

# BLOOMBERG SCHOOL of PUBLIC HEALTH

### Cochlear Center for Hearing and Public Health

Student Handbook 2021-2022

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#### Welcome from the Director

Dear Cochlear Center Trainee,

Welcome to the Johns Hopkins Cochlear Center for Hearing and Public Health. We're glad you've joined us! You are part of the fourth cohort of trainees who have joined the Cochlear Center's program since it launched in 2018 as the only global research institution focused exclusively on issues related to hearing loss in older adults.

Being a Cochlear Center Trainee brings many opportunities for collaboration with researchers who 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.

This handbook will introduce you to our expectations and who to contact for support as you make progress on your research and educational goals during your time with us. In addition to didactic coursework and one-on-one mentorship from our expert faculty, we offer a Seminar Series that will give you access to other experts in the field of healthy aging, and Journal Club/Research-in-Progress meetings where you can present research to your peers and hear about the exciting work they're undertaking.

Your work and experience here at the Cochlear Center are central to our mission of recruiting and training a generation of researchers and clinicians who can make a real difference to how hearing loss is managed at the local, national, and global levels. We are excited about the upcoming school year and launching careers and research at the intersection of aging, hearing, and public health.

Welcome!

Frank R. Lin, M.D. Ph.D.

Professor of Otolaryngology | Medicine | Mental

Health & Epidemiology

Director | Cochlear Center for Hearing & Public Health

Johns Hopkins University

Jennifer A. Deal, Ph.D.

Assistant Professor | Epidemiology | Otolaryngology-Head

and Neck Surgery

Associate Director of Academic Training | Cochlear Center for

Hearing and Public Health

Johns Hopkins University

#### Commitment to Diversity and Inclusion

The Cochlear Center for Hearing and Public Health upholds the core values of JHU and JHSPH, each deeply committed to the inclusion and equity of all persons. We as faculty, students, and staff are all responsible to uphold a learning environment with the expectation of equality, embrace of diversity, and practice of civility.

#### JHU Roadmap on Diversity and Inclusion

The <u>Roadmap on Diversity and Inclusion</u> was drafted in 2016 to take an expansive approach on new programs to address the inequities faced by underrepresented and historically marginalized members of the community. Under its comprehensive framework, JHU created mechanisms for transparency and accountability, including regular faculty, staff, and graduate student composition reports. Diversity of undergraduate students and staff increased, as well as faculty and graduate or PhD students in several departments. JHU has instituted revised search practices, unconscious bias training, and a new discrimination and harassment policy, and supported mentoring and pipeline programs across the divisions. JHU created a 2020 Task Force to review the current <u>Roadmap on Diversity and Inclusion</u> and is currently reviewing feedback on recommendations and best practices for the institution. To find out how you can get involved, email <u>ODI@jhu.edu</u>.

#### JHSPH Office of Inclusion, Diversity, Anti-Racism, and Equity (IDARE)

In March 2021 JHSPH shared their first public-facing school-wide <u>Inclusion</u>, <u>Diversity</u>, <u>Anti-Racism</u>, <u>and Equity (IDARE) Action Plan</u> that expands upon and complements the existing <u>"Power of Public Health"</u> strategic plan released in September 2020. The Action Plan identifies strategies for creating an environment where we fuel our creativity and excellence by cultivating a more equitable, inclusive, anti-racist, and socially-just community<sup>2</sup>. Read the full message on development and ensured accountability from Dean MacKenzie here.

<sup>&</sup>lt;sup>1</sup> https://diversity.jhu.edu/roadmap-on-diversity-and-inclusion/

<sup>&</sup>lt;sup>2</sup> https://www.jhsph.edu/about/dean-mackenzie/news-headlines/sharing-our-idare-action-plan.html

For more information contact the IDARE Director for Student Recruitment and Engagement,

Mahnoor K. Ahmed (amahnoo1@jhu.edu) or visit the Office of Inclusion, Diversity, Anti-Racism,

and Equity website.

#### Department of Epidemiology and Epi IDEAS

The Cochlear Center, along with the Department of Epidemiology, strongly denounces individual and systematic racism in all forms. The Department's full statement on Racism as a Public Health Problem can be found here as well as a short video.

The Epidemiology Inclusion, Diversity, Equity & Science (Epi IDEAS) is an Epidemiology Department-specific work group that:

- Liaises between students, student leaders, and departmental leadership about challenges and opportunities for inclusion, diversity and equity
- Reviews and offer suggestions for curricular needs on interpreting scientific findings through a lens of diversity and inclusion
- Designs activities that encourage inclusion, diversity, and equity
- Promotes a safe learning environment within the Department

The Epi IDEAS group has Epidemiology student, faculty, and staff representation. For more information, contact the Director of Graduate Education, Laura Camarata (<a href="lcamarata@jhu.edu">lcamarata@jhu.edu</a>).

#### Disability Health Research Center

The <u>Johns Hopkins Disability Health Research Center</u> (DHRC) fosters diverse and cross-disciplinary collaborations focused on addressing disability inequities. To achieve this goal, the Center's aims to: (1) develop evidence to address disability inequities; (2) create approaches to reduce disability inequities; (2) establish policies to reduce disability inequities; and (3) train the next generation of disability health leaders.

For more information, contact disabilityhealth@jhu.edu.

#### Returning to Campus

The Cochlear Center for Hearing and Public Health follows the directives of Johns Hopkins
University and the Bloomberg School of Public Health for returning to in-person/hybrid work
and learning. More can be found from Dean MacKenzie and JHSPH <a href="here.">here.</a>

Our Faculty is committed to excellence in education and can ensure the highest level of training regardless of mode administered. When virtual or in-person please do not hesitate to contact who you need, the door is always open. As things change, we will update you as timely as possible, although if you have questions please ask, we are here to support you.

