

HMS/HSDM Joint Celebration of the

**ELEANOR AND MILES SHORE FACULTY
DEVELOPMENT AWARDS PROGRAM**

**DICP/PFDI FACULTY
FELLOWSHIP PROGRAM**

**20
23**



PROGRAM

Joseph B. Martin Conference Center
November 29, 2023
4:00 - 6:00 PM

WELCOME

Grace C. Huang, MD
Dean for Faculty Affairs

HISTORICAL PERSPECTIVE OF THE SHORE PROGRAM

Eleanor Shore, MD
Senior Consultant, Office for Clinical and Academic Affairs

HISTORICAL PERSPECTIVE OF THE DICP/PFDI PROGRAM

Joan Reede, MD
Dean for Diversity and Community Partnerships

RECOGNITION OF RECIPIENTS

CLOSING REMARKS

George Q. Daley, MD, PhD
Dean of the Faculty of Medicine



History of the Shore Program

In 1995, The Fiftieth Anniversary Program for Scholars in Medicine was established to celebrate the 50th anniversary of the admission of women to Harvard Medical School (HMS) and to acknowledge the important contributions of women to the School. As part of this celebration, a fellowship program was established to help earlier career faculty, women and men, at the point in their careers when they must teach, do research, compete for grants, publish, or practice (if a clinical faculty member) at the same time they may be assuming increased family or other responsibilities.

In 1996, recipients of the first ten awards were honored in celebration. The program was renamed in 2004 to honor the efforts of Dr. Eleanor Shore, former Dean for Faculty Affairs, and Dr. Miles Shore, Bullard Professor of Psychiatry, Emeritus, on behalf of the 50th Anniversary Program for Scholars in Medicine.

Today, the program continues to honor the Shores' pioneering efforts and lasting dedication to the development of earlier career faculty as the Eleanor and Miles Shore Faculty Development Awards Program (Shore Program). Reflecting on the 25th Anniversary of the program in 2020, we are proud of the continued support of over 60+ sponsored faculty awards each year.



History of the DICP Program

The DICP/PFDI Fellowships are awarded by the Office for Diversity Inclusion and Community Partnership and by the Harvard Catalyst Program for Diversity Inclusion, and are in collaboration with Harvard Medical School and its affiliated institutions. Established in 2009, the Fellowships support the research efforts of Harvard Medical School earlier career faculty, particularly, individuals from groups historically underrepresented in medicine, at a key moment in their career development. The fellowships provide two years of support and are designed to free the faculty members from clinical and teaching demands, allowing them to conduct individual, mentored research projects, and to participate in fellowship-related activities, with the ultimate goal of advancement within Harvard Medical School

Shore Program Recipients



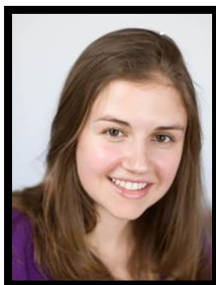
Shady M. A. Abohashem, MBBCh
Instructor in Radiology
Massachusetts General Hospital

**Massachusetts General Hospital Department of Radiology
Faculty Award**

Mentor: Michael T. Osborne, MD

Project Title: Leukopoietic-Arterial Axis Mediates the Link Between Hepatic Steatosis and Major Adverse Cardiovascular Events in Humans

Project Description: Fat accumulation in the liver causes a common condition (affecting 25-30% of the population) called hepatic steatosis (HS), linked to several adverse health effects, including a high risk of heart attacks and stroke. The mechanisms linking this condition to cardiovascular disease are not well-defined. In this project, we use advanced non-invasive imaging techniques, namely Positron Emission Tomography/Computed Tomography, to study the impact of HS on immune activity and blood vessel inflammation. We postulate high immune response and arterial inflammation in response to HS that, in turn, increase the risk of heart attacks and strokes.



Milena M. Andzelm, MD, PhD
Instructor in Neurology
Boston Children's Hospital

**Boston Children's Hospital OFD/BTREC/CTREC Faculty Career
Development Fellowship**

Mentor: Scott L. Pomeroy, MD, PhD

Project Title: Human Genetic Variation in the Central Nervous System Response to Interferon-Gamm

Project Description: Interferon-gamma (IFNg) has a critical role in a robust host defense against infection but also contribute to central nervous system pathology in neuroimmune disease. Many of these diseases are also notable for significant variability in their disease course, which suggests there may be human genetic modifiers of the neuronal response to IFNg. Using human induced pluripotent stem cell-derived excitatory neurons from many individuals, we identified expression quantitative trait loci (eQTLs) specific to IFNg treatment. Building on this work, in this proposal we will examine the neurobiological consequences of these eQTLs and compare IFNg responses between astrocytes and neurons.



Kathryn H. Bentley, PhD
Assistant Professor of Psychology
Massachusetts General Hospital

Massachusetts General Hospital Claflin Distinguished Scholar Awards

Mentor: Jordan Smoller, MD, ScD

Project Title: Integrating Clinical Suicide Risk Assessments with Machine Learning for Precision Prediction and Prevention of Suicide Attempt

Project Description: This project (entitled “Integrating Clinical Suicide Risk Assessments with Machine Learning for Precision Prediction and Prevention of Suicide Attempt”) will leverage never-before-analyzed data on suicide risk screening and assessment measures at Mass General Brigham (from > 3 million unique patient visits) with the goal of improving precision prediction and prevention of suicidal behavior. Specifically, we will determine how well routinely used suicide risk screening and assessment tools do at predicting future suicide attempts among Mass General Brigham patients, first alone and then in combination with our team’s existing, previously validated electronic health record-based suicide risk prediction machine learning model. We will also explore how clinical suicide risk assessments may be used to inform treatment optimization for behavioral health patients.



Philip M. Boone, MD, PhD
Instructor in Pediatrics
Boston Children's Hospital

Boston Children’s Hospital OFD/BTREC/CTREC Faculty Career Development Fellowship

Mentor: Michael E. Talkowski, PhD and Christopher A. Walsh, MD, PhD

Project Title: Genome misfolding in neurodevelopmental disorders

Project Description: Mutations in several genes encoding genome-organizing proteins cause prominent neuro-developmental phenotypes including Cornelia de Lange syndrome (CdLS). This insinuates that genome misfolding can cause disease. Yet, the full spectrum of alterations to genome topology, transcription, and phenotype resulting from variation in these genes is not known, and no targeted therapy exists. Dr. Boone’s work aims to create a translational pipeline integrating patient recruitment, syndrome delineation, cellular disease models, and genomic assays to define the molecular and organismal consequences – and therapeutic vulnerabilities – defining this emerging class of disease: the disorders of genome organization.



Rachel F. Buckley, PhD
Assistant Professor of Neurology
Massachusetts General Hospital

Massachusetts General Hospital Claflin Distinguished Scholar Awards

Mentor: Reisa A. Sperling, MD

Project Title: Sex differences in risk for Alzheimer's disease pathological burden

Project Description: Of all patients living with Alzheimer's disease dementia in the United States, two thirds are women. Of the two hallmark pathologies in AD, our work has shown that women are much more vulnerable to tau than men, even in midlife. While much of our work is cross-sectional, our focus in this project now turns to the question of whether sex differences can also be seen in longitudinal trajectories of tau accumulation. Answering this question will go a long way to understanding the extent to which higher levels of tau in women is an observable sex biological effect that could hold possibilities for intervention.



Julie C. Bulman, MD
Instructor in Radiology
Beth Israel Deaconess Medical Center

Beth Israel Deaconess Medical Center Department of Radiology Fellowship

Mentor: Ammar Sarwar, MBBS

Project Title: Time Driven Activity Based Costing in Interventional Radiology

Project Description: In this project, we will perform time-driven activity based costing (TDABC) for procedures done in Interventional Radiology. The 2016 SIR Foundation Research Consensus Panel called for further economics research in Interventional Radiology (IR), a minimally invasive primary specialty. TDABC is a novel method for true cost assessment and has proven effective at increasing healthcare value by identifying fixed and variable costs, recognizing bottlenecks in the care cycle, and developing sensitivity analyses to determine the most important drivers of cost. This project will employ TDABC analysis of IR procedures, allowing a better understanding of the value of IR and providing hospitals with data to improve efficiency and reduce costs.



Sharlay K. Butler, MD, MPH
Instructor in Obstetrics, Gynecology and Reproductive Biology
Brigham and Women's Hospital

Brigham and Women's Hospital Obstetrics and Gynecology Foundation Fellowship

Mentor: Khady Diouf, MD and Sigal Yawetz, MD

Project Title: Gynecologic care for persons living with HIV in a Ryan White Funded (RWF) Clinic

Project Description: Currently, the BWH HIV clinic has part D funding for care of pregnant patients and gynecologic care for low-income women. Patients are seen both at BWH and at an off-site community center. No formal pathway or referral system is in place for patients to see a gynecologist that is connected with the BWH RWF clinic. I envision offering a general gynecology clinic 1-2x's per month in the BWH HIV clinic and community site. I and other gynecologic specialists would serve to provide a broad spectrum of gynecologic services that are needed on site such as pap smears, colposcopy, vaginitis and abnormal uterine bleeding management, surgical consultations, contraception, and menopause care. There are many socially and medically complex patients served by the BWH RWF clinic and an established in-house gynecologic clinic and consultation program would improve access to gynecologic services, reduce barriers to specialty care for vulnerable patients, and provide additional gynecologic/RID education for internal medicine/primary care residents and fellows rotating through the BWH HIV clinic. There would be ample opportunity to develop interdisciplinary research/QI projects with intent to disseminate the best available evidence from our research and experience, and use that evidence to inform and improve practice and policy for gynecologic care for women living with HIV.



Margaret H. Chang, MD, PhD
Assistant Professor of Pediatrics
Boston Children's Hospital

Boston Children's Hospital OFD/BTREC/CTREC Faculty Career Development Fellowship

Mentor: Peter A. Nigrovic, MD

Project Title: Tissue resident memory T cell and stromal cell interactions in the inflamed joint

Project Description: Inflammatory arthritis is a chronic autoimmune disease of the joint punctuated by periodic arthritis flares. There is joint-specific memory in arthritis, whereby arthritis flares in previously effected joints. We showed that synovial resident memory T cells (TRM) persist in arthritic joints during remission and mediate disease flares. TRM are site-specific memory T cells that take up long-term residence in tissues and their development depends on multiple tissue-specific survival cues. This project utilizes a 3D-human synovial organoid system and murine model of arthritis that I developed to study how synovial stromal cells interact with TRM. I hypothesize that synovial stromal cells facilitate TRM activity during inflammation through secreted factors and direct cell-cell interactions and that targeting these pathways can prevent TRM formation and arthritis flare.



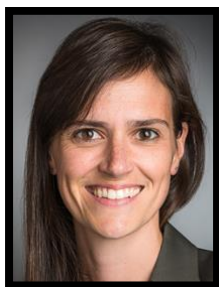
Ai Wern Chung, PhD
Instructor in Pediatrics
Boston Children's Hospital

Boston Children's Hospital OFD/BTREC/CTREC Faculty Career Development Fellowship

Mentor: P. Ellen Grant, MD and Stella Kourembanas, MD

Project Title: In congenital heart disease, does altered brain connectivity correlate with neurodevelopmental outcomes in infants and executive function in adults?

