Hearing and Public Health, Willink examines the economic impacts of hearing loss on older adults and the Medicare program as well as health services utilization outcomes associated with treated and untreated hearing loss. She is interested in the practice and policy changes that can better support older adults with hearing loss and has published research on the options for the inclusion of hearing services under the Medicare program.

COCHLEAR CENTER ASSOCIATE FACULTY



Marilyn Albert

Marilyn Albert, PhD, is director of the Division of Cognitive Neuroscience and a professor in the Johns Hopkins Department of Neurology. Albert's research focuses on the early identification of Alzheimer's disease and the cognitive and brain changes associated with aging. Albert is actively engaged in collaborations with Center faculty exploring the impact of hearing loss on cognition and brain changes in older adults.



Josef Coresh

Josef Coresh, MD, PhD, is the George W. Comstock Professor of Epidemiology, Biostatistics and Medicine at The Johns Hopkins University Bloomberg School of Public Health. Coresh serves as the co-principal investigator of the Aging and Cognitive Health Evaluation in Elders (ACHIEVE) study and works closely with Center faculty exploring data from the Atherosclerosis Risk in Communities Study (ARIC) to investigate the relationships between hearing loss and other health variables. He is a recognized leader in the epidemiology of kidney disease, big data, and biomarker research that has impacted clinical practice guidelines and policies.



Luigi Ferrucci

Luigi Ferrucci, MD, PhD, is the Scientific Director of the National Institute on Aging and conducts research on the causal pathways of age-related declines in health and functioning. Ferrucci collaborates with and mentors members of the Center exploring the relationships between hearing loss and health outcomes in the Baltimore Longitudinal Study of Aging.



Margaret Korczak

Margaret Korczak, PhD, is a professor in the Department of Audiology, Speech Language Pathology & Deaf Studies at Towson University. Korczak works closely with Center faculty on projects exploring the efficacy of technology products for individuals with hearing loss.



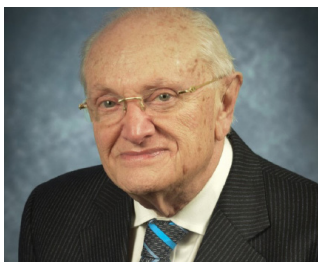
Susan Resnick

Susan Resnick, PhD, is a senior investigator in the Laboratory of Behavioral Neuroscience at the National Institute on Aging. Resnick actively collaborates with Center staff and mentors Center trainees on brain imaging to explore the impact of hearing loss on the brain.



Sarah Szanton

Sarah Szanton, PhD, is a professor in the Department of Community-Public Health in the Johns Hopkins School of Nursing. She collaborates with members of the Center on projects addressing disparities in hearing health care and community-delivered hearing care interventions.



Moyses Szklo

Moyses Szklo, MD, DrPH, is a University Distinguished Service Professor and Professor in the Department of Epidemiology in the Johns Hopkins Bloomberg School of Public Health. He works closely with the Center on developing research and training initiatives in Latin America.



Mike Weikert

Mike Weikert, MFA, is the founding director of the Center for Social Design at the Maryland Institute College of Art (MICA). He and his team actively collaborate with members of the Center to design programs to improve the accessibility and affordability of hearing care for older adults.

COCHLEAR CENTER STAFF

Sanam Bhatia

Research Assistant



Sanam Bhatia, BA, recently graduated from Johns Hopkins University with a BA in Public Health Studies. Her research interests include understanding the impact of hearing impairment on older adults, particularly in terms of how they communicate with family members and providers. She is also interested in how sensory loss exacerbates cognitive and mental health concerns.

Kevin DeMario

Research Assistant



Kevin DeMario, MA, is a research program assistant who works on the Baltimore HEARS study. He has his undergraduate degree and Master's degree in philosophy from Johns Hopkins University. He is preparing to begin his Masters in Health Administration in Fall 2020.

Emmanuel E. Garcia

Biostatistician



Emmanuel E. Garcia, PhD, obtained his doctorate in economics from the Johns Hopkins Department of Economics in 2018. His research experience includes studying the effects of assistance programs on the health and human capital of youth with disabilities, and the impact that mergers and acquisitions in the pharmaceutical industry have on the price of generic drugs. He has also been involved in the statistical analysis of randomized control trials at the Johns Hopkins Armstrong Institute for Patient Safety and Quality.

Anushka Jajodia

MICA Fellow



Anushka Jajodia, MA, received her Bachelor's in Visual Communication and Design from Ecole Intuit Lab, Mumbai and Master's in Social Design from Maryland Institute College of Art, Baltimore. She works closely with the Center faculty on the development of hearing interventions and other applications requiring the use of social design and graphic design.

Audrey Mossman

Research Assistant



Audrey Mossman, BS, is a research program assistant for the Baltimore HEARS study and a Doctoral Diversity Scholar working toward completing a post-baccalaureate program at Johns Hopkins School of Medicine. Her research interests include recognizing and addressing healthcare disparities and working toward solutions to improve health equity for these populations. She hopes to attend medical school and continue her journey in science and medicine.

Clarice Myers

Research Audiologist



Clarice Myers, AuD, received her clinical doctorate from Texas Tech University Health Sciences Center. She is an assistant faculty audiologist in the Department of Otolaryngology-Head & Neck Surgery, Division of Research at the Johns Hopkins University, School of Medicine. Her research interests include the correlation between hearing loss and cognitive decline as well as alternative methods of device delivery models in an inpatient setting. She is looking forward to integrating her private practice and research experience with the experience and knowledge she gains from this position to improve the industry of hearing healthcare.

Lechi Nwanegwo

Research Assistant



Lechi Nwanegwo, BS, a graduate of Morgan State University, is a research program assistant for the Baltimore HEARS Study. Her interests include increasing health equity in underserved communities and prevention medicine.

Molly Sheehan

Communications Specialist



Molly Sheehan's work in communications has covered topics from medical and scientific research to conservation, animal husbandry and attraction marketing, but it has all hinged around the same vital core of good storytelling. She helps the Cochlear Center tell compelling stories about its research and policy advocacy work in relevant and timely ways.

Laura Sherry

Research Audiologist



Laura Sherry, AuD, is a research audiologist with the Cochlear Center where she is currently the lead audiologist for the Washington County field site of the ACHIEVE trial.

Shannon Smitherman

Academic Program
Coordinator



Shannon Smitherman received her bachelor's degree in Human Services from the College of Notre Dame of Maryland. She currently works as the academic program coordinator for the Cochlear Center where she coordinates and helps advise Center trainees, oversees all administrative and operational aspects of Center activities and assists the director.