#### About the Johns Hopkins Cochlear Center for Hearing and Public Health

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 Centermission 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.

#### **Hearing Matters**

Hearing loss isn't just an inconvenience that comes with getting older—it's a critical public health issue that is now the focus of national and international initiatives coming from the National Academies, the White House, and the World Health Organization. This global attention to hearing loss is the result of our growing understanding of the impact that hearing loss (present in nearly two-thirds of older adults) can have on the risk of dementia, cognitive decline, greater health care costs, and other adverse outcomes. Implementing scalable strategies to treat hearing loss, which are vastly underutilized around the world, could help reduce the risk of these outcomes and optimize the health of older adults.

#### Leading the Way in Public Health and Hearing Loss

The Johns Hopkins 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.

#### What We Do at the Cochlear Center

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.

#### Mission

Ensuring that older adults can effectively hear and engage with the people and world around them is key to optimizing health and wellbeing. 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 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 significant 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.

## Getting Involved in the Center: Broader Initiatives at the Cochlear Center

#### **SENSE Network**

The SENSE Network, founded by Cochlear Center faculty Bonnie Swenor, Jennifer Deal, and Frank Lin; Joshua Ehrlich at the University of Michigan; and Jay Pinto at University of Chicago, is a consortium of researchers that meets monthly to collaborate on research examining the role of sensory functioning - vision, hearing, olfaction, touch, and taste - on health and aging.

As a Cochlear Center trainee, you are welcome and encouraged to attend monthly meetings. Meetings are held the fourth Tuesday of the month, times alternating between 11am and 4pm (ET) to best accommodate international participation. Information about registering for these monthly meetings will be emailed to you and can be found <a href="here">here</a>. The network is currently on a summer hiatus, meetings will reconvene September 2021.

Follow the SENSE Network on Twitter @SenseNetworkRes

#### "Included: The Disability Equity Podcast"

Cochlear Center Core faculty members Bonnie Swenor and Nicholas Reed lead <u>"Included: The Disability Equity Podcast"</u> to share stories, data, and news

that challenge stereotypes and expand views of disability. Weekly episodes of "Included" look at disability issues, like voting and healthcare, from personal, advocacy, and research perspectives. A sampling of topics covered on "Included" include: disability in higher education, in medicine, and in policy; disability identity; the economic cost of ableism and racism; and bioethics and disability. You can find "Included: The Disability Equity Podcast" on Amazon, Apple, and Spotify, or wherever you download your favorite podcasts.

#### "Know Your PTA" Public Health Campaign

Started in 2020, the Cochlear Center's "Know Your PTA" public health campaign aims to establish the four-frequency pure tone average, or PTA, as a universal, neutral metric for hearing, and for clinicians and consumers to understand their hearing just as they would their vision, blood pressure, weight, cholesterol, and other health metrics. This public health campaign is led by Center Director Frank Lin and Communication Specialist Molly Sheehan.

## Getting to know the Center: Cochlear Center Analytic Core and Audiology Core

#### Analytic Core

The Cochlear Center Analytic Core, led by Joshua Betz, 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 in thesis and capstone projects. The analytic core also provides a didactic clinic, where trainees can bring questions about various aspects of quantitative research.

More on Analytic Clinic can be found in the Cochlear Center Student Support and Resources section of this handbook.

#### **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. The Audiology Core also maintains a database of measures on over-the-counter hearing devices and consults with Cochlear Center trainees and faculty on understanding various hearing measures.

#### Our Team

#### **Core Faculty**



Frank R. Lin, MD, PhD Director, Cochlear Center flin1@jhu.edu

Research Interests: Hearing loss, Aging, Cognition/Dementia, Brain Aging, Epidemiology, Policy



Bonnielin Swenor, PhD, MPH Associate Professor bswenor@jhmi.edu

Research Interests: Ophthalmology, Visual impairment, Low Vision, Disability, Aging, Epidemiology



Amber Willink, PhD Associate Professor awillin@jhu.edu

Research Interests: Long-term Care, Older Adults, Medicare, Health Policy, Health Financing



Carrie Nieman, MD, MPH Assistant Professor cnieman1@jhmi.edu

Research Interests: Age-related hearing loss, Hearing health disparities, Hearing healthcare disparities, Aging, Minority health, Intervention



Jennifer A. Deal, PhD Assistant Professor jdeal1@jhu.edu

Research Interests: Aging, Cognitive again, Cognition, Cognitive decline, Dementia, Epidemiology, Hearing impairment, Retinal



Joshua Betz, MS Biostatistician jbetz2@jhmi.edu

Research Interests: Statistical Programming, data analysis, and data visualization: R, SAS (STAT, IML, MACRO), Stan, and Stata; Design, Conduct, and Analysis of Clinical Trials; Statistical Computing; Reproducible Research; Statistics and the Philosophy of Science; Areas of interest: Neurology, Audiology, Otolaryngology, Infectious Disease, Radiology



Nicholas Reed, AuD Assistant Professor nreed@jhmi.edu

Research Interests: Hearing Loss, Over-the-Counter Hearing Aids, Hearing Care



Esther Oh, PhD Associate Professor eohg@jhmi.edu

Research Interests: Amyloid-beta, Dementia, Alzheimer's disease, Monoclonal Antibodies