Project Description: Congenital heart disease (CHD) is the most common birth defect in the U.S. and over 50% with moderate-to-complex CHD will have cognitive deficits. With adults now outnumbering children living with CHD, an understanding of how the brain is altered earlier in life will help to identify and support those most implicated later. This project will explore altered brain MRI features that are linked to cognitive dysfunction in CHD from both a pre-operative infant and an adult cohort. Our study leverages these two unique and comprehensive multi-site data with advanced neuroimaging techniques to bridge a crucial gap in our knowledge of how prenatal, postnatal operative and environmental factors could affect brain development and longer-term cognitive outcomes in CHD. Understanding which factors most impact the brain at these life stages will give insight into when and where best to target treatments to improve patient outcome throughout the lifespan.



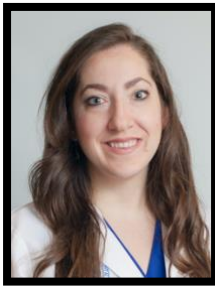
Jennifer L. Crombie, MD
Assistant Professor of Medicine
Dana-Farber Cancer Institute

Dana-Farber Cancer Institute Fellowship Award

Mentor: Philippe Armand, MD, PhD

Project Title: A phase II study of glofitamab plus polatuzumab-R-CHP for patients with high-risk diffuse large B-cell lymphoma

Project Description: This project involves a phase II trial for patients with a new diagnosis of diffuse large B-cell lymphoma (DLBCL). We are studying whether adding a novel bispecific antibody, glofitamab, to chemotherapy improves outcomes in patients with high-risk disease. We will also be measuring minimal residual disease (MRD), which can serve as a marker of response to treatment, throughout the trial. We hope we can use tools like MRD to identify which patients are most likely to benefit from this novel combination in future studies.



Bethany-Rose Daubman, MD
Assistant Professor of Medicine
Massachusetts General Hospital

Harvard Medical School Fellowship in honor of Carol K. Bates, MD

Mentor: Christine S. Ritchie, MD

Project Title: Development and Implementation of a Sustainability Curriculum for Palliative Care “Wawokiya” Community Health Workers in Great Plains Tribal Communities

Project Description: Through our team’s community-based research partnership, the Lakota people (who have some of the worst serious illness outcomes in the US) have expressed a need for palliative care, which does not exist on the reservations currently. While providing palliative care training for Community Health Workers (CHWs) on these reservations, they have expressed concern about sustainability and burnout in their role. In partnership with traditional healers, we will implement a sustainability curriculum with the hypothesis that this will increase CHW satisfaction, retention, and efficacy providing palliative care for some of the most vulnerable patients in the US.



Jaclyn Davis, MD
Instructor in Pediatrics
Boston Children's Hospital

Boston Children’s Hospital OFD/BTREC/CTREC Faculty Career Development Fellowship

Mentor: Benjamin Raby, MD and Gregory S. Sawicki, MD, PhD

Project Title: Innovative Care Delivery in Cystic Fibrosis: assessing patient perspectives on the role of telehealth and the impact of remote patient monitoring

Project Description: Telehealth has become ubiquitous over the past several years, facilitated in part by the particular pressures placed on the healthcare system during the COVID19 pandemic. Patients in our Cystic Fibrosis center described their early experiences with virtual care as convenient, useful and acceptable. Importantly, though we identified concerns around missing objective assessments, including vital signs and lung function testing. This current project has two goals: 1. We seek to understand current patient perspectives on telehealth now that care has mostly shifted back to the traditional in-person model. 2. We will study the utility and impact of home spirometry (a way to measure lung function outside of the clinic) as a form of remote patient monitoring in this population.



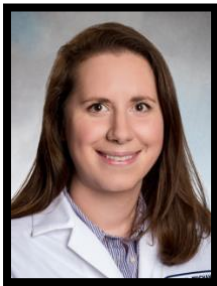
Rooma Desai, PhD
Instructor in Anaesthesia
Massachusetts General Hospital

Massachusetts General Hospital Department of Anaesthesia Fellowship

Mentor: Keith W. Miller, Dr. Phil.

Project Title: Do General Anesthetics modulate peripheral GABAA π -receptor function in cancer?

Project Description: Evidence suggests that the excision of primary tumors for cancer treatment can promote the development of metastases which is the leading cause of cancer-related mortality. General anesthetics are used to induce anesthesia during surgery to remove tumors. They act by enhancing the activity of ion channels called GABAA receptors in the brain. Recently, general anesthetics have been shown to enhance the growth and migration of breast cancer cells. GABAA receptors are also expressed in breast cancer cells. This project aims to identify the molecular mechanisms which general anesthetics can alter in breast cancer cells to promote tumor metastases.



Mia S. DeSimone, MD
Instructor in Pathology
Brigham and Women's Hospital

Brigham and Women's Hospital Department of Pathology Fellowship

Mentor: Yael K. Heher, MD

Project Title: Implementation of Quality and Safety Rounds (Morbidity and Mortality Conference or MMC) across the Mass General Brigham Enterprise Laboratory Service as a Core Component of a Pathology Quality and Patient Safety Curriculum

Project Description: While Morbidity and Mortality Conferences (MMC) have been longstanding components in clinical departments seeking to uphold the principles of transparency, patient safety, quality improvement, and education through case-based discussions, there are few examples of pathology-led MMC. The BWH Department of Pathology recently launched Quality and Safety Rounds to address this need. However, there remain opportunities for improvement and refinement. Implementing a more structured and standardized curriculum that draws on the "equity-informed high reliability organization" framework across the Mass General Brigham Enterprise Laboratory Service will have a significant impact on the quality of care delivered to all Mass General Brigham patients.



Nan R. Du, MD
Instructor in Pediatrics
Boston Children's Hospital

Boston Children's Hospital Division of Gastroenterology and Nutrition Shore Grant Fellowship

Mentor: Jocelyn Silvester, MD, PhD

Project Title: GF-NOURISH: Gluten Free Nutrition Optimization Through Ultraprocessed Food Reduction and Improved Strategies for Health

Project Description: Celiac disease (CeD) is a chronic gluten-driven enteropathy. Successful treatment of CeD requires a strict gluten-free diet(GFD). Rice, the most common gluten-free substitute grain, naturally bioaccumulates inorganic arsenic. We previously demonstrated that urine arsenic levels increased significantly in children within 6 months of CeD diagnosis. This likely is a consequence of increased ingestion of gluten-free ultra-processed free foods as they are made predominantly from rice products and easy for families to identify as safe when avoiding gluten. We aim to demonstrate the feasibility of a interventional nutritional education program focused on naturally occurring gluten-free foods and minimizing ultra-processed GF foods.



Mary E. Dubon, MD
Instructor in Physical Medicine and Rehabilitation
Spaulding Rehabilitation Hospital

Boston Children's Hospital Department of Orthopedic Surgery and Sports Medicine Award

Mentor: William Meehan III, MD

Project Title: Assessment of sports participation, sports-related injuries, and pain in children with lower limb deficiency/amputation

Project Description: Youth with acquired amputation and their families often have concerns about their quality of life after amputation. Sports participation can have a profound positive impact on the quality of lives of so many children. Our group suspects that the ability to participate in sports may be a consideration for parents and patients when coping with a new amputation or thinking about surgical options that may include amputation. Through prior clinical work, our group has seen that children with lower limb amputations can be quite active and participate fully in the sports they desire. To date, there is little literature on sports participation for youth with lower limb amputations and we are unaware of any published research with the primary objective of evaluating sports participation in this population. Similarly, there is little research on barriers/facilitators to sports participation in this population. Contralateral leg pain is a common occurrence in adults with lower limb amputation; however, to our knowledge, this has not yet been studied in youth with lower limb amputation. This is relevant to our study as pain is a potential barrier to sports participation. Understanding sports participation as well as related barriers/facilitators can help patients/families best prepare for life after amputation. Understanding contralateral lower extremity pain patterns can be an initial step towards development of preventative strategies. Overall, our research can add valuable new information to the literature that has the potential to make an impact on the quality of life of youth amputees.



Ijeoma J. Eche, PhD
Instructor in Medicine
Dana-Farber Cancer Institute

Dana-Farber Cancer Institute Fellowship Award

Mentor: Angela M. Feraco, MD

Project Title: The PERCEIVE Study: PEdiatRiC OnCology NursEs' PerspectIves as InterVENTionists

Project Description: The overall objective of the study is to explore perspectives of pediatric oncology nurses and practices relevant to roles as psychosocial interventionists for African American parents and to refine and pilot the a psychosocial survey that gauges readiness of pediatric oncology nurses to act as psychosocial interventionists.



Lauren G. Fiechtner, MD, MPH
Assistant Professor of Pediatrics
Massachusetts General Hospital

Massachusetts General Hospital Claflin Distinguished Scholar Awards

Mentor: Elsie M. Taveras, MD

Project Title: The impact of food assistance policies and food pantry use on child health and nutrition among low-income families in MA

Project Description: There is a double burden of obesity and food insecurity, which contributes to disparities. This proposal aims to address how barriers to food assistance programs can be alleviated and what food assistance polices can be leveraged to improve child diet and decrease obesity. We will conduct interviews with forty parents who utilize food pantries to explore perceptions of how food assistance policies and food pantry use affect child diet and weight status. We will leverage the Greater Boston Food Bank's, representative statewide surveys from 2020, 2021 and 2022 to evaluate COVID-related changes to SNAP on food security, diet, and health among households with children. Finally, we will use these findings to inform additional whole family measures and constructs for the 2023 and 2024 statewide food access surveys. This proposal will build on our team's collection of rich, representative data on food policies and health.



Lindsay T. Fourman, MD
Assistant Professor of Medicine
Massachusetts General Hospital

Massachusetts General Hospital Claflin Distinguished Scholar Awards

Mentor: Steven Grinspoon, MD

Project Title: Defining Metabolic Disease Risk of Perinatal HIV Exposure Without Infection in Young Adults

Project Description: Over 1 million children are born to mothers with HIV annually, the majority of whom are HIV-negative. While the maternal environment during pregnancy is important in shaping the lifelong health of offspring, long-term impacts of fetal exposure to maternal HIV infection and related inflammation during pregnancy have yet to be established. In the HIV HEREDITY study, we will prospectively evaluate long-term health outcomes among young adults with perinatal HIV exposure without infection (PHEU) versus well-matched controls without HIV exposure or infection. Specifically, we will perform broad metabolic and immune phenotyping of participants and assess for key differences between groups. Our work serves as a necessary step toward optimally predicting, preventing, and treating disease among the PHEU population. Furthermore, lessons learned in the PHEU context may have key implications for other patient populations with infectious or inflammatory exposures, including individuals born to mothers with prenatal obesity, autoimmune disease, or COVID-19.



Anna Christina Garza-Mayers, MD, PhD
Instructor in Dermatology
Massachusetts General Hospital

Massachusetts General Hospital Department of Dermatology Fellowship

Mentor: Elena B. Hawryluk, MD, PhD

Project Title: Identifying and improving gaps in the care of pediatric vitiligo

Project Description: Vitiligo is an acquired disorder of pigment loss and can be psychologically devastating, particularly in children and patients with darker skin. There is data to suggest vitiligo is associated with hearing and vision loss, but few studies have included children. Studies also suggest that a main treatment of vitiligo, narrowband UVB phototherapy, is not as commonly used in children, though it is safe and effective in adults. The goals of this project are two-fold and will evaluate screening for systemic disease as well as access to therapeutics in children, to identify and improve gaps in the longitudinal care of pediatric vitiligo.