Tara Thallmayer

Data Manager / IT



Tara Thallmayer, MPH, is a graduate of Temple University with a Master's of Public Health in Epidemiology and Biostatistics. She is a research data manager for the Cochlear Center for Hearing and Public Health. She supports staff, faculty, and students with their data management needs.

Jami Trumbo

Research Coordinator



Jami Trumbo, MSPH, is the research coordinator for the Baltimore HEARS Study. She received her Master's of Science in Public Health in health education and health communication from the Johns Hopkins Bloomberg School of Public Health. She currently leads the coordination of the HEARS study and assists in Center Communications.

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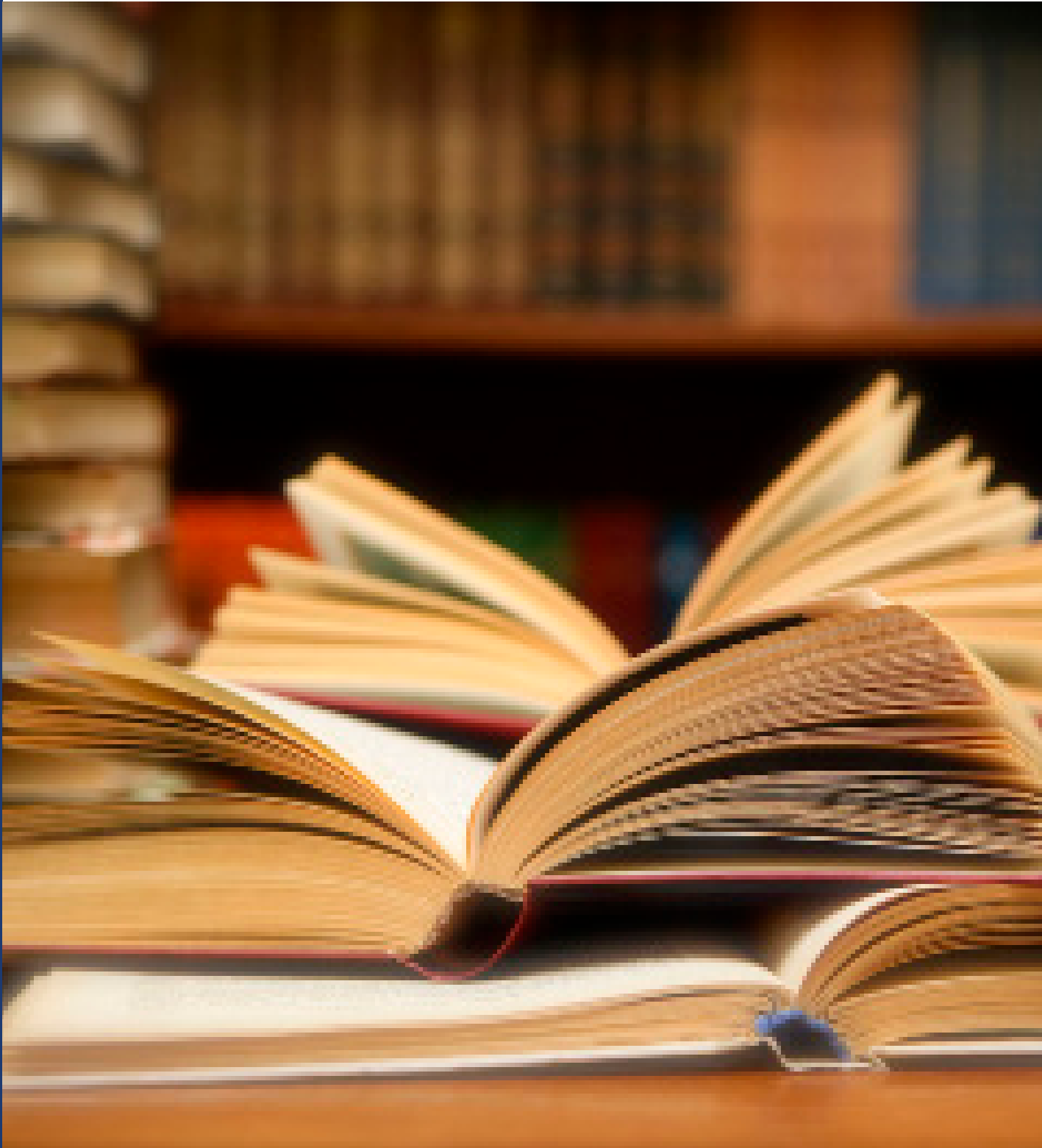
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Cochlear Limited

PUBLICATIONS AND PRESENTATIONS IN COCHLEAR CENTER MISSION AREAS



PUBLICATIONS BY CENTER FACULTY AND TRAINEES

1. Abrams HB, **Jilla AM**, Chisolm TH. (2021). Measuring Health-Relation Quality of Life in Audiologic Rehabilitation. In J.J. Montano, Spitzer J.B. (Eds.), *Adult Audiologic Rehabilitation* (3rd ed.). San Diego, CA: Plural Publishing.
2. **Applebaum J, Hoyer M**, Betz JF, Lin FR, Goman AM. (2019). Long-term subjective loneliness in adults after hearing loss treatment. *Int J Audiol*. 2019 Aug; 58(8):464-467.
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7. **Armstrong, N.M.**, An, Y., Doshi, J., Erus, G., Ferrucci, L., Davatzikos, C., Deal, J.A., Lin, F.R. & Resnick, S.M. (In Press) Midlife Hearing Loss as a Risk Factor of Neurodegeneration of Temporal Lobar Structures: Baltimore Longitudinal Study of Aging. *JAMA Otolaryngology: Head and Neck Surgery*.
8. **Armstrong, N.M.**, An, Y., Ferrucci, L., Deal, J.A., Lin, F.R., & Resnick, S.M. (In Press) Temporal Sequence of Peripheral Auditory Processing with Cognition in the Baltimore Longitudinal Study of Aging. *Journal of Gerontology, Series A, Medical Science*.
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10. **Armstrong, N.M.**, Bangen, K.J., Au, R., & Gross, A.L. (Accepted) The Association of Mid-Life Elevated Coronary Heart Disease Risk with Cognitive Trajectories: Framingham Offspring Study. *American Journal of Epidemiology*.
11. **Armstrong, N.M.**, Deal, J.A., Kritchevsky, S., Pratt, S., Harris, T., Barry, L.C., Simonsick, E.M., & Lin, F.R. (In Press) Associations of Hearing Loss and Depressive Symptoms with Incident Disability in Older Adults: Health, Aging, and Body Composition Study. *Journal of Gerontology, Series A, Medical Science*.
12. **Armstrong, N.M.**, Espeland, M.A., Chen, J.C., Masaki, K., Wactawski-Wande, J., Li, W., Gass,