#### **Associate Faculty**



Moyses Szklo, MD, MPH Professor



Josef Coresh, MD, PhD Professor



**Luigi Ferrucci, MD, PhD** Scientific Director



Margaret Korczak, PhD Professor



**Marilyn Albert, PhD** Professor



Mike Weikert, MFA Director



**Sarah Szanton, PhD** Professor



**Susan Resnick, PhD** Senior Investigator



Christine Mitchell, ScM Research Associate



**Adele Goman, PhD** Research Associate

#### **Cochlear Center Staff**



**Mindy Dmuchowski** Academic Program Coordinator



**Kening Jiang**Biostatistician



**Emmanuel Garcia Morales, PhD** Biostatistician



**Clarice Myers, AuD** Audiology Core



**Laura Sherry, AuD** Research Audiologist



Molly Sheehan Communications Specialist



**Shannon Smitherman** Senior Academic Program Coordinator



**Tara Thallmayer, MPH** Research Data Manager



**Jami Trumbo, MSPH** Center Administrator

#### 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

Epidemiologic research since 2010 led by Center faculty has established the contribution of hearing loss to the risk of cognitive decline and dementia in older adults. Current work of Center Faculty is focused on understanding the pathways by which hearing may lead to these outcomes, including its effect on the aging brain, how to best measure cognitive function in older adults with hearing loss, and the impact of hearing loss among those who already have dementia. Additionally, the ongoing Aging and Cognitive Health Evaluation in Elders (ACHIEVE) study is a large-scale randomized controlled trial to determine if treating hearing loss in older adults reduces the risk of cognitive decline and dementia.

More about ACHIEVE can be found in the Ongoing Studies section of this handbook.

#### Health Economic Outcomes

Hearing loss has both direct and indirect economic implications for individuals and society. Current work of Center faculty is focuses on understanding health resource utilization and costs associated with hearing loss, models of coverage for hearing care, and economic benefits and consequences of various methods to address hearing loss (e.g., private purchase, Medicare Advantage). Importantly, this work contributes directly to the Center's policy work with policy

makers to design a Medicare 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. The current congress is again working towards a Medicare hearing care benefit and Center faculty are directly involved.

#### Epidemiology of Hearing Loss

Clinically meaningful hearing loss is highly prevalent, affecting nearly two thirds of adults over the age of seventy. Epidemiologic research led by members of the Center highlights the substantial impact of hearing loss in society, including work describing the prevalence of hearing loss, and how the number of people with a clinically meaningful hearing loss is expected to rise in the coming decades, given the aging population. Ongoing work is investigating the vascular contributions (e.g., hypertension, diabetes) to hearing loss in older adults. In addition to studying the impact of hearing loss on dementia and cognitive decline (a core research area), Center faculty also study the impact that hearing loss has on other functional domains, including physical and social function, using large epidemiologic datasets.

#### Hearing Loss and Health Care

Despite the impact of hearing loss on communication, hearing is rarely addressed in the context of patient-provider communication, which is important for patient satisfaction, treatment adherence and other health outcomes. Center faculty are working to understand the impact of hearing loss on key health care utilization outcomes and lead 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 programs include universal screening of adults admitted to the hospital and the provision of amplification and/or use of communication strategies among hospital providers.

More about ENHANCE can be found in the Ongoing Studies section of this handbook.

#### 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 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 or cognitive status.

More about HEARS can be found in the Ongoing Studies section of this handbook.

#### 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 a will be available to the public as over-the-counter products. Center faculty are currently focused on investigating over-the-counter technologies and how to integrate them into the future of hearing care. Topics include comparative effectiveness of technologies, the ability of consumers to adjust devices, and approaches to servicing over-the-counter technology in audiology clinics.

Ongoing Studies and Collaborations led by Core Faculty
ACHIEVE

Multi-Principal Investigators: Frank Lin and Josef Coresh

The Aging and Cognitive Health Evaluation in Elders (ACHIEVE) study is an ongoing randomized controlled trial investigating two different programs that may promote healthy aging and cognitive health in older adults. These programs include a successful aging education program and a hearing program. Study participants will be randomly selected to receive either one of these programs.

A total of 850 participants will be enrolled across four sites in the U.S. (Washington County, MD, Forsyth County, NC, Minneapolis, MN, Jackson, MS). Participants will participate in the study for three years and will complete tests and questionnaires to assess hearing, cognition, social, and physical functioning. Learn more about the ACHIEVE study.

#### **ENHANCE**

#### Principal Investigator: Nicholas Reed, Co-Investigators: Frank Lin and Esther Oh

Patient-provider communication is key to optimal health care outcomes. Hearing loss is a significant communication barrier; however, it is regularly ignored in the patient-provider communication literature. The Engaging Healthcare to Address Communication Environments (ENHANCE) program aims to overcome hearing loss' impact on communication via simple strategies to identify and intervene on hearing loss. Importantly, these same communication strategies may improve communication for all patients. Research focuses on implementation science and quality-improvement trials to refine the program and assess its impact.

#### **HFARS**

#### Multi-Principal Investigators: Frank Lin and Carrie Nieman

The HEARS program is a first-in-kind affordable, accessible, and community-delivered hearing care intervention uniquely designed for older adults with hearing loss. The program is delivered by community health workers and incorporates education on age-related hearing loss, basic principles of aural rehabilitation and the provision and step-by-step fitting of over-the-counter hearing technology. HEARS is theory-driven and draws upon best practices from audiology, otology, geriatrics and gerontology, as well as a human factor approach to design. The HEARS randomized trial is currently recruiting participants living in subsidized senior housing buildings

affiliated with Weinberg Senior Living and Catholic Charities in Baltimore to test the efficacy of the HEARS intervention. Learn more about the HEARS program.