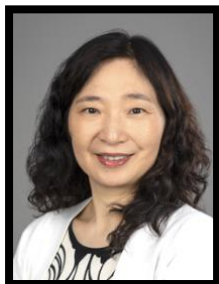
Grant D. Hogue, MD
Assistant Professor of Orthopedic Surgery
Boston Children's Hospital

Boston Children's Hospital Department of Orthopedic Surgery and Sports Medicine Award

Mentor: John B. Emans II, MD

Project Title: Prevalence of Marijuana Use and Associated Perioperative Complications in Adolescent Idiopathic Scoliosis, Periacetabular Osteotomy, and Anterior Cruciate Ligament Reconstruction: A Trio of Retrospective Studies

Project Description: This study will be the first to describe MJ use prevalence in an AIS cohort, while also reporting how MJ use negatively affects postoperative complication rate, along with other surgical AIS outcomes. Ultimately, this pilot project may be used to advocate for increased preoperative MJ testing and future prospective cannabis studies. In the short term, this data may allow practitioners to better educate their AIS patients and families about the potential effects of MJ, prior to surgical intervention.



Dan Hu, PhD
Assistant Professor of Neurology
Brigham and Women's Hospital

Brigham and Women's Hospital Faculty Career Development Award

Mentor: Howard L. Weiner, MD

Project Title: Single-Cell Multiomic Analysis of Immune Cells in Umbilical Cord Blood of Preterm Newborns

Project Description: The development of the immune system is an ongoing process that continues throughout pregnancy and after birth. However, premature birth can impede the growth and maturation of immune cells, leading to a higher risk of infections and other morbidities of prematurity. To better understand the deficiency in the development of immune cells in premature newborns, a study using single-cell RNA sequencing (scRNA-seq) and single-cell mass cytometry (CyTOF) on umbilical cord blood cells (UCBC) from early pre-term (<32 weeks gestation), late pre-term (32-37 weeks gestation), and full-term (37-41 weeks gestation) newborns will be conducted. The scRNA-seq analysis will provide gene expression information for individual cells in the UCBCs, while the advanced computational algorithms and bioinformatics tools used in the analysis will allow us to define the populations of immune cells at different gestation stages, understand cell state transitions, and uncover cellular signaling pathways and processes during these stages. Meanwhile, CyTOF will provide a high-dimensional measurement of protein expression in individual cells, including critical protein isoforms that define immune cell statuses that cannot be distinguished by scRNA-seq alone. Thus, the integration of scRNA-seq and CyTOF analysis will provide a comprehensive view of the impaired development of immune cells in premature newborns. The results of this study have the potential to be translated into clinically relevant strategies to lower the risk of infections and other common morbidities in premature newborns.



Mohammad Hussain, MD
Assistant Professor of Surgery
Brigham and Women's Hospital

Brigham and Women's Hospital Department of Surgery Junior Fellowship in honor of Robert T. Osteen, M.D.

Mentor: C. Keith Ozaki, MD

Project Title: Expansion of a Novel Prediction Tool (PREDICT-AVF) to Enhance Arteriovenous Fistula Performance

Project Description: Creation of a reliable hemodialysis access (connection between an artery and vein) is critical for the nearly one million patients living with kidney failure in the US. However, this requires a detailed understanding of the natural history of different access types and knowledge about patient-specific estimates of outcomes during various points in the lifetime of the access. Unfortunately, there are no existing data-driven tools that can accurately predict access outcomes based on individual patient and access characteristics. The purpose of this study is to develop, broaden, validate, and disseminate the interactive PREDICT-AVF tool that can accurately predict patient and access-specific outcomes by leveraging machine-learning techniques.



Khushboo Jhala, MD
Instructor in Radiology
Brigham and Women's Hospital

Brigham and Women's Hospital Department of Radiology

Mentor: Sara Durfee, MD and William Mayo-Smith, MD

Project Title: Utilizing a Formalized Approach to Network Development and Analysis for Developing a BWH Radiology Alumni Society

Project Description: Several studies have shown the power of an alumni network in strengthening brand allegiance and ambassadorship, employee mentorship and recruitment, and organization long-term value. Additionally, the strength of an alumni network has been correlated with fundraising for organizational initiatives. As each industry relies on unique skillsets, values, and goals, it is important to study an organization's network to understand how best to connect and amplify the assets of its members. Radiology specific medical alumni networks and best practices have yet to be studied. Our project will utilize a formalized approach to medical organizational network development and analysis to build a BWH radiology alumni society, with the goal to help foster professional development for current and former BWH Radiology trainees and faculty.



Tien M. Jiang, DMD
Instructor in Oral Health Policy and Epidemiology
Harvard School of Dental Medicine

Harvard School of Dental Medicine Fellowship in honor of Aina M. Auskaps, DMD

Mentor: Christine A. Riedy, PhD

Project Title: A Picture is Worth a Thousand Words: Enhancing patient oral health education and communication at the Harvard Dental Center

Project Description: At the intersection of clinical care and education, the Harvard Dental Center (HDC) is the ideal location to educate its patients around oral health. However, misinformation around oral disease and care management as well as dental anxiety create communication barriers between patients and the dental team. Furthermore, HDC's providers cannot communicate effectively without visual aids. Hence, the Oral Systemic Health Tool Kit (OSHTK), comprised of educational infographics, was established to address this problem. This project will further develop the OSHTK and involve training and evaluating the dental team in using these tools to better communicate with and educate their patients.



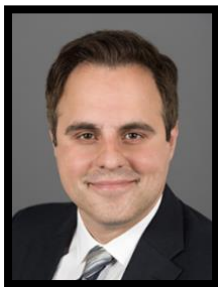
Samir M. Kendale, MD
Assistant Professor of Anaesthesia
Beth Israel Deaconess Medical Center

Beth Israel Deaconess Medical Center Department of Anaesthesia John Hedley-Whyte Research Fellowship

Mentor: Balachundhar Subramaniam, MBBS

Project Title: Cerebral Autoregulation in Non-cardiac Surgery and Relationship to Postoperative Delirium

Project Description: Most current guidelines that recommend target blood pressures do so because of the ubiquity and ease of measuring blood pressure with a cuff or a catheter in an artery. These measurements are used as surrogate estimates of blood flow at end organs, sites that have potential for harm due to inappropriate perfusion, and are extrapolated across wide population ranges. Blood flow in the brain is maintained over a range of blood pressures through cerebral autoregulation. We currently have few means to estimate blood flow in the brain during surgery. This study will aid in understanding if and how we can monitor brain blood flow during noncardiac surgery, and whether postoperative delirium is likely when the brain is not autoregulating.



Ata Kiapour, PhD
Assistant Professor of Orthopedic Surgery
Boston Children's Hospital

Boston Children's Hospital Department of Orthopedic Surgery and Sports Medicine Award

Mentor: Young-Jo Kim, MD, PhD

Project Title: A Pilot Study to Assess Hip Translation in Pathologic Hips Using 3D MRI Analysis

Project Description: We have recently developed a magnetic resonance imaging (MRI)-based protocol to quantify hip translation in 3D under a wide range of positions, using a T1-vibe sequence which has been optimized to have high resolution and wide field of view (pelvis to knee) with a very short acquisition time. Using this approach, we have shown up to 7 mm translation in asymptomatic hips. Such, substantial magnitude of translation cast doubt on the predictions of simulations platforms based on fixed hip center of rotation and no translation. Those translations may also affect the treatment plans to reduce impingement or increase hip stability through additional coverage. We have also shown that hip translation correlates with hip rotation, and hip morphology to evaluate hip impingement and instability. Using this platform, we have shown that the hip translation significantly affects the impingent risk and range of motion. To move these pilot efforts towards NIH-funded clinical observational studies, we need to collect pilot data on hip translation in a range of pathologic hips (e.g., FAI, SCFE, DDH). The funding provided by the Shore Faculty Development Grants will enable us to conduct a small pilot study (n=15) on patients with common hip pathology to collect MRI-based data on hip translation across different physiology positions, and to assess how those translations influence the risk impingement using the VirtualHip platform.



Matthias Lambert, PhD
Instructor in Pediatrics
Boston Children's Hospital

Boston Children's Hospital OFD/BTREC/CTREC Faculty Career Development Fellowship

Mentor: Louis M. Kunkel, PhD

Project Title: Understanding muscle fiber size disproportion in TPM3-related myopathy

Project Description: Muscle wasting is often associated with poor prognosis and emerging therapies remain a challenge. Dominant missense mutations in the TPM3 gene can result in a rare form of congenital myopathy known as congenital fiber type disproportion (CFTD) characterized by the selective atrophy of slow-twitch (type 1) muscle fibers and hypertrophy of fast-twitch (type 2) muscle fibers as well as general muscle weakness that substantially affects patient's quality of life. However, the mechanisms leading to fiber size disproportion are not yet fully understood. Our data suggest that different transcriptional reprogramming in slow and fast muscle fibers may differentially impact the disease severity. Our overall goal is to deconstruct the molecular mechanisms altered in both slow and fast muscle fibers in the context of TPM3-related myopathy using single-nucleus RNA sequencing in our CRISPR-based mouse model of the disease. This project will bring new insights into the pathogenesis of TPM3-related myopathy including mechanisms that may represent an explored territory for therapy.



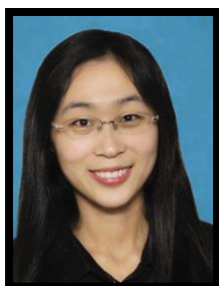
Susan Lipsett, MD
Assistant Professor of Pediatrics
Boston Children's Hospital

**Boston Children's Hospital Pediatric Emergency Medicine
Faculty Development Award**

Mentor: Mark I. Neuman, MD

Project Title: Building a Research Network to Improve Pneumonia
Diagnosis in Children

Project Description: The overarching goal of this project is to improve our understanding and care of children presenting to the emergency department with respiratory illness. First, we will merge existing research infrastructure in order to create a large ongoing prospective registry of children presenting to the emergency department with respiratory illness, allowing us to collect rich clinical, radiographic, and microbiologic data on each child. Second, we will develop and implement clinical decision support around children with suspected pneumonia, with the goal of reducing unnecessary chest radiography and antibiotic use.



Wenjie Ma, MBBS, ScD
Instructor in Medicine
Massachusetts General Hospital

**Massachusetts General Hospital Claflin Distinguished Scholar
Awards**

Mentor: Andrew T. Chan, MD, MPH

Project Title: Genetic determinants and consequences of
diverticulitis: genome-wide and phenome-wide evidence

Project Description: Diverticulitis is one of the most common gastrointestinal indications for healthcare encounters in the U.S. Diverticulitis has also been linked to multiple chronic disorders, which may arise through shared pathways or genetic influences. However, the genetic determinants of diverticulitis remain unclear. My goal is to provide an understanding of the pathogenesis of diverticulitis and its genetic associations with other complex traits using genome-wide phenome-wide association approaches within large-scale electronic health records-linked biobanks. This project will advance our understanding of novel genetic architecture of diverticulitis and inform biological mechanisms linking diverticulitis and other related disorders.



Alicia Martin, PhD
Assistant Professor of Medicine
Massachusetts General Hospital

Massachusetts General Hospital Claflin Distinguished Scholar Awards

Mentor: Mark Daly, PhD

Project Title: Elucidating drivers of health disparities from phenome- and genome-wide models of common human diseases

Project Description: To develop a framework for ensuring that all can benefit equitably from genomics research, I propose to model risk of complex diseases with pronounced health disparities across populations by integrating polygenic risk scores alongside clinical and socio-environmental risk factors that are especially likely to impact health disparities.