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53. Williams, O.A., An, Y. **Armstrong, N.M.**, Shafer, A.T., Helphrey, J., Kitner-Triolo, M., Ferrucci, L., & Resnick, S.M. (In Press) Apolipoprotein ϵ 4 Allele Effects on Longitudinal Cognitive Trajectories Are Sex- and Age-dependent. *Alzheimer's & Dementia.*
 54. Windon MJ, Kim SJ, Oh ES, Lin S. Predictive value of olfactory impairment for future cognitive decline and older adults: a systematic review. [published online ahead of print July 4 2019]. *Laryngoscope.* doi: 10.1002/lary.28166. PMID 31271464.
 55. Willink A, Reed NS, Swenor B, Leinbach L, DuGoff EH, Davis K. Dental, Vision, And Hearing Services: Access, Spending, And Coverage For Medicare Beneficiaries. *Health Affairs*, 2020, 39(2), 297-304. PMID: 32011933.
 56. Willink A, Reed NS, Lin FR. Cost-Benefit Analysis of Hearing Care Services: What Is It Worth to Medicare? *J Am Geriatr Soc.* 2019;67(4):784-789.
 57. Willink A, Reed NS, Lin FR. Access To Hearing Care Services Among Older Medicare Beneficiaries Using Hearing Aids. *Health Affairs.* 2019;38(1):124-131.
 58. Willink A, Hernando MA, Steege S. Why State Medicaid Programs Should Cover Hearing Aids for Adults. *JAMA Otolaryngol Head Neck Surg.* 2019;145(11):999-1000.
 59. Willink A. The High Coverage of Dental, Vision, and Hearing Benefits Among Medicare Advantage Enrollees. *Inquiry.* 2019;56:1-4.
 60. Yang C, Kwak L, Ballew SH, Jaar BG, Deal JA, Folsom AR, Heiss G, Sharrett AR, Selvin E, Sabanayagam C, Coresh J, Matsushita K. Retinal microvascular findings and risk of incident peripheral artery disease: An analysis from the Atherosclerosis Risk in Communities (ARIC) Study. *Atherosclerosis.* 2019 Oct 11 doi: 10.1016/j.atherosclerosis.2019.10.012.
 61. **Yong, M.**, Willink, A., McMahon, C., McPherson, B., Nieman, C.L., Lin, F.R. Access to adults' hearing aids: policies and technologies used in eight countries. *WHO Bulletin.* 2019;97:699-710. PMID: 31656335.
 62. **Yong, M.**, Young, E., Lea, J., Foggin, H., Zaia, E., Kozak, F.K., Westerberg, B.D. Subjective and objective vestibular changes that occur following paediatric cochlear implantation: systematic review and meta-analysis. *J Otolaryngol Head Neck Surg* 2019;48(1):22. PMID: 31118089.
 63. **Yong, M.**, Pauwels, J., Kozak, F.K., Chadha, N.K. Application of Augmented Reality to Surgical Practice: A Pilot Study using the ODG R-7 Smartglasses. *Clin Otolaryngol* 2020;45(1):130-4. PMID: 31610087.
 64. **Yong, M.**, Liang, J., Ballreich, J., Lea, J., Westerberg, B., Emmett, S. The cost-effectiveness of school hearing screening programs: a scoping review. *Otolaryngol Head Neck Surg* 2020: In Press.

UPCOMING TRAINEE PUBLICATIONS (SUBMITTED, UNDER REVIEW, IN PREPARATION)

1. Araiza-Garaygordobil D, Gopar-Nieto R, **Martinez-Amezcu P**, Cabello-López A. et al. A Randomized Controlled Trial of Lung Ultrasound Guided Therapy in Heart Failure (CLUSTER-HF Study): American Heart Journal., Under review.
2. **Armstrong, N.M.**, Oosterloo, B.C., Croll, P.H., Ikram, M.A., & Goedegebure, A. Creation of Optimal Cut-points from Scores of the Digits-in-Noise Task Based on Hearing Status. Under review at International Journal of Audiology.
3. **Armstrong, N.M.**, Williams, O.A., Landman, B., Deal, J.A., Lin, F.R., & Resnick, S.M. Association of Poorer Hearing with Change in White Matter Microstructure. Under review at Neurobiology of Aging.
4. **Armstrong, N.M.**, An, Y., Shin, J.J., Williams, O.A., Doshi, J., Erus, G., Davatzikos, C., Ferrucci, L., Beason-Held, L., & Resnick, S.M. Associations between Cognitive and Brain Volume Changes in Cognitively Normal Older Adults. Under review at NeuroImage.
5. **Armstrong, N.M.**, **Croll, P.H.**, Oosterloo, B.C., Lin, F.R., Ikram, M.A., Goedegebure, A., & Vernooij, M.W. Association of Speech Recognition Thresholds with Brain Volumes and White Matter Microstructure: The Rotterdam Study. Under review at Otology and Neurotology.
6. **Armstrong, N.M.**, Dumitrescu, L. Huang, C.W., An, Y., Tanaka, T., Hernandez, D., Doshi, J., Erus, G., Davatzikos, C., Ferrucci, L., Resnick, S.M., & Hohman, T.J. Association of Hippocampal Volume Polygenic Predictor Score with Baseline and Change in Brain Volumes and Cognition Among Cognitively Health Older Adults. Under review at Neurobiology of Aging.
7. **Armstrong, N.M.**, Shafer, A.T., Beason-Held, L., Wong, D., Ferrucci, L., Lin, F.R., & Resnick, S.M. Association of Hearing Loss With Baseline and Change in Resting Cerebral Blood Flow in Cognitively Normal Older Adults. In preparation.
8. **Armstrong, N.M.**, Tom, S., Harrati, A., Casaletto, K., Pa, J., Renteria, M.A., Gu, Y., Rajan, K.B, Schupf, N., Weuve, J., Simonsick, E., Manly, J., Fieo, R., Stern, Y., & Zahodne, L. Change in Leisure Activities with Change in Cognition in Older Adults. In preparation.
9. **Armstrong NM**, **Croll PH**, Oosterloo BC, Lin FR, Ikram MA, Goedegebure A, Vernooij MW. Association of speech recognition thresholds with brain volumes and white matter microstructure: The Rotterdam Study. Under review.
10. Bigelow, R., Reed, N., Brewster, K., **Huang, A.**, Rebok, G., Rutherford, B., Lin, F. Association between hearing loss, psychological distress, and mental healthcare utilization among adults in the United States. Submitted.
11. Cooper, C.P., Shafer, A.T., **Armstrong, N.M.**, Rossi, S.L., Young, J., Herold, C., Yang, Y., Stein, E.A., Resnick, S.M., & Rapp, P.R. Recognition Memory Is Associated With Different Patterns of Regional Gray Matter Volumes in Young and Aged Monkeys. In preparation.
12. **Croll, P.H.**, Vinke, E.J., **Armstrong, N.M.**, Licher, S., Vernooij, M.W., Lin, F.R.,