Hearing in Low-Vision Rehab Clinic

Principal Investigator: Nicholas Reed, Co-Investigators: Jennifer Deal, Ashley Deemer, Bonnielin Swenor

Low-vision rehab programs focus on rehabilitative methods and occupational therapist training to overcome the limitation of low-vision. Often, these methods include sensory substitution techniques whereby persons with low-vision are trained to rely on the auditory system to interact with the world around them. However, little research on the incidence of dual-sensory impairment in this population or addressing both vision and hearing has been conducted. Our research aims to explore how we can address hearing loss to optimize low-vision rehab outcomes.

#### **SENSE MATTERS**

#### Multi-Principal Investigators: Bonnielin Swenor and Jennifer Deal

The SENSE Matters study aims to understand across-study variation in methods used to collect and analyze cognitive data in older adults with hearing or vision impairment. Eligible, longitudinal cohort studies will be systematically identified from a literature review and methods of collecting and analyzing cognitive data among older adults will be compared using responses to surveys sent to each cohort study. Ultimately, this study seeks to pioneer the development of standardized methods to collect cognitive data in older adults with sensory impairment. The SENSE Matters study is funded by National Institute on Aging grant R21AG060243. Learn more about SENSE Matters.

#### Global Collaborations<sup>3</sup>

Researchers at the Cochlear Center are actively engaged in collaborations with other epidemiologic researchers to gather hearing data in several ongoing studies. These

<sup>&</sup>lt;sup>3</sup> https://sites.cscc.unc.edu/aric/desc\_pub http://www.alzresearch.org/biocard.cfm

epidemiologic data will allow Center researchers to study critical questions pertaining to how hearing interacts with other health, lifestyle, and environmental factors to affect the functioning of older adults and other health outcomes.

Protocols for how hearing data can be efficiently collected are available <a href="here">here</a> to use. The Center also provides small grants and expertise to help researchers with implementing hearing data collection in new or ongoing studies

Studies where Center researchers are leading hearing data collection efforts include:

#### ATHEROSCLEROSIS RISK IN COMMUNITIES STUDY (ARIC)

The ARIC study is an ongoing, population-based prospective study of 15,792 men and women aged 45-64 years at baseline (1987-1989) from four U.S. communities. ARIC was designed to investigate the etiology and natural history of atherosclerosis, the etiology of clinical atherosclerotic diseases, and variation in cardiovascular risk factors, medical care and disease by race, gender, location, and date. Hearing data, including objective audiometry, speech in noise, comprehensive subjective measures and history of noise exposure, and history of hearing device use were collected in a sub-sample of participants between 2011 and 2013 and in all participants between 2016 and 2017.

#### BIOMARKERS OF COGNITIVE DECLINE AMONG NORMAL INDIVIDUALS (BIOCARD)

The overarching goal of the BIOCARD Study is to identify biomarkers associated with progression from normal cognitive status to cognitive impairment or dementia, with a particular focus on Alzheimer's Disease. The domains of information collected as part of the study in the past include cognitive testing, magnetic resonance imaging (MRI), cerebrospinal fluid (CSF), amyloid imaging (using PET-PiB) and blood specimens. In collaboration with core Center faculty, BIOCARD began collecting hearing data in 2016.

#### BALTIMORE EPIDEMIOLOGIC CATCHMENT AREA (ECA) STUDY (BALTIMORE ECA)

The Baltimore ECA study began in 1981 collecting depressive and anxiety information in a representative sample of East Baltimore residents. Subsequent waves of data collection added sleep, cognitive, functional and biologic sample measures to the study. In 2017, Center researchers collaborated with ECA investigators to add hearing data collection including subjective hearing impairment, noise exposure history, hearing device use history and objective pure-tone audiometry from 250-8000Hz to the current wave of data collection.

#### BALTIMORE LONGITUDINAL STUDY OF AGING (BLSA)

The BLSA has been ongoing since 1958 and is the longest-running study of aging in the U.S. The study is based at the National Institute on Aging, and participants are followed over the course of their lifetime with regular study visits at the NIA where extensive data on health and health measures are gathered. Hearing has been routinely measured in all BLSA participants since 2012 and was also previously gathered prior to 1994.

#### NATIONAL HEALTH AND AGING TRENDS STUDY (NHATS)

Begun in 2011, the National Health and Aging Trends Study (NHATS) fosters research to guide efforts to reduce disability, maximize health and independent functioning, and enhance quality of life at older ages. As the US population ages, NHATS will provide the basis for understanding trends in late-life functioning, how these differ for various population subgroups, and the economic and social consequences of aging and disability for individuals, families, and society.

NHATS gathers information on a nationally representative sample of Medicare beneficiaries ages 65 and older. The sample is refreshed periodically so that researchers may study national-level disability trends as well as individual trajectories. Annual, in-person interviews collect detailed information on the disablement process and its consequences.

#### LASI-DAD

Diagnostic Assessment of Dementia for the Longitudinal Aging Study in India (LASI-DAD) is an in-depth study of late-life cognition and dementia, drawing a subsample of the Longitudinal Aging Study in India (LASI). LASI is a nationally representative survey of the health, economic, and social well-being of the Indian population aged 45 and older. Its large sample of 72,000+

adults represents not only the country, but also each state. We recruited a sub-sample of 4,000+ LASI respondents aged 60 or older from 18 states and union territories across the country, administered in-depth cognitive tests, and interviewed a family member or friend who study participants nominated as informants. We carefully selected a set of cognitive tests to enable international comparisons with other dementia studies around the world, including the U.S. HRS-HCAP (Harmonized Cognitive Assessment Protocol) and prior studies in India. LASI-DAD also collected rich data on risk factors through geriatric assessments (e.g., anthropometry, blood pressure measurements, hearing tests, venous blood assays), as well as nutritional and environmental assessments (exposure to air pollution and neighborhood conditions). For a subsample, brain imaging data are collected using the Alzheimer's Disease Neuroimaging Initiative (ADNI)-3 protocol. We are currently in the process of whole genome sequencing to better define the mutational spectrum underlying dementia risk.