Colin J. McCarthy, MD
Instructor in Radiology
Beth Israel Deaconess Medical Center

Beth Israel Deaconess Medical Center Department of Radiology Fellowship

Mentor: Muneeb Ahmed, MD

Project Title: Patient satisfaction with virtual or augmented reality for anxiolysis during image-guided procedures

Project Description: This project combines shared-decision making with new technology, by incorporating immersive virtual reality as an option for anxiolysis for patients undergoing placement or removal of implantable venous access devices. With both patients and practitioners becoming increasingly aware of the negative effects of opioids, the evolution of virtual reality technology is an opportunity to offer another option for patients undergoing placement or removal of an implantable venous access device. The primary outcome will be to assess if immersive virtual reality can reduce or eliminate the need for intravenous opiates and/or anxiolytics during these procedures, compared to a usual care control group.



Kelsey A. Miller, MD
Assistant Professor of Pediatrics
Boston Children's Hospital

Boston Children's Hospital OFD/BTREC/CTREC Faculty Career Development Fellowship

Mentor: Martin Pusic, MD, PhD

Project Title: Examining Physician Development Through Emergent and Informal Collaborations with Other Health Professionals

Project Description: Workplace learning is core to health professions education. Educational research has focused on the contribution of intraprofessional interactions with more experienced physicians in developing medical trainees. However, clinical tasks often compel trainees to engage in emergent workplace interactions with other health professionals. The role of these interprofessional interactions is largely unexamined. It is critical to understand how they contribute to shaping the professional and interprofessional competencies of future physicians to equip educators to leverage the learning potential embedded in these interactions. My research program uses qualitative research methods to examine the learning processes and outcomes of informal interprofessional interactions and to understand how they vary across the developmental spectrum of medical training spanning undergraduate and graduate medical education.



Kévin Moulin, PhD
Instructor in Pediatrics
Boston Children's Hospital

Boston Children's Hospital OFD/BTREC/CTREC Faculty Career Development Fellowship

Mentor: Tal Geva, MD and Andrew J. Powell, MD

Project Title: Myocardial Microstructure in Repaired Tetralogy of Fallot Patients Using Diffusion Tensor MRI

Project Description: Tetralogy of Fallot (TOF) is the most common cyanotic congenital heart defect. Patients undergo surgical repair in infancy and have excellent short-term survival; however, they have an increased risk of heart failure later in life which is believed to be related to chronic pulmonary regurgitation and/or stenosis. Cardiac diffusion tensor imaging (cDTI) is a magnetic resonance technique that can provide a better understanding of myocardial pathophysiology in repaired TOF patients, but it is a challenging technique even in adults. We propose a new diffusion encoding strategy that will compensate for cardiac tissue acceleration and enable cDTI in the pediatric population. We will then use cDTI to study the relationship between microstructure and pulmonary regurgitation in repaired TOF subjects.



Shibani S. Mukerji, MD
Associate Professor of Neurology
Massachusetts General Hospital

Massachusetts General Hospital Claflin Distinguished Scholar Awards

Mentor: Dana Gabuzda, M.D

Project Title: Targeting the Immunomodulatory Effects of Pregnenolone and Neuroactive Steroids in People Living with HIV and Depression

Project Description: Depression is often a treatment-resistant disease in people with HIV, and current antidepressant medications do not target mechanisms specific to treated HIV-1 infection. Our lab showed that people with HIV with depression have lower levels of neuroactive steroids than those with HIV who were not depressed. She is conducting a first-in-human placebo-controlled trial to better understand the role of neuroactive steroids in depression among people with HIV. Here, she will investigate specific immune-related functions of neurosteroids after immune stimulation with Toll-like receptor agonists in human monocyte subsets.



Rumbidzai C. Mushavi, MD
Instructor in Obstetrics, Gynecology and Reproductive Biology
Massachusetts General Hospital

Dorothy Rackemann Fellowship established by the Vincent Memorial Hospital/Massachusetts General Hospital for Research in Reproductive Biology

Mentor: Adeline Boatin, MD, and Alexander Tsai, MD, PhD

Project Title: Exploring correlates and predictors of perinatal mental health conditions in low resource settings

Project Description: Perinatal mental health conditions, including depression and anxiety affect 10-20% of women worldwide and are a common complication of pregnancy and the postpartum period. These conditions are associated with adverse obstetric, maternal, fetal and neonatal health outcomes with far-reaching individual, community, and societal consequences. Perinatal mental health conditions in low resource settings remain under-researched, under-resourced, under-diagnosed and under-treated. I plan to explore the biological, social, environmental, and structural correlates and predictors for perinatal mental health disorders in low resource settings with a particular geographic emphasis on Sub-Saharan Africa.



Prathima Nandivada, MD
Assistant Professor of Surgery
Beth Israel Deaconess Medical Center

Boston Children's Hospital OFD/BTREC/CTREC Faculty Career Development Fellowship

Mentor: Steven J. Fishman, MD and Mark Puder, MD, PhD

Project Title: Tight junction mediated epithelial barrier dysfunction in Hirschsprung disease

Project Description: Despite successful reconstruction, children with Hirschsprung disease (HSCR) continue to be at risk for life-threatening enterocolitis, chronic constipation, and, in adolescence, inflammatory bowel disease. The pathogenesis of these sequelae, which are independent of ganglion cell defects, is poorly understood. Increased intestinal permeability has been proposed as a contributor to persistent constipation and enterocolitis in children with HSCR. Tight junction proteins regulate intestinal permeability, and our work has shown that children with HSCR have decreased expression of Claudin-2 and Claudin-15 at the time of surgery when compared to controls. Together with published work, these data suggest that dysregulated intestinal epithelial tight junction permeability contributes to the pathogenesis of complications in HSCR patients. The objective of this proposal is, therefore, to identify mechanisms of intestinal barrier defects in HSCR and to determine, using mouse models, the therapeutic potential of correcting these defects.



Maria F. Nardell, MD
Instructor in Medicine
Brigham and Women's Hospital

Brigham and Women's Hospital Department of Medicine Fellowship

Mentor: Ingrid T. Katz, MD

Project Title: Urban Migrant Men's Preferences for Pre-Exposure Prophylaxis (PrEP) in Johannesburg

Project Description: South Africa has one of the largest rates of migration on the African continent, largely comprised of migrant men. Migrant men are at high risk of acquiring HIV and for not engaging in HIV care. Pre-exposure prophylaxis (PrEP), a daily pill, is highly effective in preventing HIV, but migrant men face barriers to using PrEP. To decrease the HIV epidemic in South Africa, it is important to understand how to support eligible migrant men to use PrEP. The goal of this proposal is to understand which factors most influence migrant men in deciding whether or not to use PrEP.



Ruvandhi Nathavitharana, MBBS
Assistant Professor of Medicine
Beth Israel Deaconess Medical Center

Beth Israel Deaconess Medical Center Department of Medicine Fellowship

Mentor: Edward A. Nardell, MD

Project Title: Optimizing a TB stigma reduction and care engagement intervention to reduce loss to follow up

Project Description: Deaths due to tuberculosis (TB) are rising, despite it being a curable illness. Studies estimate between accessing tests and starting treatment, 25% of people with TB (PWTB) in South Africa are lost to follow up. Stigma is a major barrier to care. We will test a counseling intervention designed to reduce stigma, and identify care delivery and treatment support preferences of PWTB who are at high risk for worse outcomes using a series of surveys at an urban clinic in Cape Town. We will use the findings to develop a bundled TB care engagement intervention for larger-scale evaluation.



Krysten North, MD
Instructor in Pediatrics
Brigham and Women's Hospital

Brigham and Women's Hospital Faculty Career Development Award

Mentor: Anne S. CC Lee, MD

Project Title: Human milk composition and early child neurodevelopment in rural Bangladesh

Project Description: Early child nutrition can influence the trajectory of brain development over a lifetime. I am interested in the relationship between specific human milk components and child neurodevelopment in low- and middle-income countries. I plan to quantify the association between human milk components (macronutrients, growth factors, and oligosaccharides) and 24-month neurodevelopment in a cohort of mother-infant pairs from rural Bangladesh. I will analyze previously-collected human milk samples to determine the concentration of macronutrients, growth factors, and human milk oligosaccharides, then conduct regression analysis to determine associations between these components and child language, cognitive, and motor development at 24 months.



Weston T. Northam, MD
Instructor in Neurosurgery
Boston Children's Hospital

**Boston Children's Hospital Department of Neurosurgery
Fellowship**

Mentor: Benjamin C. Warf, MD

Project Title: Transition of care in spina bifida: bridging the
neurosurgical gap to adulthood

Project Description: Patients with spina bifida require lifelong neurosurgical care, from prenatal repair of open neural tube defects, to management of hydrocephalus in adulthood. Patients are now surviving longer than ever before, and most people living with spina bifida are adults. However, there is a lack of understanding regarding how to transition spina bifida patients successfully into adulthood, what their gaps in care are, and how to prevent missed opportunities. This project aims to establish a new model for spina bifida transition, launch a longitudinal comprehensive database, and understand how we can best serve these patients as they grow.



Isdin Oke, MD
Instructor in Ophthalmology
Boston Children's Hospital

**Boston Children's Hospital OFD/BTREC/CTREC Faculty Career
Development Fellowship**

Mentor: David G. Hunter, MD, PhD and Ann Chen Wu, MD

Project Title: Newborn Genetic Screening to Improve Equity in the
Visual Outcomes of Retinoblastoma Survivor

Project Description: Retinoblastoma is the most common type of eye cancer affecting children and is responsible for 1 in 10 cancers in the first year of life. Children from socioeconomically disadvantaged backgrounds often present with retinoblastoma at an older age with advanced disease requiring eye removal. Newborn genetic screening holds promise for early identification of retinoblastoma risk, but the impact of universal screening on the disparities in visual outcomes of retinoblastoma survivors is unknown. To explore this, a Monte Carlo microsimulation model will be developed, simulating the life trajectories of 3.7 million newborns representing the US annual birth cohort. The model will assess the cost-effectiveness of screening strategies with the primary goal of preventing eye removal and legal blindness. This framework will guide policymakers in prioritizing vision screening strategies to improve vision health equity in the US.



Giselle Perez, PhD
Assistant Professor of Psychology Psychiatry
Massachusetts General Hospital

Massachusetts General Hospital Claflin Distinguished Scholar Awards

Mentor: Elyse R. Park, PhD

Project Title: A Stress Management and Resiliency Program for Individuals Living with von Hippel Lindau (VHL)

Project Description: This study seeks to help patients diagnosed with von Hippel Lindau Disease (VHL) manage the challenges associated with their medical illness. VHL is a rare, genetic condition that causes individuals to develop several tumors and cysts throughout their body and at any point throughout their life. Living with VHL leads to multiple life challenges, including living with uncertainty, caregiving for family with VHL, or guilt for passing on the VHL gene to one's child. As a result, patients are at high risk for experiencing chronic stress, emotional distress, and lower quality of life. This distress is worsened by feelings of isolation given these patients' unique illness experience compared to others. Despite their risk, patients lack access to emotional support to help them cope with the challenges of living with VHL. To address these gaps, we propose to develop a resilience program to improve coping and quality of life among individuals with VHL. To fulfill these goals, we are working with a team of patients, families, providers, and advocates who are committed to improving the outcomes of patients with VHL.



Ahmed A. Rahman, PhD
Instructor in Surgery
Massachusetts General Hospital

Massachusetts General Hospital Department of Surgery Faculty Development Award

Mentor: Allan M Goldstein, MD

Project Title: Cholinergic immunomodulation in inflammatory bowel disease

Project Description: Understanding the mechanism by which enteric cholinergic neurons regulate intestinal inflammation is critical to the development of novel targeted therapies to treat inflammatory bowel disease (IBD). In the proposed study, we will examine the role of intrinsic cholinergic neurons in colitis and evaluate selective optogenetic activation of cholinergic neurons as a potential therapeutic strategy to reduce intestinal inflammation. To this end, we will employ a variety of in vitro methodologies and in vivo models to elucidate the effects of cholinergic neuronal signaling on muscularis macrophages, inflammatory indices, transcriptomic changes, and smooth muscle contractility and motility.



