MSTAR MENTORS

Summer 2025

Dr. Melissa Aldridge
Dr. Claire Ankuda
Dr. Matthew Augustine
Dr. Abigail Baim-Lance
Dr. Richard Bakst
Dr. Jerry Chipuk
Dr. Samuel Cho
Dr. Stephanie Chow
Dr. Bevin Cohen
Dr. John Crary
Dr. Kavita Dharmarajan
Dr. Nicole Dubois
Dr. Leah Estrada
Dr. Alex Federman
Dr. Emily Franzosa
Dr. Laura Gelfman
Dr. Patrick Hoff
Dr. William Hung
Dr. James C. Iatridis
Dr. Fred Ko
Dr. Lihua Li
Dr. Bian Liu
Dr. Mingyang Gray
Dr. Melissa Mazor
Dr. Charles Mobbs
Dr. R. Sean Morrison
Dr. Perry Sheffield
Dr. Raj Shrivastava
Dr. Hannah Thompson
Dr. Christopher Woodrell
Dr. Carolyn Zhu

Potential Mentor	Research Interests & Potential Projects
Dr. Melissa Aldridge melissa.aldridge@mssm.edu 	Dr. Aldridge is a health services researcher whose body of work examines patterns of hospice use, transitions in care at the end of life, and the financial incentives inherent in the Medicare Hospice Benefit payment structure. Student projects could focus on a wide range of research interests in geriatrics and palliative care, particularly around end-of-life care. Our team utilizes the Medicare Current Beneficiary Survey data, which is a large, population-based dataset that is nationally representative of the US Medicare population (both fee-for-service and Medicare Advantage populations) from 2002-2020. The dataset includes information regarding an individual's demographics, socioeconomic status, clinical and functional characteristics, healthcare use and spending. Potential projects could focus on a specific sample defined by disease (cancer type, dementia, etc.), healthcare service (hospice, home health, hospital use), setting (nursing home, community, assisted living facility) or a specific time period or longitudinal trend. The research mentor is looking forward to meeting and brainstorming projects based on your interest.
Dr. Claire Ankuda claire.ankuda@mssm.edu 	Dr. Ankuda is a health services researcher who examines how Medicare payment policies and health system characteristics shape the care of older adults with serious illness and their families. She works with existing data from large national cohort studies linked to Medicare claims and is particularly interested in working with students interested in: - Hospice and home health quality and care delivery - Quality and care delivery in Medicare Advantage plans - The experience and care of older adults with dementia in rural regions Please reach out if you are interested in obtaining hands-on experience working with a large data set, including learning basic skills conducting analysis with Stata software (no experience necessary!).
Dr. Matthew Augustine matthew.augustine2@va.gov 	Dr. Augustine's research focuses on understanding and enhancing access to care through quantitative and qualitative assessment of ongoing care delivery, including for Veterans and homebound populations. Students will have opportunities to work with VA or non-VA data to evaluate access to primary care and the use of the Emergency Department for vulnerable populations, including but not limited to older adults with multi-morbidity. Students will be able to learn how to work with large datasets, use statistical programs, and apply advanced statistics.

Dr. Abigail Baim-Lance abigail.baim-lance@mssm.edu	Dr. Abigail Baim-Lance is a medical anthropologist trained implementation scientist. She uses qualitative and mixed methods approaches in her research. Her research has two focus areas: (1) to study the healthcare experiences of aging, vulnerable, and high healthcare utilizing individuals and populations with chronic complex needs, to develop strategies and systems that better meet their needs; and (2) to use implementation science to identify strategies, factors and processes to help healthcare organizations become patient-centered and patient-partnered to enable a strong, 'co-produced' healthcare system. One active project focuses on geriatrics integration into specialty care, including into HIV services for older adults.
Dr. Richard Bakst richard.bakst@mountsinai.org	Dr. Richard Bakst is a Professor of Radiation Oncology and Otolaryngology. His specific areas of focus include treatment of head and neck cancer. He is a leading expert in HPV-related head and neck cancers and offers patients novel clinical and translational protocols that allow them to optimize tumor control while minimizing treatment related morbidity. His clinical work includes treating patients at Mount Sinai's state-of-the-art proton beam center. Proton beam therapy is an emerging treatment modality showing significant promise for recurrent head and neck cancers, and his distinctive expertise in this area attracts patients from across the region. As a head and neck oncologist, he has specialized expertise in the management of cancers which invade and spread along the nerves (perineural invasion/PNI). This aggressive cancer phenotype is correlated with poor survival. He has developed specific treatment protocols for patients with PNI and received substantial extramural funding to identify novel treatment approaches for these patients.
Dr. Jerry Chipuk jerry.chipuk@mssm.edu	Dr. Chipuk studies fundamental mitochondrial biology within the perspective of human disease etiology and treatment with a focus on melanoma. His laboratory has developed multiple model systems, collaborations, and experimental tools to investigate the intersections between mitochondria, cell biology, and cancer. His laboratory's long-term goals are to provide: (1) mechanistic insights of how mitochondrial composition and shape impact on cellular metabolism and commitment to apoptosis, (2) explore how cancer-promoting pathways converge on mitochondrial function to regulate malignancy and chemotherapeutic success, and (3) to reveal novel contributions of the mitochondrial network in tissue homeostasis. Please contact Dr. Chipuk to learn more about potential projects.