#### Cochlear Center Student Support and Resources

Analytic Clinic: The Cochlear Center Analytic Core consists of professional data managers and analysts who provide education, consulting, and services to Center faculty and trainees. As part of their mission, the Analytic Core provides support to the CCHPH trainees through Analytic Clinic sessions. These sessions are held every other week and supplement the weekly Biostatistics Student Clinic in the Bloomberg School of Public Health: topics could include data management practices, appropriate use and interpretation of statistical methods, scientific programming, and generation of tables and figures. To request a consultation, post the following information to the Analytic Clinic channel on Microsoft Teams prior to the day of clinic:

- Type of analysis (e.g. cross-sectional, time-to-event, longitudinal/multilevel)
- Study data being used: (e.g. ARIC, BLSA, Health ABC, NHANES, NHATS, etc.)
- Software package being used: (e.g. Stata, SAS, R)
- A brief description of question and the goal of the consultation

By posting requests to the Teams channel, this allows the Analytic Core to better prepare material and assist students with their research. Additionally, it allows other students to see when material relevant to them is being discussed. For this reason, please try and post your requests well in advance, and notify us if assistance is no longer needed by the day of clinic.

<u>Data Management:</u> Data access to commonly used data sets with which the Center has established collaborations (e.g. ARIC) can be requested by students through their advisor using a data request form. Prior to requesting data management support, students must complete all human subjects research trainings, be added to any required IRB protocols, and obtain research project approvals where necessary. The request form will include the studies which are to be utilized, which years of data are being requested, variables and derivations required, and any reformatting or processing necessary. Please familiarize yourself with the dataset by reading the study documentation, and have your advisor review your request prior to submitting it.

The Center's Analytic Core is led by Joshua Betz, MS (jbetz2@jhmi.edu)

**Research Papers:** Communication Specialist, Molly Sheehan, is available to help trainees with edits to research papers and other materials they may be generating, with permission of their research Advisor.

After the trainee's mentor approves science content of their research paper, Molly can copyedit their piece for consistency, readability, confirm points are carried through, grammar, punctuation, and spelling.

<u>Media Presentations:</u> Communication Specialist, Molly Sheehan, is also available to help trainees prepare to talk about their research to media or in presentation. If you are interested reach out to her for help distilling your research to the main talking points you want to deliver, and for help practicing getting those key points across.

For research paper and media presentation support contact Communications Specialist, Molly Sheehan (msheeh19@jhmi.edu)

#### Training Requirements and Expectations

Cochlear Center supported trainees who are paired with a faculty mentor are <u>required</u> to attend/complete:

- Cochlear Center Journal Clubs/Research-in-Progress meetings (monthly)
- Seminar series events (monthly)
- Seminar series Trainee Q&A with Speaker (after monthly seminar)
- Attend and present at Cochlear Center Research Day (April 2022)
- Reoccurring advising meetings (timing determined by the Advisor and Advisee)
- Didactic coursework

While events are open to all those who train or work with the Cochlear Center, <u>attendance is</u> <u>mandatory for Center-supported trainees</u>. If you cannot attend a seminar or journal club please notify Shannon Smitherman (<u>ssmithe1@jhu.edu</u>) and Mindy Dmuchowski (<u>epitts4@jhmi.edu</u>) in advance.

#### Cochlear Center Journal Clubs/Research-In-Progress Meetings

Journal Clubs/Research-in-Progress meetings are a relatively informal way for Center trainees to have an opportunity to present current projects, get feedback, and engage with Center faculty. Meetings may also be led in the form of discussion of a peer-reviewed published article. Center-supported trainees will be asked to lead one meeting during the academic year. Please discuss with your mentor for support on what to present. Journal clubs/Research-in-Progress meetings are open to all Johns Hopkins students and faculty, and Cochlear Center trainees.

- Cochlear Center Journal Club and Research-in-Progress Coordinators: Alison Huang (ahuang31@jhmi.edu) and Jon Suen (suen@jhmi.edu)
- Administrative Contact: Mindy Dmuchowski (epitts4@jhmi.edu)

Cochlear Center Journal Clubs/ RIP meetings will be held the second Monday of every month from 12pm-1pm ET.

#### Cochlear Center Seminar Series

The Cochlear Center hosts a monthly seminar held on the fourth Monday of every month from 12pm-1pm ET. Seminars speakers highlight 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.

As a Cochlear Center trainee, you will have the opportunity to meet with the speaker in a small group setting after their presentation. This is a time for additional Q&A, as well as networking.

Seminar Speaker Q&A with Trainees is mandatory for Center-supported trainees.

#### Cochlear Center Research Day

Cochlear Center Research Day gives Cochlear Center faculty, staff, and trainees an opportunity to showcase their current work in the form of presentations and/or posters to present projects and papers they are working on or publishing.

More information to come on 2022 Cochlear Center Research Day dates and format. <u>Center</u> <u>trainees are expected to attend and participate in daily activities including but not limited to poster presentations of current research.</u>

For more information on previous Cochlear Center Research Events visit our website.

Optional: Epidemiology of Aging Journal Clubs

Epidemiology of Aging Journal Clubs, run by students and faculty in the Department of Epidemiology, will be held the third Monday of every month from 12:15pm-1:20pm ET. Epidemiology of Aging Journal Club meetings are optional as part of the Cochlear Center training program. Trainees are welcome to attend if topic interests them or aligns with their chosen concentration of study.