- Baatenberg de Jong, R.J., Goedegebure, A., & Ikram, M.A. Hearing Loss and Cognitive Decline in the General Population: A Prospective Cohort Study. In preparation.
13. **Croll PH**, Vernooij MW, Reid RI, Goedegebure A, Power MC, Rigtters SC, Sharrett AR, Baatenburg de Jong RJ, Mosley TH, de Groot M, Lin FR, Deal JA. Hearing loss and microstructural integrity of the brain in a dementia-free older population. Under review.
 14. **Croll PH***, Vinke EJ*, **Armstrong NM**, Licher S, Vernooij MW, Lin FR, Baatenburg de Jong RJ, Goedegebure A, Ikram MA. Hearing loss and cognitive decline in the general Dutch population: a prospective cohort study. Under review.
 15. Croll PH*, Boelens M*, Vernooij MW, van de Rest O, Zillikens MC, Ikram MA, Voortman T. The association between vitamin D deficiency and MRI markers of brain healthy in a community sample. Under review.
 16. de Boer TG, Rigtters SC, Croll PH, Niessen WJ, Ikram MA, van der Schroeff MP, Vernooij MW, Goedegebure A. The effect of hearing aid use on the association between hearing loss and brain structure in older adults. In preparation.
 17. Fremont, R., Manoocheri, M., **Armstrong, N.M.**, Mattay, V.S., Apud, J.A., Tierney, M.C., Devanand, D.P., Wassermann, E., Grafman, J., & Huey, E.D. Tolcapone Treatment for Cognitive and Behavioral Symptoms in bvFTD: a Placebo-controlled Crossover Study. Under review at Journal of Alzheimer's Disease.
 18. Gao, J., **Armstrong, N.M.**, Deal, J.A., Lin, F.R., & He, P. Hearing Loss and Cognitive Function among Chinese Older Adults: The Role of Participation of Leisure Activities. Under review at BMC Geriatrics.
 19. **Huang, A.R.**, Deal, J., Rebok, W., Pinto, J., Waite, L., Lin, F. Functional hearing impairment and loneliness in older adults in the United States. Submitted.
 20. **Jilla AM**, Johnson CE, Huntington-Klein N. Hearing Aid Affordability in the United States. In preparation.
 21. **Jilla AM**, Johnson CE, Baldwin J, Huntington-Klein N, Zhang Y, John AB, Hudson MA, Painton SW, Palmer CV, Danhauer JL. Willingness to pay: Cost-Benefit Analyses of Hearing Aids, Over-the-Counter Devices, and Hearing Aid Services. In preparation.
 22. Johnson CE, **Jilla AM**, Park JH, Sullivan JC, Huddleston J, Danhauer JL. Randomized, controlled trial of the health-related quality of life benefits from entry-level advanced digital for adults with low incomes.
 23. **Kim AS**, Betz JF, Goman AM, Poe DS, Reed NS, Ward BK, Nieman CL. Prevalence and population estimates of obstructive eustachian tube dysfunction in adolescents in the United States. *Submitted.*
 24. **Kim AS**, Betz JF, Nieman CL, Hoyer MR, Applebaum J, Lin FR, & Goman AM. Long-term impact of hearing aid provision or cochlear implantation on hearing handicap. *In preparation.*
 25. **Kim AS**, Betz JF, Poe DS, Ward BK, & Nieman CL. Risk factors for obstructive eustachian tube dysfunction in adolescents, adults, and older adults in the United States. *In preparation.*
 26. **Kim AS**, Hoyer M, Applebaum J, Betz J, Lin FR, Goman AM. Long-term physical and mental health quality of life after hearing intervention. *In preparation.*
 27. **Kim AS**, Betz JF, Reed NS, Albert M, Knopman D, Oh E, Faucette S, Deal JA, Lin FR, & Nieman CL. Accuracy of proxy- and self-rated hearing among older adults with cognitive impairment. *In preparation.*
 28. **Kim AS**, Oh E, Lin FR, & Nieman

- CL. Association of hearing loss and neuropsychiatric symptoms among older adults with cognitive impairment. *In preparation*.
29. **Kim AS**, Pittman C, & Nieman CL. Adaptations to evidence-based behavioral interventions for older adults with cognitive impairment. *In preparation*.
 30. Kortebein, S., Reed, W.T., **Yong, M.**, Olusanya, B.O., Emmett, S. The Lifelong and Global Impact of Childhood Hearing Loss. Arch Dis Child 2020; *Submitted*.
 31. **Lin HY**, Reed N, Deal JA, **Powell D**, Coresh J, & Lin FR. Association of Speech in Noise Perception on Measures of Hearing Handicap. *In preparation*.
 32. **Lin HY**, **Jilla AM**, & Reed N. Systematic review on interventions to address hearing loss for patients in In-patient or out-patient medical settings. *In preparation*.
 33. Oosterloo BC, de Feijter M, **Croll PH**, Baatenburg de Jong RJ, Luik AI, Goedegebure A. Associations between tinnitus and mental health within a population-based cohort study. *In preparation*.
 34. Oosterloo BC, **Croll PH**, Baatenburg de Jong RJ, Ikram MK, Goedegebure A. Prevalence of tinnitus in an aging population and its relation to age and hearing loss: results from the population-based Rotterdam Study. *Submitted*.
 35. Oosterloo BC*, **Croll PH***, Goedegebure A, Roschupkin GV, Baatenburg de Jong RJ, Ikram MA, Vernooij MW. Tinnitus and its central correlates: a neuro-imaging study in a large aging population. *Under review*.
 36. Pershing, S., Tran, E., **Armstrong, N.M.**, Chen, J.C., Espeland, M.A., Gower, E.W., Li, W., Shadyab, A.H., Stone, K.L., Stefanick, M., Henderson, V.W., & Rapp, S. Association of Visual Impairment with Risk of Incident Dementia: The Women's Health Initiative. Under review at JAMA Ophthalmology.
 37. **Pittman C**, Bowe S, Cabrera-Muffly C, Chang C, Flanary V, Smith J, Villwock J, Nieman C. Underrepresented Minorities in Medicine (URM) Diversity-Related Content in Otolaryngology-HNS Residency Program Websites. AAO-HNSF Call for Science. (Abstract submission 1/14/20).
 38. **Pittman C**, Willink A, Nieman, C. Unmet hearing care needs among U.S. home health care recipients. Johns Hopkins 13th Annual Research on Aging Showcase. (Abstract submission 3/1/20).
 39. **Pittman C**, Willink A, Nieman, C. Unmet hearing care needs among U.S. home health care recipients. *In preparation*.
 40. **Pittman C**, Nieman C. A Review of Adult-Onset Hearing Loss: A Primer for Neurologists. Current Treatment Options in Neurology (Volume 22). *In preparation*.
 41. **Pittman C**, Nwanegwo L, Roura R, Nieman C. Minority Representation in age related clinical trials on hearing: A Systematic Review. *In preparation*.
 42. **Powell DS**, **Kuo P**, Deal JA, Gross AL. The Relationship of APOE $\epsilon 4$ to the Relative Times and Hazards of Dementia. *In preparation*.
 43. **Powell DS**, Betz JJ, Yaffe K, Houston DK, Kritchevsky SB, Strotmeyer ES, Pratt SR, Rubin S, Simonsick EM, Lin FR, Deal JA. Hearing Impairment and Risk of Depression in Older Adults. *In preparation*.
 44. **Pupo D**, Deal J, Schrack J, Ferrucci L, Lin F. (2019) Changes in Gait Kinematics Among Older Individuals with Hearing Loss. Journal