Dr. Samuel Cho samuel.cho@mountsinai.org	Dr. Samuel K. Cho serves as the Chief of Spine Surgery at Mount Sinai West, Director of Spine Surgery Fellowship, and Professor in the Department Orthopaedic Surgery and Neurosurgery at the Icahn School of Medicine at Mount Sinai. The Cho Spine Lab is focused on the utilization of artificial intelligence (AI) and machine learning on big data. Recent projects include predictive analytics of clinical outcomes following spine surgery, automation of radiographic measurements based on spine imaging, development of software to aid in spine surgery. Please contact the research mentor to inquire about opportunities to get involved.
Dr. Stephanie Chow stephanie.chow@mssm.edu	Dr. Chow's research is looking to evaluate the program effectiveness of innovative models of geriatric care focusing on the highest risk older patients. The Aging , Life Innovations, Goals & Needs (ALIGN) Program at Mount Sinai is an inter-professional team of 3 clinicians (physician and nurse practitioner) , 2 social workers (social worker and care coordinator), and administrative associates, dedicated to offering intensive ambulatory care services to complex older patients at high-risk for incurring expensive health care system use. ALIGN has pilot projects investigating specific high risk older populations, such as surgery co-management, transitions in care (post-hospitalization), and cognitively impaired high utilizers of emergency room care.
Dr. Bevin Cohen bevin.cohen@mountsinai.org	Dr. Cohen is a nurse and epidemiologist whose research focuses on palliative and end-of-life care for vulnerable adults with multiple chronic conditions and infection prevention and control. Potential projects could include qualitative data collection and analysis around patients with palliative care needs, at the end of life, and who do not have decisional capacity.
Dr. John Crary john.crary@mountsinai.org	Dr. John Crary is a board-certified neuropathologist and experimental neurobiologist who leads numerous cellular and molecular studies probing fundamental mechanisms of neurodegeneration. The Crary Laboratory engages in a broad number of studies focused on neurodegeneration using human brain tissues, computational, genetic, and cellular approaches (http://www.crarylab.org/). Current projects include developing optogenetic and induced pluripotent stem cell derived organoid ("mini brain") models of Alzheimer's disease and tauopathy. The Crary laboratory is also pioneering the application of machine learning / artificial intelligence models to human brain tissues for diagnostics and to serve as endophenotypes for genome-wide association analyses.

Dr. Kavita Dharmarajan kavita.dharmarajan@mountsinai.org 	Dr. Dharmarajan's research focuses on integrating components of palliative care to align decision-making in the process of palliative radiation therapy planning for older adults. Please contact Research Mentor for project specifics.
Dr. Nicole Dubois nicole.dubois@mssm.edu 	Dr. Dubois's lab focuses on understanding human heart development and disease. The lab is using the human pluripotent stem cell (hPSC) model to investigate the cellular and molecular mechanisms of cell fate specification and disease in the early human heart. Please contact the research mentor for potential projects.
Dr. Leah Estrada leah.estrada@mssm.edu 	Dr. Estrada is a nurse scientist whose research focuses on understanding how best to provide palliative care for Latino persons with dementia, while acknowledging the heterogeneity of the population. Potential projects could include qualitative data collection and analysis around Latino persons with dementia and their caregivers' palliative care needs.
Dr. Alex Federman alex.federman@mountsinai.org 	Dr. Federman's research focuses on chronic illness self-management among older adults with complex chronic illness and on models of home-based care delivery and self-management support for high needs, high risk older adult populations. Recent projects include: 1) a randomized trial of a community health worker self-management support intervention for older adults with chronic obstructive pulmonary disease; 2) a randomized trial of home-based primary care for homebound older adults; 3) several longitudinal observational cohort studies of older adults with multimorbidity to examine self-management behaviors; 4) a study to develop automated machine learning algorithms that use voice analysis and natural language processing to screen for cognitive impairment in older adults in primary care settings. Please contact the research mentor for potential projects.