#### Schedule of Events

\*Epidemiology of Aging Journal Clubs are <u>not</u> mandatory for Cochlear Center-supported trainees

First Term: August 20 – October 25

9/13/21	Cochlear Center Journal Club/Research-in-Progress
9/20/21	Epidemiology of Aging Journal Club
9/27/21	Cochlear Center Seminar
10/11/21	Cochlear Center Journal Club/Research-in-Progress
10/18/21	Epidemiology of Aging Journal Club
10/25/21	Cochlear Center Seminar

**Second Term: October 27 – December 23** 

11/8/21	Cochlear Center Journal Club/Research-in-Progress
11/15/21	Epidemiology of Aging Journal Club
11/29/21	Cochlear Center Seminar
12/13/21	Cochlear Center Journal Club/Research-in-Progress
12/20/21	Epidemiology of Aging Journal Club

Third Term: January 24 – March 18		
1/24/22	Cochlear Center Seminar	
2/14/22	Cochlear Center Journal Club/Research-in-Progress	
2/21/22	Epidemiology of Aging Journal Club	
2/28/22	Cochlear Center Seminar	
3/14/22	Cochlear Center Journal Club/Research-in-Progress	
3/21/11	Epidemiology of Aging Journal Club	
3/28/22	Cochlear Center Seminar	
Fourth Term: March 28 – May 20		
4/11/22	Cochlear Center Journal Club/Research-in-Progress	
4/18/22	Epidemiology of Aging Journal Club	
4/25/22	Cochlear Center Research Day	
5/9/22	Cochlear Center Journal Club/Research-in-Progress	
5/16/22	Epidemiology of Aging Journal Club	

#### Research Advising

#### Advisor /Advisee Manual<sup>4</sup>

#### \*Revised from Epi of Aging Program

Each student at the Cochlear Center is assigned an Advisor. Advisor(s) have the responsibility of serving as a guide and mentor. Mentorship is meant to be complimentary to advisee's home School/Department, and not contradict recommendations that have been to the trainee. This manual is intended to guide the student and the faculty member(s) in making the Advisor/advisee relationship as successful as possible.

Advisors should provide oversight of the student's academic progress by:

- Assisting in the selection of courses
- Ensuring the student is meeting degree milestones in a timely manner
- Being available for regular meetings with the student
- Assessing and developing the student's interests and abilities
- Monitoring student progress in academic coursework through periodic examination of transcripts
- Monitoring student progress in field work
- Writing letters of reference
- Assisting with grant preparation (doctoral students)
- Referring students to the appropriate individuals or offices that provide academic support and/or resources

Advisors should providing leadership in matters of academic integrity:

 Being knowledgeable about ethical issues that pertain to academics, research, and practice

<sup>&</sup>lt;sup>4</sup> https://www.jhsph.edu/departments/epidemiology/ pdf/Student%20Handbook%202019-2020.pdf https://www.jhsph.edu/departments/epidemiology/student-handbook/

- Helping students interpret and understand institutional policies and procedures
   regarding the responsible conduct of research
- Discouraging students from circumventing institutional policies and procedures, and when confronted with such issues, directing students to appropriate institutional resources or contacts, avoiding actual or appearance of conflicts of interest
- Respecting confidentiality of students
- Encouraging active participation in the greater community (department, school, university, local, state, national, international)

Students may expect the following from their Advisor(s):

- Advisors' approval for course registrations, course changes, and pass/fail agreements,
   and on all reasonable petitions to the Admissions and Credentials Committee
- At least one meeting per term with the Advisors
- Oversight of the student's overall academic program and a sensitivity to any academic difficulties
- Knowledge of and interest in the student's career objectives
- Review of required and recommended courses for the track
- Assistance in designing a plan for the fulfillment of required courses and assistance with planning the course schedule for the year

Advising students is an integral part of faculty members' responsibilities. Thus, students should not feel that they are imposing by asking for advice. Faculty members expect to be available to students, although the students should be respectful of the faculty's time by scheduling and respecting appointments. The responsibility for arranging meetings lies with the student. Students should not expect Advisors to seek them out for needed appointments.

The student remains obligated to schedule a meeting in order to assure that the Advisor has reviewed the student's schedule and to plan any special studies projects or thesis research as needed with the Advisor before the registration period deadline.

Rights and responsibilities of the Advisor(s):

- To assist in determining the advisee's educational goals and needs upon starting the program
- To serve as an educational and/or professional mentor for the student
- To maintain awareness of and sensitivity to the level of compatibility between the student advisee and the Advisors in terms of academic, professional, and personal interests
- To facilitate a change of Advisor or program, if deemed appropriate for the student
- To monitor the advisee's overall academic program and be sensitive to signs of academic difficulty
- To provide guidance throughout the academic program
- To be sensitive to cultural, medical, legal, housing, visa, language, financial, or other personal problems experienced by the advisee and to be aware, sensitive, understanding, and supportive

Advisors have the right to expect be treated with respect and courtesy, to be notified in writing when a meeting must be cancelled or rescheduled, to be consulted when students have questions or concerns about the research focus or progress, and to serve as team leader on the research team

Rights and responsibilities of the advisee:

- To arrange to meet with the Advisor at least once each term, and observe registration and administrative deadlines
- To identify and develop professional career goals and interests
- To understand administrative policies and procedures and be familiar with the Student Handbook
- To maintain the academic checklist and review it at meetings with the Advisors

Advisees have the right to expect be treated with respect and courtesy, to be notified in writing when a meeting must be cancelled or rescheduled, to be notified when Advisors have questions or concerns about the research focus or progress, and to be granted the role of team member on the research team

#### Didactic Coursework

#### 340.699.01 Epidemiology of Sensory Loss in Aging

**Description:** Introduces 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. Reviews current epidemiologic knowledge of sensory function and aging-related outcomes in older adults, including the epidemiology and consequences of dual sensory loss. Presents areas for future research and opportunities for intervention and prevention.