of Gerontology *In preparation*.

45. Reed N & **Lin HY**. Health Care Seeking Behaviors among Medicare Beneficiaries with Functional Hearing Loss. *Under review*.

46. **Tarabichi O**, Kanumuri VV, Klug J, Vachicouras N, Duarte MJ, Epprecht L, Kozin ED, Reinshagen K, Lacour SP, Brown MC, Lee DJ Three-dimensional (3D) surface reconstruction of the human cochlear nucleus: Implications for auditory brainstem implant (ABI) design J Neurol Surg B Skull Base. *Accepted*.

47. **Ting J**, Du S, Betz J, Reed N, Power MC, Gottesman R, Sharrett AR, Griswold M, Walker KA, Miller ER, Lin FR, & Deal JA. Longitudinal Patterns of Change in Hypertension from Mid-to-Late Life and Late-life Hearing Loss in the Atherosclerosis Risk in Communities Study. *In preparation*.

48. **Ting J**, Power MC, Betz J, Sharrett AR, Albert MS, Gottesman RF, Resnick SM, Jack CR, Lin FR, & Deal JA. Cross-sectional Association of Hearing Impairment and Region-Specific Brain Volumes in the Atherosclerosis Risk in Communities Hearing Pilot Study. *In preparation*.

49. **Shan A**, Betz J, Reed N, Goman A, Poe D, Nieman C. Obstructive Eustachian Tube Dysfunction in U.S. Adults: Population-Level Demographics and Risk Factors. *In preparation*.

50. **Suen, J.J.**, Betz, J., Reed, N.S., Deal, J.A., Lin, F.R., & Goman, A.M. Prevalence of asymmetric hearing among adults in the United States. *Under review*.

51. **Suen, J.J.**, Han, H.R., Peoples, C.Y., Weikert, M., Marrone, N., Lin, F.R., & Nieman, C.L. (Under review). A community health worker training program to deliver accessible and affordable hearing care to older adults.

52. Williams, O.A., An, Y., **Armstrong, N.M.**, Kitner-Triolo, M., Ferrucci, L., & Resnick, S.M. Profiles of Cognitive Change in Preclinical Alzheimer's Disease Using Change-Point Analysis. Under review at Journal of Alzheimer's Disease.

53. **Yong, M.**, Panth, N., McMahon, C., Thorne, P., Emmett, S.D. How the World's Children Hear: A Narrative Review of School Hearing Screening Programs Globally. OTO Open. 2020; Submitted.

PRESENTATION LIST

TRAINEE PRESENTATIONS

1. **Armstrong, N.M.** Shared Contributors to Cognitive and Physical Aging. Tenure-Track Investigator Candidate Seminar, Longitudinal Studies Section, Translational Gerontology Branch, National Institute on Aging Intramural Research Program, Baltimore, MD (March 2019) and Quantitative Science Program, Department of Psychiatry and Human Behavior, Warren Alpert School of Medicine of Brown University. September 2019.
2. **Armstrong, N.M.** Associations of Optimal Ranges of Speech Recognition Thresholds by Hearing Status, Age, and Sex with Cognitive Trajectories: Rotterdam Study. Department of Epidemiology, Erasmus University Medical Center, Rotterdam, The Netherlands. June 2019.
3. **Armstrong, N.M.,** An, Y., Williams, O.A., Doshi, J., Erus, G., Davatzikos, C., Ferrucci, L., & Resnick, S.M. Change in Cognition Is Correlated with Change in Brain Volumes in Cognitively Normal Older Adults. 2019 AAIC. Los Angeles, CA. July 2019.
4. **Armstrong, N.M.** Changes in Cognition and Brain Volumes in Cognitively Normal Older Adults. Johns Hopkins University School of Medicine Dementia Consortium. Baltimore, MD. September 2019.
5. **Armstrong, N.M.** Who Is Listening: Hearing Loss as a Risk Factor for Dementia and Disability. Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health. Baltimore, MD. September 2019.
6. **Kim AS,** Betz JF, Nieman CL, Hoyer MR, Applebaum J, Lin FR, & Goman AF. Long-term impact of hearing aid provision or cochlear implantation on hearing handicap. Poster presentation at the 123rd Annual Meeting at the Combined Otolaryngology Spring Meeting. Atlanta, GA, April 24, 2020 (*accepted*).
7. **Huang, AR,** Deal, J., Rebok, W., Pinto, J., Waite, L., Lin, F. Hearing Impairment and Social Isolation in Older Adults in the United States. Podium presentation at The 2019 Gerontological Society of America Annual Meeting, Austin, TX. November 2019.
8. **Huang, AR,** Deal, J., Rebok, W., Pinto, J., Waite, L., Lin, F. Functional Hearing Impairment and Loneliness in Older Adults in the United States. Poster presentation at The 2019 Gerontological Society of America Annual Meeting, Austin, TX. November 2019.
9. **Shan A,** "Risk Factors for Eustachian Tube Dysfunction in Adults.", American Academy of Otolaryngology-Head & Neck Surgery, New Orleans, LA., September 2019.
10. **Croll PH.** Hearing function and brain health in an elderly population. Oral presentation. Cochlear Ltd., Mechelen Belgium, 2020.
11. **Croll PH.** The association between vitamin D deficiency and MRI markers of brain healthy in a community sample. Poster presentation. Alzheimer's Association International Conference, Los Angeles, USA, 2019.
12. **Croll PH.** Hearing loss and cognitive decline in the general Dutch population: a prospective cohort study. Oral presentation.