Dr. Emily Franzosa emily.franzosa@mssm.edu 	Dr. Franzosa's qualitative research focuses on supporting home health care workers and integrating them more effectively into care teams. Current projects include a study examining veterans' access to home health aide services at 5 VA sites, adapting a family caregiver support program to meet the needs of aides, and a pilot project to extend VA emergency planning resources to contracted home health agencies.
Dr. Laura Gelfman laura.gelfman@mssm.edu 	Dr. Gelfman's research focuses on enhancing access to palliative medicine for patients with heart failure and cancer. Potential projects could include evaluating quality of existing palliative care clinical models including outpatient and inpatient care across serious illness diagnoses.
Dr. Patrick Hof patrick.hof@mssm.edu 	Dr. Hof's research investigates selective neuronal vulnerability in neuropsychiatric illnesses using classical neuropathological and modern quantitative cell biology methods. Investigation of selective neuronal vulnerability in brain aging and Alzheimer's disease using multiplexing immunofluorescence approaches to quantify markers expression at the regional, laminar and cell type levels of resolution in postmortem human brain specimens. The project involves a deep dive into the fine structural antimony of the human cerebral cortex, advanced microscopy, and use of software analyses based on machine-learning tools. Work on recent and ongoing projects involves using a similar approach to characterize cellular and synaptic changes in the prefrontal and visual cortex of behaviorally characterized old macaque monkeys. This work is coupled to quantitative 3D electron microscopy analyses of synaptic alterations during aging as well as changes in axonal integrity, myelin structure, glial reaction, and changes in the microvasculature.

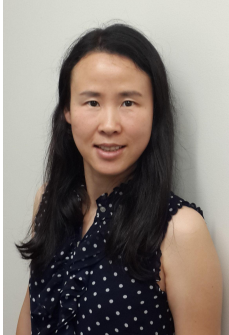|	
Dr. William Hung william.hung@mssm.edu	Dr. Hung's research focuses on geriatric models of care to improve care delivery for older adults, including the Mobile Acute Care for the Elderly Team model (MACE). Recent and ongoing projects include: Geriatrics teleconsultation and education to rural older Veterans: Virtual geriatrics project with a nationwide scope; Medication optimization and deprescribing in older veterans; Teleconsultation to home for medication reconciliation and optimization.
Dr. James C. Iatridis, PhD james.iatridis@mssm.edu	Dr. James Iatridis is Professor and Vice Chair for Research in Orthopaedics. He is a biomedical engineer trained scientist developing regenerative medicine strategies for orthopaedic disorders. His collaborative research lab applies multi-disciplinary strategies to investigate causes and treatments for spinal disorders. Spinal disorders increase in severity with aging, and his lab has two focus areas: (1) Develop regenerative medicine strategies for intervertebral disc repair, particularly annulus fibrosus defects and herniation; (2) Understand multi-factorial nature of non-specific back pain and develop improved non-operative treatments. Please contact Dr. Iatridis to learn more about potential projects.
Dr. Fred Ko fred.ko@mssm.edu	Dr. Ko's research focuses on the biology of frailty and surgery-induced stress and their intersection with adverse outcomes such as physical decline in aged organisms. He is currently PI on a study of frailty among World Trade Center (WTC) first responders. Please contact the Research Mentor for project specifics.

Dr. Lihua Li lihua.li@mountsinai.org	Dr. Li is an experienced biostatistician and health services researcher with expertise in both biostatistics and econometrics, with a focus of the development and application of innovative statistical and economic methods to study cancer and aging related diseases. Her current research includes a variety of research topics that are pertinent to patient health outcomes, healthcare utilization and associated healthcare costs, such as 1) using machine leaning methods to build a prognostic model for type 2 diabetes incidence among patients with gestational diabetes; 2) conducting simulation studies to evaluate the performance of propensity score weighting methods in the setting of survey data 3) examining the pattern of healthcare spending among high-need and high-cost patients; 4) developing innovative statistical methods to identify key morbidities for multi-outcomes among older patients. Please contact the Research Mentor for project specifics.
Dr. Bian Liu bian.liu@mountsinai.org	Dr. Bian Liu is a chronic disease epidemiologist. Her research studies the interplay between environmental exposure (e.g. air pollution, heat stress, and neighborhood factors), health behavior (e.g., smoking, diet, and technology use), and health services utilization (e.g. emergency department visits, and hospitalizations, and telehealth use) over the life course. To uncover these relationships, she applies statistical methods, geospatial analytics, and machine learning approaches to large databases, and collaborates with researchers from diverse disciplines. For examples of potential projects, please check out my PubMed profile: https://www.ncbi.nlm.nih.gov/myncbi/bian.liu.1/bibliography/public/
Dr. Mingyang Gray mingyang.gray@mountsinai.org	Dr. Mingyang Gray is an Assistant Professor of Otolaryngology – Head and Neck Surgery in the Division of Facial Plastic and Reconstructive Surgery at Mount Sinai. Her research focuses on the diagnosis and management of facial paralysis and reconstruction with collaborations in basic science and innovative initiatives to identify new treatments. Please contact the research mentor for specific projects.