Shada A. Rouhani, MD, MPH
Assistant Professor of Emergency Medicine
Brigham and Women's Hospital

Brigham and Women's Hospital Faculty Career Development Award

Mentor: Timothy B. Erickson, MD

Project Title: Assessing Emergency, Critical, and Emergency Operative Care Capacity in Sierra Leone

Project Description: In Sierra Leone, like most low-income countries, emergency and critical care are under-developed and under-studied despite higher burdens of emergency disease. To improve care, we must first understand the current state of care and barriers to care. This project measures the capacity to deliver specific emergency, critical care, and emergency operative interventions across Sierra Leone. We will study emergency departments, medical wards, critical care units, and operating rooms in all 21 public secondary and tertiary hospitals across the country. We use a new, draft World Health Organization tool to explore the care available at multiple locations within the hospital and develop a holistic, patient-centered view of available care and barriers to care. We will analyze data by unit type and common disease pathologies to identify patterns in care availability and inform future interventions.



Rama A. Salhi, MD
Instructor in Emergency Medicine
Massachusetts General Hospital

Massachusetts General Hospital Department of Emergency Medicine Fellowship

Mentor: Margaret Samuels-Kalow, MD

Project Title: Racial bias in temporal thermometer readings among children in the Emergency Department

Project Description: Devices that allow for rapid, non-invasive measurement of vital signs are becoming more widely used in clinical spaces, including Emergency Departments. However, recently there has been increasing concern around the systematic bias by race that may be introduced with skin-based oxygen saturation methods. Though there have been studies demonstrating generalized inaccuracies in temporal thermometer measurement, none evaluate device discrepancies by race. In this study, we evaluate the degree to which systematic measurement bias by race may be introduced with the use of temporal thermometers in children presenting to the Emergency Department.



Jaime L. Schneider, MD, PhD
Instructor in Medicine
Massachusetts General Hospital

**Massachusetts General Hospital Department of Medicine
Fellowship**

Mentor: Marcia C. Haigis, PhD

Project Title: Metabolic reprogramming as a driver of resistance in oncogene-driven lung cancer

Project Description: This proposal focuses on overcoming resistance to targeted therapies in oncogene-driven lung cancer. We aim to (1) uncover unique metabolic dependencies conferred by distinct onco-genotypes, and (2) understand whether metabolic reprogramming drives resistance. This application brings together the expertise and resources of MGH and HMS to identify mechanisms of resistance based on tumor metabolic rewiring. We posit that alterations in key metabolic pathways confer vulnerabilities that may be exploited for therapeutic purposes. We anticipate these studies will uncover previously unknown metabolic liabilities that will pave the way for new therapeutic approaches for patients with lung cancer.



Eric F. Shappell, MD
Assistant Professor of Emergency Medicine
Massachusetts General Hospital

**Massachusetts General Hospital Department of Emergency
Medicine Fellowship**

Mentor: Yoon Soo Park, PhD

Project Title: Optimizing Learning in Spaced Education: Measuring the Effect of Superficial Recall on Repeated Assessment Performance with Predictive Analytics

Project Description: Despite the use of written assessments across all domains of medical education, evidence on outcomes of repeated written assessments is limited. Accurately assessing performance on repeated assessments requires disentangling the effect of superficial recall from that of true understanding, however we do not yet have tools to distinguish these effects. Using a national database, this project assesses the effect of superficial recall on performance using patterns of consistency across repeated tests. This work will inform how educators implement spaced assessments to optimize learning.



Daniel L. Shaw, MD
Instructor in Emergency Medicine
Beth Israel Deaconess Medical Center

**Beth Israel Deaconess Medical Center Department of
Emergency Medicine Research Development Award**

Mentor: David Chiu, MD

Project Title: Understanding and Optimizing a Systems Approach to Patient Transfers and Associated Crowding in an Academic Emergency Department

Project Description: Much of medical care is regionalized, with many specialty services available only at large, tertiary medical centers. However, emergency department (ED) and hospital crowding in tertiary medical centers limits patient access to specialized services in regional healthcare networks. The purpose of this project is to explore opportunities to reduce ED crowding by using bi-directional patient transfers and to identify potentially avoidable patient transfers. Building and optimizing these processes may have the potential to expand access to care and improve patient experience.



Shifal Singh, PhD
Instructor in Psychology
McLean Hospital

McLean Hospital Fellowship

Mentor: Laura T. Germine, PhD

Project Title: Characterizing mild cognitive impairment using ecological momentary assessment

Project Description: Mild cognitive impairment (MCI) is typically understood as a prodromal phase of neurodegenerative diseases, including Alzheimer's disease. Currently, MCI is clinically diagnosed using extensive neuropsychological testing that only captures a single timepoint of assessment; thus, individuals who might be experiencing subjective cognitive impairment in their daily lives, but do not demonstrate impairment on traditional neuropsychological measures, may be misdiagnosed at the time of evaluation. We propose to use ecological momentary assessment (EMA) to evaluate fluctuations in everyday cognition, particularly in individuals who report subjective cognitive impairment. This will help better characterize MCI and enable more broad data capture that can improve accessibility and precision in diagnosis. Therefore, the current proposal aims to: 1) develop and optimize a cognitive EMA battery for individuals with MCI; 2) establish validity and reliability of the cognitive EMA battery; and 3) cross-validate the cognitive EMA battery with standard neuropsychological assessments. Through this study, we can more accurately characterize MCI and improve diagnostic accuracy in a way that is more accessible than traditional neuropsychological methods.



Vibha Singhal, MBBS, ScD
Assistant Professor of Pediatrics
Massachusetts General Hospital

Massachusetts General Hospital Department of Pediatrics

Mentor: Madhusmita Misra, MBBS

Project Title: Effect of sleeve gastrectomy and anti-obesity medication use in mothers on early life adiposity and appetitive traits in infants and its determinants

Project Description: This project evaluates the impact of surgical or medical weight loss in women of reproductive age group on their offspring's weight, appetite diet intake and overall metabolism.



Hadley S. Smith, PhD
Assistant Professor of Population Medicine
Harvard Pilgrim Health Care Institute

Harvard Pilgrim Health Care Institute Department of Population Medicine's Robert H. Ebert, MD Fellowship

Mentor: Ann C. Wu, MD

Project Title: Health care utilization among families of children with genetic conditions

Project Description: Genomic sequencing is increasingly used to diagnose pediatric patients with genetic conditions, and the results may inform clinical care for both patients and their relatives. We aim to understand the value of genomic sequencing at the family level to guide clinical implementation and payment policy. To assess public attitudes and preferences regarding familial communication of genetic results and follow-up testing of patients' relatives, we will conduct a population-based survey of US adults. Additionally, we will describe clinical diagnoses, health care utilization, and spending for children and their families following pediatric genomic sequencing using health care claims data.



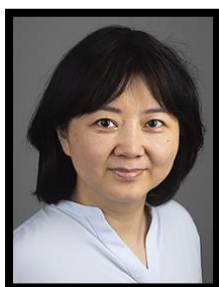
Melissa H. Spiel, DO
**Assistant Professor of Obstetrics, Gynecology and
Reproductive Biology**
Beth Israel Deaconess Medical Center

**Beth Israel Deaconess Medical Center Department of
Obstetrics and Gynecology Fellowship**

Mentor: Katharyn M. Atkins, MD

Project Title: Maternal Point-of-Care Ultrasound Curriculum for the
Obstetric Learner

Project Description: Cardiopulmonary disease and hemorrhage are major contributors to maternal morbidity and mortality. Ultrasound is the hallmark imaging modality traditionally used by obstetricians for fetal diagnosis and surveillance. With the growing complexity of the obstetrical population, acquiring skills to meet these evolving needs is a requisite step in the ongoing efforts to reduce maternal morbidity and mortality. The familiarity of ultrasound, coupled with the availability of ultrasound equipment without the need to transport the patient, make point-of-care ultrasound (POCUS) particularly valuable in the labor and delivery unit. There is a need to incorporate point of care ultrasound into learner curricula, but to date, no such curricula exist.



Yue Sun, MD, PhD
Assistant Professor of Pathology
Beth Israel Deaconess Medical Center

**Beth Israel Deaconess Medical Center Department of
Pathology Fellowship**

Mentor: Laura C. Collins, MD and Seymour Rosen, MD

Project Title: Rapid Examination of Non-Processed Renal Cell
Carcinoma using Nonlinear Microscopy

Project Description: Histology, the traditional method of examining surgical tissue, is a lengthy process involving formalin fixation, dehydration, paraffin embedding, and microtome sectioning for H&E staining. Frozen section analysis is a faster alternative, but has limitations in analyzing larger samples or fatty tissues. Nonlinear microscopy (NLM) is a fluorescence microscopy technique that can rapidly visualize fresh or fixed, non-processed tissue resembling H&E histology without the need for tissue processing. NLM has been used to evaluate various tissues, but its ability to characterize renal cell carcinoma (RCC) has not been previously examined. In this study, >150 tissue specimens will be collected from ~45-50 renal cell carcinoma (RCC) patients and evaluated using NLM, to evaluate the degree of correspondence with H&E staining for classical variants of RCC. It is anticipated that NLM will offer clinical benefits such as facilitating rapid RCC diagnosis, intraoperative evaluation of partial nephrectomy margins, rapid targeted kidney biopsy assessment, and collection of fresh tissue for molecular studies.



Michaela S. Tracy, MD
Instructor in Pediatrics
Boston Children's Hospital

Boston Children's Hospital Division of Gastroenterology and Nutrition Shore Grant Fellowship

Mentor: Hamed Khalili, MD

Project Title: Evaluating individual and neighborhood contextual risk factors for pediatric inflammatory bowel disease

Project Description: The prevalence of pediatric inflammatory bowel disease (IBD) is increasing in the United States, and newly industrialized countries are also experiencing a sharp rise in incidence of IBD. Given that the spread of IBD appears to follow the Westernization of diets and environments, there is increasing interest in better understanding modifiable risk factors to slow the spread of this disease. This project utilizes two large datasets to better understand individual and neighborhood level factors that may influence the risk of pediatric IBD.



Esra A. Turk, PhD
Assistant Professor of Pediatrics
Boston Children's Hospital

Boston Children's Hospital OFD/BTREC/CTREC Faculty Career Development Fellowship

Mentor: P. Ellen Grant, MD and Stella Kourembanas, MD

Project Title: Assessment of Placental Function before and after laser treatment in twin to twin transfusion

Project Description: Twin-to-Twin Transfusion Syndrome (TTTS) is a serious complication of twin pregnancies, affecting up to 15% of twins sharing the same placenta (monochorionic twins) with dismal outcomes without intervention. The most effective treatment of TTTS is fetoscopic laser treatment. As the diagnosis of TTTS and response to laser surgery is based on user dependent, indirect measures of placental function, more sensitive tools are needed to better understand placental function and the progression of TTTS. Our goal is to develop novel magnetic resonance imaging (MRI) approaches to directly assess placental function and correlate the findings with the birth outcome, which will ultimately help to evaluate the potential of placental functional assessment to guide surgical planning and patient management after the surgery.