Alzheimer's Association International Conference, Los Angeles, USA, 2019.

13. **Croll PH.** Carotid atherosclerosis is associated with poorer hearing in older adults. Oral presentation. European Atherosclerosis Society Congress, Maastricht, the Netherlands, 2019.
14. **Jilla AM,** Johnson CE, Huntington-Klein N, Baldwin J. "Willingness to Pay for Hearing Aids, Over-the-Counter Devices, and Associated Services.", Podium presentation at the 2020 American Academy of Audiology Meeting. New Orleans, LA. April 1-4, 2020.
15. **Jilla AM,** Johnson CE, Huntington-Klein N, Baldwin J, Danhauer JL, Park JH, Smith E, Huddleston J. Willingness to Pay for Hearing Aids, Over-the-Counter Devices, and Services. Poster presentation at the 2020 American Auditory Society Meeting. Scottsdale, AZ. March 4-7, 2020.
16. **Pittman C,** Willink A, Nieman, C. Unmet hearing care needs among U.S. home health care recipients. Johns Hopkins 13th Annual Research on Aging Showcase. Upcoming March 27, 2020.
17. **Pittman C,** Bowe S, Cabrera-Muffly C, Chang C, Flanary V, Smith J, Villwock J, Nieman C. Underrepresented Minorities in Medicine (URM) Diversity-Related Content in Otolaryngology-HNS Residency Program Websites. Upcoming September 13-16, 2020.
18. **Powell DS, Kuo P,** Deal JA, Gross AL. The Relationship of APOE $\epsilon 4$ to the Relative Times and Hazards of Dementia. Poster presentation accepted for Cognitive Aging Conference. Atlanta, GA. April 15-17, 2020.
19. **Pupo D,** Deal J, Schrack J, Ferrucci L, Lin F. Changes in Gait Kinematics Among Older Individuals with Hearing Loss. Johns Hopkins Bloomberg School of Public Health-Capstone Presentation, Baltimore, MD, 2019
20. **Powell DS, Kuo P,** Deal JA, Gross AL. The Relationship of APOE $\epsilon 4$ to the Relative Times and Hazards of Dementia. Podium presentation at the Gerontological Society of America Conference. Austin, TX. November 13-17, 2019.
21. **Reed NS,** Garcia EE, **Powell DS,** Lin FR, Palta P, Deal JA. Impaired Speech in Noise and Depressive Symptoms in Older Adults. Poster presentation at the 2020 Scientific Technology Meeting of the American Auditory Society, Scottsdale, AZ, March 5-7, 2020.
22. **Suen, J.J., Shukla, A.,** Harper, M., Pedersen, E., Goman, A., Price, C., Applebaum, J., Hoyer, M., Lin, F.R., & Reed, N.S. "Associations Between Hearing Loss, Loneliness, Social Isolation: A Systematic Review" presented at the annual American Auditory Society meeting. Scottsdale, AZ. March 6, 2020.
23. **Tarabichi O,** Nieman CL, Deal JA, Betz J, Jones MR, Reed NS Lin FR, Goman AM. The Impact of socioeconomic status on hearing aid use in the ARIC cohort. Johns Hopkins Bloomberg School of Public Health 12th annual Research on Aging Showcase.
24. **Yong, M.,** Willink, A., McMahon, C., McPherson, B., Nieman, C.L., Lin, F.R. Access to adults' hearing aids: policies and technologies used in eight countries. Podium presentation at the 2019 Gerontologic Society of America Annual Meeting. Austin, TX, November 17, 2019.
25. **Yong, M.,** Liang, J., Ballreich, J., Lea, J., Westerberg, B., Emmett, S. The cost-effectiveness of school hearing screening programs: a scoping review. Podium presentation at the Coalition for Global Hearing Health Annual Conference, Tempe, AZ, October 26, 2019.

FACULTY PRESENTATIONS

1. Abrams MK, Miles TP, Polivka L, Willink A. "Eldercare4All: Gaps Reporters Should Know About the 2020 Campaign Debate." Invited speaker at the 2019 Annual Journalists in Aging Fellows Program at the Gerontological Society of America Annual Meeting. Austin, TX. November 13, 2019.
2. Deal JA, Swenor BK. Apples and oranges: Inconsistencies in assessing cognitive functioning in individuals with sensory impairment. Accepted for presentation at the Cognitive Aging Conference. Atlanta, GA, April 16, 2020.
3. Deal JA, Rawlings A, Sharrett AR, Reed NS, Betz J, Knopman D, Mosley T, Wong D, Zhou Y, Lin FR, Gottesman RF. Population-based Study of Hearing Impairment, Cognitive Performance and Beta-amyloid Deposition. Accepted for presentation at the 2020 Scientific and Technology Meeting of the American Auditory Society. Scottsdale, AZ. March 7, 2020.
4. Deal JA, Power MC, Bandeen-Roche K, Griswold M, Knopman D, Mosley T, Walker K, Gottesman RF, Sharrett AR. Retinal Microvascular Signs And White Matter MRI Findings: The Atherosclerosis Risk In Communities Neurocognitive Study. Accepted for presentation at the American Heart Association EPI | Lifestyle 2020 Scientific Sessions. Phoenix, AZ. March 4, 2020.
5. Deal JA, Rawlings A, Sharrett AR, Reed NS, Betz J, Knopman D, Mosley T, Wong D, Zhou Y, Lin FR, Gottesman RF. Hearing impairment, cognitive performance and beta-amyloid deposition in the ARIC-PET Amyloid Imaging Study. Gerontological Society of America 2019 meeting. Austin, TX.; November 15, 2019.
6. Deal JA. Epidemiology and public health significance of age-related hearing impairment. American Public Health Association (APHA) Annual Meeting and Expo. Philadelphia, PA. November 4, 2019.
7. Deal JA. Who gets tested? Selection issues and missing data in cognitive function testing in individuals with sensory impairment. Society for Epidemiologic Research 2019 Annual Meeting. Minneapolis, MN, June 21, 2019.
8. Deal JA. Auditory Issues in Aging. Claude D Pepper Older Americans Independence Center (OAIC) National Coordinating Center 2020 Annual Meeting, Bethesda, MD, April 3, 2020.
9. Deal JA. Advanced Analyses. Population Hearing Health Care (PopHHC) Pre-conference Workshop for the 2020 Scientific and Technology Meeting of the American Auditory Society. Scottsdale, AZ. March 4, 2020.
10. Deal JA. The Role of Epidemiology in Population Studies of Health: What it Can and Cannot Do. Population Hearing Health Care (PopHHC) Pre-conference Workshop for the 2020 Scientific and Technology Meeting of the American Auditory Society. Scottsdale, AZ. March 4, 2020.
11. Deal JA. Keynote Address: Hearing, Aging, and Public Health – From Epidemiology to Public Policy. National Hearing Conservation Association 44th Annual Conference. Destin, FL. February 21, 2020.
12. Deal JA. Public Health Significance of Hearing Loss: Implications for an Aging Brain. XXVI Congresso Fonoaudiológico de Bauru/Speech Pathology and Audiology Congress in Bauru, Bauru, Brazil. August 16, 2019.
13. Deal JA. Hearing Loss and the Aging Brain. Current Topics in Epidemiologic Research Seminar Series, Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, February 14, 2020.
14. Deal JA. Public Health Significance of Age-related Hearing Loss. Johns Hopkins Education and Research Center for Occupational Safety and Health 1st

