Cochlear Center for Hearing and Public Health

2019

Annual Report
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.

Frank R. Lin, MD PhD

Director, Johns Hopkins Cochlear Center for Hearing and Public Health
Professor, Departments of Otolaryngology, Medicine, Mental Health, and Epidemiology
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.
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.
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).
Amber Willink’s research is published in Health Affairs, distributed via Reuters and featured in US News & World Report and other outlets.

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.

Inaugural Cochlear Center Research Day.

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.”
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.

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.

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.”

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.

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.
• 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.

FEBRUARY 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.
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).
Hearing aid benefits under Medicare, which 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.

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.
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.

Percentage of Individuals with Hearing Loss by Age & Severity

<table>
<thead>
<tr>
<th>Age Group</th>
<th>MILD</th>
<th>MODERATE+</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 - 19</td>
<td>0.2%</td>
<td></td>
</tr>
<tr>
<td>20 - 29</td>
<td>0.4%</td>
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<td>30 - 39</td>
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<td>60 - 69</td>
<td>26.8%</td>
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</tr>
<tr>
<td>70 - 79</td>
<td>54.6%</td>
<td></td>
</tr>
<tr>
<td>≥ 80</td>
<td>81.5%</td>
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</tbody>
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38.2 Million (14.3%) Americans aged 12 years or older have hearing loss

• 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.
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.
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.
• 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.

• 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.
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.
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.

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 Utoomprukporn, 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 Xiaol, 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
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.

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.

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.
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 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.
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. Alison 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.
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 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 is a medical student at the Johns Hopkins School of Medicine and graduated with an MPH degree from the Johns Hopkins 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 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. Osamafirst developed a background in hearing research when he completed a postdoctoral research fellowship at the Massachusetts Eye and Ear Infirmary Auditory Brainstem Implant.
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.

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
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).
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.

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.

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).
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.
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 Amezgua, 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

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

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

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

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
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
1 APRIL 2019
Amber Willink featured in Washington Post

11 AUGUST 2019
CC CBS Sunday clip is rerun
5 SEPTEMBER 2019
Jennifer Deal featured in consumer reports

11 SEPTEMBER 2019
ACHIEVE (Adele Goman, Frank Lin) featured in Forbes
Baltimore HEARS
(Carrie Nieman, Frank Lin) featured in NPR

Nicholas Reed quoted in WSJ

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
Scientists are working on experimental drugs and treatments that they hope will cure hearing loss

Cures for Hearing Loss May Be Found in New Drugs
Researchers are trying to counter the biological causes of hearing loss—rather than just treating the effects.
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
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/](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](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.
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, 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, 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, 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, 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, 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, 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, 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.
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.
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, 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, 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, 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, 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, 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, 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'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, 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 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, 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, 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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PUBLICATIONS AND PRESENTATIONS IN COCHLEAR CENTER MISSION AREAS


12. Armstrong, N.M., Espeland, M.A., Chen, J.C., Masaki, K., Wactawski-Wende, J., Li, W., Gass,


25. Deal JA, Power MC, Palta P, Alonso A,


34. Mamo SK, Reed NS, McNabney MK, Rund J, Oh E, Lin FR. Age-related hearing loss and the listening environment: A look at communication challenges in a group care setting for older adults. Annals of Long-Term Care (Accepted)


52. Wei E, Oh ES, Harun A, Ehrenburg M, Xue Q-L, Agrawal Y. Increased prevalence of vestibular loss in mild cognitive impairment


28. Kim AS, Oh E, Lin FR, & Nieman
CL. Association of hearing loss and neuropsychiatric symptoms among older adults with cognitive impairment. *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.*


42. **Powell DS**, **Kuo P**, Deal JA, Gross AL. The Relationship of APOE ε4 to the Relative Times and Hazards of Dementia. *In preparation.*


of Gerontology In preparation.


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.


14. Deal JA. Public Health Significance of Age-related Hearing Loss. Johns Hopkins Education and Research Center for Occupational Safety and Health 1st


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.


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.


39. Nieman CL. Hearing Loss & Healthy Aging:


57. Reed NS. Hearing Loss and the Health Care System, American Academy of Audiology, Columbus, OH., April 2019.


63. Reed NS. MasterClass: Over-the-Counter Hearing Care. Symposium Chair, American Speech Language Hearing Academy. Orlando,