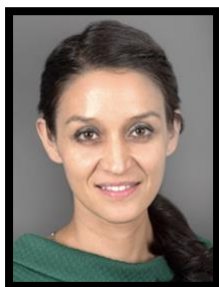
Tomotaka Ugai, MD, PhD
Instructor in Pathology
Brigham and Women's Hospital

Brigham and Women's Hospital Faculty Career Development Award

Mentor: Shuji Ogino, MD, PhD

Project Title: Integrative Pathological Analysis of Immune Cells and Microbiota into Large-scale Population Studies to Understand the Etiology of Early-onset Colorectal Cancer

Project Description: The objectives of the proposed study are 1) to characterize immune and microbial characteristics in early-onset colorectal cancer and gain more insight into the etiology, and 2) to identify prognostic immunomodulatory factors for early-onset colorectal cancer. The proposed project will provide scientific foundation to further explore possible influences of anti-tumor immunity and the gut microbiota on early-onset colorectal cancer. This project will ultimately generate strategies to harness the immune system for prevention and early detection for colorectal cancer among young adults, with significant impact on clinical practice.



Lara Wahlster, MD
Instructor in Pediatrics
Dana-Farber Cancer Institute

Boston Children's Hospital OFD/BTREC/CTREC Faculty Career Development Fellowship

Mentor: Vijay G. Sankaran, MD, PhD and David A. Williams, MD

Project Title: Mapping Genetic Predisposition to Pediatric B-Cell Acute Lymphoblastic Leukemia

Project Description: Acute lymphoblastic leukemia is the most common childhood cancer and a leading cause of non-accidental death in children. Even when cures are achieved, therapy-related morbidity remains a major concern. Therefore, early interception could significantly impact the burden of childhood cancer. Such strategies necessitate a deeper understanding of the factors that predispose to ALL. Dozens of genetic loci that increase the risk for acquiring childhood B- ALL have been identified, yet the mechanisms underlying this risk remain unknown. We hypothesize that much of this genetic variation acts by impeding normal B-cell development, thereby conferring risk for acquiring somatic mutations that can transform into B-ALL. Mapping this variation to B-lymphoid progenitors by pairing perturbation approaches with single-cell multi-omic analyses will enable us to model the functional impact of these predisposing risk variants in disease-relevant cellular states. Collectively, our work should provide mechanistic insights into the inherited influences on B-ALL risk.



Kristen Whitney, MD
Assistant Professor of Orthopedic Surgery
Boston Children's Hospital

Boston Children's Hospital Department of Orthopedic Surgery and Sports Medicine Award

Mentor: Kathryn Ackerman, MD

Project Title: Boston Marathon Prospective Study: Energy Availability, Nutrition and Hydration Behaviors, Associated with Athlete Medical and Performance Outcomes

Project Description: The present study is a prospective study on athlete energy availability, nutrition and hydration, along with associated health and performance outcomes among 1,030 Boston Marathon 2022 athletes (Female: 546, Male: 484). The study protocol involves several important aims. The first aim (publication/presentation 02/2023-06/2023) showed that problematic LEA is strikingly prevalent in the marathon athlete community, with more than 42% of female competitors and 17% of male competitors surveyed meeting validated criteria for problematic LEA, and through case/control comparison analysis, showed that those with indicators of chronic LEA/RED-S had higher risk of illness and injury requiring medical support during the race, including serious illness and injury, and demonstrated significantly worse finish time performance compared to healthy control athletes. The next key study aim, which would be supported by Shore Program Award funding 07/01/2022-06/31/2023, is a more detailed multivariate analysis of specific nutrition intake and hydration behaviors among female athletes and male athletes, including the periodization of carbohydrate, protein, and hydration intake during training, pre-event, and during the event and associated medial and performance outcomes. With over 1,000 study participants, this is the largest study performed to date to assess nutrition and hydration periodization behaviors among female and male athletes, and the first study with the ability to assess for nutrition behavior associations with in-vivo race performance and medical outcomes during an endurance athletic event.



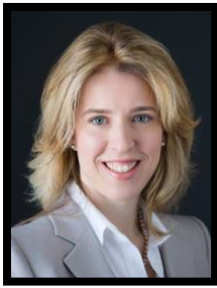
Kimberly Wiltrout, MD
Instructor in Neurology
Boston Children's Hospital

Boston Children's Hospital Department of Neurology Faculty Development Fellowship

Mentor: Annapurna Poduri, MD

Project Title: SYNGAP1 Genotype and Phenotype Analysis and EEG Biomarkers

Project Description: SYNGAP1 Related Disorder is a genetic neurodevelopmental disorder that is associated with global developmental delay, intellectual disability, epilepsy, and autism spectrum disorder. This project aims to identify genotype-phenotype relationships, clinical outcome measures, and EEG biomarkers of SYNGAP1 related disorder that may be used in future clinical trials.



Natalie Wolkow, MD
Assistant Professor of Ophthalmology
Massachusetts Eye and Ear

Massachusetts Eye and Ear Fellowship

Mentor: Anna M. Stagner, MD

Project Title: Significance of Lymphoid Aggregates in the Lacrimal Gland: Retrospective Analysis with Clinical Outcomes

Project Description: In patients with lacrimal gland enlargement it can be challenging clinically and radiographically to distinguish between normal lacrimal gland, lacrimal gland prolapse and mild dacryoadenitis. Biopsies in such scenarios can similarly yield equivocal results. Histopathologically, it can be unclear whether clusters of inflammatory cells seen are normal or pathologic. We would like to systematically examine the immune milieu in normal, equivocal, and clearly pathologic lacrimal glands in order to establish histopathologic baselines to improve patient care and clinical decision making.



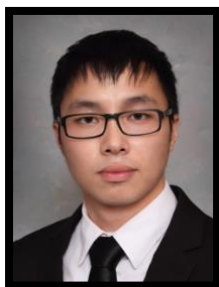
Allison Wu, MD
Assistant Professor of Pediatrics
Boston Children's Hospital

Boston Children's Hospital OFD/BTREC/CTREC Faculty Career Development Fellowship

Mentor: Scott B. Snapper, MD, PhD and Elsie M. Taveras, MD

Project Title: Intervening in Food Insecurity to Reduce and Mitigate (InFoRM) Childhood Obesity

Project Description: Childhood obesity and food insecurity are major public health threats. The objectives of this proposal are to pilot the feasibility and evaluate the implementation of a nutrition security and obesity intervention. Specifically, we aim to: 1) pilot a meal kit delivery program in families with children with food insecurity and obesity, and 2) evaluate the intervention implementation using qualitative interviews with families and providers. We have partnered with EatWell to deliver meal kits that are culturally-competent and convenient; healthy ingredients and recipes are tailored by a registered dietician. Meal kits come with fresh ingredients and step-by-step recipes with pictures and links to online cooking videos. Further, EatWell's prescription benefit model aligns patient health outcomes with insurer incentives. This research will lay the groundwork to engage families, payers, and other stakeholders to support and invest in nutrition security in children to treat and prevent obesity and other nutritional disorders.



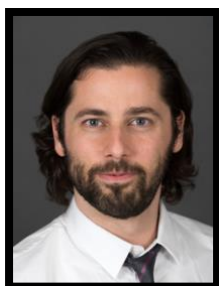
Moua Yang, PhD
Instructor in Medicine
Beth Israel Deaconess Medical Center

**Beth Israel Deaconess Medical Center Department of Medicine
Fellowship**

Mentor: Robert Flaumenhaft, MD, PhD

Project Title: Oxidative Cysteine Modification in Sickle Cell
Disease

Project Description: Sickle cell disease is a blood disorder that impacts over 100,000 Americans in the Black and Hispanic community with the cause of death due to organ failure by painful blood clots. Current treatment options are insufficient to prevent these events and is due to an insufficient understanding of the clotting process. Oxidants are generated in this condition for clotting in part by red cell sickling. Our protein of interest called PDI is important for the clotting process. We will determine if our protein is sensitive to the oxidants to promote red cell sickling and clotting in the disease.



Daniel R. Zeve, MD, PhD
Instructor in Pediatrics
Boston Children's Hospital

**Boston Children's Hospital OFD/BTREC/CTREC Faculty Career
Development Fellowship**

Mentor: David T. Breault, MD, PhD and Joel N. Hirschhorn, MD,
PhD

Project Title: The role of aging on human intestinal stem cell
function

Project Description: Aging is associated with decreased gastrointestinal function, leading to weight loss, increased transit time, and increased morbidity. We hypothesize that this is due, in part, to altered intestinal stem cell (ISC) differentiation. To address this, we employed human duodenal ISCs derived from adolescent (12-19 years) and older (65-80 years) patients to produce organoids, with preliminary studies showing ISCs from older individuals have an increased capacity to differentiate into hormone-producing enteroendocrine cells, leading to increased expression of hormones that control gastrointestinal function and appetite. To further evaluate this, we will examine the differentiation capacity of duodenal ISCs from adolescent and older individuals using qPCR, immunofluorescence, ELISAs, and SHARE-seq, which allows for single cell resolution of open chromatin and transcriptional profiles. Through this project, we hope to improve our understanding of the pathogenesis of gastrointestinal dysfunction that occurs with aging, with the long-term goal of developing treatments for appetite and motility dysregulation.



Yanjia Jason Zhang, MD, PhD
Instructor in Pediatrics
Boston Children's Hospital

Boston Children's Hospital OFD/BTREC/CTREC Faculty Career Development Fellowship

Mentor: Wayne I. Lencer, MD and Scott B. Snapper, MD, PhD

Project Title: Microbially derived lipids in a mouse model of obesity

Project Description: The incidence of pediatric obesity and its related comorbidities continue to rise. In many children, an imbalance between hunger and satiety is a key driver of obesity development. We have discovered metabolites synthesized by the gut microbiome that share high structural similarities to known pro-satiety molecules. Our research focuses on characterizing these metabolites and delineating how they activate hormone secretion that decreases hunger. We anticipate that some of these microbes and their metabolites could become therapies for treating and preventing obesity in the future.

2023 Shore Program Review Committee

Thanks are due to these individuals for their service and assistance with the growth of the awards program and their review and ranking of the proposed recipients for selection.

Raymond M. Anchan, MD, PhD, Assistant Professor of Obstetrics, Gynecology and Reproductive Biology, Brigham and Women's Hospital

Aarti Asnani, MD, Assistant Professor of Medicine, Beth Israel Deaconess Medical Center

Jodi L. Babitt, MD, Professor of Medicine, Massachusetts General Hospital

Carol K. Bates, MD, Associate Professor of Medicine, Beth Israel Deaconess Medical Center

Richard T. Born, MD, Professor of Neurobiology, Harvard Medical School

Miriam A. Bredella, MD, Professor of Radiology, Massachusetts General Hospital (former)

Julie E. Buring, ScD, Professor of Medicine, Brigham and Women's Hospital

Sunil K. Chauhan, PhD, Associate Professor of Ophthalmology, Schepens Eye Research Institute

Lindsay Frazier, MD, Professor of Pediatrics, Dana-Farber Cancer Institute

Michele R. Hacker, ScD, Associate Professor of Obstetrics, Gynecology and Reproductive Biology, Beth Israel Deaconess Medical Center

Marcia C. Haigis, PhD, Professor of Cell Biology, Harvard Medical School

Grace C. Huang, MD, Dean for Faculty Affairs, Harvard Medical School

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Mary R. Loeken, PhD, Associate Professor of Medicine,
Joslin Diabetes Center

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Diana Longden, Administrative Coordinator, The Joint Committee on
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Jonathan Matsui, PhD, Sr. Program Director for Academic Affairs, Office
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Harvard Medical School

Faculty Development Program, Office for Faculty Affairs

Carol K. Bates, MD, Associate Dean for Faculty Affairs,
Harvard Medical School (former)

Brian R. Crete, Faculty Development Program Manager

Award Honorees

Alice J. Adler, PhD

Dr. Adler was a biochemist at Schepens Eye Research Institute from 1976 to 2001. In January of 1985 she was promoted to Senior Scientist and in 2001 she became Emeritus Senior Scientist/Scientific Advisor. Her work focused on components of the retina and mechanisms of vision. Dr. Adler was the first scientist to identify retinol binding that transports Vitamin A to the space between the photoreceptors, which is needed to create rhodopsin, the visual pigment. Retinal binding also transports Vitamin A to the retinal pigment epithelial cells that store retinol and convert it to a form that the photoreceptors can use. Dr. Adler further identified xanthophyll-binding proteins in the human retina and proposed that they bind to the same site on microtubules (the latter bind taxol, a compound used to treat breast cancer). Her work included studies of age-related macular degeneration and was critical to our understanding of retinal diseases.