**Learning Objectives:** Upon successfully completing this course, students will be able to:

- 1. Evaluate potential explanations for epidemiologic associations between sensory impairments and gerontologic outcomes
- 2. Describe key epidemiologic and public health questions pertaining to sensory impairments and gerontology that remain unanswered and unresolved
- 3. Identify and compare commonly used measures of sensory function and the strengths and limitations of these measures in epidemiologic studies in older adults

\*\*\*All funded trainees are required to take 340.699.01 Epidemiology of Sensory Loss in Aging

**Description:** Hearing loss impacts two-thirds of adults over the age of 70 years old and is

#### 340.690.11 Epidemiologic Approaches to Hearing Loss and Public Health

for future research and opportunities for intervention and prevention

associated with important gerontological outcomes including dementia and falls. Hearing aids represent the most common approach to addressing hearing loss. However, less than twenty percent of persons with hearing loss own and use hearing aids. This course will provide the foundational knowledge to investigate and address hearing loss as a public health concern. Introduces biologic, epidemiologic and clinical aspects of aging-related declines in the auditory system. Demonstrates methods of assessment of auditory function for epidemiologic studies. Reviews current epidemiologic knowledge of sensory function and aging-related outcomes in older adults, including the epidemiology and consequences of dual sensory loss. Presents areas

**Learning Objectives:** Upon successfully completing this course, students will be able to:

- Explain the basic anatomical and physiologic aspects of the auditory system and biologic mechanism of hearing loss
- 2. Evaluate potential explanations for epidemiologic associations between hearing loss and gerontologic outcomes
- 3. Describe key epidemiologic and public health questions pertaining to hearing loss and gerontology that remain unanswered and unresolved
- 4. Identify and compare commonly used measures of hearing loss and the strengths and limitations of these measures in epidemiologic studies in older adults
- 5. Apply basic epidemiologic methodology to answer key public health questions addressing and understanding hearing loss among older adults

This introductory course is designed for:

- Students currently enrolled in or with a completed graduate or clinical degree
- Students with an interest in hearing loss and public health
- Students wishing to understand and interpret public health research related to hearing loss and aging

Further information about the course can be found on the JHSPH Graduate Summer Institute of Epidemiology and Biostatistics website. CEU's available through the American Academy of Audiology (non-credit tuition option). All eligible applicants accepted.

\*\*\*340.690.11 Epidemiologic Approaches to Hearing Loss and Public Health is a subset of 340.699.01 Epidemiology of Sensory Loss in Aging. Center-supported students should take 340.699.11 (the parent course) and cannot take both courses.

#### 340.710.01 Seminar in Disability Health Research

**Description:** What is disability and how does it impact the health of persons with disability? What barriers do persons with disability face that may impact health and health research? What areas must be addressed to improve the health and lives of persons with disability?

Examines disability and disability health within the context of public health research and policy to advance equity. Discusses the origins and current landscape of disability health research from the perspectives of key stakeholders, inclusive of researchers, advocates, policy makers, and persons with disability.

Learning Objectives: Upon successfully completing this course, students will be able to:

- Define disability and contrast varying disability models, including medical and social models
- 2. Describe health inequities in the disability community
- 3. Describe and compare historical and current policies that impact persons with disability
- 4. Identify barriers to inclusion of persons with disability in research
- 5. Investigate high priority areas in disability research, including data to address inequities

\*\*\*340.710.01 Seminar in Disability Health Research is an <u>optional</u> course for Cochlear Center Trainees

#### Program Scholarships and Funding

The Cochlear Center provides possible scholarships and stipends for JHSPH students enrolled in degree-bearing programs (MHS, MPH, and PhD) conducting research in areas consistent with the Center's mission. Receipt of Cochlear Center scholarship funding is contingent on being accepted into the chosen degree program. The Cochlear Center has no influence on the application and review process for candidates applying to these degree programs.

Scholarships for doctoral students can cover both tuition and/or living stipends.

The Miriam Hardy Hearing Loss Scholarship Johns Hopkins Cochlear Center for Hearing and Public Health supports full-time and part-time MPH students. The scholarship aims to enable individuals to launch careers studying the impact of hearing loss on older adults and public health; creating and testing hearing interventions; and influencing national and global policy on hearing care and hearing technology. Awarded scholarships will cover partial tuition, of at least \$20,000 per year, for the Johns Hopkins Bloomberg School of Public Health MPH degree.

Number of scholarships and amount of award determined annually based on number of applicants and available funds.

MHS and ScM students in Epidemiology are eligible for the Cochlear Center Epidemiology Scholarship for Sensory Loss in Aging. This scholarship supports a master's or doctoral student in the Epidemiology department with preference given to those who are preparing for a career in research, public health policy, or advocacy around sensory loss in aging. Two Master's or doctoral student applicants will be chosen annually to receive a \$2,500 award each.

The Cochlear Center also provides stipends for living expenses for non-JHSPH students wishing to spend anywhere from 1 to 12 months conducting research with Center faculty. These students generally include medical students who would like to conduct a summer research project (e.g. JHSOM Scholarly Concentration summer students, visiting doctoral students from other institutions) or medical students who would like to take a year off during medical school to conduct research.