- Monday Seminar Series, Department of Environmental Health and Engineering, Johns Hopkins Bloomberg School of Public Health. Baltimore, MD. February 3, 2020.
15. Deal JA. Hearing, Missingness on Cognitive Tests and MRI. Atherosclerosis Risk in Communities Study Multicenter Analysis Workgroup Meeting, Johns Hopkins Bloomberg School of Public Health. Baltimore, MD. November 26, 2019.
 16. Deal JA. Hearing Loss and the Aging Brain. Welch Center Grand Rounds, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD. September 11, 2019.
 17. Deal JA. Epidemiology and Functional Consequences of Hearing Loss in Older Adults. Department of Speech-Language Pathology and Audiology, School of Dentistry, University of São Paulo- Bauru Campus, Bauru, Brazil. August 14, 2019.
 18. Deal JA. Aging, Hearing and Public Health. Brazilian Longitudinal Study of Adult Health (ELSA-Brazil) Investigators Meeting. University of São Paulo, São Paulo, Brazil. August 12, 2019.
 19. Deal JA. Hearing Loss and Physical and Social Function and Falls. Johns Hopkins Cochlear Center on Hearing and Public Health East Asian Fellow Program, Johns Hopkins Bloomberg School of Public Health. Baltimore, MD. July 17, 2019.
 20. Deal JA. Hearing Loss and Dementia, Cognitive Decline and Mental Health. Johns Hopkins Cochlear Center on Hearing and Public Health East Asian Fellow Program, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, July 17, 2019.
 21. Deal JA. Observational Study Designs in Epidemiology. Johns Hopkins Cochlear Center on Hearing and Public Health East Asian Fellow Program, Johns Hopkins Bloomberg School of Public Health. Baltimore, MD, July 16, 2019.
 22. Deal JA. Missing data in cognitive function testing in individuals with sensory impairment. Cognitive and Sensory Working Group Meeting, Johns Hopkins Center on Aging and Health. Baltimore, MD. July 15, 2019.
 23. Deal JA. Ask an Epidemiologist. Cochlear Center for Hearing and Public Health Lunch and Learn. Johns Hopkins Bloomberg School of Public Health, July 8, 2019.
 24. Deal JA. Public Health Significance of Hearing Loss: Implications for an Aging Brain. Graduate Summer Institute of Epidemiology and Biostatistics 2019 Seminar Series, Johns Hopkins Bloomberg School of Public Health. Baltimore, MD, June 24, 2019.
 25. Lin, FR. Invited Speaker, Hearing, Aging & Public Health: From Epidemiology to Public Policy meeting. NIDCD/NIH, Bethesda, MD. June 2019.
 26. Lin, FR. Invited Speaker, Hearing, Aging, & Public Health: From Epidemiology to Public Policy, Knowles Hearing Center Symposium on Hearing and Cognition, Northwestern University. Evanston, IL. October 2019.
 27. Lin, FR. Invited Speaker, Over-the-Counter Hearing Aid Act – From Research to Public Policy in the U.S. American Speech, Language, and Hearing Association Annual Meeting, Orlando, FL. November 2019.
 28. Lin, FR. Invited Keynote Speaker, Hearing, Aging & Public Health: From Epidemiology to Public Policy, Macquarie University, Sydney, Australia. May 2019.
 29. Lin, FR. Invited Keynote Speaker, Hearing Loss, Aging & Dementia: From Epidemiology to the ACHIEVE Trial. Cognitive Hearing Science for Communication Conference, Linköping University, Linköping, Sweden. June 2019
 30. Lin, FR. Invited Keynote Speaker, Hearing Loss, Aging, & Public Health; Addressing Hearing Loss from the Public Health

Perspective. New Zealand Audiological Society Annual Conference, Queenstown, NZ. July 2019.

Advancing a Public Health Approach to Hearing Care. Hearing Loss Association of America Montgomery County, MD Meeting. Bethesda, MD. January 2020.