Aina M. Auskaps, DMD

Dr. Auskaps was the first woman to earn the degree of DMD from Harvard School of Dental Medicine in 1955. Prior to coming to Harvard, Dr. Auskaps earned a DDS degree in her home country of Latvia. She requalified in Germany in 1945. Dr. Auskaps started at HSDM conducting research in the Department of Biochemistry and Nutrition. Once her DMD degree was completed she returned to the department once again as faculty. Dr. Auskaps also served as the first woman president of the HSDM Alumni Association and received the Distinguished Alumni Award in 1983. She maintained a private family practice for 45 years out of her home in Jamaica Plain, MA. An extensive interview of Dr. Auskaps is available at the Harvard Countway Library, Archives for Diversity and Inclusion.

Carol K. Bates, MD

Dr. Carol K. Bates, a stalwart in the realms of medicine and academia, exemplifies an extraordinary career of dedication and influence. Her role as the Associate Dean for Faculty Affairs at Harvard Medical School from 2011 to 2023 underscores her extensive experience and remarkable contributions. Dr. Bates was the driving force behind the Promotions, Reappointments, and Appointments (P&R) and Longer Service Committees, which facilitated nearly 4,000 promotions to assistant and associate professor roles, highlighting her pivotal role in faculty development. With her roots as a primary care practitioner at Beth Israel Deaconess Medical Center since 1988, she brought a unique clinical perspective to promotion metrics and evaluations. Beyond her administrative duties, Dr. Bates prioritized inclusivity in recruitment processes for new faculty members and collaborated with faculty development offices across affiliated institutions. Her commitment to equity was palpable, as she led initiatives in diversity, equity, and inclusion, served as the Title IX Coordinator for HMS faculty, and was instrumental in fostering gender equity efforts nationally. Dr. Carol K. Bates' legacy extends far beyond numbers, leaving an indelible mark on faculty development, mentorship, and leadership, not only at Harvard Medical School but throughout the broader academic and medical community.

Award Honorees

Jane D. Claflin

Jane Claflin was an extraordinary benefactor and dedicated volunteer leader at Massachusetts General Hospital where she served as trustee, fund-raiser, friend, and cheerleader. She was the force behind the MGH programs that support women in their professional careers and a major reason the MGH opened a backup childcare center. The MGH met Jane Claflin in the late 1950s soon after she, her husband Morton Claflin, and their two sons moved to Boston. One of Mrs. Claflin's passions was to ensure that the MGH is a welcoming, comfortable, friendly, and supportive place for women. In 1993, she helped create the Women in Academic Medicine Committee, serving as its chair. Her work led to the formation in 1997 of the Office for Women's Careers to support, recruit, and retain women faculty members. Mrs. Claflin focused attention on the difficulty women had in sustaining research productivity during their child-rearing years, which too often limited career advancement. The MGH's Executive Committee on Research responded to the call by establishing funding for junior women faculty to help them through this critical period. The awards were named the Claflin Distinguished Scholar Awards in honor of their greatest champion.

Robert H. Ebert, MD, DPhil, AM

As Dean of Harvard Medical School from 1965 to 1977, Dr. Ebert increased recruitment and enrollment of minority students, established affiliations between HMS teaching hospitals and neighborhood health centers, and created the Division of Health Sciences and Technology, a combined MD-PhD program run collaboratively by MIT and HMS. In 1969, he founded Harvard Community Health Plan, the nation's first academic health maintenance organization. After earning his medical degree from the University of Chicago, he served as a Marine Corps physician, and was one of the American doctors who went to Nagasaki to treat Japanese suffering from radiation sickness and related illnesses after the United States dropped an atomic bomb on that city. Upon his return from the war, Dr. Ebert taught at the University of Chicago. In 1964, he was recruited to Boston to serve as Chief of Medical Services at Massachusetts General Hospital. A year later, he was selected to lead Harvard Medical School. After stepping down as dean of HMS, Dr. Ebert became president of the Milbank Memorial Fund, a foundation that supports projects in medicine and health. In 1992, he helped establish the HMS/Harvard Community Health Plan Department of Ambulatory Care and Prevention as a joint project between the school and the HMO.

Robert T. Osteen, MD

Dr. Osteen is an associate professor of surgery at Harvard Medical School and spent over 30 years at Brigham and Women's Hospital, retiring as a senior surgeon in 2006. Throughout his distinguished career as a prominent surgical oncologist, Dr. Osteen received numerous prizes for excellence in teaching. At the Brigham he oversaw the Department of Surgery education program, chaired the hospital's Cancer Committee, and acted as the Cancer Liaison Physician to the Commission on Cancer of the American College of Surgeons. He contributed to the development of several clinical programs, including the Dana-Farber Cancer Institute's Autologous Bone Marrow Transplant Program, a program for breast conserving surgery, and techniques for implantation and chemotherapy administration through an intra-arterial infusion pump. Through the Commission on Cancer, he helped to develop a National Cancer Database that collects information from approximately 75% of the patients with cancer throughout the United States annually.

Award Honorees

Dorothy Rackemann

At Harvard Medical School, Dorothy Rackemann (1918-1996) was the Administrative Assistant to the Dean from 1968 to 1978 and the Assistant Registrar from 1978 to 1991. She also held key roles in both the Vincent Memorial Hospital and The Vincent Club. The former, a free-standing hospital for women established in Boston in 1891, was the precursor of the Vincent Department of Obstetrics & Gynecology at Massachusetts General Hospital. The Vincent Club, founded a year later, remains the fundraising arm of the Vincent organization. Miss Rackemann, as she was known—and “Dodie” as she preferred—served as both President of The Vincent Club and President of the Vincent Memorial Hospital Board of Trustees. Active at the Vincent for more than 50 years, she was described as a “tremendous force in nurturing, clarifying and strengthening the ties between the Vincent and the Massachusetts General Hospital.”

Eleanor G. Shore, MD, MPH

Dr. Eleanor G. Shore served as the Dean for Faculty Affairs at Harvard Medical School from 1989 to 2005 and has since served as Senior Consultant to the Office of Academic and Clinical Affairs. She trained at Harvard Medical School during the postwar “experimental” era, between 1945 and 1955, when women were admitted on a trial basis. She worked as a primary care physician at the Harvard University Health Services for many years. She served as Assistant to the President of Harvard University for Health Affairs for 8 years during Derek Bok’s term as president. Later she served as Deputy Director of the Harvard Medical School Center of Excellence in Women’s Health. In 1995 in her role as Dean, she launched the 50th Anniversary Fellowship Program for Scholars in Medicine, which commemorates the admission of women to Harvard Medical School; the program was renamed to honor Drs. Eleanor and Miles Shore in 2004. In 2001, the Association of American Medical Colleges awarded Dr. Shore the History Maker Award for her work to make medical career structures more equitable. Dr. Shore has generously made personal donations to the fellowship program on a nearly annual basis since the start of the program.

Miles F. Shore, MD

Dr. Miles F. Shore, Bullard Professor of Psychiatry, Emeritus was Superintendent and Chief of the HMS Department of Psychiatry at the Massachusetts Mental Health Center from 1975 to 1993. In that role he was responsible for a comprehensive program of research, teaching, and patient care focusing on patients with serious mental illnesses cared for by the public sector. A system of care was developed featuring community programs to replace inpatient care in large institutions. He was a Visiting Scholar at Harvard Kennedy School, teaching courses on the history of mental health policy, leadership, and health policy for physicians. For twelve years he chaired the Promotion and Review Board assessing the progress of HMS students in successfully completing the MD degree.

**DICP/PFDI
Program
Recipients**



Jessica Addison, MD, MPH
Instructor in Pediatrics
Boston Children's Hospital

**Office for Diversity Inclusion and Community Partnership (DICP)
Faculty Fellowship**

Mentor: Sabra Katz-Wise, PhD

Project Title: Retention of Care in Adolescents and Young Adults Living With Who Are Engaged in a Multidisciplinary Healthcare Program

Project Description: Adolescents and young adults (AYA) living with HIV experience significant challenges to engagement in healthcare. This population is known to have lower rates of retention in care compared to their adult counterparts, resulting in poor adherence to antiretroviral therapy, and ultimately, higher viral load and lower CD4 counts that negatively impact their health. Understanding constraints and barriers to care through the lens of AYA living with HIV is vital to improving access to care and can inform future interventions to address barriers to adherence. To reduce barriers to care, the Boston HAPPENS [Human immunodeficiency virus (HIV) Adolescent Provider and Peer Education Network for Services] offers an open access, multi-disciplinary approach to caring for AYA living with HIV. The purpose of this study is to determine if this multi-disciplinary care approach keeps adolescents and young adults (AYA) living with HIV engaged in care. Our specific aims are to **1) Understand experiences of healthcare engagement and retention, including facilitators and barriers, from the perspectives of AYA living with HIV, and 2) Determine if a patient's health status improves when engaged with a multi-disciplinary care team.** To address Aim 1, we will conduct semi-structured qualitative interviews with AYA living with HIV who are engaged in care with the Boston HAPPENS program. To address Aim 2, we will analyze objective measures to determine whether a patient's health status has improved since engaging in care with the Boston HAPPENS program. A chart review will be performed on all Boston HAPPENS patients from 2017-2022.



Azeesat O. Babajide, MD, MBA
Instructor in Psychiatry
Cambridge Health Alliance

**Office for Diversity Inclusion and Community Partnership (DICP)
Faculty Fellowship**

Mentor: Nicholas Carson, MD and Benjamin Le Cook, PhD

Project Title: Identifying Barriers and Facilitators to Mental Health Care Transitions for Young Adults in a Safety Net System

Project Description: Project Description: Young adults (18-25 years) often fall out of mental health (MH) care as they transition into adulthood and are less likely to engage in MH care compared to other age groups despite higher rates of mental illness. This treatment gap is worse for racial, ethnic, and linguistic (REL) minorities. Few services exist to support youth with these MH care transitions, and even fewer focus on the needs of REL minority youth in public healthcare settings. Clinical entities serving minority youth, particularly community health systems, require strategies for using electronic medical record (EMR) data to provide insight into MH care use and to inform interventions that target those at highest risk of failure to transition. This mixed methods research project seeks to 1) use EMR data to assess MH care use and transition rates as patients enter adulthood, 2) examine predictors of MH care follow-up and transition to adult services among REL minority young adults compared to White young adults, and 3) understand barriers and facilitators to MH care engagement and transition using semi-structured qualitative interviews. The outcomes of this research will expand understanding of MH care transitions for REL youth in a community health system and lay the groundwork for the translation of these methods for use in other health systems. All three aims will provide insight into barriers to transition and support the development of an intervention targeting youth transition.