#### Information and Resources for Postdoctoral Trainees

#### Johns Hopkins Postdoctoral Association

JHPDA Serves fellows on the East Baltimore Medical Campus, which includes the School of Medicine, School of Nursing, Bloomberg School of Public Health and Berman Institute of Bioethics.

#### Committee for the School of Public Health

The goal of the Committee is to advocate for the specific needs of postdocs at the School of Public Health and create better links between the SPH and the wider JHPDA. We aim to work together with other Committees of the JHPDA to help support postdocs at the SPH through a range of activities.

#### Johns Hopkins School of Public Health Postdoctoral Programs

• JHSPH Guidebook for Postdoctoral Fellows

Johns Hopkins School of Medicine Office of Postdoctoral Affairs

#### Additional Training Opportunities at the Cochlear Center

Current Students (non-JHPSH)

Summer CHAMP Program

The Summer Cochlear Center Hearing & Aging Mentoring Summer Program (Summer CHAMP) is an intensive multidisciplinary summer program designed to provide participants a foundation in public health methodologies and age-related hearing loss. The program is open to predoctoral audiology, medical, or public health doctoral students and is intended to encourage future clinicians and researchers to consider a career focus on hearing loss and public health.

Visiting Student Fellowship

This research <u>fellowship</u> is for non-JHSPH students wishing to spend anywhere from 1 to 12 months conducting research with Center faculty. These students generally include medical students who would like to conduct a summer research project (JHSOM Scholarly Concentration summer students), visiting doctoral students from other institutions, or medical students who would like to take a year off during medical school to conduct research. The Cochlear Center provides stipends for living expenses for students awarded a Visiting Student Fellowship.

#### **Current Clinicians and Researchers**

Johns Hopkins Cochlear Center for Hearing and Public Health – Fellows Program in Aging, Hearing and Public Health

The purpose of this <u>on-demand training program</u> is to provide an overview of public health concepts, methods, and strategies to assist established clinicians and researchers in areas around the world who are pursuing public health research and projects focused on addressing hearing loss in older adults. Lectures are presented in modules and can be viewed on-demand. The program concludes with live small group sessions that cover epidemiology, biostatistics, clinical trials, gerontology, intervention design, health policy/economics, and select clinical topics in otolaryngology, audiology, and geriatrics.

#### Visiting Faculty Fellowship

The Cochlear Center hosts faculty from other academic institutions as <u>visiting faculty</u> 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.

Funding for Visiting Faculty is limited and is considered on a case-by-case basis depending on the availability of funds. These funds can be used to defray travel, tuition and living costs in Baltimore. Visiting faculty positions can range from just a few weeks to a year. **Student Resources** 

Office of Student Life

**Minority Student Groups** 

Diversity Summer Internship Program for Undergraduates

**Disability Support Services** 

Committee on Equity, Diversity and Civility

Campus Conversations on Diversity and Inclusion

Johns Hopkins University Resources:

**Hopkins Local** 

**Diversity Leadership Council** 

**Diversity and Inclusion** 

**OUTList** 

LGBTQ Life at JHU

Office of Multicultural Affairs

**Student Disability Initiative** 

Johns Hopkins University Office of Institutional Equity

Women and Gender Resources

Religious and Spiritual Life

Resources for Policy and Community Engagement, Service, and Communication

<u>Biomedical Scholars Association</u>: The largest student organization that supports underrepresented minority (URM) students at the <u>Johns Hopkins School of Medicine</u>, <u>School of Public Health</u>, and School of Nursing

<u>Bloomberg American Health Initiative</u>: Engaging in the Policy Process Seminar Series hosted by the Office of Public Health Practice and Training. Click <u>here</u> for link to recorded sessions.

Johns Hopkins Center for Health and Human Resources

<u>Public Health United</u>: Science Communication podcast led by students from our school.

**SOURCE** and **SPARC** 

**Urban Health Institute** 

**Student Groups** 

Bloomberg School of Public Health Student Groups:

JHSPH Student Assembly

**Current Bloomberg School Student Groups** 

**Epidemiology Student Organization** 

School of Medicine Student Groups:

The Student National Medical Association

The Latino Medical Student Association

Asian Pacific American Student Medical Association

School of Nursing Student Groups:

**Diversity & Inclusion Committee** 

**Student Organizations** 

**Trainings** 

Office of Institutional Equity (Title IX, bias, gender identity, and other MyLearning trainings)

Safe Zone Training

**University Offices** 

**Diversity at JHU** 

JHU Office of Institutional Equity

JHSPH Office of Diversity and Inclusion

Office of International Services

JHU Statement on Diversity & Inclusion

Title IX

Title IX of the Education Amendments of 1972 ("Title IX") prohibits discrimination with a basis on sex in any federally funded education program or activity. Title IX affects almost every facet of JHU.

Johns Hopkins University requires that all faculty, students, and staff complete the Title IX training. For additional information and trainings, please visit the Office of Institutional Equity site at <a href="http://oie.jhu.edu/policies-and-laws/title-ix/index.html">http://oie.jhu.edu/policies-and-laws/title-ix/index.html</a>.

Johns Hopkins Bloomberg School of Public Health Resources

Academic Calendar

Bloomberg School Editorial Style Guide

**Career Services** 

**Course Directory** 

CoursePlus

**Disability Support Services** 

**Faculty Directory** 

Financial Aid

**Hopkins Medical Book Center** 

#### JHU Office of Communications Style Guide

**Libraries** 

Office of Institutional Equity

Office of Student Life

**Records and Registration** 

**Sex Assault Response and Prevention** 

**Student Account and Business Services** 

**Student Assembly** 

**Student Assistance Program (SAP)** 

**Student Health Insurance** 

**Student Information System (SIS)** 

**University Health Services**