Dr. Melissa Mazor melissa.mazor@mountsinai.org	Melissa Mazor is an Assistant Professor in the Department of Medicine and Assistant Director of the Tisch Cancer Institute's Community Outreach and Engagement Program. Her program of research focuses on enhancing equity in supportive oncology delivery, access, and outcomes for medically underserved women with advanced cancer. She is trained as an oncology nurse and completed clinical and research training in oncology nursing and symptom management at the University of California, San Francisco and research fellowships at New York University and the Icahn School of Medicine at Mount Sinai. She is currently funded by the National Cancer Institute and Rita and Alex Hillman foundations to study the development and evaluation of a navigator-delivered supportive care intervention for Black and Latina women with metastatic breast cancer and their family caregivers.
Dr. Charles Mobbs charles.mobbs@mssm.edu	Building on studies elucidating mechanisms linking age to age-related diseases, the Mobbs lab has developed a robust drug discovery platform which has already led to the synthesis of novel small orally active drugs to treat age-related diseases including Alzheimer's, stroke, and even COVID-19. Please contact the Research Mentor for project specifics.
Dr. R. Sean Morrison sean.morrison@mssm.edu	Dr. Morrison's current research focuses on improving the management of pain in older adults and on developing and evaluating models of palliative care delivery in hospitals and the community. Please contact the Research Mentor for project specifics.
Dr. Perry Sheffield perry.sheffield@mssm.edu	Dr. Sheffield's research focuses on threats and solutions related to climate change and human health, with a particular emphasis on vulnerable populations such as children and workers. Current projects are examining hot weather and child health in New York State and the impacts of Superstorm Sandy on a NYC-based maternal-child cohort.

Dr. Raj Shrivastava raj.shrivastava@mountsinai.org	Dr. Raj Shrivastava is a Professor of Neurosurgery and Otolaryngology (ENT) and Vice Chair for Clinical Affairs for the Department of Neurosurgery at Mount Sinai. He specializes in the diagnosis and treatment of skull base tumors, meningiomas, and pituitary tumors, and he has been active in the advancement and development of these technologies through clinical research. Please contact the research mentor for specific projects.
Dr. Hannah Thompson hannah.thompson@mssm.edu	Hannah M. Thompson, MD, MPH, is Assistant Professor in the Department of Environmental Medicine and Public Health at the Icahn School of Medicine at Mount Sinai. Dr. Thompson's expertise is in occupational medicine, and she practices at the Mount Sinai Selikoff Centers for Occupational Health, where she evaluates and treats work-related injuries and illnesses along with caring for patients enrolled in the World Trade Center Health Program.Dr. Thompson has numerous research interests including occupational cancer and frailty.
Dr. Christopher Woodrell christopher.woodrell@mssm.edu	Dr. Woodrell researches the delivery of palliative care to seriously ill patients and their families, with a focus on those facing advanced liver disease and liver cancer. His work is focused on the development of early palliative care interventions for people with hepatocellular carcinoma, the most common type of primary liver cancer, used quantitative, qualitative, and mixed methods approaches. Please contact the Research Mentor for specific projects.
Dr. Carolyn Zhu carolyn.zhu@mssm.edu	Several potential student projects include: (1) examining the natural history of cognitive and behavioral symptoms in Alzheimer's disease and related dementias using the National Alzheimer's Coordinating Center Uniform Data Set (NACC-UDS), a national database consisting of more than 40,000 participants followed approximately annually from 39 past and present NIH/NIA funded Alzheimer's Disease Centers (ADCs) with detailed, standardized clinical evaluations, genomic data, neuropathology data when available, and now MRI imaging, (2) Medication utilization patterns using Medicare Part D data in participants in the Predictors of

Severity in Alzheimer's Disease and Washington Heights-Inwood Community Aging Project (WHICAP) who were clinically diagnosed with Alzheimer's disease and related dementias compared to those without dementia, (3) systematic review of utilization of Alzheimer's Disease Cooperative Study–Activities of Daily Living Scale (ADCS-ADL) in clinical trials and studies. The first two projects requires the student to have had basic training in statistical analysis and programming.