Malika Boudries, PhD
Assistant Professor of Medicine
Beth Israel Deaconess Medical Center

Office for Diversity Inclusion and Community Partnership (DICP)
Faculty Fellowship

Mentor: Omar K. Siddiqi, MD, MPH

Project Title: HIVEpi-Lat: Longitudinal Profiling of the Genomics and Epigenetics Features of SIV Integration Site in ART suppressed rhesus macaques at the single cell level

Project Description: In this project, we will implement a new computational tool for multi-level profiling of SIV integration and host interaction. We will employ a multi-omics TEA-Seq approach, combined with integration site profiling of SIV latent cells in SIV-infected-ART suppressed macaques at the single cell level. Longitudinal samples from SIVmac251-infected, ART-suppressed macaques were obtained from an archived study at baseline, week 0, weeks 4, 72, and 136 on ART suppression. PBMCs, LNMCs, and plasma samples were collected from all animals at the specified time points. We plan to implement a mathematical model to establish a multi-level association network between integration sites, proviral sequences, and the epigenetic and plasma features associated with transcriptionally active or latent infected cells. By capturing the complex relationships among different layers of the generated data, these models will not only reveal the factors governing proviral integration but also help to elucidate the role of various genomic and epigenetic features in the persistence and survival of SIV-infected cells during ART suppression. By leveraging the power of multi-omics profiling, proviral integration, and advanced analytical techniques, this proposal aims to address the critical questions surrounding HIV latency and integration and pave the way for groundbreaking advancements in HIV research and therapy. If validated in humans, our work will provide invaluable insights into the complex dynamics of HIV latency and pave the way for novel therapeutic strategies.



Medina Jackson-Browne, PhD, MPH, MS
Member of the Faculty in Pediatrics
Boston Children's Hospital

Office for Diversity Inclusion and Community Partnership (DICP)
Faculty Fellowship

Mentor: Wanda Phipitanakul, MD

Project Title: Associations between Perfluoroalkyl Substances (PFAS) Exposure and Aeroallergen Sensitization among Infants at High-Risk for Developing Asthma

Project Description: We propose evaluating the extent to which PFAS exposure plays a role in aeroallergen sensitization, a known precursor to asthma development. The proposed study population will be approximately 200 children aged 24, and up to 47 months of age who are at high risk for asthma enrolled in the on-going NIH-funded pediatric clinical trial (PARK). Perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) are PFAS almost universally detected in the serum of pregnant women and neonates worldwide. Serum PFOA and PFOS concentrations will be quantified from children serum samples and aeroallergen sensitization status will be assessed by allergen skin testing at the PARK clinical centers. Additionally, the PARK clinical trial will have biomarkers of immune function and other subclinical outcomes measures from urine and serum samples, medical history from questionnaires, and other extensive clinical and medical data including anthropometrics and medical/healthcare utilization measures. Using the baseline data, we propose to: 1. Evaluate the cross-sectional associations of PFAS with aeroallergen sensitization and other asthma development risk factors in high-risk infants. We will explore whether PFAS exposure are associated with allergen skin prick test results and other secondary subclinical outcomes (e.g., biomarkers of immune function, hypersensitivity biomarkers). We will adjust for sociodemographic and allergic disease risk factors. 2. We will also evaluate effect modification and potential mediators of the associations in Aim 1. Priority modifiers and mediators will include sex, race/ethnicity, home environment, and other chemical exposures.



Juan D. Matute, MD
Instructor in Pediatrics
Massachusetts General Hospital

**Office for Diversity Inclusion and Community Partnership (DICP)
Faculty Fellowship**

Mentor: Richard Blumberg, MD and Alessio Fasano, MD

Project Title: Gut Intelectin-1 protects from Obesity

Project Description: Obesity is a complex condition influenced by both genetic factors and the environment, starting early in life. However, we still have limited understanding of how specific genetic variations contribute to obesity and how they can be targeted for therapeutic interventions. Our project focuses on the role of a genetic factor called Intelectin-1, which has been linked to obesity and type 2 diabetes. Intelectin-1 is a protein produced by cells in the intestines and has been found to bind to certain molecules present in bacteria. Interestingly, we have observed that levels of Intelectin-1 are reduced in individuals with obesity and diabetes. In mouse studies, we have also discovered that Intelectin-1 in the gut can protect against obesity. While previous research on Intelectin-1 in the pathophysiology of obesity has primarily focused on the direct effects of Intelectin-1 on the hypothalamus and visceral fat, we aim to investigate its protective role in obesity through the gastrointestinal tract. By using transgenic mice and studying human samples, we seek to unravel how Intelectin-1 in the intestines can influence obesity susceptibility. Understanding how Intelectin-1 acts in the gut may provide valuable insights for developing novel strategies to prevent and treat obesity. Our research has the potential to contribute to the development of innovative approaches to modulate obesity risk factors. By bridging the gap between genetic associations and therapeutic interventions, we hope to make a meaningful impact on the fight against obesity.



George Molina, MD, MPH
Assistant Professor of Surgery
Brigham and Women's Hospital

**Office for Diversity Inclusion and Community Partnership (DICP)
Faculty Fellowship**

Mentor: Quoc-Dien Trinh, MD

Project Title: Improving Survival among Patients with Colorectal Liver Metastasis by Using a Regional and Hospital System-level Approach to Improve Equitable access to Liver Surgery

Project Description: The overall objective of the project is to determine modifiable regional and hospital system-level drivers of variation in access to liver surgery for colorectal liver metastasis (CRLM) by characterizing these drivers for a group of complex gastrointestinal cancers (CRLM, pancreatic cancer, and gastric cancer). The central hypothesis is that a regional and hospital system-level understanding is needed to address variation in resources and systems and thus improve survival for patients with CRLM. This project addresses variation in undergoing a liver surgical resection for CRLM, despite significant survival benefit in undergoing a liver metastasectomy. Additionally, variation in access to a liver surgical resection for CRLM is a significant problem because it disproportionately impacts patients who have been historically underserved. I will address the following specific aims: (1) Characterize the source and uncover the pattern of variation in surgical treatment for this group of cancers across health service areas in the US; (2) Design a comparative case study to describe predictive regional factors that are common among this group of cancers and are associated with access to surgery. The findings from this study could improve survival for all patients with CRLM, regardless of race or place of residence, by improving access to and reducing regional disparities in surgery for CRLM.



Diana M. Lopez, MD
Instructor in Medicine
Brigham and Women's Hospital

Harvard Catalyst Program for Diversity Inclusion (PFDI) Fellowship

Mentor: Ron Blankstein, MD and Marcelo D. Di Carli, MD

Project Title: The Impact of PCSK9-Inhibition on Myocardial Flow Reserve (EMPOWER Study)

Project Description: Diffuse non-obstructive atherosclerosis and coronary microcirculatory dysfunction (CMD) are prevalent in patients with cardiovascular disease and consistently identify patients at increased risk for adverse outcomes, even in the absence of obstructive CAD. These abnormalities throughout the coronary vasculature are closely inter-related manifestations of atherosclerosis that have been linked to systemic inflammation. Positron Emission Tomography (PET) myocardial flow reserve (MFR) is a robust and reproducible imaging biomarker that integrates the hemodynamic effects of atherosclerosis across the entire coronary circulation and has been shown to predict outcomes, including higher rates of cardiovascular (CV) death. PCSK9 inhibitors are powerful agents that promote epicardial plaque regression and reduce the risk of CV events, but studies are needed to evaluate their effect on the coronary microvasculature and their potential anti-inflammatory effect on atherosclerosis. The investigator-initiated mechanistic clinical trial, "**The Impact of PCSK-9 Inhibition on Myocardial Flow Reserve (EMPOWER study)**" will enroll 50 participants to assess whether PCSK-9 inhibition for 12 months with Evolocumab improves PET MFR, and if so whether this effect is independent of changes in epicardial plaque and partially mediated by a reduction in inflammation. The findings of this study will provide novel and important insights into the comprehensive effects of Evolocumab on tissue perfusion, endothelial function, and microvascular function in a high-risk population. As such, these data would serve to address a critical gap in the identification of medical therapies that improve microvascular function and can thus target the residual risk of future cardiac events in patients with stable CAD.



Matthew F. Yuyun, MD, MPhil, PhD
Assistant Professor of Medicine
Brigham and Women's Hospital

Harvard Catalyst Program for Diversity Inclusion (PFDI) Fellowship

Mentor: Jacob Joseph, MBBS, MD, Scott Kinlay, MBBS, PhD and Jagmeet P. Singh, MD, PhD

Project Title: Cardiac Arrhythmias in Heart Failure with Preserved Ejection Fraction: The Burden and Impact on Cardiovascular Morbidity and Mortality

Project Description: The worldwide burden of heart failure continues to grow with a global prevalence estimated at 64.3 million. Heart failure with preserved ejection fraction (HFpEF) represents approximately 50% of all heart failure patients, with a very poor median survival of 2 years and 5-year mortality of ~75%. The burden and impact of cardiac arrhythmias in HFpEF remains unknown but probably high. It is known that sudden cardiac death (SCD) accounts for 25-30% of total deaths in HFpEF patients, but the mechanism of SCD remains undetermined (?arrhythmic). Death and hospitalizations resulting from arrhythmias is a promising target for therapeutic interventions once the specific arrhythmic mechanisms are known. The **overall objective** of the proposed project is to determine the burden and impact of arrhythmias in HFpEF. The **specific aims** of the study project will be as follows: **Aim 1: To determine the burden of arrhythmias in patients with HFpEF in comparison to patients without heart failure.** I will compare prevalence and incidence of arrhythmias in veterans with HFpEF with a control group of veterans without heart failure. **Aim 2: To determine the impact of cardiac arrhythmias on morbidity and mortality in HFpEF.** I will determine the hazard ratios of these outcomes in HFpEF patients with arrhythmias compared to those without. **Methods:** This study will be conducted using a cohort study design in veterans ≥ 18 years of age with HFpEF (exposed group) and a matched control group without heart failure (unexposed group), derived from national VA databases in the time period 2006-2022.

2023 DICP/PFDI Review Committee

Thanks are due to these individuals for their service and assistance with the growth of the awards program and their review and ranking of the proposed recipients for selection.

Edward J. Benz, MD, Richard and Susan Smith Distinguished Professor of Medicine, Dana-Farber Cancer Institute

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Paul R. Conlin, MD, Professor of Medicine, Veterans Affairs Boston Healthcare System

William T. Curry, Jr., MD, Adeline Rose Wydotis Professor of Neurosurgery, Massachusetts General Hospital

Sunil Eappen, MD, Associate Professor of Anaesthesia, Brigham and Women's Hospital (former)

S. Jean Emans, MD, Mary Ellen Avery Professor of Pediatrics, Emerita, Boston Children's Hospital

Carlos R. Estrada, Jr., MD, Alan B. Retik Associate Professor of Surgery in the Field of Pediatric Urology, Boston Children's Hospital

Stephen C. Harrison, PhD, Giovanni Armenise - Harvard Professor of Basic Biomedical Science, Harvard Medical School

Galen V. Henderson, MD, Assistant Professor of Neurology, Brigham and Women's Hospital

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Joan Reede, MD, Dean for Diversity and Community Partnership,
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Seward B. Rutkove, MD, Nancy Lurie Marks Professor of Neurology,
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Cyongi Szabo, MD, PhD, Professor of Medicine,
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Valerie L. Ward, MD, Assistant Professor of Radiology,
Boston Children's Hospital

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for their unwavering support
of these awards.