31. Lin, FR. Invited Keynote Speaker,. Hearing, Aging & Public Health: From Epidemiology to Public Policy, Triton Hearing Annual Conference, Queenstown, NZ. July 2019.
32. Lin, FR. Invited Keynote Speaker, Hearing, Aging, & Public Health, Hearing Forum Andermatt, Andermatt, Switzerland. September 2019.
33. Lin, FR. Invited Keynote Speaker, Hearing, Aging, & Public Health – From Epidemiology to Public Policy in the U.S., Pindrop Foundation Adult Cochlear Implant Forum, Auckland, NZ. November 2019.
34. Nieman CL & Ward BW. Advancing the Understanding & Care of Eustachian Tube Dysfunction. Johns Hopkins Department of Otolaryngology Head and Neck Surgery Grand Rounds. Baltimore, MD. May 2019.
35. Nieman CL. Advancing a Public Health Approach to Hearing Care. Hearing Loss Association of America of Baltimore Chapter Meeting. Baltimore, MD. May 2019.
36. Nieman CL. Hearing Loss & Healthy Aging: Advancing a Public Health Approach to Hearing Care. Hearing Loss Association of America District of Columbia Meeting. Washington, DC. June 2019.
37. Nieman CL. Hearing Loss & Healthy Aging: Advancing a Public Health Approach to Hearing Care. Suburban Hospital Wellness Seminar Series. Holiday Park Senior Center, Silver Spring, MD. October 2019.
38. Nieman CL. Hearing Loss & Dementia: What's the connection? What can we do about it? Alzheimer's Association Greater Baltimore Chapter's 15th Annual African American Forum on Memory Loss. Baltimore, MD. November 2019.
39. Nieman CL. Hearing Loss & Healthy Aging: Advancing a Public Health Approach to Hearing Care. Hearing Loss Association of America Montgomery County, MD Meeting. Bethesda, MD. January 2020.
40. Nieman CL. Miniseminar Speaker. Over-the-Counter Hearing Care: Current and Future Innovations to Help You and Your Patients. "Over-the-Counter Amplification: A Gerontological Perspective." AAO-HNSF Annual Meeting. New Orleans, LA. September 2019.
41. Nieman CL. Miniseminar Moderator. American Neurotology Society sponsored panel: Over-the-Counter Hearing Care: The Realities and Opportunities from Practice to Patients. AAO-HNSF Annual Meeting. New Orleans, LA. September 2019. September 2019.
42. Nieman CL. Miniseminar Speaker. Hearing Loss in Older Adults: A Public Health Imperative. "Age-Related Hearing Loss & Innovations in Community-Delivered Care." AAO-HNSF Annual Meeting. New Orleans, LA. September 2019.
43. Nieman CL. Invited Speaker. "A Gerontological Approach to Hearing Care: Lessons from Public Health". Wisconsin Speech-Language Pathology and Audiology Association Audiology Update. Elkhart Lake, WI. September 2019.
44. Nieman CL. Invited Speaker. "Innovations in Community-Delivered Hearing Care: Advancing a Public Health Approach". Wisconsin Speech-Language Pathology and Audiology Association Audiology Update. Elkhart Lake, WI. September 2019.
45. Nieman CL. Invited Panelist. Hearing & Vision Support in Dementia: An International Perspective. "Dementia & Hearing Care Disparities: Community-Based Perspectives". American Congress of Rehabilitation Medicine. Chicago, IL. November 2019.
46. Nieman CL. Invited speaker. New Investigator Award. "Hearing Loss, Cognition &

- Disparities in Care: Findings from ARIC-NCS". American Auditory Society Annual Scientific & Technology Meeting. Scottsdale, AZ. March 2020.
47. Nieman CL. Invited Panelist. Otologic Issues of the Geriatric Patient. "Community-Delivered Hearing Care: Advancing Hearing Health Equity for Older Adults" Politzer Society Meeting and World Congress of Otology. Warsaw, Poland. May 2019.
 48. Oh, ES. Caring for older adults with cognitive impairment. Presenter at Women's Health 101 at Mercy Hospital. Baltimore, MD. April 6, 2019.
 49. Oh, ES. What makes an older adult vulnerable to poor surgical outcome? Presenter at the 2019 Annual Scientific Meeting for the American Geriatrics Society. Portland, OR. May 2, 2019.
 50. Oh, ES. Tips to manage dementia, delirium, changing landscape of Alzheimer's disease diagnosis and treatment, prevent of dementia, hearing loss and dementia. Visiting professorship at Central Asahi General Hospital. Asahi, Japan. June 24-28, 2019.
 51. Oh, ES. Mild cognitive impairment. Visiting professorship at Dalian Municipal Central Hospital. Dalian, China. July 10, 2019.
 52. Oh, ES. Cognitive aging and dementia. Presenter at the Cochlear Center for Hearing & Hearing Health East Asia Fellows Program. Baltimore, MD. July 15, 2019.
 53. Oh, ES. Applying systematic review methodology: identifying research gaps, refining future trials. Presenter at the European Delirium Association at the Royal College of Physicians of Edinburgh. Edinburgh, UK. September 5, 2019.
 54. Oh, ES. Recommendations for a new perioperative cognitive impairment nomenclature. Panelist at the Alzheimer's Association International Society to Advance Alzheimer's Research and Treatment (ISTAART). Webinar. October 8, 2019.
 55. Oh, ES. Hearing loss and dementia. Keynote speaker at the Annual Conference of the Academy of Doctors of Audiology. National Harbor, MD. November 15, 2019.
 56. Oh, ES. Johns Hopkins screening of, In Our Right Mind: Alzheimer's and Other Dementias' Impact on Communities of Color. Panelist at the SNF Parkway Theatre. Baltimore, MD. December 5, 2019.
 57. Reed NS. Hearing Loss and the Health Care System, American Academy of Audiology, Columbus, OH., April 2019.
 58. Reed NS. Hearing and Health Care Satisfaction. American Auditory Society Annual Meeting. Scottsdale, AZ. February 2019.
 59. Reed NS. Hearing Loss and Health Care Satisfaction: Translating Epidemiologic Findings to Primary Intervention, AcademyHealth Annual Research Meeting. Washington, DC. June 2019.
 60. Reed NS. Hearing Loss as a Public Health Concern: Review of Studies from Johns Hopkins Cochlear Center. Invited Keynote Speaker, Cleveland Clinic Fellows and Northeastern Audiology Consortium Graduation Ceremony. Cleveland, OH. May 2019.
 61. Reed NS. Hearing Loss and Cognitive Decline, Public Health, and Patient-Provider Communication. Invited Keynote Speaker, North Carolina Audiology Association Conference. Raleigh, NC. October 2019.
 62. Reed NS. Sensory Loss and the Health Care System. Symposium Chair, Gerontological Society of America. Austin, TX. November 2019.
 63. Reed NS. MasterClass: Over-the-Counter Hearing Care. Symposium Chair, American Speech Language Hearing Academy. Orlando,

FL. November 2019

64. Reed NS, Willink A, Swenor B, Deardorff W, Whitson HE. Sensory Loss and the Health Care System. Podium Presentation at the 2019 Gerontological Society of America Annual Meeting. Austin, TX. November 13, 2019.
65. Vujicic M, Yarbrough C, Willink A, Neuman T. Gaps in Medicare: Non-Covered Services, Out-of-Pocket Limits, and Beneficiary Protection. Podium Presentation at 2019 Academy Health Annual Research Meeting. Washington, DC. June 2, 2019.
66. Willink A, Reed N, Lin FR. Over-the-Counter Hearing Aid Act: Implications for Policy. Invited Speaker for Master Class at 2019 American Speech and Hearing Association Convention. Orlando, FL. November 22, 2019.
67. Yeh C, Shuman S, Willink A, Lin F, Swenor B. How do the Mouth, Eyes and Ears Impact Social Isolation?, Invited speaker for Momentum Discussion at the 2019 Gerontological Society of America Annual Meeting. Austin, TX. November 13, 2019.

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Annual Report



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